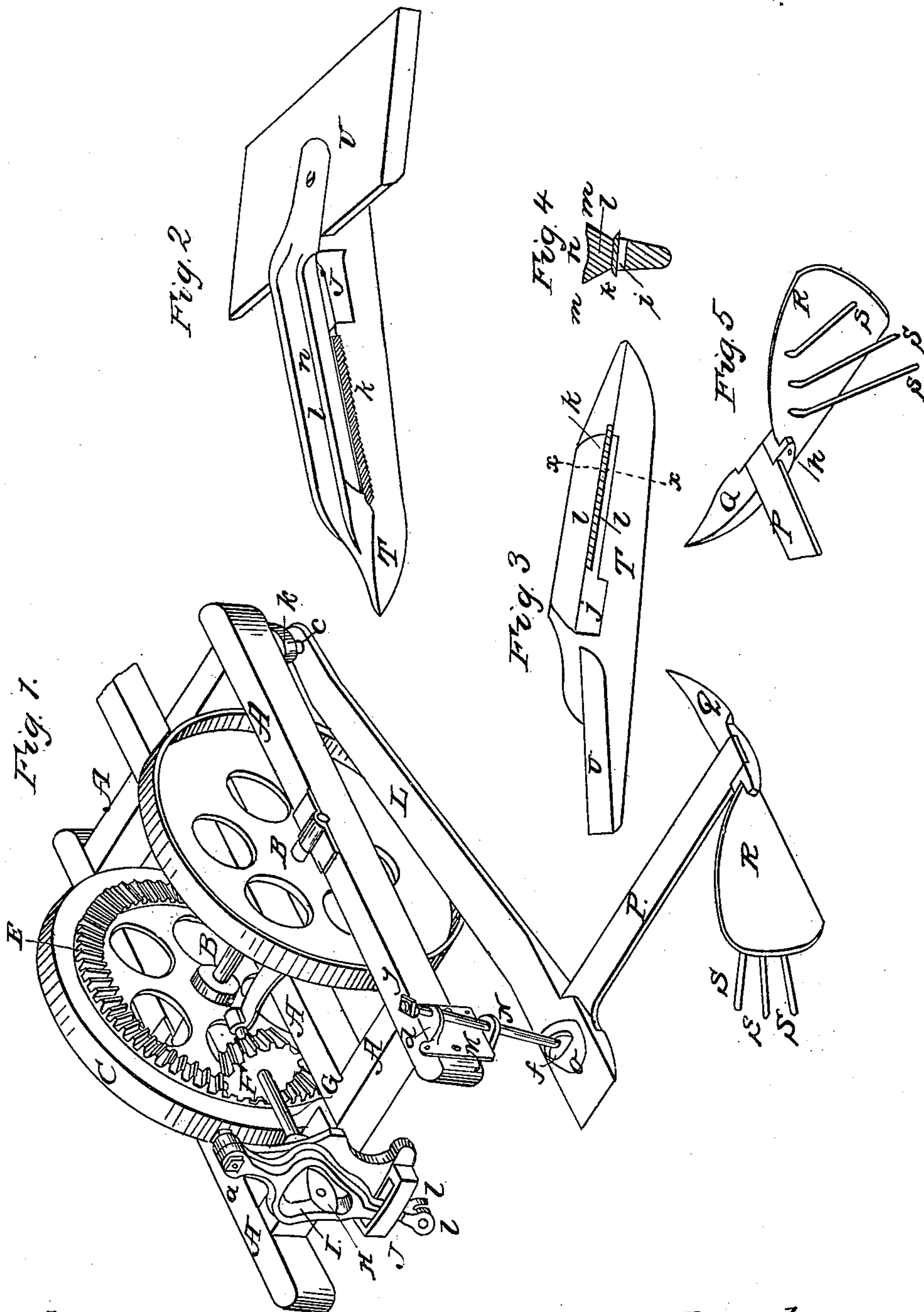


J. BUTTER.

Mower.

No. 26,142.

Patented Nov. 15, 1859.



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Fig. 6.

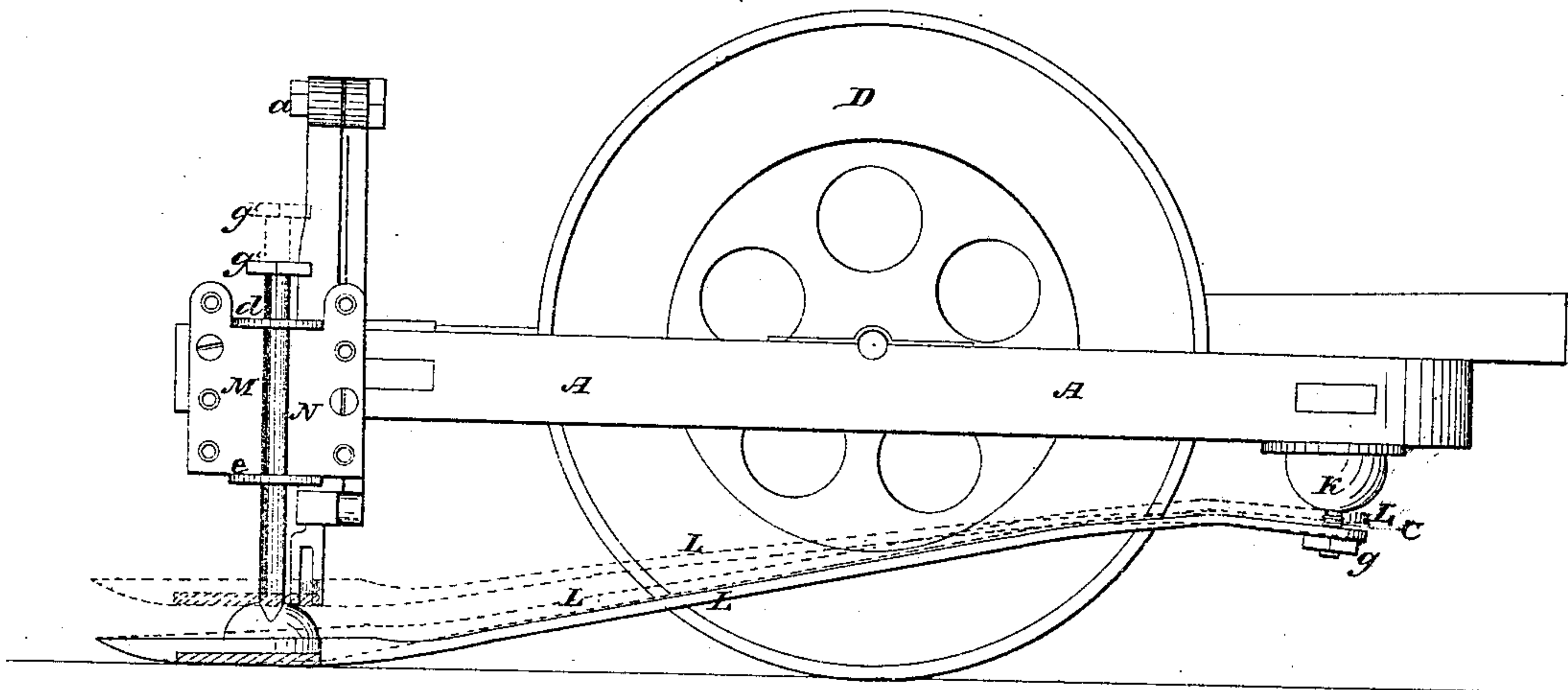
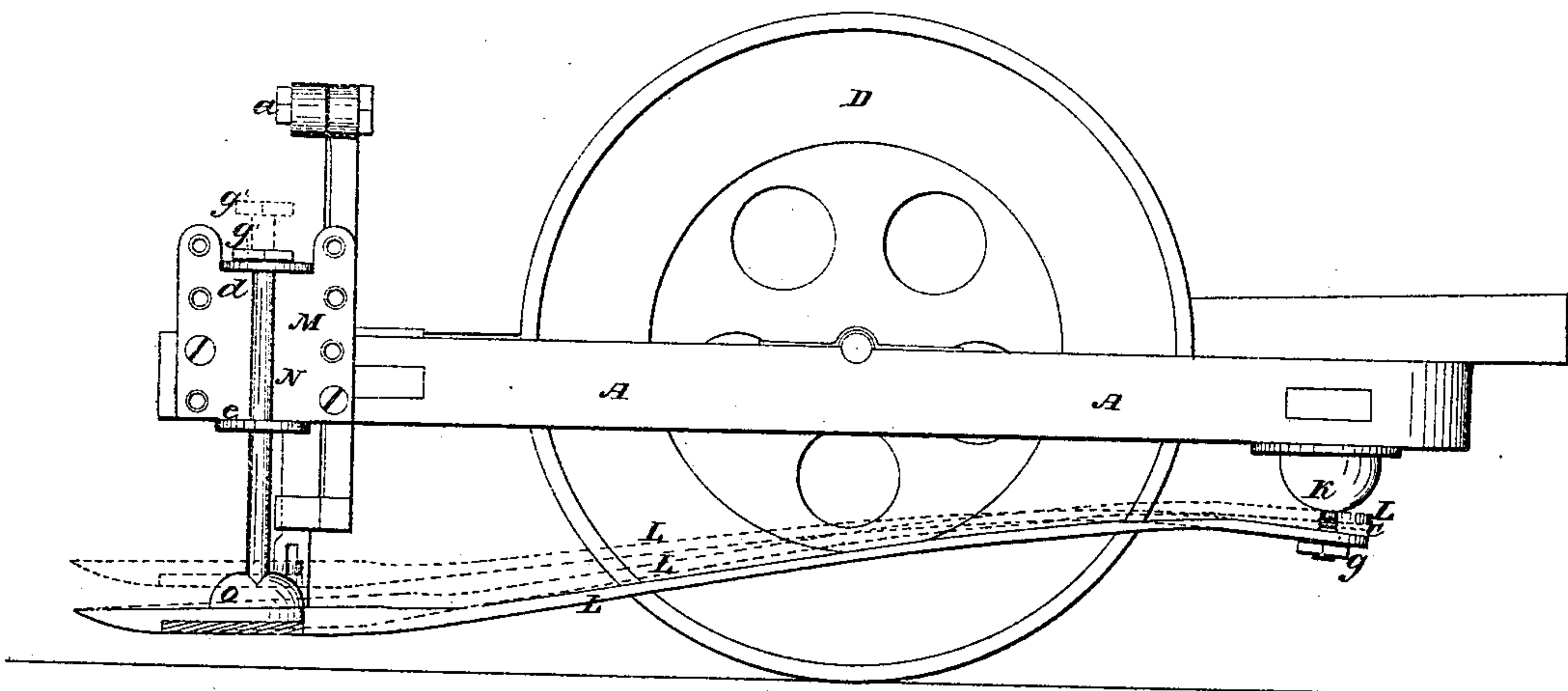


Fig. 7.



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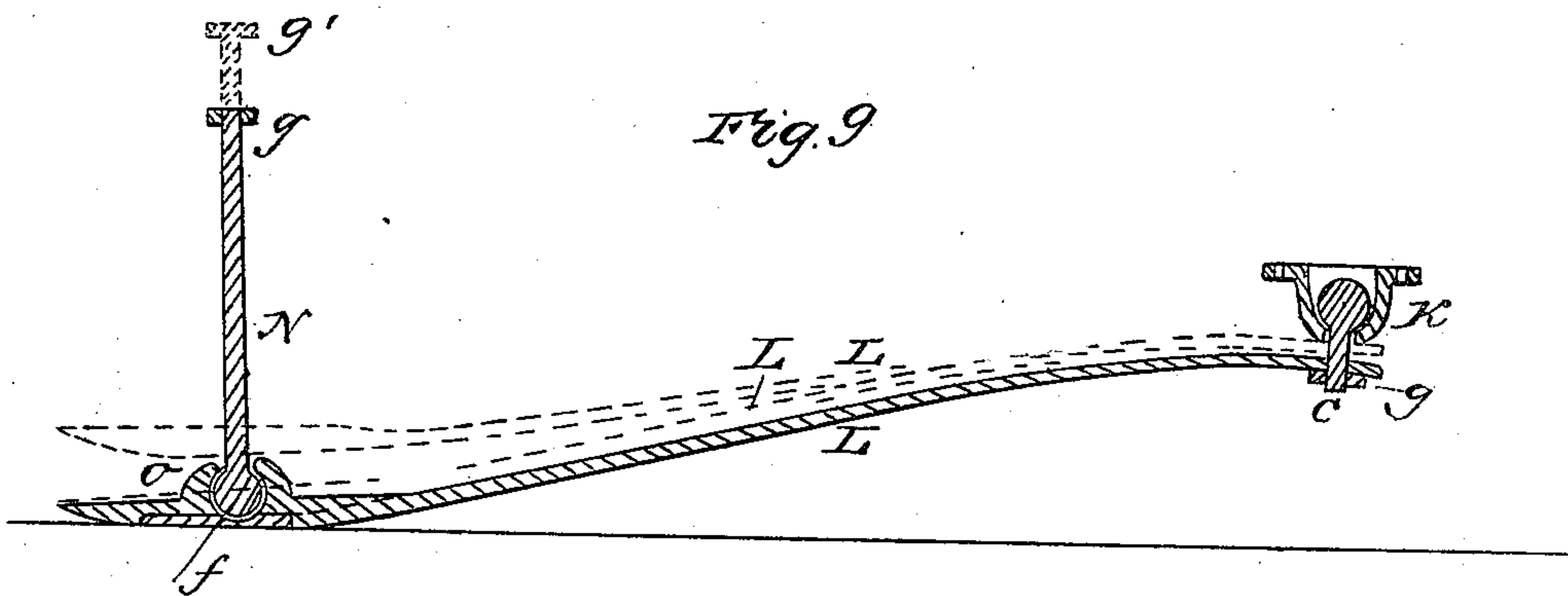
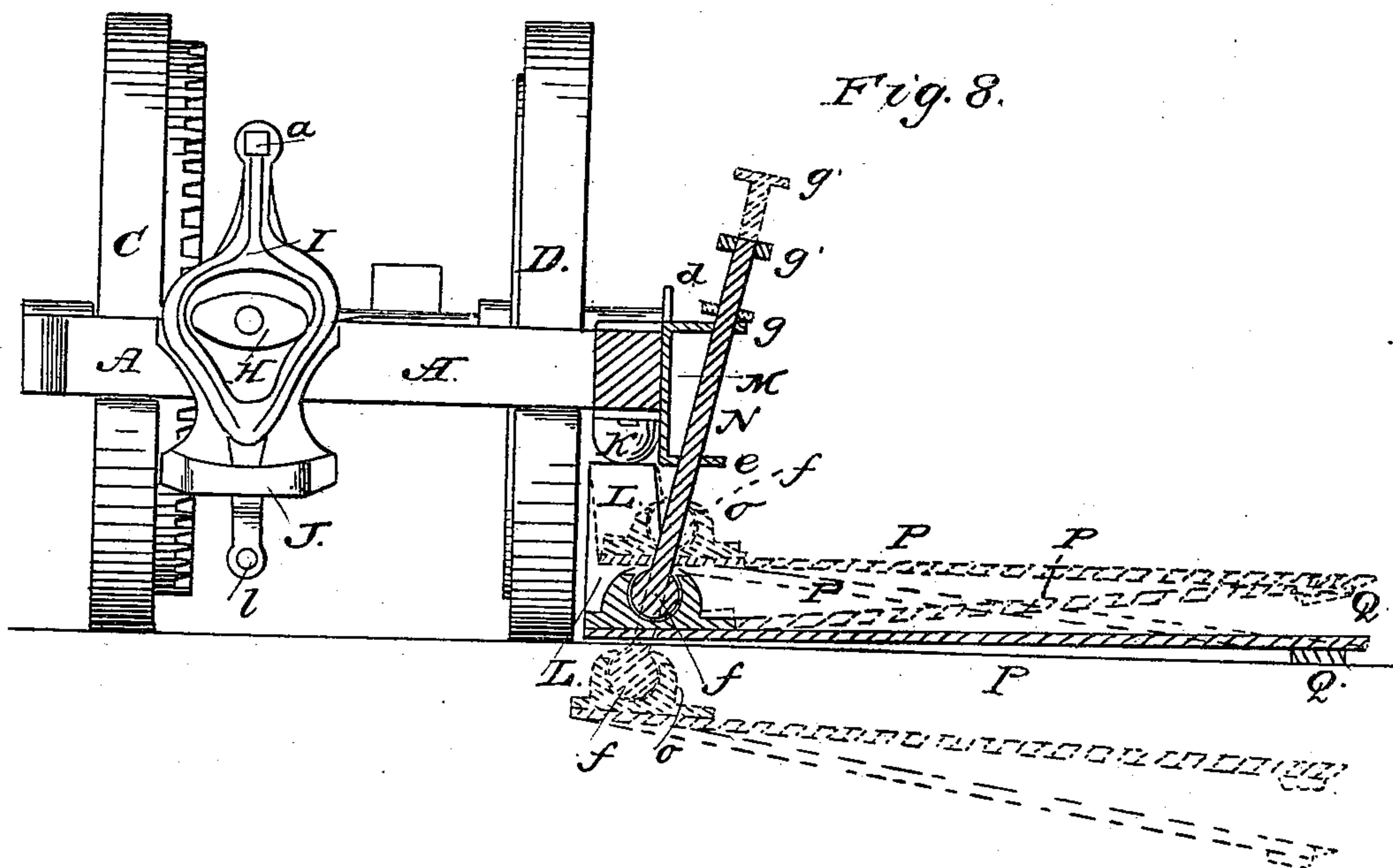
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## IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 26,142, dated November 15, 1859.

*To all whom it may concern:*

Be it known that I, JOHN BUTTER, of Buffalo, in the county of Erie, in the State of New York, have invented certain new and useful Improvements in Reaping and Mowing Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part thereof, in which—

Figure 1 represents a perspective view of so much of a reaping and mowing machine as will illustrate the construction and arrangement of my improvements. Fig. 2 represents one of the fingers and a portion of the finger board or bar detached and on an enlarged scale in perspective. Fig. 3 represents a side elevation of one of the fingers and an end view of the board. Fig. 4 represents a section through the line *xx* of Fig. 2. Fig. 5 represents a perspective view of the track-clearer from the left or inside thereof. Fig. 6 represents a side view of the machine on an enlarged scale, the finger-bar being represented as broken off back of the line A B, Fig. 1, or flush with the shoe L, said shoe being shown in three different positions. Fig. 7 represents a similar view of the machine when adjusted for reaping, the shoe L being shown in different positions. Fig. 8 represents a rear and sectional view of the machine, the sectional view being taken through the center of the coupling arm or rod N, plate M, socket *o*, and finger-bar P; and Fig. 9 represents a longitudinal section through the center of shoe L, and its coupling arms or rods N *c*, the parts being represented as detached from the frame, and the shoe L being shown in different positions.

Similar letters, where they occur in the several figures, denote like parts.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents a substantial rectangular frame, suspended upon the extremities of the axle B, which carries two wheels, C D, the one, C, being fast on said axle, and serving as a driving as well as a supporting wheel, and the other, D, loose on said axle, and acting as a supporting-wheel only.

Upon the inside face of the wheel C is a cir-

cular cogged rack, E, which meshes with a beveled pinion, F, on a shaft, G, at right angles to the shaft B, and extending rearward from said axle.

On the rear end of the shaft G is secured a cam, H, which revolves within a pivoted hollow cam, I, giving said cam I a swinging or pendulum motion upon its pivoted point *a*. The lower portion of the cam I swings in a guide, J, to give it proper direction, and the extreme lower portion of said cam is furnished with lugs *b b*, between which passes one end of the pitman that drives the cutters or cutter-bar, said pitman being pivoted to the lugs by a pin or bolt, on which it may freely work. The cutters and cutter-bar are not represented, but may be of any of the usual well-known forms.

Near the front end of that side of the frame A which runs next the standing grain, (and which I call the "inside" of the machine,) and on the under side of said frame, is placed a cup or hollow semisphere, K, for containing a ball which is upon the end of the rod or coupling-arm *c*, the lower end of said rod or coupling-arm *c* supporting the front end of the shoe L, to which the finger beam or bar P is rigidly attached, while upon the rear and side of the said frame A is secured a plate, M, having two lugs, *d e*, upon it, the upper one, *d*, projecting farther from the frame than the lower one, *e*, so that the rod or coupling-arm N, which passes through said lugs and forms the rear yielding support to the shoe L by means of the ball *f*, working in the inverted cup or semisphere *o* on the top of the shoe L, as fully shown in the drawings, may freely rise and fall to allow the cutters to adapt themselves to all inequalities of the ground regardless of the position of the frame.

In Figs. 6, 7, 8, and 9 the shoe L is shown in some of the different positions which it can assume, and from which it will be seen that when the machine is used for mowing, as shown in Figs. 1 and 6, the rear end of the shoe part L of the machine can rise and fall, as shown in red lines, while the front end of the shoe part L rests on the nut or stop *g* and the front end of the shoe part L can rise and fall, as shown in blue lines, while the rear end of the shoe L rests on the ground; or the entire shoe L can rise and fall bodily to a limited extent.



The shoe L may also have a lateral rolling motion, an illustration of which is given in Fig. 8, where the finger-bar P, which is rigidly attached to the shoe part L of the machine, is shown in black lines as resting on the ground in a horizontal position and in yellow lines as being elevated at its outer end, in green lines as being elevated at its inner end, and in blue lines as being raised bodily in a horizontal position, and in full red lines as having dropped as low at the heel as it can, and in dotted lines as far as it can at the outer end. It will therefore be seen that when the machine is in operation the shoe L is so connected to the main frame that the finger-bar and cutting apparatus can conform freely to the undulations of the ground. It sometimes happens that in cutting grain and grass on inclined ground that gullies are washed out, and into which the finger-beam and cutting apparatus are liable to drop when the same are so hinged to the main frame as to conform to the inequalities of the ground over which the machine is drawn. To prevent this, while at the same time the finger-bar and cutting apparatus are free to conform to the natural inequalities of the ground, I provide the upper end of the coupling arm or rod N with a stop or nut,  $g'$ , and the lower end of the coupling arm or rod  $c$  with a stop or nut,  $g$ , so that the finger-bar and cutting apparatus, in passing over holes or gullies, will be sustained, as shown in red and dotted lines in Fig. 8, (provided the gully does not extend across the path of the wheels.) The stop  $g'$ , resting on plate M, holds up the heel of the finger-bar, which is attached to shoe L, while the other connections prevent the outer end of the finger-beam falling below a certain inclination.

When the machine is to be arranged for reaping the cutter and finger-bar can be raised up and the heel of the finger-bar sustained at the side of the machine, as shown in black lines, Fig. 7, where the plate M is raised up, it being provided with a series of holes for this purpose; or any suitable appliances may be made to the rod or coupling-arm N for holding it up.

It will of course be understood when the machine is used for reaping a grain-platform is necessary, but the mode of constructing and using which is so well known to all persons conversant with reaping and mowing machines that no further description is here necessary.

It will be observed that even when the machine is adapted for reaping either end of the shoe L can rise and fall, as shown in blue and red lines, Fig. 7, while at the same time it is free to rock or roll laterally. There are great advantages in so hinging the front of the shoe L to the main frame as to allow it to rise and fall independently of the rear end of the shoe, since it permits the front of the fingers to turn up while the finger-bar rests on the ground, and thus enables them to pass over slight elevations much easier and with less liability of catching into little hillocks than would be the case if the front of the shoe L could not rise and fall, as shown and described. Again,

if the front of the shoe could not rise and fall, any obstruction which might be in the path of the shoe, and which should happen to come in contact with the under side of the shoe L near its front end before being discovered by the driver, would throw the rear end of the shoe, together with the finger-beam, suddenly up, and thus subject the machine and cutting apparatus to great strain and liability to be broken.

Q is a shoe at the extreme outer end of the bar P, which serves as a runner to hold up the end of the bar, and as a divider to separate the grain or grass that is to be cut from that which is to be left standing; and R is a track-clearer pivoted to the rear of the shoe at  $h$ , so as to have a vertical motion parallel with a vertical plane through the shoe, and on the inner face of the said track-clearer are fingers or ribs  $s$  for directing the cut material away from the path of the wheel on the return swath.

T, Figs. 2, 3, 4, represents one of the fingers (the others being similar in construction to this) with a horizontal slot,  $i$ , through it for the cutters to work in, and a larger opening,  $j$ , for the cutter-bar to play through. On the upper part, over the opening  $i$ , is placed a serrated or sharp-edged plate,  $k$ , for the cutters to work against shear fashion, and the top  $l$  of the finger-bar projects over the edges of said plate  $k$ , as seen at  $m m$ , Fig. 4, to protect said edges from being injured by anything passing between the fingers.

U is the finger-bar, and the fingers T are so inclined in regard to said bar, on which they are permanently fixed, as that they will readily pass from under any grain or grass falling upon them, or rather upon said bar, as seen in Fig. 3. The under sides of the fingers, at their points, are rounded up, so as to freely pass over any obstructions and without dragging or clogging in the cut grass, and their tops concave, as seen at  $n$ , Fig. 4, to reduce the friction of the grass upon them and to allow it to freely pass over, while at the same time the concave portion  $n$  prevents any dirt or gravel which may fall upon the top of the guard from sliding down upon the cutters.

There is always great strain upon the heel of the cutter-bar when operated by a pitman and crank; but more especially is this true when the cutting apparatus is so sustained as to conform freely to the undulations of the ground independently of the frame which supports the crank-shaft, since in such cases the angle at which the pitman operates the cutter is often very great. To obviate this objection in a measure, and also to avoid the use of a crank, which is liable to catch, wind up, and get clogged by cut stalks of grain or grass, and also to get the requisite speed to do good work with as little cog-gearing as possible, induced me to devise the plan of communicating motion from the main wheel to the cutter, as above described. By my arrangement the point at which the pitman is hinged to the vibrating cam I does not vary but a little from



a horizontal plane during the operation of the cutter, whereas if a crank were used it would vary twice the length of the crank. By my arrangement, too, I am enabled to get all of my gearing-shafts at nearly right angles to each other, while none of the shafts are below the lower side of the frame, and are not therefore liable to catch cut stalks. My mode of operating the cutters also enables me to get my mechanism therefor into a position on the frame which helps to balance the weight on the grain side of the machine. It will also be seen that the yielding connections are so arranged in respect to the shoe L that no part of such connections project laterally so far by the edges of the shoe as to be liable to catch cut stalks of grain or grass or strike against obstructions, while at the same time the mechanism for connecting the shoe L to the main frame is so constructed as to enable the shoe to be adjusted at either or both ends, while the finger-bar is kept at its proper position at right angles to the line of motion of the machine without the use or intervention of a hori-

zontal coupling-arm, while the draft of the finger-beam is divided between the hinged connections, which are arranged one in rear and the other in advance of the heel of the cutter-bar.

When the machine is to be packed in cars for transportation, or when desirable for any other purpose, the finger-bar P and shoe L can be turned around in rear of the frame by simply unfastening the front of the shoe L.

Having described my improved reaping and mowing machine, what I claim, and desire to secure by Letters Patent, is—

The combination of the shoe L with hinged and adjusting rods c and N, plate M, and cup K, constructed, arranged, and operating in relation to each other and the main frame, as and for the purposes set forth.

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