S. COMFORT, Jr.

Harvester Rake.

No. 19,019. Patented Jan. 5, 1858.

Fig. 1,

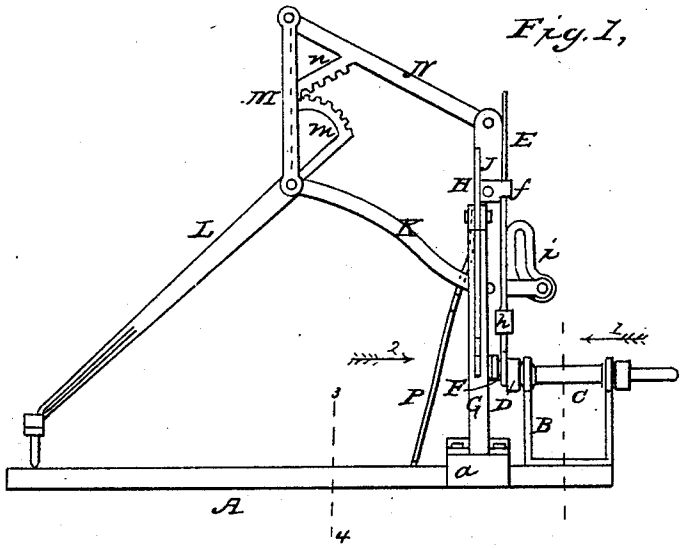


Fig. 2,

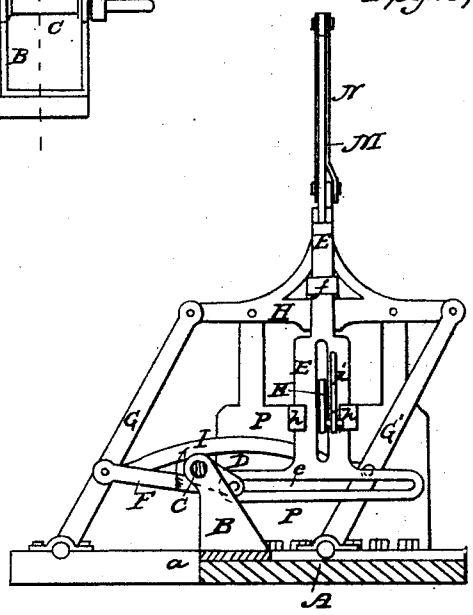


Fig. 4,

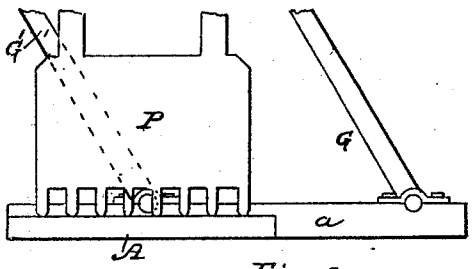


Fig. 5,

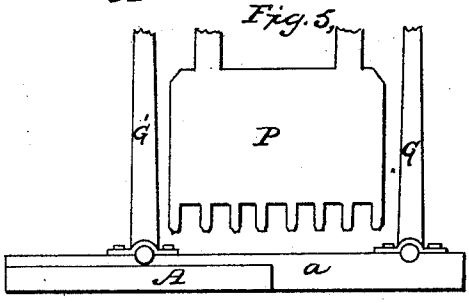


Fig. 3,

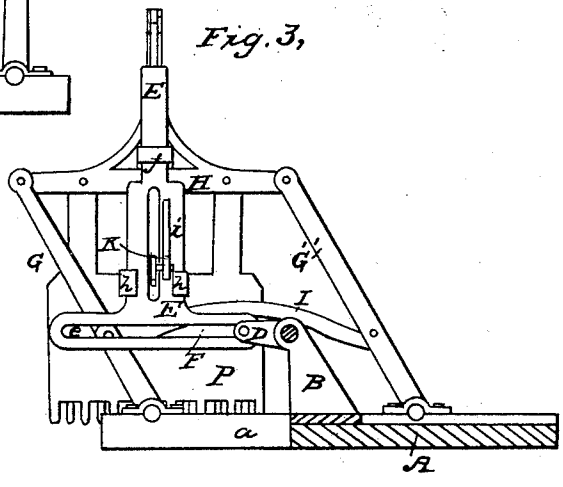
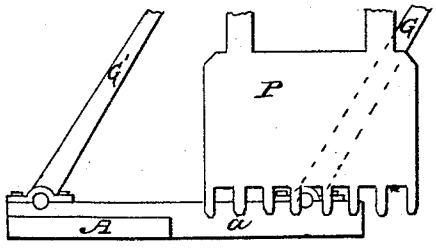


Fig. 6,



UNITED STATES PATENT OFFICE.

SAMUEL COMFORT, JR., OF MORRISVILLE, PENNSYLVANIA.

IMPROVEMENT IN RAKES FOR HARVESTERS.

Specification forming part of Letters Patent No. **19,019**, dated January 5, 1858.

To all whom it may concern:

Be it known that I, SAMUEL COMFORT, Junr., of Morrisville, Bucks county, Pennsylvania, have invented certain new and useful Improvements in Automatic Rakes for Harvesters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My improvements consist in peculiar mechanism, herein fully described, for imparting to the rake the required movement along the platform and parallel, or thereabout, with the same, and also in peculiar appliances for imparting a lateral reciprocating combined with a lifting movement to the rake.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the drawings which form a part of this specification, Figure 1 is a front view of my improved automatic raking apparatus, looking toward the back of the platform of a harvester to which it may be attached. Fig. 2 is a side view, being a section of Fig. 1 on the line 1 2, and looking in the direction of the arrow 1; Fig. 3, also a side view with the moving parts of the apparatus shown in different positions to those in Fig. 2. Figs. 4, 5, and 6 are all sections of Fig. 1 on the line 3 4, looking in the direction of the arrow 2, and illustrating the different positions assumed by the palm.

The above are termed "front" and "side" views in reference to their position as regards that of the harvester.

Similar letters refer to similar parts throughout the several views.

A represents the platform at the back of the cutter-bar of a harvester, and to this platform is secured the projecting piece *a*, for a purpose which will be apparent hereinafter. On one corner of the platform is secured a bracket, B, in which turns the shaft C, which may be either the main shaft of the harvester or a separate shaft driven by suitable gearing from the main shaft.

To the end of the shaft C is secured a crank, D, from the end of which projects a pin, which passes through the horizontal slot *e* in the lower end of the sliding frame E, the end of the pin being connected to one end of the rod F, the opposite end of which is jointed to the parallel bar G, the latter being connected to a similar bar, G′, at the top by the cross-bar H and below by the curved cross-bar I, the bar G′ being jointed to the platform and the bar G to the projection *a*.

To the cross-bar H is secured the vertical post J, the lower end of which is forked, so as to fit and slide over the curved cross-bar I.

The sliding frame E is guided below by a strap, *h*, and above by the strap *f*, both being attached to the vertical post J. From the frame E projects a bracket, *i*, in which is a partially vertical and partially curved slot, (see Fig. 1,) and in this slot fits a pin projecting from the end of the short arm of the lever K, the fulcrum of which is on a pin in the post J. The end of the long arm of the lever K is jointed to the end of the handle L of the rake, which is also connected by a link, M, to the arm N, the latter being jointed to the vertical post J.

On the end of the handle L of the rake, and either permanently secured to or forming part of the same, is the cogged segment *m*, the teeth of which gear into those of the cogged segment *n*, which is secured to or forms a part of the arm N.

P is the palm, suspended from and secured to the upper cross-bar, H, and furnished at the bottom with suitable teeth.

The rake is of the usual form.

Operation: When the rake is in the position shown in Fig. 1—that is, at its farthest outward movement—the appliances for operating the same assume the position exhibited in Figs. 2 and 4, the pin on the end of the short arm of the lever K being at the end of the curved portion of the slot in the bracket *i*. On turning the shaft C in the direction of the arrow, Fig. 2, the pin on the crank D depresses the sliding frame and its bracket *i*, the curved portion of which bears on the pin on the end of the short arm of the lever K, so as to raise the long arm, and consequently the end of the rake-handle. Now, it is necessary that the teeth of the rake should move in a line parallel, or thereabout, with the top of the platform. This is accomplished as follows: As the long arm of the lever K rises the arm N is, through the links M, simultaneously elevated, and with it the segment *n*, and as the teeth of the latter gear into those of the segment *m* it is evident that as the lever

K and arm N are elevated the rake must turn downward, radiating on the pin which connects it to the links M and lever K, and the various parts may be so proportioned and regulated that the amount of depression of the rake caused by this turning of the same may be such as to insure the teeth of the rake moving in a line parallel, or thereabout, with the top of the platform. The crank D and rod F are so situated that during the above movement of the rake the position of the bars G and G′, with their attachments, are but slightly disturbed. The rake has now been moved so near to the palm as to collect a bundle of severed grain or grass, and the frame E has been so far depressed that the pin on the end of the short arm of the lever K is in the lower end of the vertical portion of the slot in the bracket *i*. The action of the crank D on the rod F now moves the bars G and G′ and the attachments to the same to the position illustrated in Fig. 3. At the commencement of this movement and as the bars G and G′ approximate to a perpendicular position the rake and palm, with the appliances for operating the same, become elevated, thereby raising the bundle of grain or grass from the platform preparatory to depositing it on the ground. When, by the further turning of the shaft C, the apparatus has been moved to the position shown in Figs. 3 and 6, the rake and palm, with the collected bundle, being clear of the platform, the sliding frame E is caused to rise by the action of the crank D and the curved portion of the bracket *i* begins to bear upon the pin on the end of the short arm of the lever K, so as to depress the long arm, thereby throwing out the rake and allowing the collected bundle to drop onto the ground. The outstretched rake, with its attachments, is now, by the further turning of the shaft C, moved in a lateral direction until it again assumes the position illustrated in Figs. 1 and 2, preparatory to a repetition of the above-described movements.

I claim and desire to secure by Letters Patent—

1. Imparting to the rake the required movement along the platform and parallel, or thereabout, with the same by means of the sliding frame E and slotted bracket *i*, in combination with the lever K, arm N, and segments *m* and *n*, when arranged in relation to each other as shown, and for the purpose specified.

2. Producing the lateral reciprocating combined with the lifting movement of the rake and its appendages by means of the connected radial arms G and G′ as actuated by the crank D and rod F.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

SAMUEL COMFORT, JR.

Witnesses:
HENRY HOWSON,
CHARLES D. FREEMAN.