(No Model.) 2 Sheets—Sheet 1.

A. H. TRIPP.

PULVERIZER AND HARROW.

No. 376,927. Patented Jan. 24, 1888.

Fig. 1.

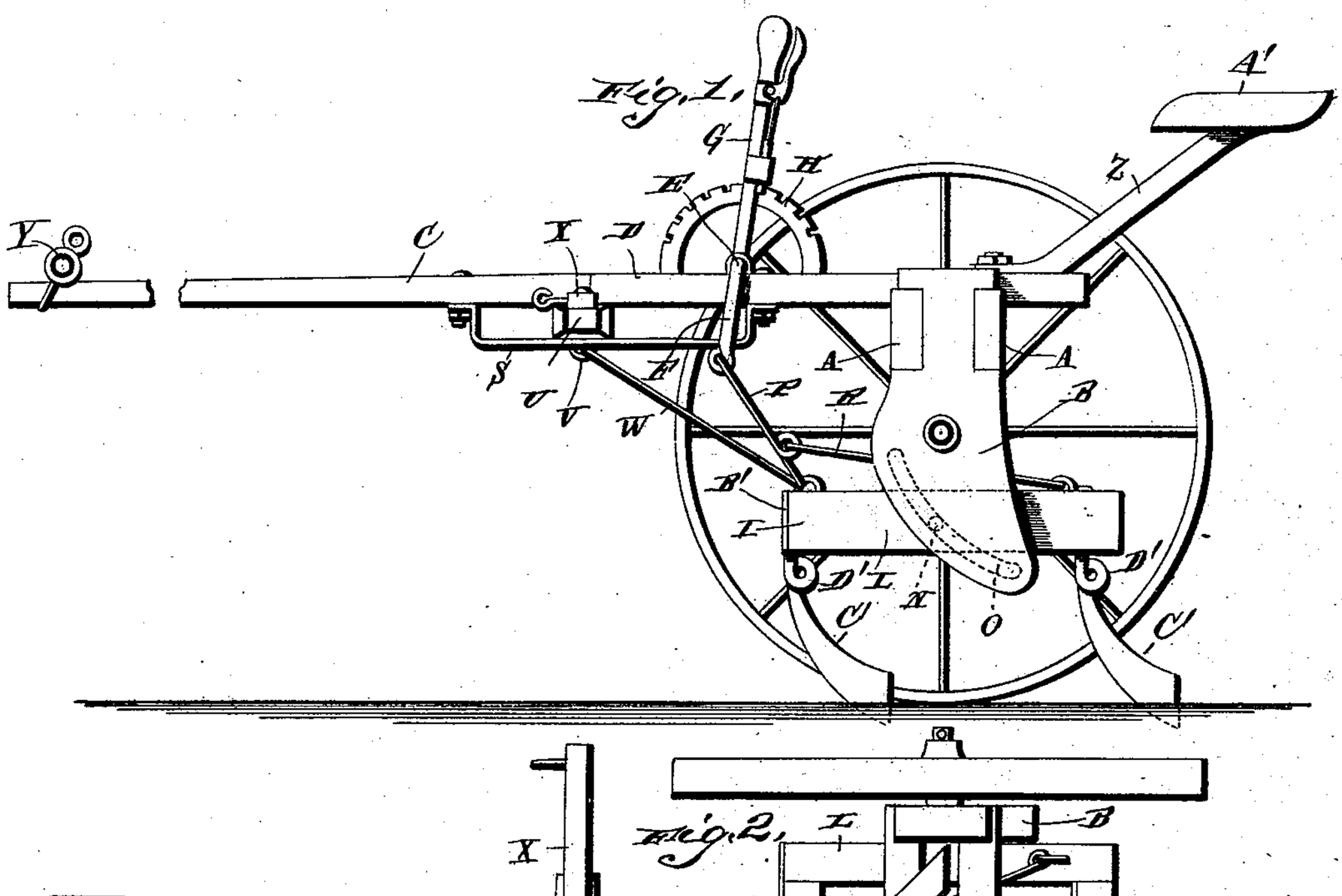
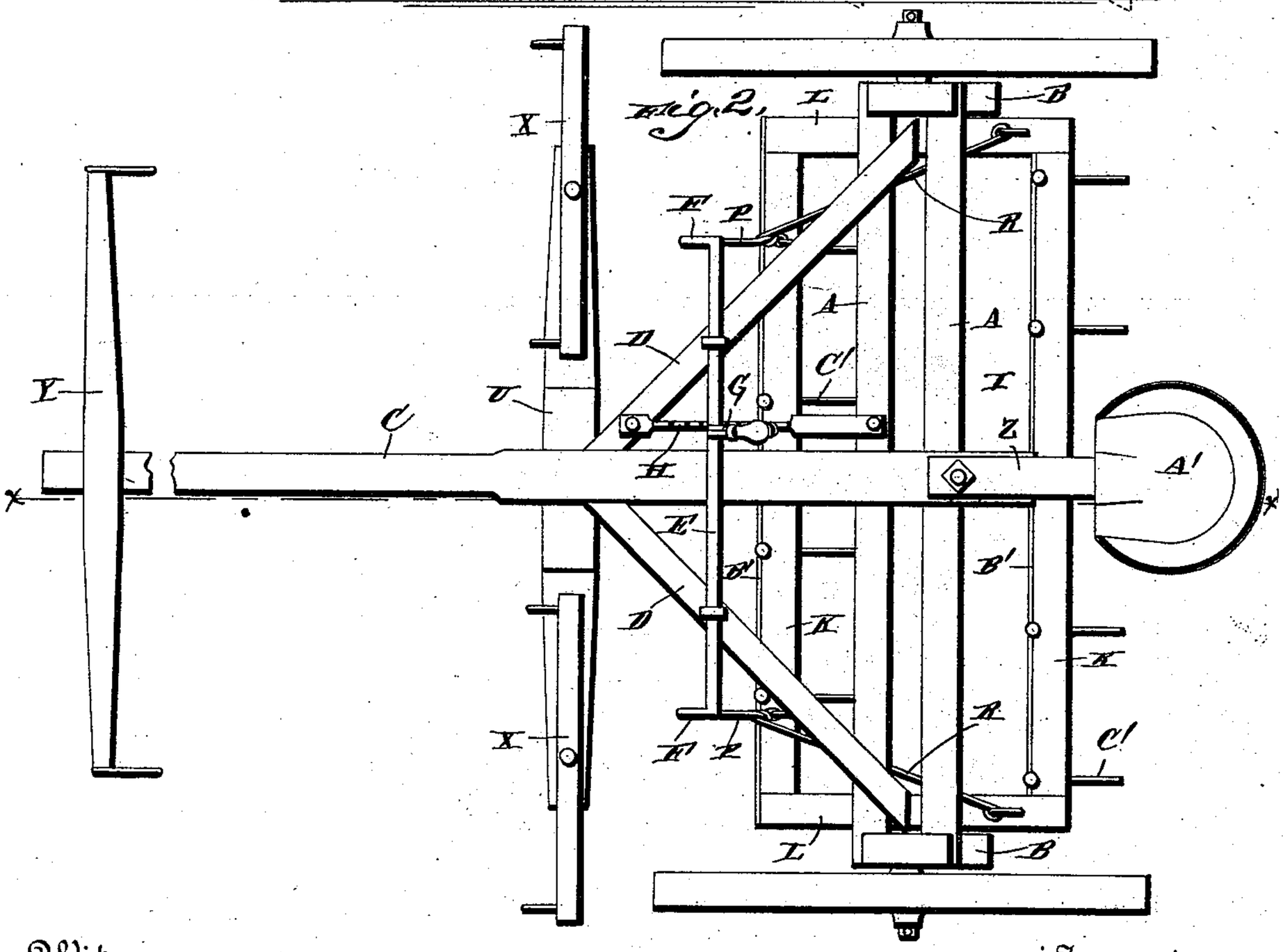


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

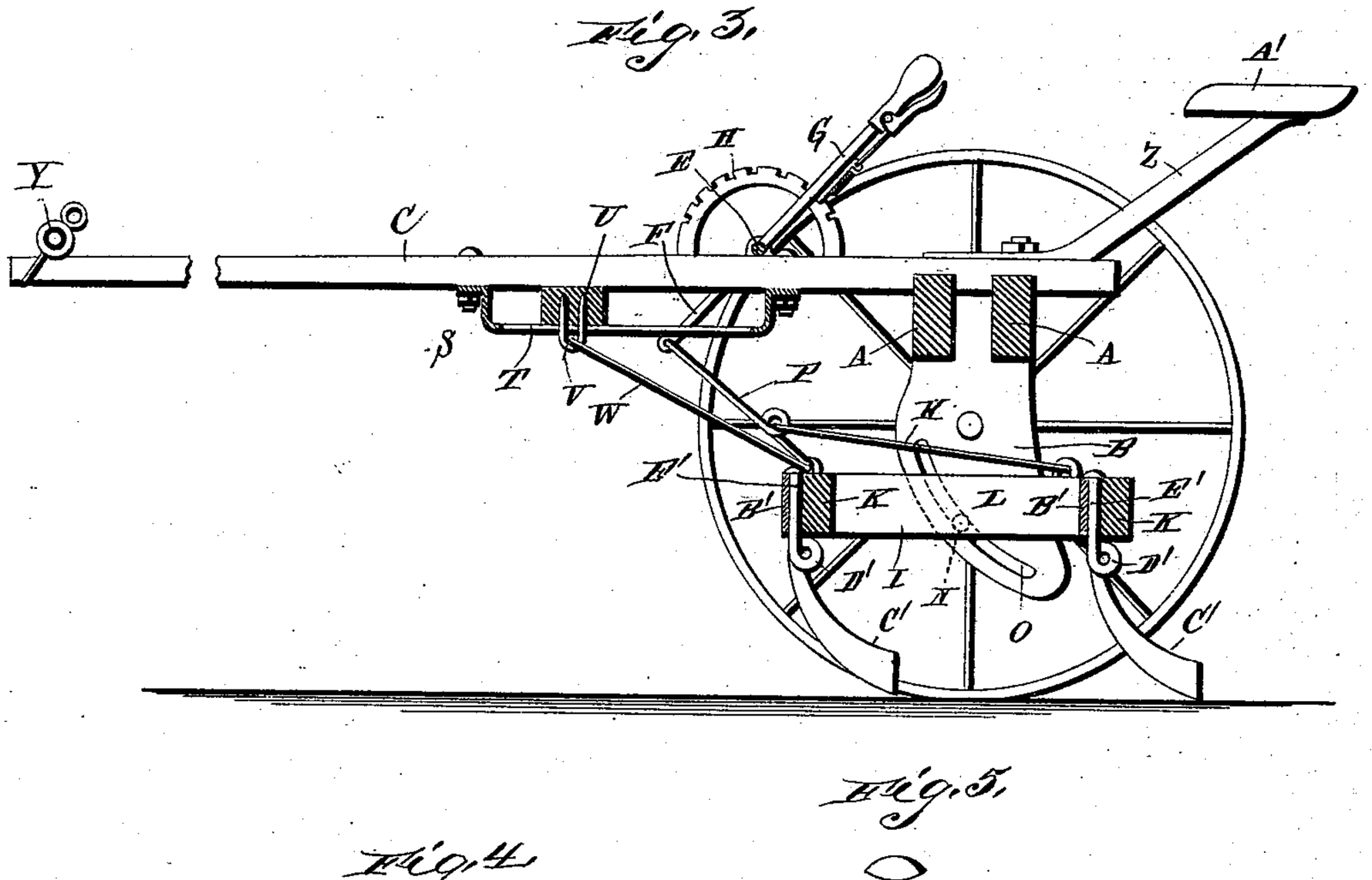
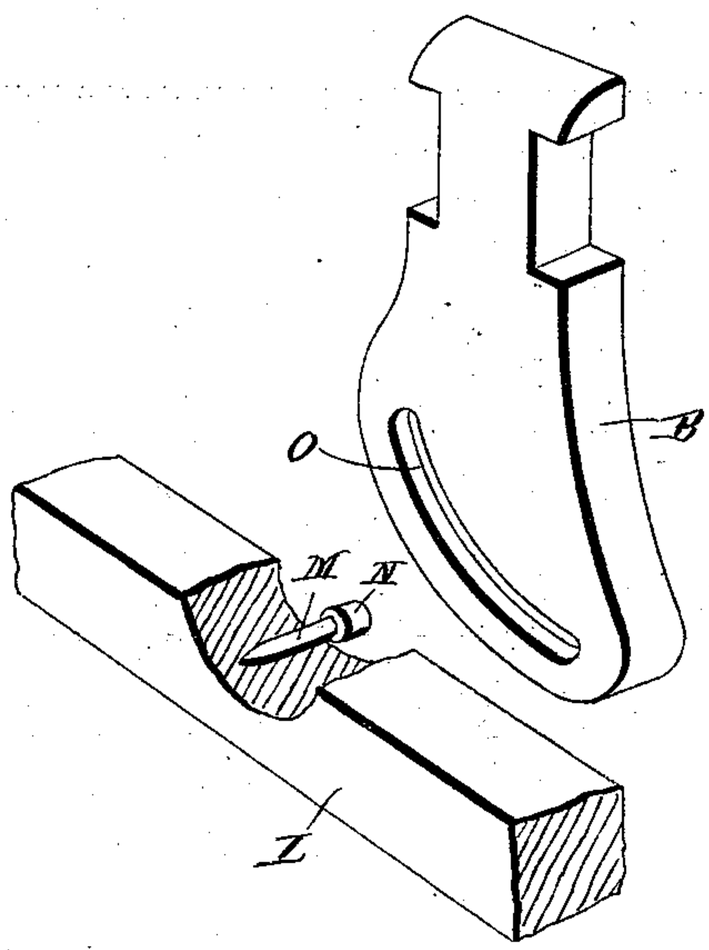
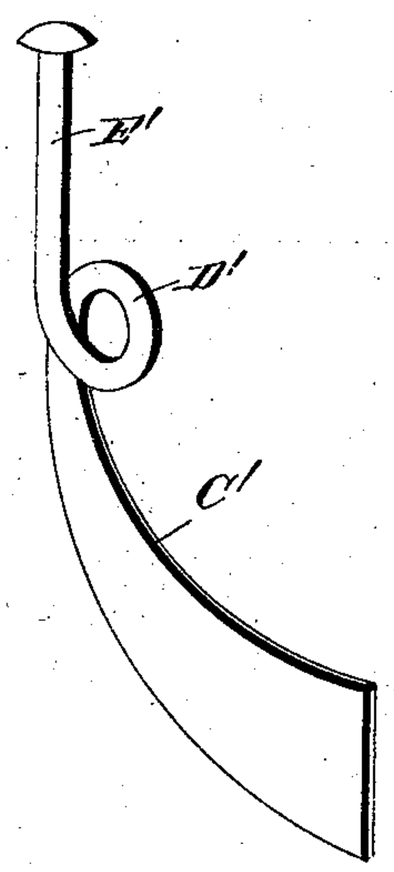


Fig. 5.

Fig. 4.





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UNITED STATES PATENT OFFICE.

ALBERT HOLMES TRIPP, OF RAGO, KANSAS.

PULVERIZER AND HARROW.

SPECIFICATION forming part of Letters Patent No. 376,927, dated January 24, 1888.

Application filed November 1, 1887. Serial No. 253,999. (No model.)

To all whom it may concern:

Be it known that I, ALBERT HOLMES TRIPP, a citizen of the United States, residing at Rago, in the county of Kingman and State of Kansas, have invented a new and useful Improvement in Pulverizers and Harrows, of which the following is a specification.

My invention relates to an improvement in pulverizers and harrows; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a harrow and pulverizer embodying my improvements. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical longitudinal sectional view of the same, taken on the line *x x* of Fig. 2. Fig. 4 is a detached perspective view of one of the head-blocks. Fig. 5 is a similar view of one of the cutters.

A represents a pair of transverse parallel bars, which are connected together at their ends by means of a pair of depending head-blocks, B.

C represents the tongue, which has its rear end secured in dovetailed recesses made in the upper sides of the bars A at the centers thereof.

D represents a pair of hounds which connect the front bar A to the tongue C.

E represents a rock-shaft which is journaled transversely on the upper sides of the tongue and of the hounds and has its ends turned downward to form arms F. From the upper side of the rock-shaft, at a suitable distance from one end thereof, projects a lever-arm, G.

H represents a segmental detent which connects one of the hounds with one of the bars A, and is provided on its inner edge with a series of notches adapted to be engaged by the lever-arm G, and thereby secure the rock-shaft at any desired position.

I represents a rectangular harrow-frame which comprises a pair of parallel bars, K, connected together at their ends by bars L. The latter are provided at their centers, on their outer sides, with projecting studs M, on which studs are journaled anti-friction rollers N, and the said anti-friction rollers extend into a pair of downward and rearward inclined grooves, O, which are made on the opposing sides of the head-blocks B.

P represents a pair of links which connect the front side of the harrow-frame to the arms F of the rock-shaft, and R represents a pair of links which connect the rear side of the harrow-frame to the links P.

On the under side of the tongue is secured a strap, S, which is provided with a longitudinal slot, T.

U represents the whiffletree, which is arranged on the under side of the tongue, between the same and the upper side of the strap, and is provided at its center with a depending eyebolt, V, which extends downward through the slot in the strap and is connected to the front side of the harrow-frame, at the center thereof, by means of a link, W.

X represents a pair of singletrees which are pivotally connected to the ends of the whiffletrees in the usual manner, and Y represents a neck-yoke secured to the front end of the tongue. To the rear end of the tongue is attached a rearward and upward inclined standard, Z, which supports the seat A′ for the driver.

On the front side of each bar K of the harrow-frame is bolted a metallic plate, B′. The said bars K are provided in their front sides with a series of vertical openings, as shown, the openings in the front bar K being arranged out on line with those in the rear bar.

C′ represents a series of cutters which are curved, as shown, and have their lower edges sharpened. The said cutters are each provided at their front upper ends with spring-coils D′, from which extend vertical shanks E′, that pass upward through the openings in the front sides of bars K and have their upper ends enlarged or swaged to form heads to prevent the shanks from being withdrawn from the said openings. These shanks are free to turn in the openings, and thereby the cutters are swiveled to the bars and adapted to turn in any direction.

The operation of my invention is as follows: When the lever-arm G is turned forward to the position indicated in Fig. 1, the arms F of the rock-shaft E cause the links P to permit the harrow-frame to descend and the anti-friction rollers of the said harrow-frame move

downward in the inclined grooves O of the head-blocks, and thereby lower the harrow-frame to the ground. The links R, which connect the rear side of the harrow-frame to the links P, keep the harrow-frame at all times in a horizontal position, so that the cutters on the under side of the harrow-frame will be kept at work in the soil. The link which connects the harrow-frame to the whiffletree causes the draft to be exerted directly on the harrow-frame, and thereby relieves the other parts of the machine of strain.

The coils D′, which are provided with the cutters, cause the latter to be kept at work when the harrow-frame is lowered, but permit them to rise slightly when they encounter unyielding obstructions, and thereby prevent the cutters from becoming broken. By having the cutters swiveled to the bars of the harrow they are adapted to turn obliquely to the line of draft when they encounter stones or small stumps or other obstructions, and thereby the said cutters are enabled to pass around such obstructions without being injured thereby. When the lever G is turned to the position indicated in Fig. 3, the rock-shaft E is turned so as to cause its arms F to draw upward on the links P and forward on the links R, and thereby cause the harrow-frame to be elevated from the ground, so that the cutters are out of contact with the ground and the entire weight of the machine is borne by the supporting-wheels, which are journaled on spindles that project from the outer sides of the head-blocks. The slotted strap in which the whiffletree is secured enables the latter to move backward or forward when the harrow-frame is raised or lowered, as will be readily understood. A harrow and pulverizer thus constructed will be found of great service in pulverizing rough and uneven ground and in placing sod land and stubble fields in condition to be planted.

Having thus described my invention, I claim—

1. The combination of the sulky-frame having the depending head-blocks provided with the inclined grooves O, the harrow-frame having the studs or projections at its ends engaging the said inclined grooves, the rock-shaft journaled on the frame and having the lever-arms, the longitudinally-movable whiffletree, the links connecting the said lever-arms to the harrow-frame, and the links connecting the harrow-frame to the whiffletree, whereby the shaft is applied directly to the harrow-frame, and whereby the latter may be raised or lowered under the sulky-frame, substantially as described.

2. The combination of the sulky-frame having the depending head-blocks provided with the inclined grooves O, the harrow-frame having the studs or projections at its ends engaging the said grooves, the rock-shaft journaled on the sulky-frame, having the lever to turn it to any desired position, and provided with the lever-arms F, the links P, connecting the front side of the harrow-frame to the said lever-arms F, and the links R, connecting the rear side of the harrow-frame to the links P, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

ALBERT HOLMES TRIPP.

Witnesses:
H. F. MILLIKEN,
M. M. THOMPSON.