J. HARRIS.
Harvester.

No. 200,288. Patented Feb. 12, 1878.

Fig. 1.

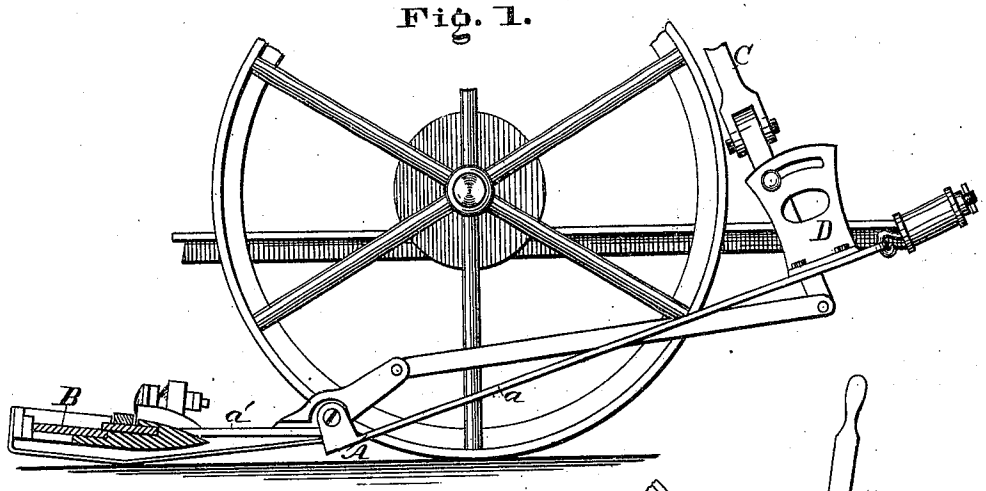


Fig. 2.

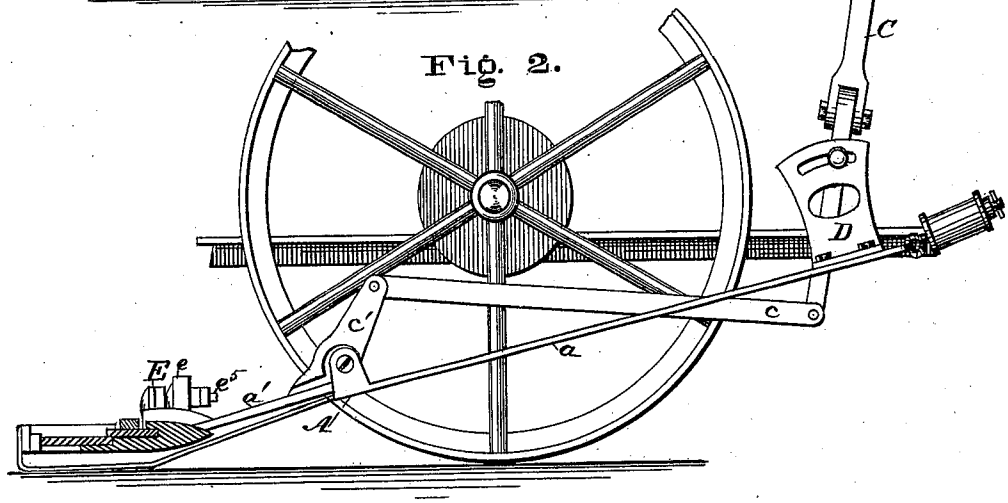


Fig. 3.

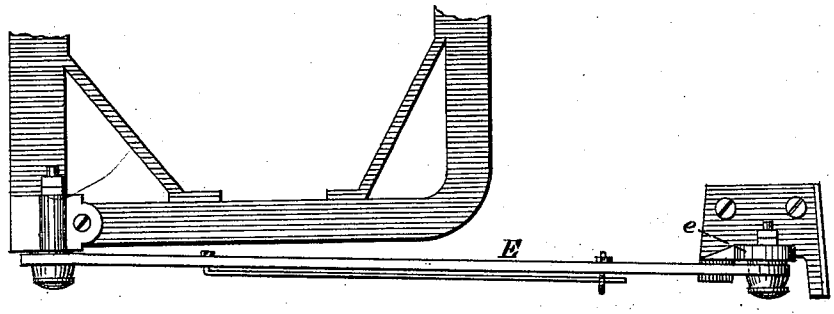
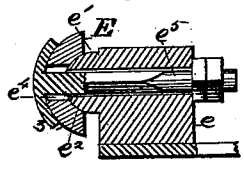


Fig. 4.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JAMES HARRIS, OF JANESVILLE, WISCONSIN.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **200,288**, dated February 12, 1878; application filed March 29, 1876.

To all whom it may concern:

Be it known that I, JAMES HARRIS, of Janesville, in the county of Rock and State of Wisconsin, have invented a new and useful Improvement in Harvesters; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to that class of devices which are employed for tilting or rolling the cutter-bar up and down; and it consists, mainly, in a combination of the following elements: a pivoted drag-bar jointed to the shoe, a vertical adjusting-lever, a locking device mounted on or near the pivoted end of the drag-bar, and certain intermediate connections, as will be fully described hereinafter.

In the drawings, Figures 1 and 2 represent side elevations of the drag-bar in its different positions; Fig. 3, a plan view of the brace-bar; and Fig. 4, an enlarged detached view of one end of the same, partially in section.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and manner of operation.

A *a* represent a drag-bar, which may be constructed generally in any proper manner, and be secured to the frame, either directly or indirectly, by any suitable means, it being so attached, however, as to be capable of making its necessary movements. Its rear end is attached to the front end of a shoe or runner, *a'*, by means of a joint of such construction as will permit the two parts A *a a'*, united thereby, to turn upon its pivot and lie in different planes. B represents a finger-bar of any proper construction, which is rigidly secured to the rear end of the shoe *a'* in any suitable manner. C represents a lever, pivoted directly or indirectly to the drag-bar near that end which is connected with the frame. *c* represents a connecting rod or bar, attached at one end to the short arm of lever C, and at the other to the top of the standard or arm *c'* extending from the shoe *a'*, as shown. D represents a locking device of any proper construction, by means of which the lever C may be held in any desired position.

E, Fig. 3, represents a "take-up" brace-bar, constructed generally in any proper manner, and attached at one end, at any proper point, to the main frame, and at the other to the shoe or the finger-bar at any proper point. This is essentially provided, however, at its points of attachment with convex and concave bearing-surfaces, which are adapted to move upon corresponding surfaces when the finger-bar is rolled, and thus have the necessary play, without permitting the drag-bar or finger-bar to yield in a lateral direction.

e represents one of the castings, to which one end of the brace-bar is attached, which is rigidly secured to the frame or finger-bar in any proper manner. This is provided with a convex projection, e^1, and a central opening adapted to receive and properly hold a securing-bolt.

e^2 represents a corresponding concave surface upon the adjacent side of the bearing-surface at the end of the brace-bar, and e^3 a convex surface upon its opposite side.

e^4 represents a central opening adapted to hold the securing-bolt, which is made larger in area in cross-section than the bolt, in order to furnish the necessary space for play.

c^5 represents the securing-bolt, the shank of which may be of any proper form, but the head of which is provided with a concave inner face, adapted to bear against the corresponding outer face of the brace-bar, as shown. This bolt extends through the openings in the brace-bar and casting, and is secured in place by a nut, which may be held by a check or jam nut, or by any other proper nut-locking device.

The method of attachment at each end of the bar is substantially the same. The pitman, also, is adapted to accommodate itself to this rolling movement of the finger and cutter bars; but, as this will constitute a part of another application, it will not be particularly referred to here.

The manner of operation is substantially as follows: The finger-bar attached to the shoe is drawn, through the medium of the drag-bar, over the surface of the ground by the movement of the machine in the usual well-known manner. When it is desired to roll the finger-bar and knives either up or down, the handle of the lever is moved in the proper direction

a suitable distance, and there secured by the locking device. The action of the lever will be understood from an inspection of Figs. 1 and 2. When operated, its power is communicated, through the connecting-rod *c*, directly to the top of the arm or standard *c'*, which latter, being, in fact, a lever of the second class, having its fulcrum at the end of the shoe *a'*, acts to raise or lower the joint, representing the weight, and consequently, also, the attached ends of the parts A *a a'*. It follows, then, that by the movement of the lever the joint may be raised or lowered to roll the finger-bar without greatly affecting the vertical position of the front end of the drag-bar.

Some of the advantages of this construction are as follows: The actuating-lever is located near the front end of the drag-bar, in convenient proximity to the driver, and also out of the way of the drive-wheel, if it is desired to turn the drag-bar in folding the finger and cutter bars. By means of its location near the front end of the drag-bar, it is affected less by the vertical movement of the latter than if located farther in the rear. By locating the joint near the finger-bar, less movement of the adjusting mechanism is required to accomplish the same result, because the power applied in raising or lowering moves in the arc of a smaller circle. The greatest movement also occurs at or near the place where adjustment is needed, and not at a point remote therefrom, as occurs in other devices of this class; hence more range of movement can be obtained.

By means of the peculiarly-constructed brace-bar, the drag and cutter bar are strongly held against lateral movement without interfering, in any degree, with their freedom to roll when actuated by the lever, as described.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the following elements: a pivoted drag-bar jointed to the shoe, a vertical adjusting-lever and locking device, mounted on or near the pivoted end of the drag-bar, and intermediate connections, substantially as described, for uniting the lever to the shoe, as set forth.

2. In combination with a drag-bar capable of adjustment to roll the finger-bar, a vertical lever, located on the drag-bar at its relatively fixed end, and intermediate connecting devices, substantially as described, for transmitting its movement to the shoe.

This specification signed and witnessed this 29th day of February, 1876.

JAMES HARRIS.

Witnesses:

PLINY NORCROSS,

FENNER KIMBALL.