No. 18,659. PATENTED NOV. 17, 1857.

J. L. FOUNTAIN.

CUTTING APPARATUS FOR HARVESTERS.

Fig: 1

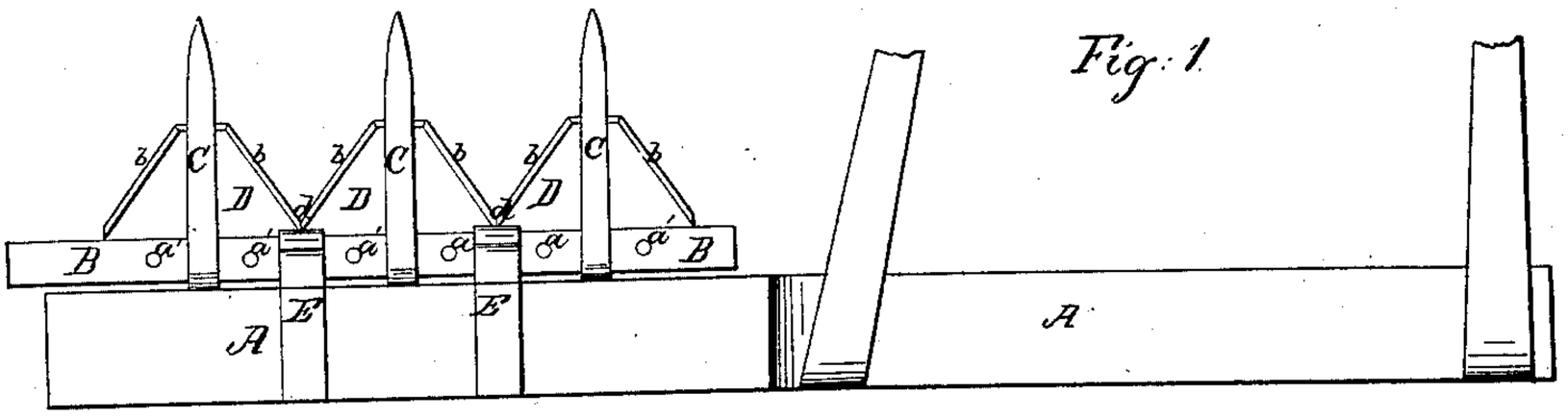


Fig: 2

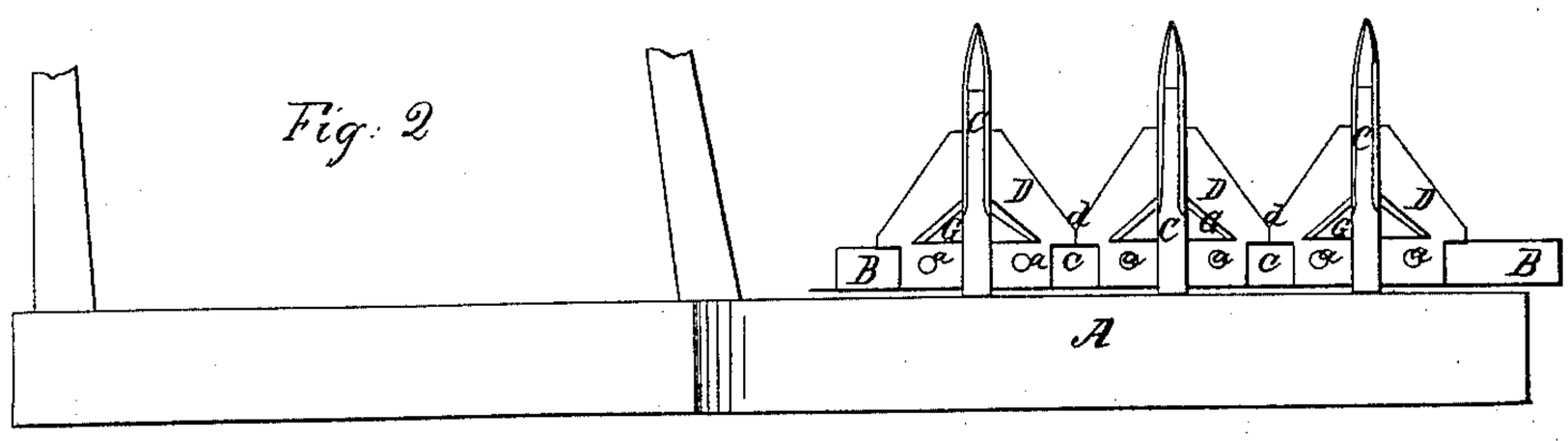


Fig: 3

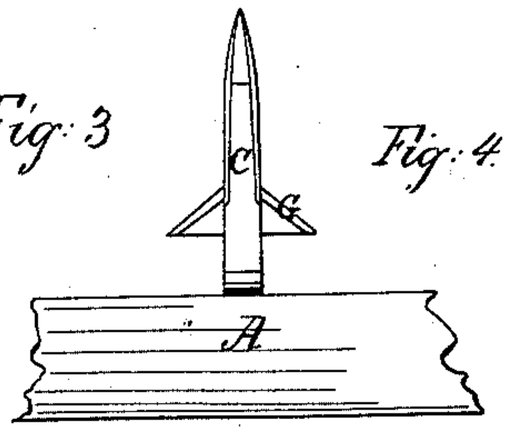


Fig: 4

Fig: 5.

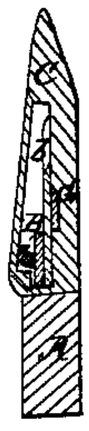


Fig: 6

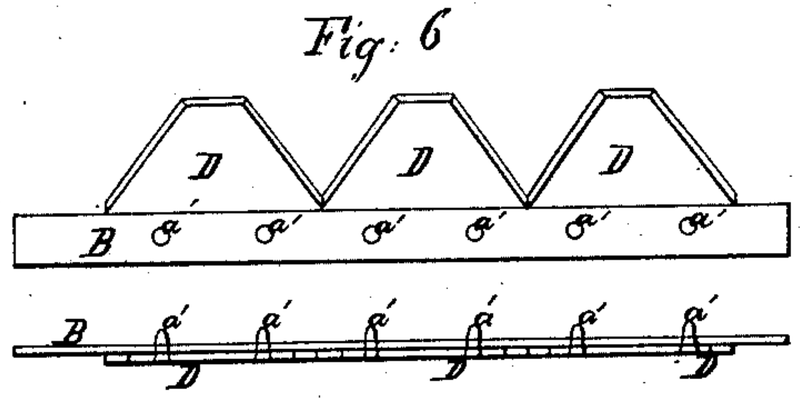
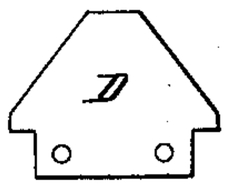


Fig: 7.



UNITED STATES PATENT OFFICE.

JAMES L. FOUNTAIN, OF ROCKFORD, ILLINOIS, ASSIGNOR TO HIMSELF, L. J. CLARK, BRADFORD McKENNEY, AND C. M. FOUNTAIN, ALL OF SAME PLACE.

IMPROVED CUTTING APPARATUS FOR HARVESTERS.

Specification forming part of Letters Patent No. **18,659**, dated November 17, 1857.

To all whom it may concern:

Be it known that I, JAMES L. FOUNTAIN, of Rockford, county of Winnebago, in the State of Illinois, have invented a new and useful Improvement in Harvesters; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in a certain improvement in the cutting apparatus of harvesters, to be hereinafter more fully described.

To enable others skilled in the art to make and use my invention, I shall proceed to describe its construction and operation, reference being had by letter to the accompanying drawings, forming part of this specification, similar letters in the different figures referring to like parts.

Figure 1 is a top view of my cutting apparatus; Fig. 2, a bottom view of the same; Fig. 3, a bottom view of a guard-finger; Fig. 4, a side view of the same; Fig. 5, a vertical section through guard-finger; Fig. 6, a top and back edge view of the cutters and cutter-bar, showing plainly the clearing-pins *a a a;* and Fig. 7, a detail view of cutter-section.

To the finger-bar A are securely fastened the guard-fingers C, the form of which will be seen by reference to Figs. 3 and 4, the horns G being beveled on their lower sides, and having their upper surfaces flush with the upper sides of the lower limb of the guard-fingers, and extending out on each side of said fingers a distance equal to about one-third of the space between any two adjacent fingers at their butts.

The cutter-bar B is an ordinary flat bar of iron, to the lower side of which the cutters D are secured, each one by two rivets, *a a*, projecting through on the upper side only at *a' a' a'*. The cutters D are beveled at *b b b* on their upper surfaces, so that their flat sides lie close to the upper surfaces of the lower limbs of the fingers C, and also upon the upper or flat sides of the horns G. The shape of the cutters is best seen at Fig. 2, their extreme width near their back sides being equal to the distance between the points of two adjacent fingers, and their two back corners cut out in half-squares, so that when secured upon the cutter-bar there shall remain a square cavity the depth of the thickness of the cutter (seen at *e*, Fig. 2) midway between each two guard-fingers when the points of the cutters correspond with the fingers, each to each.

E E, Fig. 1, are holder-plates, keeping the cutters down upon the upper surfaces of the lower limbs of the guard-fingers and their horns G, as above described. By sectional Fig. 5 the relative position of the finger-bar A, the finger C, with its horn G, the cutter-bar B, cutter D, and upward projection *a'*, is each with the other plainly shown.

I shall now proceed to explain the operation of my improved cutting apparatus.

The cutter-bar B receives a reciprocating motion through the slots in the guard-fingers, by means of a pitman, or otherwise, connected with suitable driving machinery, the extent of which motion is about equal to the distance between any two adjacent fingers. This motion of the cutter-bar through the fingers C produces upon the straight portion of the said fingers the same cutting effect as in the common cutting apparatus for harvesters; but it will be seen that more than one-third of the cutting-edge of the finger C is inclined from the straight edge of said finger, forming the horn G, as before described, the object and tendency of which is to prevent the grain from being too much crowded back into the crotch of the cutters, and at the same time to cut said grain as effectually as possible with the inclined cutting-edges, forcing forward such grain as is not there cut to the portion of the fingers where it is finally cut. It will be perceived that with this arrangement the grain is not so apt to crowd under as in the arrangements now used, for reasons, first, on account of the cutting edges of the cutters and fingers coming in contact at an earlier period in the motion of the cutter, and, secondly, because the peculiar form of the fingers, as described, prevents the grain from being too much crowded back.

I am aware that fingers made with the whole length of their sides or cutting-edges inclined in the same direction as the horn upon my finger would cause the cutters to come in contact with them at an early period of their mo-

tion; but such inclined edges are not best fitted for cutting grain, as they have a partial tendency to press or wedge the grain forward. Hence I have so combined the straight and inclined edge in my fingers as to avail myself of the practical advantages embraced in each and to avoid the disadvantageous effects produced by either separately. At the same time that I render the cutting apparatus effectual by means of said horns G on the under side of the fingers, as described, I do not involve in the construction any complication of mechanism either in the fingers or cutters.

It will be seen from the drawings that my cutters are made in sections, with half-square notches at their back corners, and are riveted to the cutter-bar at *a a* in such manner that the cutting-edges *b b* shall intersect, or rather meet, at *d d*, forming perfect angles just beyond the line of the front edge of the bar B, while the rear corners do not come in contact, but leave square cavities *c c*, in depth equal to the thickness of the cutter, and the side of which square is nearly the width of the cutter-bar.

I am aware that sectional cutters have been made and so attached to their bar as to leave a space between each two cutters at their bases, allowing the edge of the cutter to meet that of the cutter-bar and form an angle therewith; but I do not think this arrangement so complete as mine. The cutters are each, as above stated, secured to the bar by two rivets, *a a*, which are allowed to project through on the upper side, *a' a' a'*, the object of which projections is to effectually clear the slotted opening in the "closed" fingers C of any grain which may be forced into said slotted opening, which must be made of sufficient width, as seen at Fig. 5, to prevent the grain from being wedged in tight, which would render the clearing-pins useless, as they would then only cut themselves a passage through the tightly-wedged stalks—for example, the machine of W. A Kirby, patented April 15, 1856, where the rivets are allowed to project on the upper and lower sides of the bar playing through the fingers, the fingers in his machine having notches only sufficiently large to allow the free passage of the projecting rivets, thus rendering the arrangement incapable of performing the office for which mine is intended. I therefore do not wish my improvement to be understood as referring to a mechanism similar to the one above mentioned, as in mine the slotted openings are made in such manner as to give plenty of room for the grain which may be forced under and the clearing-pins pass through said openings—two pins at each stroke—clearing it effectually, and not through notches only in the finger.

The object of the cavities *c c* is readily understood to be the same as the open spaces left between the butts of Kirby's cutters, and in other and different arrangements which are well known, but differing from mine—viz., to clear the bearing-surface of the cutter-bar on the lower limb of the finger.

The peculiar form of my cutter-section is best seen at Fig. 7.

Having now described the peculiar construction and operation of my improved cutting apparatus for harvesters, I do not wish to be understood as claiming broadly either the combination of an inclined cutting-edge with a straight edge on the finger, the cavities *c c*, or the clearing-pins *a' a'*; but

What I do claim, and desire to secure by Letters Patent, is—

The fingers C, when constructed in the peculiar manner as above described, in combination with the horns or projections G, reciprocating sectional cutters D, and clearing-rivets *a a*, the whole constructed and arranged for joint operation in the manner and for the purpose herein set forth.

In testimony whereof I have, this 17th day of October, 1857, set my hand hereunto.

JAMES L. FOUNTAIN.

Witnesses:

BELA SHAW.

L. Y. CLARK.