

New Inventions.

The New Mechanics' Hall at Worcester.

The above-named building for the Mechanics' Association of Worcester, Mass., as we learn by the *Transcript*, is now being erected, and from the description given of its design, we are of opinion it will be a credit to the intelligence and spirit of the Worcester mechanics. It is 100 feet wide in front, 145 in length, 70 feet high to the crown of the roof; and will have a front entablature rising above the roof, over the grand entrance, 16 feet in height, making the total elevation 86 feet. The great hall will contain standing room for 3,413 persons, or 10,240 square feet of floor room, allowing 3 square feet to each. The style of the building is the Corinthian; a very excellent choice, we think. It is to be fitted up with ample accommodations for committee, conversation, and library rooms. The total cost of the building will be \$55,000.

Rag Cutting Machines.

In all paper mills, one of the primary operations is the cutting of the rags into small pieces. This was formerly done by hand, the rags being drawn one by one over the edge of a sharp knife—a slow and expensive process. Machinery is now exclusively employed for this purpose. The credit of its origin belongs to Moses Y. Beach, Esq., formerly proprietor of the New York *Sun* newspaper. By reference to our patent records, we find that a patent was issued to that gentleman on the 11th of October, 1828—for a rag cutting machine—the first of the kind ever patented.

Hominy Machines.

The accompanying engravings are views of an improvement in Hominy Machines, for which a patent was granted to Ezra Fahrney, on the 15th of May last.

Fig. 1 is a vertical transverse section of the machine, and fig. 2 is a front view of it. The improvement relates particularly to that description of hominy machine which employs a revolving shaft with radial beaters within a stationary cylinder. The object of the improvement is to render such machines capable of self-feeding and discharging.

The nature of the improvement consists in providing the cylinder in which the corn is cracked with two self-adjusting slides, one arranged over the inlet or feed passage, and the other under the outlet or discharge passage in the bottom of the cylinder, and having these slides arranged in such relation to two cams, placed a short distance apart on the face of a wheel which has a slower motion than the beater shaft, so that at every revolution of the wheel they are both caused to open the feed and discharge passages one after the other, the discharge passage being opened first by the forward cam, and kept open until the contents of the cylinder have escaped, when, or as soon as the cam escapes by the slide, it will, by the action of a spring, be closed, and then the feed passage will be opened by the rear cam, and kept open sufficiently long to allow the proper quantity of corn to be cracked at one operation to pass into the cylinder, when the cam escapes, and allows the slide to adjust itself and cut off the feed.

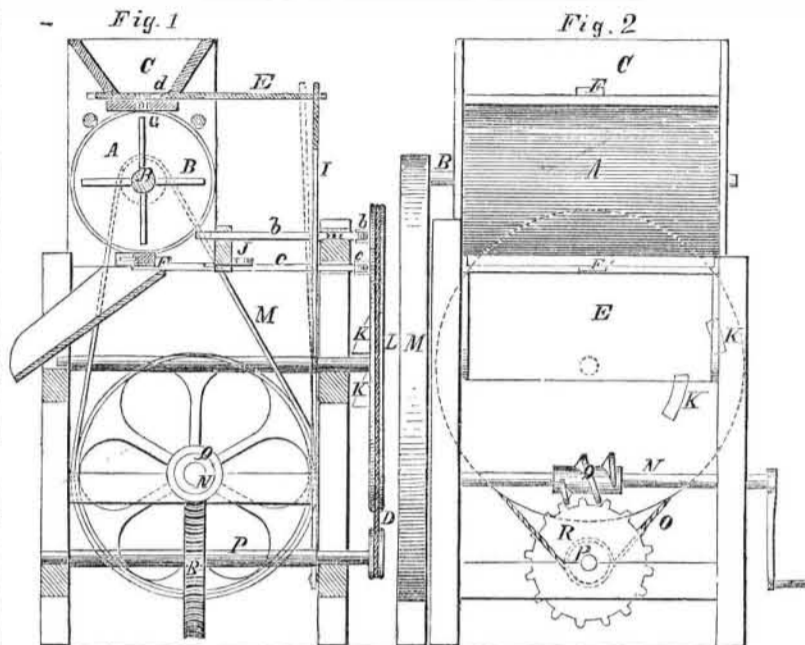
A represents the cracking or breaking cylinder, and B the shaft of radial beaters arranged within it. C is the hopper placed over the cylinder, and has a hole in its bottom. E is the inclined discharge spout. F F' are the slides for the feed and discharge passages in the cylinder; the slide F serves for opening and closing the feed passage, and F' the discharge passage, fig. 2, which extends along the entire length of the cylinder; this slide is connected directly to a spring, I, which is attached at m to an arm, b, as shown in fig. 1, and the slide, F', is made solid, and is also connected through an arm, c, to a spring, J. The springs, I J, render the slides self-adjusting. K K are the cams on the face of the wheel, L; these cams are placed out of line with one another, so as to be in line with the slide arms, b c, by which the slides are operated, and are behind each other, so as to come alternately in contact with the arms of the slides, as shown in the figures. M represents a band leading from a pulley on the driving shaft, N, for giving a

rapid motion to the shaft of breakers or beaters, and O a band running from a pulley on a screw wheel shaft, P, for giving a slow motion to the cam wheel, L. Q is a worm on the driving shaft for giving motion through the screw wheel, R, to the cam wheel shaft, P, as is evident from the figures.

The hopper is filled with corn, and the machine set in motion. As soon as the cam wheel makes one, or a part of a revolution, according

to the positions of the cams, the cam, K, comes in contact with the slide, F', and gradually opens the discharge, and lets out whatever may be in the cylinder, this being done in a few seconds, the cam escapes by the aid of the spring, J, to adjust itself to its original position, and thereby close the discharge; the cam, K', now comes in contact with the slide, F, and opens it in a similar manner, illustrated in the dotted lines, fig. 1, and allows a sufficient

PATENT HOMINY MACHINE.



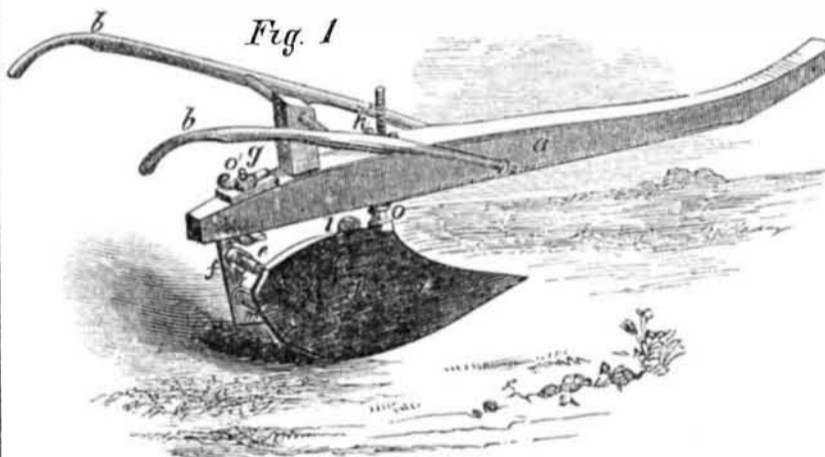
supply of corn from the hopper to be cracked at one operation, to pass into the cylinder by the time the proper quantity has been fed into the cylinder, the cam escapes by the slide, and allows it to assume its original position, and consequently to shut off the feed. The corn fed into the cylinder is operated upon until the cam again comes in contact with the slides, which does not occur until the corn has been sufficiently cracked, owing to the cam wheel being driven by a screw, which turns it very slowly, and thus the operations proceed in the

most perfect and regular manner, without requiring an attendant.

This machine requires no attendant like the old hominy machines; the large hopper has but to be filled, and the machinery goes on breaking the corn, and feeding and discharging alternately, as has been described.

More information respecting this machine, and patent rights, can be obtained by addressing letters to John Donaldson—the assignee of the patent—at Mount Morris, Ogle County, Illinois.

EVAN'S PATENT PLOW.



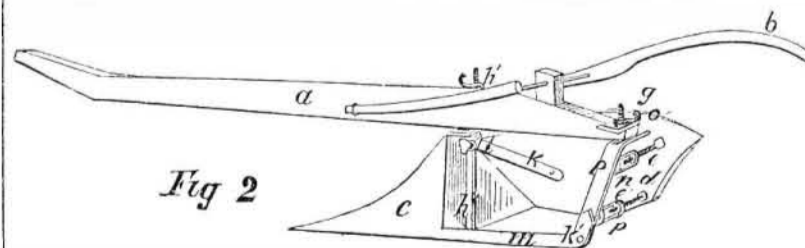
The accompanying figures illustrate the improvements in plows for which a patent was granted to L. G. Evans, of Spring Hill, Ala., on the 19th of June last. Although the plow is among the oldest of agricultural implements, and although numerous and valuable improvements have been made on it during the present century, it is believed to be still capable of improvement.

The nature of the improvement embraced in this patent plow consists in rendering both the mold board and land side of the plow adjust-

able at pleasure by means of convenient screws; also to elevate and lower the beam by slide wedge, or other similar device.

Figure 1 is a shaded perspective view of the plow, and fig. 2 a linear perspective.

a is the beam. b b are the handles or stilts; d is the mold board; c is the coulter; e e' are adjusting screws. f is the upper part of the land-side. g is an adjusting screw; h' is a nut, and h is the standard; k' is a nut and screw, and k is a strap. l is a set screw, and o o' are adjusting screws, or they may be



wedges; p p are pivot nuts; and m is the lower part of the land-side. The coulter, c, and lower part of the land-side, m, are cast in one piece, as shown, and are fastened to the beam, a, by means of the standard, h. The upper part of the coulter, c, is flattened a little,

and drilled, in order to admit the standard.—The lower part of the land-side, m, has a staple, in order to admit the standard. The lower portion of the standard, h, is furnished with a spring, so that in putting the plow together when the standard has been drawn through

the staple on the land-side far enough, the spring flies out and rests upon the upper edge of m, and acts as a support. The standard, h, and with it the coulter, c, and land-side, m, are fastened to the beam, a, by means of the nut, h'. The after part of the land-side, f, is made of a separate piece of metal. It is attached to m by means of a nut and screw at k'. This method of fastening the parts is simple, and at the same time so strong that a new land-side can be attached with expedition when desirable.

The upper end of f is bent to a right angle and slotted, and is secured to the beam, a, by means of the adjusting screw, g; or it may be made solid, and secured with a clamp, to permit it, together with the lower part, m, and the coulter, c, to be adjusted as desired. By loosening the nuts, h and g, the position of all the parts below the beam may be altered and adjusted, raised high or low, either to make the plow run shallow or deep, or to give it more or less land, as desired.

The mold-board, d, is made adjustable by means of the adjusting screws, e e', having pivot nuts, p p'. These nuts are attached to the upper part of the land-side, f, while the adjusting screws, e e', are attached to the mold board, d. The other end of the mold board is secured to the standard, h, by means of the set screw, l, which passes through a hole in the upper end of the mold board. In this manner the mold board is secured to the standard, and is wholly independent of the coulter, c. This mode of fastening the mold board also permits it to swing at its juncture with the standard, so that when the plowman wishes to alter the width of the furrow, or diminish the draft of the plow, he has merely to turn the adjusting nuts, p p, and the mold board will be accordingly thrown in or out. The forward edge of the mold board, d, underlaps the after edge of the coulter, c, so that a smooth surface is always presented to the earth through which the plow passes. Plows have been before made having their mold boards adjustable by means of one adjusting screw at the after part of the mold board. But the forward end of the mold board of such plows is attached by means of screws to the coulter, and have but one movement.

By making this mold board independent of the coulter, and attaching its upper forward end to this standard, in the manner described, and by having two adjusting screws, the lower side of the mold board can be thrown in or out, as desired, and the position of the upper side can also be regulated. By attaching the mold board to the standard, according to this improvement, all that is necessary in adjusting the mold board, is to turn the adjusting screws, e e'.

More information respecting this plan may be obtained by letter addressed to the patentee, at Spring Hill, Marengo Co., Ala.

Black Lead Pencils.

The *Calaveras Chronicle*, Cal., gives an account of a large vein of fine plumbago having been recently discovered near Carson Valley. It crops out above the ground in a number of places; is about two feet thick, and four feet wide. California has thus added another valuable mineral to her other rich natural products.

There are very good veins of plumbago in various parts of our country, but hitherto our pencil makers have not succeeded in making pencils equal to those imported from abroad. Faber's are the most distinguished for drawing and are exclusively used for this purpose.

On a number of occasions we have directed attention to the value of an invention in the pencil line which would supersede pen and ink, but the discovery has yet to be made. A pencil that would give a clear, deep black stroke, and inscribe indelible characters upon paper, would make a fortune, we believe, to the inventor.—It is our opinion that such a pencil will yet be discovered, but when and by whom? that's the rub.

Ship Building in Maine.

Maine, during the last forty years, has built three-eighths of the whole United States tonnage. And though other States have immensely increased in their ship building lately, that State still enjoys the pre-eminence.