2 Sheets--Sheet 1.

T. S. BROWN.

Improvement in Harvesters.

No. 128,584. Patented July 2, 1872.

Fig. 6.

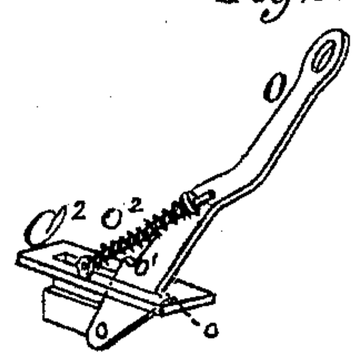


Fig. 1.

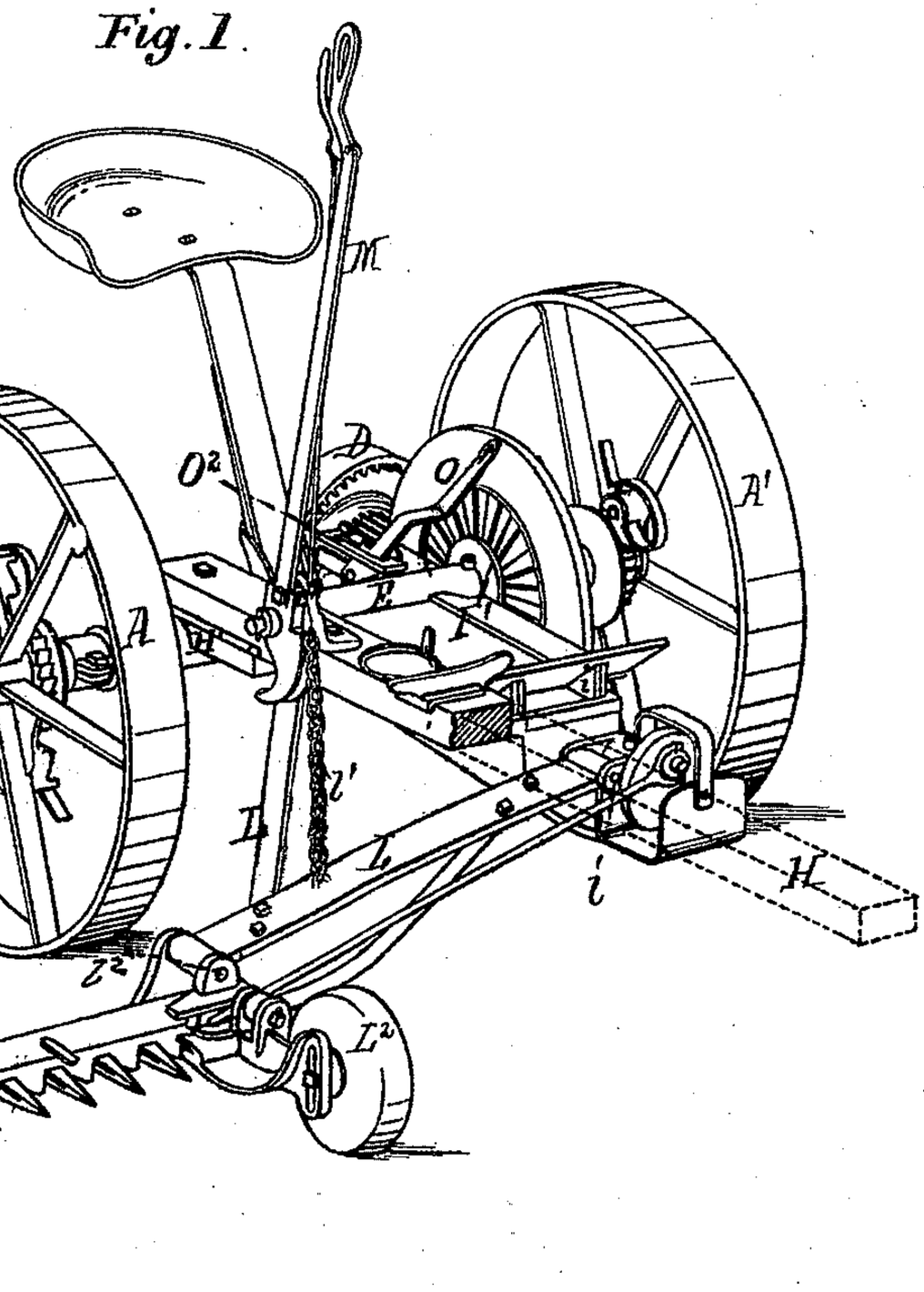


Fig. 5.

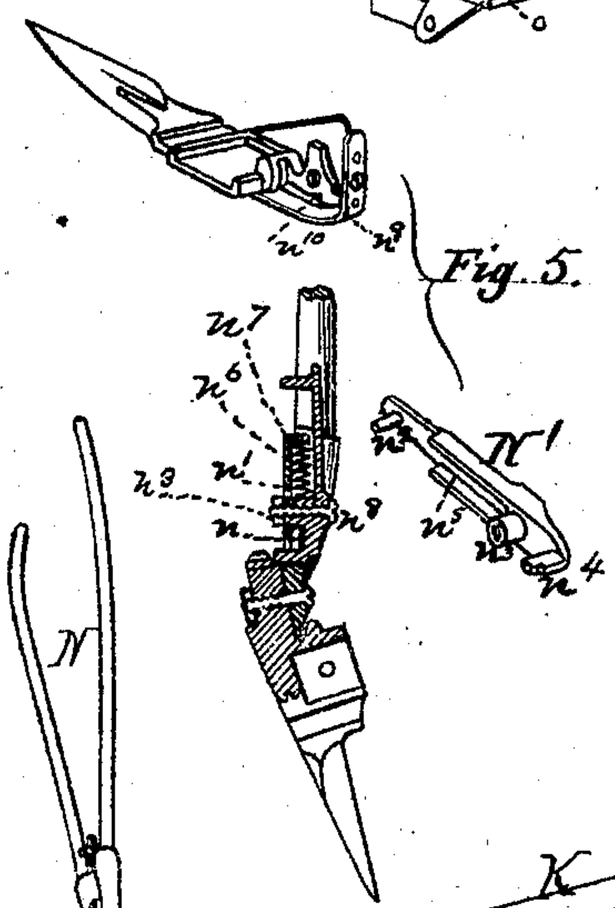
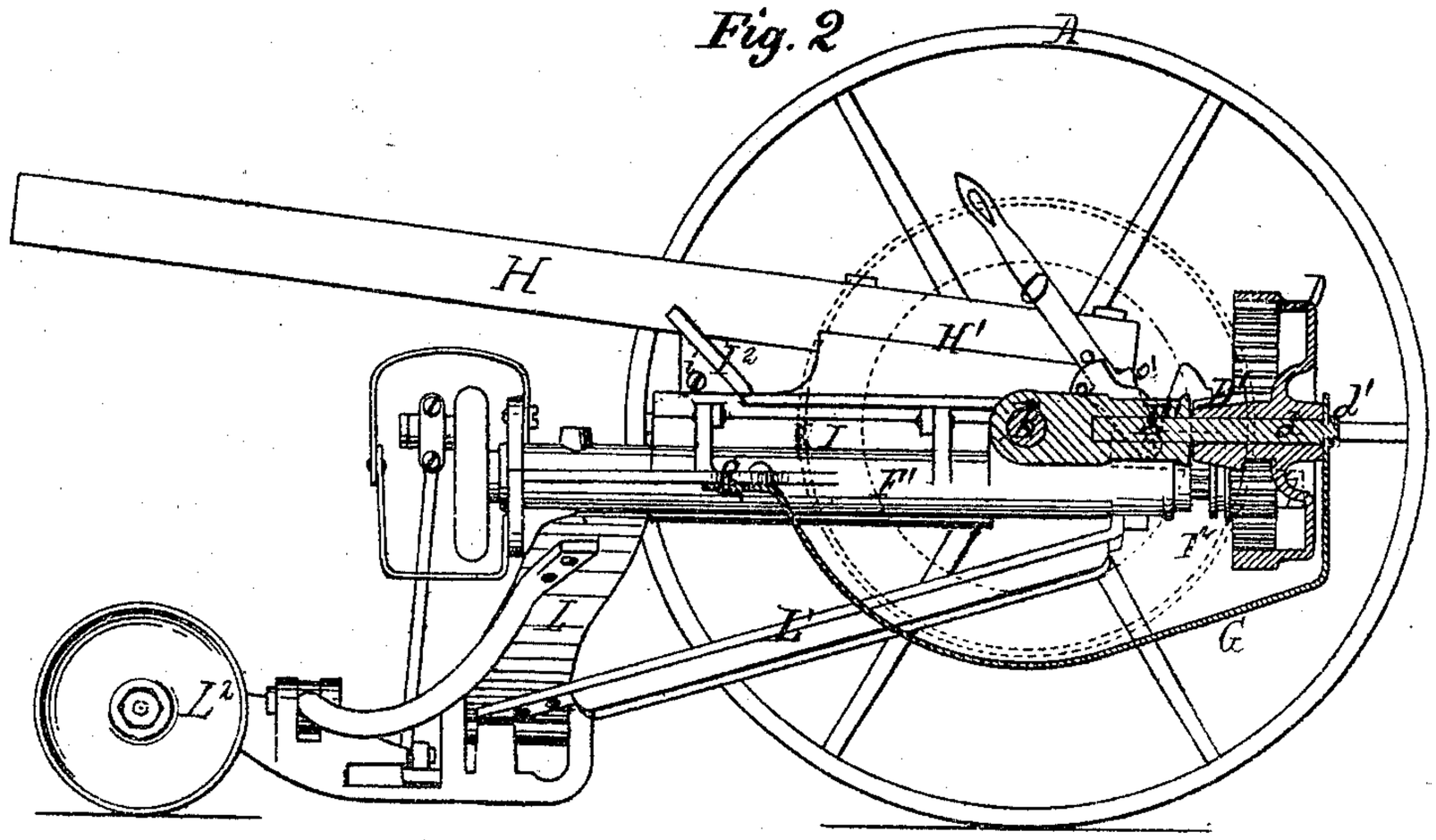


Fig. 2



Witnesses.

H. H. Doubleday

Alex. Mahon

Inventor.

Thomas S. Brown

by A. M. Smith

Atty.

2 Sheets--Sheet 2.

T. S. BROWN.

Improvement in Harvesters.

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Fig. 3.

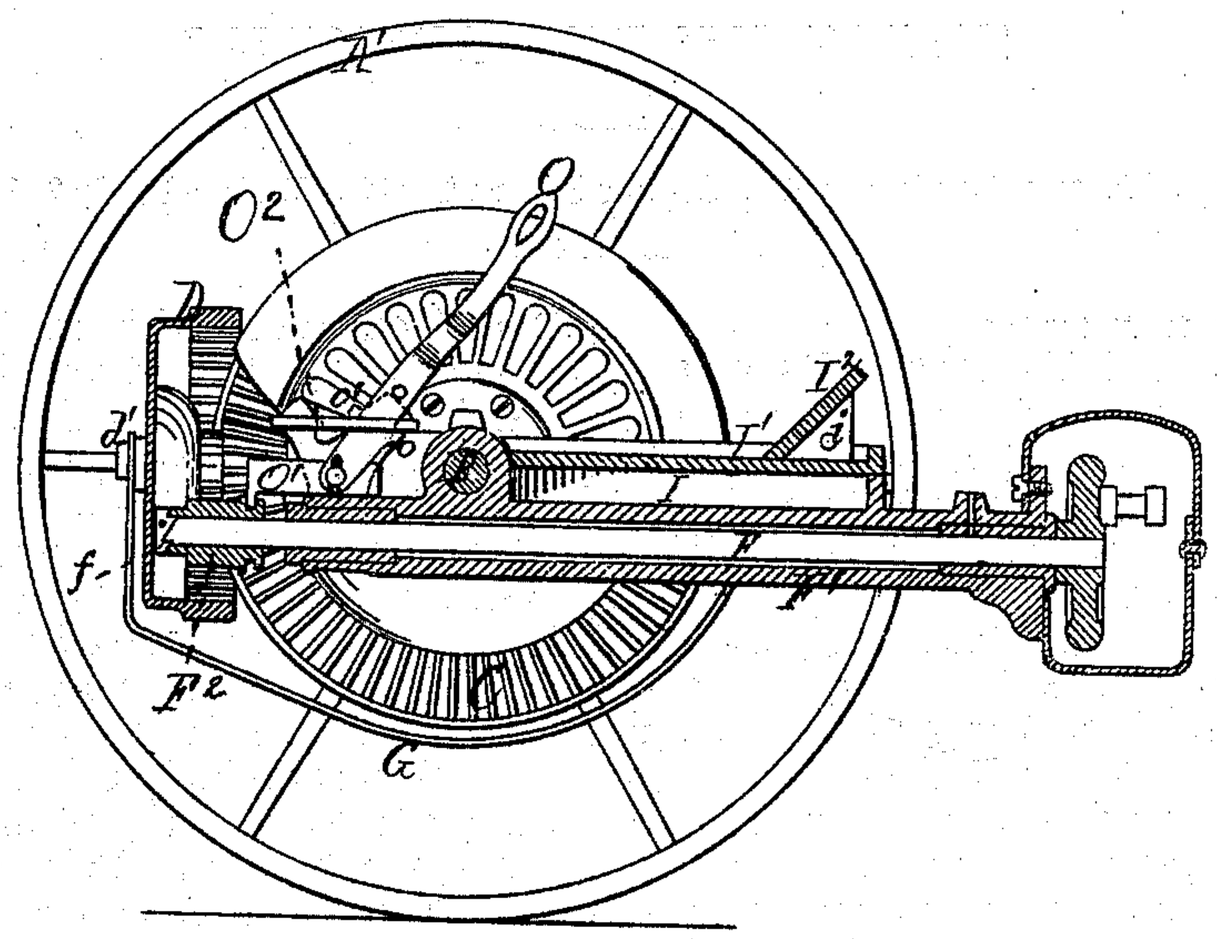
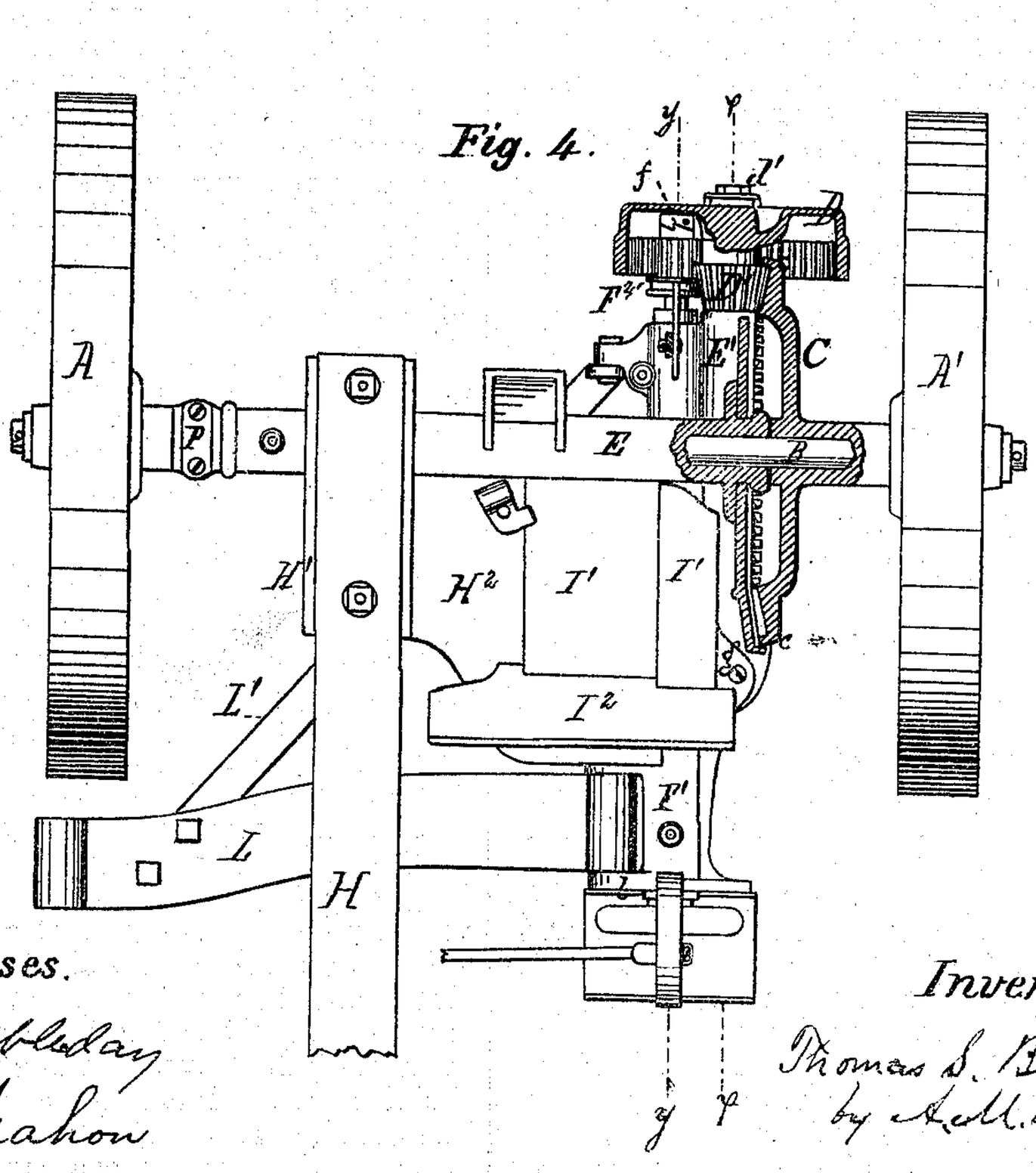


Fig. 4.



Witnesses.

H. H. Doubleday

Alex. Shaw

Inventor.

Thomas S. Brown
by Hall & Smith
atty.

UNITED STATES PATENT OFFICE.

THOMAS S. BROWN, OF POUGHKEEPSIE, NEW YORK.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 128,584, dated July 2, 1872.

To all whom it may concern:

Be it known that I, THOMAS S. BROWN, of Poughkeepsie, county of Dutchess, State of New York, have invented a new and useful Improvement in Harvesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a perspective view of my improved machine. Fig. 2 is a vertical longitudinal section on line *x x*, Fig. 4. Fig. 3 is a vertical longitudinal section taken from the opposite side of the machine on line *y y*, Fig. 4. Fig. 4 is a plan or top view, partly in section. Fig. 5 represents detached views of the outer shoe and divider, and Fig. 6 shows a modification of the shipping devices.

Similar letters of reference denote corresponding parts in all the figures.

The first part of my invention relates to the construction of the metal tongue and gear-frame, and consists of a novel combination of the sleeves or bearings for the main axle, the crank-shaft, and the secondary gear with the tool-box and the ears or lugs to which the coupling-arms and the brace-bar are hinged. The second part of the invention relates to a new construction of the devices by means of which the shipping-lever is locked in position. The third part of the invention relates to the combination, with the hubs of the backing-ratchets, the bevel-wheel, and the axle-sleeve of the main frame, of a collar, whereby the gearing is maintained in a proper working relation. The invention further consists in certain details of construction, which will be fully explained.

In the drawing, A A′ are the carrying and driving wheels mounted loosely on the main axle B. Wheel A′ is connected with axle B by means of a backing-ratchet, wheel A′ being connected with the hub of bevel-wheel C, which is keyed to said axle. Thus either or both wheels A A′ are made to drive, as circumstances require. D is a shell-wheel provided with an internal spur-gear. It is mounted upon a stationary stud or silent axle, *d*, (see Fig. 2,) supported in a sleeve, E′, projecting rearward at right angles from sleeve E, which surrounds the axle. Sleeve E′ is in the same horizontal plane with axle-sleeve E. D′ is a bevel-pinion cast in one piece with shell-gear D, and engaging with and driven by bevel-wheel C, as plainly shown in Fig. 4. Bevel-wheel C is provided with a projecting rim or flange, *c*, at about a right angle to the face of its teeth, in such manner as to connect the outer ends of the cogs, and thus strengthen them materially. F, Fig. 3, is the crank-shaft. It is mounted in suitable bearings in the sleeve F^1, which is cast in one piece with sleeves E and E′. It (the sleeve) is at right angles with the axle-sleeve E, but in a lower horizontal plane, and occupies a plane parallel with sleeve E′ and spur-shell D. F^2 is the pinion on crank-shaft F, and always in gear with spur-shell D. Thus pinion F^2 is continuously driven when the machine is moving forward; but, as it is not desirable to have the cutters in action at all times, pinion F^2 is mounted loosely on the crank-shaft, and is connected therewith by means of a clutch-ring, *f*, rigidly attached to the shaft and engaging with a corresponding clutch-face on the hub of the pinion, as shown in Figs. 3 and 4, the pinion being disconnected from ring *f* when desired by means of a shipping-lever, which will be hereinafter described. G is a grass-guard, made, preferably, of sheet metal, in substantially the form shown in Figs. 2 and 3, and having its front end secured to a lip, *g*, projecting from the crank-shaft sleeve, (see Fig. 4,) its rear end being attached to stud-shaft *d* outside of the shell-wheel. H is the tongue. H^1 is the tongue-socket cast upon axle-sleeve E′. I, Figs. 2 and 3, is the tool-box, provided with a hinged lid, I^2, upon which is placed the foot-board I^2, the foot-board being fastened to angular brackets cast upon the lid, as shown at *i*. H^2, Fig. 4, is a web connecting the tongue-socket H^1 with the tool-box I, which, in turn, is cast upon crank-shaft sleeve F^1. K is the cutting apparatus, which may be of any desired construction. L is the coupling-arm, hinged at its outer end to the finger-bar, and at its inner end upon a pivot passing through a lug, *l*, on the front end of the crank-shaft sleeve and one wall of the tool-box. L^1 is a thrust-brace pivoted to a lug on the rear end of crank-shaft sleeve, on a line coincident with the pivot of the inner end of coupling-arm L. The coupling-arm is also hinged to the finger-bar, and all of the pivots about which the cutting apparatus vibrates are on lines parallel with the crank-shaft, so that the cutting ap-

paratus may conform to the undulations of the ground without cramping any of the parts. L^2 is a shell leading-wheel, mounted adjustably in the slotted front end of the inner shoe. M is a segmental lifting-lever, mounted on the tongue, and provided with a chain, l', and the usual pivoted pawl, which engages with a ratcheted standard for the purpose of holding the cutting apparatus at any desired height. N is the track-clearer, pivoted to the outer shoe. The head is formed with two slots, $n\,n^1$. N′, Fig. 5, is a spring-latch, provided with three studs, n^2 n^3 n^4, and a longitudinal cavity or recess, n^5, in which is confined a spiral spring, n^6, one end of which rests against stud n^3, and the other against a lip, n^7, projecting inwardly from the face of the head of the track-clearer. When the parts are in proper working position—that is, with the open side of the recess n^5 placed against the head of the clearer—the lip n^7, lying in the recess, serves as a guide for the upper end of the latch. Stud n^3 is cylindrical in shape, and has a screw-thread cut in it, in which screw n^8 is inserted, so that, when the nut or nut and washer are put on, said nut may be screwed up tightly and serve as a jam-nut, the stud being a little longer than the thickness of the metal through which it passes, so as to allow the necessary freedom of movement of the latch. The inner face of the shoe is provided with a stop, n^9, against which the latch strikes to prevent the clearer from dropping too low, and another stop, n^{10}, with which it (the latch) may be made to engage to hold said clearer in position when the finger-bar is elevated for transportation. O is the shipping-lever for throwing the cutters into and out of action. It is pivoted at its lower end to a sliding plate, O^1, which has a downwardly-projecting spur or fork engaging with a groove in the hub of the sliding crank-shaft pinion F^2. The free end of lever O passes through a slot in the horizontal plate of lever-standard O^2, as is plainly shown in Fig. 1, the vertical outline of the standard being shown in Figs. 2 and 3. This standard is, by preference, cast separately and then bolted to the frame. The plate O^1 is mounted in standard O in such manner as to have a direct reciprocation when actuated by lever O, as will presently be described.

It will be seen by an inspection of the drawing that lever O is provided with shoulders o o', one upon each side, both being shown in full lines, Fig. 3, and one of them in full and one in dotted lines in Fig. 2. In all of these figures the lever is in the same position—that is, with the pinion F^2 engaged with clutch-ring f—and it will be seen that the lever is thrown forward and rests against the forward end of the slot in standard O^2, (see Fig. 1,) with the shoulder o abutting against the under side of the plate, and that the parts are securely locked so far as keeping the pinion in place is concerned, as any forward pressure upon sliding plate O^1 will tend to bind shoulders o more firmly against the under side of the standard. When, however, the operator desires to throw the cutters out of action he draws the top of lever O toward him until it strikes the rear end of the slot, when, continuing the movement, the sliding plate O^1 and pinion F^2 are withdrawn, the end of the slot serving as the fulcrum for the lever, and when the lower end of the lever shall have moved far enough forward, shoulder o^1 will slip under the horizontal part of the standard, thus locking it. An addition to the shipping devices is shown in Fig. 6, in which a spring, o^2, is employed to hold the shoulder o or o^1 in contact with the under side of the top-plate of standard O^2. The upper end of this spring engages with a projecting lug on the face of lever O, this lug also serving as a guide for the bar about which the spring is wound, said bar being pivoted to the standard O^2 and vibrating with the lever. It is evident that spring o^2 will hold the lever securely in place, whether it (the lever) be in the position shown, or whether it be moved to the opposite end of the slot for throwing the cutters out of action. P is a collar surrounding the axle between the end of the axle-sleeve and the backing-ratchet. It is made in two parts secured to each other by screws passing through ears or flanges, and serves to maintain gears C and D′ in proper position, and to facilitate putting together and taking apart the machine, as follows:

As the bevel-wheel C is keyed rigidly to the axle B it will be seen that in order to bring bevel-pinion D′ into proper mesh with wheel C, the axle-sleeve E carrying sleeve E′ must be moved longitudinally upon axle B after said pinion D′ is mounted upon stud d, because, if the sleeve E were first placed up against wheel C, as shown in Fig. 4, the pinion D′ could not then be put in position on account of the overlapping flange c, hence the necessity of constructing the parts so that sleeve E can slide endwise on the main axle. After the gear has been placed in mesh the parts are secured by means of collar P.

By my construction of frame—that is, with the crank-shaft sleeve, the tool-box, and the tongue-socket cast in one piece, it is made very strong and stiff to sustain the strain caused by the finger-bar striking an obstruction when the machine is in motion.

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

1. A metal harvester-frame, composed of the following parts, namely: a sleeve mounted upon and vibrating about the main axle; a sleeve projecting rearward in the same horizontal plane, in which is secured a stud-shaft supporting the secondary gear; a sleeve below the axle-sleeve and at right angle thereto, in which the crank-shaft is mounted; a tongue-socket, and a tool-box located between the tongue-socket and the crank-shaft sleeve; all cast in one piece, and arranged substantially as set forth.

2. In combination with the main frame E

E′ F¹ I H¹ H², the gears C D D′ F², all located outside of said frame on their respective shafts, substantially as set forth.

3. The shipping-lever O provided with shoulders *o o*¹, in combination with slotted standard O² and sliding bar O¹, or its equivalent, as set forth.

4. In combination with the track-clearer, the spring-latch N¹, substantially as set forth.

5. In combination with sleeve E, gear-wheels C D′, the removable collar P, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand this 14th day of December, A. D. 1871.

THOS. S. BROWN.

Witnesses:
EDM. F. BROWN,
ALEXR. MAHON.