2 Sheets—Sheet 1.

R. DIRKS.

MOWER.

No. 190,962. Patented May 22, 1877.

Fig. 1

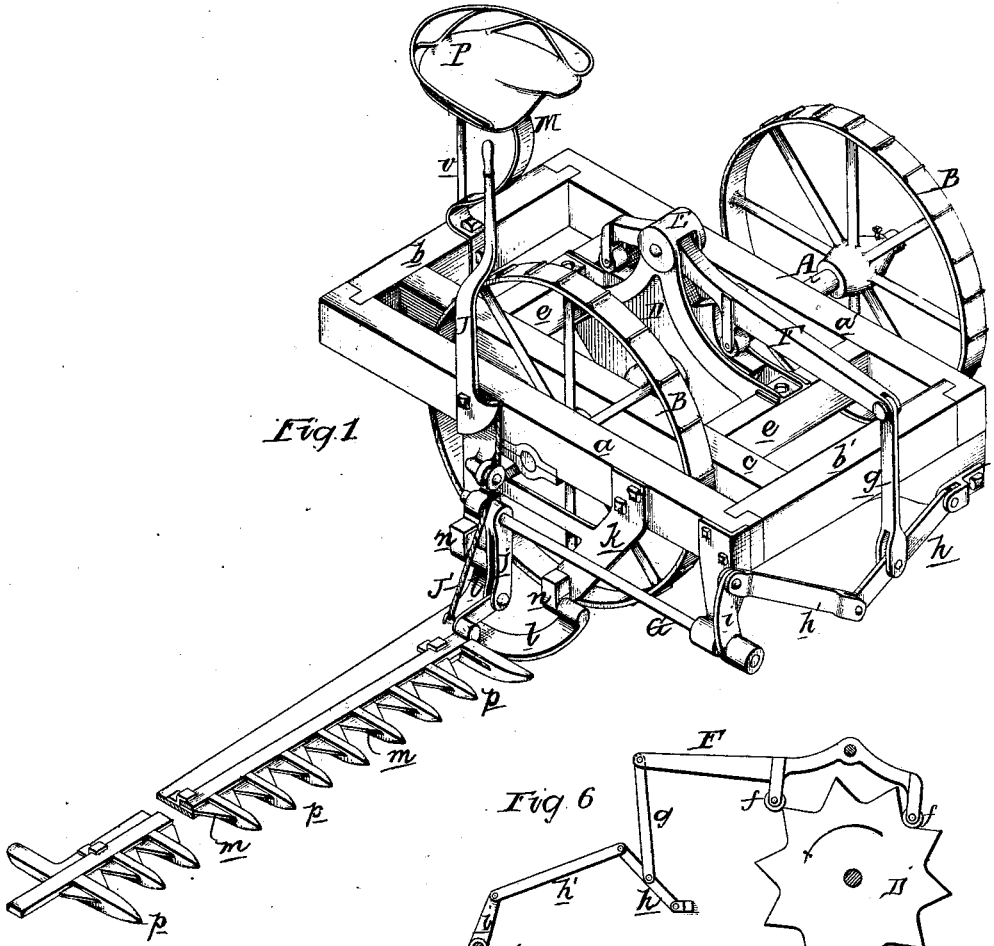


Fig. 6

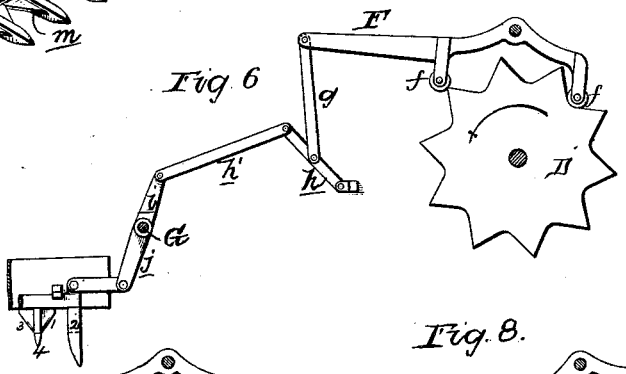


Fig. 7.

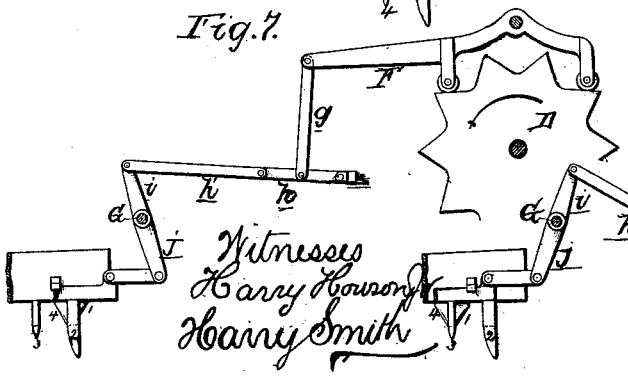
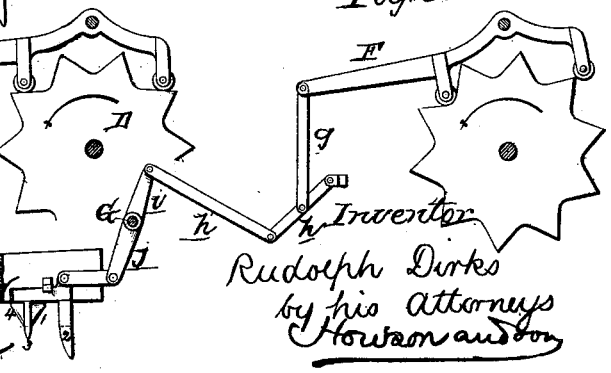


Fig. 8.



Witnesses
Harry Howson
Harry Smith

Inventor.
Rudolph Dirks
by his Attorneys
Howson and Son

2 Sheets—Sheet 2.

R. DIRKS.

MOWER.

No. 190,962. Patented May 22, 1877.

Fig 2.

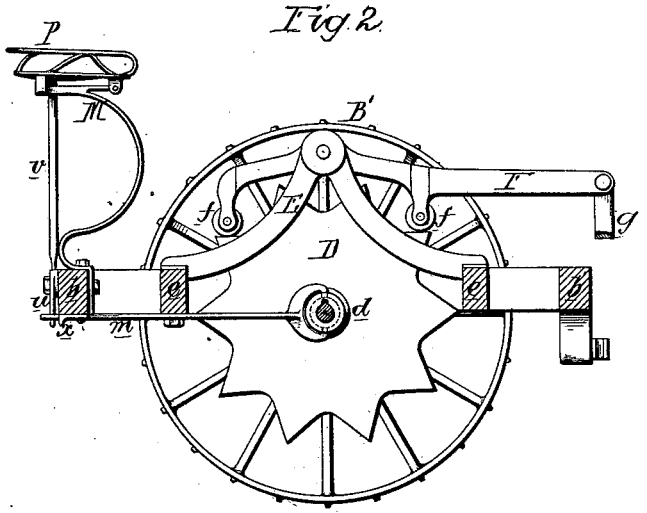


Fig 5.

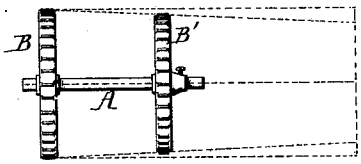


Fig 3

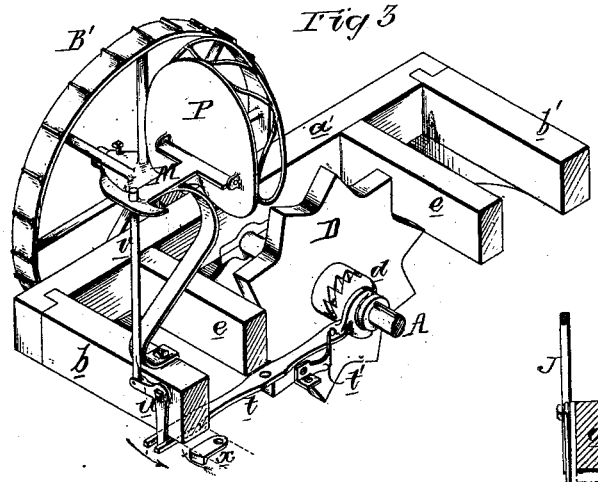
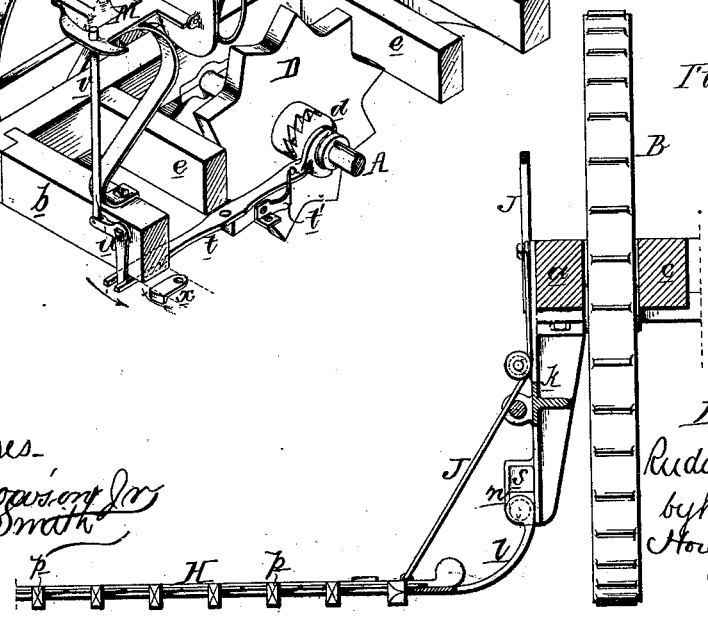


Fig 4



Witnesses-
Harry Howson Jr
Harry Smith

Inventor.
Rudolph Dirks
by his Atty's
Howson and Sons

UNITED STATES PATENT OFFICE.

RUDOLPH DIRKS, OF MARLBOROUGH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA.

IMPROVEMENT IN MOWERS.

Specification forming part of Letters Patent No. **190,962**, dated May 22, 1877; application filed June 8, 1876.

To all whom it may concern:

Be it known that I, RUDOLPH DIRKS, of Marlborough township, Montgomery county, Pennsylvania, have invented certain Improvements in Mowing-Machines, of which the following is a specification:

The object of my invention is to construct an effective mowing-machine of a much more simple and economical character than those at present in use; and this object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1, Sheet 1, is a perspective view of my improved mowing-machine. Fig. 2, Sheet 2, a longitudinal vertical section of the same; Fig. 3, a sectional perspective view of a portion of the same; Fig. 4, an enlarged transverse section of one side of the machine; Fig. 5, a diagram, illustrating one of the features of my invention; and Figs. 6, 7, and 8, Sheet 1, diagrams illustrating the movements imparted to the knife-operating mechanism.

The frame of the machine consists of side beams *a a'* and end beams *b b'*. In bearings secured to the beams *a a'* and to a beam, *c*, turns the driving-shaft A, to which are secured the two wheels B B', the former contained between the beams *a* and *c*, and the latter arranged outside of the frame of the machine.

Hung loosely to the driving-shaft A is a cam-wheel, D, which can be secured to or released from the control of the shaft by the action of a clutch, *d*, of the usual construction, this clutch being operated in the manner described hereafter.

To the upper portion of a frame, E, embracing the cam-wheel D, and secured at its opposite ends to transverse bars *e e* of the frame, is pivoted a lever, F, which carries two anti-friction rollers, *f*, so adapted to the edge of the cam-wheel that, as the latter revolves, a vibrating motion will be imparted to the said lever F.

The outer end of this lever is connected, by means of a rod, *g*, to an arm, *h*, pivoted at one end to a bracket on the frame of the machine, and connected at the other end to a link, *h'*, which is also connected to an arm, *i*, on a rock-shaft, G, the latter extending along one side of the machine, and being adapted to bearings on the frame of the same.

The shaft G also carries an arm, *j*, which is attached to the end of the cutter-bar, the knives *m* of the latter working in slots in the fingers *p* of the finger-bar, in the usual manner.

The frame H, carrying the finger-bar and cutters, has arms *l* hinged to the lower ends of hangers *k*, secured directly to the side beam *a* of the machine, the bearings of the arms *l* being contained within the lower portions of boxes *n*, secured to or forming part of the lower ends of the hangers *k*, the upper portion of each of these boxes being provided with rubber blocks *s*, which allow the elevation of the inner end of the cutter-frame when passing over a stone, or other obstruction.

The elevation of the entire frame H is effected, as usual, through the medium of the lever J and cord or chain J'. (Shown in Fig. 1.)

The mechanism which I employ for effecting the throwing of the machine in and out of gear is shown in Fig. 3, on reference to which it will be observed that the sliding clutch *d* is embraced by the end of a lever, *t*, which is pivoted to the under side of one of the bars *e*, and is acted upon by a spring, *t'*, the tendency of which is to draw the teeth of the clutch out of gear with those on the hub of the wheel D.

The outer end of the lever *t* is forked, and is adapted to the long arm of a bell-crank lever, *u*, hung to the rear beam *b* of the machine, the short arm of this lever being attached to a rod, *v*, the upper end of which extends through the rear portion of a spring-frame, M, to the front portion of which is hinged the seat P.

When the latter is in the position shown in Fig. 1 it bears upon the upper end of the rod *v*, and as soon as the driver occupies the seat his weight causes the spring-frame M to yield, thus depressing the rod *v* and operating the levers *u* and *t* so as to throw the clutch into gear with the wheel D.

As soon as the driver's weight is removed from the seat, however, the spring *t'* causes the retraction of the clutch *d*, and the operation of the machine is discontinued.

In order to prevent any accidental move-

ment of the lever *t*, such as would throw the clutch *d* into gear, however, I pivot to the under side of the beam *b* a cam, *x*, by turning which so that it bears upon the lever *t* all motion of the same in the direction of the arrow, Fig. 3, is prevented.

I make the wheel B on that side of the machine which carries the cutter slightly larger in diameter than the wheel B′ on the opposite side, so that as the machine is drawn forward there is a constant tendency of the cutter side to advance faster than the other side of the machine, thus compensating for the strain caused by the side draft.

In order to accurately regulate this increased speed of one side over the other, in accordance with the character of the grass which is being cut, I make the wheel B′ laterally adjustable on the shaft A, so that the distance between the two wheels may be changed at pleasure, the wheel B′ being secured after adjustment by any suitable fastening.

By means of the mechanism through the medium of which the motion of the cam-wheel D is imparted to the cutter-bar a rapid reciprocating movement of the latter is the result, the knives making four cuts to every up and down movement of the lever F.

Thus, on reference to Figs. 6, 7, and 8, it will be seen that while one side of each of two teeth is acting on the two rollers *f f* the cutter-bar makes two movements, two similar movements being made by the other sides of the same teeth.

While the two first cuts were being made the outer end of the lever F descended from its highest to its lowest position, and, as during its upward movement a similar operation of the knives takes place, it will be seen that upon each complete up and down movement of the lever F four cuts are made, so that with a wheel, D, having ten teeth, forty cuts are made during each revolution of the driving-shaft.

It will be evident that the above machine, while thoroughly effective in its operation, is cheap, simple in construction and operation, and not liable to get out of order.

I claim as my invention—

1. The combination of the frame H with the hangers *k*, their boxes *n*, and rubber blocks *s*.

2. The combination of the shaft A and its wheel B with the smaller wheel B′, laterally adjustable on the shaft, as set forth.

3. The combination of the spring-seat P, rod *v*, bell-crank lever *u*, spring-lever *t*, and sliding-clutch *d*, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RUDOLPH DIRKS.

Witnesses:
HARRY HOWSON, Jr.,
HARRY SMITH.