(No Model.) 2 Sheets—Sheet 1.

M. KANE.

MOWING MACHINE.

No. 591,924. Patented Oct. 19, 1897.

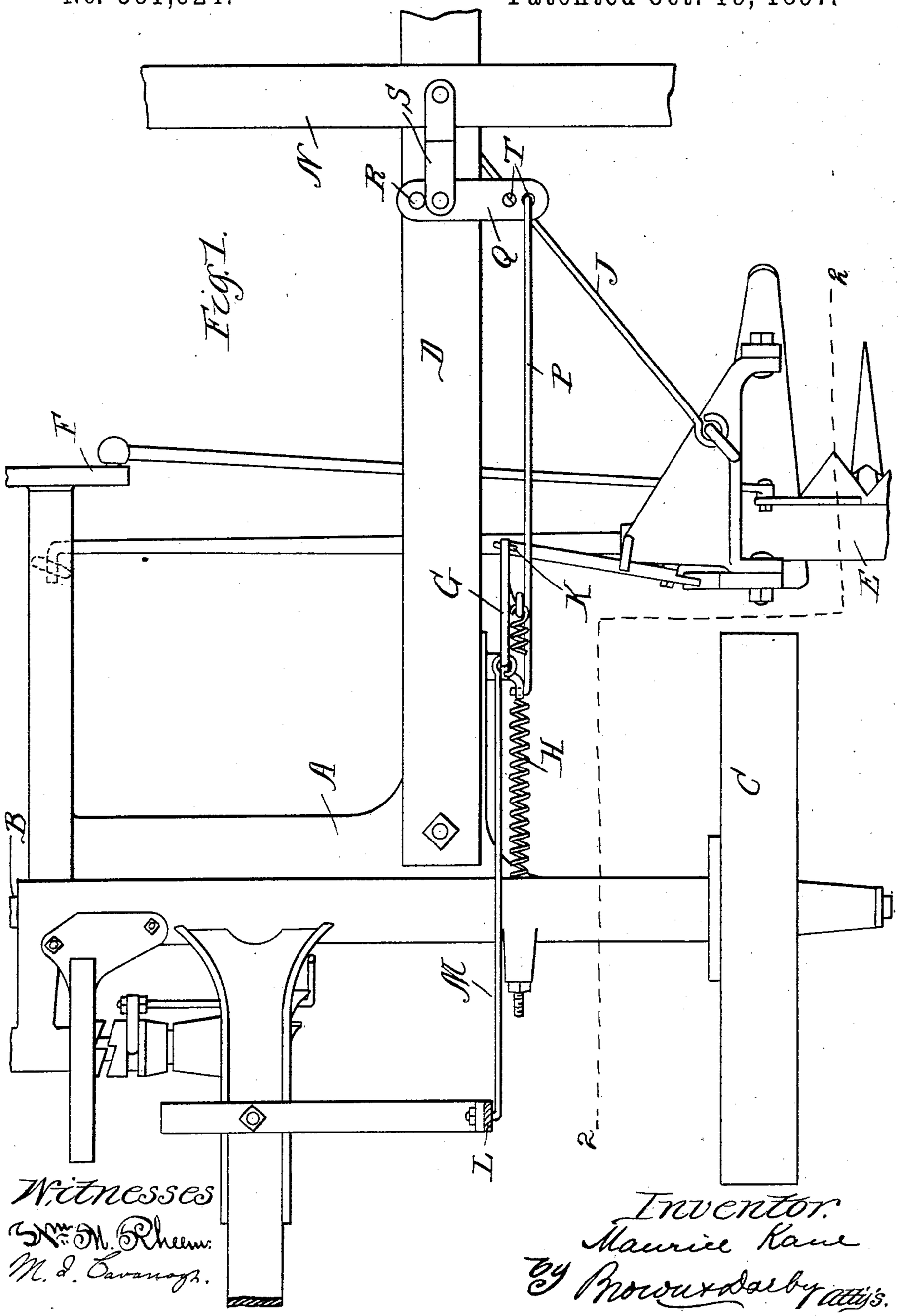

Fig. 1.

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Fig. 3.

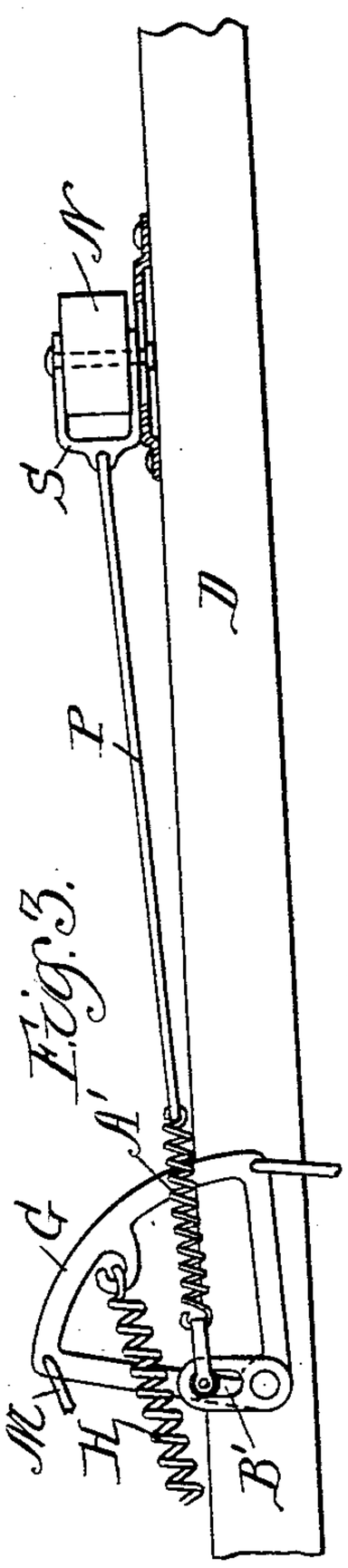
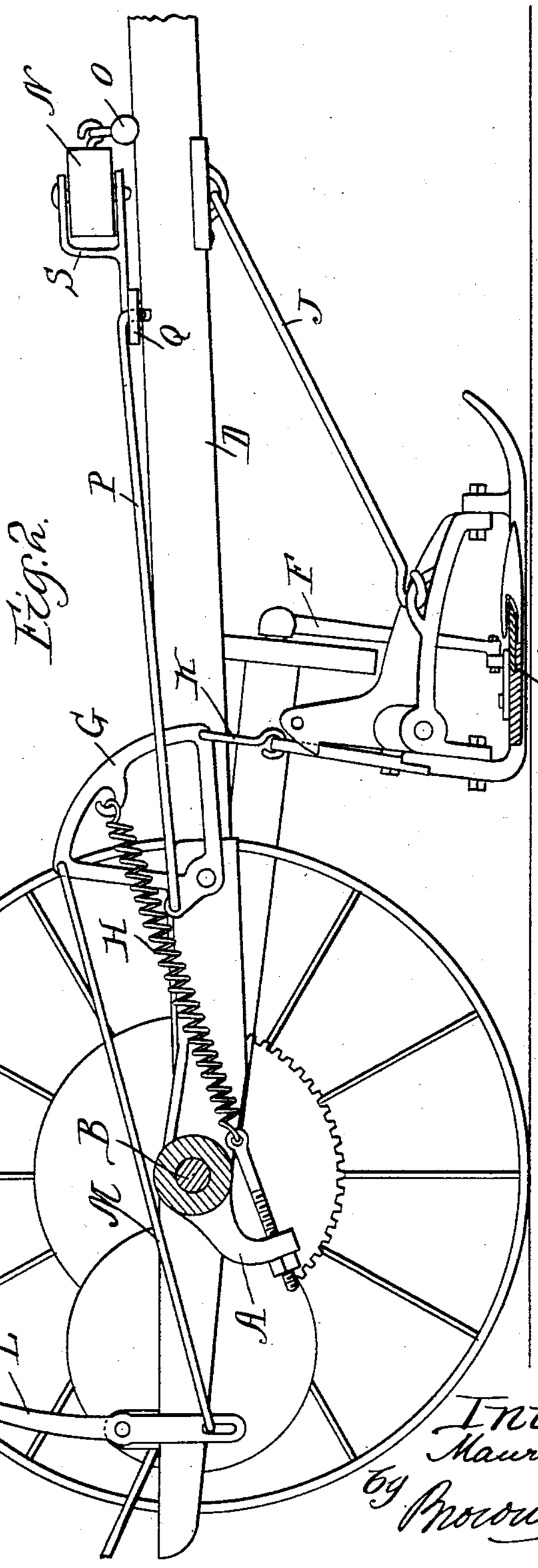


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

MAURICE KANE, OF AUSTIN, ILLINOIS.

MOWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 591,924, dated October 19, 1897.

Application filed December 5, 1896. Serial No. 614,577. (No model.)

To all whom it may concern:

Be it known that I, MAURICE KANE, a citizen of the United States, residing at Austin, in the county of Cook and State of Illinois, have invented new and useful Improvements in Mowing-Machines, of which the following is a specification.

This invention relates to mowing-machines.

The object of the invention is to provide means whereby the draft of the horses is utilized to counteract the tendency of the finger-bar to vibrate vertically under the influence of its counterbalancing-spring when said bar is in its normal working position.

The invention consists substantially in the construction, combination, location, and relative arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally specifically pointed out in the appended claims.

Referring to the accompanying drawings, and to the various views and reference-signs appearing thereon, Figure 1 is a view in plan, parts being broken away and parts omitted, of the frame of a mower with my invention applied thereto. Fig. 2 is a longitudinal sectional view of the construction shown in Fig. 1 taken on line 2 2. Fig. 3 is a detached detail view in side elevation showing a slightly-modified form of arrangement.

The same part is designated by the same reference-sign wherever it occurs.

In the operation of mowing-machines employing a floating counterbalanced finger-bar, any unevenness in the ground or other obstruction encountered by the finger-bar causes the finger-bar to be raised vertically and independently of the usual means employed in hoisting or moving the same vertically, such vertical movement being caused by the tendency of the counterbalance of the finger-bar aided by the obstruction or unevenness encountered by the bar itself.

The tension of the counterbalance being exerted not only to aid in raising the finger-bar, but also preventing a return of the finger-bar to its normal position after the unevenness or obstruction is passed, such vertical movement is objectionable, for the reason that it results in an uneven cutting of the grass. It is the purpose of my invention to avoid this objection in a simple and efficient manner and to that end I utilize the draft of the horses.

I have shown in the accompanying drawings an operative embodiment of means for accomplishing the desired object, but I do not desire to be limited or restricted thereto as many variations and changes in the specific construction and arrangement of parts for carrying the principles of my invention into practice would readily suggest themselves to persons skilled in the art and still fall within the spirit and scope of my invention.

In the particular form shown reference-sign A designates the main frame of a mower; B, the supporting-axle therefor; C, the traction-wheels; D, the tongue; E, the finger-bar mounted on the main frame; F, the cutter-bar-operating means; G, the bell-crank lever for supporting the finger-bar; H, the counterbalance-spring acting through the bell-crank lever upon the finger-bar to balance the same in its normal working position; J, the drag-bar connection from the finger-bar to the tongue; K, the connection from the bell-crank lever G to the finger-bar; L, the foot-lever by which the bell-crank lever is rocked to raise the finger-bar; M, the connection from the foot-lever L to the bell-crank lever G, and N the double or draft tree, to which the singletrees O are attached.

The parts so far described may be of any usual, well-known or convenient type, construction or arrangement and operating in the usual or well-known manner, except in the particulars hereinafter mentioned.

From this construction it will be seen that the tendency of the counterbalance-spring H, acting through bell-crank lever G, is to constantly elevate the finger-bar, and consequently the force of this spring is aided by the movement of the finger-bar when rough or uneven surfaces of the ground or other obstacles are encountered by the bar while in operation, thereby causing said finger-bar to unduly vibrate or move vertically and independently of the foot-lever L and preventing the ready return thereof to its normal working position. In order to counteract this

tendency, I connect one end of a rod P to the bell-crank G at a suitable point to counteract the tension of spring H. The other end of said rod P is connected in one end of an arm Q, pivotally mounted at its other end upon tongue D, as at R, and instead of mounting the draft tree or beam N directly upon the tongue, I mount said beam in a strap S, pivotally connected to arm Q at a point intermediate the pivot R and the point of connection of rod P to said arm Q. In order to secure a range of adjustment, I may attach the end of rod P at different points of arm Q, as clearly indicated in Fig. 1, by the holes or perforations T.

From the foregoing description it will be seen that the draft of the horses is applied to the machine through the pivoted arm Q and since said arm is connected to the bell-crank lever G through rod P and at a suitable point with reference to the point of attachment to said lever of the spring H, such that a portion of the draft of the horses is applied to the bell-crank lever in a direction to counteract the tension of spring H, thereby partially relieving the finger-bar of the influence of said spring in effecting an undue vertical and independent vibration or movement of said finger-bar and permitting gravity, aided by the draft of the horses, to readily return the finger-bar to its normal or working position after the obstruction which causes the finger-bar to be raised has been passed.

In some cases it may be desirable to introduce a yielding connection between arm Q and bell-crank G. I have shown an embodiment of such idea in Fig. 3, wherein, instead of connecting the rod P directly to bell-crank G, I connect said rod to one end of a spring A′, the other end of said spring being connected to the bell-crank lever. This connection of spring A′ with bell-crank G may be effected by means of a pin or bolt arranged to project into an elongated slot B′, formed in said bell-crank. By this construction it will be readily seen that the draft is yieldingly applied in opposition to the force of spring H. It will also be seen that a loose connection is made between rod P and the bell-crank, thereby enabling a certain amount of play to be secured.

Having now set forth the object and nature of my invention and a form of apparatus embodying the same as illustrative of operative means, and having described the construction, function, and mode of operation thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent of the United States, is—

1. In a mowing-machine, a finger-bar, a counterbalance therefor, means for counteracting the force of the counterbalance with the draft of the horses; as and for the purpose set forth.

2. In a mowing-machine, a main frame, a finger-bar, a bell-crank lever mounted on said main frame, connections between said finger-bar and lever, a spring acting through said bell-crank lever to counterbalance said finger-bar, and means for counteracting the force of the counterbalance in the spring with the draft of the horses, including a draft-beam and connections between said beam and lever; as and for the purpose set forth.

3. In a mowing-machine, a main frame, a finger-bar, a bell-crank lever connected to said bar, a spring acting through said lever to counterbalance said bar, and means for counteracting the force of the counterbalance in the spring with the draft of the horses, including a draft-beam and a rod connecting said beam and lever; as and for the purpose set forth.

4. In a mowing-machine, a main frame, a finger-bar, a counterbalancing-spring therefor, a draft-beam and means connected to said draft-beam for opposing the force of said spring; as and for the purpose set forth.

5. In a mowing-machine, a main frame and tongue, a finger-bar, a bell-crank, connections between said crank and bar, a spring connected to said crank for counterbalancing said bar, and means for counteracting the force of the counterbalance in the spring with the draft of the horses, including an arm pivotally mounted on said tongue, connections between said arm and crank, a draft-beam and means for connecting said draft-beam to said arm; as and for the purpose set forth.

6. In a mowing-machine, a main frame and tongue, a finger-bar, a bell-crank lever, connections between said bar and lever, a spring connected to said lever for counterbalancing said bar, and means for counteracting the force of the counterbalance in the spring with the draft of the horses, including an arm pivotally mounted at one end upon said tongue, connections between the other end of said arm and said lever, a draft-beam and means for connecting said beam to said arm; as and for the purpose set forth.

7. In a mowing-machine, a main frame and tongue, a finger-bar, bell-crank lever, and counterbalancing-spring, an arm pivotally mounted at one end on said tongue, a rod connected at one end to the free end of said arm and having connections at the other end to said lever, a draft-beam and means for connecting said draft-beam to said arm, whereby the force of said counterbalancing-spring is counteracted by the draft of the horses; as and for the purpose set forth.

8. In a mowing-machine, a main frame, a finger-bar, a bell-crank lever, and a counterbalancing-spring in combination with means for counteracting the force of the counterbalance in the spring with the draft of the horses, including a draft-beam, and yielding connections between said beam and lever; as and for the purpose set forth.

9. In a mowing-machine, a main frame, a finger-bar, a bell-crank and a counterbalan-

cing-spring, in combination with means for counteracting the force of the counterbalance in the spring with the draft of the horses, including a draft-beam, a rod connected thereto, and a spring connection between said rod and bell-crank lever; as and for the purpose set forth.

In witness whereof I have hereunto set my hand this 2d day of December, 1896.

MAURICE KANE.

Witnesses:
S. E. DARBY,
M. I. CAVANAGH.