(No Model.)

3 Sheets—Sheet 1.

O. CHASE.

MOWING MACHINE.

No. 412,598. Patented Oct. 8, 1889.

Fig. 1.

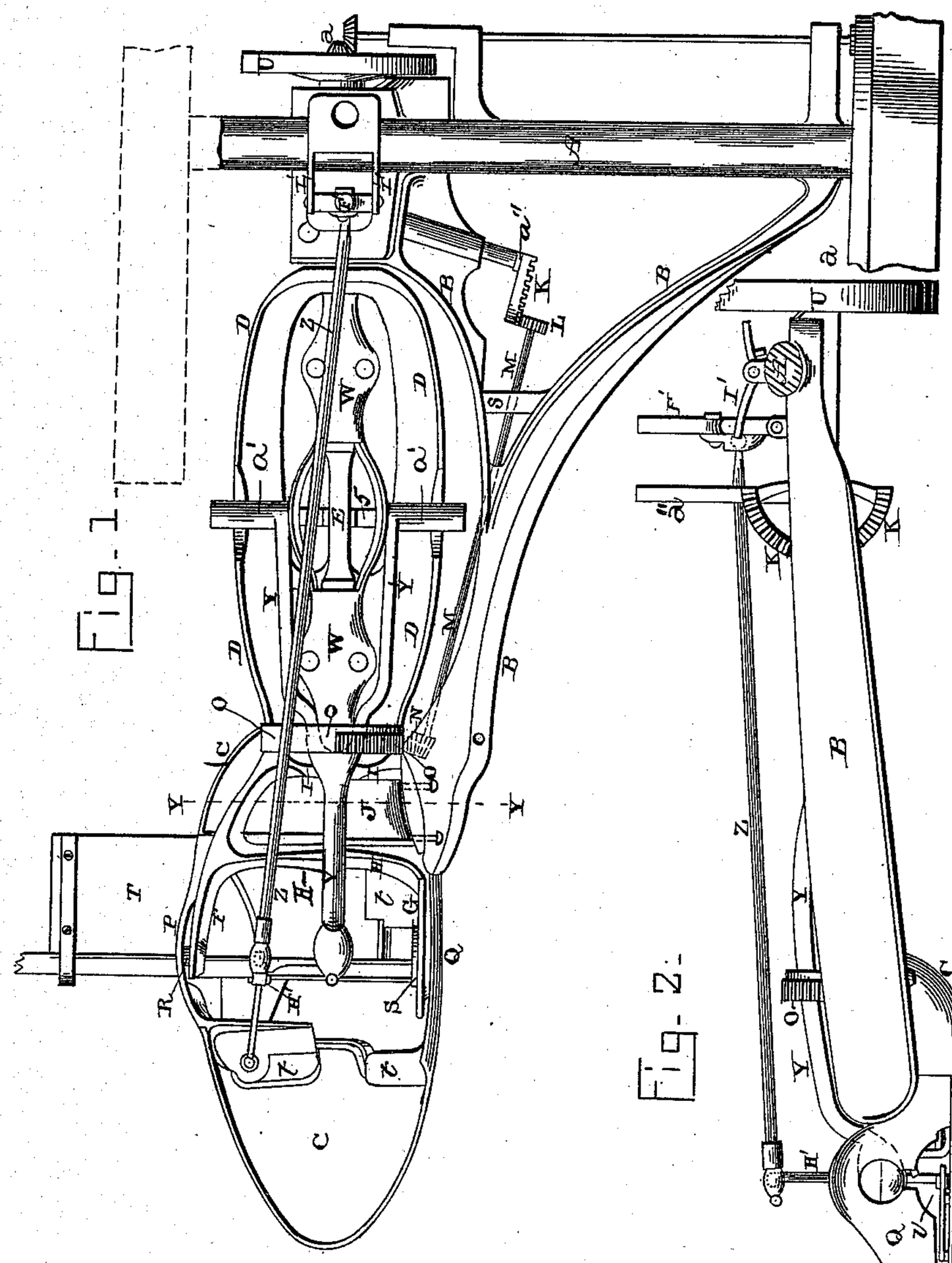

Fig. 2.

Witnesses:

E. P. Ellis,

Allen S. Pattison

Inventor:

Oscar Chase,

per

F. A. Lehmann,

Atty

(No Model.)

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O. CHASE.

MOWING MACHINE.

No. 412,598. Patented Oct. 8, 1889.

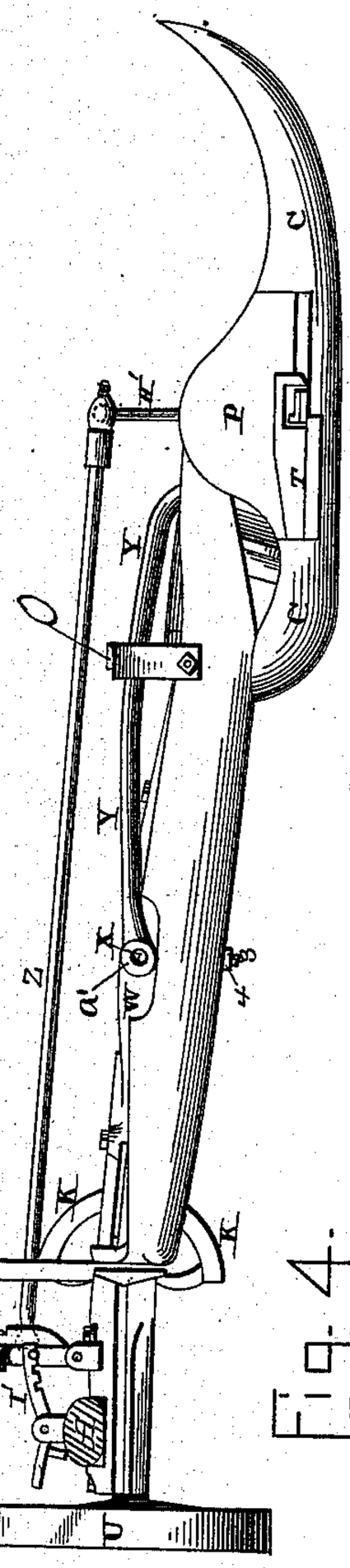


Fig. 3.

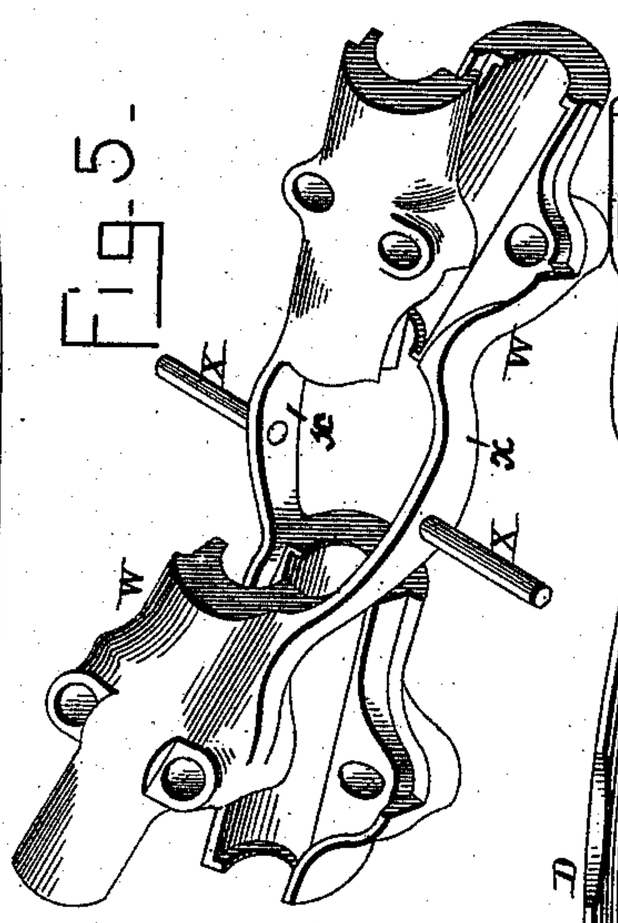


Fig. 5.

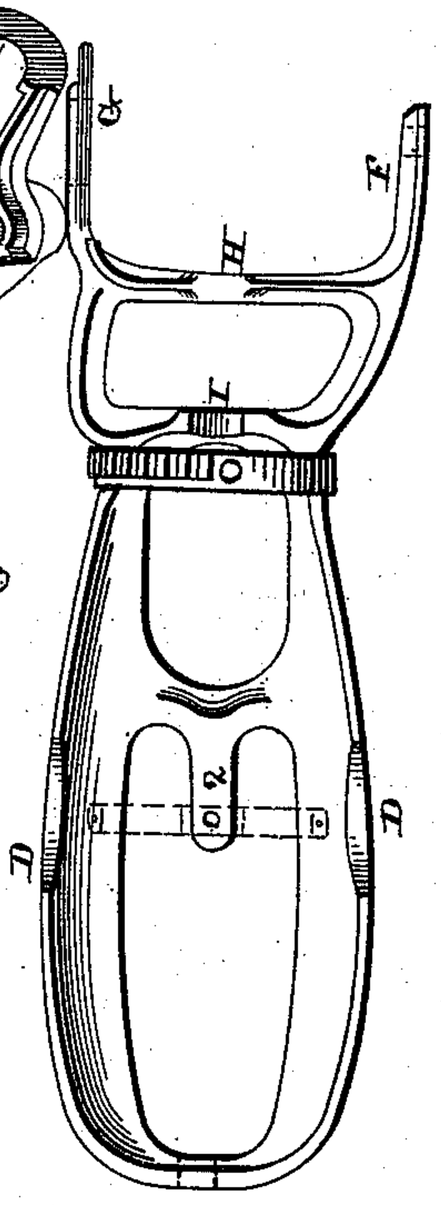


Fig. 7.

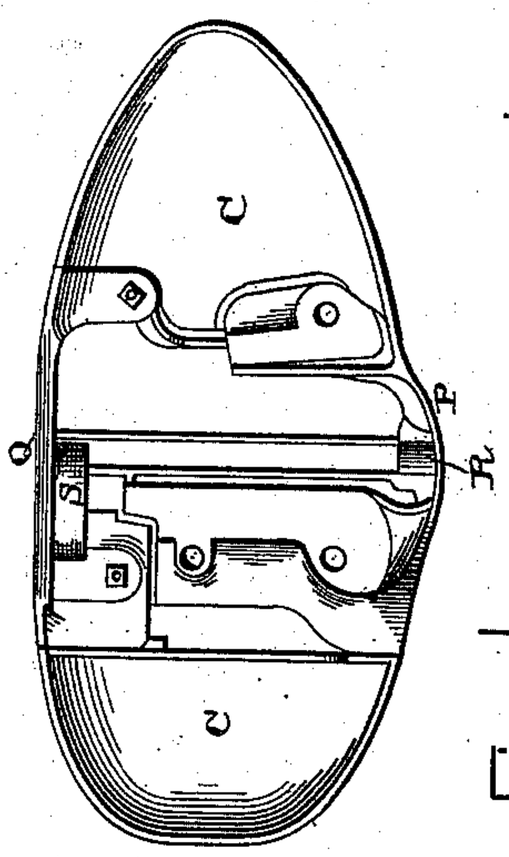


Fig. 4.

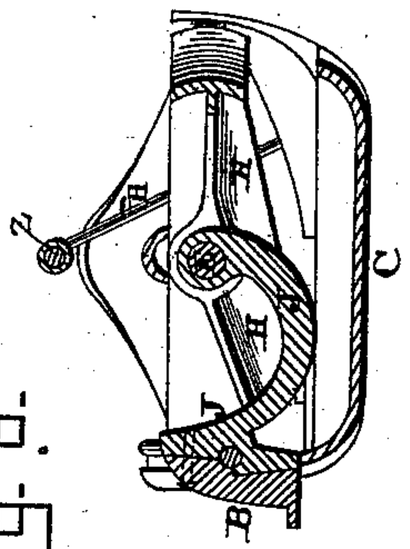


Fig. 6.

Witnesses:
E. P. Ellis,
Allen S. Pattison

Inventor.
Oscar Chase,
per F. A. Lehmann
Atty.

(No Model.)

3 Sheets—Sheet 3.

O. CHASE.

MOWING MACHINE.

No. 412,598. Patented Oct. 8, 1889.

Fig. 12.

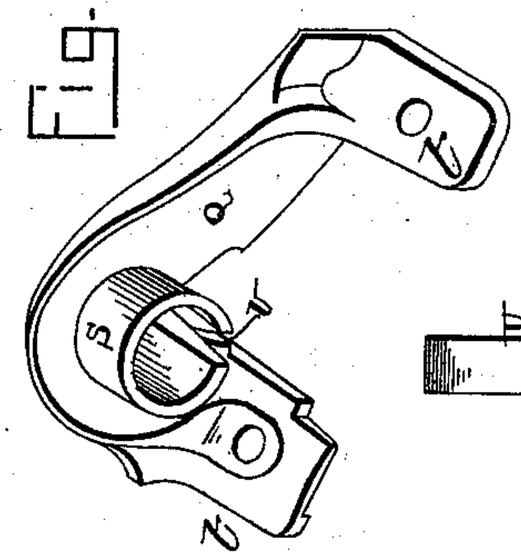


Fig. 9.

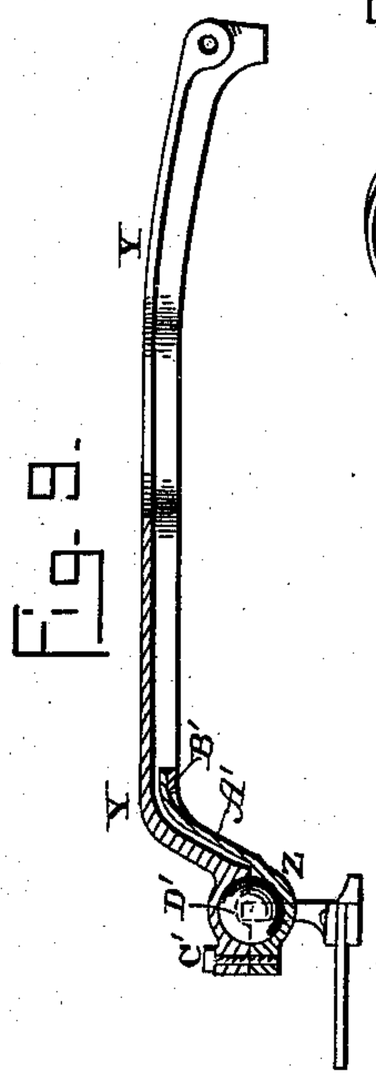


Fig. 10.

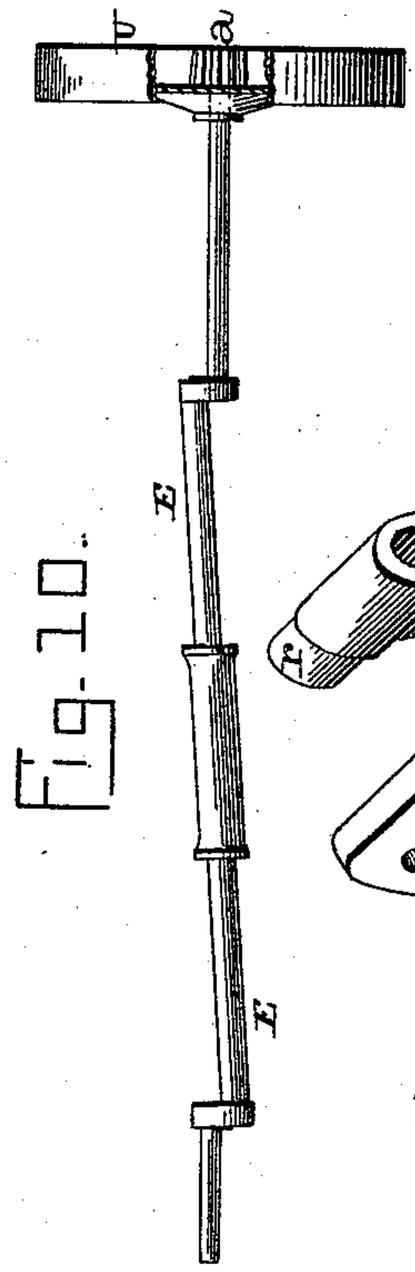


Fig. 13.

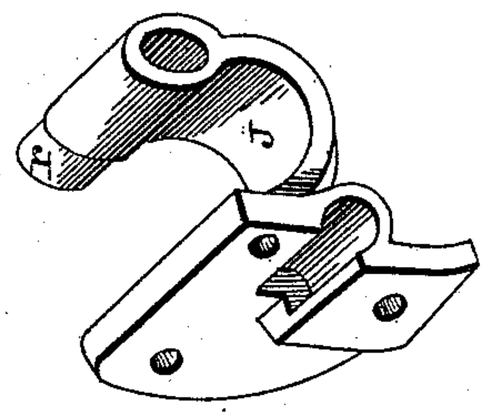


Fig. 8.

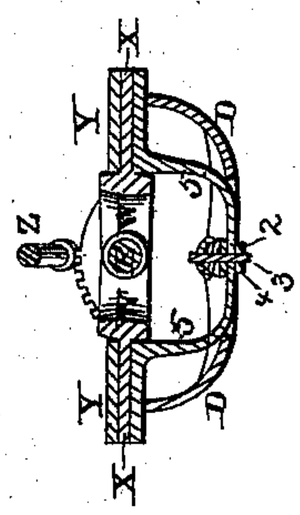
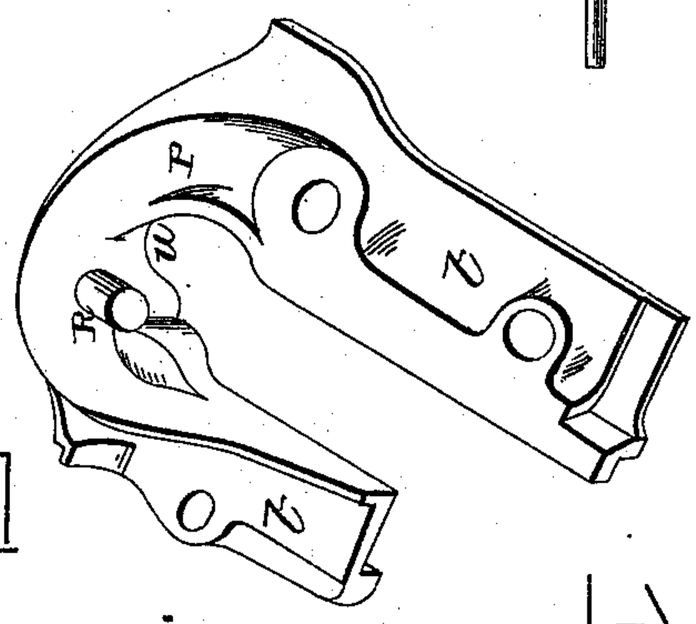


Fig. 11.



Witnesses:
E. P. Ellis
Allen S. Pattison

Inventor:
Oscar Chase,
per F. A. Lehmann
Atty.

UNITED STATES PATENT OFFICE.

OSCAR CHASE, OF RUTLAND, OHIO, ASSIGNOR OF ONE-HALF TO N. D. HOLT, OF SAME PLACE.

MOWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 412,598, dated October 8, 1889.

Application filed December 17, 1888. Serial No. 293,855. (No model.)

To all whom it may concern:

Be it known that I, OSCAR CHASE, of Rutland, in the county of Meigs and State of Ohio, have invented certain new and useful Improvements in Mowing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in mowing-machines; and it consists in the arrangement and combination of parts which will be more fully described hereinafter.

The objects of my invention are to provide a mowing-machine in which the cutter is given its movement by a shaft which is provided with two cranks, which as the shaft revolves causes the operating-lever to give to the cutter a reciprocating movement; to communicate the power to the cutter in a more direct manner than can be done with a machine which is run by a pitman; to form the box for the shaft of two parts, which are made to open and close like a pair of shears, and to pivot these parts to the operating-lever which moves the cutter, and to produce a mowing-machine which is strong, durable, and reliable.

Figure 1 is a plan view of a mower-frame which embodies my invention. Figs. 2 and 3 are elevations of the same, taken from the stubble and grain sides, respectively. Fig. 4 is a detached view in plan of the shoe and the bearings connected thereto. Fig. 5 is a detached view of the box in which the cutter-driving shaft revolves. Fig. 6 is a vertical section on the dotted lines Y Y of Fig. 1, showing the curved bearing for the front end of the shaft. Fig. 7 is a detached view of the frame in which the shaft operates. Fig. 8 is a vertical cross-section taken through the pivots of the box in which the cutter-driving shaft revolves. Fig. 9 is a vertical section taken through the ball-and-socket joint of the cutter. Fig. 10 is a detached view of the operating-shaft of the cutter. Figs. 11 and 12 are perspectives, respectively, of the castings P Q, which are attached to opposite sides of the shoe. Fig. 13 is a detached view of the curved connection J.

A represents a stationary axle, which has the frame B secured thereto. The frame B is made of the shape shown in Fig. 1 and projects forward from the axle a suitable distance beyond the rear end of the shoe. The front end of the frame B is secured to and supported wholly by the support J, which has its inner end journaled upon the shaft E and brace H, while the rear end of the frame is secured to the axle A. This frame B projects forward and forms a support for the operating parts connected with the shoe C and the cutter. The rear end of this frame projects back beyond the axle A at its outer corner, and in this rearward projection is formed the bearing for the rear end of the shaft which operates the cutter. Journaled at one end of this frame B, and in a direct line with the operating-shaft E, is the frame D. This frame projects forward at its front end beyond the front end of the frame B, and is there provided with the two arms F G upon its opposite corners. The rear portion of the frame is nearly semicircular, as shown in Figs. 7 and 8, and is supported at its rear end upon the shaft E and at its front end by the shoe, to which it is pivotally connected by the arms F G. These two arms are connected horizontally near their rear ends and across the front end of the frame D by brace H, which forms, also, a bearing for the front end of the shaft E. At a suitable distance in the rear of the brace H there is formed a second brace I, which also extends horizontally across and forms a bearing for the curved connection J, through which the front end of the shaft E passes, and which connection is secured at its outer end to the frame B, as shown. The connection J is provided with a bearing *r* upon its front end, as shown in Fig. 13, and this bearing passes through the front brace H, so as to form the pivot upon which the frame D turns at its front end when the cutter-bar is raised into a vertical position. The outer end of the connection J being secured rigidly to the front end of the frame B, the connection has no movement whatever of its own; but the frame D and shoe C can be turned

through about a quarter of a circle. This connection J is curved, as shown, so as not to interfere with the movement of the lever Y when the cutter-bar is raised into a vertical position in the usual manner. An opening is made through the frame D between the two braces H I, and down through which opening the curved connection J passes, thus allowing the frame D to move freely, and at the same time serving as a journal-bearing upon which the front end of the frame D turns and to connect the front ends of the frames B D together. For the purpose of raising and lowering the cutter through this frame D there is journaled upon the rear portion of the frame B, just in advance of the axle A, the operating-segment K, provided with an operating-lever a^2, and which meshes with the pinion L upon the shaft M, which is provided at its front end with a pinion N, and which pinion meshes with a curved rack O, secured to and which projects over the top of the frame D near its front end and above the top of the operating-shaft E. The rear end of the shaft M is journaled in the cross-piece *s* on the frame B, while its front end is journaled in the outer end of the support J. When the segment K is turned in one direction, the shaft M is caused to revolve, and the pinion N upon its front end, meshing with the curved rack O, causes the shoe to be rocked and the finger-bar and cutter to be raised with the frame D, to which the rack O is secured. When the segment K is turned in the opposite direction, the cutter descends.

The shoe C is of ordinary construction, with the exception that the two castings P Q are made entirely separate therefrom and are bolted in position thereon. The two castings P Q (shown in Figs. 11 and 12) are placed in openings in opposite edges of the shoe, and each one of them is provided with feet *t*, which rest upon the bottom of the shoe, and through which clamping-bolts are passed. These castings are made removable from the shoe, so as to allow the shoe to be loosely attached to the frame D. The casting P is provided with a journal R, which passes through an aperture in the arm F upon the frame D, and the casting Q is provided with the collar S, forming a journal, which passes through an aperture in the arm G of the frame D. This arm is provided with a much larger aperture than the arm F, and a slot is cut through the lower portion of the arm G and through the journal S, which is larger than the journal R. The journal S and its bearing in the arm G are made larger than the journal R and its bearing in the arm F, and while the journal S is made tubular the one R is made solid. The journal S is made tubular and has a slot *v* made through its under side at the same time that a portion of the lower edge of the casting Q is cut away, so as to allow the head of the cutter to be removed endwise by first detaching the cutter from its operating-lever and then pulling it endwise across and through the shoe. The lower edge of the casting P is cut away at *u*, so as to allow the cutter to be passed through under it and be reciprocated freely.

The cutter-operating shaft E has secured to its rear end the balance-wheel U, so as to cause an even and continuous movement, and this wheel U has formed around its hub teeth or cogs *a*, so as to form a pinion through which the driving-power of the shaft E is received. The rear end of the shaft E, where it has its bearing in the rear part of the frame B, and the front end, where it bears in the curved connection J, extend in a straight line at a right angle to the face of the wheel U, while that portion in between these two straight portions is formed on a line obliquely to and crossing at its center, the line of the straight portions forming two cranks, as shown in Fig. 10. Mounted on this shaft in between the two ends of the frame D is the box W, which is formed of two parts, which can be opened and closed like a pair of scissors, and which are provided with pivots X at or near their centers, which enter suitable sockets *a'* in the rear ends of the operating-lever Y. Each of the parts of the box W is formed as shown in Fig. 5. The end portions of the boxes, where the cranks of the shaft E revolve in them, are made solid, and these solid portions are provided with bolt-holes, through which bolts are passed for the purpose of clamping the two parts upon the shaft. The central portion of each part W is cut away, as shown, and the two solid end portions of each part of the box are connected together by a single strip or arm *x*, and from these strips or arms extend the pivots X. When the box is opened, as shown in Fig. 5, for the insertion of the shaft, the two parts of the box extend diagonally in relation to each other. The box W is made in two parts, as shown, so that it can be opened and allow the shaft E to be inserted and removed through the rear end of the frame D. As the shaft E revolves, the two cranks cause the ends of the box W to vibrate horizontally in opposite directions, and this vibration or oscillation of the ends of the box in opposite directions causes the operating-lever Y to have an oscillating motion at its front end for the purpose of operating the cutter. The cranks being turned in opposite directions, one end of the box W is moved to the right, while the other end is moved to the left, and this movement is transmitted from the box through the pivots X to the lever Y, which has but a very slight movement at its rear end, but which has sufficient movement at its front end to give the cutter the desired motion. This lever Y extends under the curved rack O and beyond the front brace H of the frame D. In the front end of the lever is formed a hemispherical socket to receive the ball on the inner end of the cutter. A hemispherical plate Z, provided with an arm A' upon its inner side, and which is bent to correspond to the shape of

the front end of the lever Y, forms the outer half of the socket. The arm A′ catches under a cross-bar B′, formed upon the under side of the lever Y, so as to be held in position at this point, and a single bolt C′, passed down through the outer end of the lever Y and the socket-blade Z, secures the two parts tightly in position. Were it not for the cross-bar B′ and the arm A′ a second bolt would be necessary. The ball D′, formed upon the inner end of the cutter-bar, fits snugly in the socket thus formed and receives motion directly from the lever Y. This construction is used so as to communicate the power to the cutter in a more direct manner than can be done with a machine run with a pitman, as the lever here shown always has its end to work on a direct line with the cutter, and consequently there is no clamping, as is the case with the pitman machines. This ball-and-socket joint is placed in a direct line between the journals R S.

Pivoted upon the rear end of the casting B is an operating-lever F′, and connected to this operating-lever by a ball-and-socket joint is a connecting-rod Z, which is connected by a ball-and-socket joint at its front end to the vertical post or arm H′, which is secured at its lower end directly to the shoe. By means of the lever F′, connecting-rod, and the vertical post or arm the shoe can be raised and lowered at its own end at the will of the operator. This operating-lever F′ will be held in any desired position by means of the catch I′, of any suitable construction.

Extending across the bottom of the frame D and projecting rearwardly is a brace 2, and clamped to this brace 2 by means of the bolt 3 and the nut 4 is a support 5, which is secured to the lever Y, so as to help support it at its end.

Having thus described my invention, I claim—

1. In a mower, the combination of the axle, the stationary frame B, secured thereto, the pivoted frame D, and the shoe with the operating-shaft, which extends through the frame D and is provided with two cranks near its center, which extend in a line with each other, the driving-pinion on the rear end of the shaft, the vibrating box applied to the cranked portion of the shaft and provided with pivots, the operating-lever connected at its rear end to the box, and the cutter connected at its inner end to the lever, substantially as shown.

2. In a mower, the combination of the axle, the stationary frame B, secured thereto, the pivoted frame D, and the shoe with the operating-shaft, which extends through the frames and is provided with two cranks which extend in a line with each other, the driving-pinion applied to the rear end of the shaft, the box formed of two parts which have their opposite ends to catch above and below the two cranks, and each part provided with a pivot, the operating-lever having its rear end pronged, so as to make connection with the two parts of the box, and the cutter connected to the front end of the lever, substantially as described.

3. The combination of the shoe, the two separate castings P Q, provided with journals R S, and the frame D, provided at its front end with the two arms F G and journaled upon the two castings, substantially as set forth.

4. The combination of the shoe, the casting Q, provided with the bearing S, having a slot through one side, with the frame D, provided with the extension-arm G, having an opening formed therein to fit upon the journal S, the extension or arm being cut away upon one side, so that the cutter can be removed and replaced endwise, substantially as specified.

5. The combination of the axle, the frame B, secured thereto, the pivoted frame D, and the shoe loosely connected to the front end of the frame D with the driving-shaft provided with two cranks, which extend through the frame D, and upon which the frame turns, the box W, provided with pivots and placed upon the cranked portion of the shaft, the curved connection J, secured at its outer end to the frame B and having the driving-shaft to extend through its inner end, and the forked operating-lever connected to the box at its rear end and the cutter, the frame D being provided at its front end with the braces H I and the arms F G, and the shoe with the castings P Q, having the journals R S, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

OSCAR CHASE.

Witnesses:
CHAS. F. HOLT,
N. N. HOLT.