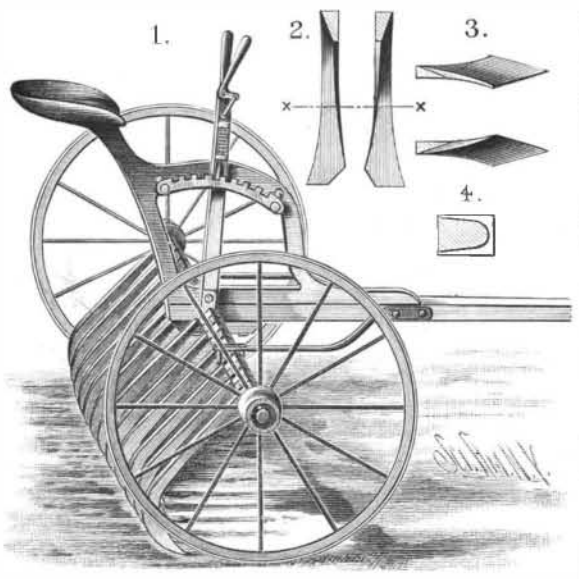
### ADJUSTABLE HARROW.

Fig. 1 is a perspective view, Fig. 2 a view of a portion of the central teeth of the harrow, Fig. 3 a sectional view on the line *x*-*x*, and Fig. 4 is an enlarged sectional view of the axle of an adjustable harrow, the invention of Mr. William T. Parker, of Eureka, Ind. The axle is formed with recesses to receive the teeth, and with round portions to receive the rear ends of the

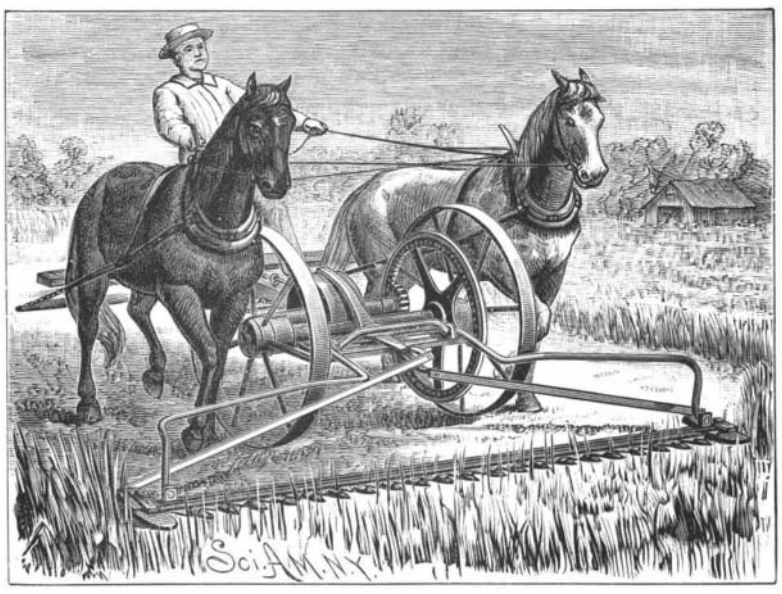



PARKER'S ADJUSTABLE HARROW.

tongue and its braces. The seat frame or standard is bolted to the upper face of the pole. To one side of the standard is secured a segmental toothed rack, and to the axle is rigidly connected one end of an operating lever, whose upper end is provided with a thumb lever carrying a broad catch tooth which is normally held in engagement with the rack teeth by a spring. The harrow teeth consist of bars, the upper ends of which are bent so as to fit the axle closely, and if desired, each tooth may be held to the axle by a set screw. From the axle the teeth extend downward, and finally forward, their lower ends being flattened, and flared off to the right or left, the teeth upon the right of the pole flaring to the right, while the others flare to the left. In this harrow the teeth may be thrown downward by moving the lever backward, and may be held in that position by locking the lever. This harrow may be used either upon plowed or unbroken ground, and may be adjusted to make almost any required depth of cut.

### IMPROVED MOWER.

The mower herewith illustrated is extremely simple in construction, is not liable to get out of order, and is so designed that it requires less power to operate it

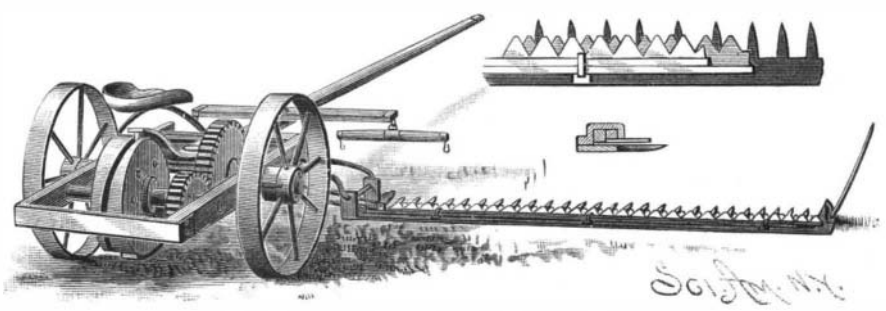


NIETH & THOMAS' IMPROVED MOWER.

than the ordinary mower. The drive wheels are rigidly connected with the axle, to which is attached a large gear wheel, that meshes with a smaller wheel on a shaft journaled in bearings in the rear parts of the side bars of the frame. To this shaft is secured a cam wheel, in the face of which is formed a zigzag or cam groove, to receive, at diametrically opposite points, pins attached to the rear ends of levers. The groove is made dovetailed to receive balls pivoted on the pins, to lessen the friction, and to keep the rear ends of the levers in place against the upper and lower sides of the cam wheel. The levers are curved toward each other at the forward side of the cam wheel, and are pivoted at their middle parts to the central cross bar of the frame. The forward parts of the levers are parallel, and to their forward ends are pivoted the inner ends of two pitmen whose outer ends—in the construction shown in the lower engraving—are pivoted to the inner ends of two cutter bars, which are placed side by side upon the finger bar, where they are kept in place by keepers. The arrangement of the finger bar and cutter bars is shown in the small sectional and plan views in the lower engraving. The cutters attached to the lower side of the rear cutter bar slide upon the finger bar, while the cutters of the forward cutter bar slide upon the cutters of the rear bar. The rear cutters are made longer than the others, so that the forward ends of both sets are in the same vertical plane. The cam groove is so formed that the levers, and consequently the cutter bars, always move in opposite directions, and a shearing cut is produced. As the inner shoe of the finger bar is hinged to a suitable frame, the bar may be turned up into a vertical position for convenience in passing from place to place. This also allows the finger bar to adjust itself to the surface of the ground.

The mower illustrated in the upper engraving embodies the same principles as that just described, but, as will be seen from the cut, the general arrangement of the parts is very different.

This invention has been patented by Messrs. J. E. Nieth and C. L. Thomas, of Independence, Iowa.

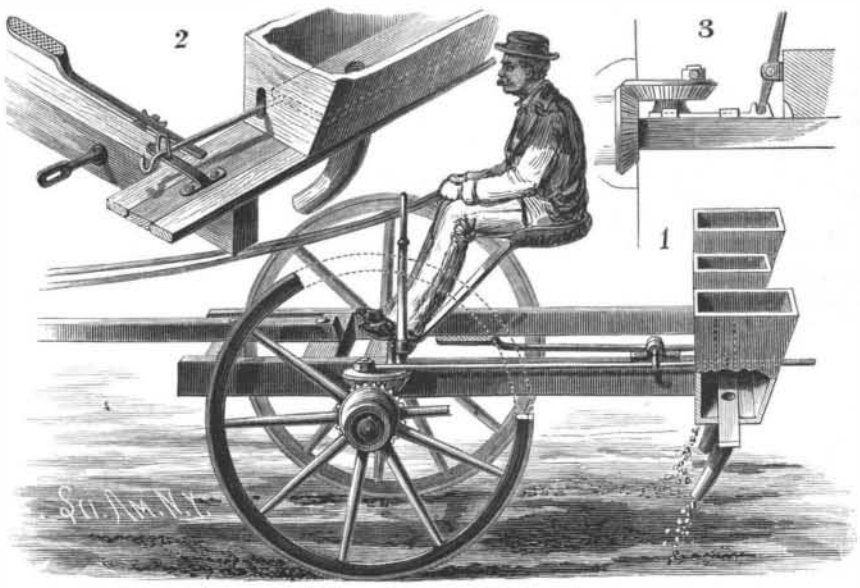


NIETH & THOMAS' IMPROVED MOWER.

### IMPROVED CORN PLANTER.

Secured to the rear part of the main frame are two hoppers, between which is a receptacle for lime or other powder for marking purposes. A grain-delivering slide of the customary construction extends underneath, and operates to liberate modicums of grain from both hoppers. The lime receptacle has a slide which, when connected with the main slide, moves synchronously with the latter, and delivers the marking powder into a flexible spout, the mouth of which may be arranged so as to deliver the masses of powder at any desired locality upon the ground in relation to the deposits of grain. Attached to the hub of one of the main wheels is a beveled gear (Fig. 3) that meshes with a somewhat larger gear revolving in a horizontal plane about a stud extending from a slide which is confined in ways upon the frame over the axle. By means of a suitably arranged lever, the large wheel may be shifted to bring it into or out of engagement with the other. Secured to one side of the main frame is an eye bolt, which serves as a fulcrum for a lever attached at one end to a wrist pin on the horizontal gear wheel and at the other end to a staple on the grain slide, so that the revolution of the wheel will impart an oscillating motion to the slide. In the normal condition of the parts, the operation of the grain slide is not accompanied by any movement of the marked slide, and consequently no powder is deposited; but by simply moving a lever (Fig. 2), the treadle of which is within convenient reach of the operator's foot, the two slides may be made to move with each other. When it is desired to move the machine without depositing either grain or marking powder, it is only necessary for the operator, by means of a suitable lever, to temporarily throw the horizontal gear wheel out of engagement with the other, when the implement may be drawn from place to place like an ordinary car.

All further particulars concerning this invention can be obtained by addressing the patentee, Mr. Henry Kendall, P. O. box 1010, Xenia, Ohio.



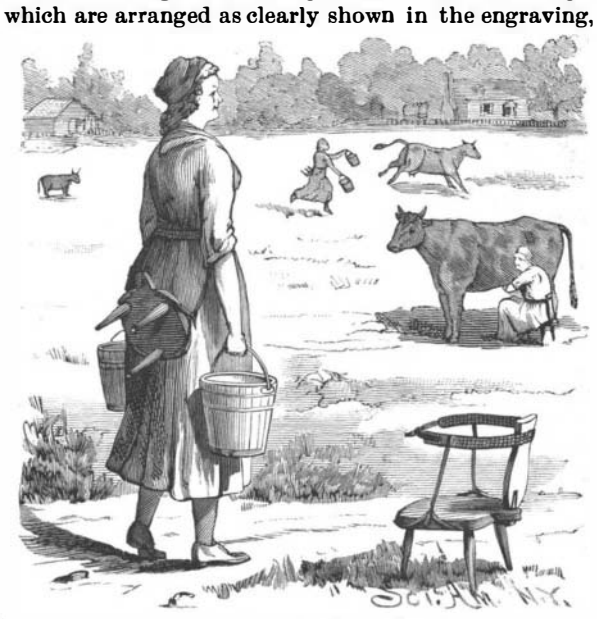

KENDALL'S IMPROVED CORN PLANTER.

### Lime Juice.

A large quantity of lime juice has been exported from Trinidad in recent years. The simple juice finds a market in America, and the condensed juice in England. A tree yields on an average about ten gallons of juice. The limes are allowed to drop off, and then passed first through the cutter, which rips them open, and next through rollers and a press to separate the juice. These cutters, rollers, and press are constructed in a very primitive way, and admit of great improvement. The juice is then exported either as it is, or condensed by boiling. A barrel of limes yields seven gallons of juice. The cost of producing lime juice, including packages, should not exceed 6*d.* per gallon. The essential oil of limes is extracted from the rind before crushing by grating on rasps with the hands. The oil thus extracted is called hand made oil. A hundred gallons of juice will yield by distillation about three quarts of the essential oil.

### MILKING STOOL.

This milking stool is held to the wearer by a waist strap, and hangs down behind out of the way, leaving both hands free to carry two pails. As soon as the wearer is ready to sit down to milk, by merely leaning slightly forward the stool swings directly beneath the person, so that it is not necessary to touch it with the hand. The back or waist board is not designed as a support for the back, but as a means of attachment to the waist strap, and to cause the stool to swing under the wearer as the latter sits down. The lower end of this board is swiveled to the seat, so that the wearer can walk into a narrow stall, and sit down sideways to the cow, when there is not room to turn and sit down facing the cow, in the first place, and then turn on the stool so as to face the cow, the stool itself remaining in its first position. The side straps, which are arranged as clearly shown in the engraving,



COWAN'S MILKING STOOL.

may be lengthened or shortened as desired by the user.

This invention has been patented by Mr. A. B. Cowan, of Hall's Valley, Ohio.

### A Problem for the Inventor.

A friend who has seen the ice palaces at Montreal and Minneapolis suggests that if some ingenious man would only invent an easy method of preventing ice from melting, what a handy and inexhaustible supply of fine building material we should have! Then every man might cut blocks from the frozen pond or river, and live in a palace.