

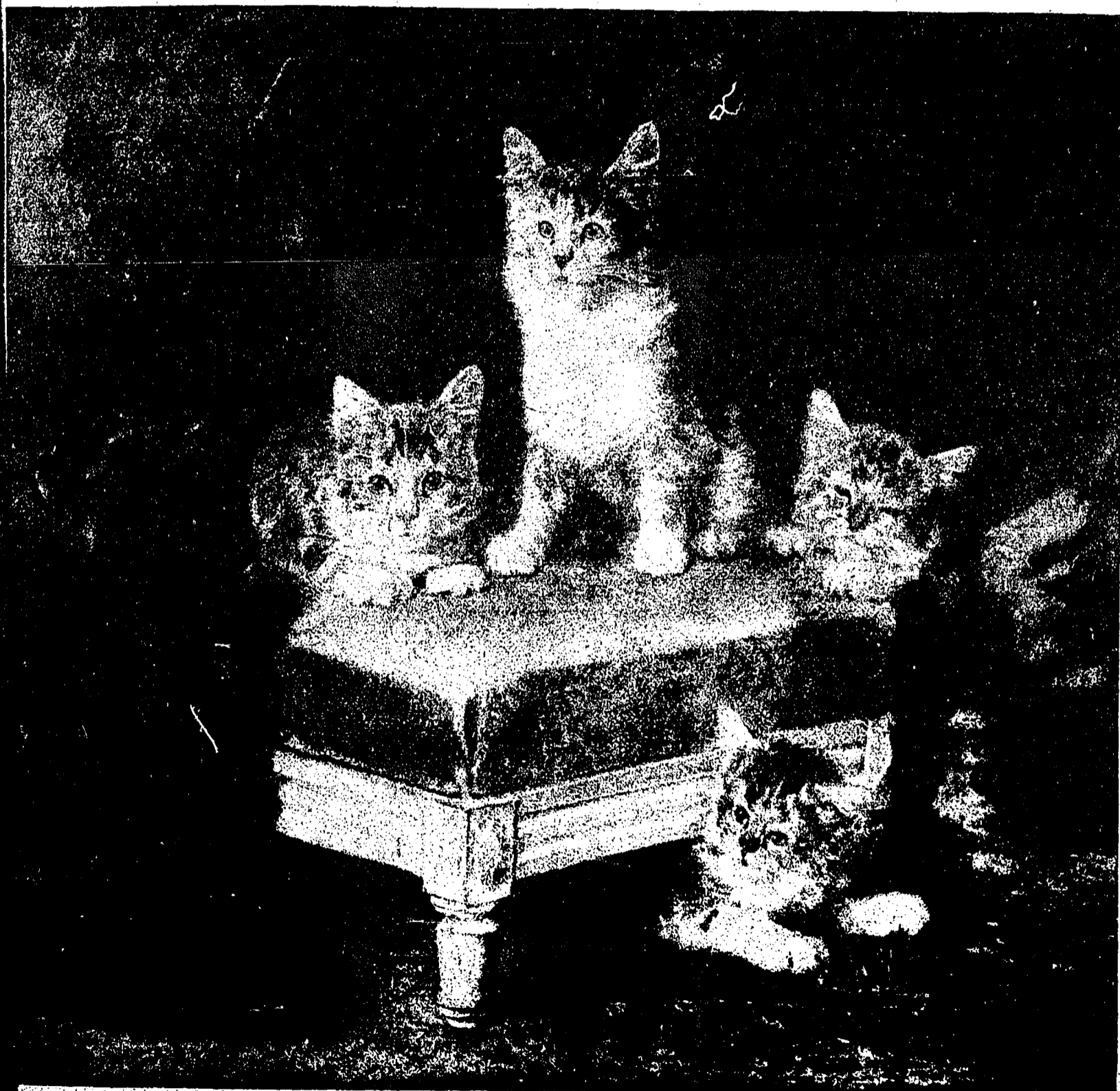
• Massey's Illustrated •

(PUBLISHED MONTHLY.)

Mid-Winter Number

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Toronto, February, 1893.



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✻ Massey-Harris Wide-Open Binder. ✻

A GENUINE STEEL MACHINE.

So popular has the term "steel machine" become that we find it used in instances where it would be charitable to say it was "misapplied." Machines in which gas or other piping, common iron, and even a large percentage of wood enters the construction are all called "steel machines." Not so with the Massey-Harris Binder, for it is built of "steel" that is steel. The entire frame work, including Elevator Sides, Truss Rods and Braces, are of solid steel—and that, too, largely of angle steel, the strongest form known for agricultural machine construction. The wearing parts, Drive Wheel, parts of Knotter, cutting apparatus and Shafting, are of steel—the Shafting being the celebrated Cold Rolled Steel. The Flat Springs are made of the highest grade of steel, and the Coil Springs are made from the finest imported Swedish wire. The Elevator Side is of sheet steel. The Massey-Harris is a solid steel machine.

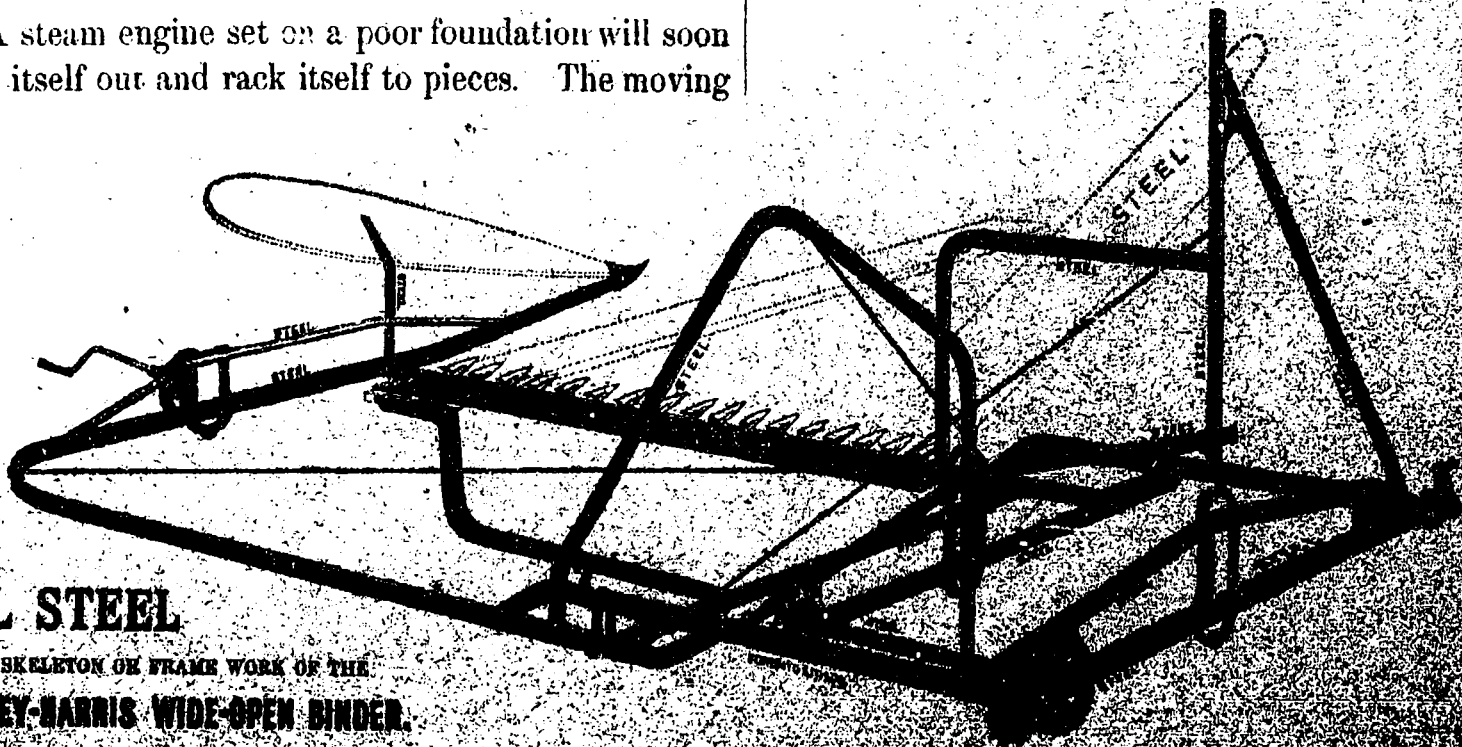
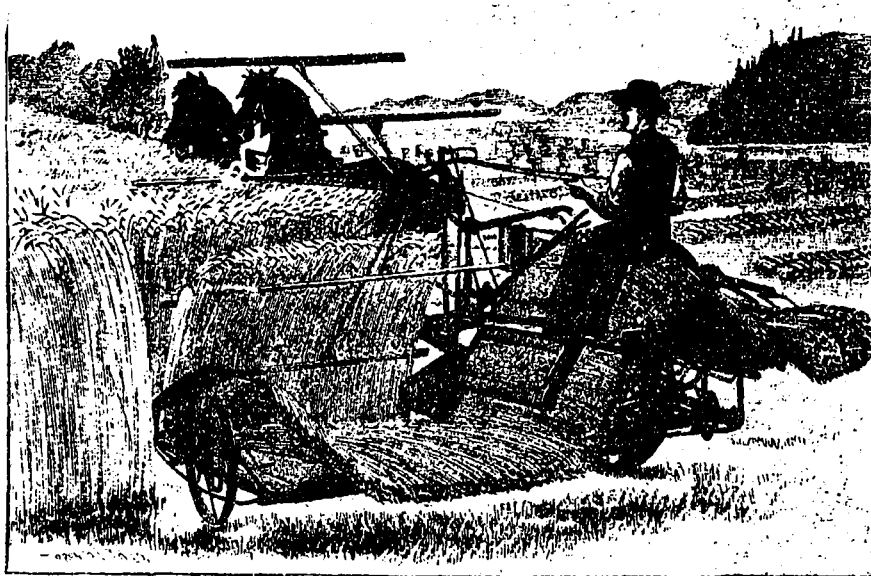
LONG LIFE ASSURED.

A steam engine set on a poor foundation will soon wear itself out and rack itself to pieces. The moving

parts of a Self-Binder, which have to bear correct and accurate relationship with one another in order to attain smooth, even working, will soon give trouble and wear out, if the frame work upon which they rest gives way or warps or twists out of shape. Hence, to secure a solid and substantial foundation or frame work has been the constant effort of binder manufac-

turers, and because of their ill success in this line many machines have been entire failures. A Self-Binder has to be strong and stiff enough to admit of being hauled about over rough land, amongst stumps and stones—a test of the greatest severity—without jolting or twisting out of shape. The strongest

construction known is solid steel angles well trussed. A Binder frame of angle steel, properly constructed (our methods are patented), will ensure a solid foundation and the moving parts built up on such a frame work will remain in perfect alignment and correct relationship, thus insuring long life.



ALL STEEL

SKELTON OR FRAME WORK OF THE
MASSEY-HARRIS WIDE-OPEN BINDER.

Massey-Harris Co. Ltd. Toronto

• Massey's Illustrated •

(PUBLISHED MONTHLY.)

A Journal of News and Literature for Royal Homes

NEW SERIES.]

TORONTO, CANADA, FEBRUARY, 1893.

[Vol. 5, No. 2.]

The Woman in Black.

Travelling recently from Chicago to New York, I found one morning, upon crawling out my berth, that the train was standing stock-still. The porter told me it had been standing that way for an hour and a half, while I had been sleeping the sleep of the just.

"Freight train done wopped up on de track ahead," said the porter. "I reckon we don't get out o' here under anudder hour or two."

I dressed and peeped out, and saw we were alongside the platform of a country station. I took a good breakfast in the dining car, and

then went out to stroll up and down the platform.

Presently I went to the locomotive, and stopped to admire it. There is nothing much better to look at, for that matter, than the locomotive of one of these through express trains on the great trunk lines. How it throbs as it stands, straining with pent-up power, as if impatient to leap away at fearful speed!

This one was hissing fiercely, while the measured thud of the air-pump sounded as if it might be the regular breathing of a sleeping giant.

In the cab sat the engineer alone, waiting. I stopped and gossiped with him a moment about the engine. Then I offered him a cigar, which he took with thanks, and asked me to come in. I swung myself into his cab.

The engineer—a bright, pleasant faced man about forty years old—explained to me the uses of the numerous valves and levers about him. They were all as bright and shining as polish could make them, for an engineer is as proud of his engine as any housewife is of the neatness of her dwelling. I glanced at the two shining steam-gages with the clock between them, and then I noticed what seemed to be an ordinary white moth, mounted in a gilt frame, hanging against the wall of the cab.

"Is that for ornament?" I asked, pointing at the moth.

The engineer smiled. "Well, partly for ornament," he said, "but a good deal more for sentiment. I put that moth there because it saved my life, and that of two hundred and fifty people as well."



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cut,
the general
specially to bar-
'ey,' says he, 'when
cut down more early.
having a brittle stalk,
to defend it, quick-

"How in the world could an insect save human lives?" I asked.

"Well, I'll tell you if you want to hear the story. I reckon there's time enough before we are able to get out of this."

I settled myself in the absent fireman's seat, and prepared to listen.

"It wasn't such a long time ago," said the engineer; "only a year ago last spring. I was running this very train, and had this very engine—old 419. My fireman was Jim Meade—same fellow I've got now. You can see him over there, leaning up against the telegraph office."

"Jim's a good boy, but he is very superstitious; believes in ghosts, dreams and warnings. I used to laugh at his fancies, but I don't make as much fun of him as I did—not since we saw the Woman in Black."

"We were scheduled to leave M— about one o'clock in the morning, and to arrive in S— about six. On the night when this thing took place a fearful storm of wind and rain had been raging since early evening, and was at its height when I started for the roundhouse."

"It was about midnight, and the wind seemed to sweep clear around and through the building. It was terribly dismal. Jim was there, and the engine was all ready, so after getting my working clothes on, I ran the machine down to the station. Our train, the Vestibule Limited, was an hour late. I gave the engine a thorough oiling, and made sure that all was in order."

"As we sat in the cab we could hear the storm raging outside, while the rain, driven by the gusts of wind, beat fiercely against the windows."

"It's going to be a bad run, Frank," Jim said. "I wish we were in S— safe and sound."

"I laughed. 'What makes you so terribly glum, Jim?' I asked."

"'Oh,' said he, 'I just feel creepy somehow. Seems like there's something terrible going to happen. I can feel it in my bones.'"

"I laughed again. 'You got a little wet coming over, I guess, Jim,' said I. 'And the sound of the wind isn't very encouraging, that's a fact.'"

"To tell the truth I was a little nervous myself, notwithstanding my easy way of treating Jim's notions."

"Presently our train came in long and heavy, consisting mainly of sleepers. It used to make me nervous to know that the lives of hundreds of my fellow-men were in my keeping, but now I think nothing of it. That night I was nervous. What if the frightful storm had made a switchman careless, or if a rail had been loosened by the settling of the track somewhere? On these fast trains a man must rely on the vigilance of the employees; for in order to make schedule time, he must run at such a speed that often he cannot see a signal before he is upon it."

"But I laughed at myself for my fears as I backed down and coupled on to the train. I set the brakes and found everything in good order."

"By and by the little gong above my head began to clang sharply, and with a puff and a hiss of escaping steam we were off into the night and storm, rattling over switches, past signal lights, and between long lines of cars, till, with a roar and rumble, we rushed over the long iron bridge and away through the hills, waking the slumbering echoes with our shrill whistle."

"Then I pulled the throttle wide open, and the clank and roar soon settled into a hum, for old 419 was doing her best, and we were making fifty miles an hour."

"The darkness was intense save where the light, an electrical device, cast its funnel into the gloom. Jim had a hot fire, and I was up to a high pressure, so that we past sleeping hamlets and farm

ing station I made sure smoothly while Jim in- The operator handed showed that the road was

clear as far as our next stopping place. On we went.

"The darkness grew more intense, if possible, while the wind shrieked by. The rain became more blinding, till nothing could be distinguished in the gray murk which enveloped us."

"Suddenly, through the mist and rain, I saw, looming right before us, the gigantic figure of a woman wrapped in a long, black mantle, which seemed to flutter in the wind. She waved great spectral arms about in swift, twisting movements. As I sat, looking in horror, the figure vanished with a final wave of her arms."

"I was too much astonished and stupefied even to make a move of my hand toward the throttle. At that moment Jim had been bending over the fire. As he looked up he exclaimed:

"'Hullo, Frank, what's up? You look as if you had seen a ghost!'"

"I did not answer. My mind was too full of that strange figure I had seen."

"We were now nearing Rock Creek, where there is a trestle over a deep stream. I felt more nervous than ever."

"We dashed around the curve, and whizzed by Rock Creek Station, which is only a mile from the trestle. As we passed I glanced at the steam-gage for an instant."

"A cry from Jim caused me to turn quickly toward him. He sat rigid, his eyes large and staring, his jaw dropped, the very picture of terror."

"He pointed with a shaking finger out into the darkness. I turned and looked and then I began to shake myself."

"There, on the track, was that same hideous figure of a woman, outlined on the background of light from the engine, now motionless, now whirling in a witch dance, but all the time motioning us back."

"'Frank,' gasped Jim, but scarcely above a whisper, 'don't go over that trestle! Don't go, for heaven's sake! Don't go till you're sure it's safe!'"

"I suppose I was pretty badly scared. At any rate, I put on the air brake for all I was worth. I couldn't have resisted the impulse to stop the train."

"As we came to a stop, I could hear the roar of the water in Rock Creek right ahead. I stepped out of the cab, and met the conductor coming up."

"'What's the matter? What's the matter?' he asked, impatiently."

"I felt decidedly foolish. There was no gigantic woman to be seen now. Nothing could be made out more than a few feet away in the blinding storm."

"'Well,' said I, 'we've seen something. I don't know what it is—seemed like a great black ghost—that was waving its arms and warning us not to go forward.'"

"The conductor looked at me curiously. 'Are you crazy, Frank?' he said. 'I should think you were. But we're so near the trestle we'll take a look at it.'"

"We took our lanterns and went ahead, leaving Jim with the engine. He looked scared all over. But I tell you we hadn't gone five rods before we stopped in horror."

"There at our feet lay a black chasm filled with the roar of the river, as swollen with the spring rains it dashed down toward the lake. The bridge was washed away!"

"Only a few splinters of wood and twisted iron clung to the abutment, while now, far out over the blackness, that awful black figure of a woman danced again on the thin air, relieved against the shaft of light that the headlight threw."

"It was flinging its arms about as if in wild glee."

"The conductor stared at the chasm and then at me."

"'Is that the thing you saw when you stopped the train?' he asked."

"'Yes.'"

"'Well, it's something more than luck that saved us to-night, Frank.'"

"We went back slowly to the train, feeling very queer, and thankful, too, I can assure you."

Several of the passengers had come running forward by this time. Among them was a young fellow from Chicago, about eighteen years old, who was smarter than the whole of us, as it turned out."

"When this boy saw the Woman in Black he turned and looked at the locomotive headlight. Then he ran up toward it. I looked at it as he did so. I saw a peculiar spot on the glass."

"'There's your Woman in Black!' said the Chicago boy."

"And there it was, sure enough—that same moth miller that you see in that frame. He was clinging to he inside of the glass. As I tapped on the glass the creature flew back and lighted on the reflector."

"That's the whole story, sir. The moth, by fluttering on the glass just in front of the electric illuminator, had produced a great black shadow, like that of a cloaked woman, on the darkness in front of us; and when he flopped his wings in his vain attempt to sail out through the glass, he gave his mysterious shadow the look of waving its arms wildly."

"Then when he flew back out of the direct shine of the light, the figure disappeared, of course."

"We never knew just how he got in there, but no doubt it happened when Jim went to fix the light at the pumping station."

"Anyhow, he saved our lives by scaring us with that Woman in Black."

"So you see why I keep the moth in the frame. It's to remind me of the way we were saved that night. Yes, you may call it accidental, but I call it providential."

"All aboard," called the conductor of the limited, coming out of the telegraph office with a paper in his hand."

Jim, the fireman, ran and jumped into the cab as I stepped down to go back to my car.—*Youth's Companion*.

Shark Fishing in the Bahamas.

We never let an opportunity pass to kill a shark. No one ever does. The waters were full of them. Every now and then somebody would be killed by a man-eater—quite frequently enough to give a fierce zest to the sport."

There were two or three ways of catching the terrible creatures."

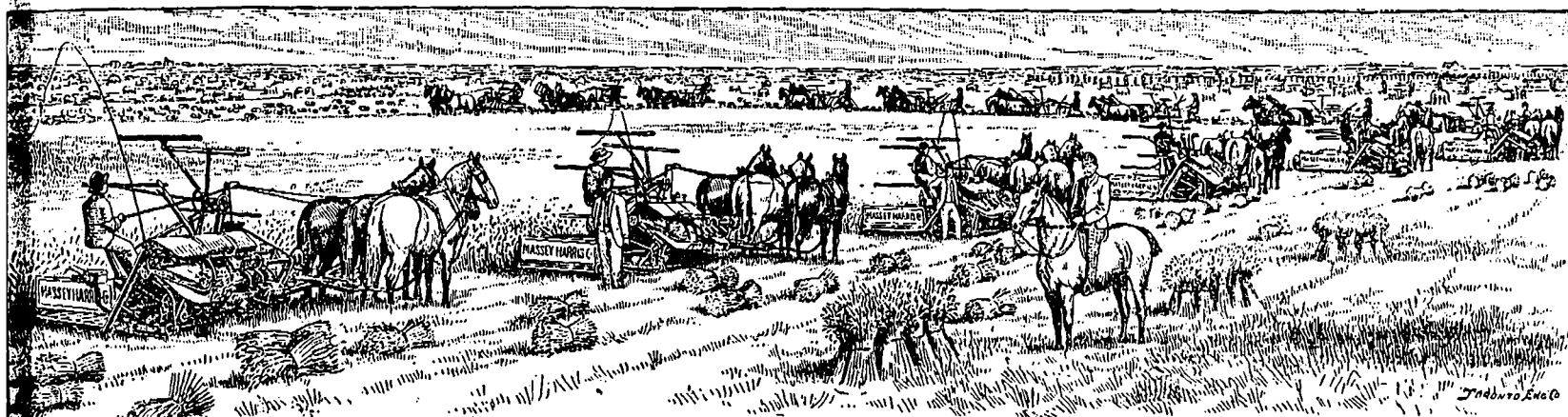
We would tie a rope 15 or 20 feet long around a small barrel that had been well plugged up and made watertight; to the end of the rope was fastened a short chain, to which was welded a large steel hook, baited with dried fish—salted hake we found the best. Several of these contrivances would be made ready. Then, loading them into the yacht, we would start for the noted shark ground just outside the bar, always accompanied by the good wishes of all the boatmen and loungers on the dock."

As soon as we were fairly under way the excited anticipation of revenge on a relentless and natural enemy easily broke through the acquired solemnity affected by the crew of the boat (they considered themselves far superior to the rest of the blacks, as our yacht was the fastest in the harbor), and they would chatter, dance and sing. Every few minutes one of them would come running aft, his bare feet slapping the deck like hand-clapping, and excitedly relate some bad deed of some noted shark, and prophesy that we should certainly catch him this time! Then in five minutes there would almost be a fight forward as to how the shark was to be divided, where he was to be exhibited, how many people would come to see him, etc., until I would have to go and still the disturbance, and suggest that the settlement of all these questions had better be left until we had caught the shark; this would instantly restore good nature."

On arrival at the grounds the casks and lines would be thrown overboard a hundred yards,

MASSEY

Masse



A GROUP OF WIDE-CUT MASSEY-HARRIS BINDERS AT WORK ON A PRAIRIE FARM, MANITOBA.

apart. Then we would cruise around and await developments. If we were fortunate one of the barrels would presently begin to bob around at a great rate; sometimes disappearing under the water and reappearing at a distance, the barrel being too buoyant for the shark to keep it under.

Then the chase! Backward and forward, in circles and winding lines, we would pursue the elusive cask until success crowned our efforts and we could drag our fish alongside. Sometimes little, sometimes big, but any shark was always welcome on our deck.

Evenings we fished for them off the government wharf; but then the method was different. An inch line, over 300 feet long, the same kind of hook and chain as we used on the yacht and baited in the same manner; but now we tied one end of the rope around the flagstaff, and throwing the well-baited hook a few yards away into the middle of a patch of moonlit sand in four or five feet of water, we would coil the remainder of the line so that it could run freely, and then make ourselves comfortable. We never waited long. This was a favorite place with the sharks, and we always had good sport.

Soon a dark object would glide silently as a shadow across the moonlit spot of sands; then it would check its noiseless movement, then, after a moment's hesitation, approach the bait. Of course, we all sat still as statues. Slowly the thing would move off, and the rasping of the rope over the string-piece of the wharf would tell us that it had the hook in its jaw; then—not till then—we would jump for the rope and run a few steps in the other direction. I say, "a few steps," for generally the rope would be torn out of our hands as the shark felt the hook and threw himself out of the water in an effort to get rid of it.

For a few moments the water would be cut into foam as the taut line would be drawn, whizzing, through it. As soon as we thought the shark was tired we would take hold of the line and try to draw him up to the little beach alongside the wharf. Then the procession commenced. First we would pull the shark up close to the shore and think we had him. But just as often he would haul us to the water's edge and we had to let go in a hurry to avoid a fluking. Sooner or later, however, we would get him to the shallow water. Then he would splash and fight. In a few minutes he would stand up on the sand. Then a shot through the backbone where the head joins the body would mangle him. The largest shark we caught was eight feet long—plenty long enough to have on the end of a line, I assure you.

One day we were sailing among the "out islands," when we noticed a small sponging skip in distress. We ran down to her and found that one of her crew had fallen overboard, and that as he took hold of the gunwale to pull himself aboard, a shark had made a dash at him and bitten one of his legs clean off; the skipper had died in a few minutes. Next day that shark was on exhibition, having been caught by the comrades of the dead sailor; it measured sixteen feet in length.

None of the white people would go in swimming, unless in protected places. But the ne-

groes daily followed their avocations of sponging and gathering sea curiosities—work that required them to be constantly under water—without any apparent fear, although they well knew the danger.

A Prairie Harvesting Scene.

THE tourist whose privilege it is to travel across the north-western prairies during harvest time, cannot fail to be deeply impressed with sights that greet his eyes on every hand.

A prairie harvesting scene is an inspiring one indeed. As one sees the vast fields of ripened grain, he wonders how these enormous areas of wheat can be reaped in time, and it seems almost incredible to watch the rapidity with which the gangs of self-binders gather the golden crops so neatly, so smoothly, leaving the perfectly bound sheaves ready for stooking.

Above is a view of a group of Massey-Harris Wide-Open Binders at work on the Sanderson farm near Brandon, Manitoba.

The Massey-Harris Binders are the most successful for prairie reaping, and on this account are used by the leading farmers of Manitoba and the North-West territories. In fact the sale of these machines stands about 3 to 1 as compared with any other make, they are so much superior in every sense of the word.

Step by Step.

Heaven is not reached at a single bound,
But we build the ladder by which we rise
From the lowly earth to the vaulted skies,
And we mount to the summit, round by round.

We rise by the things that are under feet,
By what we have mastered of greed and gain,
By the pride deposed and the passion slain,
And the vanquished ills that we hourly meet.

We hope, we aspire, we resolve, we trust,
When the morning calls us to life and light;
But our hearts grow weary, and ere the night
Our lives are trailing the sordid dust.

Only in dreams is a ladder thrown
From the weary earth to the sapphire walls;
But the dreams depart and the vision falls,
And the sleeper wakes on his pillow of stone.

Heaven is not reached at a single bound,
But we build the ladder by which we rise
From the lowly earth to the vaulted skies,
And we mount to the summit, round by round.

How fortunate in these times of low prices that farmers can have such a good paper as MASSEY'S ILLUSTRATED, for fifty cents a year.

Husbandry of the Ancients.

REAPING.

IN our researches we ran across an ancient book with the above title which however has considerable historic interest. The author was Adam Dickson, A.M., ("late Minister of Whit-

tingham"), and was published in Edinburgh in 1788. Considered merely as an old book it is interesting because of its quaint style and ancient typography. The old "s" is used throughout, that is "f."

But the matter it contains is of special interest as history, and is well worth preservation.

Below we reproduce *verbatim et literatim* the greater part of the chapter on "Reaping" which cannot fail to amuse and interest our readers.

THE proper time of reaping depends upon circumstances, arising chiefly from the weather, climate, and situation of the crop: In a warm and dry climate, corn may be reaped in a situation, in which it would be improper to reap in a climate that is cold and wet: So likewise corn that is strong in the stalk and clean, may be reaped in a situation in which it is improper to reap corn that is soft in the stalk, and mixed with juicy weeds.

In the northern parts of this island, the climate is rather cold and wet, and the corn in general is far from being free from weeds; on these accounts, it is reckoned bad husbandry to cut corn before it is fully ripe, except when the near approach of winter renders it necessary; hence the proverb, *A green sheaf is a bad shake.*

In Italy, matters are in a different situation: The season, in the time of harvest, is warm and dry; and, from the manner in which the Roman farmers managed their farms, the stalks of their corn were commonly strong, and few weeds were in their fields; hence, the directions given by almost all the writers on husbandry, to reap corn before it is quite ripe. 'When corn is ready,' says Columella, 'it must be quickly reaped, before it is scorched by the heats of summer, which are very great at the rising of the dog-star; for a delay in this is attended with great loss; first, because it becomes a prey to birds, and other animals, and then, because the grain, and even the ears, fall from the parched stalks; and, if there should be storms or whirlwinds, the greater part is driven to the ground. For these reasons, there ought to be no delay, but, as soon as the corn is all equally yellow, before the grain is hardened, and when it acquires a reddish colour, the reaping should be begun, that so the corn may become larger rather in the threshing-floor and the heap, than growing in the field; for it happens, if corn is early cut, that it afterwards becomes larger.' The general direction here given, he applies particularly to barley in another passage: 'Barley,' says he, 'when it is a little ripe, should be cut down more early than any other corn; for, having a brittle stalk, and the grain having no chaff to defend it, quick-

'ly falls; and, for the same reasons, it is more easily threshed than any other corn.' Columella, in the first of these passages, declares it to be his opinion, that corn ripens after it is cut: There are many modern farmers of the same opinion: It is natural to suppose, that the juices in the stalk after it is cut, are not wholly exhausted, but that some of them continue their natural course, and tend to the nourishment of the grain.

Various are the methods of reaping corn that was used by the ancients, and as various the instruments employed in this work. Varro describes three different ways of reaping: 'There is one way,' says he, 'as in Umbria, where they cut the straw close to the ground with a hook, and lay down each handful as it is cut; when many of these are laid down, they go over them again, and strip the ears from the stalks; they throw the ears into baskets, and carry them to the threshing-floor; they leave the straw on the field, from whence it is taken and stacked up. They reap after another manner, as in Picenum, where they have a curved wooden *batillum*, upon the extremity of which there is a little iron saw; this, when it comprehends a bunch of ears, cuts them, and leaves the straw standing in the field to be cut afterwards. There is a third manner of reaping, as in the environs of Rome, and many other

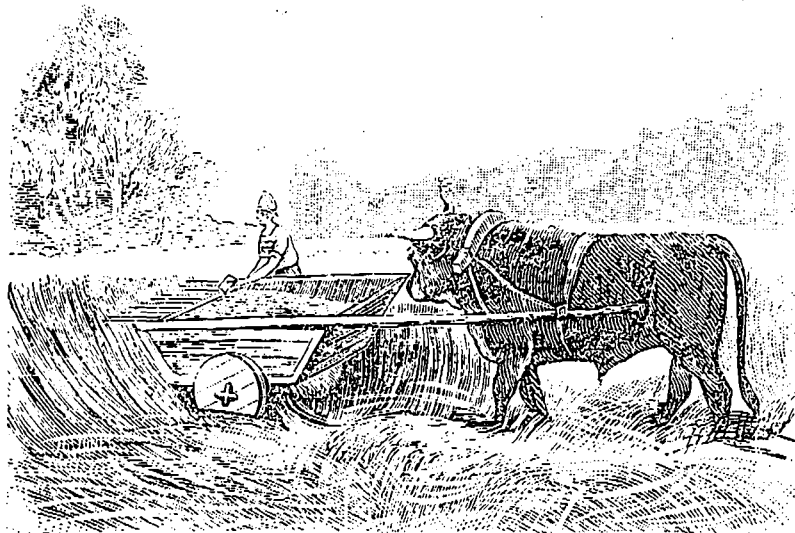
places, where they cut the stalks in the middle, the upper part of which they take in their left hands: From which middle, I am of the opinion, the word *messis* is derived: The straw below the hand, which remains fixed to the ground, is afterwards cut; but that which is fixed to the ear, is carried in baskets to the threshing floor.' Columella likewise mentions different ways of reaping, and different instruments used for this purpose: 'There are,' says he, 'several ways of reaping: Many cut the stalks by the middle, with drag hooks, and these either beaked or toothed: Many gather the ears with *mergas*, and others with combs; this method does very well when the corn is thin; but it is very troublesome where the crop is thick. If, in reaping with hooks, a part of the straw is cut off with the ears, it is immediately gathered into a heap, or into the *ambularium*, and, after being dried, by being exposed to the sun, is threshed: But, if the ears only are cut off, they are carried directly to the granary, and threshed during the winter.'

Pliny gives the following account of the ancient manner of reaping: 'There are different ways of reaping,' says he, 'in the extensive plains of Gaul; large hollow machines, with teeth fixed in the fore part, are pushed forward on two wheels through the standing corn, by an ox yoked to the hind part; the ears cut off by the teeth, fall into the hollow part of the machine. In other places, the stalks are cut in the middle with hooks, and the ears cut off between two *mergiles*. In other places, they pull up the plants by the root; those that use this method, as they draw away the sap, imagine that this serves in some measure in place of a ploughing: There is a difference in the manner of reaping, according to circumstances; where they cover their houses with stubble, they cut high, to preserve this of as great a length as

'possible; where there is a scarcity of hay, they cut low, that straw may be added to the *palca*.'

The other practice mentioned by Pliny, in the passage under consideration, is pulling up corn by the root: Many kinds of pulse were gathered in this manner, and it was from this way of gathering them, as Varro informs us, that they were called *legums*. To this kind of plants, therefore, it is probable that this manner of reaping is only to be applied.

Palladius takes no notice of the ordinary methods of reaping mentioned by the other rustic writers; he contents himself with giving a particular description of the reaping machine mentioned by Pliny: 'In the plains of Gaul,' says he, 'they use this quick way of reaping, and, without reapers, cut large fields with an ox in one day: For this purpose a machine is made, carried upon two wheels; the square surface has boards erected at the sides, which casting outwards, make a wider space above; the board on the fore part is lower than the others; upon it there are a great many small teeth, wide set, in a row, answering to the height of the ears of the corn, and turned upwards at the ends: on the back part of this machine, two short shafts are fixed, like the poles of a litter; to these an ox is yoked, with his head to the machine, and the yoke and traces likewise



ANCIENT METHOD OF REAPING USED BY THE GAULS.

DESCRIBED BY PLINY AND PALLADIUS.

'turned the contrary way, well trained, and who does not go faster than he is driven; when this machine is pushed through the standing corn, all the ears comprehended by the teeth, are heaped up in the hollow part of it, being cut off from the straw, which is left behind, the driver setting it higher or lower, as he finds it necessary; and thus, by a few goings and returnings, the whole field is reaped. This machine does very well in plain and smooth fields, and in places where there is no necessity for feeding with straw.' The description given of this machine by Palladius, is copied almost verbatim by Crescenzo, without any remarks, or so much as informing us whether such a machine was used in his time. It is probable, that it acted like the *mergile*, that the teeth were narrow at the points, broad at the bottom, and sharp in the edges; when the machine was pushed forward, these teeth being set in height a little below the height of the ears, would naturally comprehend all the stalks that were standing immediately before the machine, entangle the ears, and cut them off; the teeth being raised at the points,

and flopping downwards to the fore-board, the ears cut by them being pushed by those next entangled, would naturally fall back into the bottom of the machine.

It does not appear, from any of the passages already cited, that it was a custom among the Romans to bind their corn into sheaves, and set up these in flocks, as it is the custom in the more northern climates: When the ears were cut off, they were sent directly to the threshing-floor, or to the barn. Varro, in a passage already cited, after mentioning it as a practice in some places, to cut the ears from off the stalks soon after the corn was cut, adds: 'They throw the ears into a basket, and send them to the threshing-floor.' And a little below, he says: 'The reaped ears ought to be carried in baskets to the *area*.' To the same place, and in the same manner, he says the corn was likewise carried, when the ear was cut off with part of the straw. Columella, in a passage already cited, says that 'when corn is reaped with a part of the straw, it is immediately gathered into a heap, or into the *ambularium*; but, if the ears only are cut, they may be carried into the barn.' Pliny says, that *far*, because it is with difficulty beat out, should be laid up with the *palca*, and only freed from the straw and beards.' In none of these passages is there any mention made of binding

the reaped corn into sheaves; even some of them are inconsistent with this practice: There is however a passage in Virgil, from which, according to some translators, it appears to have been customary sometimes to bind barley with a rope made of the straw; 'Often,' says the poet, 'when the husbandman has brought the reapers to his yellow fields, and has just begun to bind the barley with the brittle straw.' The word used by Virgil, and translated *bind*, may be applied to the grasping of the growing corn in reaping, as well as to the binding it after it is reaped: In this sense, the passage may be translated, 'and had just begun to grasp the brittle straw.' So that this being a passage of a doubtful meaning, cannot be properly adduced as a proof that binding corn into sheaves was a custom among the ancient Romans.

In the eastern countries, the ordinary way of cutting down corn was with hooks: In the law, a sheaf, or a handful of the first fruits, is required to be brought to the priest, who is directed to wave it before the Lord. In reaping, it is probable too, that they took the stalks in handfuls, as we do in this age, and in this part of the world: Boaz is represented as desiring his reapers to drop some handfuls for Ruth. The corn too, after it was cut, was not carried off immediately, but was allowed to lie some time upon the field. In the passage above cited, Boaz is represented as allowing Ruth to glean even amongst the sheaves or handfuls laid down: Whether or no it was a custom to bind the corn into sheaves, does not appear from this passage; so we may suppose the corn lying upon the field either loose or bound: But this appears from another passage: Joseph, in the account which he gives of his dream to his brothers, expressly mentions the binding of sheaves.

It was a custom in Greece to bind corn into sheaves, immediately after it was cut down. In the harvest represented by Homer upon one of the

compartments of Achilles's shield, the sheaves are immediately bound: 'Next,' says the poet, 'he represented a field of corn, in which the reapers worked with sharp sickles in their hands; the corn fell thick along the furrows in equal rows; three binders were employed in making up the sheaves, the boys attending them gathered up the loose swaths, and carried them in their arms to be bound.' There are some circumstances in this description, that deserve to be noticed: The swaths are carried by boys to the binders: This is a very proper employment for boys, and which the situation of the corn fields in the ancient husbandry rendered necessary, even when the corn was mowed. It has already been observed, that, by the manner of ploughing in the feed, the field was formed into very narrow ridges; that the corn stood in broad rows, upon the tops of these ridges; and that there were empty spaces between each row in the furrows, which were well hoed, and thereby cleared of weeds; a mower could not conveniently stretch over more than one row at a stroke, especially if he managed the scythe with one hand, as was the custom in Italy; and therefore, the corn, when cut, would lie very thin in the swaths: This made it necessary to have some persons to gather it together, and carry it to the binders: The same thing would likewise be necessary when the corn was cut with sickles; because it would be inconvenient for the reaper to be stepping so frequently over furrows, or go so frequently backwards and forwards upon the ridge, as his laying the corn, when cut, into proper sheaves would render necessary: Whether the corn, in such a field, was mowed or cut with sickles, it would naturally be laid across the furrows; the rows would lie along the furrows, with the corn across at equal distances from each other; a situation that renders it easy for the boys to lift up the corn, and carry it to the binders.

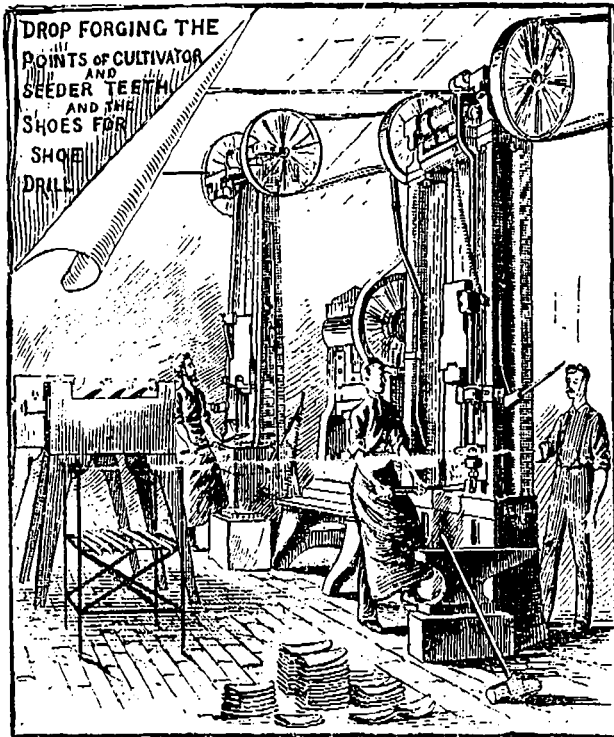
It was observed, in the chapter of ploughing, that according to the opinion of some, when two ploughs were employed in the same field, it was a custom in Greece to divide the field into two equal parts, and to set the two ploughs to work on the sides of the field, opposite to each other, by which means, as they ploughed they always approached nearer and nearer to each other. It was likewise a custom to set reapers to work in the same manner, one half of them on one side, and the other half on the opposite side.

Homer, after having described the drawing up of the two armies, and their marching to attack in order of battle, compares them to reapers in a field: 'In the same manner,' says he, 'as reapers placed upon opposite sides, in the wheat or barley field of a rich man, hasten towards each other, and make the numberless swaths to fall; so the Trojans and Greeks,' etc. Both the manner in which Homer expresses himself, and the thing itself, which the simile is intended to illustrate, make it necessary for us to suppose, that it was a custom to set reapers to work on the opposite sides of the same field, and make them move towards each other in cutting down the corn.

In both cases, the design seems to have been to raise an emulation between the parties; and to enable the landlord to judge which of them performed their work with the greatest care, diligence, and activity.

In the warm and dry climates of the countries where the authors resided, whose works I have cited, the methods of cutting down and securing their crops, were no doubt sufficient, and some of them are observed in these countries at this day; but in the cold and wet climate of Britain, we are put to more trouble, and obliged to give greater attention: After our corn is cut down, we must expose it for many days to the wind, and, at the same time, secure it from the rain; this we do by binding it into sheaves, and setting it up in proper shocks; and, after all, in some seasons, we find it very difficult to get it secured in the barn yard. No comparison, therefore, in this article, can be made between the practices of countries situated in such different climates.

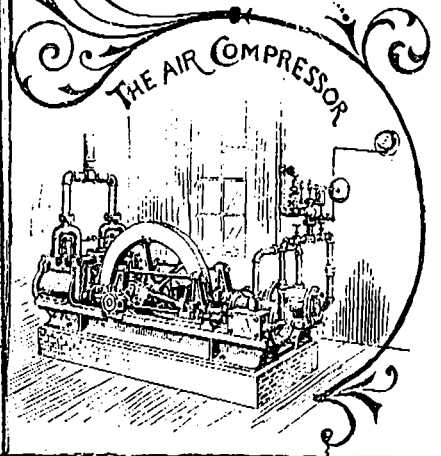
New Patented Process of Making Spring Steel Teeth



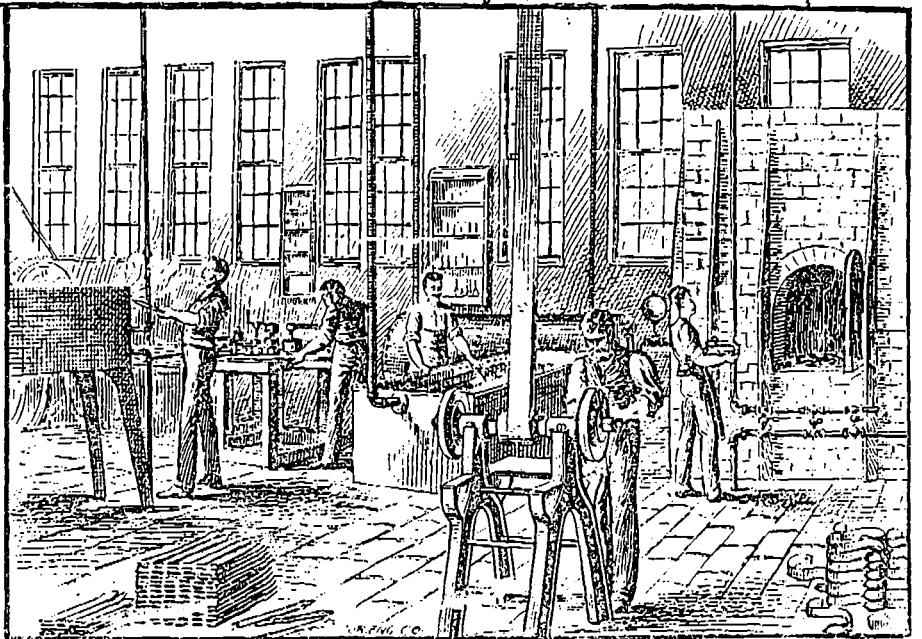
FOR
Seeders, Cultivators,
and Harrows,

UTILIZING
AERATED PETROLEUM OIL
FOR FUEL.

Recently introduced at the Toronto works
of MASSEY-HARRIS Co., Ltd.



AERATED
FUEL OIL
PLANT FOR
HARDENING
AND
TEMPERING
SPRING STEEL
CULTIVATOR
AND
SEEDER TEETH
ALSO SHOWING
FORMING
AND
POLISHING
MACHINES



A visit to the factory is necessary to get a good understanding of this new aerated fuel-oil process. The partial views of portions of the plant will however, convey an idea of the appliances. The oil is pumped from an enormous iron tank holding 275 barrels, which is buried under ground some distance from the building, to a smaller tank shown in the illustration above. Thence it is forced under high air pressure through a system of pipes to the different furnaces made of iron and lined with fire bricks and tiling. The spray of oil is "atomized" into these furnaces and ovens much the same way as perfume is atomized or sprayed by the "atomizers" sold by druggists, and is thus converted into gas very quickly and creates an intense uniform heat of any degree required. The air is forced by the air compressor through other pipes into the furnaces together with the oil thus "atomizing" and "aerating" it and rendering it highly combustible.

This new process of manufacturing Spring Steel Teeth produces a finer grade of teeth than otherwise possible, and results in the hardening and tempering of the steel teeth being perfectly performed, and without any burning or injury

to the steel. The fires are absolutely under control by simply turning a valve at each furnace, and reducing or increasing the quantity of oil at will.

In the upper view above we see the great drop hammers at work—one forging shoes for the shoe drills and the other pointing seeder and cultivator teeth, the pieces in each case being previously heated in oil fires.

In the lower picture a part of the tempering and hardening plant is shown. After pointing, the teeth are heated to an exact degree, then passed through the forming machine, and while still hot are cast into an immense vat of oil kept cool by coils of cold running water. When cold they are placed in the large revolving oven and the temper drawn by an oil fire, after which they are submitted to the severest possible test, ground, polished and packed for shipment.

This plant has been introduced at very heavy expense, and is further evidence of the efforts of MASSEY-HARRIS Co., Ltd., to make the very best goods in the very best manner. The process is fully patented.



Work and Rest.

Weary? Who should be weary? Not he who has life to live,
But to whom aught is given must still have something to
give:
And man is made for the battle, and the sword is girt on the
thigh,
And the purpose of God is thwarted if we only linger and
sigh
Ay, and we all have been wounded, some more, and others
less,
And the sorrows our hearts have suffered have taught us
tenderness.

Scatter the seed in the morning, and at eve stay not the hand,
Morning and noon and even, there will still be open land!
It may be but a cup of water, but a gently spoken word,
Above the gift is noted, the faintest accent heard;
And the good we do to another comes back to us ever again,
As the moisture raised from the ocean returns in the gentle
rain.

For blessing works in a circle, and the faster that circle goes,
As it wheels around the throne of God, ever in strength it
grows:
And life is the coinage of heaven to be spent in the purchase
of eve,
Till all the realms of earth below is as pure as the realms
above
Then weary not in the struggle; God ruleth all for the best,
And at last the wings of the circle shall bear the soul to its
rest.



His Excellency, the Governor-General, after his visit to Toronto, where he participated in the festive functions provided by the Board of Trade, proceeded westward on a tour through the province until he reached Windsor, Ont., where he strengthened the sentiment of British connection of the people by manly utterance and sagacious argument. Among the places which he visited on the way, were, Brantford and Woodstock, at which he made it his special care to see the Massey-Harris Company's great

works. At Brantford he showed quite an interest in the compound engine, the construction and working of which he seemed to understand thoroughly. He expressed himself as particularly satisfied with the engine, and spoke of it in high terms. His excellency has a fair knowledge of various kinds of machinery, and finds great delight in examining and observing fine specimens of workmanship. The castings manufactured in the factory attracted his attention at once, and he plied the manager with questions about their production. He said he was surprised at the high degree of perfection attained to, the smoothness and finish being very apparent to his practised eye. Here, it may be observed that these are manufactured under specially favorable circumstances by the Massey-Harris Company at their several shops in

Toronto, Brantford and Woodstock. Turning to the manager, Lord Stanley said that his visit to the works at Toronto, had afforded him the greatest possible pleasure. "I take a deep interest, in these matters, I can assure you," he remarked, "and I took occasion in my speech last night, to repeat what Mr. Massey had told me, that the machines of the Massey-Harris Company are working every working day of the year in some country or other." It cannot be otherwise than gratifying to the Massey-Harris Company, to receive testimony of such a high character from such a quarter. The Governor-General has had all his days a deep interest in agriculture and in all that appertains to it, his English estates being among the finest of their kind in Britain, and while not a practical machinist, he has a thorough knowledge of the implements used on a farm, and is fully alive to the value of modern improvements. His words of praise are therefore quoted, not only because of the pride one in his exalted official position might be expected to feel on account of the manufacturing development of the country over which he nominally rules, but also and chiefly because of the aid which such manufactures bring to the intelligent farmer, assisting him to turn his soil to the most profitable uses, and in saving the expense of manual labor, with the advantage of celerity and satisfaction in husbanding, the products of the farm. And to no other firm has Lord Stanley given such a credential.

A CONTEMPORARY writes:—"The less care is taken of your agricultural implements, the more profitable is it to the manufacturers." This is a superficial view of the matter. No wise manufacturer would agree with it. When will our candid friends and advisers learn that the interests of the farmer and those of the manufacturer of farm implements are substantially the same? At this time of day it might seem

to be superfluous to urge this. Intelligence ought to have dispelled the delusion of antagonistic interests long ago. Which of the two, the poor or the prosperous farmer, turns out to be the best customer of the manufacturer? That is the proper way to look at it. The one wants credit, leads to bad debts and to trouble and money is lost on him; the other not only pays promptly on time, but is in a position to select the very best and the very latest implements and machines. No disappointment, no bad debt, no trouble. The prosperous farmer is the manufacturer's friend, every bit as much as the manufacturer is his friend. Their interests are mutual. Therefore, the wise manufacturer says to the farmer, "Husband your resources to the very utmost, and by all means take care of your agricultural plant. Save it in every way you can, when it has given you honest service, or has outrun its day, come to me for another and a better; you will be able to do so all the more, if you don't come oftener than is necessary." In fact there are few things around the farm which gives us more pleasure than to see the Massey-Harris machines, purchased long ago, carefully housed, and kept dry and clean. They are like well-cared-for old friends. And this is the time of the year when no machine or implement should be left outside exposed to the ravages of the weather. Treat your implements properly and when the time for their use comes you will find them in a right condition for good work and you will be many dollars in pocket as well.

Now is the time for the meetings of the Farmers' Institutes, and of Associations interested in the products of the farm. These institutions are a sign of the times. Their object is to impart information to the farmer on practical subjects in a practical way. Their existence proves that the farmers of Ontario are fully alive to the value of exact knowledge in the working of the soil. In other words, that he is sifting a hitherto unknown value on scientific knowledge as it affects all the branches of his calling. And he is keeping abreast of the times. He is wise in this. There is no hope to-day for the man who is content to do as his grandfather did. Conditions are changing every day and it is first axiom that he who shall succeed must take advantage of every reasonable breeze that blows. One thing practised in the past we may always adhere to; and that is, frugal living, taking the last use out of all our products, thrifty economy and keeping a firm grip on the dollars. It is not a farmer's income that makes him rich or that impoverishes him; in the one case, it is what he saves and adds to his bank account, in the other it is his outlays. But, still further, given prudence and moderation of expense, and there must yet be a substantial return on the year's operations before a saving can be effected; and looking at farming as a serious business requiring skill and the faculty of good management, it is necessary that the Institute should be used and, where possible, that the instructions given there should be supplemented by that of the College of Agriculture. The Institutes do good work, and it may not be reasonable to expect much more of them so soon after their establishment on their present basis. Yet, it is a fact patent to every farmer that one branch of necessary instructions is almost entirely neglected by them. We draw the attention of the Minister of Agriculture very specially to this point. Let him consider it and if not too late for the season's work, let him make a beginning to amend the programme arranged for at the meetings for January. We refer to the want of instruction in the proper use, and in the importance of agricultural machinery. The dairy interest is well looked after, so is every thought and suggestion thrown out, either by theory or experiment, with respect to the proper care and nourishment of live stock. Crops receive much attention, and so do soils and their chemical affinities and productive properties, but of the implements to work the soil, to garner the crops, not

a word is heard. Now, this is indeed a very serious omission. There is no justification for it, except the excuse offered here, that a complete programme may not be possible just at the beginning of a course of instruction. It would be an easy matter, however, to fill the omission. The Minister of Agriculture has only to appoint an additional expert to the teaching staff already secured and the thing is done. The manufacturers will help him to make an admirable choice should he have any difficulty. A practical man ought to be selected. A modicum of experience is worth bushels of ornate language and faultless theory. Farmers ought to be taught the principles upon which agricultural machinery is constructed, in so far as it would enable them to work a machine. They should be made perfectly familiar with the importance of suitable implements; and how crops and different soils should be operated upon by suitable machinery. A farmer should know as much about a binder, a plough, a harrow, a seeder, in all its component parts and principles as about a horse, a cow, a Canadian thistle, an ear of wheat and the nutriment of certain potatoes. The factory should be as interesting to the farmer as the cattle show. Science has entered the workshop for the benefit of the farmer not less than it has entered the creamery and thorough-bred stock yard. The wise farmer will glean wherever the pickings fall, and his increased stock of knowledge, if used aright, and with a practical purpose, will be found to an asset not to be despised by the keenest competitor.

DURING the past month there has not been anything very striking to note in agricultural circles, with the exception of two matters of interest. The Farmers' institutes were held in many places over the Province of Ontario; the instruction was of a practical character, was evidently highly prized by the large audiences of farmers who attended the meetings, and will presumably effect some good. The lecturers were, on the whole, good, capable men, and their work will, it is to be hoped, prove like good seed sown in good soil. Prices for Manitoba wheat attracted attention last month. They showed a steady increase with good prospect of a continuation of the same. Meantime, farmers in Manitoba are feeling the pinch of a somewhat bad harvest and the low prices which prevailed all fall. In Ontario there is a cry for better markets for horses, and Britain's open ports are being more and more resorted to by dealers. Trade was reported firm and more than usually cheering, payments in the rural districts having been prompt and purchases more numerous.

The great difference in point of yield of different varieties of grain of the same species has been observed by farmers everywhere. The wisdom of growing only the best varieties will also be generally conceded, and more especially in times when prices are low and margins are close, will such a line of action be in a sense imperative. In former years the husbandman was restricted in his choice to but a few varieties, but now through the work of the Agricultural Experiment Stations, the best varieties that can be obtained are being made easily accessible to every one. Experiments have been carried on for four years in 140 varieties which were grown side by side. Without entering into the details of the tests made, the following conclusions are given as value to every farmer:—That considerably higher yields may be expected from several of the foreign varieties of oats, than from the old varieties. That of all the varieties of oats grown for four years, the Joannette Black stands first in point of yield among the black varieties and the Siberian among the white varieties. That the Herison Bearded and Pringle's Champion still retain first and second places in point of yield among all the varieties grown for four years. That fifteen imported varieties of barley have given a larger yield for four years

than the common six-rowed variety. That of all the varieties of barley grown for four years, the Mandscheuri and French Chevalier still hold first and second places, respectively in point of yield. That of twenty varieties of peas grown two years the Prussian Blue stands at the head of the list in point of yield, and of sixty-one varieties grown in 1892, the Princess Royal gave the largest yield per acre, and the Early Racehorse the heaviest weight per measured bushel. That while it is important that cereal spring grains should as a rule be sown as soon as possible after the ground has become sufficiently dry in the spring, it is more important relatively in the case of spring wheat than in that of oats and barley, while no special advantage seems to follow the very early sowing of peas.

IMPROVED roads have long been a crying want of our fair country; and not only of our country, but of every country on this continent. The rapidity of settlement and the quick development of railways in its train have removed the necessity to some extent, and with the necessity the desire to spend money on improved country roads. Yet there could be few things more desirable, nor indeed, more beautiful to a country, and to the country at large, than good highways. It is not only an attractive feature of landscape, it is an inducing means of communication, a channel of intercourse and trade. Towns and villages are especially interested in anything that increases the facilities of travelling from the farm to the store, and a good road does this. A bad or an indifferent road is a thing to be shunned or to be used only as seldom as possible, thereby placing the farmer, who has produce to sell, and supplies to purchase at a disadvantage. One of the obstacles in the way of improvement is the system of statute labor by which roads are maintained. Whatever is done, therefore, to remove the statute labor system and substitute for it a method of more general and popular application, will tend to effect an improvement in our roads. In this respect the county of Oxford, in many respects a banner county, sets a good example. East Terra township council now proposes to abolish statute labor, for a general road tax, thus making the second township in that county to adopt this course. Who will come next?

A Remarkable Prospectus.

WE received from the Publishers of *The Youth's Companion* its Announcements for 1893. They promise an unusually brilliant volume. Among other notable features is a series of articles entitled, "Your Work in Life," written by persons experienced in the different trades and professions and designed to help young men and women in choosing what to do. Another series, entitled, "The Bravest Deed I ever saw," narrates deeds of personal heroism seen by United States Generals and War Correspondents. There is also a series of articles entitled, "Odd Housekeeping," which will be of much interest to ladies. Some new Sea Stories are contributed by William Clark Russell, the famous novelist, and several articles on India by Sir Edwin Arnold. Special Correspondents will write of the World's Fair, How to go, and What to see in a given time.

Gen. Lew Wallace narrates the origin and growth of his famous novel, "Ben Hur," while Frank R. Stockton tells the history of "Rudder Grange." There will be Eleven Serial Stories this year, besides more than One Hundred Stories by the most successful Short Story writers, besides many stirring Tales of Adventure. *The Companion* aims to be a favorite in every family, and its circulation of nearly Six Hundred Thousand copies a week testifies how widely it is appreciated. Examine our Club List for Special Rates. \$1.75 a year. Boston, Mass.



2nd—New Year's Day celebrated. . . . Mayor Fleming re-elected for Toronto. . . . The famous anarchist manifestoes issued in Paris and London.

3rd—Master and operative spinners of Lancashire refused to accept proposed arbitration. . . . State aid withdrawn from British Columbia emigration.

4th—Alfred Deepit, the French novelist, died. . . . Typhus fever broke out in New York city. . . . Hugh John Macdonald decided to retain his seat for Winnipeg for the present.

5th—J. Israel Tarté elected for the Commons for 1st. . . . Third annual dinner of the Toronto Board of Trade held. . . . W. J. Sumnerby, School Inspector for Prescott and Russell, committed suicide.

6th—Ten inches of snow fell in New York to-day. . . . Charles De Lesseps became a state witness in the Panama Canal scandals. . . . Manitoba wheat in great demand in London.

7th—Dynamite outrages committed by the Saar strikers. . . . British steamer *Fernide* wrecked and part of the crew drowned. . . . John Morley declared for migration in as against emigration from Ireland.

9th—Intense sensation caused by the rumors that the Empress of Austria has been captured by Spanish brigands. . . . J. W. St. John, Toronto, nominated as Provincial candidate for West York.

10—Ten Carnegie strikers found guilty of rioting. . . . J. D. Cameron, M.P., sworn in as Provincial Treasurer of Manitoba. Thirty miners killed at Penzance, Cornwall.

11th—Gen. Ben. Butler died. The Metropolitan of Rupert's Land spoke strongly against secular schools.

12th—Quebec Legislature opened. . . . Senator Ferguson, of Welland, banqueted at Niagara Falls, Ont. . . . Inspector of Fisheries Willmot arrested at Morrisburg, Ont., on charge of compounding a felony.

13th—The emigrants who left German ports for the United States in 1892 numbered 108,820. . . . Inmisfil Orangemen endorse Mr. D'Alton McCarthy.

14th—Rev. Sam Small, the evangelist, has returned to journalism. . . . Re-count demanded in the 1st. Dominion election. . . . M. P. Ryan, ex-M.P., and for many years Collector of Customs for the Port of Montreal, died.

16th—Senator Drummond presented the Notman estate to Montreal as a Home for Incurables. . . . Dr. La Roche, Montreal Medical Health Officer, died. . . . Heavy snow blockade on railway lines in New York State.

17—W. B. Ives, M.P., new President of the Council, banqueted at Sherbrooke, Que. . . . Fakry Pasha, a hostile partizan to Britain, appointed Prime Minister of Egypt by the Khedive. . . . During daylight burglary occurred in a jewelry store, Toronto.

18th—Cardinal Gibbons elected delegate to the Catholic Congress in Chicago. . . . Leprosy detected in Iowa. . . . Rev. Alex. Grant, Winnipeg, came out in support of secular education in public schools.

19th—The Ontario Dairymen's Convention, at Kingston, declared for the re-adjustment of the tariff. . . . Nova Scotia Legislature opened. . . . Announcement made of the creation of a Labor Department by the British Government.

20th—The Gzowski rifle trophy awarded to the 13th Battalion, Hamilton. . . . Ex-King Milan and Queen Natalie reconciled. . . . Ex-President Hayes, of the United States, buried at Fremont, Ohio.

21st—French-Canadians celebrated the anniversary of the death of Louis XVI of France. . . . James Francis Egan, dynamiter, released from prison. . . . Argument in the Manitoba School case made before the Ottawa Government.

23rd—Sudden death of Bishop "Illios Brooks, of Boston. . . . Conference on Christian Union took place in Toronto. . . . Situation in Egypt reported as causing alarm to the British authorities.

24th—Despatch from London announced the appointment of Lord Aberdeen as successor to the present Governor General of Canada. . . . Birmingham Chamber of Commerce declared in favor of preferential trade with Canada. . . . Deaths from famine reported from Tory Island, Ireland.

25th—D'Alton McCarthy came out for tariff reform at a Conservative Convention at Stayner, Ont. . . . Old wave reached its height in Manitoba and North-West Territories. . . . Mr. R. T. Haun, well known in Ontario as a successful banker, committed suicide at Buffalo.

26th—Bank of England reduced its rate of discount from 3 to 2½ per cent. . . . The third session of the seventh Parliament of Canada opened to-day. . . . British Chancellor of Exchequer declined to endorse a proposal for the introduction of decimal coinage in Britain.

27th—J. G. Blaine, after a lingering illness, died at Washington. . . . Methodists of Picton, Ont., celebrated the centennial of the congregation there. . . . Four masked men made desperate effort to rob the Home Savings and Loan Co., of Toronto, in broad daylight.

28th—Rev. Mr. Tocque delivered an interesting address to the Canadian Institute on the great fires of Newfoundland.

Heavy January thaw set in in Ontario. . . . Revolution in Honolulu resulted in deposition of the Queen.

30th—Funeral of James Armstrong, M.P., took place. . . . First class medal and diploma from Life Savin Society of the Maritime Alps of Nice, France, presented to Capt. Andrews, Toronto.

31st—T. M. Martin lectured to the Ontario Artists on "Canada, from an Artist's Point of View." . . . Industrial and Mining Stock Exchange formed in Toronto.



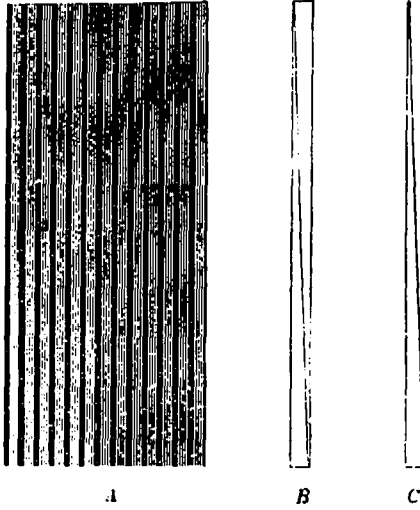
The Home Apiary.

THERE is scarcely a section of our country in which a few farmers do not experiment with bees. As the prize-lists at many local shows indicate, they are not the least successful bee-keepers. The results of experimenting with a house apiary will, therefore, be of interest to many of our numerous readers. Here we have an illustration of a building in which practical results have been satisfactorily obtained. There are those who strongly believe that more honey can be produced with less work, in a house apiary, than in any other way. The bees are kept in the house the entire year; no wintering cellar is needed; the hives, supers and other furniture can be made much cheaper than for an outside yard. We avoid working in the wet grass and hot sun. With the house apiary we can have our bees and honey locked against intruders, can feed with great ease at any time of year without the least danger of starting robbers, and we can open the hive for examination at any time of day during the spring, summer or fall, and keep them open as long as we wish without hearing the sound of a robber's wings, and the crossiest hybrids will not attempt to sting. The house is a most satisfactory method of wintering for the above named reasons and many others. With a house apiary of 50 or 100 swarms, with everything in readiness, we can sit in the shade and watch for and control all swarms with little work and much pleasure. The holes over the hives are three inches in diameter, and are covered with a slide on the inside. They are intended to furnish ventilation when work is being done on the inside, as well as to give a place of escape to all bees that get out of the hives while being handled. The door is in the end. On the opposite side of the building is a window with a sliding sash of glass and revolving wire screen which can be opened or closed at pleasure. The ventilator to be seen on the roof is to let all smoke out of the building as quickly as possible, as well as to be used as a chimney if a fire should be needed in winter. With thorough ventilation no artificial heat is needed. By throwing open the door, window and ventilators, the inside remains nearly as free from smoke as does the open air. It is surprising to see how little handling is really needed; also to see with what impunity we can handle even the crossiest hybrids in the house. In the illustration our iron covered house for storing and curing comb honey is visible at the left, and a glimpse of the shop is seen at the rear.



Improved Stable Floor.

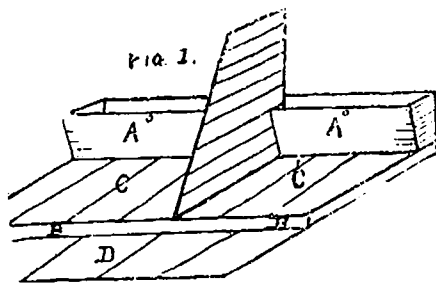
THE illustration here given is of a stable floor especially good for stallions and geldings. The first tier of plank, which may be 2 inches thick, is laid with an incline of 3 inches to the rear. These planks are the full depth of the stall, including the manger. The length will vary from 8 to 9 feet. Over this are laid pieces like *C* in cut. These pieces are 4 inches wide and 3



inches in depth, and as long as the stall or plank of first tier. They taper to nothing at one end, and are laid an inch apart. *B* shows how two pieces are taken out of one stick by sawing diagonally any good, hard, tough wood 3 by 4 inches. *A* shows the floor when complete. In cleaning this stall it is necessary to have a kind of mattock to fit into the spaces in the grating. This improvement is more noticeable when used for stallions and geldings.

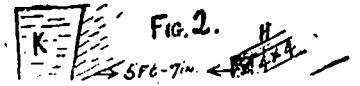
Stall Floors.

THE following sketches of stall floors, arranged to keep the cows out of their own filth, when lying down, will be found useful. In fig. 1, the stall floor *C* is four inches higher than



the main floor *D*. The distance from the manger, *A*, to drop at *B* is 5 ft. 7 in. When the

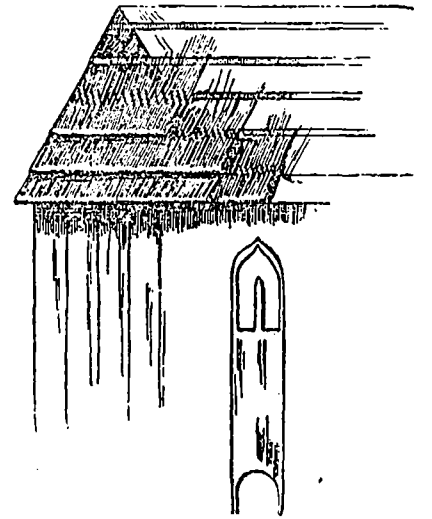
cows are standing their hind feet are on the main floor, *D*, but when lying down their entire body rests on floor *C*. Fig. 2 shows how to apply the same principle to a level floor. *H* is a 4x4, and as long as the stall is wide,



placed 5 ft. 7 in. from the manger *K*. The space between *K* and *H* should be filled with sawdust, chaff or other bedding until it becomes level and solid. It answers the purpose of fig. 1, and is much less expensive.

Thatch Roofing.

THE expense of keeping shingled roofs in repair forces the question on the mind of Mr. Hollister Sage, whether a return should not be made to the British and European cheap, effective and tidy thatch roof. Mr. Sage warms up with the idea and holds that ice-houses, wood-houses, stock sheds and the smaller barns ought to be thatched with straw, reeds or rushes. He says: "Even those who have never seen thatching know how surely rain runs off the roof of a well-covered stack, and how little a well-made cock of hay is wet by heavy storms. Reeds and rushes are also sometimes employed for roofs. Could the use of thatching be extended in this country, its value might be acknowledged. To lay it is a simple art, requiring no more skill than shingling. After the first two hours of effort, the work will seem more easy and rapid. The essentials are straight, hand-thrashed straw, binder twine and a shuttle made of oak or hickory, six inches long, an inch and a half wide, and one-eighth of an inch thick. The shape of the shuttle, and also a crude sketch of a building being thatched, are shown in illustration. Furring strips are nailed to the rafters as for shingles, and a cord firmly nailed to the end of each. I say 'firmly nailed' because if it should loosen, the straw it holds will soon slip down and be at the mercy of the wind, when a bad leak will appear; and thatching, like shingling, is difficult to repair."

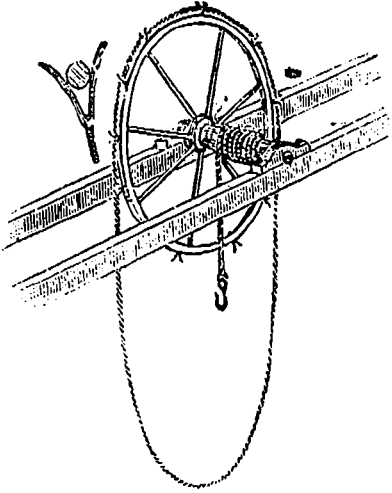


The straw is laid and bound to its place in small bundles—the smaller the better—the twine being wound on the shuttle. A little practice will enable the thatcher to flatten and spread each bundle so no cracks will show in the roof. After the cord is put over the straw and under the furring strip, and while it is being held very tight, the straw is forcibly crowded up against the last bundle placed, that the roof may be firm and hard. It is well to secure the binder twine at intervals of one foot on the furring strip, by winding it around a shingle nail and driving it into the wood. None but clean thrashed straw is suitable on account of rats and mice. If it be stiff and strong it may be exposed to the weather in eight-inch lengths, but weak, light straw will not bear the wind unless in six or four inch laps. A steep pitch is desirable, and wide, over-hanging gables will give a pretty appearance to the smallest thatched building.

Dressing Pork and Beef.

THE following question was put in the *Country Gentleman*:—In connection with some of my farm buildings I desire to have a place for butchering hogs, beeves and lambs for my own use, but I wish it arranged conveniently and with a view to labor saving contrivances. I have steam heat. Can you put me in the way of getting some plans or suggestions for the inside arrangements, particularly for scalding hogs, etc.?

The following valuable reply was given:—It requires a building 15 feet wide, and of such length as may suit the owner's convenience. Two timbers six inches square and 12 feet high or overhead. They are parallel, 5 feet apart, and support the axle on which the rope winds for lifting the carcass. A hard-wood stick is turned in a lathe 6 inches in diameter, with a hub at the end 8 inches in diameter, and with a gudgeon in each end. Boxes for the gudgeons are placed on the top of both beams. When this stick is in the lathe and before it is taken out, bore six mortices in the hub one by two inches to receive the spokes of the wheel, three at one end of the hub and four at the other.



Go to a wagon shop and get steamed felloes, to form the circumference of the wheel thus made. The spokes are 3 feet 10 inches long, and are made out of one and a quarter inch stuff, three inches wide at one end and four at the other, the wider end outside, and each has a notch one and a quarter inches wide at the end for the felloe to fit it. The outer part of the wheel is furnished with a number of sockets to receive the endless rope. These sockets, ten in number, are made of nail rod, in the form represented by fig. 2, the rope dropping into the narrow part, where, by the pressure it is held from slipping. The sockets have a screw cut on the lower end, which holds them when inserted, without any put. An inch rope, with the ends spliced together to make it endless, is handled by the operator in lifting the carcass, the difference in the size of the wheel and of the roller, giving him a large purchase. A wooden bar stops the wheel at any place, and holds the carcass at any height desired.

A vat for scalding hogs is made of 1 1/2-inch plank, 20 inches deep, 30 inches wide, and 6 feet long—a hose from the steamer heats the water.

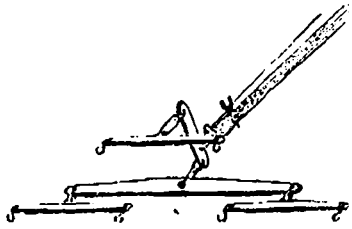
When killing hogs, put chain around one leg below the gambrel, make it a slip over the other leg.

The whole of this arrangement has the merit of both efficiency and cheapness, suited to moderate and private establishments. By making the wheel as directed, by procuring the steamed felloes, the wheel was made for \$3; by purchasing, or ordering it made, it would have cost \$25.

Three Horse Whiffletree.

BELOW is an illustration of a first class three-horse whiffletree, that works without a parallel to a plow or harrow. The woodwork any farmer can make, and consists of a straight beam

1 1/2 by 2 inches, and any single tree can be used. The upright iron is the only piece that requires a mechanic's skill, and in this respect it is very easy for any farmer to understand it. It is nine inches long, with three holes, the middle one being twice as far from the upper as from the lower. A rod six inches long with a hook at each end runs from the upper hole to receive



the middle single tree and a closed ring passes through the lower hole to which the long tree is fastened. A hole at the rear receives the clevis pin to which the plow is joined by a ring or otherwise. This tree is light and easily handled, and gives the horses perfect freedom. If you have a horse a little too fast, put him in the middle and he can go all he wants to, and not interfere with the good working of the plow.

Libe Stock.

LINSEED meal fed to horses will make their coats sleek.

GOOD training will develop many good qualities in the horse.

OLD brood sows give stronger pigs that will grow up rapidly.

THE tendency to poverty in flesh is to make meat hard and dry.

DRY, clean and warm stables will preserve sheep and cattle from disease.

KEEPING the brood sow lean improves her breeding and milk-giving qualities.

SYSTEMATIC feeding and shelter of hogs is the only way to make hog raising profitable.

GOOD and bad qualities are hereditary in animals. This should be remembered in breeding.

STOCK of all kinds prefer the salting of hay than hay which is not salted. Salting prevents waste.

By continually changing no one can build up a fine flock, as that requires years of careful breeding.

MEN who raise stock and good farm products in general are as a rule not discontented with their lot.

FOR poor lands and thin pastures, sheep are better adapted than cattle and can often be made profitable.

THE tendency of hog feeders and breeders is toward a better proportion of lean meats rather than an excess of fat.

AT this time it is often easier to keep from overstocking than to get rid of the extra animals a little later on.

A poor steer will spoil the appearance of an otherwise good herd, but a good steer will not improve the appearance of a poor herd.

The Poultry Yard.

Do not inbreed.

Too many early chickens cannot be raised.

If there be an unhealthy fowl in the flock remove it at once and care for it.

Do not crowd too many birds in one pen if you want your fowls to be healthy.

KEEP no hen over two years as the old fowls eat the profit made by the younger.

HAY seed is a very good article to mix with the morning mash, especially for ducks.

MAKE hens lay when eggs are highest in price and not when lowest as is the practise.

THERE is very much more money to be made from the production of spring chicks than from the sale of eggs.

LADY GWYDYR, of England, whose name is familiar to all breeders of Cochins and Brahmas died recently in her eightieth year.

OF all the varieties of pure bred fowls the Plymouth Rocks possess more good qualities and fewer defects than any other breeds.

SEE that your fowls have lots of gravel and oyster shells and a variety of food and plenty of it if you want your flock to thrive.

A FEW cabbage leaves or mangold leaves or turnipshung up to be slightly above their reach will induce the hens to take exercise during the winter.

HENS that are kept busy during the day will be happier, healthier, and will lay better than those that sit on the perches or stand around idle. Keep them scratching and so prevent feather pulling and egg-eating.

MOULTING hens require good care. Their food should be generous in quantity and nitrogenous in quality. A little stimulation at this time will often be found beneficial. Condition powders, warming mixtures, and good warm quarters are also necessary.

IN shipping young pigeons to market they should be transported in coops deep enough to allow them standing room and never put adult birds and younger birds in the same box as they are sometimes very vicious to each other in such close quarters.

WHEN young pigeons are about eighteen or nineteen days old they ought to be fed on maize (soaked for 24 hours beforehand.) Feed a young bird from fifty to a hundred grains of this food morning and evening for a fortnight and you will have pigeons as fat as the best poultry.

THE heavier breed of fowls should roost on the floor and so prevent crooked breast-bones. Put a foot or more of straw on the floor of the hen-house and pour some dust and ashes among it. Then every night throw some small grain among the straw for which the fowls will scratch and thus cause a dust which will destroy any stray vermin.



Tanning and Coloring Skins.

The first requisites for tanning are a fleshing-beam and knife. For the fleshing-beam select a fine grained, hard wood slab, about five feet long, and ten to fifteen inches wide, as shown in Fig. 1. Have the round side up; put in two legs, two-and-a-half feet long, and one foot from widest end, the other end resting on the floor. Make the top surface smooth and it is ready for use. A good fleshing knife, like that seen in Fig. 2, may be made from an old drawing knife, or piece of scythe, by grinding

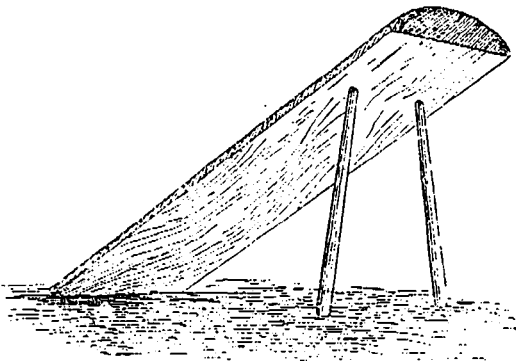


Fig. 1.

the edge down to a face about a thirty-second of an inch; this will give two edges to work with by reversing, and of sufficient sharpness to remove all fleshy substance from a skin.

Preparatory to tanning a skin, soak it well and break all hard spots on the fleshing beam. To soak a skin, take four gallons of cold, soft water, half a pint of soft soap, half an ounce of borax, half a pint of salt; mix and immerse the skins. For skins to be tanned with the hair and wool on, add three-fourths of an ounce of sul-

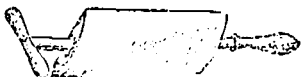


Fig. 2.

phuric acid. Soak from two to six hours. After soaking, if it is required to remove the hair or wool, immerse the skins in a liquor composed of five gallons of cold water, four quarts of slaked lime and four quarts of hard wood ashes. Let it soak in this from one to six days, until the hair or wool slips off easily. Then remove to the fleshing beam, and scrape off all the hair and flesh,—that is, remove with the fleshing knife all fleshy particles that may remain on the inside next to the animal. Now remove and wash thoroughly in cold water, and with the knife scrape off all the surplus water. Fig. 3 shows the tub for soaking the skins.

Prepare the tan liquor as follows: To eight quarts of cold, soft water, add one-quarter of a pound of pulverized oxalic acid, and one quart of common salt. Dissolve well, and immerse the skins. Enough tan liquor should be made to cover the skins well. Light skins should remain in this liquor from three to four hours, and should be handled occasionally, that every part may be well wet with the liquor. Calf-skins, dog skins and wolf skins, should remain in the liquor at least forty-eight hours, or until tanned through, which can be told by cutting on the neck, the thickest part of the skin. On all the finer furred skins, where extra softness is desirable, the following liquid should be applied to the skin after removing from the tan liquor. One pint of soft soap, one pint of tanner's oil, or neat's-foot oil, one pint of alcohol. When this is thoroughly dried in, the skin should be dampened enough to finish.

All skins when drying are like full-cloth when

wet; they contract or full up, and have to be stretched in finishing. To do this, take the skin before it is thoroughly dried, and place it upon the fleshing-beam over some yielding substance, or a sheep-skin, flesh side up, then take the fleshing-knife, and carefully push the edges of

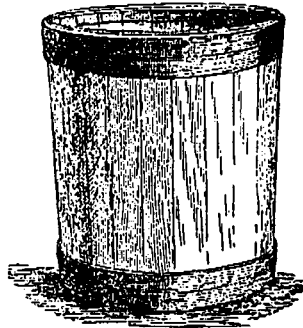


Fig. 3.

the blade stoutly in all directions over the skin, until it becomes stretched, soft and pliable.

To culiven the fur upon the skins that have been tanned and finished, take equal parts of scorched bran, and sharp, clean, white sand, or dry, hardwood sawdust, and rub well in the fur, then shake out.

To color fur or wool take equal parts of pulverized, unslaked lime and litharge, mix to a thin paste with water, and apply with a brush. One or two coats will give a light buff color. By using several coats, a beautiful, light brown is obtained, every additional coat deepening the color. By adding a small quantity of ammonia and nitrate of silver, a beautiful black is produced. To color a bright orange on the wool of sheep-skins, for rugs, etc., wash out all grease from the wool, then take an ounce of picric acid to each skin; dissolve the acid in soft, lukewarm water, using enough to cover the skin. Use alcohol or vinegar to set the color. A very pretty magenta color may be obtained by taking

for each skin half an ounce of magenta crystals; dissolve in two quarts of boiling hot water, stirring until dissolved; then add warm water enough to cover the skins. The water should not be more than lukewarm when putting the skins in, and should be handled well, that the color may be evenly distributed. When of the right color, remove and set with a pint of vinegar, or alcohol, in water to cover the skins. Stretch while drying, to prevent shrinkage.

A HALO around the moon is a sure indication of rain. The larger the halo the nearer the rain clouds, and the sooner the rain may be expected. Small colored circles which are frequently seen around the moon or sun are termed corona. A corona growing smaller indicates rain; growing larger fair weather. It is said that rain will follow a halo within as many days as there are stars within the circle.

A haze around the sun indicates rain. When this is seen a rain of five or six hours' duration may be expected.

A halo around the sun occurring after fine weather indicates a storm.

Kitty Knew About Sheep.

"Seven sheep were standing
By the pasture wall
Tell me," said the teacher,
To her scholars small:

"One poor sheep was frightened,
Jumped and ran away.
One from seven—how many
Woolly sheep would stay?"

Up went Kitty's fingers
A farmer's daughter she,
Not so bright at figures
As she ought to be.

"Please, ma'am"—"Well, then, Kitty,
Tell us if you know."
"Please, if one jumped over
All the rest would go."

—The Pansy.



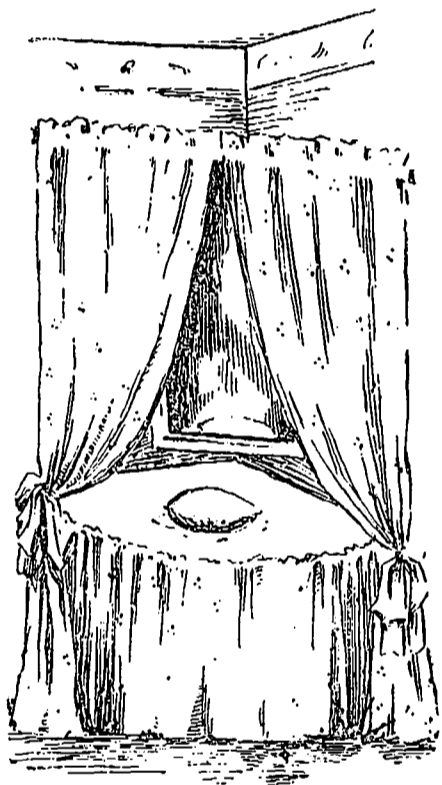
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A Dainty Guest Room.

UNCLE John and I had not been married long, our house was small, and as we had never been called upon to entertain overnight any one except the man we hired in the busy season, the question of a guest room, which often arose in my mind, has never been really up for settlement. But now the dearest friend of my girlhood was coming for a visit of some weeks, so I had to do something to accommodate her. John suggested that he sleep in the little room and Susy share our large pleasant room with me. But there was baby, who was often troublesome at night, and I knew it would be much pleasanter for us all if I could somehow fix up that little room for her. So I set my wits to work and this is what I did:

There was some white paint left from painting the house, and I had a little bronze powder

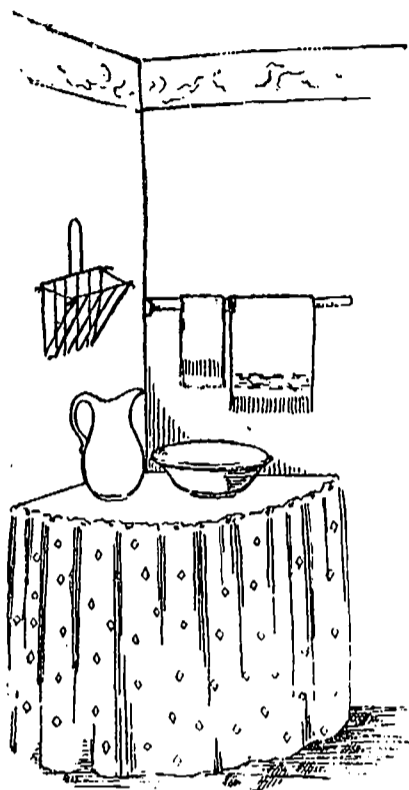


THE DRESSER.

left after re-gilding a picture frame or two in the spring; I painted the shabby looking bedstead white (it was of the old "cottage" style) and gilded enough of its "knobs"—up and down and across—to show off prettily; I also painted the chair white, and striped it with the gilding. Then crocheted a rug in strips out of two pairs of John's last year's blue denims and some old white rags, and sewed together alternate strips of the white and blue, finishing with a fringe of finely cut white and blue rags. I pieced a "checkerboard" cushion for the chair out of the blue denim and white, and tied it on at each of the four corners with a bow of some old-gold ribbon I "happened to have," and also tied a generous bow of ribbons at the upper left hand corner of the chair back. I made up the bed with a white spread and dainty ruffled pillow shams, spread the blue and white rug before it, tied back the white scrim curtain at the window with blue ribbon, set my white and gold chair with its blue and white cushion before it, and presto, what a transformation!

Greatly encouraged, I planned a little more, counted the cost, and the next time John went to town I went too, and having expended but a little more than three dollars, finished my room thus: A six-inch border of white and blue and

gold was neatly pasted on the walls, then a simple pine molding (gilded), for picture hanging, was tacked just below it. John had fitted a neatly rounding roomy shelf into each of the two corners of the room opposite the bed, and I covered one with white oilcloth, and put a puff and flounce below of blue-figured white lawn. This was



THE WASHSTAND.

for the washstand, and with its white bowl and pitcher upon it, a gilded rod above at one side for towels, and a common toaster partially opened and tied, for holding comb, sponge, brushes, etc., hung up on the other, this was pronounced "just the thing." I had gilded the frame of the old square mirror, which was hung at the proper distance above the other corner shelf, which I stuffed smoothly and covered neatly with the blue and white lawn, hanging a puffed "valance" below this also. A strip of lath, extending out on either side a little further than the shelf, was nailed above it, about six feet from the floor, and to this I tacked two full curtains of the lawn to meet in the middle, with a stand-up ruffle above. Drawing these to either side and tying them back with blue ribbons, behold, the daintiest dressing table imaginable. I had almost forgotten the little stand, which was also painted white and gold and placed at the head of the bed, with a brass candlestick, which I had found and scoured up, upon it, containing a real "bedroom candle." I found time before my friend arrived to crochet a mat for the candlestick of blue zephyr, and to make blue and white pin-cushion for the dresser. When everything was finished, and a white bowl of glowing yellow nasturtiums stood upon the dresser, John declared the room was "pretty as a picture," and it did look very cool and inviting.

My friend was delighted with everything, and when her trunk was placed in the vacant space between the wash stand and dresser, and I found there really *was* plenty of room for her and her belongings, my soul was filled with content also. What a pleasant summer we had together! For Susy was one of those helpful, cheery little souls whose presence brightens every household.

Recipes Arranged for use in the Boston School Kitchen.

CRACKER BREWIS.—Use baked crackers, with or without cheese. Put them in a baking dish; just cover them with milk ($\frac{1}{4}$ cupful to each whole cracker). Bake till golden brown and the milk is absorbed.

BAKED APPLES.—Wipe two apples, core and pare them very thinly (or the peel may be left on). Put them in an earthen dish with 1 tablespoonful water to each apple; put into the centre of each apple 1 teaspoonful sugar; bake in a hot oven 20 to 30 minutes, or until soft; baste with the syrup every 10 minutes.

BAKED CRACKERS.—One whole cracker for every two girls; $\frac{1}{4}$ teaspoonful butter to each whole cracker. Split the crackers in half; spread the inside with the butter; put them in a shallow pan, buttered side up, and bake about 5 minutes in a hot oven till golden brown. Serve in a folded napkin.

BAKED CRACKERS, WITH CHEESE.—When the crackers are brown, put on them as much grated cheese with a small speck of salt and pepper as each cracker will hold; cook in the oven till the cheese is melted, about 2 minutes. Serve at once.

BAKED POTATOES.—Thoroughly wash and scrub two potatoes about the same size; bake in a hot oven till soft. Large ones take about 45 minutes, small ones about 30 minutes. When done, break them open to let out the steam. Serve in a folded napkin. If any potatoes are left over, peel them while warm and put away to be warmed over.

CROUTONS.—Take a slice of stale bread about $\frac{1}{2}$ inch thick and cut it into half-inch dice. Put them on a baking tin or in a shallow pan so that they will brown all over; bake in a moderate oven about 10 minutes, or till golden brown. When cold, put them away in glass cans or wooden or tin boxes in a dry place. Use for soups.

BREAD CRUMBS.—Break into little pieces of stale bread; put them in a shallow pan in a very cool oven and dry, but do not brown them. Roll fine, sift, and put away same as croutons. They will keep good for six months. Use for stuffing, puddings, and frying fish or croquettes.

BOILED POTATOES.—Take two potatoes of uniform size, wash and very thinly pare them. Set them into cold water from 30 minutes to 2 hours. Put them into a saucepan with enough boiling or cold salted water to cover. Cook 25 minutes, or until soft; drain very dry and shake the pan without the cover gently over the stove till the potatoes are mealy. 1 tablespoonful of salt is enough for 6 potatoes of medium size.

RICE POTATOES.—Rub the potatoes as soon as drained and dried through a hot strainer with a wooden masher. Serve very hot.

MASHED POTATOES.—As soon as the potatoes are drained, mash them till free from lumps, and add to every pint of potato $\frac{1}{2}$ tablespoonful butter, $\frac{1}{2}$ teaspoonful salt, speck pepper, and enough hot milk to moisten. Beat fast with a fork till white and light, and pile up lightly on a hot dish.

POTATO CAKES.—Form cold mashed potatoes into balls, then slightly flatten them; put them on a floured tin; brush each over with milk, and bake in a hot oven about 5 minutes, or till brown.

STEAMED POTATOES.—Wash and pare potatoes; cook them in a steamer till soft, then shake them till mealy.

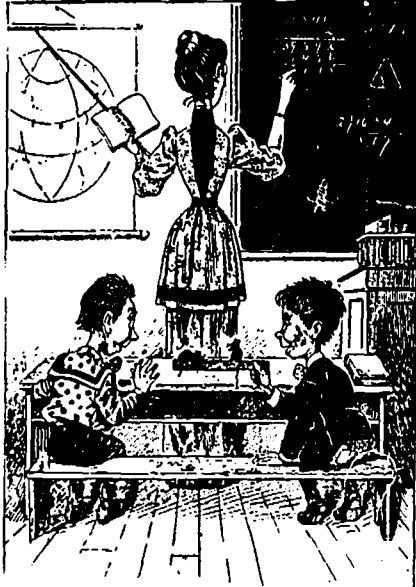
HASTY PUDDING.—1 pint boiling water, scant cupful corn meal, 1 cupful cold milk or water, 1 tablespoonful flour, 1 teaspoonful salt. Mix meal, flour, and salt with the cold milk; when smooth, stir in the boiling water. Cook in double boiler 1 hour. Turn into bread pans to cool if wanted for frying; cut in $\frac{1}{2}$ inch slices, dip in corn meal, fry in salt pork fat.

BAKING-POWDER BISCUETS.—1 cupful flour, 1 teaspoonful baking-powder, $\frac{1}{4}$ teaspoonful salt, $\frac{1}{2}$ teaspoonful beef-drippings, $\frac{1}{2}$ cupful milk or water. Sift dry ingredients together, rub in the dripping, stir in the milk, mix as soft as can be handled, pat the dough on to a well floured board, pat it lightly with a rolling-pin to $\frac{1}{2}$ inch, cut with biscuit cutter; bake in a hot oven about 15 minutes.



Husband—Why do you buy such a lot of trash every time you go out? Wife.—Because the clerks are so polite. They don't act a bit like you do about it.

A SAD INVESTIGATION.



WILLIE GREEN.—Dem's th' finest trained mice in th' town.



TEACHER.—I saw you, Willie Green, put something in your pocket. Come forward and bring it to me.



TEACHER.—Well, if you will not hand it out, I shall get it myself.



Taking Things Coolly.

About a year ago, when the upper part of a hotel was on fire, one of the servant girls was directed to awaken two gentlemen who were asleep in an upstairs room. She knocked at the door, and, with the greatest simplicity, said: "I beg pardon, gentlemen, for disturbing you, but the house is on fire."

This case, of what may be called ludicrous politeness, brings to mind another: "Hi! you dropped a brick up there!" shouted a pedestrian on whose shoulders one of these articles had fallen from a two story scaffold. "Ah right," cheerfully responded the bricklayer, "you needn't take the trouble to bring it up."

"What is the matter?" asked a lawyer of his coachman. "The horses are running away, sir." "Can't you pull them up?" "I am afraid not." "Then," said the lawyer after judicial delay, "run into something cheap."

Lawyers remind us of judicial matters, and the latter have often to do with the career of burglars. To one of these nocturnal visitors who had entered a gentleman's bedroom, and was seen standing in front of the bureau, the question was put by the roused sleeper: "Well, what do you want here?" "I want money and bonds," hissed the burglar through his clenched teeth, "and quick about it, too." "My friend," returned the occupant of the bed "I've been looking for those things for the last twenty years without success. But go on with your burglary; I'm sleepy."

Another cool business character, on leaving the city for a trip to Paris with his family, placed a placard just inside the hall door, couched in the following language: "To Burglars—All my plated jewelry and other valuables are in the safe Deposit Company's vaults. The trunks, cupboards, etc., contain nothing but second-hand clothing, too bulky to remove, on which you would realize comparatively little. The keys are in the left hand top drawer of the side-board. You will also find there a check to bearer for £20, which will remunerate you for your loss of time and disappointment. Please wipe your feet on the mat, and don't spill any candle grease on the carpet."

The facetious writer of such a notice must surely have been a relative of the gentleman who, on being told by a beggar whom he refused to "tip" that he would commit suicide with a razor, asked him to step outside and not spoil his floor.

A Danish officer is pictured to us making observations in regard to the deviation of rifle bullets. One day when walking on the ramparts at Duppel, he saw a Prussian sharpshooter taking aim at him. While the soldier placed himself against a tree, in order to take a steadier aim, the officer raised his glass to watch his movements. "This is all right," said he; "the musket is just on a line with my breast—we shall see!" The trigger was pulled, and the Danish officer quietly wrote down: "At a distance of 500 yards, the deviation of a ball from a rifled musket is about one metre."

A little girl is content with a wax doll, but a boy wants a live dog that will follow him and chase things.

Scientific American Agency for

PATENTS

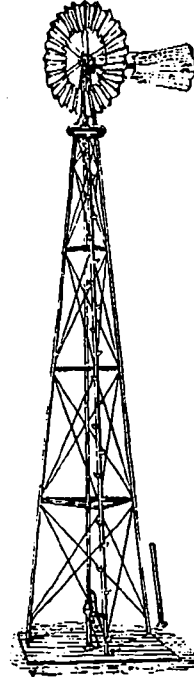
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A Spaniard can prove not a wit behind other Europeans in acting with provoking coolness when it so pleases him. A traveller on reaching a Spanish country town went to a shoemaker, as one of his boots needed repair. He found the honest tradesman reclining in the shade in front of his cottage, and smoking. "Could you mend me this boot at once?" he inquired. The worthy master looked at him, made no reply, but called his wife. "How much have we left?" he said. The wife pulled out an old leather purse and counted the money. "Twelve pesetas." "That is enough for to-day and to-morrow," observed the shoemaker, and added lazily, "No, sir; I cannot comply with your request."



WHY WASTE YOUR STRENGTH WORKING

away at the old pump when for a small sum you can get a

BRANTFORD Steel Wind Mill

that will pump enough water for **THE LARGEST FARM**

and never get tired, needs no feed, and lasts FOR A LIFE TIME. The Brantford Power Mill will, besides pumping water, saw wood, cut hay, chop grain, etc., etc. Those who have them say they could not get along without them. Address—

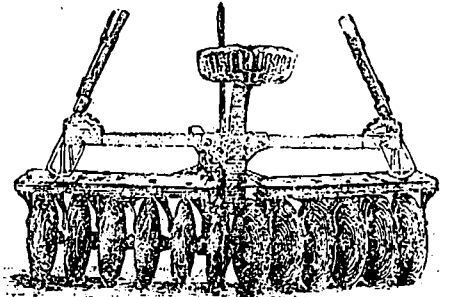
COOLD, SHAPLEY & MUIR CO., Ltd.

Brantford, Ont., Canada.

ESTABLISHED 1858.

MORRISBURG Implement Works.

J. F. MILLAR & SON, PROPRIETORS, MORRISBURG, - ONTARIO.

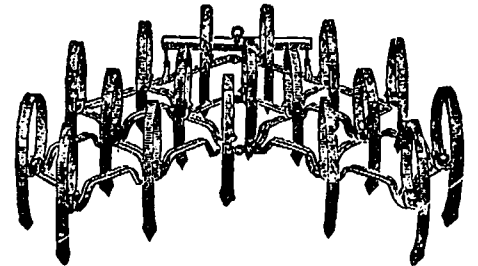


The "New Model"

(PATENTED)

ROTARY DISC JOINTED PULVERIZING HARROW

with Patent Pressure Levers and Automatic Self-Acting Scrapers.



The "New Stevens"

(PATENTED)

ALL STEEL ARCHED FRAME SPRING TOOTH HARROW

Most Durable and Lightest Draft Harrow in the World.

Agents Wanted. Write for Prices and Terms.

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THE CANADIAN RUBBER CO. OF MONTREAL

Manufacture the Best Threshing Machine Belts in America.

ASK THE MERCHANT YOU DEAL WITH FOR THEM, AND TAKE NO OTHER.

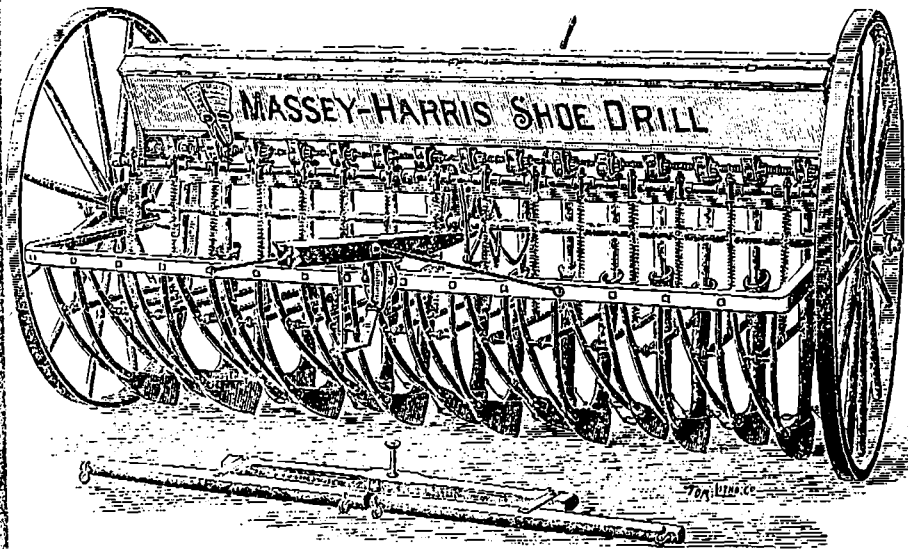
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WESTERN BRANCH:

Cor. Front & Yonge Sts., TORONTO.

BELTING

NEW MASSEY-HARRIS SHOE DRILL.



Beyond Question the Latest and Greatest
Triumph in Seed Drills.

THE NEW MASSEY-HARRIS SHOE DRILL is a model in appearance as well as in operation. It is simple, light, very easy to handle, easy on the team, and its work is of a character that challenges criticism. On land where a long stubble has been lightly ploughed under, or where there are heavy clumps of sod or grass, the Shoes will cut through or ride over it with the greatest facility. The shape of the Shoes and the Draw-Bars is such as to cause them to pass over any obstruction without the least difficulty.

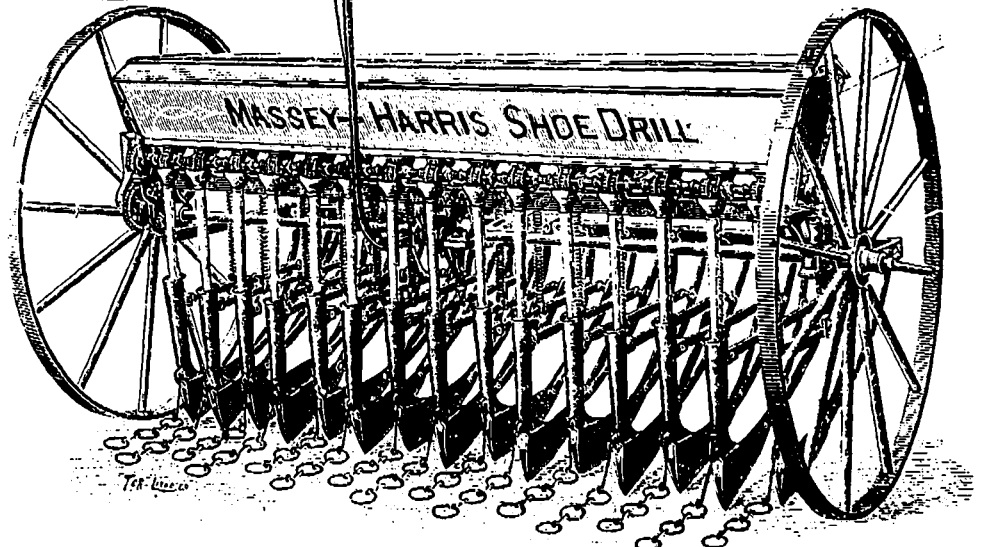
It can be made to do good service where no other Drill will work at all. By it the seed can be sown deeper, and at the same time it is possible to sow nearer the surface than by any other method. The seed is put in at a more uniform depth than is possible with a Hoe Drill. It plants the grain more securely than a Hoe Drill, hence it is less likely to be blown out in territories subject to high winds.

ONE LEVER controls the machine—applies or releases the pressure—lifts the Shoes for transportation—throws the wearing in and out of motion.

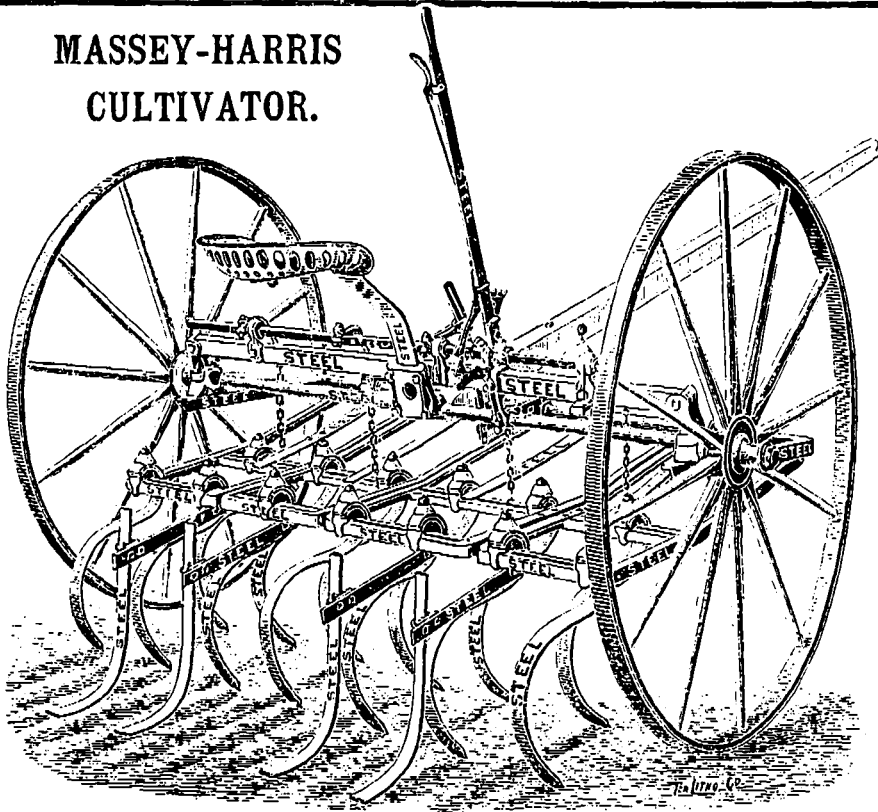
It is an "all-steel" machine—solid angle steel frame, steel axle, steel draw-bars, steel shoes and steel springs.

Descriptive Catalogue on application.

MASSEY-HARRIS CO., Limited,
TORONTO, CANADA.



**MASSEY-HARRIS
CULTIVATOR.**



The greatest cultivating implement ever invented.

Will cultivate the hardest clay land with great facility.

The patent "Helper" prevents the breakage of teeth.

The Steel Sections are perfectly flexible, even when full pressure is applied.

The depth of work can be easily and perfectly regulated.

One lever does it all—puts on the pressure or, when reversed, lifts the teeth up for transportation.

This Machine is a
Massey-Harris Cultivator
with Seed Box attached.



ALL STEEL.

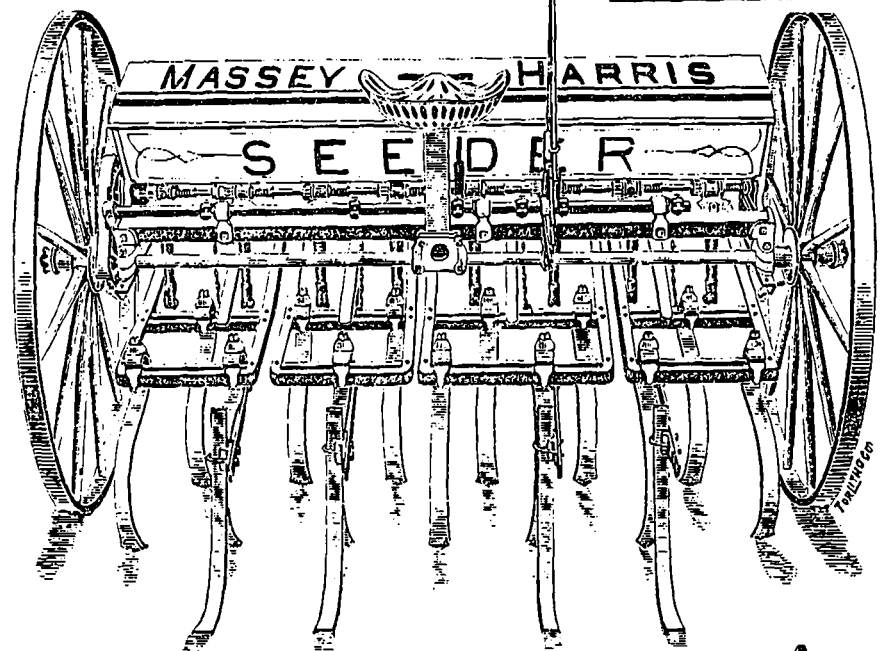
FRAME
AND
SECTIONS
ARE OF
ANGLE STEEL.

ALL STEEL.



This Machine is a
**MASSEY-HARRIS
CULTIVATOR,**
with Grain Seed Box and Grass
Seed Sower Complete.

- STEEL FRAME.
-
- STEEL TEETH.
-
- STEEL
PRESSURE BARS.
-
- STEEL SECTIONS.
-
- STEEL AXLE.
-
- STEEL SHOES.



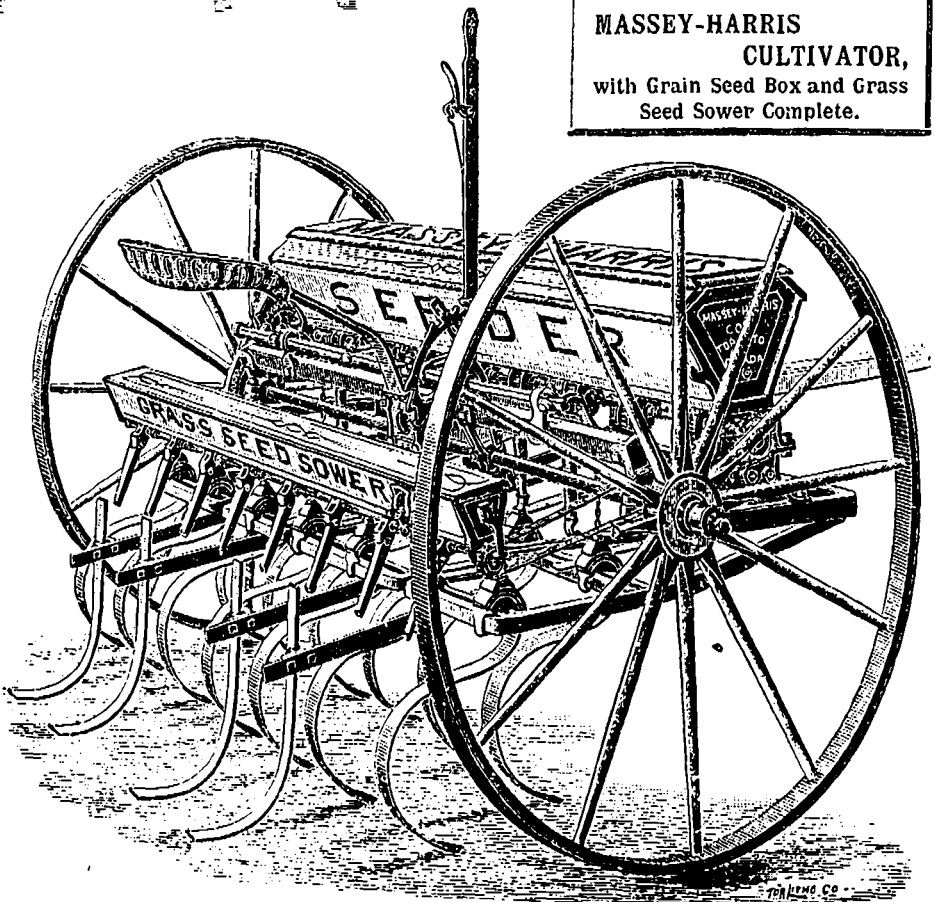
Four Steel Sections carry the Teeth.

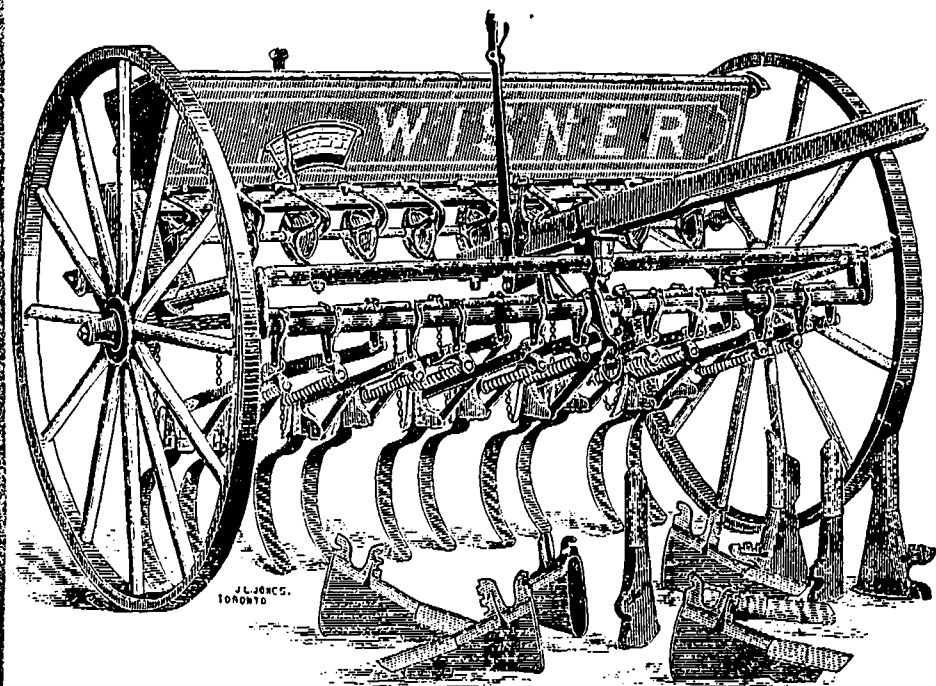
New Patent Movable "Tooth-Seat" is a great achievement. By this plan, the teeth may be so divided up as to make the Cultivator into a Scuffler for cultivating corn, beans, potatoes, etc.

Thus one implement takes the place of several different tools.

A seed box with new improved scattering apparatus is made to go with the Cultivator. When thus equipped it makes a perfect Sectional Seeder.

A Grass Seed Sower is also adapted to this multum-in-parvo machine.





WISNER

COMBINED

Drill & Seeder

SPRING
HOES
FOR
DRILLING

Tubular Iron Frame.

It is always safe to buy a 'Wisner' It
always gives satisfaction.

SPRING
TEETH
FOR
SEEDING

You Will do Well to consider the matter carefully before purchasing any other than a "Wisner" Combined Drill and Seeder. It is not so much the price that is to be considered in buying a Drill, for that is a

thing of comparatively small importance when it is remembered that upon the successful working of this one tool the outcome of the entire season's labor depends. Unless the drilling or seeding be well done, how can good crops be expected? Good seeding or drilling can only be done with a thorough working machine, capable of every adjustment necessary to adapt it to various kinds of work on different kinds of land. The "Wisner" Combined Drill and Seeder has long since been recognized as the standard of excellence by the leading farmers of the Dominion. A royalty is now being received from United States manufacturers to whom shop licenses have been given for that country.

The reputation of this splendid machine is wide-spread. It never fails to please the most fastidious. "It is always safe to buy a 'Wisner.'"

MANUFACTURED SOLELY BY MASSEY-HARRIS CO., LTD.

Massey-Harris Ensilage Cutter.

THIS ENSILAGE CUTTER is the one you want; that is, if you want the best,—one that can be relied on to do first-class work,—one that is sufficiently heavy and strongly built, well fitted, and finished in a manner creditable to high class mechanical skill.

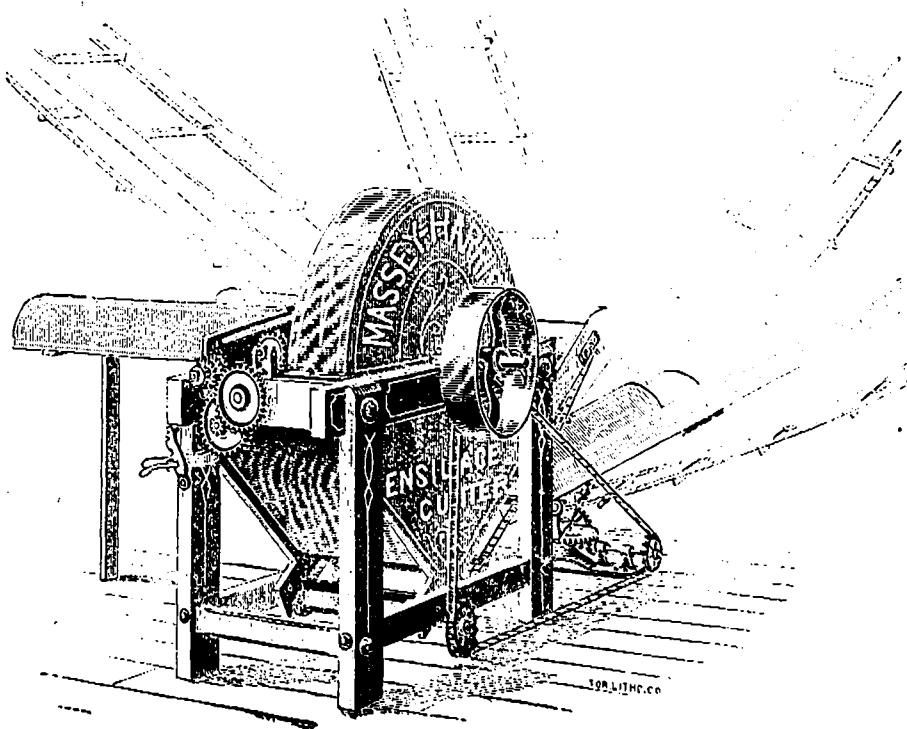
The Gearing is well made and carefully put together. The Cutters are closely fitted, and the Knives are made of a high grade imported "Sheffield" steel.

The Feed Rollers can be instantly stopped or reversed—a most essential feature in a machine of this sort.

A machine of this character must be heavy and strong to ensure the necessary rigidity, to secure smooth, even running and lasting qualities. In this and other points, the Massey-Harris Ensilage Cutter is unsurpassed.

THE CARRIER can be quickly swung to any position within the radius of a half circle in the readiest possible manner. Notice that the Drive Belt runs directly away from the machine and NOT PARALLEL with the Feed Table. Hence the Feed Table is left entirely open and free, admitting of feeding from either side, and allowing a clear space for wagons, workmen, etc., to pass.

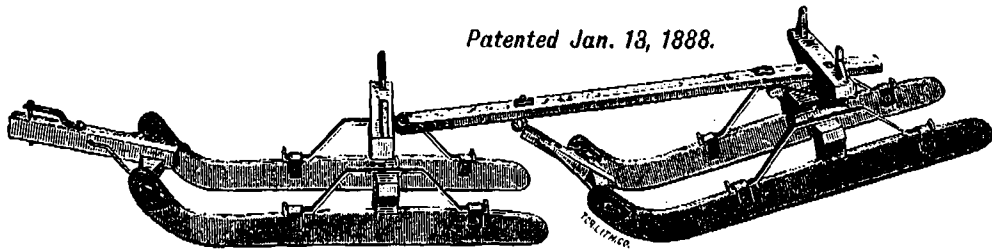
This Ensilage Cutter and Carrier will please you. It is furnished with a 16 foot Carrier.



Massey-Harris Co., Ltd., Toronto, Canada

BAIN BROS. IMPROVED MANITOBA BOB-SLEIGH.

Patented Jan. 13, 1888.



Cut shows Hind Bob passing over an Obstruction.

BEST SLEIGH IN THE MARKET—Because it is lightest running—shortest turning—never cuts off—is always in line—no wearing of Box or Rack—no splitting of Bolster or Reach—never buckles—can be backed like a wagon. Made of very best material. Satisfaction guaranteed. Ask your dealers for them, or write us for particulars.

MANUFACTURED SOLELY BY

THE BAIN BROS. M'F'G CO., Ltd., Brantford, Ont.

NOTE—We also manufacture

BAIN BROS. IMPROVED ONTARIO TWO-KNEED BOB SLEIGHS.

Built strong and durable, runners faced with two inch Steel Shoes. We manufacture and carry in stock a Full Line of the Celebrated BRANTFORD BAIN WAGON, so well and favorably known throughout the Dominion. Always ask for

BRANTFORD WAGONS AND SLEIGHS.

DONALD C. RIDOUT & CO.,

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SOLICITORS OF HOME AND FOREIGN PATENTS.

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Brantford
One-Horse
Mowers
are Little
Gems.



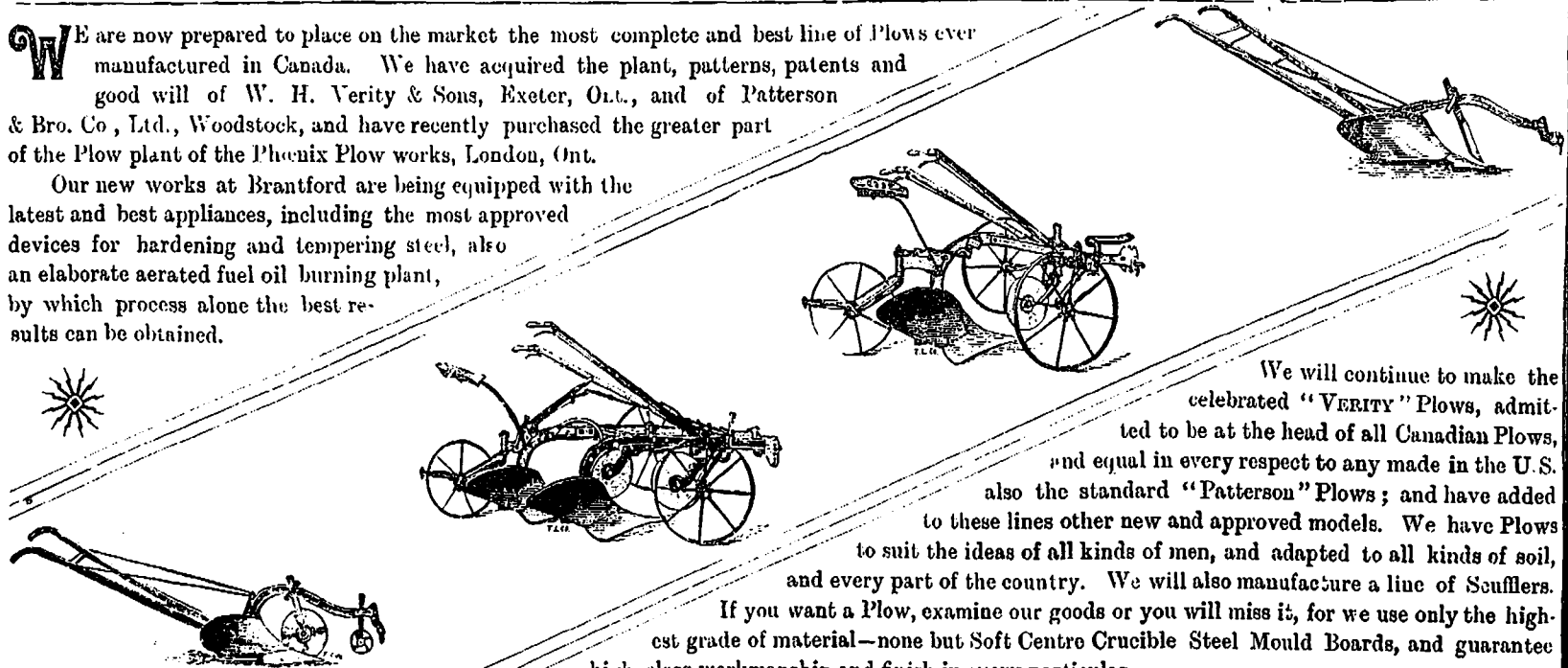
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BRANTFORD, ONT., CANADA.

Successors of W. H. VERITY & SONS, Exeter, Ont., and PATTERSON & BRO. CO. (Plow Business), Woodstock.

WE are now prepared to place on the market the most complete and best line of Plows ever manufactured in Canada. We have acquired the plant, patterns, patents and good will of W. H. Verity & Sons, Exeter, Ont., and of Patterson & Bro. Co., Ltd., Woodstock, and have recently purchased the greater part of the Plow plant of the Phoenix Plow works, London, Ont.

Our new works at Brantford are being equipped with the latest and best appliances, including the most approved devices for hardening and tempering steel, also an elaborate aerated fuel oil burning plant, by which process alone the best results can be obtained.



We will continue to make the celebrated "VERITY" Plows, admitted to be at the head of all Canadian Plows, and equal in every respect to any made in the U.S. also the standard "Patterson" Plows; and have added to these lines other new and approved models. We have Plows to suit the ideas of all kinds of men, and adapted to all kinds of soil, and every part of the country. We will also manufacture a line of Scufflers.

If you want a Plow, examine our goods or you will miss it, for we use only the highest grade of material—none but Soft Centro Crucible Steel Mould Boards, and guaranteed high class workmanship and finish in every particular.

VERITY PLOW CO. LTD.

BELL PIANOS ORGANS

Endorsed by all PROMINENT MUSICIANS for SUPERIOR TONE, LIGHT TOUCH, HANDSOME APPEARANCE, and DURABILITY. Our Guarantee accompanies each Instrument. Write us for Catalogues and Prices.

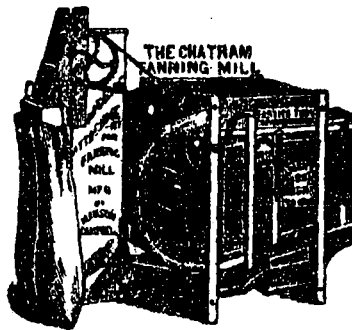
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GUELPH, ONT.

THE CHATHAM FANNING MILL

1000 sold 1884
1330 sold 1885
2400 sold 1886
2300 sold 1887
2500 sold 1888
3000 sold 1889
4000 sold 1890
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More than have been sold by any other factories in Canada put together.

ROCKFORD, Oct. 10, 1891.
DEAR SIR,—I like the Mill well, and consider the bagging attachment a splendid thing.
Yours truly,
AUSLEY IRWIN.



29,000 Chatham Mills now in use.
Over 7,000 Bagging Attachments now in use.
Bagging Attachment is run with a Chain Belt that cannot slip. The Elevator Clips are also attached to Endless Chain Belt that cannot slip nor clog.
SPECIAL ATTENTION GIVEN TO THE CLEANING OF ALSAC CLOVER SEED.
The Mill is fitted with Screens and Riddles to clean and separate all kinds of Grain and Seed, and is sold with or without a Bagger.
For prices and full information apply to

MANSON CAMPBELL, Chatham, Ont.

For Sale by all Agents of MASSEY-HARRIS CO., LTD., in Manitoba, N.W.T., and Province of Quebec.

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The New Massey-Harris Catalogues are now ready for distribution. They are very fine specimens of work. There are three, as follow:

- Catalogue of Harvesting Machinery—Reapers and Binders.
- Catalogue of Hay-Making Machinery—Mowers, Rakes and Tedders.
- Catalogue of Seeding & Cultivating Machinery—Cultivators, Drills & Seeders.

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MANUFACTURERS OF

PAINTS, VARNISHES, Pure Paris Green

Now making for next Season 200 tons.

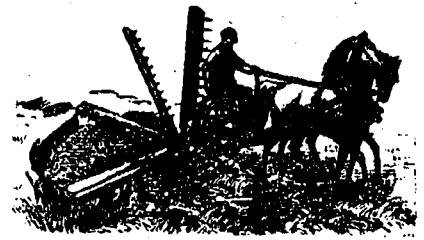
Farmers' Paint for Outhouses sold by all Hardware Men at 60 cents per gallon, in five-gallon Buckets.

MAKERS OF PAINTS AND VARNISHES FOR MASSEY-HARRIS CO., LTD.

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Leslie Street TORONTO.

TWO FAMOUS REAPING MACHINES.



**MASSEY HARVESTER
BRANTFORD REAPER**
MANUFACTURED BY
MASSEY-HARRIS CO., Ltd., Toronto.

BOYS FOR FARM HELP.

The managers of Dr. BARNARD'S HOMES desire to obtain good situations with farmers throughout the country for the boys they are sending out from time to time from their London Homes. There are at present nearly 5,000 children in these Homes, receiving an industrial training and education to fit them for positions of usefulness in life; and those who are sent to Canada will be selected with the utmost care, with a view to their moral and physical suitability for Canadian farm life. Farmers requiring such help are invited to apply to
MR. ALFRED B. OWEN, Agent Dr. Barnardo's Homes,
214 Farley Avenue, Toronto.



Every Stable should have Peerless Hoof Ointment.

ROGERS' PEERLESS MACHINE OIL is specially manufactured for Farmers' Machinery, and excels in all the qualities necessary for Farmers' use.

McLAREN'S Celebrated



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Buy only

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FINEST THRESHING BELTS

MADE, ASK YOUR DEALER TO GET FOR YOU THE

'MONARCH' BRAND

It will cost more at first, but will be economy in the end.

MANUFACTURED SOLELY BY

THE GUTTA PERCHA & RUBBER MANUFACTURING CO.

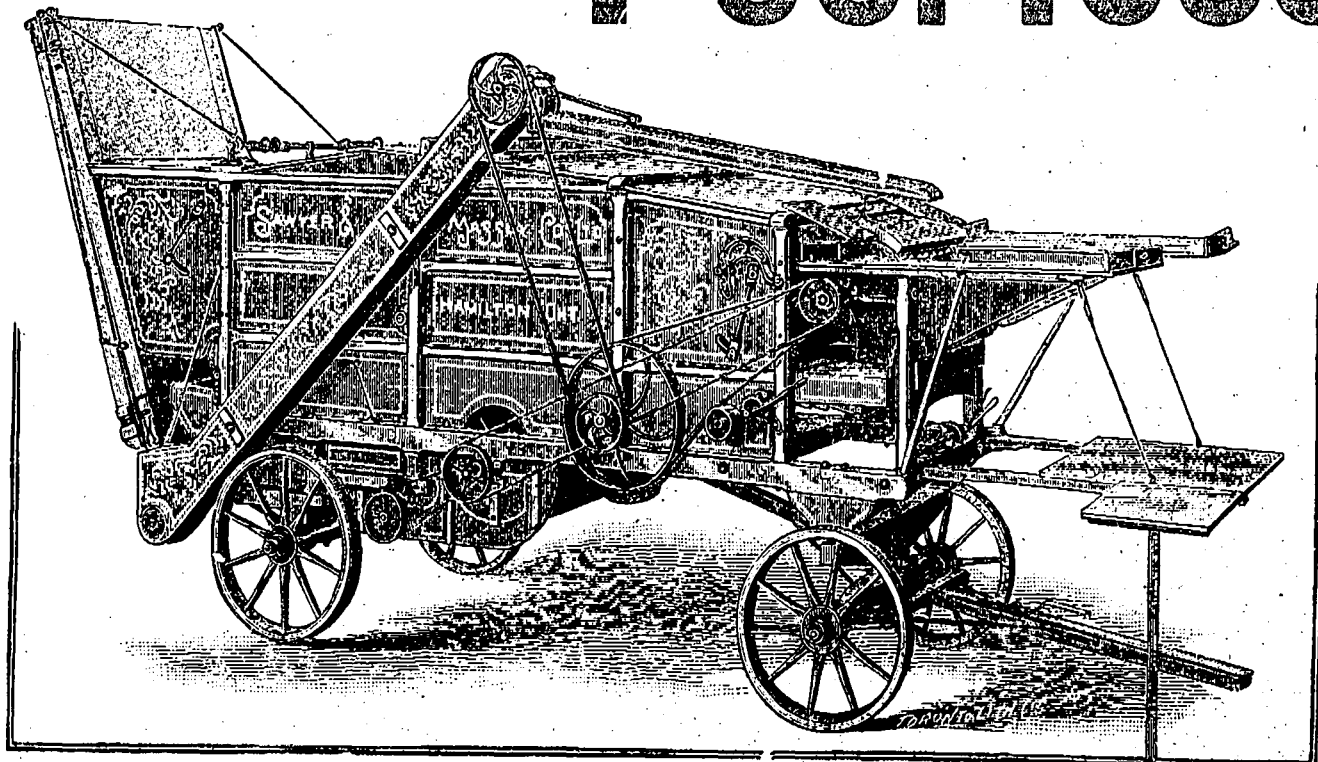
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THRESHING
MACHINERY

Peerless

Belt Side View of the "Peerless" Thresher, showing Elevator and Straw Stacker folded. 36 in. Cylinder, 56 in. Body.



This is the Latest Improved Style, with Grain Screw, Iron Sides, and Cylinder Cap. Unsurpassed for Threshing Wet Grain, Peas, and all kinds of Grain and Seeds.

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