

G. T. COOLMAN & C. M. YOUNG.

HARVESTER.

No. 99,850.

Patented Feb. 15, 1870.

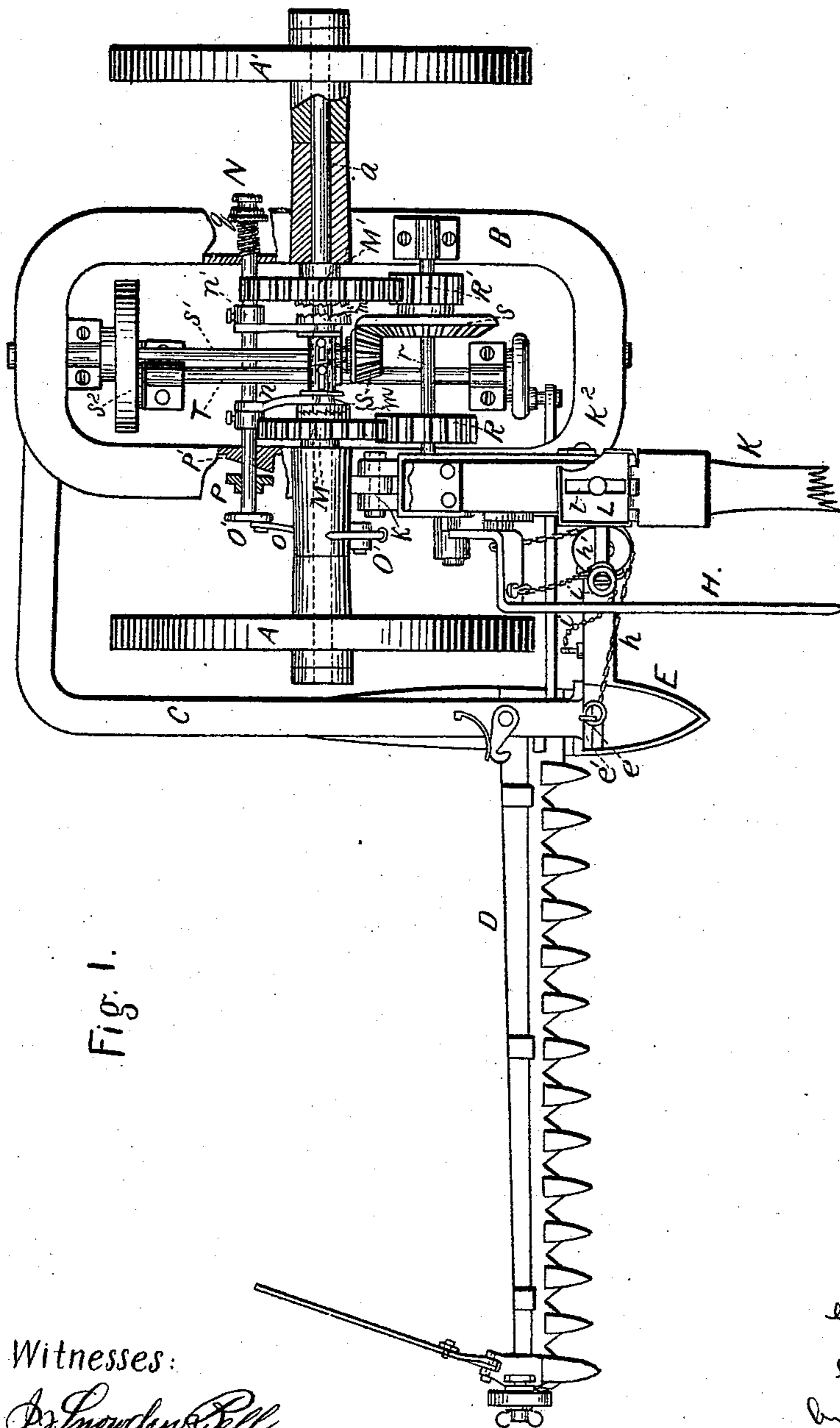


Fig. 1.

Witnesses:

J. Snowden Bell
Joel Peyton

Inventors:

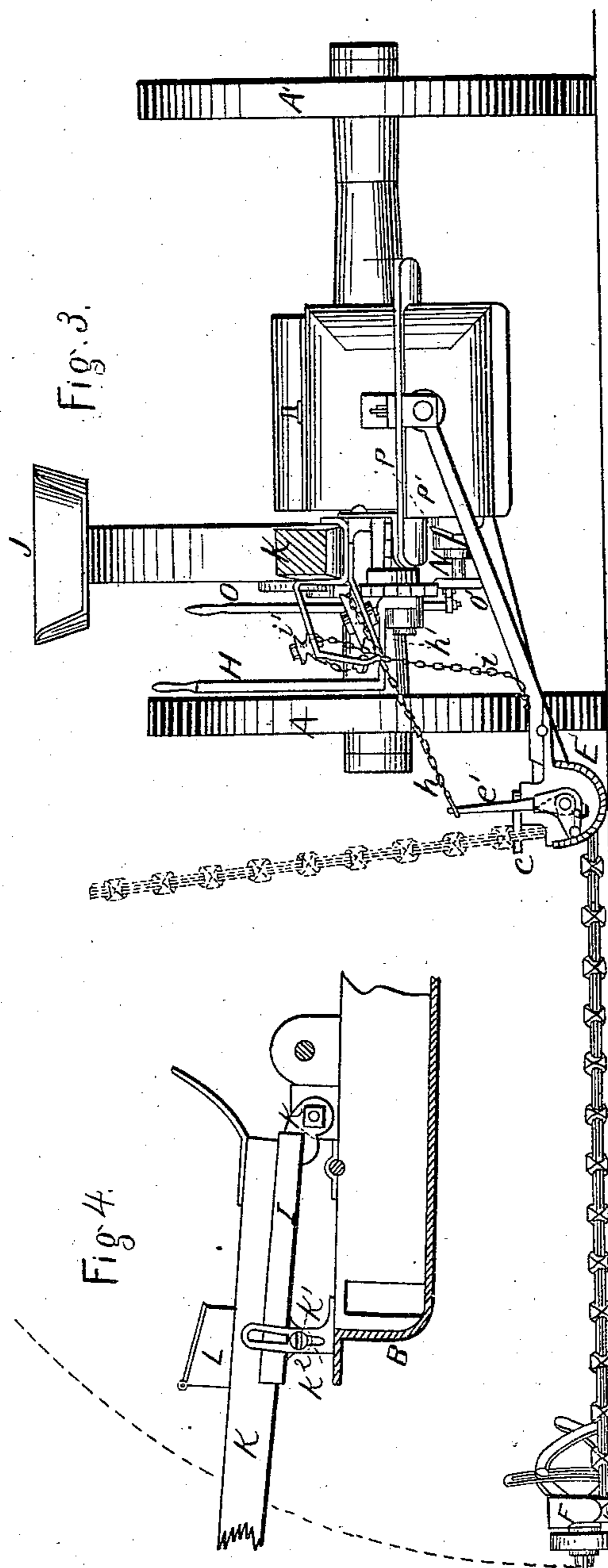
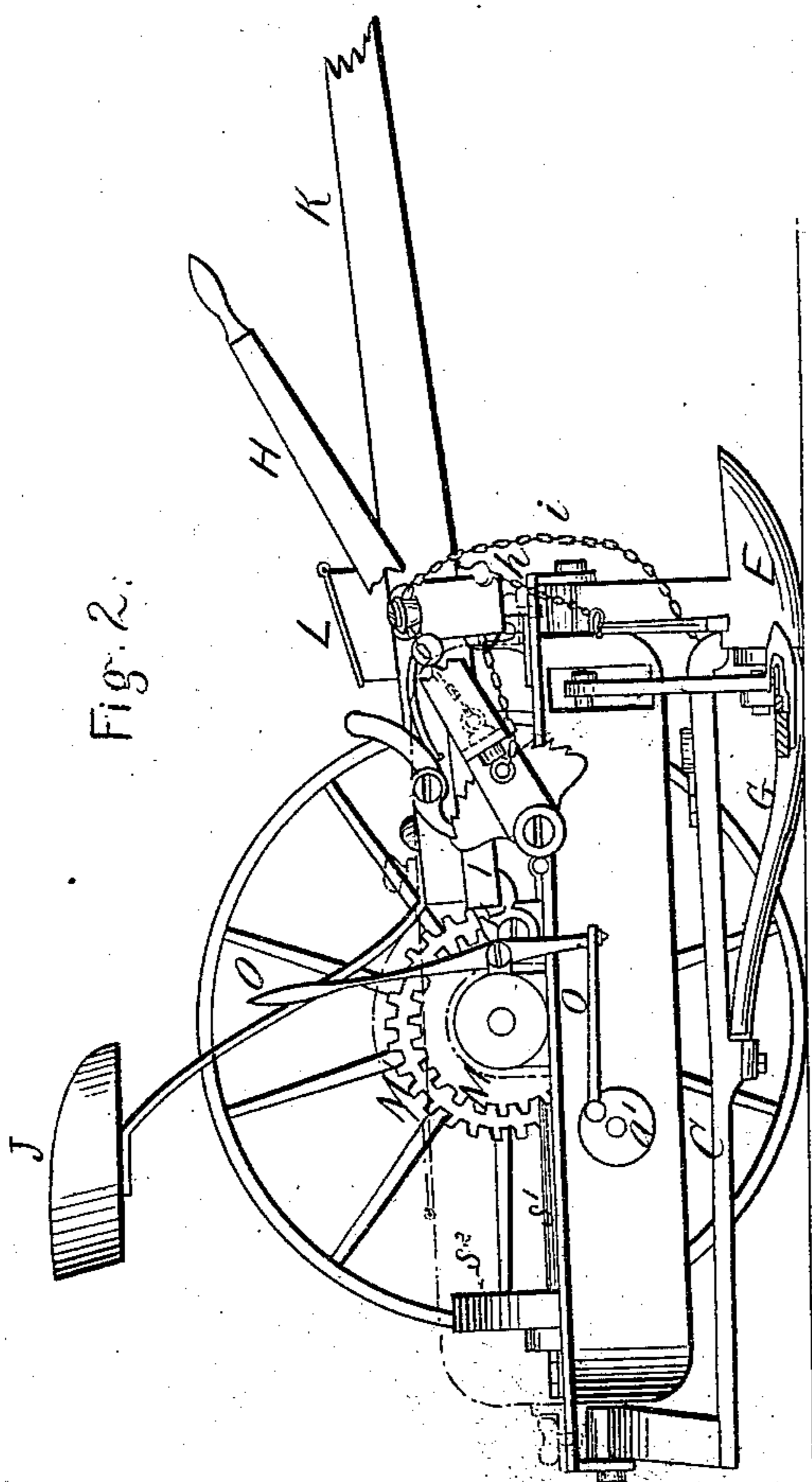
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by their Atty
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United States Patent Office.

GRANT T. COOLMAN AND CHARLES M. YOUNG, OF CORRY, PENNSYLVANIA.

Letters Patent No. 99,850, dated February 15, 1870.

IMPROVEMENT IN HARVESTERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that we, GRANT T. COOLMAN and CHARLES M. YOUNG, both of Corry, in the county of Erie, and State of Pennsylvania, have invented certain new and useful Improvements in Harvesters, of which the following is a full, clear, and exact description.

The invention herein claimed relates to certain improvements on the harvester, for which Letters Patent of the United States, No. 88,453, were granted to us March 30, 1869.

The first part of our invention relates to the devices for raising and lowering the cutting apparatus, and

The improvement consists—

First, in a novel method of combining a main frame, a hinged coupling-frame, and a shoe fixed on the coupling-frame, with a finger-beam hinged to the shoe, an elbow lever pivoted in the shoe, and a lifting-lever pivoted on the tongue, and connected with the coupling-frame and elbow lever respectively by independent cords or chains, so arranged that the first backward movement of the lever lifts the divider end of the finger-beam only, and the continuance of this backward movement lifts the heel end of the finger-beam also. In our former patent, above referred to, the same result was produced in a less perfect manner by a rocking-lever in the shoe, and a single lifting-chain or cord.

The object of the next part of our invention is to render the tongue or draft-frame adjustable, and

Our improvement consists, second, in a novel method of combining the main frame, suspended from the main axle, the coupling-frame, the tongue carrying the driver's seat and lifting apparatus, and pivoted to the main frame with a slotted bracket and set-screw on the front of the frame. In our former patent the tongue was rigid, and the inclination of the tongue or frame could not be varied.

Third, the next part of our invention relates to the shipping mechanism, and our improvement consists in a novel method of combining an oscillating shaft, sliding endwise in its bearings, with shifting-forks, loose upon but moving laterally with the shaft, and taking into the collars of the clutch-couplings, by which the mechanism is thrown into or out of gear.

Fourth, our improvement further consists in a novel method of combining a shipping-lever, an oscillating shaft carrying a shifting-fork, cams to move the shaft endwise, and a spring to hold the clutch in gear, unless held out of gear by the driver.

In the accompanying drawings all our improvements are shown as embodied in a machine similar to that shown in our patent of March 30, 1869, above mentioned. It is obvious, however, that some of our im-

provements may be used without the others, and may also be applied to machines of a construction different from that herein described.

Figure 1 is a plan or top view of our improved machine, with the covering of the gearing removed.

Figure 2 is a view in elevation of the same, as seen from the divider side, with the finger-beam in section.

Figure 3 is a similar view of the same, as seen from the front.

Figure 4 is a view of a portion of the tongue and frame detached, showing their mode of adjustment.

In this instance we have shown two driving-wheels A A', turning loosely on a common axle, with which they are connected by backing ratchets of any well-known construction.

The axle turns freely in bearings on the main frame B. A coupling-frame, C, is pivoted to the main frame, and a finger-beam, D, is pivoted to the coupling-frame.

The shoe is made hollow and fixed rigidly on the coupling-frame. The finger-beam is secured to a brace, G, pivoted to the coupling-frame and shoe.

A stud, *e*, is fixed on the pivot of the brace, and an elbow lever, *e'*, rocks on the same pivot. A toe on the elbow lever acts on the under side of the stud to lift the divider end of the finger-beam.

A cord or chain, *h*, passes over a pulley, *h'*, mounted on the tongue, to a lifting hand-lever, H, also pivoted on the tongue or tongue-plate, and held by a ratchet and pawl of usual form. Either end of the finger-beam is free to rise and fall independently of the other, and by the apparatus above described the divider end of the finger-beam can be raised above the heel end by the hand-lever, and held there by the pawl.

In order to raise both the coupling-frame and finger-beam, a cord or chain, *i*, is passed over a pulley, *i'*, and connected with the hand-lever H. This cord *i* is longer than the other one *h*. The result of this arrangement is that when the hand-lever is retracted, the divider end of the finger-beam is first elevated, and then, as the movement is continued, the coupling-frame and cutting apparatus are also lifted.

A catch, *c*, on the coupling-frame holds the finger-beam when folded vertically.

A seat, J, for the driver is mounted on the tongue K, which is secured in a socket or tongue-plate, L, pivoted to the main frame by a hinge, *k*, which allows the tongue to move vertically.

A set-screw, *k¹*, on the tongue-plate moves in a slotted bracket, *k²*, on the front of the frame. The angle of the tongue and frame may thus be regulated.

A tool-box, L, which also serves as a foot-rest for the driver, is fastened upon the tongue by a set-screw,

l, passing through a longitudinal slot in the bottom of the box, by which means it may be set nearer to or farther from the driver's seat.

Spur-gears $M M'$ of unequal size are mounted loosely on the main axle, with which they are locked when required by clutches $m m'$, which slide freely on and turn with the main axle in the usual way.

Shifting forks $n n'$ fitting in collars on these clutches are mounted loosely on a shaft, N , extending across the main frame. Pins passing through the collars of the forks enter grooves in this shaft, so that the shaft while turning independently of the forks moves them endwise with it.

A shipping-lever, O , pivoted on the main frame, is connected by a link, o , with a crank-wheel, o' , on the shaft N .

A cam, p , fixed on the shaft acts on a corresponding cam, p' , fixed on the frame, and thus moves the shaft N endwise, as it is oscillated by the lever O .

A spring, q , on the shaft N holds the clutch m' in gear with the larger pinion M' on the main axle, unless thrown out of gear by the driver, and thus drives the cutters at their most rapid speed. To decrease the motion, the gear M is thrown into action by moving the shaft N endwise. The spur-wheels $M M'$ gear respectively into corresponding pinions $R R'$ on a countershaft, r , carrying a bevel-wheel, S , which drives a corresponding pinion, s , on a shaft, s^1 , carrying an internally-gear wheel, s^2 , which drives a corresponding pinion on a crank-shaft, T , which drives the cutters by a crank and pitman, in the usual way. The crank-shaft, it will be observed, is arranged between the gears $M M'$, and is straddled by the shifting-forks.

One of the advantages of my mode of arranging the gearing and clutch mechanism is, that when unclutched all the gears stop, which would not be the case were

the clutches in the countershaft. I am also enabled to adjust the clutching-forks on their shaft, to compensate for any wear of the clutches.

The other portions of the machine having been fully described in our former patent above mentioned, need not be again described here.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of the main frame, the hinged coupling-frame, the shoe fixed to the coupling-frame, and the finger-beam hinged to the shoe and frame, the stud, the elbow-lever and its chain h , with the lifting-lever and the chain i , attached to the coupling-frame, the whole constructed for joint operation, substantially as set forth.

2. The combination of the suspended main frame, the coupling-frame, the tongue hinged to the frame, the lifting-lever pivoted on the tongue, and the slotted bracket and set-screw, all constructed and arranged as set forth for joint operation.

3. The combination of the shipping-lever, the oscillating endwise-moving rock-shaft, the loose shifting-forks, and the clutches, the combination being and operating substantially as set forth.

4. The combination, substantially as set forth, of a shipping-lever, an oscillating sliding-shaft, carrying shifting-forks, cams to move the shaft endwise, and a spring to hold the clutch in gear.

In testimony whereof, we have hereunto subscribed our names.

GRANT T. COOLMAN.
CHARLES M. YOUNG.

Witnesses:

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R. C. WRIGHT.