

life and health be spared to him, he will reclaim one field each year until all that is not devoted to timber shall have been brought into high condition. When his Summer harvest is over, and his Fall crops have received their last cultivation, there will generally be from one to two Autumn months which he can devote mainly to this work. Let him take hold of it with resolute purpose to improve every available hour, not by running over the largest possible area, but by dealing with one field so thoroughly that it will need no more during a long lifetime. If it has stones that the plow will reach, dig them out; if it needs draining, drain it so thoroughly that it may hereafter be plowed in Spring so soon as the frost leaves it; and now let soil and subsoil be so loosened and pulverized that roots may freely penetrate them to a depth of fifteen to twenty inches, finding nourishment all the way, with incitement to go further if ever failing moisture shall render this necessary. Drouth habitually shortens our Fall crops from ten to fifty per cent.; it is sure to injure us more gravely as our forests are swept away by axe and fire; and, while much may be done to mitigate its ravages by enriching the soil so as to give your crops an early start, and a rank, luxuriant growth, the farmer's chief reliance must still be a depth of soil adequate to withstand weeks of the fiercest sunshine.

Make the soil rich and mellow ever so far down, and you need not fear that the roots will descend an inch lower than they should. They understand their business; it is your sagacity that may possibly prove deficient.

I suspect that the average farmer does far too little plowing—by which I mean, not that he plows too few acres, for, he often plows too many, but that he should plow oftener as well as deeper and more thoroughly. I spent three or four of my boyish Summers planting and tilling Corn and Potatoes on fields broken up just before they were planted, never cross-plowed, and of course tough and intractable throughout the season. The yield of Corn was middling, considering the season; that of Potatoes more than middling; yet, if those fields had been well plowed in the previous Autumn, cross-plowed early in the spring, and thoroughly harrowed just before planting-time, I am confident that the yield would have been far greater, and the labor (save in harvesting) rather less—the cost of the Fall plowing being over-balanced by the saving of half the time necessarily given to the planting and hoeing.

Fall Plowing has this recommendation—it lightens labour at the busier season, by transferring it to one of comparative dullness. Show me a farmer who has no land plowed when May opens, and is just waking up to a consciousness that his fences need mending and his trees want trimming, and I will guess that the sheriff will be after him before May comes round again.

There is no superstition in the belief that land is (or may be) enriched by Fall Plowing. The Autumn gales are freighted with the more volatile elements of decaying vegetation. These, taken up wherever they are given off in excess, are waited to and deposited in the soils best fitted for their reception. Regarded simply as a method of fertilizing, I do not say that Fall Plowing is the cheapest; I do say that any poor field, if well plowed in the Fall will be in better heart the next Spring, for what wind and rain will meantime have deposited there n. Frost, too, in any region where the ground freezes, and especially where it freezes and thaws repeatedly, plays an important and beneficent part in aerating and pulverizing a freshly plowed soil, especially one thrown up into ridges, so as to be most thoroughly exposed to the action of the more volatile elements. The farmer who has a good team may profitably keep the plow running in Autumn until every road that he means to till next season has been thoroughly pulverized.

In this section, our minute chequer-work of fences operates to obstruct and impede Plowing. Our predecessors fenced their farms into patches of two or ten acres, and thought they had thereby increased their value! That was a sad miscalculation. Weeds, briars and bushes were sheltered and nourished by these walls; weasels, rats, and other destructive animals, found protection and impunity therein; a wide belt on either side was made useless or worse; while Plowing was rendered laborious, difficult and inefficient, by the necessity of turning after every few hundred steps. We are growing slowly wiser, and burying a part of these walls, or building them into concrete barns or other useful structures; but they are still far too plentiful, and need to be dealt with more sternly. O how quiet on a wide prairie, on the bleak Plains or in a broad Pacific valley, where wood must be hauled for miles and loose stones are rarely visible, thank God for the benignant dispensation which has precluded you from half spoiling your farm by a multiplicity of obstructing, deforming fences.

JIM SMILEY'S FROG.

MARK TWAIN'S MASTERPIECE.

He cotched a frog one day and took him home, and said he called to educate him; and so he never done nothing for three months but sit in his back yard and learn the frog how to jump. And you bet he did learn him too. He'd give him a little punch behind, and the next minute you'd see that frog whirling in the air like a doughnut—see him turn a summerset, and maybe a couple, if he got a good start, and come down flat-footed and all right like a cat. He got him up so in the matter of catching flies, and kept him in practice so constant, that he'd nail a fly every time as far as he could see him.

Smiley said that all the frog wanted was education, and he could do almost anything, and I believe him. Why I've seen him set Daniel Webster down here on the floor—Daniel Webster was the name of the frog—and sing out;—“Flies, Dan'l, flies,” and quicker'n you could wink he'd spring up and shake his head with his hind foot as indifferent as if he hadn't no idea he'd done any mor'n any frog might do. You never seed a frog so modest and straightforward as he was, for all he was so big. And when it came to a square jumping on a dead level, he could get over more ground at one straddle than any animal of his breed you ever see. Jumping on a dead level was his strong suit, you understand, and when he came to that Smiley would ante up money to him as long as he had a red. Smiley was monstrous proud of his frog, and well he might be, for he had that had travelled and bin everywhere all said that he had over every frog that they seed.

Well, Smiley kept the beast in a little lattice box, and he used to fetch it down town sometimes, and lay for a bet. Once

a feller—a stranger in camp, he was—came across him with his box, and says:—

“What might it be you've got in the box?”

And Smiley, sorter indifferent like:—

“It might be a parrot, or it might be a canary, maybe; but it ain't, it's only just a frog.”

And the feller took it and looked at it careful and turned it around this way and that and says:—

“H'm—so tis. Well, what's he good for?”

“Well,” Smiley says, easy and careless, “he's good enough for one thing, I should judge—he can outjump any frog in Calaveras county.”

The feller took the box again and took another long and particular look, and gives it back to Smiley, and says very deliberate:—

“Well, I don't see no points about that frog that's any better'n any other frog.”

“Maybe you don't,” Smiley said. “Maybe you understand frogs, and maybe you don't understand 'em; maybe you ain't only an amateur, as it were. Anyways, I've got my opinion, and I'll risk forty dollars that he can outjump any frog in Calaveras county.”

And the feller studied a minute or two, and then says, kinder sad like—“Well, I'm only a stranger here, and I ain't got no frog, but if I had a frog I'd bet you.”

And then Smiley says:—“That's all right. That's all right. If you'll hold my box a minute, I'll go and get you a frog,” and so the feller took the box and put up his forty dollars along with Smiley's and sat down to wait.

So he sat there a good while, thinking to his-self, and tuk the frog out and pried open his mouth and took a teaspoon and filled him full of quail shot—filled him pretty near up to the chin, and set him on the floor. Smiley, he went out to the swamp and slopped around in the mud for a long time, and finally he ketched a frog and fctched him in, and give him to the feller, and says:—

“Now, if you are ready, set him a longside of Dan'l with his forepaws just even with Dan'l's, and I'll give you the word.” Then he says, “one—two—three—jump!” and him and the feller touched up the frogs from behind, and the new frog hopped off lively, but Dan'l gave a heave, histed up his shoulder—so-like a Frenchman, but it wasn't no use; he couldn't budge; he was planted as solid as an anvil, and he couldn't no more stir than if he was anchored out. Smiley was a good deal surprised, and he was disgusted, too, but he didn't have no idea what the matter was, of course.

The feller took the money and started away, and when he was going out of the door he sorter jerked his thumb over his shoulder—this way—at Daniel, and says, again, very deliberate. “Well, I don't see no other points about that frog that's any better'n any other frog.”

Smiley stood scratching his head and looking down on Dan'l a long time, and at last he says:—“I do wonder what in the nation that frog throwed off for; I wonder if there ain't something the matter with him; he 'pears to look mighty baggy somehow;” and he ketched Dan'l by the nape of the neck, and lifted him and says, “Why, blame my cat, if he don't weigh five pounds,” and turned him up-side down and he belched out a double handful of shot, and then he see how it was, and he was the maddest man! He set the frog down and took after that feller, but he never ketched him.

PATENTS OF INVENTION.

[ISSUED FROM 25TH NOV. TO 23RD DEC., 1869.]

No. 151. Samuel Deveau Woodruff, St. Catharines, Assignee of Cyrus Dean: a new rotary machine for washing clothes, called ‘Cyrus Dean's Rotary Washer.’ 25th Nov., 1869.

No. 152. Cyrus Dean, Port Robinson, Welland, Ont.: ‘The Evening Star Lamp and Lantern.’ 25th Nov., 1869.

No. 153. Elain Franklin Austin, Ottawa: ‘The Universal Lifter, Hammer, Screw-Wrench and Driver.’ 22d Nov., 1869.

No. 154. Amasa Whitney Mallory, of the Township of Yonge, Co. of Leeds: ‘Mallory's Improved Horse Fork.’ 22d Nov., 1869.

No. 155. Elain Franklin Austin, Ottawa: ‘The Meat Pounder and Beef-steak Breaker.’ 22d Nov., 1869.

No. 156. Charles Barber, Meaford, Co. Grey, Ont.: ‘Barber's Canadian Turbine Water-wheel.’ 25th Nov., 1869.

No. 157. James Dalgarno, Chatham, Ont.: ‘Dalgarno's Anti-friction Metal.’ 25th Nov., 1869.

No. 158. Amasa Whitney Mallory, of the Township of Yonge, Co. Leeds, Ont.: ‘Mallory's Improved Carriage Brace.’ 25th Nov., 1869.

No. 159. Henry McIninch, Belleville, Ont.: ‘McIninch's Adjustable Winter Horse Shoe.’ 25th Nov., 1869.

No. 160. Leonard Nightingale, Windsor, Ont.: ‘The Dominion Spring-Bed Bottom.’ 25th Nov., 1869.

No. 161. William McDonald, Galt, Ont.: ‘The Dominion Hay Fork.’ 25th Nov., 1869.

No. 162. Joseph Balthazar DeGuise, Montreal, new machine for chopping meat, &c., called ‘General Mincer.’ 26th Nov., 1869.

No. 163. Alexander Dunbar, Woodstock, Ont.: ‘A. Dunbar's Horse Collar and Hames.’ 27th Nov., 1869.

No. 164. Alexander Dunbar, Woodstock, Ont.: ‘The Elastic Insole or Instep Beautifier.’ 27th Nov., 1869.

No. 165. John William Wright, Montreal: ‘Wright's Improved Machine for Wood Carving.’ 26th Nov., 1869.

No. 166. Stephen Jones Lyman, Chemist, Montreal: for certain improvements on Railway Cars, for propelling the same, to be called ‘Lyman's Steam Railway Car.’ 26th Nov., 1869.

No. 167. William Fordyce Beecher, Brockville, Ont.: improvement on a certain stove and hot air furnace now in use for burning bituminous and anthracite coals, to be called ‘The Argand Coal Burner.’ 26th Nov., 1869.

No. 168. Anthony Neville, Napance, Ont.: ‘Neville's Oil or Grease Extractor.’ 26th Nov., 1869.

No. 169. Edward John Robinson, Whitby, Ont., and William Robinson, of the same place: a machine for holding window blinds, called ‘Robinson's blind holder.’ 26th Nov., 1869.

No. 170. Garret Seger, Humberstone, Co. Welland, Ont.: ‘Seger's Corn Husker.’ 6th Dec., 1869.

No. 171. Joseph Dilworth, Toronto, and John Cobourg Hodgins of the same place: ‘Dilworth and Hodgins's Condensing and heating Apparatus for high pressure Steam Engines.’ 6th Dec., 1869.

No. 172. William Welch, Montreal, Locomotive Inspector: Machine for diffusing vapour into cushions, mattresses, bedding, etc., for the purpose of cleansing them, called ‘Welch's vapour Fumigator.’ 6th Dec., 1869.

No. 173. Simon Kinney, Ottawa: ‘Kinney's Saw Swage.’ 16th Dec., 1869.

No. 174. Ebenezer Haines, Cheltenham, Co. Peel, Ont.: ‘Haines' Improved Spinning Wheel.’ 17th Nov., 1869.

No. 175. John Fried Shoemaker, Waterloo, Ont., Carpenter: ‘Shoemaker's Improved Seat Hay Rake.’ 12th Dec., 1869.

No. 176. William John Wright, London Township, Ont.: ‘Wright's Union Bob-Sleigh.’ 12th Dec., 1869.

No. 177. Charles William Mugridge, Hamilton, Ont., an improved broom, called: ‘The Grass Broom.’ 12th Dec., 1869.

No. 178. John Frederick Mossimam, Toronto: ‘The New Dominion Coal Scuttle.’ 12th Dec., 1869.

No. 179. William Craig, Brampton, Co. Peel, Ont., process for the protection of photographs, called: ‘Craig's Enamelling Process.’ 12th Dec., 1869.

No. 180. E. Lawson Fenerty, of the City of Halifax: ‘Extension of an improved method of making, and adjusting and fastening Skates.’ 12th Dec., 1869.

No. 181. Extension of Patent No. 3313. Samuel Cleveland, the younger, Coaticook, Que.: ‘Cleveland's Combined Manipulator and Punch.’ 12th Dec., 1869.

No. 182. Extension of Patent No. 3298. Thomas Scatchard, the younger, Wyton, West Nissouri, Ont.: ‘The Syphon Water Vacuum and Steam Engine Condenser.’ 12th Dec., 1869.

No. 183. Extension of Patent No. 1339. James Tomlinson, Pickering, Co. Ontario: ‘A Steam Coiled Hoop for all kinds of Coopers' Work.’ 12th Dec., 1869.

No. 184. Extension of Patent No. 3233. John Denis Lawlor, Montreal: ‘Improvements on Sewing Machines.’ 12th Dec., 1869.

No. 185. George Ansley, Guelph, Ont., improvement on machine for washing clothes, called: ‘The Wellington Washer.’ 17th Dec., 1869.

No. 186. John Belmer Armstrong, Guelph, Ont., improvements on Cutter for riding in: ‘Armstrong's Excelsior Cutter.’ 17th Dec., 1869.

No. 187. Robert Sinclair, Toronto: ‘Circulator Attachment to Steam Boilers.’ 17th Dec., 1869.

No. 188. Frederick Alonzo Humpidge, Strathroy, Co. Middlesex, Ont.: ‘The Little Giant Saw-mill.’ 17th December, 1869.

No. 189. Benjamin Richard Deacon, Montreal: ‘Deacon's Anthracite Coal Safe.’ 17th Dec., 1869.

No. 190. Abraham Climenhegg, Adelaide, Co. Middlesex, Ont.: ‘Climenhegg's Folding Gate.’ 17th Dec., 1869.

No. 191. Hayden Waters, London, Ont.: ‘The Railway Chair and Couch Combined.’ 20th Dec., 1869.

No. 192. Gedeon Huntingdon, Brantford, Ont.: ‘Huntingdon's Clothes Washer.’ 20th Dec., 1869.

No. 193. Rodney George Nash, Morrisburgh, Co. Dundas, Ont., machine for reducing wood into a pulp for the manufacture of paper stock, to be called: ‘Nash's Pulp Producer.’ 20th Dec., 1869.

No. 194. William Morison Somerville, Ottawa, Ont., machine for extracting stumps of trees and raising heavy weights, to be called: ‘The New Dominion Improved Stumping Machine.’ 20th Dec., 1869.

No. 195. Robert Standing, Chinguacousy, Co. Peel, Ont.: ‘The Hercules Stable Fork.’ 20th Dec., 1869.

No. 196. John Brokenshire, Kingston, Ont.: ‘Brokenshire's Improved Double Acting Suction and Force Pump.’ 23rd Dec., 1869.

No. 197. Lewis Bright, Brampton, Co. Peel, Ont., and John Turner Mullin, of the same place, machine for coupling and uncoupling Railway Cars, to be called: ‘Bright and Mullin's Self-Connecting Spring Car Coupler.’ 23rd Dec., 1869.

No. 198. Joseph Lawrence, Pickering, Co. Ontario: ‘Combined Fork and Band Cutter.’ 23rd Dec., 1869.

No. 199. James Richey Curry, Windsor, Ont., improvement in flour bolts, called: ‘Curry's Improved Flour Bolt Knocker.’ 23rd Dec., 1869.

MODE OF NOURISHING THE SHADE TREES IN PARIS.—All the boulevards in Paris are planted with trees, many of which were, however, destroyed during the revolution of 1848. New trees were therefore planted, and their growth fostered with an amount of skilful attention that has produced astonishing results when the natural disadvantages are taken into consideration. The trees are planted in loam that has been previously mixed with sand and transported to the city. This is contained in large receptacles, lined with brick, sunk below the surface of the footway, and coated over with cement, so as to render them impervious. They form, in fact, gigantic flower-pots, and into them are conducted the roof-drains of each house-block, from which the earth receives its water supply. These vessels or flower-pots are built of a capacity sufficient to admit of considerable expansion of the roots of the trees. An ornamental circular grating, set flush with the footway, is placed over these basins, and around the trunks of trees. This admits of air for the proper support of the roots. The roots of the trees are thus removed from the deleterious influence of escaping street gas, and the poisonous emanations from sewers, causes which are well known to have destroyed the vegetation in the streets of many cities.

A SPEAKING AUTOMATON.—A German genius has invented a speaking machine, which is now on exhibition in Leipsic, and is a masterpiece of inventive art. It is in imitation of all the parts of the human organs of speech, executed in india-rubber and wood. A key-board, played like that of a piano, puts the parts in motion, while by a pedal and bellows the required air is sent through the wind pipe. The key-board has only fourteen keys, representing the sounds of a, o, u, i, e, j, r, w, f, s, b, g, d, sh; other sounds of the alphabet are produced by the same movement, and the admission of more or less air. The sounds of m and l are produced by closing the lips and pressing the tongue against the roof of the mouth, &c. The French nasal sounds are produced by a separate contrivance. The laughing, it is said, sounds truly diabolical, and the crowing of a rooster is very comical.

ANOTHER POLAR EXPEDITION.—A great Polar expedition is being prepared in Sweden for the years 1871 and 1872, under the direction of Professor Nordenskjöld, the celebrated scientific leader of the Swedish expedition of 1868. Parry's attempt to reach the Pole by pushing on to the north of Spitzbergen is to be repeated, and it is proposed to winter on one of the Seven Islands. Professor Nordenskjöld intends to proceed to Greenland this summer to purchase dogs for the sledges and procure some necessary information.