

Wood, Wood & Rosebrooks, Mower.

No. 110,713.

Patented Jan. 3, 1871.

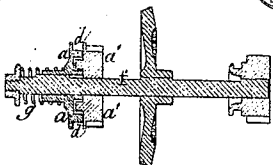
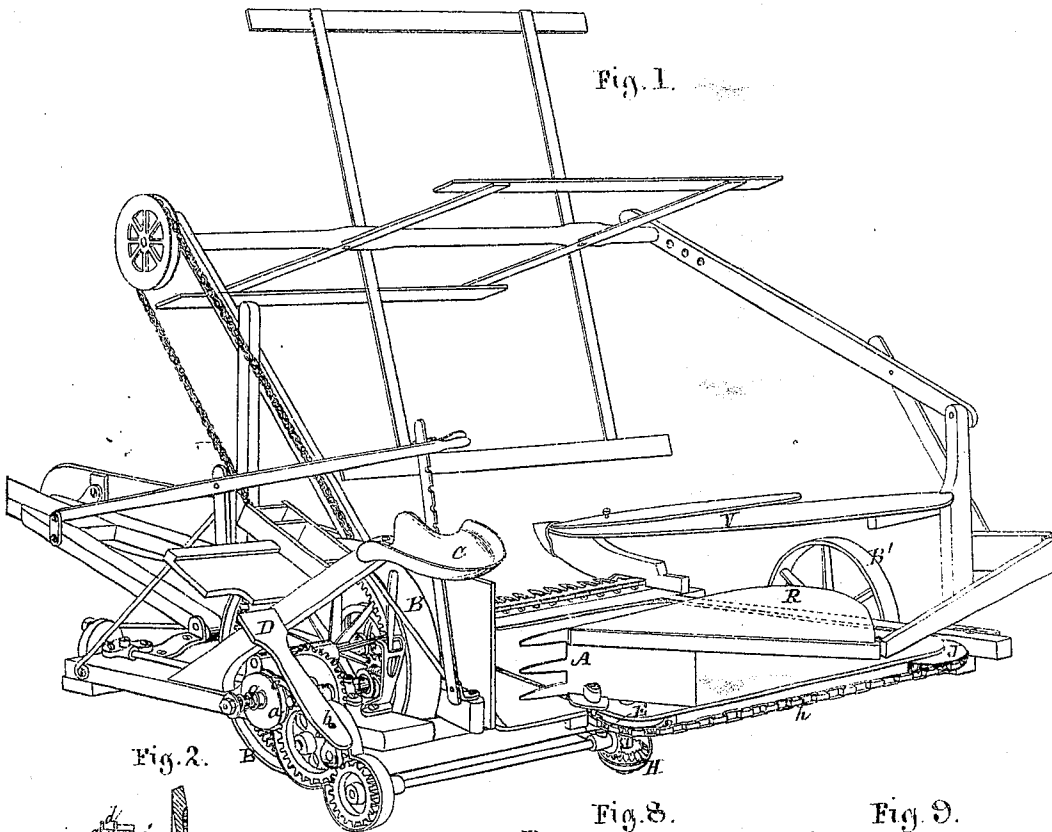


Fig. 3.

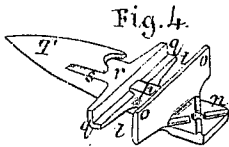
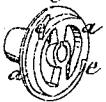


Fig. 5.

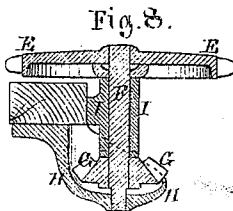
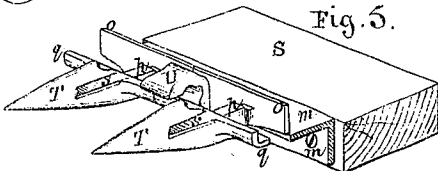


Fig. 7.

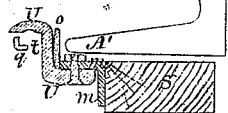


Fig. 8.

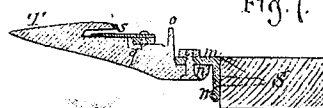
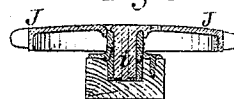


Fig. 9.



Witnesses.

N. N. Mygatt
Edmund Masson.

{ Walter A. Wood, Wm Anson Hood, Geo. M. Rosebrooks.
By their Attorney H. B. Stoughton.

Wood, Wood & Rosebrooks,
Mower.

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Fig. 10.

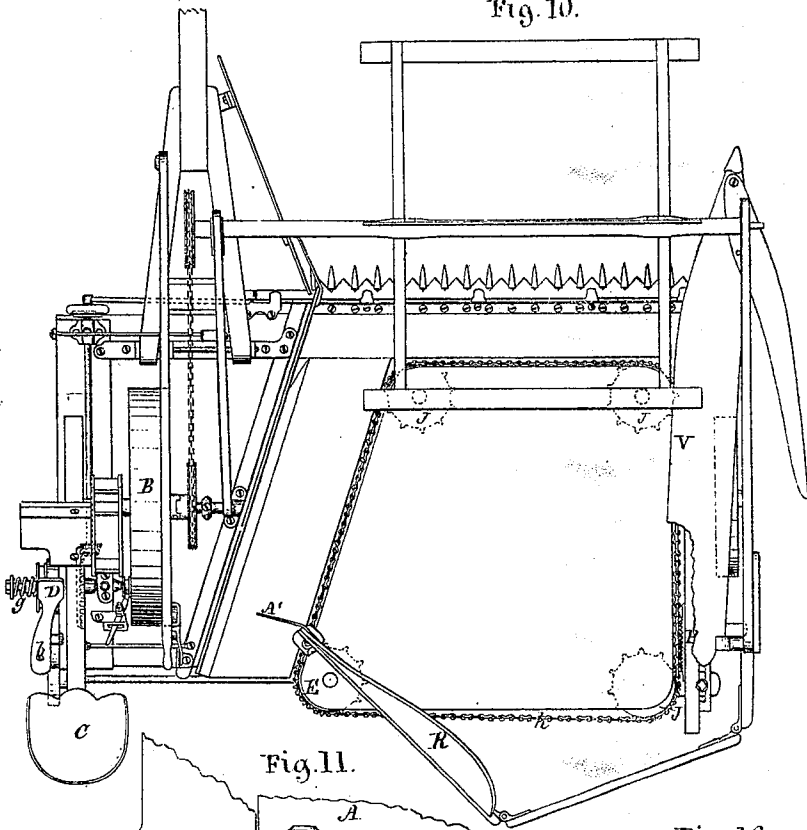


Fig. 11.

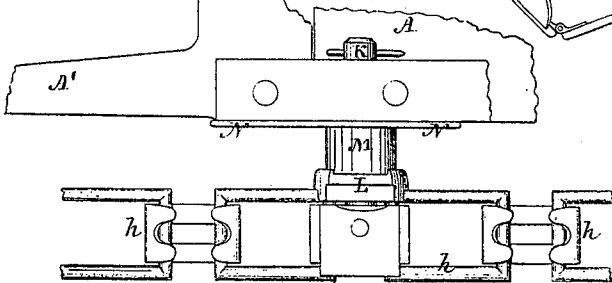


Fig. 16.

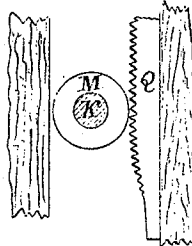


Fig. 12.

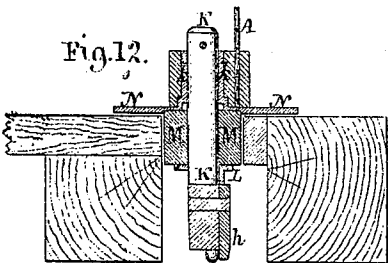


Fig. 13.



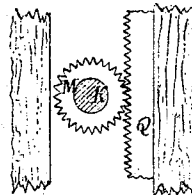
Fig. 14.



Fig. 15.



Fig. 17.



UNITED STATES PATENT OFFICE.

WALTER A. WOOD, WILLIAM ANSON WOOD, AND JOHN M. ROSEBROOKS,
OF HOOSICK FALLS, NEW YORK.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 110,713, dated January 3, 1871.

To all whom it may concern:

Be it known that we, WALTER A. WOOD, WILLIAM ANSON WOOD, and JOHN M. ROSEBROOKS, of Hoosick Falls, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Harvesting-Machines and Rakes therefor; and we do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings making part of this specification, in which—

Sheet 1, Figure 1, represents, in perspective, the machine as it appears when arranged for cutting grain, raking it from the platform, and delivering it upon the ground.

Figures 2, 3, 4, 5, 6, 7, 8, and 9, on said Sheet 1, represent details of the machine that will be hereinafter more particularly referred to.

Sheet 2, Figure 10, represents a top plan of the machine as arranged for cutting and raking grain; and

Figures 11, 12, 13, 14, 15, 16, and 17 represent details thereof, which will be hereinafter more specifically referred to.

Similar letters of reference, where they occur in the several figures, denote like parts of the machine in all cases.

The first part of this invention relates to the construction of the machine, embracing its driving-gear, cutting apparatus, and, incidentally, the seef-rake.

The second part of the invention relates more particularly to the rake, its connection and operation with the machine, its shielding and clearing devices.

To enable others skilled in the art to make and use our invention, we will proceed to describe the same with reference to the drawings, first premising that much of the machine and of the rake, in general, are not new in this application, and will not, therefore, be specially and critically described or referred to, and will only be so described when leading to, or a part of, such devices as enter into the subject-matter of the claims to be hereinafter specially pointed out, the drawings showing the general construction of the machine.

That the rake A, which is driven from the main drive-wheel B, through or by means of

interposed gears and shafting, as seen in Figs. 1 and 10, may be within the easy and free control of the driver in his seat, C, a clutch mechanism of peculiar construction, as at *a*, Figs. 1 and 2, is provided, and which is within the control of the driver, as follows:

A foot-lever, D, is pivoted, as at *b*, and has upon or attached to it a pawl-shaped foot, *c*, which takes into a groove, *d*, formed in the semi-clutch pieces *a a'*; and in the path of this groove, and on the clutch-piece *a*, there are cam or wedge-shaped planes *e e*, against which this foot-piece *c*, when pressed in by the driver through the foot-lever D, will take and force said piece *a* away from its fellow piece *a'*, which is a gear placed loosely on the shaft *f*, and thus, though the shaft *f* may continue to run, and the piece *a* with it, the latter always running with the shaft, but capable, by a feather and groove, to move longitudinally on said shaft by the pawl-piece pressure one way and a reactionary spring in the other direction, the gear *a'* remains undriven, and as this gear *a'* runs or gives motion to the gears and shafts between its seef and the rake, the rake is stopped so long as the clutch is so unclutched.

When the driver removes his foot, or the pressure of it, from the lever D, the reaction of the spring *g* throws the clutch-head *a* into gear with the loose pinion or gear *a'*, and the rake then immediately starts and continues in motion so long as the two parts *a a'* remain in contact with each other. This particular clutching and unclutching mechanism constitutes one of the subjects-matter of the claims.

The chain *h*, which carries the rake A around, is driven or carried by a chain-wheel, E, (on an enlarged scale in Fig. 8.)

This chain-wheel E is arranged on the upper end of a vertical shaft, F, which carries, at its lower end, the bevel-gear G, by and through which the said shaft, chain-wheel, and chain are driven, the power coming, as above stated, from the main drive-wheel through the train of gears shown in the drawings.

The difficulty with the chain-wheel E heretofore has been that the power to move the chain and rake being at the top of the shaft, it was found difficult to support said shaft, and without a good support the chain would get shackling and loose, and slip.

To give this shaft free motion, but to keep it properly in place, first, a shielded step, H, was made for its under support, then a sleeve or boss, I, was provided fastened to the platform-frame, through and in which the portion of the shaft between the bevel-gear G and the chain-wheel E passes is incased and supported, so that the shaft is kept in true position, runs easily, and keeps its gear and chain-wheel in easy working position. This shielded step, bevel-gear, shaft, boss, and chain-wheel arrangement constitutes another of the subjects-matter of the claims herein made.

The other chain-wheels, as at J, Fig. 9, may have a short journal, *i*, sitting and turning in a box-bearing, *j*, set in the platform; but as these wheels J are only guide and friction wheels, and driven by the chain, it is not so material as the fittings of the wheel E are, which is a driver itself of, and not driven by, the chain, and, consequently, is subject to a greater torsion and strain than those that are simply guiding-wheels are.

The connection between the rake A and the chain *h*, unless specially provided against, which must be in the nature of a turning-pin or wrist, will take in and wind up the straw, grass, &c., and soon completely clog the rake. To prevent this contingency as far as possible, and to remove the obstruction when it cannot be prevented, we have devised as follows:

On or to the chain *h* is fastened a spindle, K, (see Figs. 11 and 12 more especially,) over which spindle is passed, first, a saddle-supporting piece, L, with a flanged seat in its top for the reception, next, of the roller or sleeve M, which is passed over said spindle.

Next, a plate, N, having a socket or sleeve, *k*, cast on or with it, and a counter-sink in its under side that will take in the top of the roller or sleeve M, is placed over the spindle, and the whole is then secured by a nut or key.

Thus arranged, the spindle can turn with or by the flexure of the chain; the roller M can move on and independent of the spindle. The plate N and its socket or boss can also move on the spindle, and independent of it and of the roller M both.

The socket O, which is upon the rake A, is placed on or over the boss or sleeve *k*, so that the rake, while it travels around or with these devices and the chains, may have a turning motion independent of any and all of the other free motions, while there is nothing that tends to catch and wind up the straw and thus clog the free action of any of these moving parts, or of the rake as a whole.

The rake, as shown in the smaller scale of drawings, is represented as having its palm and fingers as made in one piece, while in practice we make them of separate pieces, as seen in Fig. 11, where A represents the palm, and A' the fingers of the rake.

With the above-described arrangement of devices for getting a free turning action of the rake, and for preventing the straw from

winding in or on them, (still the casualty will sometimes occur,) and whenever any part of a harvester, that has motion imparted to it from the motion of the machine over the ground, is suddenly stopped by being clogged or choked, and the driving-power goes on, something must break.

We, therefore, to provide against such possibility of winding and choking, place at any convenient point in the path of the chain, as, for instance, at P, a nicked, serrated, or edged plate, Q, Figs. 16 and 17, against which the roller M, plain or serrated, as shown, may run and bear or press sufficiently to cut or break into short pieces any or all of such wound-up straw, and thus loosen it and let it drop from said roller.

This shielding and cleaning mechanism constitutes one of the features of our alleged invention.

There is still another feature connected with this rake, viz: The inclined guide-board or back R upon it, which aids in taking or laying the grain; but, as this is important in connection with the gathering, carrying, and laying of the stalks, it will be more particularly described in connection with the cutting apparatus.

The cutting apparatus is shown on an enlarged scale in Figs. 4, 5, 6, and 7.

The guards are cast, as shown, separately and distinctly, in Fig. 4, and are secured to the finger-beam S as follows:

First, a piece of angle-iron, or a bar of such iron, *m*, is bolted to the front edge of the finger-bar, and to this bar is bolted the series of guards T T, of any suitable number, the part *n* of said guards lying up against the projecting portion of the angle-iron bar.

In front of the portion *n* of said guards is formed a vertical flange, *o*, that extends up above the surface of the bar *m* a considerable distance, say, in a full-sized guard, one inch or thereabout.

In front of this flange *o* there is a neck-portion, *p*, which forms a support or bearing for the cutter-bar.

There is an angular-shaped lateral projection, *q*, extending both ways from each side of each guard, and which, like the vertical flanges *o o*, when the guards are properly arranged on the bar *m*, abut against each other, or approach very near each other, so as to form a continuous and practically unbroken line clear across the finger-bar.

The angular-shaped projections *q* form a bearing for the front side of the cutter-bar, while the sickles or cutters play over the portion *r* of said guards, and under the cap and through the slots *s* thereon.

U is one of the caps or guides projecting over the cutter-bar.

The object of so elevating the cutters or sickles and the bearing-flanges *o o* so high above the plane of the platform is that the finger of the rake A', Fig. 6, may pass under any and all such straws or grain as may lie

delivery. Unless the butts of the straws are thus held or kept up, so that the rake-finger can pass under and thus be sure to gather them, the rake would be apt to miss and pass over some of the straws; but by our arrangement the clean, clear gathering of all is fully insured. This construction of guard, cutting and raking action, constitutes another of our alleged improvements.

The angular-shaped pieces or parts *q* of the guards, while they do not actually support the under side of the cutter-bar, yet they cover and shield the under front corner of said bar, and any grass or clogging matter that may work under the cutter-bar will work out at the open space *t*, between said angular projections and the vertical projections *o o*, which latter, as above described, receive and hold up the butts of the grain, so that the rake-fingers may pass under said butts, and so insure the removal of all the straw from the platform, and this positive and certain removal of all of the straw, or practically all of it, very much reduces the liability of any loose straw winding around and clogging the rake-pin, as the rake carries it in advance of the rake-pin.

Having thus fully described our invention, what we claim therein as new, and desire to secure by Letters Patent, is—

1. In a clutch mechanism, the combination of the foot-lever and its pawl *c* with the clutch-head and its wedge-shaped planes *e*, for the

purpose of moving said clutch-head from the gear that it engages with, substantially as described and represented.

2. In combination with the rake-pin or spindle *K*, carried around by the endless chain or belt *h*, the roller *M*, plate *N*, and its boss *k*, through which the spindle passes, for the purpose of allowing a free turning motion, and preventing the straw from winding on said spindle, and choking or clogging the rake, substantially as described.

3. A finger-bar composed of a wooden back piece, *S*, and an angle-iron front piece bolted thereto, for attaching the guards to, substantially as described.

4. In combination with the platform of a harvesting-machine, and a rake traversing it by a chain or belt, as herein shown, the raised flanges *o* on the guards, for holding up the butts of the grain, so that the rake may pass in under the straw, and thus more certainly insure its complete removal, substantially as described.

WALTER A. WOOD.

WM. ANSON WOOD.

JOHN M. ROSEBROOKS.

Witnesses to WALTER A. WOOD:

A. B. STOUGHTON,

EDMUND MASSON.

Witnesses to WM. A. WOOD and J. M. ROSEBROOKS:

M. F. WHITE,

J. RUSSELL PARSONS.