

• Massey's Illustrated •

(PUBLISHED MONTHLY.)

May Number

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Toronto, May, 1893.



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TORONTO MOWER No. 2

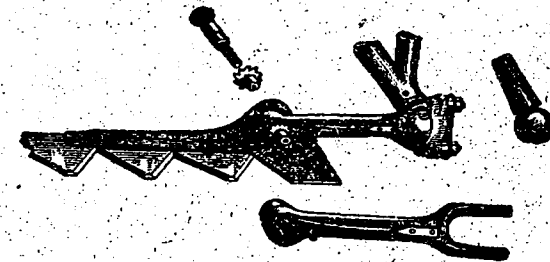
This Great Meadow Monarch is Immensely Popular, **35,97**
 have already been sold and now being in actual use.



OVER A STONE—KNIFE IN FULL MOTION.

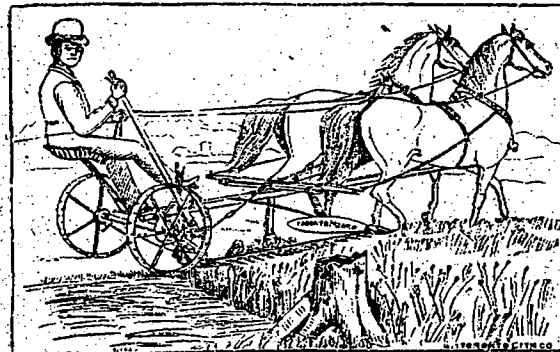
**LIGHTEST
 DRAUGHT.**

FOR steady, even, clean and powerful cutting no mowing machine has ever been designed that can equal the TORONTO MOWER. It is made exceptionally strong, and for rough land its equal is not known. It is often used on new land, where it would be most unsafe to venture with other styles of machines. It can be even used for underbrushing a swamp. The TORONTO MOWER is the only machine which practically admits of the cutter bar being raised to an upright position with the knife in full motion. No stopping required with the "Toronto" in passing obstacles.



Admirable Patented Pitman Connections.

SIMPLE.
 THE splendid driving mechanism used on the TORONTO MOWER is one of the great inventions of this age. The wonderful differential gear which converts the rotary motion directly into reciprocal motion is a marvel to scientists and mechanics. Nothing more simple can be imagined, and at the same time there never has been a more powerful driving mechanism discovered. Two cog wheels ONLY constitute the device, and these but the size of a dinner plate.

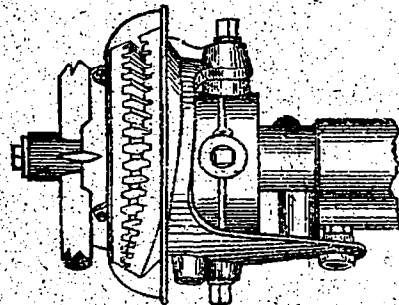


OVER A STUMP—KNIFE IN FULL MOTION.

**EASIEST
 OPERATED.**

as when out of gear the only two cog wheels on it are thrown wide apart and the machine is like a sulky, and with the fine spring seat rides almost as easy. The Guards are of tested malleable iron, fitted with ledger plates of steel made at our own works. The Sections are made of best English steel, specially imported by ourselves for this purpose. These, as well as the Ledger Plates, are made by ourselves. Our Knife and Bar Department is thoroughly equipped and constitutes a large industry in itself. The Cutter Bar is of steel, and is thoroughly tested before being fitted with guards and knives. A lead wheel in the inside shoe carries the cutter bar over inequalities of the land.

ELEVEN
 of these cogs are in mesh at one time; other gears have three only. We have yet to hear of a pair of these gears wearing out, though there are thousands of "Torontos" still in use which have now out from eleven to fourteen seasons. What other machine can show anything like so good a record.



The Wonderful Differential Gear.

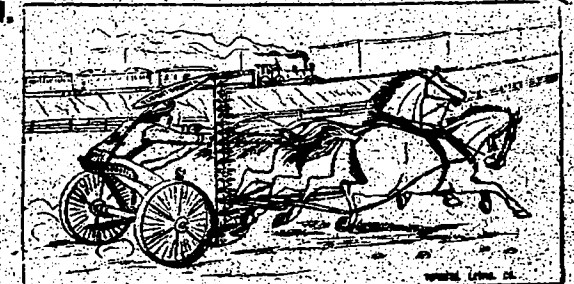
POWERFUL.
 In every detail this celebrated mowing machine will be found to excel. The Pitman connections are ball and socket and all slack from long wear can easily and quickly be taken up by simply turning a nut. No mower extant has such perfect adjustments to adopt it to all circumstances. The "Toronto" is not drawn from the pole. A draft rod attached to the main frame connects with a sliding device on the pole, thus connecting the horses directly with the cutter bar.



PASSING A TREE—KNIFE IN FULL MOTION.

DURABLE

**ALWAYS
 READY.**



LET HER GO! NO HARM CAN COME.

35,972 of these Celebrated Mowing Machines
 have already been sold and are in actual use, many having out 14 seasons.

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(PUBLISHED MONTHLY.)

A Journal of News and Literature for Royal Homes

NEW SERIES.]

TORONTO, CANADA, MAY, 1893.

[Vol. 5, No. 5.]

TWO TECHS ABROAD.

IN FIVE CHAPTERS.

CHAP. IV.—AT THE GREAT BREACH.

If we could have remained in charge of the oil-well, with Frost's tact and experience to guide us, we might have calmed the popular excitement and opened a successful industry; but now came the message from Lee Wung to come to Kai-Fong Foo, on the Yellow River, at the earliest possible moment.

Frost surmised that Wo Hei Feng and our little mandarin had been authorized by the Emperor to attempt the re-channelling of the river. More than half of the entire province of Honan had now been under water for more than a year. Sixty thousand men were working for the imperial government on the embankments.

Our services were in requisition on a grand scale, perhaps, and we were eager for the work, in spite of our petroleum fever in Sz'chuen.

"If our little man gets his long nails into the Peking treasury," said Frost, "he is sure to pull out a million or so of taels, and it will go hard if we do not come in for a share of it."

Our engine must be replaced in the launch, and the boat supplied with coal. This work took unto three o'clock the next afternoon. Frost directed that operations at the salt-wells should go on as usual, under the Chinese foreman. The oil-well we left securely "capped," as we supposed.

Toward evening we steamed into the Yang-tze, now at flood, with a current averaging six miles an hour, and shot through the gorges at a rapid rate. We were all three in high spirits, for we could not foresee to what scenes of peril and death we were hastening, nor that one of our number would never return.

At Chin-Kiang we entered the Yun-Ho, or Grand Canal, which connects the Yang-tze and Hoang Ho, and steamed to Tai Ho, where we were met by Sun Che Lo, a good-hearted Chinese youth, the nephew of Wo Hei Feng. He had come down with instructions for us to report to his uncle and Lee Wung at Kai-Fong Foo, the capital of the Province of Honan.

With these two mandarins were six other Chinese-Tartars, high in government favor, with nearly a score of foreign engineers, mostly English, who looked upon Wright and me as "boys."

We all went up to the place known as the Great Breach, forty miles above Kai-Fong Foo. Wo Hei Feng and his staff of engineers were on board a small government steamer, and Lee Wung in his own launch with Frost, Wright and myself. The object which it was desired to accomplish was the holding of the river to its old bed, in which it had flowed previous to the inundation of the year before, by rebuilding the levees. Sixty thousand men were already at work.

Five hundred miles from the sea the Hoang Ho River enters an alluvial plain formed by the accumulations of mud which through countless ages the great stream itself has brought down. As in the case of the Mississippi, the constant deposit of mud upon the bottom of the river, more slowly flowing here, builds up its bed, raising it higher than the adjacent level, and causing it to seek a new bed on one side or the other.

This process went on without much harm so long as the river was unrestrained; but the dense population and the fertility of the land led, many centuries ago, to attempts to keep the stream within bounds, by means of dikes or levees. These now only aggravated the evil.

At intervals the Hoang Ho has burst these artificial banks, and sought an entirely new course to the sea, carrying destruction through a country which had become a vast cultivated garden, sweeping away hundreds of towns and villages, and drowning people by hundreds of thousands.

The higher and stronger the river dikes have been raised and the longer the waters have

been held to one bed, the more frightful has been the ultimate catastrophe. At last the Hoang Ho has come to bear among the people the tragic name of "the sorrow of China."

In September, 1887, after an unusually wet season, the Hoang Ho's waters broke the south side embankments at a point forty miles above Kai-Fong Foo. At that very time over twelve thousand men, in gangs of a hundred or more, stationed within a few hundred yards of each other, were at work strengthening the dike. So sudden and so violent was the irruption of the stream that over five thousand of them were overwhelmed in their flight.

The land to the southward of the stream at



this place appears to have been from eight to ten feet lower than the surface of the current, and the violence of the torrent was such that houses, groves, villages and even the walls of large towns went down before it.

What had been a highly cultivated and very populous district was, in the course of a few hours, transformed into a turbid lake. It is estimated that nearly two and a half millions of people lost their lives. The river took a new course to the Yellow Sea.

The Chinese government, by advice of engineers, determined to repair the breach in the embankments above Kai-Fong Foo, and restore the river to its former northerly channel into the Gulf of Pechili. A levy of soldiers was made for the labor, and a sum equal to ten millions of dollars in American money expended in material.

The people of the northern provinces violently opposed the work. The terrible river had left them, and they had no wish to have it restored to their part of the country. Mobs destroyed the purchased material for rebuilding the dikes, and bloody conflicts with the military followed. Nevertheless the work was persevered in.

During the winter of 1887 the Great Breach was in part filled, and the river restricted to its old high channel between the embankments. Then in July came tidings of a heavy rainfall in the Mongolian mountains, and knowing that high water in Honan would follow by August and September, the government bestirred itself earnestly.

New appropriations had been made when we were called to Kai-Fong Foo, with other engineers, to advise with the imperial mandarins what to do with the long mismanaged Hoang Ho.

Wo Hei Feng, a dignified old Chinese statesman, presided over the deliberations. The older engineers were first asked their opinions. They advised the strengthening of the embankments as quickly as possible. They were in favor of using all the government money that was available to build dikes.

It soon became evident to me that Lee Wung and Wo Hei Feng were also strongly inclined to that course. They had secured a fat appropriation, and meant to use it up.

But during our trip up the river Wright and I had reached a conclusion that such a course would be folly, considered as national policy; and I am proud to say that, when asked his opinion, Wright spoke what he believed to be the truth.

"I am sorry," he said, "to disagree with older engineers, but it seems to me that a great mistake has been made in diking this great river. Five hundred miles from the sea and nine feet above the surface of the country on both sides, held up only by mud banks a few yards in width!

"This river is bringing down millions of tons of alluvium every year, which nature intends shall be spread out over the lowlands; but your dikes compel it to raise its bed instead. So your dikes must go higher every year, and that means broader and thicker. Periodically and surely the river breaks loose and drowns millions of people. That, in brief, is the story of your fight against nature and the Hoang Ho.

"The Egyptians never banked up the Nile, but adapted themselves to the annual overflow. No one was drowned, and the coat of rich alluvium deposited on the lowlands every year rendered them rich and fertile. They worked with nature instead of against her, and the great annual rise of the Nile became a blessing. This river might be China's blessing, but by your erroneous policy you have made it 'China's Sorrow.'

"What would I now advise, do you ask? This—let the river alone. Let it raise its lowlands and build its delta as nature designs it shall. Put your money back into the treasury. Warn the peo-

ple of inundations. Help them to get out of the way for a time. They will soon adapt themselves to the annual overflow. To go on building higher embankments will drain your national treasury every year, and result in periodical catastrophes like that of last season."

Something like a grin went around when Wright sat down. I thought that old Wo Hei Feng appeared a little thoughtful, as if perplexed; but the others laughed openly, especially Lee Wung.

"Our young brother appears to forget," remarked one of the English engineers, "that in the United States, where the people consider themselves the smartest in the world, an exactly similar policy of levee-building is pursued for the banks of the lower Mississippi by engineers of the highest education and experience."

"I admit that this is true," said Wright, "but it is unwise none the less, and will result in making the lower Mississippi 'America's Sorrow,' instead of the bearer of fertility, like the Nile."

As Wright was laughed at, and there was an appropriation to expend, we went to work on the embankments above Kai-Fong Foo that afternoon, aligning the works and directing the Chinese foremen with their gangs.

The earth for the immense dikes had to be raised fifteen feet out of trenches. We had

charge, too, of facing the river side of the banks with timber, which had been brought down the river in junks, and had under our immediate orders about eight thousand men.

Frost was employed in the commissariat department. He went to Kai-Fong Foo every morning, but returned in the launch at night. Lee Wung usually came with him, for the little mandarin was deep in the appropriation, and for certain reasons greatly interested in what was going on. All the Chinese officials here were jealous of one another.

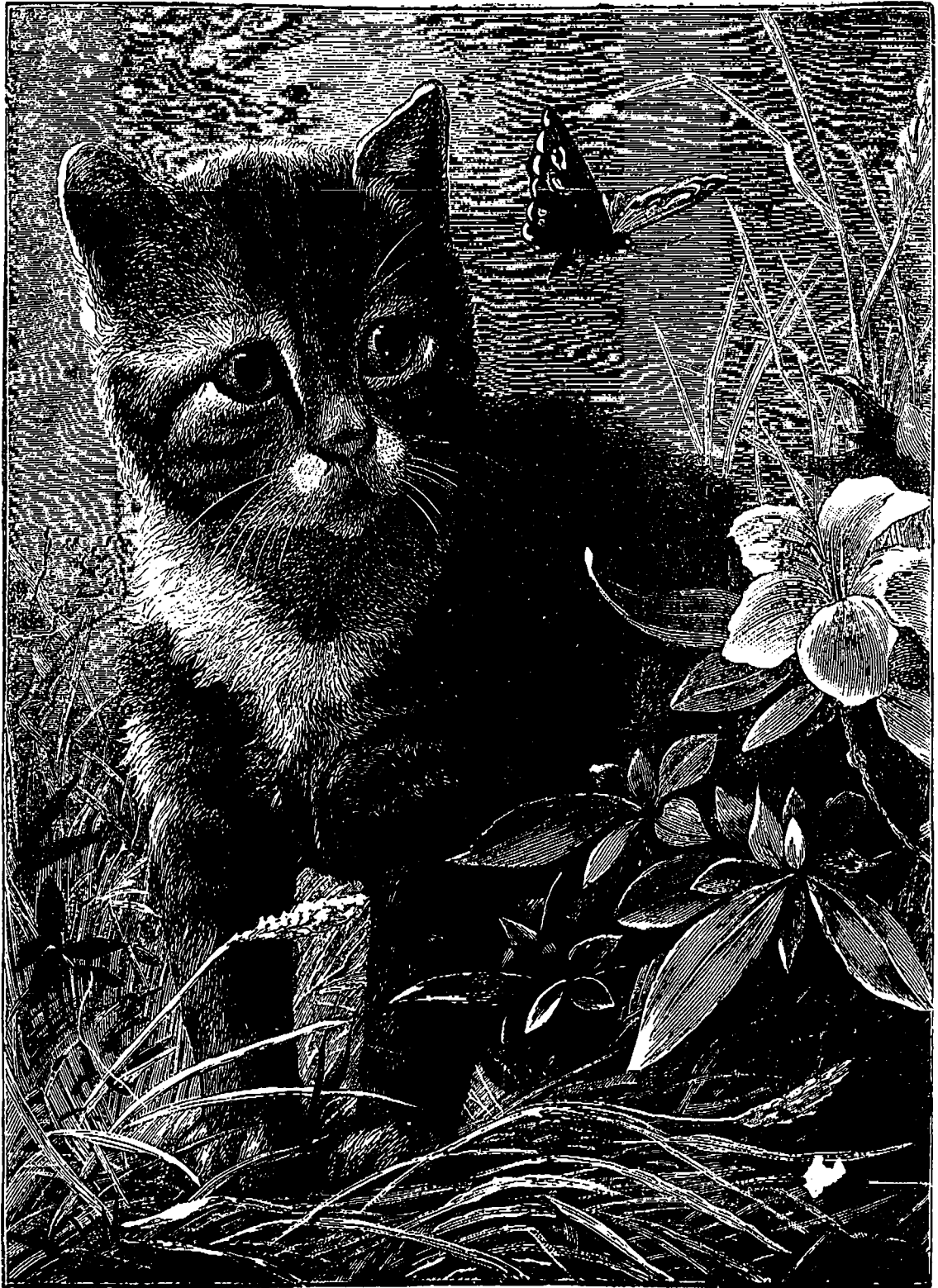
We worked hard, though we believed the plan a bad one. There was need of hard work, too, for the river was rising steadily. The vast yellow stream, a mile in width, was boiling and swirling, almost level with the tops of the dikes.

On the other side, in great trenches, fifteen feet below the surface of the river, were seventy or eighty thousand Chinese laborers at work, throwing up mud for the banks, chattering and laughing, cooking and eating.

"Look at the poor fellows! They don't realize the danger, or if they do, they don't care," Wright would say.

Frost, Lee Wung, Wright and I slept on the launch, for it was more comfortable there than on shore. On the night of the eleventh of the month we lay moored to the embankment.

(To be continued.)



Massey-Harris Co.'s Exhibit FOR THE World's Fair, Chicago.

(From the Empire, Toronto, April 6, 1893.)

At the World's Columbian Exhibition there will be no exhibit of agricultural implements by English manufacturers, and consequently it will be the added honor of the Canadian exhibitors to represent not only Canada but also the empire in that branch of industry. Pointing, as an exhibit of this class does, directly to the progress of manufactures and indirectly to the prosperity of the agriculturists of a country, it is undoubtedly an excellent criterion by which to estimate a nation's prosperity and attainments in the industrial arts. It is not then surprising, considering the magnitude of the interests, both private and public, involved, that an unusual curiosity centered in the World's Fair exhibit of the Massey-Harris Co. All yesterday the Massey Memorial hall, where the examples, rich with artistic and elaborate workmanship, of the company's productions were on view, was thronged. His Excellency the Lieutenant-Governor and Mrs. Kirkpatrick, with Miss Angus, Mrs. Vincent, Mrs. H. A. Massey and Miss Lillie Massey, arrived early in the morning, and, together with many well-known citizens who came during the day, were delighted with an inspection of the most elaborately finished agricultural implements ever manufactured. There are in the exhibit nineteen implements, a case containing the medals obtained by the company, and the bronze trophy secured at the Paris Exposition, and an office, which is by no means the least attractive feature. Most of the machines are taken from the regular stock and differ from those usually turned out by the company only by a slightly better finish. On view yesterday were only ten machines, including those especially gotten up for the fair, the Paris trophy and the office. The office, which will be shipped in sections, is eight by ten feet, and is constructed of oiled birch and plate glass, and will be tastefully furnished. Around the top runs an ornamental railing, the cutter-bar and knife of a reaper, and on the large plate glass windows, in conspicuous gold letters, is the name of the firm. But the attractive feature about the office is the outside panels, which are about four feet deep. In one are many samples of the malleable iron productions as they go into the machines, and with them, to show

THE SUPERIORITY OF THE MATERIAL USED,

are similar pieces twisted and hammered into almost every imaginable shape. Another panel contains the company's initials done in the shining steel sections of the reaper knife. The next side shows a number of gray iron castings. The other, and the most interesting, side of the office is furnished with admirable specimens of fifteen Canadian woods used in the construction of the Massey-Harris machines. Each specimen is about six inches wide by four feet long, and varnished. The woods are quartered oak, pine, cherry, red oak, whitewood, sycamore, basswood, white oak, soft maple, black ash, white ash, rock elm, soft elm, hickory and birdseye maple. Special attention has been given by the company to this section of the exhibit, as they claim that the Canadian woods are the most superior and serviceable that can be put into the implements they manufacture. The machines manufactured especially for the fair are a binder, two mowers and a cultivator. Of these the binder, of the "wide-open" class, is the most attractive, exciting the wonder and admiration of every visitor. The metal parts of

THIS TRULY WONDERFUL MACHINE

are finished with nickel and bronze plating and armine enamel, and the woods used are quartered oak, sycamore and white ash. The wind screen, usually of canvas, is made of embroidered silk, and the twine box is finished in brass. The wood used in the two mowers, a "Brantford" and a "Toronto" is quartered oak, and

their metallic parts are finished in nickel and bronze. The iron parts of the cultivator are nickel-plated throughout, and the wood used is ash. A space 51 x 77 feet has been allotted the company at the fair, which, when carpeted and furnished with their exhibit along with a threshing machine and engine from the Sawyer & Massey Company, Hamilton, and 16 plows from the Verity Plow Company, Brantford, will be by no means the least interesting of Canadian exhibits at Chicago, but while it remains there will be an indubitable proof of the enterprise and prosperity of Britain's greatest colony. Above the ground occupied by the company will be hung the flags of all the nations with which they do business, while in the centre, proportionately large, will hang the British ensign, it being an object with Mr. Massey to impress all comers with the fact that his machines are of British manufacture. Additional emphasis is given to the fact by the artistic little booklet prepared by the company for distribution. The covers are Union Jacks, and it contains the flags of all the countries where the Massey-Harris implements are sold, together with a few facts, such as area and population, about each. The number of citizens wishing to look over the exhibit yesterday was so large that the building was kept open till 10 o'clock last evening, but as it must be shipped at once the packing will commence to-day.

(From the Toronto Globe, April 7, 1893.)

Between 2,500 and 2,600 citizens, including his honor the Lieutenant-Governor and Mrs. Kirkpatrick, visited the Massey-Harris works on Wednesday. They had been invited to come and see a portion of the company's exhibit that is to be shown at the World's Fair in Chicago. The machines and implements were neatly arranged in the large show room on the third floor, and the display was undoubtedly the grandest that has ever been made in Canada, and it is doubtful if anything superior in this line will be shown at Chicago. The exhibit comprised machines built at the Toronto works only, the Brantford, Woodstock and Hamilton exhibits having been packed and shipped direct. One of the chief features of yesterday's exhibit was the office, which will be situated about the centre of the exhibit at Chicago. It is constructed of birch, oil finished, bevel plate glass sides above, and large panels beneath, each of the latter displaying parts of the machines as made by the company. Draperies and shades handsomely embroidered, hang inside. Knives and sections, all made by the firm, fill one panel below, and another panel is filled with native Canadian wood used in the manufacture of the Massey-Harris machines. Just at the top of the stairs leading to the show room was seen a large glass case, in which appeared the trophy won by the company at the Paris Exposition in 1889. Beneath, and surrounding it, were scores of gold medals and awards won by the firm in all parts of the world. In the show room were also eleven machines, each placed separately on a piece of new tapestry carpet. Many of these machines were worthy of a place in any jeweller's case. They have been manufactured, it would appear, regardless of cost. One of the most elegant pieces of machinery in the place was a wide-open self-binder, which is silver-plated throughout. It is most handsomely finished in every particular. The woodwork is of sycamore, quartered oak and white ash. Some parts of this machine are embellished with burnished brass, while the wind screen is of silk, gorgeously embroidered by hand. The conveyor and elevator belts are also hand embroidered. Other special and attractive machines are the Toronto and Brantford mowers. These are finished in nickel, aluminium and copper bronze. The few pieces of woodwork are carefully selected quartered oak, highly finished and polished. A few of the parts are touched up with carmine and enamel, which blends handsomely with the other parts, the whole producing an artistic effect. Another pretty machine exhibited was the new Massey-

Harris cultivator. It was plated through out, and the woodwork was of white ash, and as prettily turned and polished as any carriage could be. A number of the other machines on exhibition were also plated, while some were handsomely finished in the colors in which they are ordinarily sold. The company at the World's fair will have a space 77 feet by 51 in the agricultural and implement annex building, one of the most convenient spots on the ground. The exhibit will embrace 19 machines, including seeding, cultivating, harvesting and hay-making machines. In the exhibit will also be an elaborately fitted up traction engine and thresher, made at Sawyer & Massey Company's works, Hamilton. There will also be shown 16 elegantly finished plows from the Verity Plow Company, Brantford. The entire space for this exhibit is to be carpeted, and surrounded by a bright nickel railing. The upper portion of the space will be decorated with flags of all the countries in which the Massey-Harris company do business. The machines which were on exhibition in the show room Wednesday will probably be packed and shipped to Chicago before the close of the week.

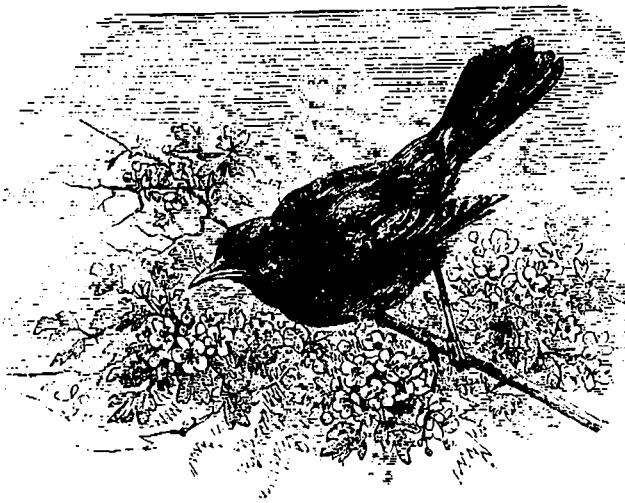
Sawyer & Massey Co's Exhibit FOR THE World's Fair, Chicago.

(From the Hamilton Spectator, April 1, '93.)

The Sawyer-Massey Company has prepared an exhibit for the World's fair that will do credit to the branch of manufacture that they represent. It consists of a traction engine and threshing machine of the most improved construction, such as is used on the extensive wheat farms of Manitoba. Both machines are beautiful pieces of work, and reflect the greatest credit on the company's skill in turning out this class of implements. All day yesterday admiring crowds visited the shops to see them before they are shipped to Chicago and they will be on view until Tuesday.

The engine is a combined traction and power machine of seventeen horse power. It is known as the Manitoba Straw Burner Traction Engine, straw being the fuel used when at work in the west, owing to the general scarcity of fuel on the great plains. It is fitted with a tubular boiler of peculiar construction, in order to utilize this particular style of fuel by a strong draft. The huge cog wheels on the side are of aluminum, and are fitted with a simple but ingenious mechanism by which the power is used for traction or operating the thresher. The trimmings are silver plated or brass and the whole machine presents a very handsome appearance. It is capable of moving at the rate of five or six miles an hour.

The thresher is one of the largest class and is known as the Peerless. It has a capacity of 3,000 bushels per day, and is fitted with all the latest improvements. The fittings are silver-plated, and one side is panelled with bevelled plate glass, so as to enable visitors to examine the interior construction. The frames, posts and girths are of birch, the panels are white wood, the axles are of maple and the wheels of oak. The shafting is of the finest steel. The cylinder is double barred with silver-plated teeth. The machine is 38 inches wide at the cylinder and 53 inches in the body, and is one of the finest specimens of its class on the continent. It can be fitted with a tallier to indicate the number of bushels threshed, and a bagger to place the wheat or other grain in bags as it comes out of the thresher. The traction engine can be utilized to move the thresher about and operate it. Two finer pieces of mechanical work have seldom, if ever, been manufactured in Canada, and the company is pardonably proud of the achievement which not only reflects credit on the firm, but also on the high standard to which Canadian manufacturers have attained. Threshers of that class are sold in Manitoba for from \$625 to \$700, and the traction engines cost \$1,650.



Hope's Rose.

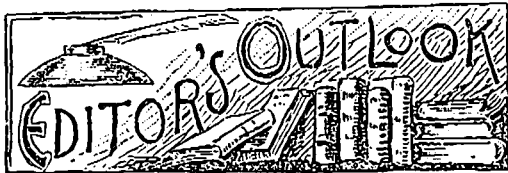
I plucked a rose to-day
It was dewy and fresh and sweet,
And the warriors on its spray
Seemed bold champions meet
To protect it safe away.

I wore it a little while,
And it faded quickly away;
And with it fled laughter and life,
And light of a golden day,
Nor could love my heart beguile.

Its crimson, petalous whorls
Fluttered like flakes away,
And its warriors dead to quarrels
Sunk in the heat of day
Like so many lifeless churls.

My rose was a glowing hope,
High soaring and full of might,
And the thorns were resolves to cope
With all fortune, or hard, or light—
'Twas all clear once, now I grope.

—JAS. C. HODGINS.



ATTENTION is directed to the fine engraving of the World's Fair to be found on p.p. 8-9 of this month's issue. It is one of the best we have seen of the great fair, and the bird's-eye view is exceedingly clear and easily understood. The MASSEY-HARRIS exhibit in the agricultural building will be a distinct feature of that department, and visitors should not fail to make a careful examination of it. It will please the eyes as well as yield interesting information to all who are concerned in such goods.

A VERY interesting affair took place at Kilmarnock, Scotland, last month, when the Centennial of the Agricultural Show was celebrated by an exhibition of agricultural and industrial goods on a magnificent scale, supported and patronized by the nobility, gentry, and the populace. Not many towns can boast of an Agricultural Fair one hundred years old, and the event just referred to is worthy of notice. Old age has but added vigor to Kilmarnock's popular show.

A REVIEW of the month, finds farm work rather behind owing to the severe weather experienced. Yet a good deal of corn and oats were in by the middle of the month. Hard work and good weather will, however, bring up the work to its usual place this month. Farm hands, unfortunately, are not of high class quality and as they are scarce, wages are high. All over the province there is a scarcity of first class hands, and female servants on the farm are extremely difficult to get. The acreage of barley is shrinking, and thus a staple crop is falling off, but as against this live stock is improving—quality and number and prices going up. Creameries are also doing well, and the

dairy industry in all its branches, is improving satisfactorily. While there are discouragements, there are many encouragements, and glancing back at April we can look forward hopefully to May.

A shipment of cattle left Halifax on Saturday last, the arrival in England of which is eagerly awaited by those interested in the Canadian cattle trade. The Board of Agriculture is making special arrangements to secure the complete separation of Canadian from American cattle at the different ports of entry. A number of commissioners will be employed to watch the Canadian cattle until they will have been slaughtered and their lungs properly examined. The Canadian government will be represented at the examination by expert veterinarians, and on the result of the examination much will depend as to the removing of the embargo.

CANADA'S great farming industry, the making of cheese, receives intelligent treatment in a bulletin just issued by the Ontario agricultural college. The bulletin has been prepared by committees of the Special Dairy School, 1893, and contains the results of careful investigation and applied technical skill. It ought to be in the hands of every farmer and carefully perused by him. Not only will the conclusions be found interesting but of special value. We are too apt to rest on our laurels; to be content with the high position already won by our Canadian cheese in the British markets. Against this tendency a timely warning is sounded, and it is shown, very clearly, that greater efforts than have been made, are absolutely necessary to continued success. But these efforts to improve as well as to maintain our position, are within the reach of every farmer. Care, industry and reasonable skill is what is required. From the experiments we learn that nothing but pure milk from healthy cows should be sent to the factory. To secure this, cows should have abundance of wholesome, nutritious food and pure water, with access to salt at all times. The greatest possible care should be taken to prevent cows drinking stagnant water. Milk from such cows is invariably tainted, and no amount of skill on the part of the cheese-maker can produce from it a really fine cheese. Immediately after the milk is drawn it should be strained, then aerated by dipping or pouring, which can be done very effectively while the milk is yet in the pails. Be sure that this work is done in a pure atmosphere, with clean surroundings, away from the stables or anything else of an impure nature, for unless this be attended to properly aeration will be a detriment instead of a benefit. It is not necessary to cool milk at night, unless the weather be extremely hot, in order to have it in the best condition for delivery at the factory in the morning (provided all pails, utensils, strainers, etc., have been thoroughly washed, then scalded with boiling hot water and well aired before using.) It is just as important that the morning's milk should be well aired before sending it to the factory; not only in the summer should milk be aerated, but also in the spring and autumn. The milk stands should be built in such a way as to exclude the sun and rain, and yet allow a free circulation of air around the cans. The organisms that produce bitter or tainted milk, or any abnormal change, are to be found only where there is filth and carelessness in handling, so that in all cases when complaint is made of impure milk the remedy must be extra cleanliness.

A PHASE of the scheduling of Canadian export cattle at British ports, which will be welcomed cordially on this side of the Atlantic, is the enquiry now being carried on by the visiting

British dealers. They consist of Messrs. Thos. Swan, of the firm of John Swan & Sons, Glasgow; John Marks, East Lothian; J. Murray Giblett, London, Eng.; W. S. Williamson, of the firm of Boter & Williamson, Liverpool; and Walter Phillips, London, Eng. These names, associated as they are with the biggest and most representative firms of cattle dealers in Britain, suggest the importance of the enquiry. The object of their visit is to see for themselves the condition of Canadian cattle here; to examine the byres, the stock-yards, the waggons used in railway transit, the slaughter-houses, and the working of the regulations restricting the entry of American cattle. Their enquiry will be thorough and exhaustive, and it is obvious that it is of the greatest possible importance to the Canadian dealer that every facility should be given them to pursue their investigations. The growth of the Canadian cattle trade is paid a high tribute by this visit. When a number of the most influential dealers in Britain cross the Atlantic to examine our cattle, as these gentlemen have done, it is not because of a feeling of extreme friendliness or of kinship to Canada—it is a matter of business; it shows clearly how important our trade in this respect has become to the motherland. These men come to Canada because they make money by the handling of our cattle, and they will use every effort possible to remove the restrictions which, by decreasing our trade, would inflict a loss on us and on them. They will there lay before the British Board of Agriculture the evidence they will gather here, and if it be overwhelmingly strong, so much the better for their purpose and for our advantage. They were able, when in Toronto, to concur in the following resolution passed at a meeting of cattle dealers at which they were present: "That in the opinion of this meeting, representing shippers of cattle from all quarters of the Dominion of Canada, there does not now exist nor ever has existed any case of contagious pneumonia among the cattle of this country, and in this opinion we are endorsed by Mr. Thomas Swan, of Glasgow, Mr. John Marks, of East Lothian, and many other gentlemen now present from the United Kingdom, who have had large experience in the feeding and killing of cattle." In the conversation that preceded and followed the passing of this resolution, many important points were elucidated. The shippers present were strongly advised to be careful in avoiding to ship either old cows, old oxen, or immature yearlings, as these all invariably made "bad sailors," and were especially liable to catch some bronchial affection very similar to and likely to be taken for pleuropneumonia. The lack of proper accommodation on the cattle steamers was also animadverted upon. It was declared that ropes, chains, and the general tackle of the ship were often allowed to come in contact with and injure the freight; that cattle were often seriously burned by being forced against heating pipes; and that usually the supply of fresh water was insufficient and the deficiency was made up of condensed sea-water, always likely to bring about an unhealthy condition in the animals and induce disease. These statements should be seriously pondered by our farmers and an agitation such as took place during Mr. Plimso's visit should be started, which would result in better shipping accommodation. Mr. Swan's opinion that politics have had something to do with the scheduling but re-echoes our expressed opinion to that effect, at the time when the embargo was imposed. Mr. Gardner represents a farming constituency where the feeling is strong that foreign competition is driving the English farmer out of his own market, and land owners, whose rent rolls have dwindled under the strain of severe depression, have led a crusade against the free importation of farm products and live stock. Mr. Gardner evidently yielded to the pressure of this class. But the political side of the restriction will not be able to resist popular clamor as soon as it can be conclusively shown that Canadian cattle are absolutely free from disease, and to this end the evidence of the visiting delegates will, as has been said, prove most valuable.

The restriction of Canadian cattle entering British ports has had one effect which will be deeply regretted by Canadian in general and by Torontonians in particular. It is the withdrawal of Ald. Frankland, of Toronto, from our midst, and his return to England to take up business there. After an industrious and useful career here of over forty years, during which he laid the foundation of the Canadian cattle trade with Britain and helped it rise, he finds his occupation gone on account of the changed conditions produced by the Board of Agriculture, and now he seeks the land of his boyhood to begin business over again. His many friends in the Province, who know him as the "Cattle King of Canada," have resolved to honor him with a banquet before he departs and probably his portrait will be presented to him, or some other tangible token given which will emphasize the esteem in which he is very deservedly held by the community at large.

The season is upon us when rusts, smuts, mildews and blights trouble the farmer's mind and destroy his crops. Many are the questions asked of the editors of agricultural journals as to how these and other ruinous pests can be got rid of. The editor has at his elbow the recipes, which experience has tested and these he draws upon to supply the desired for information. To the compilers of these reference books both the editor and the farmer are much indebted. What should we do without them. But the thought occurs that each farmer may do something very valuable in this way by contributing his own experience to our general stock of knowledge. We extol and exalt the practical at all times. When the farmer puts our recipe into practice, or when he has formulated a recipe of his own, let him send us a concise account of its working. If it turns out well, it cannot be made too widely known; if it fails, then other farmers may be spared the trouble and expense of trying it. To those who may act on the suggestion here thrown out we would say that local conditions should, in every case, be stated. These may have an important influence on the result, and where they vary, the result may vary also. Directions have been issued on this subject, by the Ontario department of agriculture, which, did space permit, are worth reproducing at length. Farmers ought to apply for copies from the department. The author is Mr. J. H. Panton, M. A., professor of natural history and geology in the agricultural college, Guelph. It sets forth in detail remedies for fungi and insects, which are made quite plain. For fungi, the constituent parts for Bordeaux Mixture, Eau Celeste, Copper Sulphate, Ammoniacal Solution of Copper Carbonate, Galloway's Mixture and Potassium Sulphide, are given. For insects, a long list of remedies is explained, beginning with Paris green and London purple. The following directions are giving as to spraying:—Do not spray so far into the season as to affect the fruit. In making emulsions remember the inflammable nature of coal oil. Never spray trees in bloom. Try solutions on a small scale if likely to injure foliage, and watch results. Be careful and thorough in your work. Careful analyses show that there is no ground for alarm regarding the effect of spraying fruit trees with Paris green. These mixtures are usually applied by spraying machines, which can be procured through any responsible seedsman. As copper compounds act upon tin and iron it is well to prepare such mixtures in earthen, wooden or brass vessels. The Bordeaux mixture is rather dirty to work with, and inclined to clog the jet. Nevertheless it is about as effectual a fungicide as has yet been discovered. If used too long in the season it is apt to affect the appearance of the fruit. This can, however, be washed off with a dilute solution of vinegar. A fair idea of the cost of the various mixtures may be had upon an examination of the following price list of substances used in the different formulas:—Am-

monia, 25c. per lb; Copper carbonate, 60c; Paris green, 30c; London purple 15c; Pyrethrum 40c; Copper sulphate, 12c; Hellebore, 25c; Sodium carbonate, 5c.

THE official statistics just to hand coincide with the figures and facts from time to time touched upon in these columns with respect to the crops and live stock of Ontario, and it is not a small thing to our credit that our contact with the farming community should be of such an extensive and cordial nature that the information we derive from it, should be supported and confirmed by the work of the staff of correspondents employed by the Ontario government, numbering, as the secretary of the *Bureau*, informs the public, over five hundred capable individuals. In a condensed and collated form the story of the statistics for the past three months is very interesting. The temperature for April was, in general, warmer than the normal, and there was an absence of severe frosts. The rain-fall was heavy and snow storms retarded farm work considerably. There was very little growth in vegetation, but it is too early to consider the season as backward. On the whole the winter has been quite favorable to fall wheat. Ice has done some damage, especially on undrained soils. Smothering by too much snow is reported from some northern sections. The Lake Erie counties send very favorable reports, the only damage being through freezing along the lake front. Apart from this very little has been or will be ploughed up. In the Lake Huron district Lambton sends very good reports, Huron good, and Bruce fair to poor. The reports from Grey and Simcoe are below the average. The West Midland are uniformly good. The Lake Ontario county reports are above the average. The East Midland counties report a limited average, but of good condition. The St. Lawrence and Ottawa counties report but little fall wheat. In the Northern sections the season is not far enough advanced for reports. Taking the province as a whole the fall wheat crop has come out of the winter in good shape, very little damage has been done, very little will be ploughed up, and the prospects are very promising and above the average. Where live stock did not come through the winter in good condition the blame may be charged to owners, rather than to lack of fodder. The season was a severely cold one, and the cattle and horses ranging the barn-yards on poorly managed farms suffered from exposure, the thermometer ranging low even in the lee of the straw stack. It is pleasant to observe the marked improvement in the winter care of all classes of live stock compared with the past. Horses were in good condition generally, although cases of influenza and distemper were reported in various localities. Frequent reference is made to the large number on hand, and the difficulty of sale. Dairy cows, on the other hand, appear to be in demand, and all classes of horned cattle, save in a few exceptional cases, were well spoken of as regards condition. Reports of "grub in the head" in sheep are more frequent than usual, although not seriously so. With this exception, and the fact that losses when lambing were rather common, the general health of sheep was counted good.

The more comfortable your barns the less feeding required.

Never keep sheep confined when the weather will allow of their running out.

When the stock is on dry feed alone a warm wet mash of bran, oil meal and either corn meal or ground oats will be found very beneficial if given once a week.

Careful feeders acknowledge that three months is almost the extreme limit that corn can be fed exclusively to hogs with profit on account of the risks of disease.

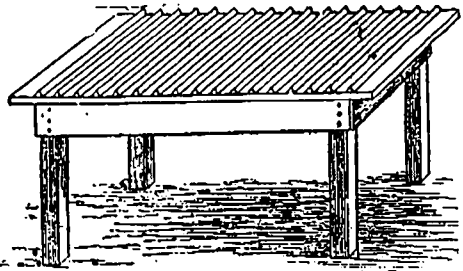


- 1st—Prince Bismarck's seventy-eighth birthday celebrated. . . . Dominion Parliament prorogued. . . . Fatal accident on C.P.R. near Harrison, B.C., three men killed. . . . President Cleveland announced an autumn session of Congress.
- 3rd—M. Charles Dupuy undertook to form a Ministry for France. . . . Mr. Balfour arrived at Belfast on his anti-Home Rule tour. . . . Robert T. Wallace, Woodbridge, Ont., brother of the Comptroller of Customs, died.
- 4th—Failure of the Commercial Bank of Australia announced. . . . The Ontario Legislature was opened in the New Parliament Buildings. . . . Great Unionist demonstration held in Belfast.
- 5th—Sir Donald A. Smith gave one hundred thousand dollars to McGill University to establish a chair of pathology and hygiene. . . . Vaudreuil nominations for the Commons took place.
- 6th—Mr. Gladstone moved the second reading of the Home Rule Bill. . . . Opposition to a wheat pit in connection with the Montreal Board of Trade offered by prominent merchants there. . . . Canadian surveyors start for work on the Alaska boundary.
- 7th—Serious strike began by the union dock laborers, Hull. . . . A Young Men's Conservative Association organized at Stratford, Ont. . . . Joe Beef's Canteen, Montreal, dedicated to Salvation Army work.
- 8th—Commercial Bank of Australia resumed business. . . . Earthquake shock experienced in various parts of Hungary. . . . Trades and Labour Council of Hamilton resolved in favor of opening the Free Library on Sunday.
- 10th—Young Englishman named Ross committed suicide at Manitowish. . . . Importation of arms and ammunition to Ireland limited. . . . Negotiations for amicable settlement between striking tailors and masters in Winnipeg failed.
- 11th—World's Fair workmen resumed work, having abandoned the strike. . . . Successful spring horse show held at Stratford, Ont. . . . Fearful mining accident occurred at Ponty-Pridd Wales.
- 12th—Mr. Harwood, the Liberal candidate, elected in Vaudreuil. . . . Terrible cyclone visited Iowa, Nebraska, Kansas and Missouri, causing extensive damage.
- 13th—The liquor men at Brome have demanded a repeal of the Scott Act. . . . Mr. Gladstone declared in favor of some form of Imperial Federation. . . . Rev. J. B. Silcox, California, accepted call to Emmanuel Congregational Church at Montreal.
- 14th—An attempt to smuggle whiskey informers from Winnipeg across the boundary failed. . . . The remains of Alex. Buntin interred at Montreal. . . . The Annual Spring Entire Horse Show held at Guelph.
- 15th—Imperial Government decided to grant Canadian volunteers who have served twenty years decorations similar to those conferred on British volunteers. . . . Two cases of small-pox reported among immigrants at Winnipeg. . . . Mrs. Maybick made a desperate effort to commit suicide.
- 17th—Bill introduced to British House of Commons for settlement of labor disputes by arbitration. . . . Major General Herbert left for England in connection with the Esquimaux defences. . . . Rev. A. M. Massey elected Rural Dean of Hamilton, Ont., vice Rev. Mr. Forrester.
- 18th—Grand Camp Sons of Scotland assembled at Guelph. . . . Convention of the Protestant Protective Association held in London, Ont. . . . Robert Esson, of Creemore, was drowned in the Kawanga river.
- 19th—Severe snow storm prevailed in Colorado, Wyoming and Utah. . . . Edwin Booth stricken with paralysis. . . . The bill to prohibit combinations to raise the price of the necessities of life passed the New York State Assembly.
- 20th—The dowager Duchess of Sutherland was committed to Holloway jail for contempt of court. . . . Extremely severe spring storm of wind and rain raged over Ontario.
- 21st—Second reading of Home Rule Bill passed. . . . James Hough, one of the oldest residents of Guelph, Ont., died this morning. . . . Death of Earl Derby.
- 22nd—Mr. John Sharples, Harbor Commissioner, Quebec, appointed to Legislative Council of that Province. . . . French Government prohibited Government employees from taking part in May Day celebrations.
- 24th—Original Bay reported clear of ice. . . . Navigation open at Montreal. . . . The Sugar Refinery Bill thrown out by the Nova Scotia Legislature.
- 25th—The Canadian Bisley team was completed. . . . A special meeting of the Winnipeg City Council advises the citizens to adopt vaccination as a preventive to small-pox. . . . Reports from many parts of Europe are decidedly unfavorable to the crop prospects.
- 26th—The great statute to John Ericsson, the inventor, unveiled in Battery Park, New York. . . . The bonus by-law for the Niagara Central Railway was defeated by popular vote in Hamilton to-day. . . . A true bill for murder found against Pennifeather, at the Chatham assizes.
- 27th—The Naval Review at New York, spoiled to-day by heavy rain. . . . Rev. C. B. Planders appointed Principal of the Stanstead Wesleyan College. . . . Alt. mpt. made to shoot Mr. Gladstone by ultra-Unionist.
- 28th—The Queen arrived at Windsor from her prolonged continental tour. . . . James Wicks Taylor, United States Consul at Winnipeg, Man., died. . . . Mr. G. R. R. Cockburn, selected as a Canadian Commissioner to the World's Fair.
- 29th—The Keswick Brethren closed a week of remarkable revival work in Toronto.
- 30th—The ice above Sault Ste. Marie is all broken up.



Table for Setting Milk.

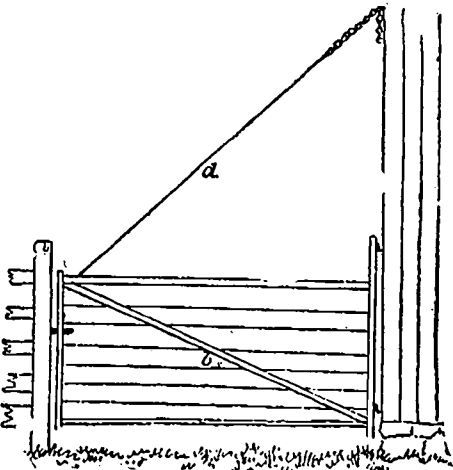
To obtain the greatest amount of cream from a given amount of milk, the milk should have the animal heat removed from it as soon as possible, and afterward maintained at a uniform temperature until the cream is removed. Many farmers who keep several cows do not



care to go to the expense and trouble of using ice for cooling the milk, but continue to use the common milk pans, set flat upon a common table or shelf. Hence, any plan that will be an improvement on this process, without additional trouble, will be welcome. In the accompanying engraving, from a sketch by L. D. Snook, is shown a common milk table, with a cheap but great improvement, which consists in nailing to the top of the table triangular strips, three-quarters of an inch wide on each face. They should be planed and firmly nailed crosswise of the table, four inches apart. As the common milk pan is about ten inches wide at the bottom, there will be no danger of the pans tilting up when set down carelessly. The whole should be painted a whitish tint, and all crevices thoroughly filled with paint. The top of the table should be of matched lumber and closely fitted. This plan admits of a circulation of air all about the pan, and the contents are cooled at least two hours sooner than by the flat setting process. If the upper portion of the table is given a thin coat of paint every spring, it will insure greater cleanliness.—*American Agriculturist*.

Combination Wire Gate.

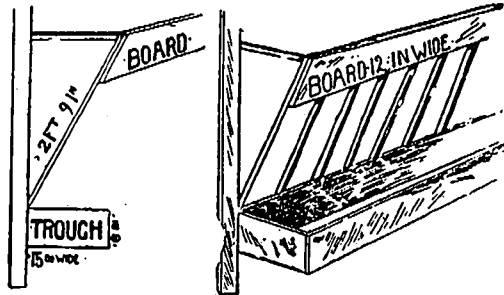
GATES made wholly of wood are heavy. Since wire has become so cheap, it has entered largely into the construction of gates, proving light and serviceable. The accompanying sketch of a wire gate was sent us by S. Barrington. The form shown is one of the best as



regards strength, durability and freedom from sagging. The frame of the gate is wood put together in the usual manner, with a long brace *b* placed as shown in the sketch, and nailed in position. Holes are bored in the end pieces through which are passed and firmly se-

cured annealed No. 7 or 8 wire; seven or eight single strands may be used to each gate. If the gate can be hinged to a building or a high post, a wire support *a* can be used to prevent sagging. If a few links of chain are attached to one end of the wire it may be always kept tight by hooking up another link.—*American Agriculturist*.

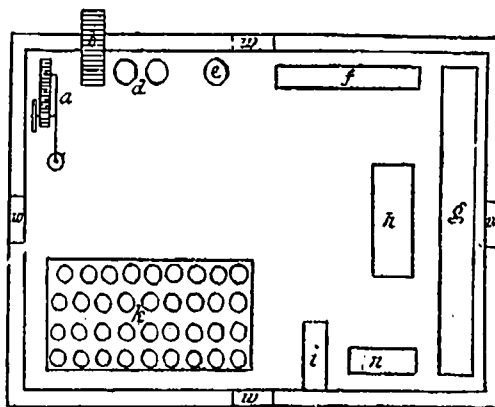
THE *Rural New Yorker*, always contains short, pithy, advice of practical use to the farmer, frequently accompanied by illustrations. In an article on "How Sheep are made Comfortable" is the following cut which seems to be a simple, yet good contrivance for feeding.



These feed racks ought to be placed around the outside of the building. The hay is thrown down from above into these without getting any chaff into the sheep's wool. The upper part of the racks is made tight, and the lower slatted, so that the chaff and seeds cannot rattle down into the wool while the sheep are feeding.

Farm House Cellar.

ON the farm where four or more cows are kept, and the products of the milk made into butter, a large, well-arranged cellar will greatly aid in the operation, and the one shown in the engraving possesses many advantages.



The churn power is located at *a*, by the side of the outside cellar door *b*, so that the churned milk is near the door. Plenty of light is thus admitted to watch the condition of the churn. The cider and vinegar barrels are at *d*, the pork barrel near the window at *e*, potato bins are at *j*, and a long hanging shelf for apples at *g*, and a table for all work at *h*. The cellar stairs are located at *i*, and a large table, holding four rows of milk pans, at *k*. A table, with an inch strip on the sides, is placed at *n*, on which can be arranged the canned fruit.

It will be observed that the milk table is convenient to both stairs, also to the churn. If thought best, a light partition can be made to separate the churn power from the rest of the cellar, but if a dog is used for the motor, and he is brushed before entering the cellar, no trouble will ensue. No breeze should be allowed to enter the cellar, and to guard against this, heavy curtains should be hung at the windows, and tightly closed during the prevalence of heavy winds, and to shut out the direct rays of the sun. In the spring, remove all vegetables as soon as possible, clean the cellar bottom thoroughly, whitewash the walls, and keep the air sweet and pure. If milk is spilled on the earth or woodwork, remove at once, and do not allow it to contaminate the atmosphere. Ventilate well!

HE who takes time by the forelock can rest well at night.

GROWLING at the times will not raise the mortgage of your farm.

Do not act the rascal with your farm by taking from it more than you give it back in the way of fertilizers, says the *American Agriculturist*.

SEASONABLE work is more effective than unseasonable work. The weed is most easily killed when it is smallest. As early impressions are the strongest, an animal can be trained while young with a fraction of the effort required later. The clod is most easily crushed while freshest; every day of sun and wind increases the labor necessary to make it a fit bed for the seed and plant.

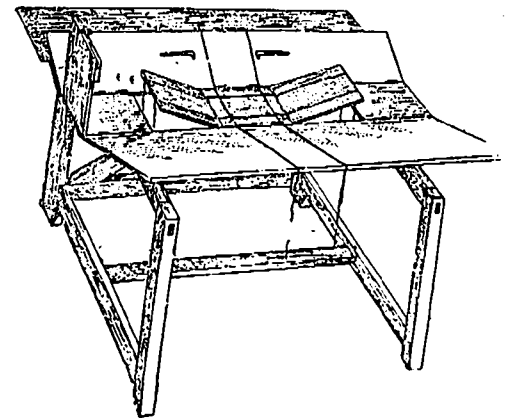
It has been proved again and again that a small farm well worked pays better than a large farm half neglected.

ON the important question of preventing potato scab, A. L. Sizer, Putnam Co., N.Y., writes: "If the seed potatoes are soaked for a short time, and brushed clean with a very weak solution of poisonous corrosive sublimate, the resulting crop of tubers will be much freed from scab. To be free from scab, potatoes without scab germs should be planted in soil which is not infested with the germs of the parasitic fungus. Concentrated mineral fertilizers seem to so invigorate the plant that the potatoes fight off the scab. Clean seed and clean soil yield clean tubers."

Five Stock.

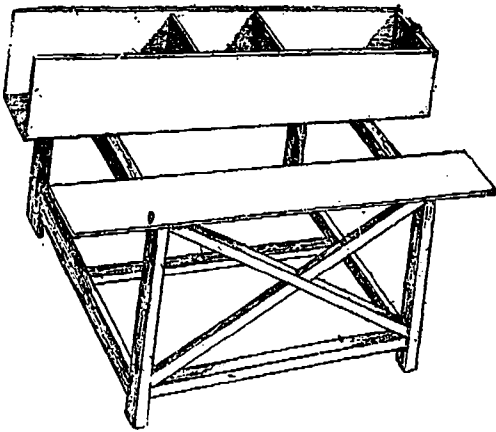
Wool Box.

AMONG the useful illustrations given in the April number of the *American Agriculturist* are the two following wool-boxes:—



By using the wool-box shown here, one man can tie the fleeces as rapidly as five or six men can shear them. The box is constructed as follows: It is five feet long by one foot broad and deep. The bottom is divided into five pieces, each one foot square. The centre and two end pieces are hinged to the two side pieces. Fig. 1, while the two squares, one each side of the centre piece are hinged to the latter only, so that they may be raised towards each other and at right angles to the sides. At one end is an upright piece, one foot square, firmly fastened to the bottom. Upon the upper edge of this piece is a spring clasp which holds the sides in place when they are raised. The two erectable bottom pieces are held upright, when the box is closed, by springs in one of the side pieces. These springs are made of good strap-iron, and are fastened on with screws. There are holes in the side piece through which the ends of the springs pass while the end piece is being raised. The clasps on the stationary

right end piece are so constructed that when the knob is pressed down the clasps are raised off the sides, thus allowing them and the movable end pieces to fall back, when, after being threaded, they are ready for another fleece. The frame, or table, is separate from the wool-box. It is four feet wide with a board one-foot wide fastened on the top at the back edge of the frame, shown in Fig. 2. This leaves three feet in front to lay the open box upon. Eight pairs of hinges are used in putting the box together. The bottom pieces of the box are cut from one board five feet long. The movable end pieces should be sawed off diagonally, like a miter joint so as to let the edges rest on the edges of the stationary end pieces and thereby avoid danger of sagging the hinges, and prevent the boards from becoming uneven when the box is open. The twine is laid in grooves cut in the various pieces at proper distances, as seen in Fig. 1. Tying a fleece in this box is accomplished as follows: The fleece is placed on the open box lengthwise, shorn side down. The

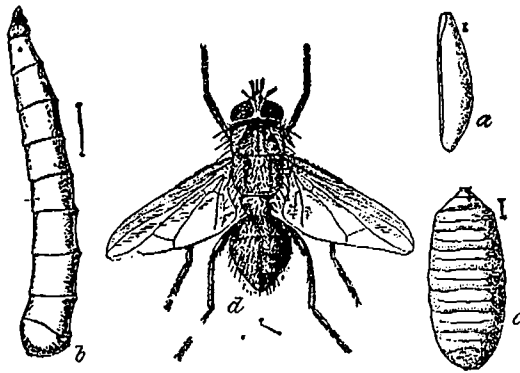


wool is next pushed about as close together as it grew on the sheep, and the legs and belly-fleece are lapped over. Now one side of the box is raised, thus folding one side of the fleece from one end to the other, the other side of the box is raised immediately after, with a like result. The fleece at this stage is rolled up from one end to the center, and the movable end leaf is raised to keep it in place while the other end is being rolled and the last movable end leaf raised, thus forming a square. After this the ends of the strings are drawn tightly over the already compact fleece and tied. Finally, the knob on the stationary end piece is pressed, releasing all the boards of the box, which fall open, leaving on the center piece a beautifully packed, square fleece.

The Horn Fly.

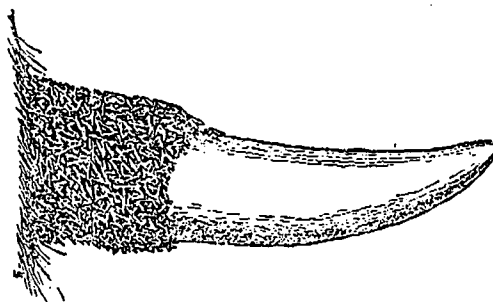
In the report of the Entomological Society of Ontario, submitted by the Minister of Agriculture last month to the Ontario Legislature, there appears a short, valuable paper by James Fletcher, F.L.S., F.R.S.C. It appears that during the past summer a new pest of the farmer has made its appearance in Canada in the shape of a small blackish fly which appeared suddenly in enormous numbers on cattle, and was first noticed in Canada towards the end of July at Oshawa, Ont., by Mr. Elmer Lick, who sent specimens to the writer of the paper. Almost simultaneously it was recorded all along the boundary line, from Essex County, Ontario, as far east as Boucherville, P.Q., below Montreal. The flies appeared in such enormous numbers, and their attacks upon the cattle were so severe that farmers in the districts invaded at once recognized the losses they might incur by neglecting to take steps to protect their stock. The Horn-fly is, without any doubt, a new pest in Canada, which has come to us from the United States. It is a European insect which was first brought to the notice of the U.S. Division of Entomology in 1887, and probably imported with cattle from Europe, and has been known since 1880. In 1889

its complete life history was worked out by Prof. Riley and his assistants, Messrs. L. O. Howard and C. L. Marlatt.



The Horn-Fly. a, egg; b, maggot; c, puparium; d, adult fly in biting position—all enlarged.

The eggs, which are about 1-20 of an inch in length, are laid singly on the freshly-dropped dung of cattle. They are brown in color, and from this fact, not easily seen where they are laid. The young maggots hatch in 24 hours and at once burrow down a short distance beneath the surface of the dung, where they remain until full grown, that is, about a week, when they are about $\frac{3}{8}$ of an inch in length, white, and shaped as shown in fig. 1b. When full-fed they burrow a short distance into the ground and assume the pupa form (fig. 1c.) when they are $\frac{1}{2}$ of an inch in length. In hot weather the pupa state lasts only four or five days; but the last brood of the season, from eggs laid in September, passes the winter in that condition a short distance beneath the surface of the ground, and the flies emerge the following spring. The perfect insect (fig. 1d., male) is shaped very much like the common Cattle-fly (*Stomoxys calcitrans*), with which it is closely related, or the House-fly (*Musca domestica*). It is, however, much smaller being only $\frac{1}{2}$ of an inch in length, or about $\frac{1}{3}$ the size of those insects.



Cow-horn showing band of resting flies—reduced.

The remedies are cheap and easily applied, almost any greasy substance will keep the flies away for several days. Lard, train oil, tanner's oil, fish oils, with a little sulphur, carbolic acid or oil of tar added, will keep flies off for from five to six days. The two latter will have a healing effect on any sores which may have formed. Of applications to destroy the perfect flies, several have been recommended, as pyrethrum powder, tobacco dust, etc., but these are little, if any, better than the kerosene emulsion, which when sprayed over cattle killed all the flies reached, and prevented others from coming for from three to seven days. But these remedies for the destruction of the perfect flies are only to be advised for use upon the first appearance of the pest in a new locality, or early in the season for the destruction of the first brood. The true way to fight this enemy is by the treatment of the cattle droppings so as to destroy the eggs and larvæ. The maggots can live in the dung only while it is in a moist condition. Any means, therefore, which will ensure its drying up will destroy them. For this purpose, lime, land plaster, and wood ashes are suggested. The last named of these will probably be found the best, not only from its strong alkaline properties, which are destructive to insect life, but also from its great value as a fertilizer, and the ease with which it can usually be obtained on every farm.

The calf is not valued by the loudness of its bawl.

OATS is the best grain to feed horses in good health. Barley is next best. For a steady diet corn is not wholesome and, if fed alone for any length of time, is certain to produce ill effects from indigestion. Oats have about the right proportions of nutritious and coarse matter to be healthful, while corn has a very large per cent. of strong food. Old or enfeebled horses should be fed ground food, a good mixture being four bushels of oats to one of corn. Twelve quarts per day of this ground mixture will prove a good feed for any horse while plowing or doing other heavy farm work. Whole corn should be soaked in warm water for six hours before feeding. Once a week give horses a feed of wheat bran. An occasional feed of potatoes, apples or roots will prove beneficial, and the animals will relish the change of diet.

The Poultry Yard.

MAY and June are the best months to hatch bantams.

STAGNANT water is one of the first steps towards cholera.

THE hen that is too fat is the one that is laying the soft shelled egg.

THE best plan in feeding ducks is to put water where they can help themselves.

PLUNGING into hot water immediately after picking will often make the hens look more plump.

WHEN fattening geese give a mixture of corn and wheat, with a cooked mess given warm daily.

FEED your poultry on raw onions chopped fine, mixed with other food, about once every other day. They will cure very many different diseases.

TURKEYS can be fattened very rapidly on thick boiled corn meal, and oatmeal mixed with chopped suet.

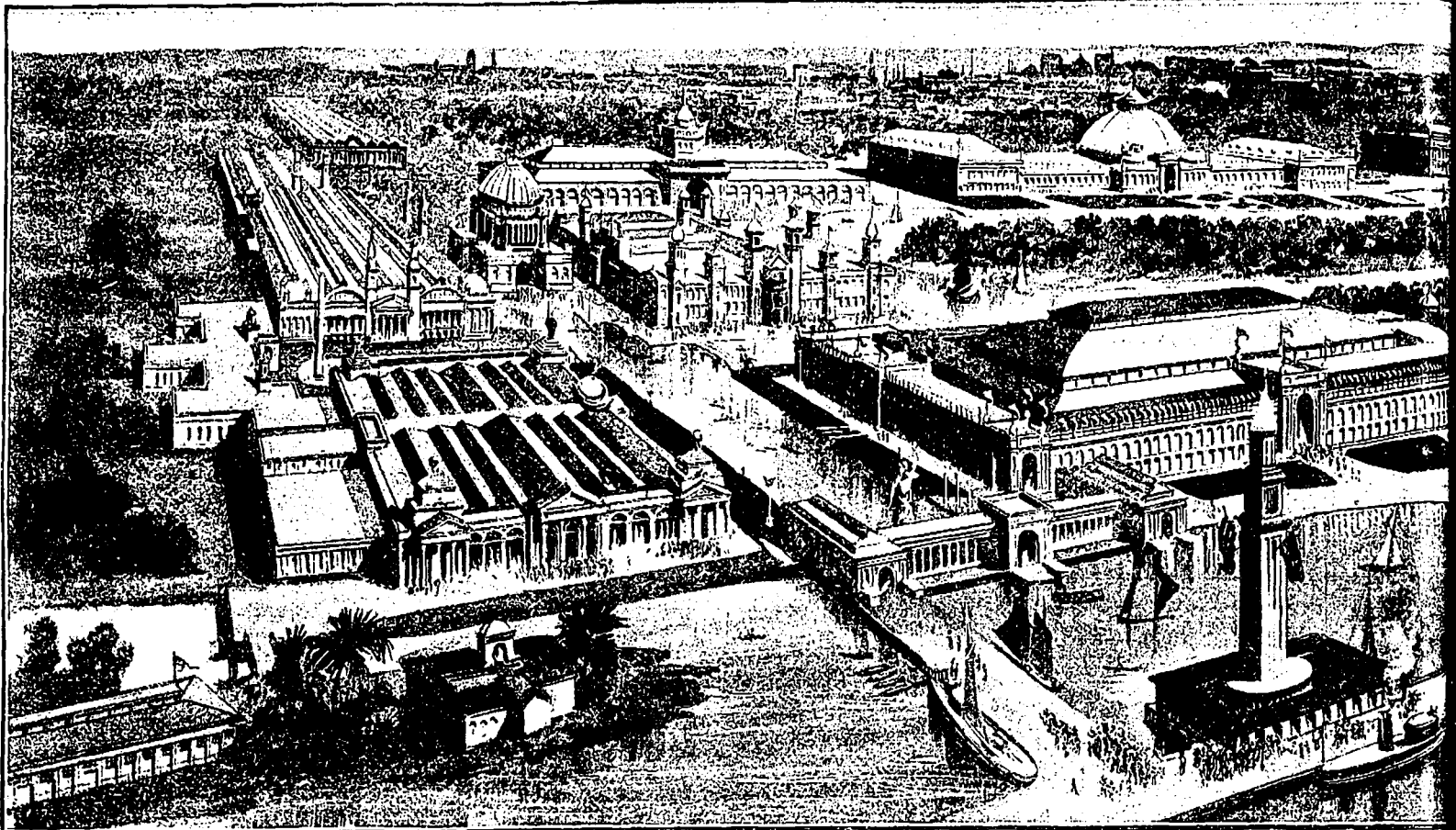
It is always best to commence confining the ducks at night in good season in order to avoid loss with the eggs.

It is a fact that the turkey was domesticated by the Indians long before the discovery of this country by the white men.

If hens are compelled to work diligently in straw for half of each day their legs will remain bright and clean, and "scaly leg" be prevented.

A FIRST class disinfectant is made by putting an ounce of potash permanganot in a pint of cold water; one ounce of this mixture is enough for a pint of water.

THE next month or six weeks the weather will be very uncertain and the early chicks will appreciate an open shed or covered run, where they can get at the ground without being exposed to rain or severe winds.



Machinery Hall. Administration Building. Transportation Building. Horticultural Building. Women's Building. Agricultural Building. Mines and Mining Building. Electricity Building. Great Manufactures and Liberal Arts Building.

GENERAL VIEW OF THE WORLD'S FAIR GROUNDS, J

The Great World's Fair.

SO much interest centers in the mammoth exposition which opens May 1st. at Chicago, we have thought our readers would be pleased with a brief description of some of the principal buildings, and therefore have procured the following information. We have been enabled to present the handsome illustration given above after some considerable trouble and expense. It gives a very excellent representation of the admirable lay-out of the exhibition park. The general effect is simply beautiful, and the buildings excel anything of the kind previously attempted. We give a separate illustration of the great Agricultural Building which will specially interest our readers. The description will be found below. In the annex of this building the magnificent exhibit of the MASSEY-HARRIS Co. LTD., will be displayed. The location is shown by the accompanying plan. A description of this exhibit, which is the finest and most complete agricultural implement display ever gotten out, appeared in the Toronto dailies, which we reprint on page 3. The MASSEY-HARRIS Co. LTD., have extended a cordial invitation to their friends and patrons who visit the World's Fair to make their stand head quarters.

Obliging attendants have charge of their exhibit, and will impart information respecting the exhibition and other matters. In their office stationery will be furnished and accommodation for letter writing. Letters may be addressed in care of the company as follows:

Care **MASSEY-HARRIS CO., LTD.,**
CANADIAN PAVILION, JACKSON PARK,
CHICAGO, ILL.

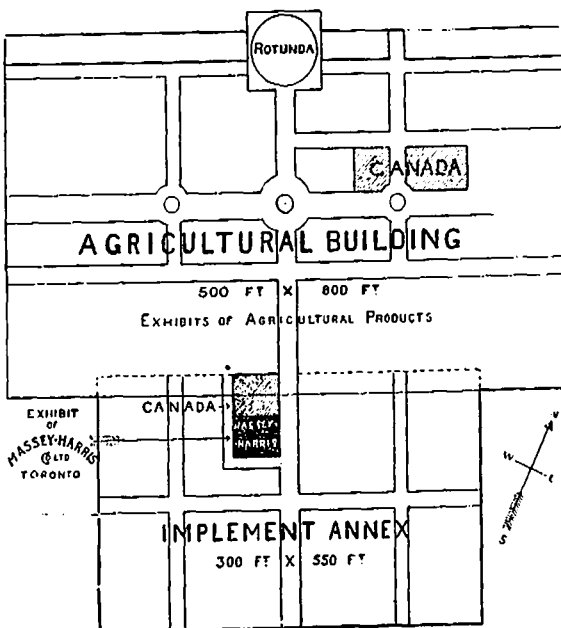
Letters so addressed will be received at the

MASSEY-HARRIS exhibit, and may be called for at the company's exhibition office on their stand.

Let the friends and patrons of this company, avail themselves of these conveniences.

AGRICULTURAL BUILDING.—Dimensions in feet, 500 x 800; area in acres, 9.2; cost with annex (300 x 500), \$618,000. This is one of the most magnificent and striking structures of the Exposition. It stands very near the shore of Lake Michigan.

Its longest dimensions are east and west. On either side of the main entrance are mammoth Corinthian pillars, 50 feet high and 5 feet in diam-



eter. On each corner and from the center of the building pavilions are reared, the center one being 141 feet square. The corner pavilions are connected by curtains, forming a continuous arcade around the top of the building. The main entrance leads through an opening 64 feet wide into a vestibule, from which entrance is had to the rotunda, 100 feet in diameter. This is surmounted by a mammoth glass dome 130 feet high. All

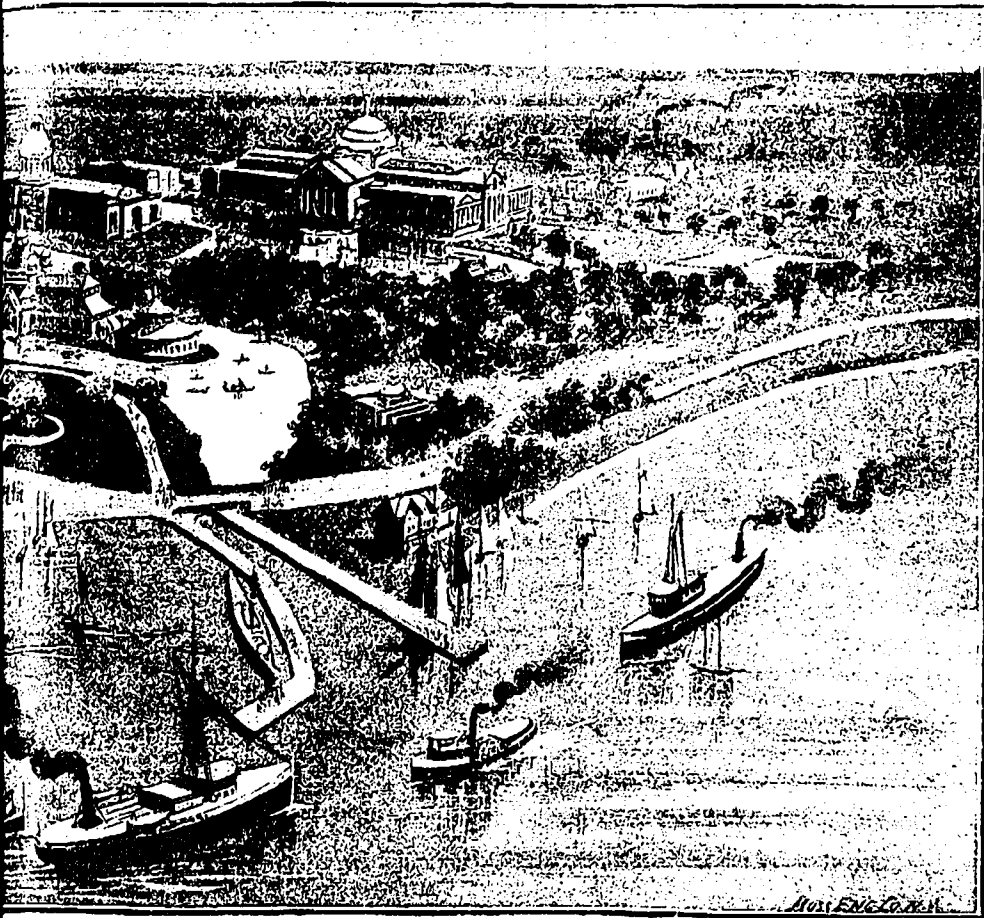
through the main vestibule statuary designed illustrative of the agricultural

Similar designs are grouped about grand entrances in the most elaborate. The corner pavilions are surmounted by 100 feet high, and above these tower group of female figures, of herculean proportioning a mammoth globe. This building is situated near one of the stations of the railway. On the first floor, near the main entrance, is located a bureau of information. This floor also contains suitable comfortable rooms for the different live stock. On this floor there are also large, comfortably equipped waiting-rooms. Broad lead from the first floor into the Assembly Hall, which has a seating capacity of about 10,000. Seating arrangements are provided for in this building for farmers, Farmers' Alliances, and other organizations. The structure has been so planned as to accommodate farmers and live-stock men generally could ask in the way of accommodation at the World's Fair. The Assembly-room facilities for lectures, delivered by gentlemen in their special fields of work, embracing interest connected with live stock, agricultural industries.

MANUFACTURES AND LIBERAL ARTS BUILDING.—Dimensions in feet, 787 x 1687; area in acres, 30.5; cost, \$1,500,000. This is the largest exhibition building ever constructed. The floor alone contains 3,000,000 feet of lumber and five carloads. A clearer impression may be gained by the fact that 1,000 cottages, 25 x 50 feet each, could be roomed within its walls, and that 5,000 people could live without crowding in these cottages. The main roof is of iron and glass and an area of 385 x 1,400 feet, and has its ridge 150 feet above the ground. The building, including the annex, covers about 40 acres of floor space. There are seven main trusses, with a span of 385 feet and a height of 211 feet. They are 11 feet high at the base and 10 at the apex.

MACHINERY HALL.—Dimensions in feet, 816; area in acres, 9.6; annex, dimensions in feet, 490 x 550; area in acres, 6.2; power by

RATED.



State Building. Art Building. Fisheries Building.

CHICAGO, ILL.

100x161; pumping works, dimensions 88x115; machine shop, dimensions in feet, 88x115; area of three last named in acres, 2.4; cost, \$1,285,000. The main Machinery building is supported by three arched trusses, and the interior presents the appearance of three railroad tracks side by side, surrounded on all sides by a gallery.

STATE BUILDING.—This is situated directly between Plaisance, or between what would be the avenues extended, 59th and 60th streets, facing the north end of the lagoon. Dimensions in feet, 199x388; area in acres, 1.8; cost, \$1,000,000. The corner-pavilions are connected by an open colonnade added to the main cornice. Here are the Hanging Gardens. On the left are located, on the left, a model hospital; on the right, a model kindergarten; each occupying a floor.

The whole floor of the building is devoted to the exhibition; the one on the right is for reform work and charity work. Each of these floors is a masterpiece of architecture.

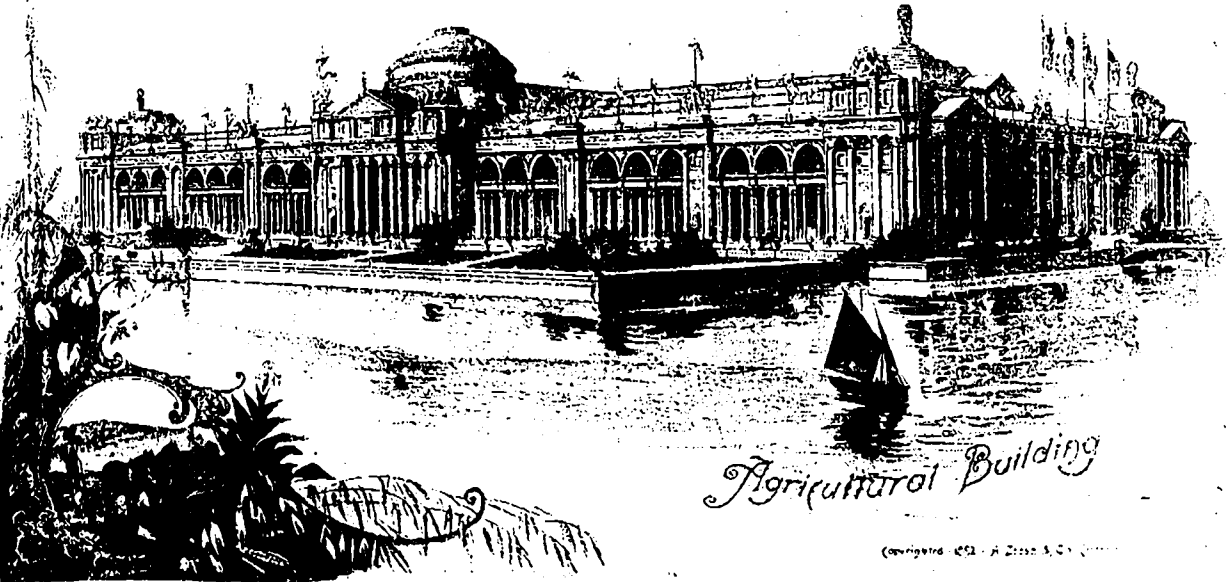
An invitation extended to the Board of Lady Managers for the exhibition in the form of materials for the Woman's building was received very generously by women of this and foreign countries. The result is that the Woman's building is a masterpiece of architecture.

nearly every detail represents the work performed by the women of the country, and gives evidence of their energy and intelligence in the way they have handled their exhibition.

AGRICULTURAL BUILDING.—Dimensions in feet, 250x998; area in acres, 11.5; cost, \$1,225,000. In front is a terrace for outside exhibits, flanked by nymphs and the fountain. The front of the terrace is bordered by its low parapet between the water, and at

its center forms a boat landing. The plan is a central pavilion with two end pavilions, each connected to the center pavilion by front and rear curtains, forming two interior courts, each 88x270 feet. These courts are beautifully decorated in color and planted with ornamental shrubs and flowers. The centre pavilion is roofed by a crystal dome 187 feet in diameter and 113 feet high, under which are exhibited the tallest palms, bamboos and tree ferns that could be procured.

TRANSPORTATION BUILDING.—Dimensions in feet, 256x960; area in acres, 5.6; annex, dimensions in feet, 425x900; area in acres, 8.8; cost \$370,000.



Agricultural Building

Copyright 1892 by J. B. Stone & Co.

MINES AND MINING BUILDING.—Dimensions in feet, 350x700; area in acres, 5.6; cost, \$265,000.

ELECTRICITY BUILDING.—Dimensions in feet, 315x690; area in acres, 5.5; cost \$101,000. Here are collected the most novel and brilliant exhibits of the World's Fair. The general scheme of the plan is based upon a longitudinal nave 115 feet wide and 114 feet high, crossed in the middle by a transept of the same width and height.

ADMINISTRATION BUILDING.—Dimensions in feet, 262x262; area in acres, 1.6; cost, \$135,000. It has been justly pronounced the gem of all the architectural jewels of the World's Columbian Exposition.

UNITED STATES GOVERNMENT BUILDING.—Dimensions in feet, 315x415; area in acres, 3.3; cost \$100,000. Delightfully located near the lake shore.

FISHERIES BUILDING.—Dimensions in feet, 165x365; area in acres, 1.4; annexes (2), dimensions 135 (diameter); cost, \$221,000. The graceful beauty of the Fisheries building has gained for it from the severest of critics, architects, the title of "an architectural poem."

ART BUILDING.—Dimensions in feet, 320x500; annexes (2) dimension, 120x200; area of all in acres, 1.8; cost, \$670,000. The building is oblong, 500x320 feet, intersected north, south, east and west by a great nave and transept 100 feet wide and 70 feet high, at the intersection of which is a great dome 60 feet in diameter. The building is 125 feet to the top of the dome, which is surmounted by a colossal winged figure of Victory.

BATTLE SHIP, which is located just south of the entrance to the lagoon.—Dimensions in feet, 69.25x348; area in acres, .33; cost, \$100,000. It is, to all outward appearance, a faithful full-sized model of one of the new coast-line battle ships.

DAIRY BUILDING.—Dimensions in feet, 100x200; area in acres, .5; cost, \$30,000. The Dairy building, by reason of the exceptionally novel and interesting exhibits it contains, is quite sure to be regarded with great favor by World's Fair visitors in general, while by agriculturists it will be considered one of the most useful and attractive features of the whole Exhibition.

FORESTRY BUILDINGS.—The extreme southern structure, facing Lake Michigan. Dimensions in feet, 208x528; area in acres, 2.5; cost, \$101,000. The Forestry building is, perhaps, the most unique of all the Exposition structures. To a remarkable degree its architecture is of the rustic order.



DON'T YOU CARE.

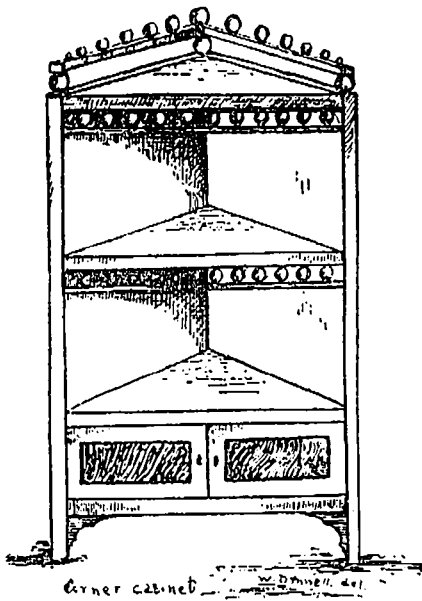
WHAT are you crying about, little man?
 You have a hard lesson, you say?
 Well, there! Don't you care,
 That's no sad affair,
 You are bound to have those in your day.
 Be brave, little man, hard work is your plan
 You'll come out all right, don't you care.

What are you grumbling about, business man?
 Dame Fortune is frowning, you say?
 Well, there! Don't you care,
 Just act on the square,
 She's sure to smile on you some day.
 Repining, my man, is a very poor plan,
 You're going to succeed, don't you care.

What are you sorrowing for, aged man?
 Your end is approaching, you say?
 Well, there! Don't you care,
 You have no time to spare,
 Prepare for your journey away.
 Have peace; weary man, 'tis part of God's plan,
 You are safe in His hand, don't you care.

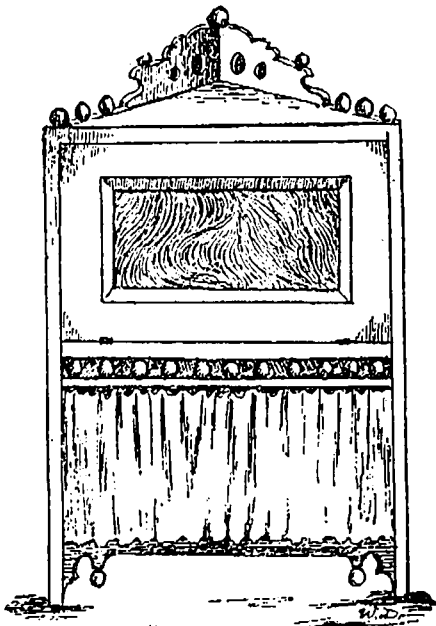
A Neat Cabinet.

Two articles are suggested in the illustrations, which will be found both convenient and attractive. One is for a cabinet solely,



corner cabinet

with a chance for a few books if desired. The other is for use as a bookcase, writing desk and cabinet combined. Oak, cherry, ash or



corner writing desk and bookcase

white-wood are very suitable for use here. Where hinges are used it will be an addition to the attractiveness of the article when finished if the old colonial style of hinge is used.

Familiar Sayings, and Who First Said Them.

MANY of our common maxims, so trite and pithy, are used without the least idea from whose pen or mouth they first originated. Probably the words of Shakespere furnish us with more of these familiar maxims than any other writer, for to him we owe, "All is not gold that glitters," "Make a virtue of necessity," "Screw up your courage to the sticking place," (not point), "They laugh that win," "This is the short and long of it," "Comparisons are odious," "As merry as the day is long," "A Daniel come to judgment," "Frailty, thy name is woman," and a host of others.

Washington Irving gives, "The Almighty dollar."

Thomas Morgan queried long ago—"What will Mrs. Grundy say?" while Goldsmith answers, "Ask me no questions and I'll tell you no fibs."

Charles Pickney gives "millions for defence but not one cent for tribute."

"First in war, first in peace, and first in the hearts of his fellow-citizens" (not countryman), appeared in the resolutions presented to the House of Representatives, in December, 1790, prepared by General Henry Lee.

Thomas Tasser, a writer of the sixteenth century, gives us, "Better late than never," "Look ere you leap," and "The stone that is rolling can gather no moss."

"All cry and no wool," is found in Butler's 'Hudibras.'

Dryden says—"None but the brave deserve the fair," "Men are but children of a larger growth," and "Through thick and thin."

"When Greek joins Greek then was the tug of war," Nathaniel Lee, 1692.

"Of two evils I have chosen the least," and

"The end must justify the means," are from Matthew Prior.

We are indebted to Colley Cibber for the agreeable intelligence that "Richard is himself again."

Johnson tells us of "a good hater," and Mackintosh, 1791, the phrase often attributed to John Randolph, "Wise and masterly inactivity."

"Variety is the very spice of life," and "Not much the worse for wear," Cowper.

"Man proposes, but God disposes," Thomas A. Kempis.

A Unique Railroad.

THERE is only one street railway in the world that is operated partly by horse power and partly by gravity. When the Chaffney brothers founded Ontario, San Bernardino county, they laid out a double avenue 200 feet wide, with a space in the centre for a street car line.

This avenue is six miles long, running from the town of Ontario to the mountains, with a steady ascent varying from 100 to 250 feet to the mile. In December, 1888, the railroad was completed and horse cars put on.

A couple of ingenious mechanics, J. B. Tays and James Birch, decided that the horses might as well ride on the down trip, and accordingly designed a small platform car, which slides under the main car, for the descent. On this the horses ride down, the car running by gravity. The arrangement has been in successful use since March, 1889.

The down trip is regularly made in 30 minutes, but the cars sometimes come down in half that time, without stops. The horses, or mules take very kindly to the arrangement.—*The Orange Belt.*





A Home-Made Refrigerator.

As farmers appreciate more and more the value of ice on the farm and desire to make it a kitchen economy as well, they learn the great value in both summer and winter, of a good ice box or refrigerator. Dealers do not hesitate to ask from 20 to 50 dollars for a size sufficient for a farmer's family, and of neat external appearance. But any farm hand of average skill with carpenter's tools can make one during a stormy

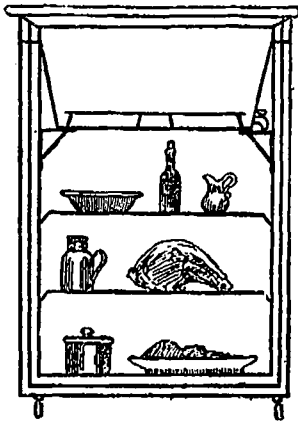


FIG. 1. CROSS-SECTION OF REFRIGERATOR.

day or two in winter. Many suppose it to be necessary to line the entire article of furniture with zinc, but this is an error. Only the tank for the ice need be of metal, and this must be watertight, with a tube at the bottom for draining off the water as the ice melts. It is the only expensive part of the refrigerator. Any tinner will make it for two to five dollars, according to size required.

The chief essential in a refrigerator is air spaces or non-conductive packing to prevent absorption of heat from the air of the room in which it stands. A tight box of the required dimensions is neatly lined with three-inch Georgia pine matched, a three-inch space being left between box and lining and filled with powdered charcoal. The lined box is then covered neatly with the same wood, or with ash or maple if one prefer. An air space of an inch or inch and a half should be left between the box and covering. Fig. 1 shows a cross-section of such a refrigerator, the space, the packing, and how the ice tank is held in place. Placed at the top, because this is the best position for the ice, inasmuch as cold air descends just as

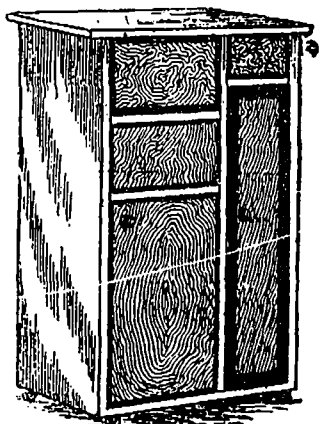


FIG. 2. HOME-MADE REFRIGERATOR CLOSED.

fast as heated air rises, the tank is held up by two brackets on each side of the interior of the refrigerator. The top of the tank is put between two boards of the lining before they are nailed and firmly fastened. A false bottom prevents the ice from injuring the zinc, and permits free drainage. Two or more shelves are put below the ice receptacle to hold whatever is to be kept cold.

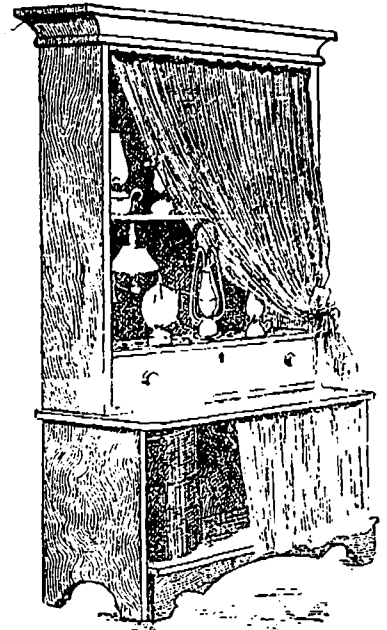
If an especially fancy cover be desired it can be made in panels as seen in Fig. 2, using walnut or some pretty wood in quarter-inch veneer, attaching it with small brads, and covering the counter-sunk heads with putty, colored to match. This wood can be bought already planed and polished at eight to fifteen cents per square foot. Such a piece of work, if nailed, instead of being put together with screws, which are preferable, must be fastened in a thoroughly strong manner so it will not warp. If it should become musty, as unventilated refrigerators are likely to do in warm weather, it should be fumigated. Nothing is more useful for this work than an ounce of sulphur and a live coal in an iron vessel closed within the lower compartment. The inside should be thoroughly washed with soap and hot water at least once a week. A galvanized iron pail or basin should be placed under the drainage tube which constantly carries away the water which would melt the ice rapidly if allowed to remain. Wrapping the ice with newspapers will prevent too rapid melting in very warm weather. This homemade refrigerator will soon save its cost in the food it preserves from decay, to say nothing of the deliciousness of iced foods and drink.—*American Agriculturist*.

A Cabinet for Kerosene Lamps.

EXCEPT in the large towns and cities, the greater part of our people must depend on lamps to light their homes at night. The many new inventions in lamps have about perfected that useful and necessary utensil, both in mechanical arrangement, and beauty of design. For the half dozen or more lamps in my household, I have designed a lamp cabinet, to keep the lamps from dust and flies, to provide a place for extra wicks and chimneys, a place for the lantern, and a safe and convenient place for a five gallon pump tank of coal-oil. A view of the cabinet is given in the sketch. It is made of white pine, with front pieces of fancy grained spruce, the woodwork tinted with cherry stain and finished with a coat of fine quality varnish. The lower part is two feet high, two feet long, and 16 inches deep. A shelf, so constructed that it moves in and out, is supported in front by an ornamental foot. On this shelf is kept the tank of oil. The shelf is drawn out when lamps are to be filled, thus bringing the tank in an easy position for use. The upper part of the cabinet is four feet high, two feet wide, and eight inches deep. A drawer six inches deep at the bottom contains wicks, burners, and chim-

neys, and utensils for cleaning the lamps. One or more shelves above the drawer may be placed at such distances apart as will best fit the lamps. Curtains are provided for the front as they will not break the globes or shades which may project beyond the shelves.

I use metal lamps, only, so that there can be no breakage, and burn the best quality of oil,



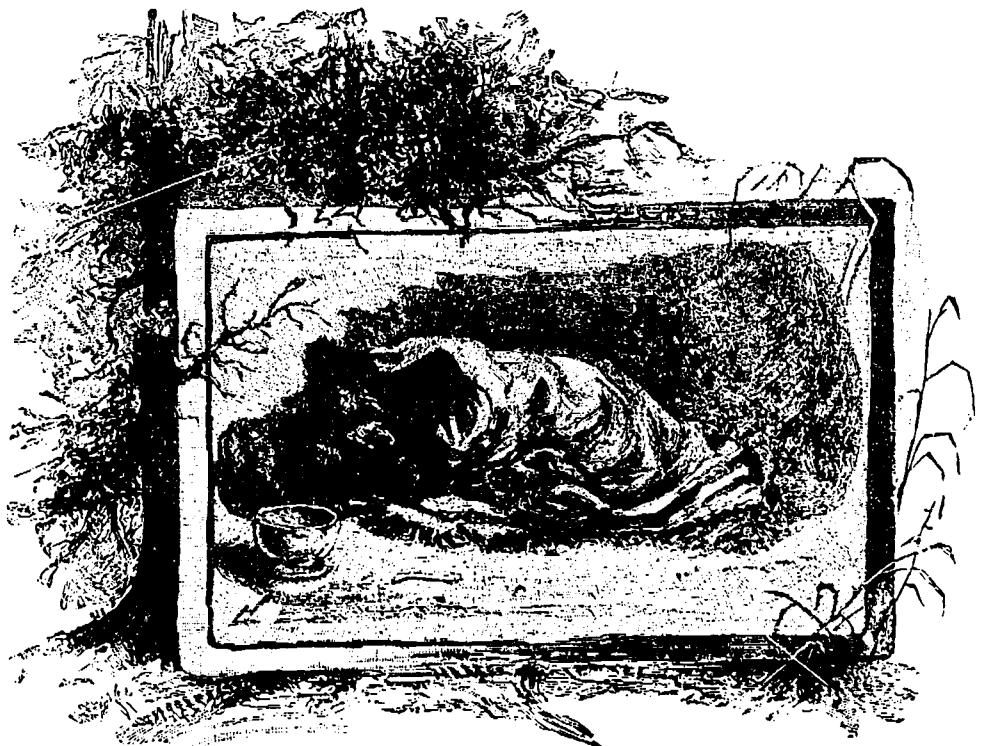
thereby reducing to the least possible amount all danger from accidents. In the use of oil the very best has proved to be the most economical, as, unlike the common grades, it burns till all is consumed, a given amount lasting much longer and yielding a very bright light.

Wicks need renewing when about one-third burned away, as they filter so much oil that they become clogged with dirt. Burners that have turned black with use should be boiled in strong lye water to extract the oil and brighten them. If very old and black they should be replaced with new ones.—*American Agriculturist*.

Dip fish in boiling water for a minute and the scales will come off more easily.

Sadirons will not scorch if they are first wiped on a cloth saturated with kerosene.

Rub soft, not melted, lard over the top of bread before baking, and wrap in a damp cloth with a large dry one over after baking, and there will be no hard crusts. Keep bread in a covered box.



THE RESULT OF COMING OUT TOO EARLY.



A RECIPE FOR A DAY.

Take a little dash of water cold
And a little leaven of prayer,
And a little bit of sunshine gold
Dissolved in the morning air.

Add to your meal some merriment
And a thought for kith and kin,
And then, as your prime ingredient,
A plenty of work thrown in.

But spice it all with the essence of love
And a little whiff of play,
Let a wise old look and a glance above
Complete the well made day.

The auctioneer is a man who likes to have you talk back. Whatever one's lot in life, he should have good deeds to show for it.

Jagson says the proprietor of the merry-go-round has a business whirled of his own.

One reason why some people belong to a church is because they haven't been put out yet.

Kenneth (aged three, very tired by a long walk).—"Mama! My shoes are getting new again!"

"My studio was robbed last night." "Did they take any of your pictures?" "No—hang it. They left them."

It is always easy to teach another man his proper place in the world; but it is a desperately hard job to find out our own.

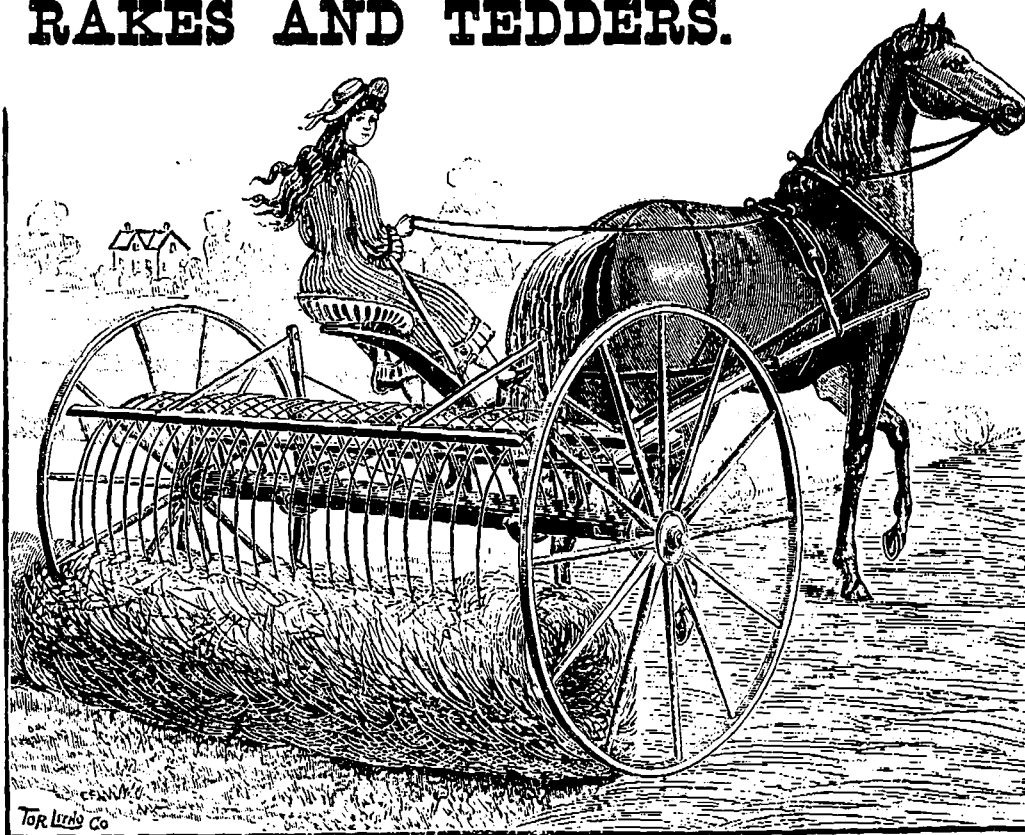
The bee of Northern Greenland has no sting. But there is nothing in Northern Greenland worth stinging. Nature seldom makes a blunder.

Mrs. Black.—"There! that's the most interesting part of the paper, no doubt." Mr. Black.—"What is it?" Mrs. Black.—"I don't know. It's cut out!"

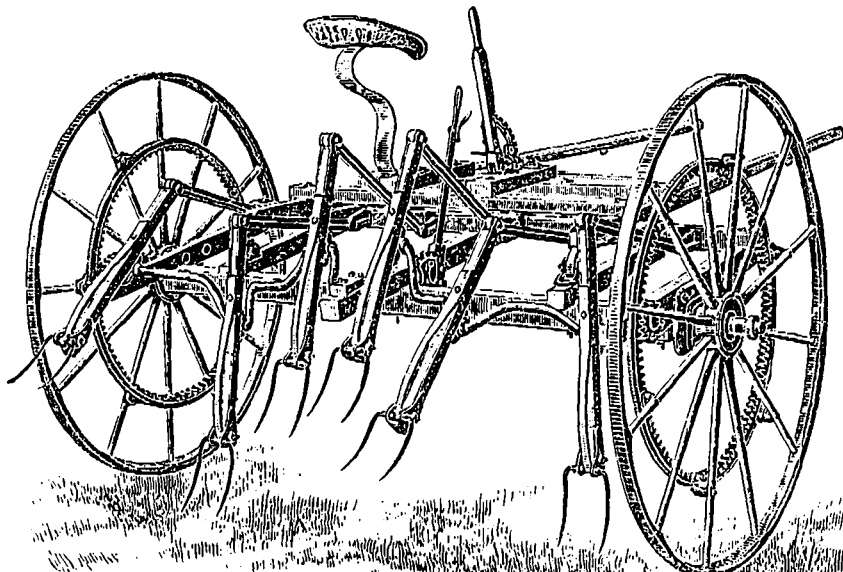
Yapsley.—"Miss Passay seemed offended at you last evening. What did you say?" Mudge.—"Blessed if I know. I only asked her if she didn't dread having to wear hoops again."

Mayor Sprunt.—"Since the invention of guns which will shoot five or six miles, the rear of an army is about as dangerous a place as the front." Colonel Dodge.—"Still, it isn't as bad as it might be. They haven't got a gun yet which will curve the bullet and shoot behind a tree."

RAKES AND TEDDERS.



SHARP'S HAY RAKE - (We also build the Ithaca and Tiger Rakes.)



MASSEY-HARRIS HAY TEDDER.

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

Now is the time to place your Order.

Now is the time to place your Order.

Farm Wagons Ride like Carriages by using



MOST PERFECT SPRING MADE.

PRICE LIST.	
No. 0 1000 lb. capacity	\$5.00
No. 1 1500 "	5.30
No. 2 2000 "	5.60
No. 3 3000 "	6.25
No. 4 4000 "	7.00
No. 5 5000 "	8.50
No. 6 6000 "	9.00

In ordering, give the distance between Bolster Stakes.

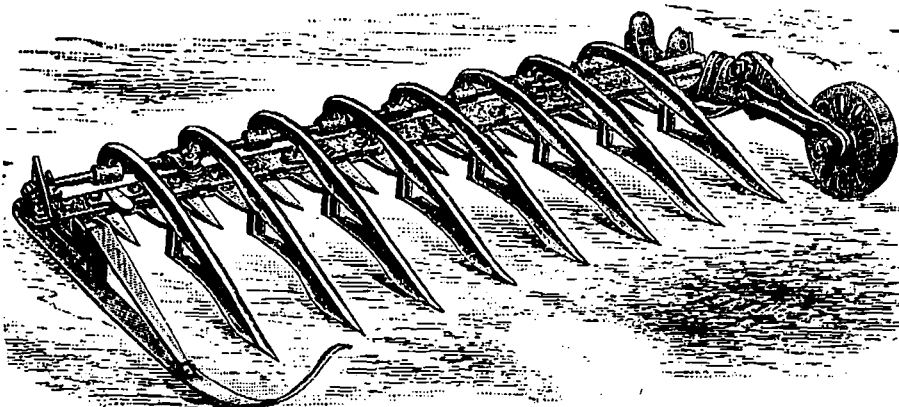
Special Prices to Dealers in Quantities. Address: **J. H. MORROW, BRIGHTON, ONT.** Canadian Agent

GUARANTEE.

We guarantee these Springs to carry without breakage up to their stenciled capacity, and will for one year after date of shipment send the parties buying our Springs any part of the Spring which may break.

THE GENUINE TOLTON PEA HARVESTER.

Simple, Substantial, Light, Strong and Durable.



THE MONARCH OF THE PEA FIELD.

This Pea Harvester pays, and is one of the greatest labor-saving machines in use—harvesting from eight to ten acres per day in the most complete manner. It is endorsed by all first-class farmers who have this Harvester to be as useful in the pea field as the mower is in the hay field. It can be attached to any mower bar, and has the only Vertically Acting Lifter, having a practically successful movement to suit the unevenness of the land, of which we are the sole Manufacturers and Patentees. Send for circular with prices and instructions. Order early and secure one.

TOLTON BROS., GUELPH, ONT.

Thousands of them now in use in Ontario, in the hands of the

Leading Farmers, who endorse it as being highly satisfactory.

Rubber Belting!

THE CANADIAN RUBBER CO. OF MONTREAL

Manufacture the Best Threshing Machine Belts in America.

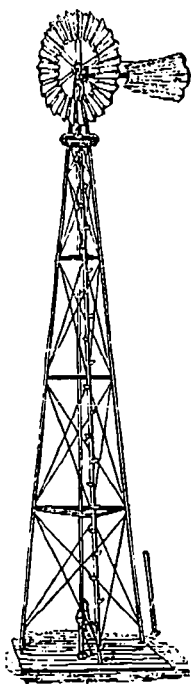
ASK THE MERCHANT YOU DEAL WITH FOR THEM, AND TAKE NO OTHER.

RUBBER

WESTERN BRANCH:

Cor. Front & Yonge Sts., TORONTO.

BELTING



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—

GOOLD, SHAPLEY & MUIR
CO., Ltd.

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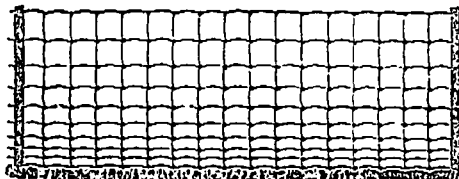
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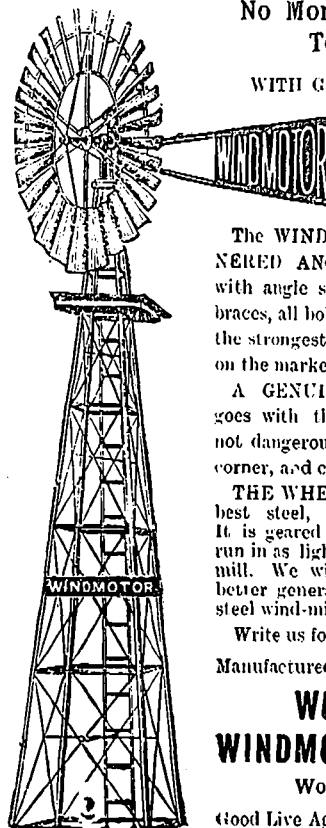
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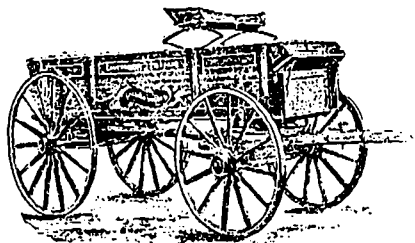


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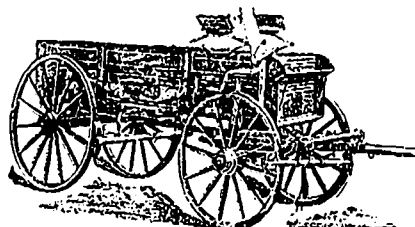
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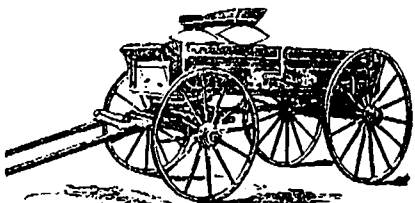
THE OLD RELIABLE CHATHAM WAGON



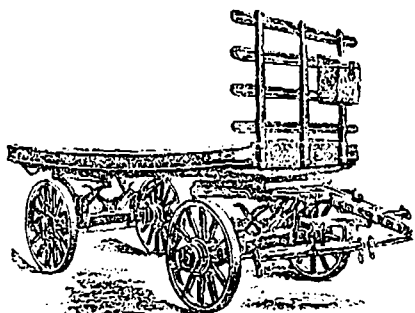
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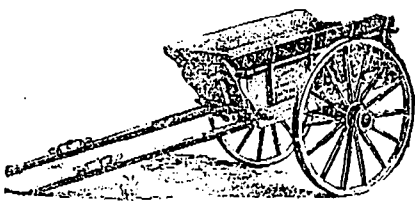
FOR USE IN BRITISH COLUMBIA.



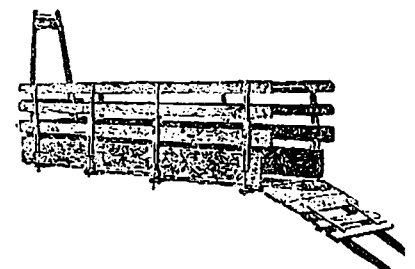
ONE-HORSE WAGON, WITH UPPER BOX.



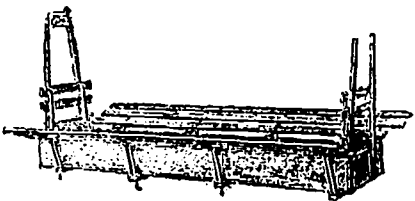
CHATHAM TWO-HORSE SPRING LORRY.



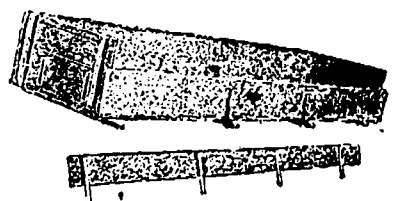
DUMP CART, WITH SPRING FASTENINGS.



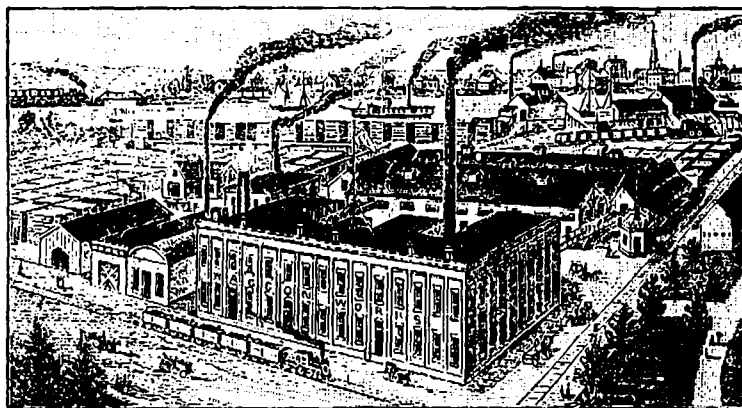
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HERE YOU SEE IT AS A HAY RACK.



HERE IT IS AS A WAGON BOX.



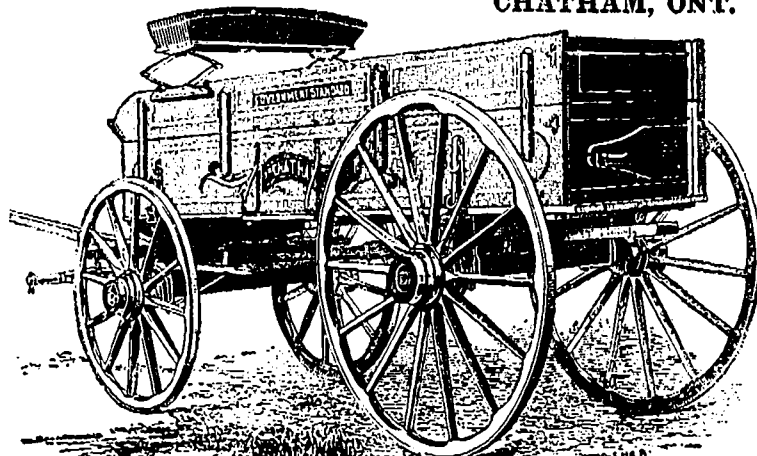
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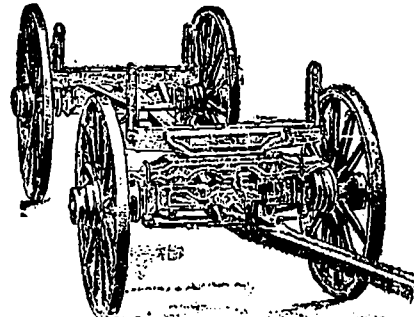
We make no claim to superiority in mechanical skill; any good mechanic can make as good a Farm Wagon as we can, IF—and that "IF" is the biggest word in the English language in this connection—so we say IF he has his own Saw Mills in a section of the country abounding in the very best woods for wagon purposes, as we have; IF he make his own Hubs and Spokes from the very best of white oak, as we do; IF he cast his own Arms in such a way, and of such iron, as to make them almost malleable, as we do; IF he have arrangements by which the best of iron is made specially for him, as we have; IF he keep in stock at all times, dry and under cover, every piece of wood used in a wagon for 3,000 wagons, as we do, and adopt our method of extracting atmospheric dampness from wood before using it in wagons; IF he have West's Cold Tire and Hub Band Setters, as we have, and so avoid charring the Fellies of his wheels, and give them just the right and uniform dish, and band his hubs so they can never loosen; IF he have that most important machine, an Arm Setter, as we have, which unerringly and accurately sets arms so as to give the wheels the proper pitch and gather; IF he have the right to use our Patents covering the method of making wooden axles with cast arms, without truss rods, unbreakable; Malleable Adjustable Stakes, our Climax Truss Rod, etc.; IF he use the best material the world furnishes for painting; and, finally, IF he have the best wagon mechanics to be found, he may make as good a wagon as we do, but without these we fearlessly assert he cannot do so. We do not claim that we make low priced wagons, but we do claim and aim to make **THE BEST**, which under all circumstances will prove the cheapest in the end. Referring the reader to the cuts on this page of some of the different vehicles, etc., we build, and soliciting correspondence,

We are, his obedient servants,

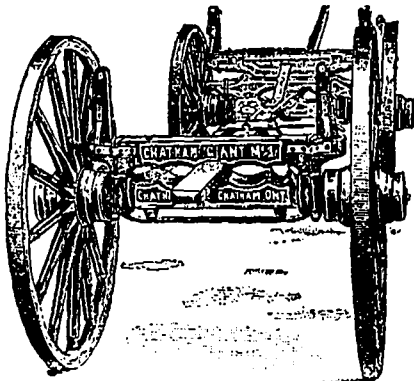
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CHATHAM, ONT.



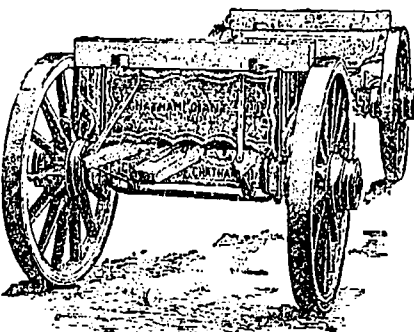
THE NORTHWEST FARMER'S WAGON.



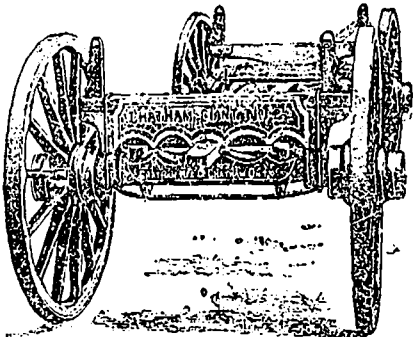
FRONT VIEW OF CHAUTAUQUA GIANT.



REAR VIEW OF CHAUTAUQUA GIANT.



CHATHAM GIANT LOG TRUCK.



CHATHAM GIANT FARM TRUCK.



FRONT AXLE OF CHAUTAUQUA GIANT.



FRONT AXLE CHATHAM GIANT.



HIND AXLE AND BOLSTER OF BOTH THE ABOVE.



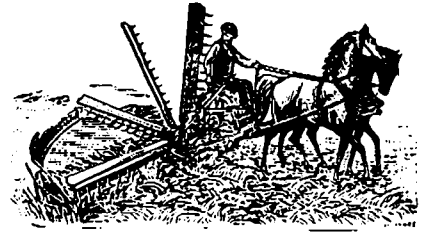
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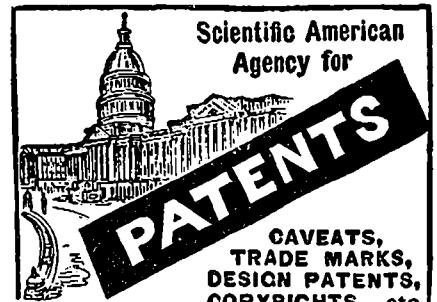
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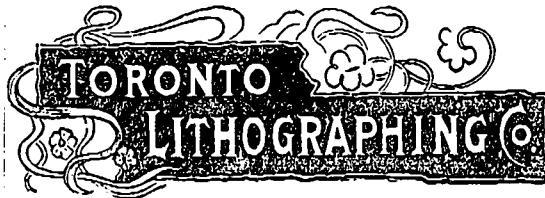
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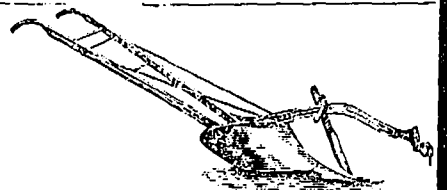
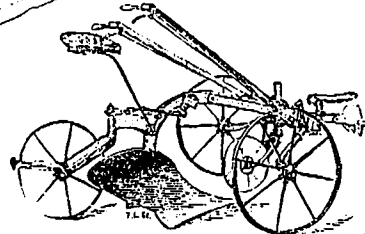
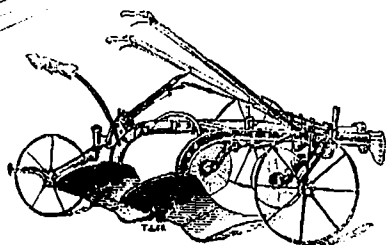
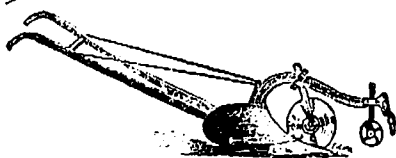
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Successors of W. H. VERITY & SONS, Exeter, Ont., and PATTERSON & BRO. CO. (Plow Business), Woodstock.

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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.



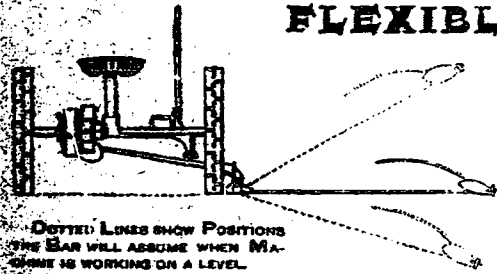
We will continue to make the celebrated "VERITY" Plows, admitted to be at the head of all Canadian Plows, and equal in every respect to any made in the U.S. also the standard "Patterson" Plows; and have added to these lines other new and approved models. We have Plows to suit the ideas of all kinds of 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 Centre Crucible Steel Mould Boards, and guarantee high class workmanship and finish in every particular.

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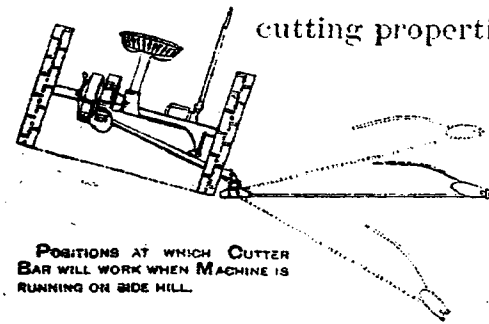
BRANTFORD MOWERS

FLEXIBLE CUTTER BAR.



DOTTED LINES SHOW POSITIONS THE BAR WILL ASSUME WHEN MACHINE IS WORKING ON A LEVEL.

proper adjustment, but the bar must be thoroughly flexible and so attached to the machine as to run at various angles without interfering with the work of the knife. The Brantford Mower Bar at work the bar without stopping height to stones, or other will, of its own hill while the

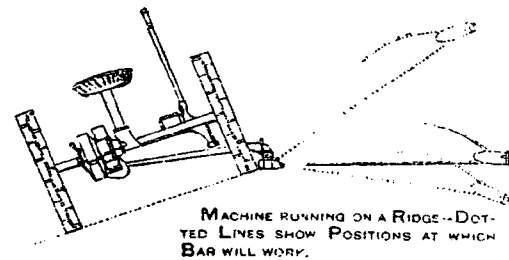


POSITIONS AT WHICH CUTTER BAR WILL WORK WHEN MACHINE IS RUNNING ON SIDE HILL.

ditch, and cut the same as ever. The inside shoe will also drop below the level of the drive wheels (a favor of this Mower), thus tending in the bottom of a while the machine itself a ridge. Some of the positions will assume are illustrated. The dotted lines show the in which the cutters will work when the machine is at work in the positions indicated. It will thus be seen that the Brantford Mower has a bar which is in every sense thoroughly flexible.

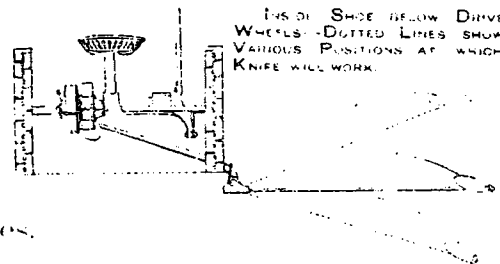
It has great capacity, and will do good work where other Mowers fail; and, further, it will cut and save a good part of the crop passed over and left uncut by other machines.

In meadows and clover fields with uneven surface, deep furrows, high ridges, etc., in order to secure the crop without waste, a mowing machine must not only be provided with a sufficient range of tilt to admit of proper adjustment, but the bar must be thoroughly flexible and so attached to the machine as to run at various angles without interfering with the work of the knife. The Brantford Mower will do this. When it is may be instantly raised, passing the knife, to a sufficient height to pass over ordinary stumps, obstructions, or the bar will, of its own accord, follow along a side machine is running in a



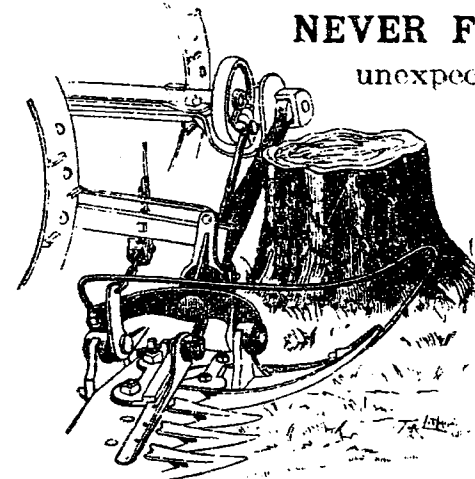
MACHINE RUNNING ON A RIDGE--DOTTED LINES SHOW POSITIONS AT WHICH BAR WILL WORK.

strong point in admitting of cutting in ditch or furrow is travelling on various positions the bar on this page, various angles



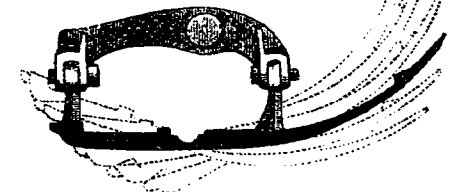
INSIDE SHOE BELOW DRIVE WHEELS--DOTTED LINES SHOW VARIOUS POSITIONS AT WHICH KNIFE WILL WORK.

NEVER FEAR about breaking the Pitman, even if you do unexpectedly run against a stone or stump, for it is fully protected by the strong bar in front of it. The Brantford Mowers are built with a view to their standing rough usage.



THE PITMAN WELL PROTECTED

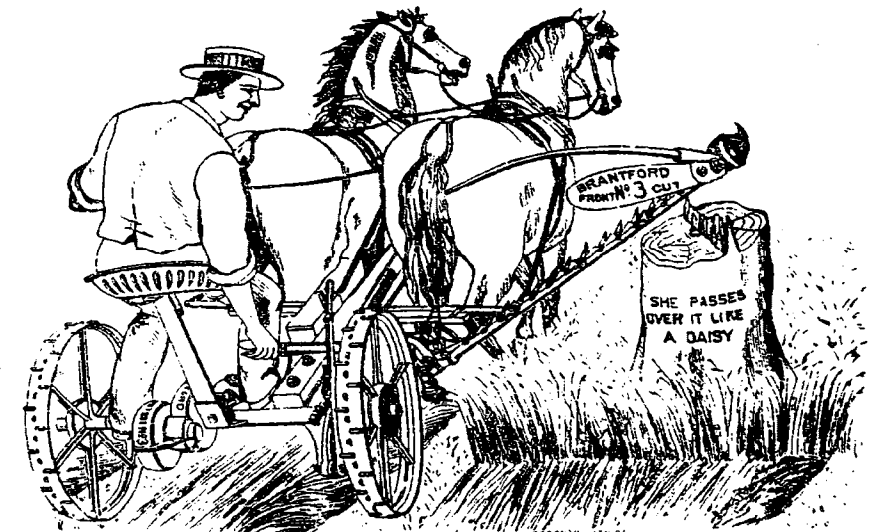
The Bar Connection is illustrated in the adjoining cut. It is substantial and sufficiently rigid to withstand the hardest cutting, and at the same time forms a most flexible joint, admitting of placing the cutter bar in every desirable position and allowing it to follow the most irregular ground surface, as illustrated in the previous page (PATENTED).



PLENTY OF TILT.—THE DOTTED LINES SHOW THE WIDE RANGE OF TILTING ADJUSTMENTS.

Range of Tilt.—You can leave any desirable length of stubble with the Brantford Mower, or you can shear off the crop close to the ground. The tilt lever is convenient and very easy to set.

The lever for raising the bar is also easy to handle, and the bar can be quickly raised to pass obstructions with comparatively little effort, being assisted by the large coil spring alongside the pole.



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