(No Model.) 2 Sheets—Sheet 1.

J. H. CLEMENT.

PEA HARVESTER.

No. 439,344. Patented Oct. 28, 1890.

Fig. 1.

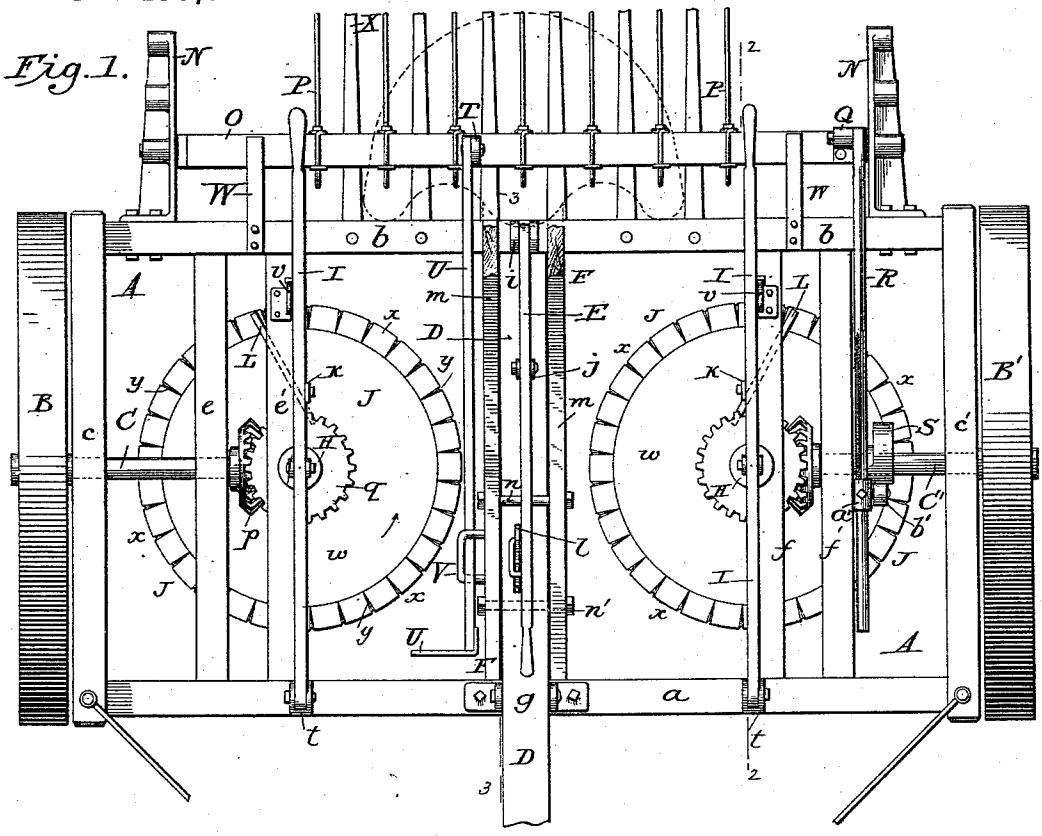
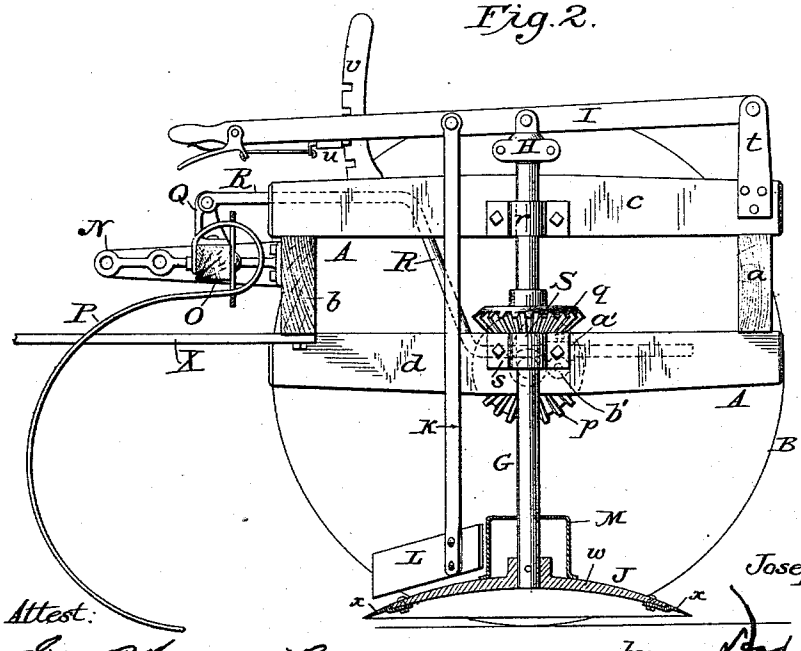


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

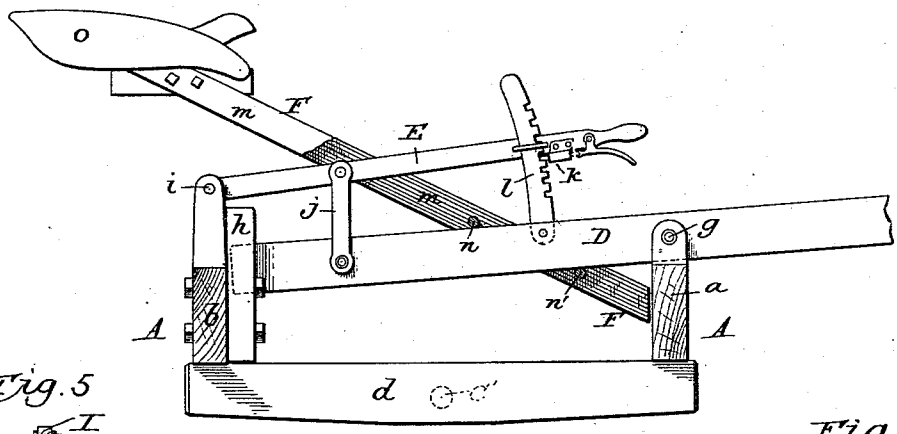


Fig. 5

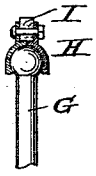
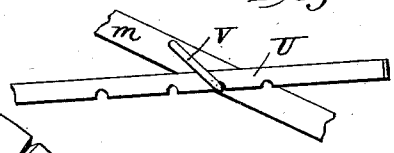


Fig. 6.



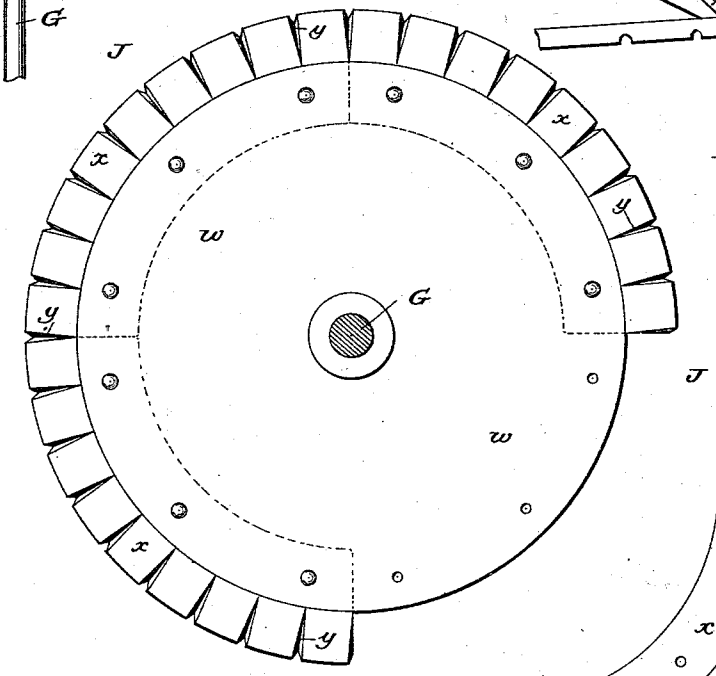
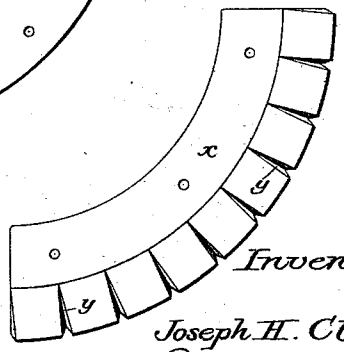


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH H. CLEMENT, OF CARLTON, NEW YORK.

PEA-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 439,344, dated October 28, 1890.

Application filed February 14, 1890. Serial No. 340,434. (No model.)

To all whom it may concern:

Be it known that I, JOSPEH H. CLEMENT, a citizen of the United States, residing at Carlton, in the county of Orleans and State of New York, have invented certain new and useful Improvements in Pea-Harvesters, of which the following is a specification.

This invention relates to that class of implements known as "pea or bean pushers," and comprises a wheeled frame and two rotary pushers or disks, which, entering the ground just below the surface, loosen up and crowd or push the roots of the bean-stalks of one row toward those of the adjacent row, and this, too, without thrashing, breaking, or shelling.

In the drawings, Figure 1 is a top plan view of my improved machine; Fig. 2, a vertical sectional view from front to rear on the line 2 2, showing the construction of one of the rotary disks or pushers and attendant parts; Fig. 3, a similar view on the line 3 3, showing the construction of the devices for varying the adjustment of the pole and seat-frame; Fig. 4, a view illustrating the construction of one of the pushers or disks, and Figs. 5 and 6 views illustrating certain details.

A indicates the main frame, supported by wheels B B′, secured upon the independent axles C C′. The main frame comprises front and rear sills or bars *a b*, upper and lower cross-bars *c c′* and *d d′*, and certain other cross-bars *e e′* and *f f′*, all securely bolted together.

D indicates the pole or tongue, which is pivoted at *g* to the upper face of the front sill *a*, as shown in Figs. 1 and 3, the rear end of the pole or tongue being supported on either side or guided in its movements by blocks or cleats *h*, secured to the inner face of the rear sill *b*.

E indicates a hand-lever pivoted at its rear end to arm or bracket *i* upon sill *b* and connected by means of a link *j* with the inner end of the pole or tongue D, said lever being provided with a pawl or dog *k* to engage a notched rack *l*, and by means of which the lever may be held in its adjusted positions.

The seat-standard F comprises two bars *m*, separated to embrace the pole or tongue, and provided with bolts *n n′*, to bear, respectively, upon the upper and lower faces of the pole, as shown in Fig. 3, and also provided with a seat *o*.

At the inner end of shaft or axle C is a bevel-pinion *p*, which meshes with a similar pinion *q*, secured to an upright shaft G, the said shaft being carried in bearings *r* and *s*, secured to the cross-sills *c d*, as shown in Fig. 2.

At the upper end of shaft G is a ball-and-socket joint H, the socket-piece of which is pivotally connected to a hand-lever I, pivoted at its forward end to a bracket *t* on the sill *c*, and provided at its rear end with a pawl or dog *u* to engage a notched bar or rack *v*, as shown in Fig. 2. Secured to the lower end of shaft G is what I term the "pusher" J, which comprises an arched disk *w* and a detachable rim *x*.

Pivotally secured to the lever I is a rod or bar K, which carries at its lower end a scraper L to remove the dirt from the upper face of the pusher, said scraper carrying a box or casing M, through which the shaft G passes freely, the purpose of the casing, which does not rotate, being to prevent vines from winding about said shaft. It is of course to be understood that there are at least two pushers and attendant parts to each machine, and hence the description of the construction of one of them just given will apply to both and render a description of the other unnecessary.

Now as the machine is drawn along, the shaft G receives a motion from the axle through the gearing *p q*, and as the pusher is secured rigidly to the shaft it will also be rotated. In thus turning or rotating, one of the pushers strikes the rods of one row of bean-stalks just below the surface of the ground, loosening and carrying them toward the opposite row, the stalks of which are at the same time being pushed over toward the first-mentioned row. In order to vary the depth to which these pushers may enter the ground, it is only necessary to raise or lower the hand-lever E, and thus rock or tip the main frame upon its axles. When it is desired to carry

or transport the machine from place to place, the hand-levers I I are raised, and the pushers and their shafts and scrapers are thereby elevated sufficiently to be inoperative. The shaft G may be splined to its pinion q, so as to pass freely therethrough and to rotate therewith, or the pinion may be rigidly affixed to the shaft to rise and fall therewith.

By making the pushers convex or arched there is less tendency for the dirt to accumulate on their upper faces, and by providing them with removable edges or edge plates x the latter may be sharpened readily or replaced when broken. These plates x (shown in Fig. 4) will be provided, advisably, with radial grooves y and also with a beveled outer edge z, and will be secured to the disk w by means of bolts or screws.

While the machine is designed more particularly for crowding or pushing the rows of beans toward each other, it is well adapted for performing other operations—such, for instance, as pushing or removing cornstalks or stubble where it is desired to clear the ground. So, too, it is clear that more than one pair of pushers may be used, the second or additional pushers being driven in any suitable manner from the axles.

Projecting from the rear sill b are arms N N, adapted to receive a rock-shaft O, which will advisably be made of wood. This shaft or bar O is provided with a series of spring rake-teeth P, as shown in Figs. 1 and 2, and is further provided with an upwardly-projecting arm Q, to which is connected a rod or bar R, the said rod being provided at or near its forward end with a collar a', having a laterally-projecting arm or roller b', adapted to be struck periodically by a cam S, secured to the shaft or axle C′. The shaft O is further provided with a radial arm T, Fig. 1, to which is secured a rod or bar U, which latter is notched on its under face and extends forward in position to be operated by the foot of the driver and to be thrown into and out of engagement with a loop or staple V on the frame.

W, Fig. 1, indicates a spring secured at one end to the sill b and bearing upon a flattened portion of the shaft O, the purpose of the spring being to return the shaft to its normal position after it has been rocked by the mechanism before mentioned.

A series of arms or slats X project rearwardly from the sill b between the raking-teeth and act as clearers for the latter. It will be seen that the brackets N N are provided with a series of holes or bearings for the shaft O in order that the latter may be set closer to or farther from the main frame, and to provide for the actuation of the shaft in its different positions the collar a' on the rod R is made adjustable upon the latter.

As the machine is drawn along, the cam S on the shaft or axle C′ will strike the arm or roller b' and move the same and the rod R forward, and it will be seen that this movement of the rod R will rock or tip the shaft O and raise the fingers or teeth P from the ground to discharge the collected vines. Just as soon as the cam rides off the arm or roller b' the spring W returns the shaft and teeth to their normal positions. When it is desired to hold the teeth P up out of action, the bar U will be pushed forward until its notch (not shown) comes in engagement with the staple V, the roller b' being at the same time carried forward sufficiently to prevent its being struck by the cam.

Having thus described my invention, what I claim is—

1. In combination with the main frame A, wheels B B′, and independent shafts or axles C C′, the latter each having a beveled gear-wheel p, the upright shafts G G, journaled in the main frame and provided each with a beveled gear q to engage the gears p, and a pusher J, secured to the lower end of each shaft G, the pushers being separated a distance from each other, all substantially as shown and described.

2. In combination with a main wheeled frame, two rotatable horizontal disks or pushers separated, as shown, and mounted upon the main wheeled frame, and means for rocking or tipping the main wheeled frame and the pushers carried thereby.

3. In combination with a wheeled frame having a shaft C and beveled gear p, an upright shaft G, journaled therein, a pusher or disk at the lower end of the shaft, a universal joint at the upper end, a pinion q, carried by the shaft and adapted to engage the gear p, means for imparting motion to the shaft, and a lever connected with the joint at the upper end of the shaft for raising and lowering the latter and throwing the gears p q into and out of engagement with each other.

4. In combination with a wheeled frame, an upright shaft G, provided at its lower end with a disk or pusher, a scraper, a hand-lever, a universal joint connecting the lever with the shaft, and a rod connecting the scraper with the lever.

5. In combination with the shaft G and its disk or pusher J, a scraper L and a casing M, secured to the pusher around the lower end of the shaft, all arranged substantially as shown.

6. In combination with a wheeled frame carrying the rotating pushers, a rock-shaft, a series of fingers carried thereby, and means for automatically and periodically raising the fingers.

7. In combination with a wheeled frame, brackets N N, provided with a series of bearings, shaft O, provided with fingers P and an arm Q, rod R, connected with rod Q and provided with an adjustable collar a', having a roller b', and a cam S on the axle of the wheeled frame.

8. In combination with a wheeled frame the axle of which is provided with a cam S, brackets N N, shaft O, provided with fingers P and arms Q T, a spring W, a series of slats X, a rod R, provided with an arm or roller b', a rod or bar U, and a staple V, all arranged substantially as shown.

In witness whereof I hereunto set my hand in the presence of two witnesses.

JOSEPH H. CLEMENT.

Witnesses:
JOHN E. SUTTON,
ELMER D. WEST.