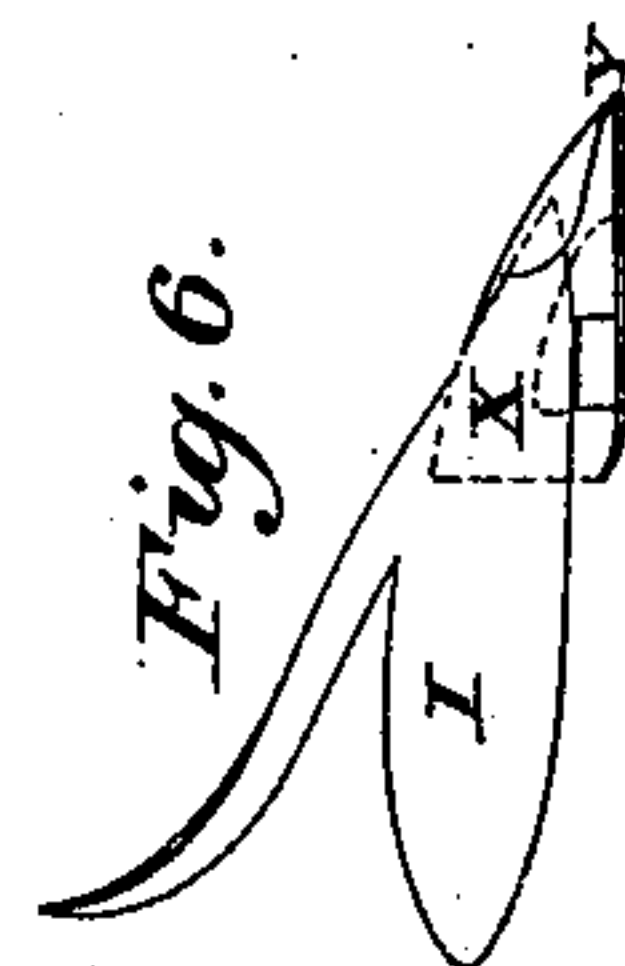
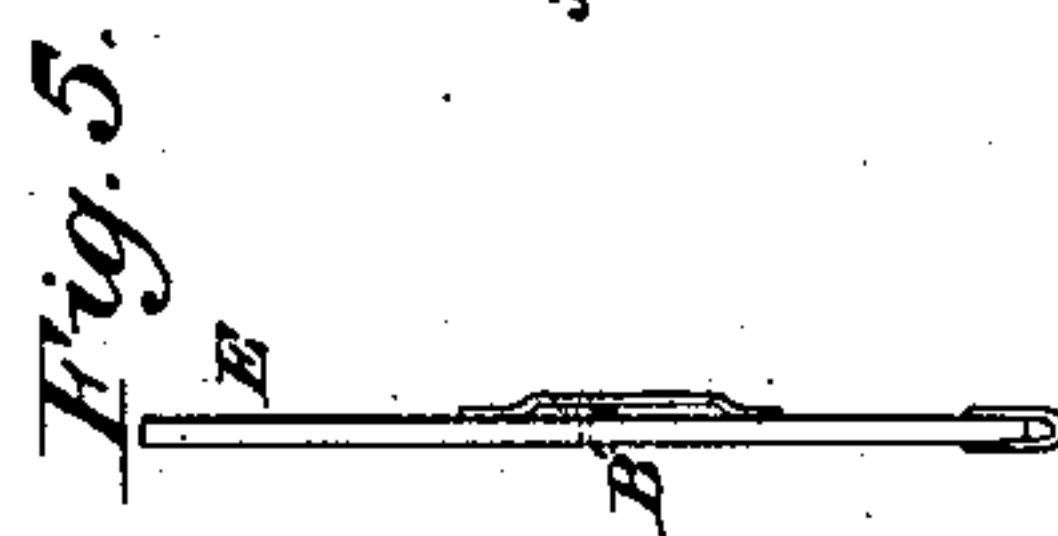
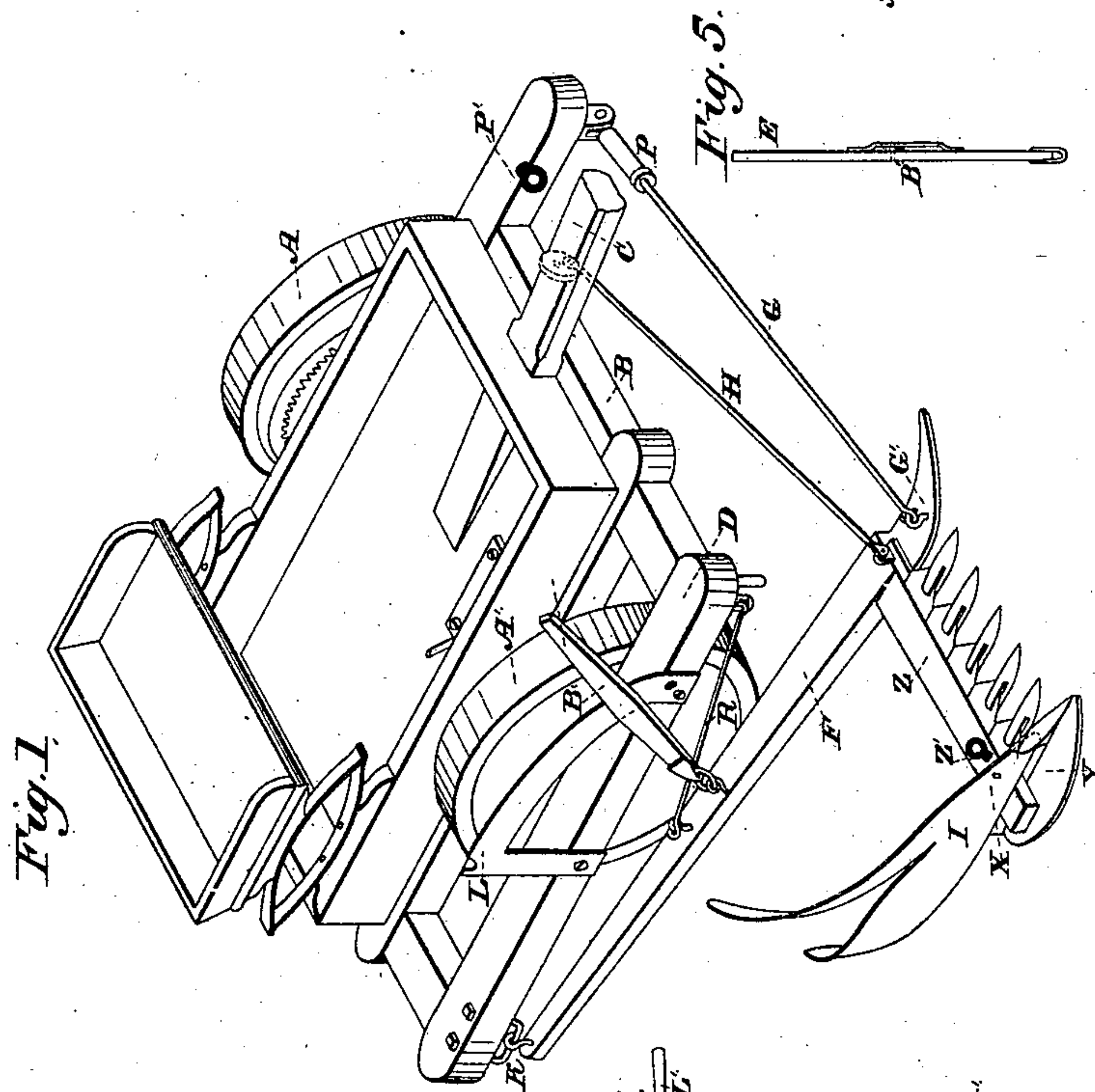
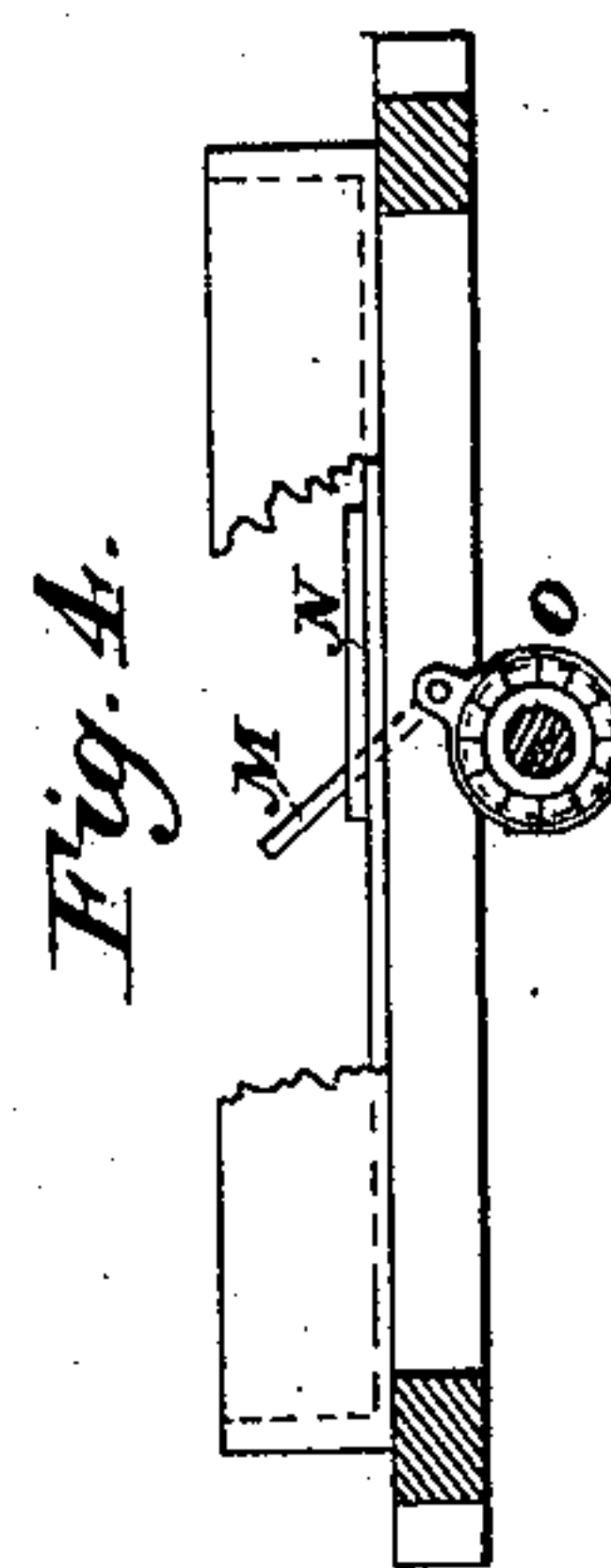
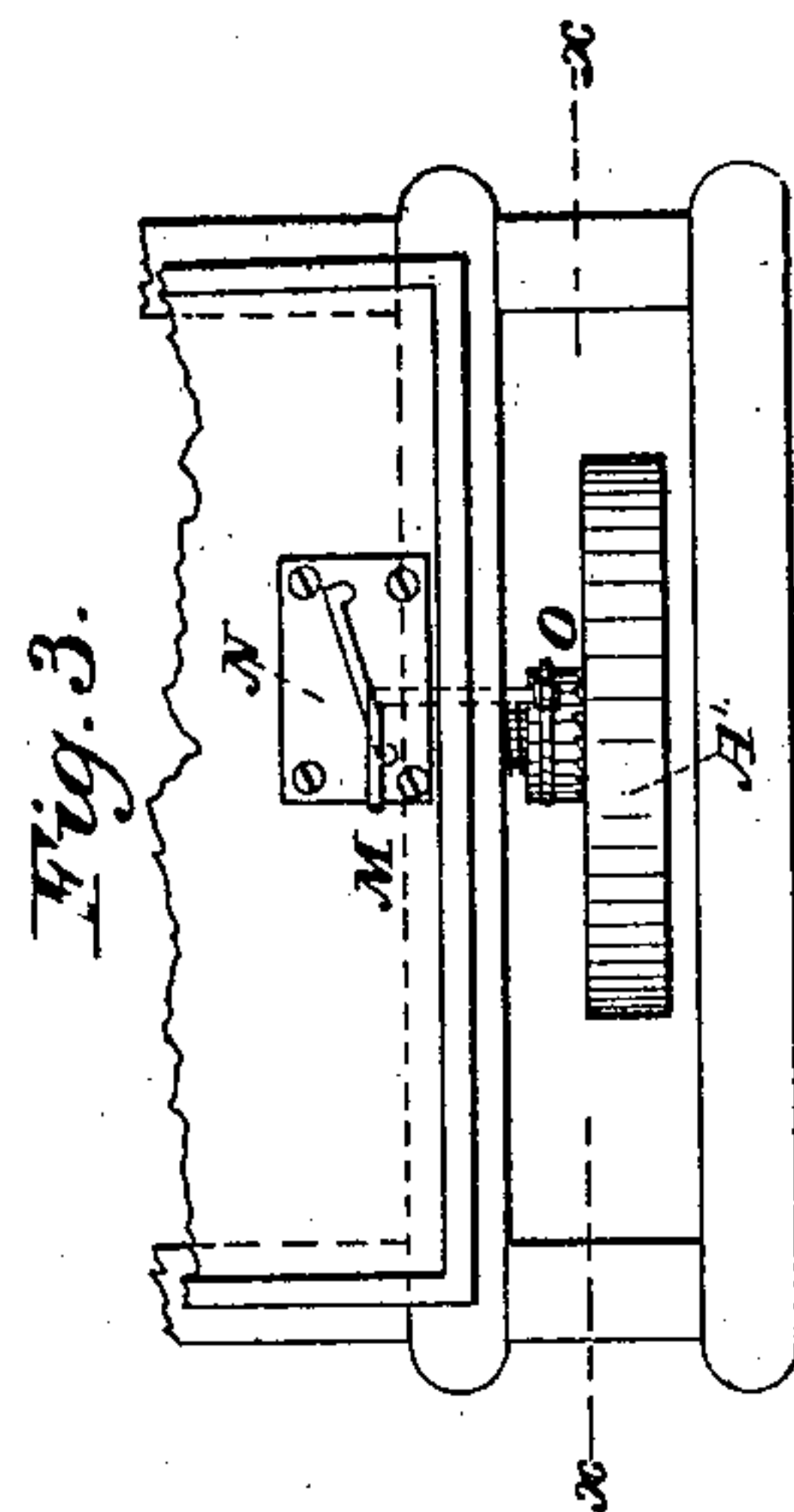
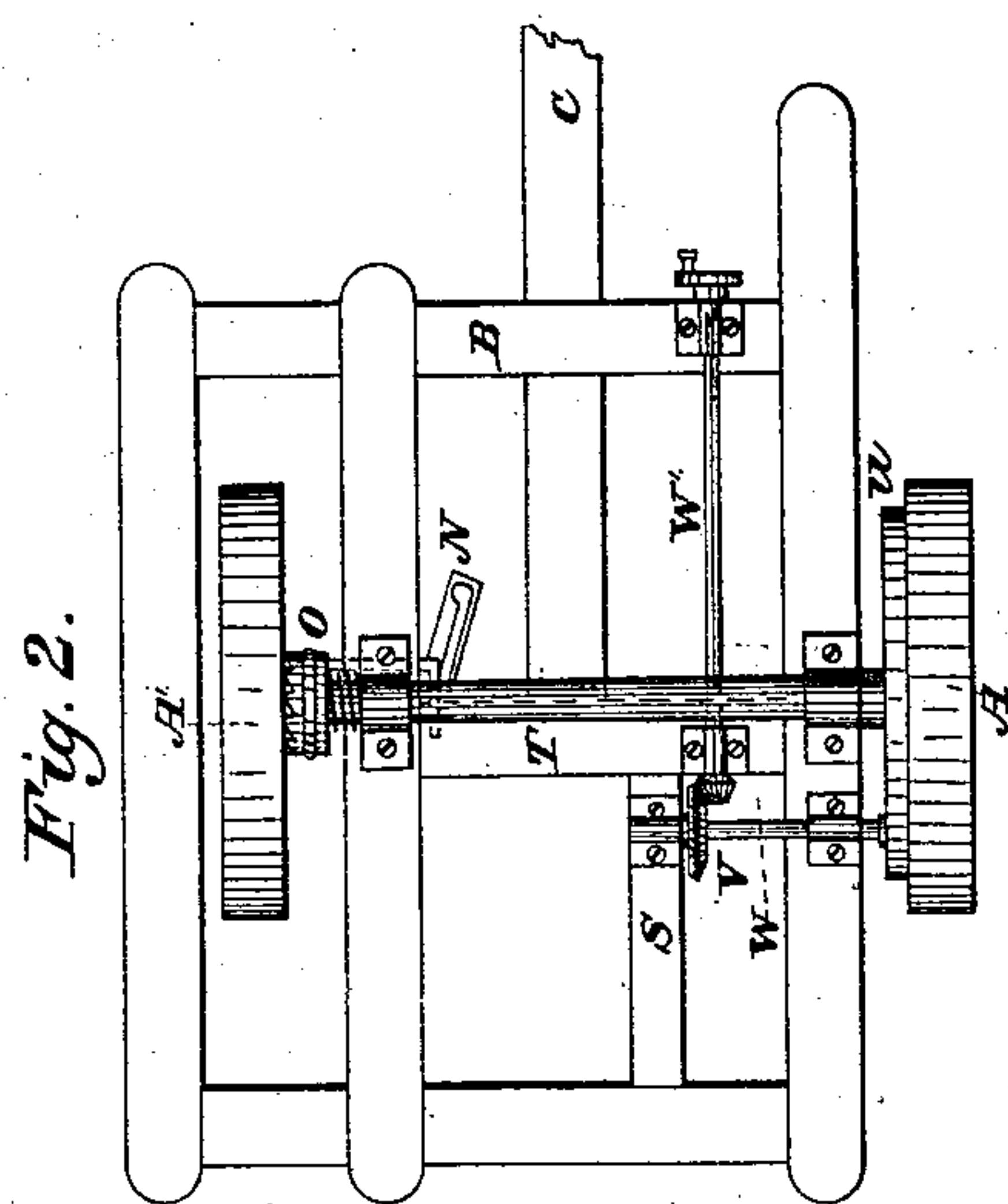


M. G. HUBBARD.

HARVESTER.

No. 44,192.

Patented Sept. 13, 1864.



Witnesses:

B. E. Huntley  
J. M. Halliday

Inventor:

M. G. Hubbard



# UNITED STATES PATENT OFFICE.

MOSES G. HUBBARD, OF SYRACUSE, NEW YORK.

## IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 44,192, dated September 13, 1864.

*To all whom it may concern:*

Be it known that I, MOSES G. HUBBARD, of the city of Syracuse, in the State of New York, have invented certain new and useful Improvements in Grain and Grass Harvesters; and I do hereby declare and ascertain the same, reference being had to the accompanying drawings in illustration thereof, in which—

Figure 1 is a front perspective view of my improved machine. Fig. 2 is a bottom view. Fig. 3 is a detached plan view of my improved ratchet-shifter. Fig. 4 is a vertical section in line *xx* of Fig. 3. Fig. 5 is a front view of my improved raising-handle. Fig. 6 is a side view of my improved track-clearer. Fig. 7 is the raising-hook for passing trees, &c.

Like letters refer to like parts in all the drawings.

The improvements which I desire to illustrate and claim in this patent relate principally to the construction and arrangement of a new forward bar-moving machine, and embrace the most important results of many years of experience and labor in constructing and improving such machinery.

I find that as mechanical science advances, and agriculturists who use this class of machinery become more skilled in its use, a higher degree of efficiency, convenience, and comfort is required to meet their demands, and it is with this view that I have undertaken to produce an entirely new machine that shall embrace the principal merits which the wants of agriculturists now demand, and at the same time avoid the principal defects which experience has developed in all previous mowing-machines. In order to accomplish these important results and combine them all in a new machine, it has been necessary to devise not only a new general arrangement of the whole machine, but also to experiment with and perfect each of its numerous and indispensable details.

The first important element which I will describe is the attachment of the cutting apparatus to the frame. This is a point of great importance, as it is necessary that this attachment should possess several peculiarities which are very difficult to combine together. It is the uniform testimony of many agriculturists that the cutting apparatus should be located at the front end of the machine, so that the operator can have his eye constantly upon it, and so

that when it is elevated to pass over an obstacle its weight will not tip up the machine, and for several other important reasons, and at the same time it is important that the action of the draft of the team should be in such a line as to give it an upward tendency whenever it encounters such obstacles as bogs or buff grass, &c. This line of draft was well arranged in my old machine by means of the long spring by which the cutting apparatus was attached to the frame; but it will be observed that any such arrangement for a forward attachment would produce just the reverse effect from the one desired. I have also aimed in my new method of attachment to cause the inner end of the cutting-bar to rise and fall on a line at right angles with the crank-shaft, in order to permit the pitman to work freely in the crank while the cutting bar is at any desired height. The absence of this merit has been a great defect in mowing-machines generally, and caused them to wear out very rapidly. To accomplish these objects I attach the cutting apparatus to the front end of bar *F*, which extends at a right angle back and up to the rear corner of the frame, where it is attached by the sliding joint *K*, and I then attach a strong rod, *R*, to the said bar *F* at a point near its center by a swivel-hinge, and this rod extends forward and up to the front corner of the main frame, where it is also attached by a swivel-hinge. I then extend a rod, *G*, from the opposite side of the frame across and down to the inner shoe, *G*. This rod is hinged at both ends. This completes the attachment of my cutting apparatus, and gives it the peculiarities above described, and by the length of hinge which this arrangement attains great strength and stability are secured.

It is often necessary in operation to raise the cutting apparatus quickly from the ground, and to do this brings great strain suddenly upon the link or chain, which usually connects the raising-lever to the cutting apparatus, causing them to break and otherwise get out of order. In order to avoid this difficulty, and at the same time make the parts light, I have devised the plan of connecting the lower end of a raising-handle directly to the cutting apparatus, or to some convenient attachment thereof, and then causing a certain point above said connection (marked *B'* in Fig. 1) to swing



over in the arc of a circle the center of which is back of said lower connection. One convenient form of this arrangement is shown at E, Fig. 1, and a front view of a raising-handle detached is shown at Fig. 5. In this arrangement I cause the point B', where I locate a small friction-roller, to slide over the top edge of a circular cam, L, of the right curve to carry said roller upward as it is moved back on the edge of said cam L and when the roller arrives at the rear end of said cam L it drops into a notch, and is thereby retained in position, holding the cutting apparatus up above and free from the ground. When the cutting apparatus is on the ground the raising-handle should stand in convenient position for the operator to grasp it readily and draw it toward him, which causes the cutters to rise from the ground. This raising-handle may be conveniently attached to the bar F, when the cam L is employed to cause the point B' to move over in the arc of a circle; but when the machine is arranged only for mowing it is more convenient to attach the lower end of the raising-handle to the extension G, and then, as an equivalent for said cam L, a brace (about sixteen inches long) may be pivoted to the raising-handle at the point marked B', and extend back and down to the front upper corner of the box on the machine, where it is pivoted to an iron plate having a small stop so located that when the raising-handle is drawn back to a proper position to elevate the cutters sufficiently the raising-handle will have passed below the center of motion of the said brace, and will therefore remain in that position without any other support.

It will be observed that in order to permit the inner shoe to rise and fall freely the extension G must be pivoted thereto both laterally and vertically. This lateral freedom of the extension is a new feature in my machine,

and is of great importance to permit the inner shoe to rise and fall without cramping the extension, and I find it equally important that this extension should be swiveled in some manner to permit a slight rolling motion as the inner shoe is raised or depressed, and also that it should be adjustable in its length to facilitate the lateral adjustment of the inner shoe, and accommodate it to the position of the cutters, or to adjust the position of the finger-bar with reference to the other parts of the machine. The last-named two objects I attain by forming the extension in two parts, and screwing the end of part G at its inner end into the head P, and the lateral freedom of the inner end of said extension I attain by any convenient form of lateral hinge at or near the inner shoe, and by swiveling this extension, so as to allow its slight rolling motion, the extension may be located at the extreme end of the machine, in which position it supports the cutting apparatus to the best possible advantage.

Having thus fully described my improvements, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination of the bar F and the sliding joint K at its rear end with the rod R and the rod G, substantially as and for the purposes set forth.

2. The combination of the raising-handle E with the cam L or its equivalent, when constructed and arranged substantially as specified.

3. The extension P of the coupling-rod G, constructed and attached substantially as and for the purposes described.

In witness whereof I have hereunto set my hand.

M. G. HUBBARD.

Witnesses:

WM. WALLACE,  
B. E. HUNTLEY.