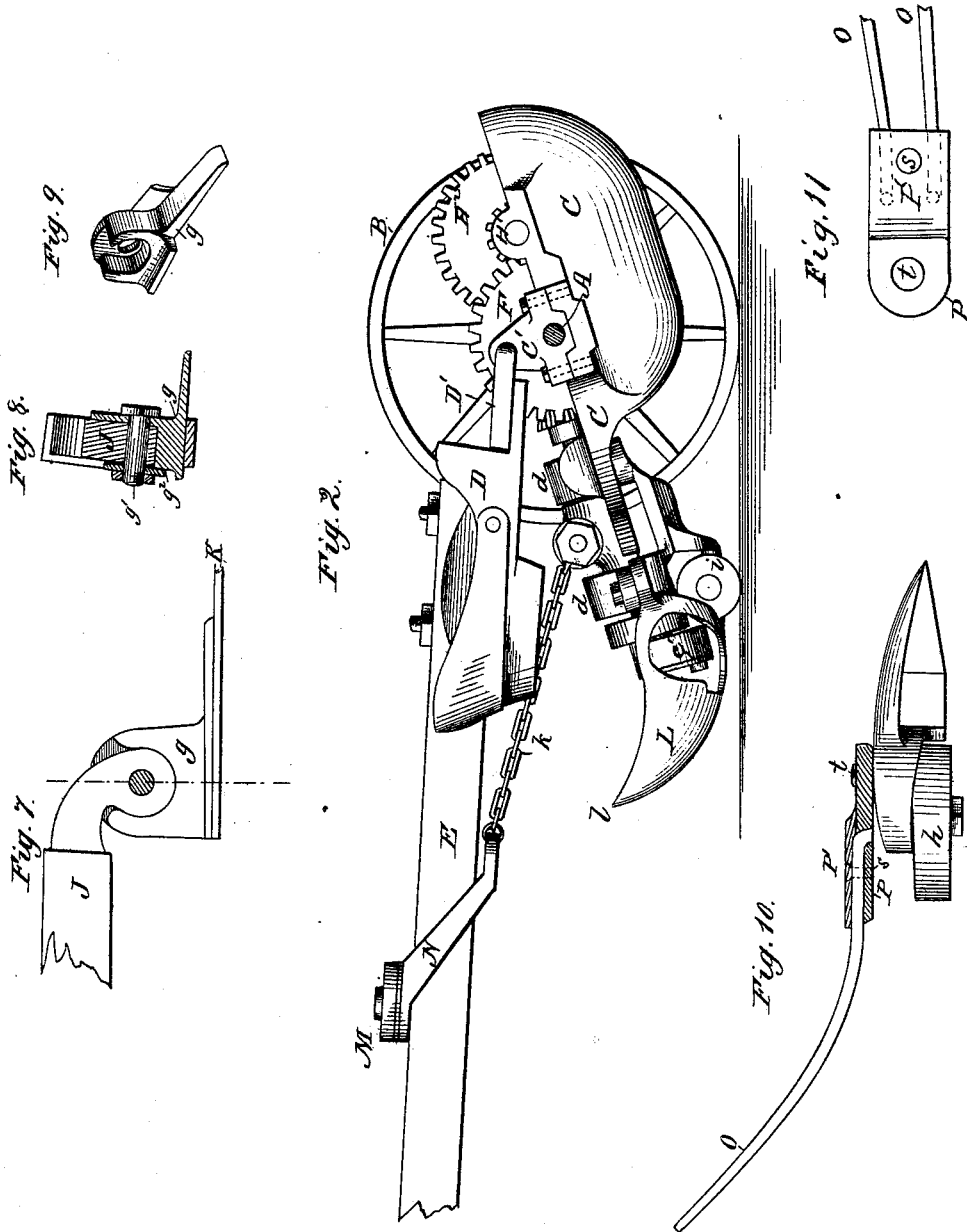


W. F. RUNDELL.  
Mower.

No. 220,870.

Patented Oct. 21, 1879.



WITNESSES:

John F. E. Prinkert  
Edw. W. Byrnes

INVENTOR:

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BY *Wm. O. Le*

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Fig. 1.

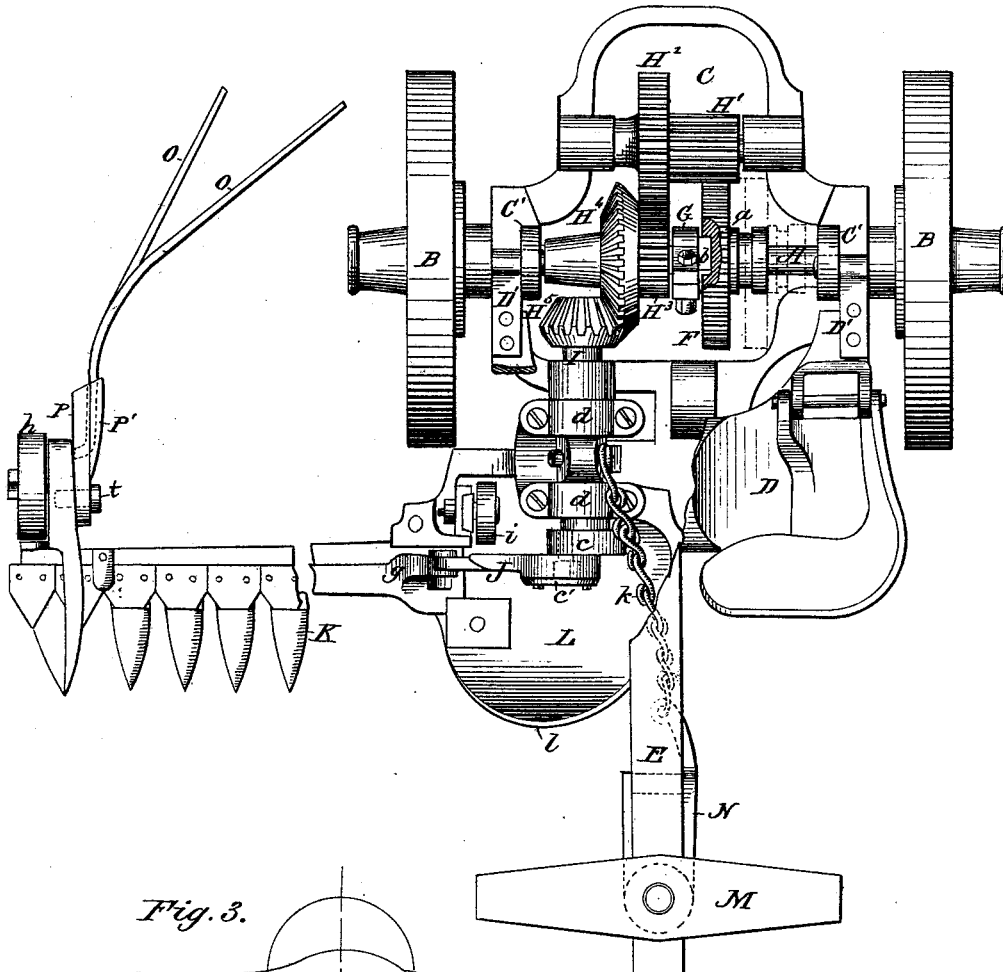


Fig. 3.

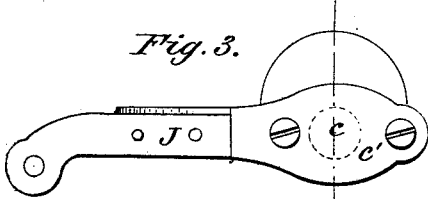
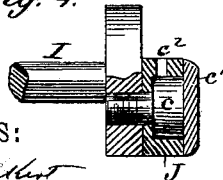


Fig. 4.



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Fig. 5.

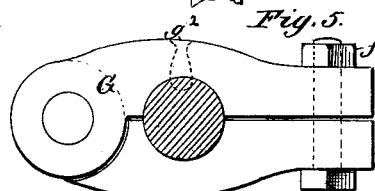
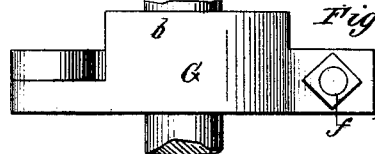


Fig. 6.



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# UNITED STATES PATENT OFFICE.

WILLIAM F. RUNDELL, OF GENOA, NEW YORK.

## IMPROVEMENT IN MOWERS.

Specification forming part of Letters Patent No. **220,870**, dated October 21, 1879; application filed June 23, 1879.

*To all whom it may concern:*

Be it known that I, WILLIAM F. RUNDELL, of Genoa, in the county of Cayuga and State of New York, have invented a new and Improved Mower; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view with the cover and seat removed and portions of the frame broken away. Fig. 2 is a side elevation with the near wheel removed, the view being taken upon the side opposite the cutter-bar. Figs. 3 and 4 are details of the connection between the crank-pin and pitman. Figs. 5 and 6 are details of the clutch. Figs. 7, 8, 9 are detail views of the connection between the pitman and cutter-bar. Fig. 10 is a view illustrating the connection of the bent rods and socket-plates of the track-clearer. Fig. 11 is a detached side view of the same.

My invention relates to certain improvements in mowers; and it consists, first, in the construction and arrangement of a clutch for connecting the main shaft with the driving-gear; secondly, in the peculiar arrangement of the gage-wheel for the inner end of the cutter-bar with respect to the cutter-bar and carrying-frame; thirdly, in the peculiar form of joint connecting the outer end of the pitman to the cutter-bar; and, fourthly, in the peculiar construction and arrangement of the draft attachment, all as hereinafter fully described.

In the drawings, A represents the main shaft, to which the main wheels B B are geared by ratchet and pawls when moving forward, and upon which they revolve loosely in backing. Upon this shaft is hung the hollow concaved metal frame C, containing the driving-gear, and to this frame, just above the main axle, is hinged the metal frame D, carrying the tongue E. For imparting the motion of the main shaft to the cutter-bar I employ a clutch formed of a loose gear-wheel, F, and a rigid clamp, G. The clamp G, I form, as shown in Figs. 5 and 6, of two jointed sections, held together upon the shaft by a screw-bolt, *f*, while a pin, stud, or lug, *g*<sup>2</sup>, fixed in one of the sections of the clamp is made to enter a seat in the shaft, so as to connect the clamp

and shaft rigidly together for rotary motion. This mode of connecting this portion of the coupling to the shaft obviates the necessity of weakening the shaft by drilling a hole through the same, and therefore permits a smaller shaft to be used.

The loose wheel F is formed with lateral recesses *a*, adapted to fit over lugs *b* on the clamp G, and it is shifted laterally on the shaft by the ordinary forked lever or other suitable means, either to gear with the clamp and revolve with it, or be thrown out of contact therewith to stop the motion of the driving-gear. The loose wheel F gears with a pinion, H', which is cast with a gear-wheel, H<sup>2</sup>, or arranged upon the same shaft with it, which wheel H<sup>2</sup> engages with a pinion, H<sup>3</sup>, cast with the bevel-wheel H<sup>4</sup>, and arranged to revolve loosely with it upon the main shaft.

I is a second shaft, arranged at right angles to the main shaft and journaled in bearings in the lower portion of the frame C. This shaft is provided at one end with a bevel-pinion, H<sup>5</sup>, that receives motion from the bevel-wheel H<sup>4</sup>, and at the other end has a disk and crank-pin, *c*, which communicate a reciprocating motion through pitman J to the cutter-bar K. This cutter-bar, together with its finger-bar, are carried by the concaved metal frame L, which is hinged or jointed upon the shaft I at the points *d d*, so as to allow the cutter-bar to rest flexibly upon the ground or be turned up into a vertical position when leaving the field. For holding the cutter-bar in this vertical position hooks or latches (not shown) are employed, of which one hook holds the cutter-bar in its elevated position on bearings *d d*, while the other holds the lower front end of frame C out of contact with the ground.

For connecting the shaft I to the pitman J the crank-pin *c* is made of two diameters, the smaller of which enters the disk to form a rigid connection, and the larger of which diameters gives an increased frictional bearing-surface, and forms a head for connection with the pitman. This pitman is preferably made in two sections, of which the smaller section, which connects with the cutter-bar, is made of steel, while the larger section is made of malleable cast-iron. These parts may, however, be made of any other suitable material.

In the larger end of the pitman a recess is formed, in which is seated the head of the pin *c*, which is screwed into the disk through the pitman from the outside, its head being then covered and inclosed by a plate, *c'*, which is fastened in place by screws. The advantage of this arrangement is, that a complete oil-cup is formed at this point, to which oil is admitted through a hole, *c''*, and this permits the devices to be operated a long time without sensible wear. The inclosure of the pin also excludes dust and dirt, whose presence causes the parts to wear out more rapidly, while the enlarged head serves to hold the pitman in place, and gives an increased bearing-surface to resist the wear.

The construction of this pitman-connection is best shown in Figs. 3 and 4, from which it will be seen that this feature has a broader application than its special use in a mower. While therefore I desire to show this pitman-connection applied to my mower, I reserve the right to claim the same in a separate application filed September 20, 1879.

For connecting the pitman to the cutter-bar I also employ a peculiar joint, as shown in Figs. 7, 8, 9.

A casting or forging, *g*, is attached to the upper side of the cutter-bar, and is formed with a circular recess (see Fig. 9) having an outlet at the top and a perforation extending centrally from the recess through the casting. Into the recess is inserted the perforated and dipping end of the pitman, with the continuation of the pitman fitting in the outlet in the top of the recess in the casting, as in Fig. 7. A bolt, *g'*, is then passed through the perforation in the pitman and casting, and the open side of the recess closed by a washer, *g''*, when the nut is screwed up on said bolt, as in Fig. 8. Now, the end of the pitman being of less thickness than the depth of the recess, it will be seen that the pitman has free play in the recess, as in a socket, and at the same time a completely-inclosed oil-cup is formed at this point, to which oil is admitted through the joint in the outlet in the top of the casting beside the pitman.

For supporting the cutter-bar and its appendages at the right height, a wheel, *h*, is employed at the outer end, and another wheel, *i*, at the inner end, which latter is attached to a vertical sliding bar moving in guides in the shoe *L*. I locate this wheel in an opening in the shoe, and in such relative position to the other parts of the machine that it shall be inside of the running wheel and in the rear of the line of the cutter-bar, while the front part of the shoe is bent up in the form of a broad lip, *l*.

By this construction and arrangement this lip is made to press down the tufts of grass, clods, or other obstructions, and hold them down while the wheel is passing over the same, thus making a smooth path for the same.

The arrangement of the wheel in the rear of the line of the cutter-bar also secures another

important advantage. When the wheel is in front of the cutter-bar it has been found that its action throws up sticks, stones, &c., which sometimes are caught in the knives and damage them. By locating the wheel in the rear, as shown, it will be seen that this difficulty is entirely avoided, its proper function of supporting and gaging the cutter-bar being still performed. By locating this wheel *i* inside of the rear wheel *B*, it will be seen that I am enabled to attach it to a shoe which hinges on the shaft *I* without striking wheel *B* when the cutter-bar is turned up, still preserving, however, its position in the rear of said cutter-bar.

The draft-connection consists of a double-tree, *M*, connected by a swivel-joint to the top of a diagonal yoke, *N*, that encompasses and moves loosely over the tongue. Upon the lower and rear end of this yoke is formed a hook, which connects with a chain, *k*, which latter at its rear end is fastened to the lower or front end of the suspended frame *C*. By this arrangement the draft of the team is made to partially lift the cutter-bar and forward end of the frame *C*, and hold the same in a nicely-balanced condition. In starting the machine the draft of the team also, with this arrangement of the draft-connection, lifts the knives from the low dense portions of the grass near the ground to the higher or lighter stems of the grass, where the initial resistance to the knives in starting is not so great.

I am aware that it is not new to connect the double-tree to the cutting device by a chain and yoke rigidly attached to the double-tree and sliding over the tongue at right angles. This yoke is liable to cramp and prevent a direct draft upon the swinging portion of the mower both by reason of its rigid connection to the double-tree and its right-angular position.

By making my yoke of a diagonal shape, and mounting the double-tree thereupon by a swivel-connection, this difficulty is avoided, and the yoke slides freely to transmit a positive draft without cramping upon or materially wearing the surface of the tongue.

The track-clearer consists (see Figs. 1 and 10) of two bent bars, *O O*, of steel, secured to a frame, *P P'*, which is loosely hinged to the frame at the outer end of the finger-bar by means of a bolt, *t*. In constructing this track-clearer the socket-frame is made in two parts, *P P'*, containing half-round recesses to receive the ends of bars *O*. One of said parts *P*, is perforated at the end of its half-round grooves to receive the ends of the bars *O*, which are bent at right angles, as shown in dotted lines in Fig. 1, and when fitted to the half-round grooves project through the perforation, so that when the two parts *P P'* of the frame are bolted or riveted together the bent rods *O* are very securely held both against pulling out and turning in their sockets.

In arranging the several parts of the main frame, the concave lower portion, *C*, I connect in a pendent position to the main shaft by

means of the separate boxes C', which are bolted or riveted to frame C instead of being formed in one part with the same.

In hinging the metal frame D, carrying the tongue, I also connect upon each side of said frame, by rivets or bolts, separate hinge-sections D', whose right-angular pintle ends enter openings in ears extending upwardly from the removable boxes C'.

When the frame D is all cast in one piece, and is connected directly to frame C, there is no way of remedying the wear at the hinged joints, and when the parts become loose the whole castings forming the frame have to be discarded.

By means of the separate pieces C' and D', which contain all of the wearing joints, only these small parts need to be discarded when worn out, and the main portion of the castings may be used over again.

As shown in the drawings, the cover to the driving-gear and the driver's seat are omitted. This is to give a better view of the other parts of the machine. Any suitable cover and seat may be employed to complete the machine.

Having thus described my invention, what I claim as new is—

1. The combination, with the axle A of a mowing-machine and the loose wheel F, meshing with the driving-gear, of the clutch G, composed of two hinged or jointed sections clamped

about the axle by a bolt, and adapted to be coupled to the loose wheel by lugs and recesses, substantially as described.

2. The combination, with the cutter-bar devices, of a shoe, L, hinged upon the driving-shaft I, and having a gage-wheel, i, located in the rear of the cutter-bar and inside the course of the main wheel, substantially as and for the purpose described.

3. The knife-bar head or casting g, constructed with a recess upon its side having an outlet at the top, in combination with the perforated and dipping end of the pitman J, fitting in said recess, together with the washer g<sup>2</sup>, for closing the side of the recess, and through-bolt g', extending through all and securing both the pitman and the washer, substantially as described.

4. The yoke N, constructed in diagonal form to embrace the tongue, and provided with a double-tree mounted thereupon by a swiveling connection, in combination with the hinged frame carrying the cutter-bar and a flexible connection, k, substantially as described, and for the purpose described.

The above specification of my invention signed by me this 20th day of June, 1879.

WM. F. RUNDELL.

Witnesses:

SOLON C. KEMON,  
CHAS. A. PETTIT.