(No Model.) 2 Sheets—Sheet 1.

T. S. BROWN.

MOWING MACHINE.

No. 488,495. Patented Dec. 20, 1892.

Fig. 1.

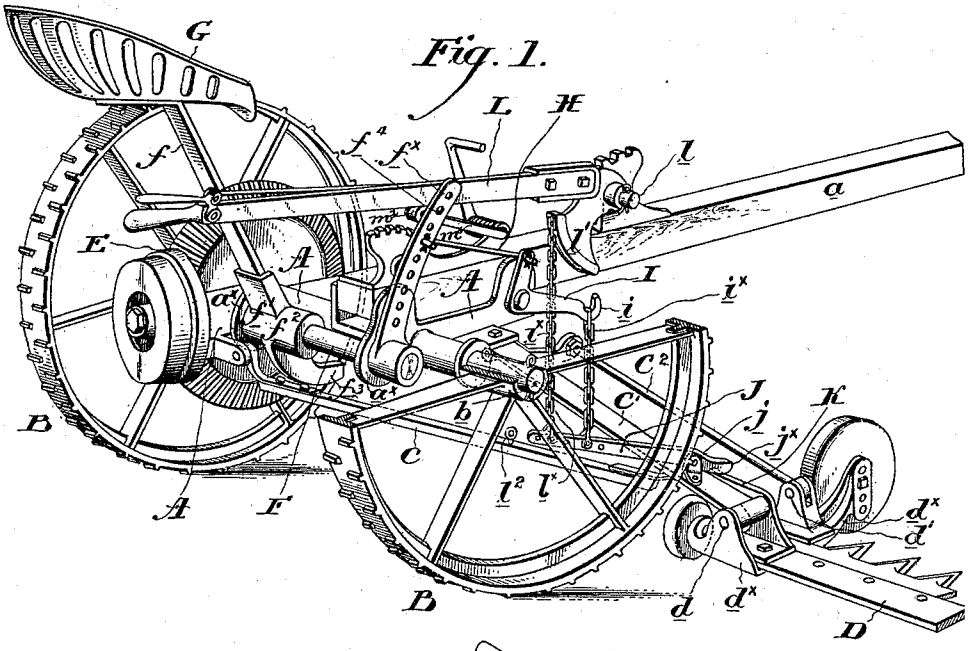


Fig. 2.

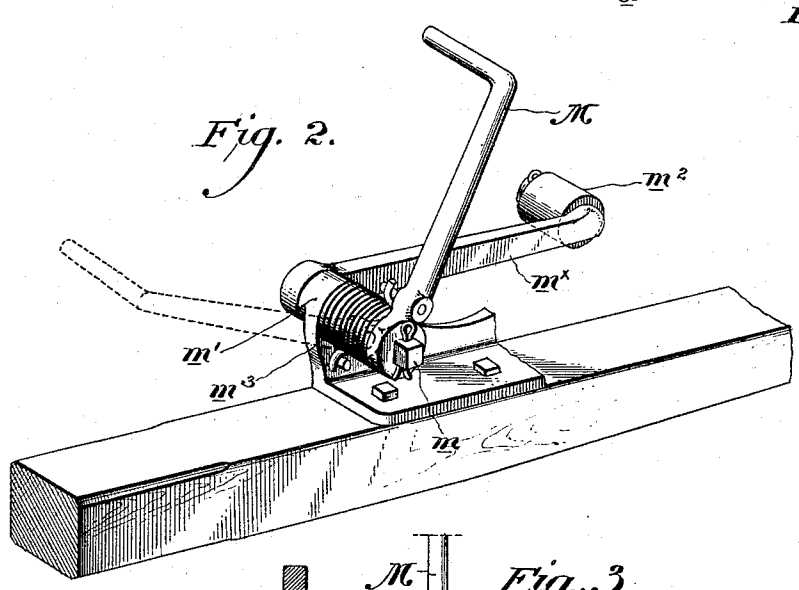
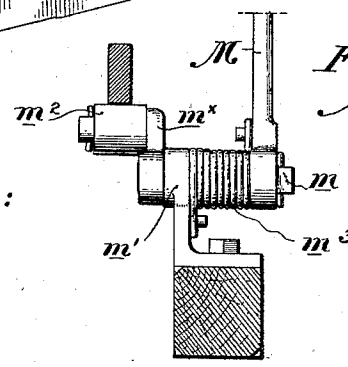


Fig. 3.



WITNESSES:

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

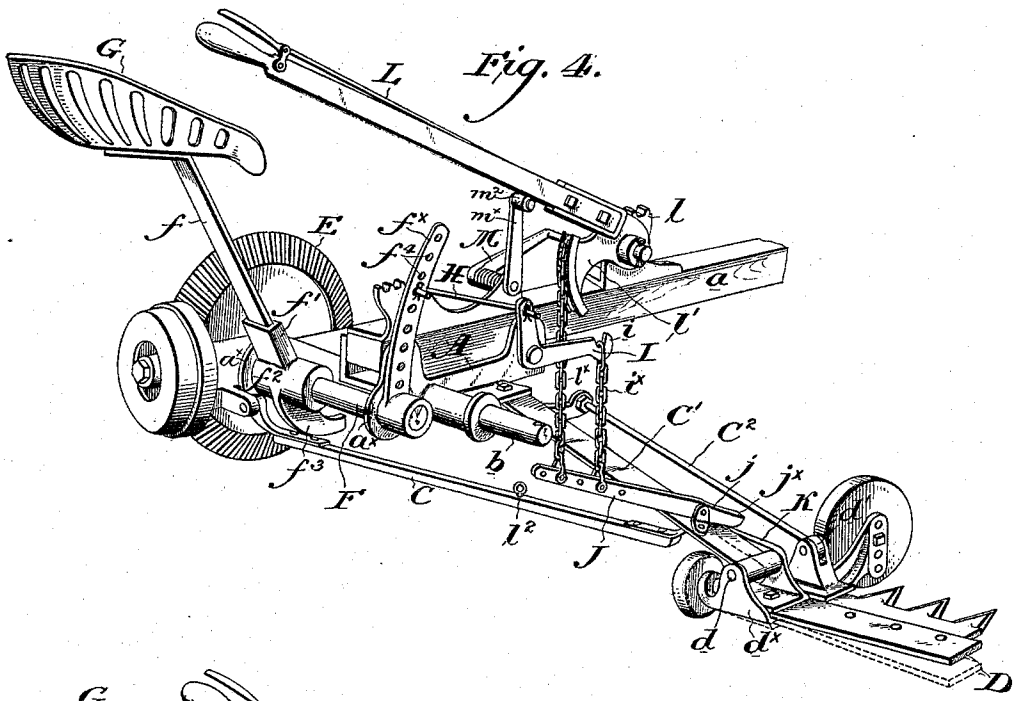


Fig. 5.

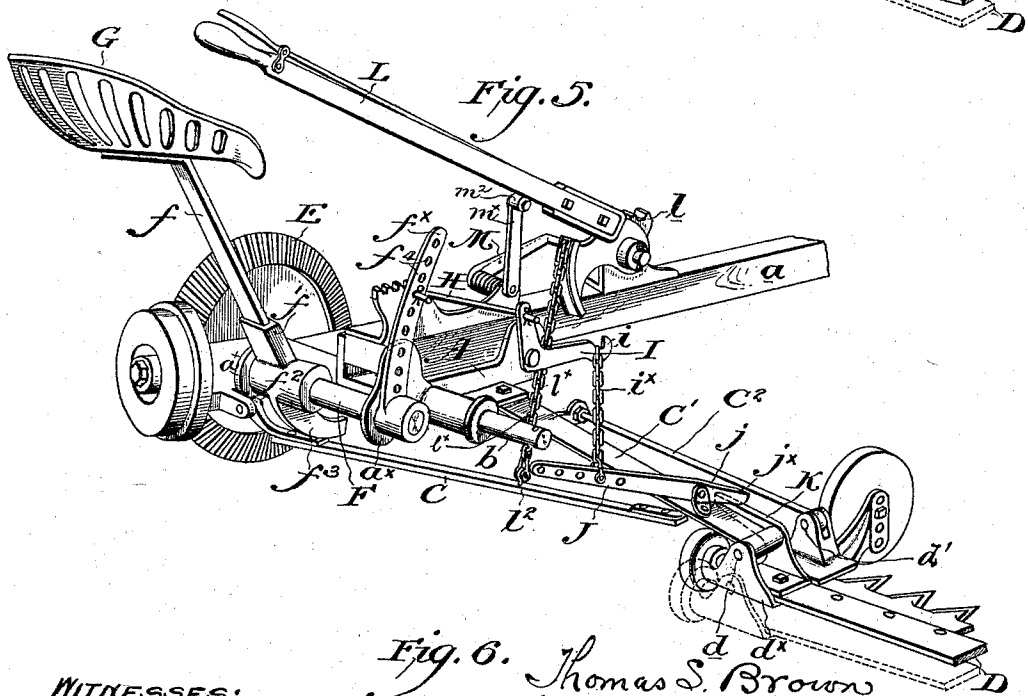
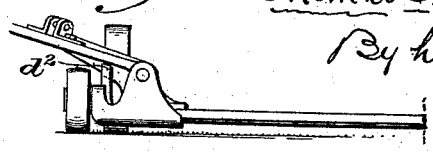


Fig. 6.



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UNITED STATES PATENT OFFICE.

THOMAS S. BROWN, OF POUGHKEEPSIE, NEW YORK, ASSIGNOR TO THE ADRIANCE, PLATT & COMPANY, OF SAME PLACE.

MOWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 488,495, dated December 20, 1892.

Application filed December 24, 1891. Serial No. 416,076. (No model.)

To all whom it may concern:

Be it known that I, THOMAS S. BROWN, a citizen of the United States, residing in Poughkeepsie, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Mowing-Machines, of which the following is a specification.

My invention relates to the class of mowing machines which are known as two-wheeled side-cut mowers, and has for its object the control and adjustment of the finger bar.

My invention comprehends devices hereinafter at length described, whereby the weight of the driver as superimposed upon the seat is utilized to balance the weight of the finger bar and coupling frame, to the end that in the operation of the machine said finger bar may slide easily over the ground and may be readily lifted therefrom for passage over obstructions.

In the drawings, Figure 1 represents in perspective a machine embodying my improvements in the position which the parts normally occupy, the road wheel nearest the eye being broken away to exhibit construction. Fig. 2 is a fragmentary perspective view of a foot lever and counter arm, and Fig. 3 an end elevational view of the same, the tongue and lifting hand lever being supposed in section. Figs. 4 and 5 are perspective views of the machine as represented in Fig. 1, the road wheels being omitted, and the parts in Fig. 4 being represented in the position which they occupy when the outer end of the bar is elevated, and in Fig. 5 in the position which they occupy when the inner end of the bar is elevated. Fig. 6 is a fragmentary perspective view of the parts adjacent to the joint between the coupling frame and finger bar, representing especially the gag-lever and gag lug.

Similar letters of reference indicate corresponding parts.

In the drawings, A is the main frame, and *a* the tongue; B B are the road wheels, and *b* the road-wheel or main axle; C C′ C^2 are three members connective of the main frame and the finger bar, and together constituting the coupling frame; D is the finger bar and $d^\times$ the inner shoe of said bar. All of the foregoing elements are constructed combined and arranged in any usual manner, and further detailed description of them is unnecessary.

E is a well known form of driving gearing mounted upon the main frame and operative to occasion the actuation of the usual cutting mechanism, portions of which mechanism are for clearness of illustration omitted.

Housed in suitable boxings $a^\times$ on the main frame is a shaft F, which I term a seat rock shaft, with which the seat G is connected through the application of its supporting standard or spring bar *f* to the hub socket *f′* of the hub f^2 keyed upon said shaft and conveniently provided with a heel f^3 projecting beneath the main frame and serving to limit the backward tilt of the seat.

The seat rock shaft is conveniently parallel with the main axle, and it is provided with an arm or segmental rocker $f^\times$ keyed thereto, springing upwardly and forwardly and provided or "graduated" with a series of holes f^4 within any one of which is adapted to be engaged the inner end of a link H the outer end of which is attached to the upper arm of a bell crank lever I pivoted to the main frame or tongue, and the lower or horizontal arm of which conveniently terminates at its outer extremity in a hook *i* to which a chain $i^\times$ or other link device is at its upper extremity attached.

J is a lever which I term a gag lever, the same being a lever of the first order fulcrumed at *j* upon the central member C′ of the coupling frame. The lower end of the chain $i^\times$ is attached to the rear or longer arm of this gag lever, while its shorter or forward arm, which I term the toe $j^\times$ projects beyond said member C′ and is adapted to encounter the inwardly projecting end of an angular lug, which I term the gag lug K, which springs from and is formed as a part of the finger bar or its inner shoe.

The leverage exerted by drivers of different weights is regulated by the point of application of the link H to the rocker $f^\times$.

L is a lifting hand lever, fulcrumed at *l* to the tonge or frame at a point considerably in advance of the main axle, and normally occupying the position represented in Fig. 1. This lever is provided with the usual thumb lever bolt and ratchet sector in order to fix it

in position when elevated, and in the region of its fulcrum it is provided with a chain sector l' with respect to which is applied a lifting chain $l^{\times}$ the lower extremity of which is attached to the inner arm of the gag lever. Inasmuch as the toe of the gag lever, as explained, rests upon the gag lug, it is obvious that traction exerted upon said chain $l^{\times}$ by the throw of the lifting hand lever will occasion the tilting of the finger bar upon its pivotal connection with the coupling frame, and the raising first of the outer end of and subsequently of the entire finger bar. The direction of the throw of the lifting lever to exert traction upon the chain $l^{\times}$ being the opposite of that of the seat to exert traction upon its chain $i^{\times}$, it is obvious that when the driver lifts or throws the lifting lever he necessarily in so doing presses downward or backward in the seat and tilts or deflects it in an opposite direction, thereby in effect operating to elevate the finger bar, simultaneously upon both lifting chains $i^{\times}$ and $l^{\times}$.

When it is desired to lift the inner end of the finger bar first, the chain $l^{\times}$ of the lifting hand lever may be detached from the gag lever and connected directly with the coupling frame at any suitable point, preferably at the eye l^2 upon the member C, as shown in Fig. 5. In order to limit the lift of the inner end of the finger bar when said end is lifted before the outer end, I provide any suitable lug or stop device d^2 Fig. 6, upon the inner end of the finger bar or shoe to encounter the under part of the coupling frame in the neighborhood of the finger bar joint $d\ d'$.

In order to facilitate the lifting of the hand lever from its normal position as in Fig. 1, by making it possible for the driver to control it with his foot, and also to enable him to employ his foot to occasion to some extent the elevation of the finger bar in the manner described as resulting from the application of traction to the chain $l^{\times}$, I provide upon the tongue a foot lever M, hubbed upon a lever axle m conveniently mounted in a boxing m' upon the tongue, and provided with a counter arm $m^{\times}$ the outer extremity of which is conveniently equipped with a friction roller m^2 which bears beneath the hand lever. Obviously, pressure upon the foot lever will occasion the elevation of the counter arm and the consequent elevation of the gag lever and finger bar. A spring m^3 coiled upon the axle m and at its extremities connected respectively with the foot lever and the boxing, serves to prevent the foot lever from dropping too low, and tends to keep the slack out of the chain $l^{\times}$.

The extent of the throw of the hand lever resulting from the operation of the foot lever will of course depend upon the relative proportions of the respective parts; I prefer to so arrange the foot lever that its utmost movement or throw falls just short of carrying the hand lever into locking engagement with its ratchet sector, so that when the finger bar is elevated by the operation of the foot lever alone, it may be lowered by simply removing the foot from such foot lever, thereby avoiding the necessity of using the hands at all in the accomplishment of the slight elevations of the finger bar constantly required in practice, said hand lever being only locked when manually forced upward beyond the point to which it is carried by the foot lever and to the point at which its bolt engages with the ratchet sector.

From a contemplation of the arrangement of the foot lever and hand lever it will be understood that in the operation of the foot lever the two act together as a compound or double lever, and hence the power necessary to be exercised by the foot in operating the lever is quite small.

In practice I find it convenient to provide, as shown in Fig. 2, two foot levers M radiating from their common axle in different directions, so that when the lower one drops too far to be conveniently accessible to the foot, the upper one will be in proper position.

Such being a description of my invention, it is of course to be understood that the normal adjustment of the train of levers and links which starts with the driver's seat and ends with the finger bar proper, is such that the weight of the driver does not normally occasion such deflection of the seat as will effect the lifting of the finger bar, and that such lifting is only effected through the seat when the driver intentionally and positively forces it backward so far beyond its ordinary position as to occasion such lifting. This action upon the part of the driver may be independently performed or be performed in conjunction with his operation of the hand or foot lever.

Having thus described my invention, I claim and desire to secure by Letters Patent:

1. In a mowing machine, in combination: a main frame, a coupling frame, a finger bar, a seat pivoted upon the main frame, connective mechanism, exclusive and independently operative of the main frame, between the seat and the finger bar, through which the weight of the driver is utilized to balance said finger bar without action upon or movement of the main frame due to the weight of the driver, substantially as set forth.

2. In a mowing machine, in combination: a main frame, a coupling frame, a finger bar, a seat pivoted upon the main frame, the gag lug, the gag lever, and connective mechanism between the seat and the gag lever through which the weight of the driver is utilized to balance said finger bar and maintain the latter in a normal position, substantially as set forth.

3. In a mowing machine, in combination, the main frame, the coupling frame, the finger bar, the gag lug projecting from the finger bar, the gag lever pivotally mounted on the coupling frame and bearing on said lug, the lifting device or chain connected with the

gag lever at such point that traction exerted upon it tends to elevate the coupling frame and finger bar alike, a seat free for rocking or tilting movement, and a mechanical connection between said seat and lifting chain, substantially as set forth.

4. In a mowing machine, in combination: a main frame, a coupling frame, a finger bar, a seat pivotally supported on the main frame, a gag lug on the finger bar, a gag lever on the coupling frame, and mechanical devices comprising means for adjustment, connecting said seat to the gag lever, substantially as set forth.

5. In a mowing machine, in combination: a main frame, a coupling frame, a finger bar, a seat pivotally supported on the main frame, a gag lug on the finger bar, a gag lever on the coupling frame, and a mechanical device connecting said seat to the gag lever, a lifting hand lever, and a chain connecting said lever to the gag lever, substantially as set forth.

6. In a mowing machine, in combination: a main frame, a coupling frame, a finger bar, a seat and seat standard, a rock shaft to which said seat standard is affixed, an arm, a link, a bell crank lever, a chain, a gag lever, and a gag lug upon the finger bar, substantially as set forth.

7. In a mowing machine, in combination: a main frame, a coupling frame, a finger bar, a seat and seat standard, a rock shaft to which said seat standard is affixed, an arm, a link, a bell crank lever, a chain, a gag lever, a gag lug upon the finger bar, a lifting hand lever and a chain connecting said hand lever with the gag lever, substantially as set forth.

8. In a mowing machine, in combination:—a main frame, a coupling frame, a finger bar, a gag lever pivoted on the coupling frame, a gag lug on the inner end of the finger bar, a seat pivoted with respect to the main frame and a train of levers and links intermediate between and connective of the pivot of the seat and the gag lever, substantially as set forth.

9. In a mowing machine, in combination:—a main frame, a coupling frame, a finger bar, a gag lever pivoted on the coupling frame, a gag lug on the inner end of the finger bar, a seat pivoted with respect to the main frame, a train of levers and links intermediate between and connective of the pivot of the seat and the gag lever, and a lifting hand lever pivoted upon the main frame and provided with a lifting chain adapted to be connected with either the coupling frame or the gag lever, substantially as set forth.

10. In a mowing machine, in combination: a main frame, a coupling frame, a finger bar, a gag lever pivotally mounted on the coupling frame, a seat mounted on the main frame and free for rocking or tilting movement, a mechanical connection between said seat and gag lever whereby the weight of the driver counterbalances the weight of the finger bar,—a lifting hand lever pivoted upon the main frame, a mechanical connection between said hand lever and said gag lever whereby the finger bar may be lifted, substantially as set forth.

11. In a mowing machine, in combination: a main frame, a coupling frame, a finger bar, and a seat pivoted upon the main frame, connective mechanism between the seat and finger bar through which the weight of the driver is utilized to balance said finger bar and maintain the latter in a normal position, a hand lever, a chain connecting said lever to said coupling frame or its connections, the hand lever and seat moving respectively in opposite directions to occasion the elevation of the finger bar, substantially as set forth.

In testimony that I claim the foregoing as my invention I have hereunto signed my name this 9th day of October, 1891.

THOS. S. BROWN.

In presence of—

FRED E. ACKERMAN,

GIFFORD WILKINSON.