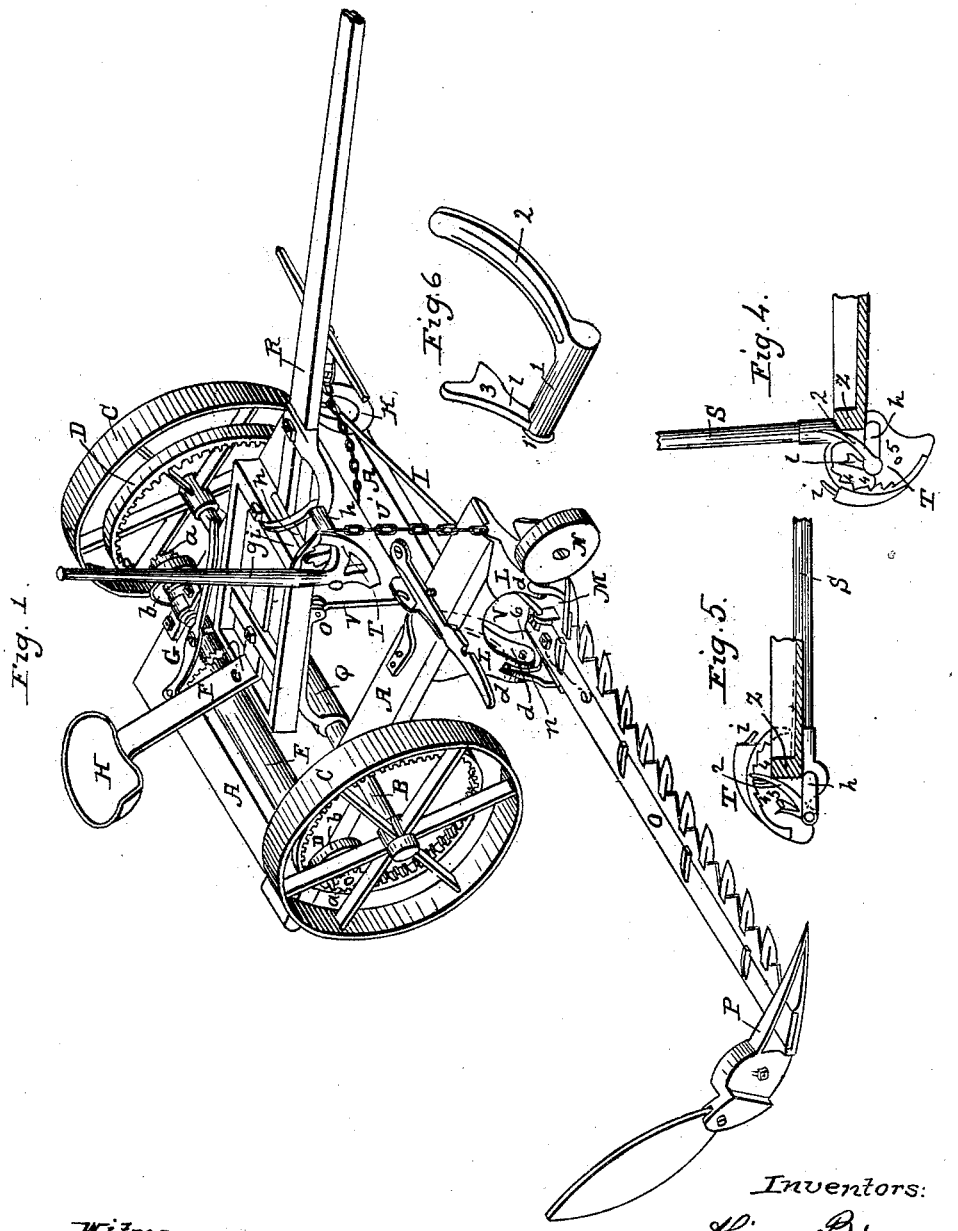
2 Sheets—Sheet 1.

BROWN, KNIFFEN & DODGE.

Mower.

No. 44,935. Patented Nov. 8, 1864.



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2 Sheets—Sheet 2.

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Fig. 2.

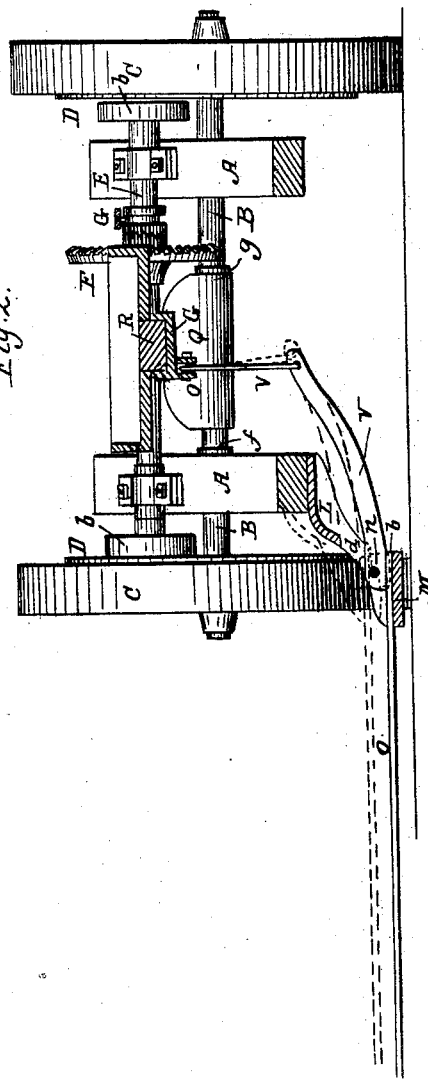
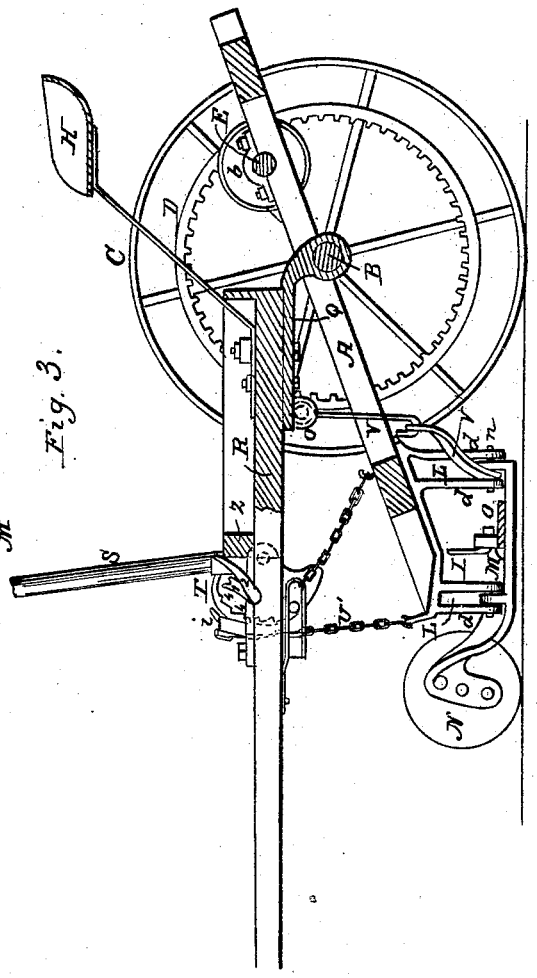


Fig. 3.



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UNITED STATES PATENT OFFICE.

ALZIRUS BROWN, L. G. KNIFFEN, AND THOMAS H. DODGE, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN MOWING-MACHINES.

Specification forming part of Letters Patent No. **44,935**, dated November 8, 1864.

To all whom it may concern:

Be it known that we, ALZIRUS BROWN, L. G. KNIFFEN and THOMAS H. DODGE, of the city and county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Mowing-Machines; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a perspective view of said machine. Fig. 2 represents a cross-section through the same. Fig. 3 represents a longitudinal vertical section through the frame of the machine. Figs. 4, 5, and 6 represent detached views hereinafter to be referred to.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

The main frame A is supported upon the axle B of the main wheels C, they having cogged wheels B, which gear into small pinions *a* on the ends of the shaft E, and to which pawl devices are fastened to work into ratchet-teeth on the inner side of the cases *b*, connected with the pinion-wheels *a*. The bevel-wheel F is loose on shaft E, and has a hub on its face side with clutch-teeth, into which the teeth of a sliding clutch, *c*, fit when the cutters are in operation. The sliding clutch *c* fits on shaft E, and is grooved on its outer surface to receive a clutch-lever, G, by which the driver from his seat H can throw the cutters out and into action by his foot. A pin passes through a slot in the hub *c*, and is fast in the shaft E, to guide the sliding clutch in this motion.

The pitman I is connected and operated by the crank-pin of the balance-wheel K, and the end of the shaft which passes back and carries on its rear end a bevel-pinion, which latter is operated by bevel-wheel F.

To the inner front corner of the frame A is secured the hanger-iron L, having lugs *d*, to which the shoe M, which supports the finger-beam O, is hinged. The front of the shoe M is provided with an adjustable wheel, N, to run upon and press down the cut grass. The finger-beam O is secured to the shoe M by means of the bolts *e*, and the outer end of the finger-beam is supported by the wheel of the divider-shoe P, to which latter the track-clearer is secured. The finger-beam can swing freely on its hinges *d* in the hanger-iron, to adapt itself to the undulations of the ground over which the divider-shoe passes, and the wheel N on the inner shoe, passing over the undulations, causes the front end of the main frame A to rise and descend. Thus the inner as well as the outer end of the finger-beam is free to rise or fall, and the latter passes constantly at the proper height from the ground, thus cutting an even and smooth surface.

Q represents the pole-iron, to which the pole R is secured. It is loose on the shaft B, and is held in its place on said shaft by means of the collars *f g*, and the pole and consequently the pole-iron are held in a rigid position by the team.

The frame A can swing freely on the main axle B, for the purpose of raising or lowering the finger-beam and cutting apparatus while passing over uneven ground or over obstructions, or when the machine is to be moved some distance, and in the latter cases it is very essential that the finger-beam should be raised bodily or parallel to the ground. To effect this we use a cramping-lever, V, which is pivoted at *n* to the lugs *d* of the hanger-iron L, and whose end is hung to the link U, which latter is pivoted to the lugs *o* of the pole-iron. The head 6 of the cramping-lever V is so shaped that when the machine is in operation it will not exert any pressure upon the shoe M, to which the finger-beam is secured, nor will it do so when the finger-beam rises or falls to a certain extent; but when the front end of the frame A, and consequently the shoe M, is raised by means of the lever S, the heel 6 of the cramping-lever V presses on the shoe M at a point inside the pivot *n*, and thus causes the finger-beam O to rise bodily or parallel with the ground, as shown in red lines in Fig. 2, and in that position it can pass over obstructions or when the machine is to be moved some distance. The connection between the end of the cramping-lever V and the pole-iron Q, by means of link U, is such that the cramping-lever is not operated except when the front end of the frame is raised, and in that case the link U instantaneously depresses the end of said lever; but otherwise neither the lever

nor the operating device interferes in any manner with the free swinging motion of the finger-beam, which is essential to the proper operation of the cutting apparatus.

The rising and lowering of the frame for the purpose of passing over obstructions or of moving the machine some distance is effected by means of lever S, which is fastened to the quadrant-sheave T, which latter has its fulcrum on the piece *h*. A chain, U′, is secured to the hook *i* of the quadrant-sheave, and the lower end of the chain is secured to the front end of the hanger-iron L.

The pawl *l* (represented in a detached view in Fig. 6) is fitted within the piece *h*, and can turn therein on its cylindrical part I. It is so constructed and balanced that its lever 2 hangs to the rear and keeps the pawl 3 to the rear also, so that it does not come in contact with the ratchet-teeth 4 on the quadrant-sheave, which thus can be turned freely by means of lever S when the cutting apparatus is to be raised or lowered by the driver in the operation of mowing, and this position of the pawl is represented in Figs. 3 and 4. When the cutter-bar is to be retained in an elevated position for the purpose of moving the machine a short distance the driver presses the lever 2 of the pawl *l* forward, and thus brings the part 3 in contact with the ratchet-teeth 4, and when he turns the lever S the pawl 3 retains the sheave-pulley in any desired position.

When the machine is to be moved some distance it is desirable to raise the cutter-bar to a greater extent, and this is done by depressing the lever S to the position shown in Fig. 5, in which the part 3 of the pawl will drop under the catch 5 on the side of the sheave-pulley, and will firmly lock the latter, as represented in Fig. 5, remaining in position by its own gravity until pushed up by the foot or otherwise. This last feature is very important, since in driving the jarring motion of the machine can have no effect to release the sheave T from the pawl, as the latter is held down by its own gravity. This pawl arrangement is not only very simple in construction, thereby reducing the cost of the machine, but it is in a great degree self-acting, and can therefore be operated with the greatest facility by the driver from his seat.

The pawl represented in a detached view at Fig. 6 is made of cast-iron, and a semicircular recess is cast in the piece *h*, which supports the sheave T, and the cylindrical part 1 of the pawl is slipped into said recess, and is retained in its proper position by means of the head 1′, which prevents it from passing too far in, and by the sheave T, which prevents it from slipping out.

Having thus fully described the nature of our invention, what we claim herein as new, and desire to secure by Letters Patent, is—

In combination with the ratchet quadrant-sheave T, the self-acting pawl *l*, when applied, constructed, and operated substantially as and for the purposes described.

ALZIRUS BROWN.
LE GRAND KNIFFEN.
THOMAS H. DODGE.

In presence of—
JOSEPH MASON,
GEO. H. MILLER.