

S. W. MARTIN & C. H. PAXSON
Lawn Mower.

No. 229,725.

Patented July 6, 1880.

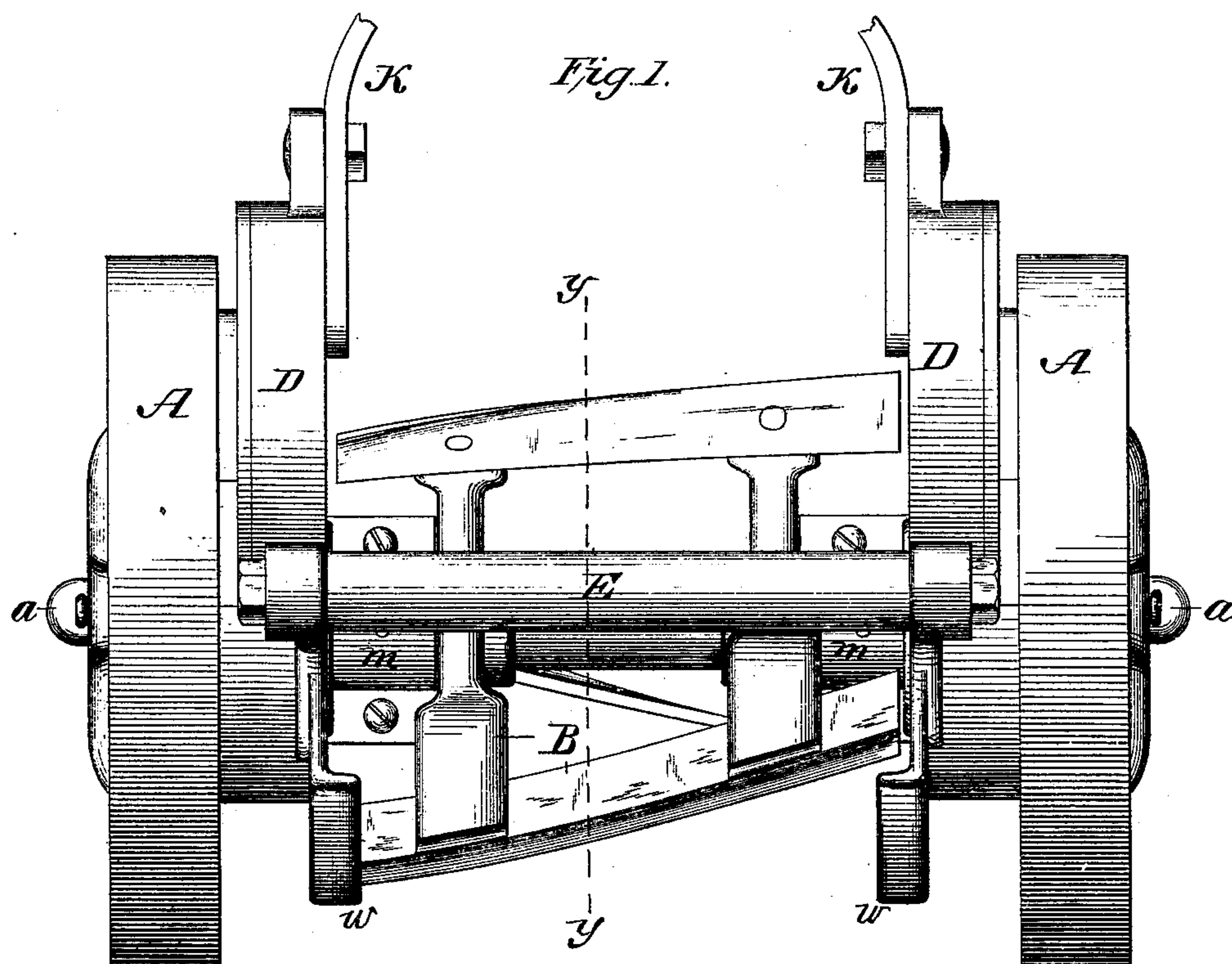
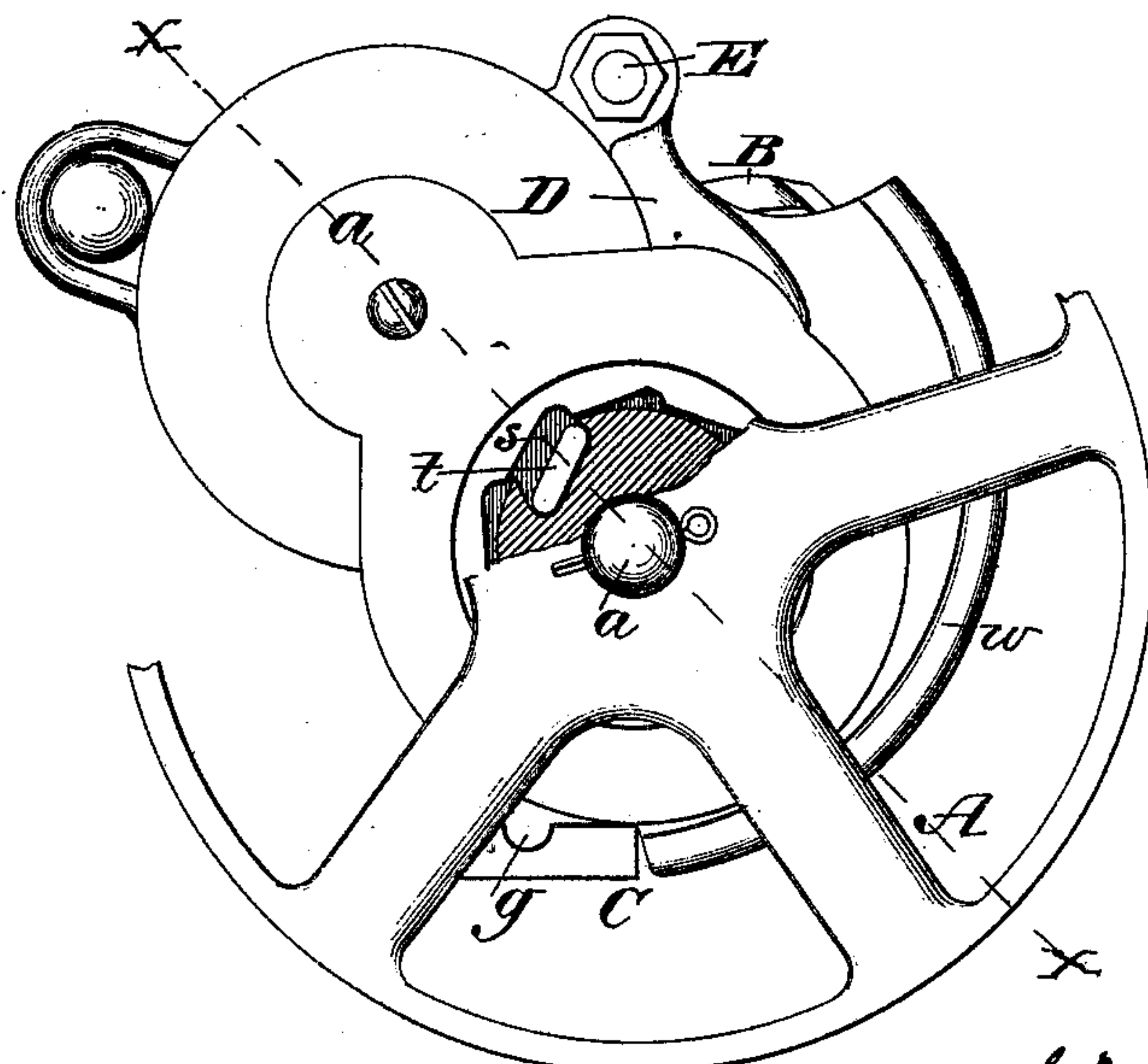


Fig. 2.



Witnesses.

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Inventor.

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Fig. 3.

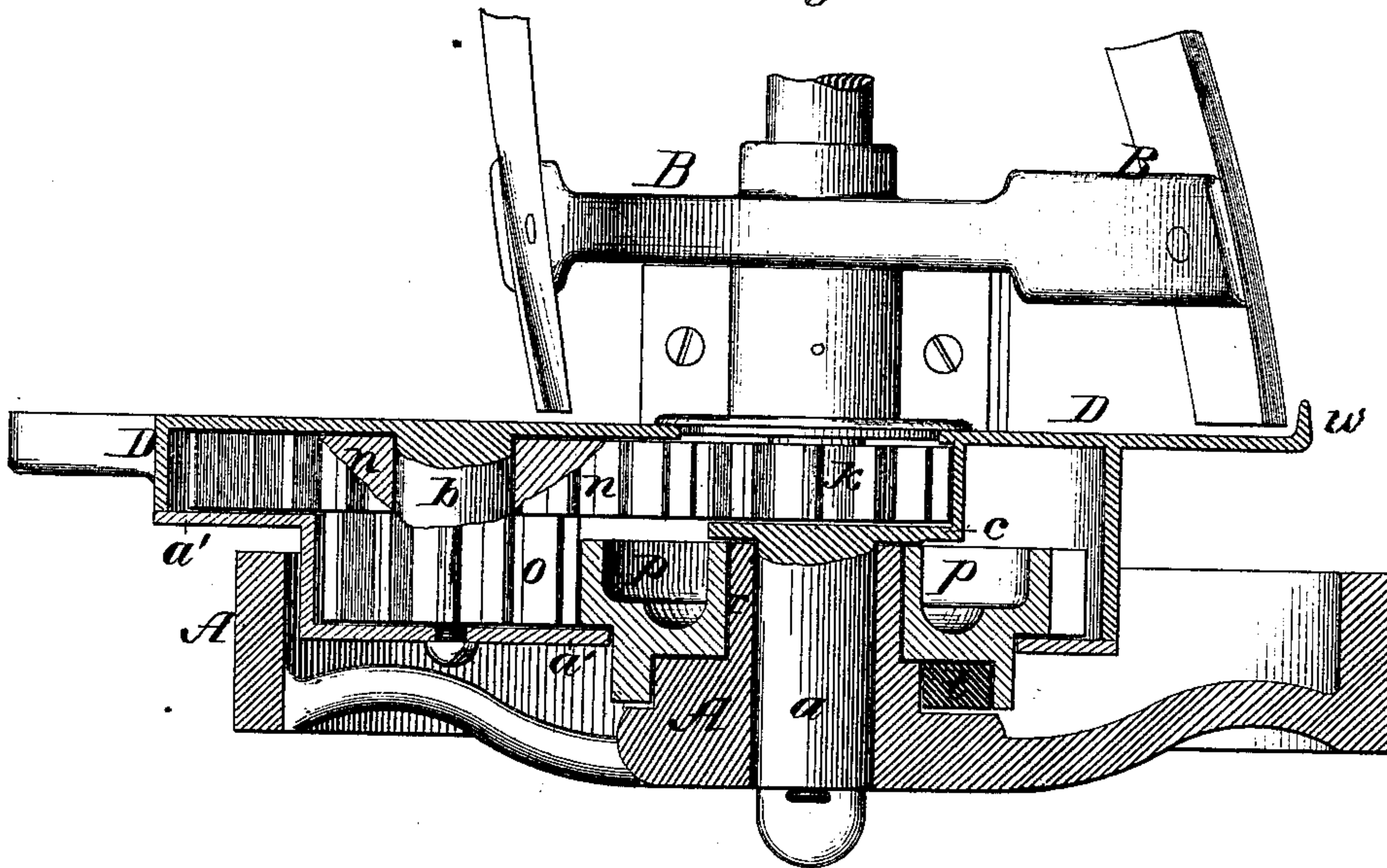
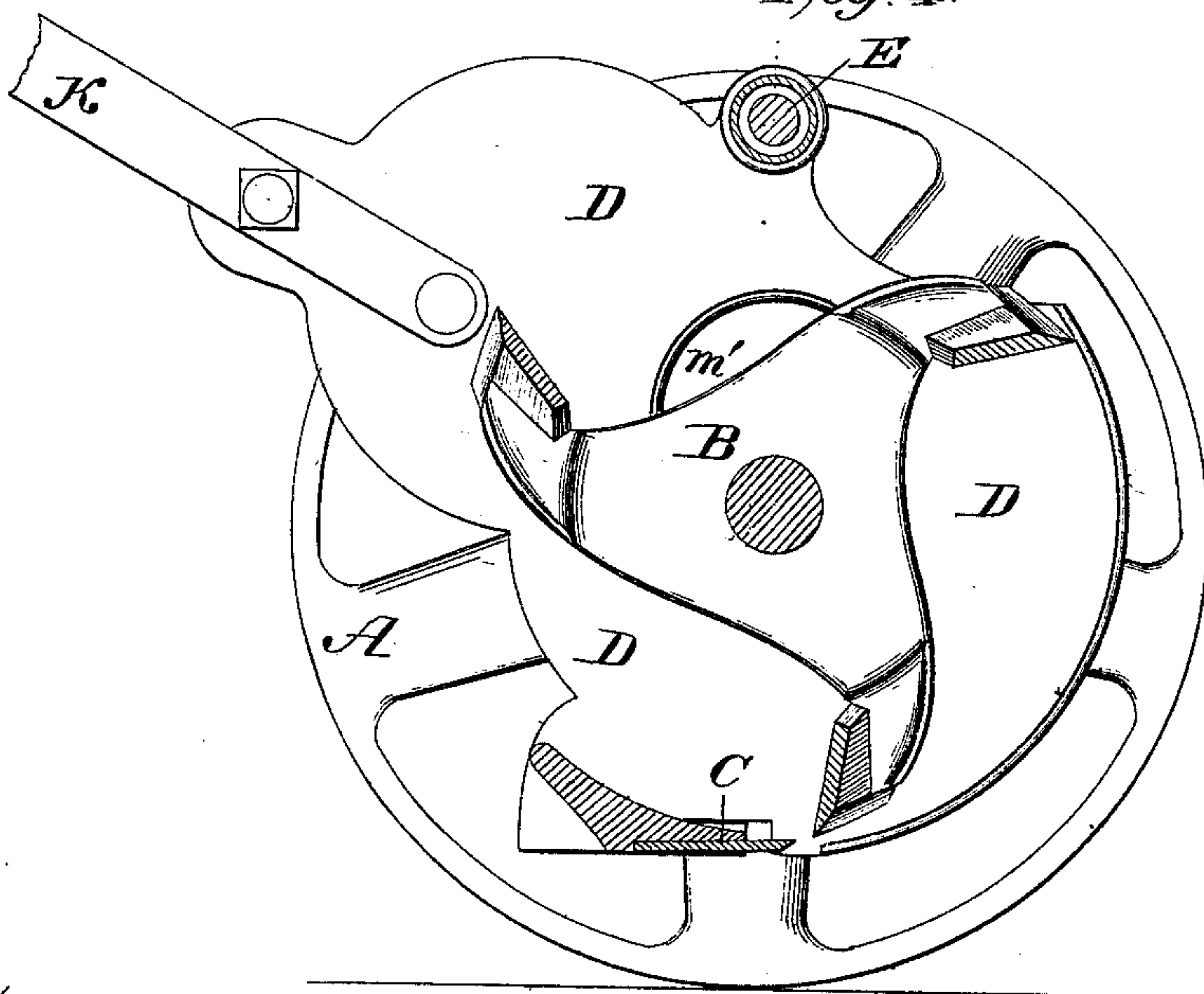


Fig. 4.



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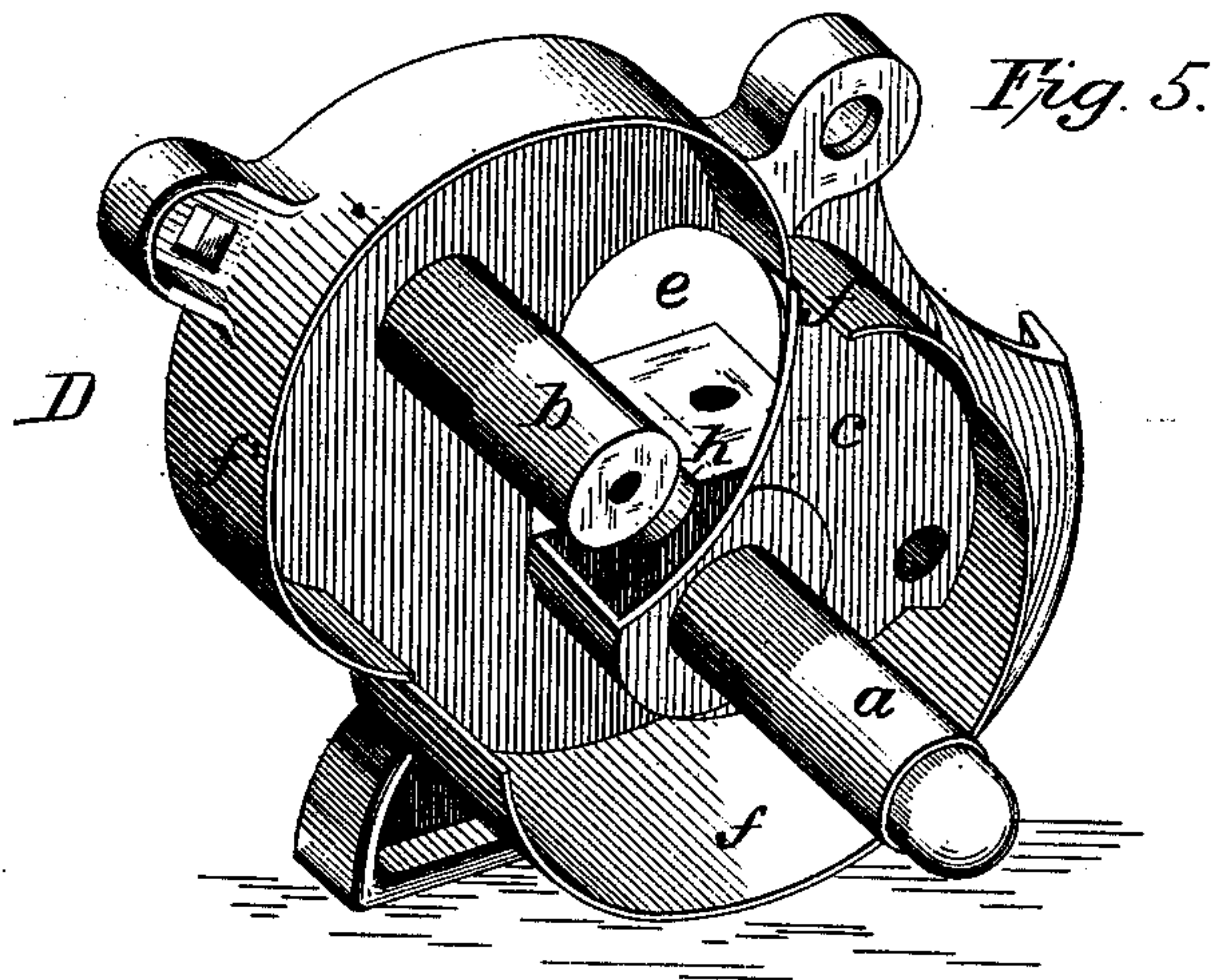


Fig. 5.

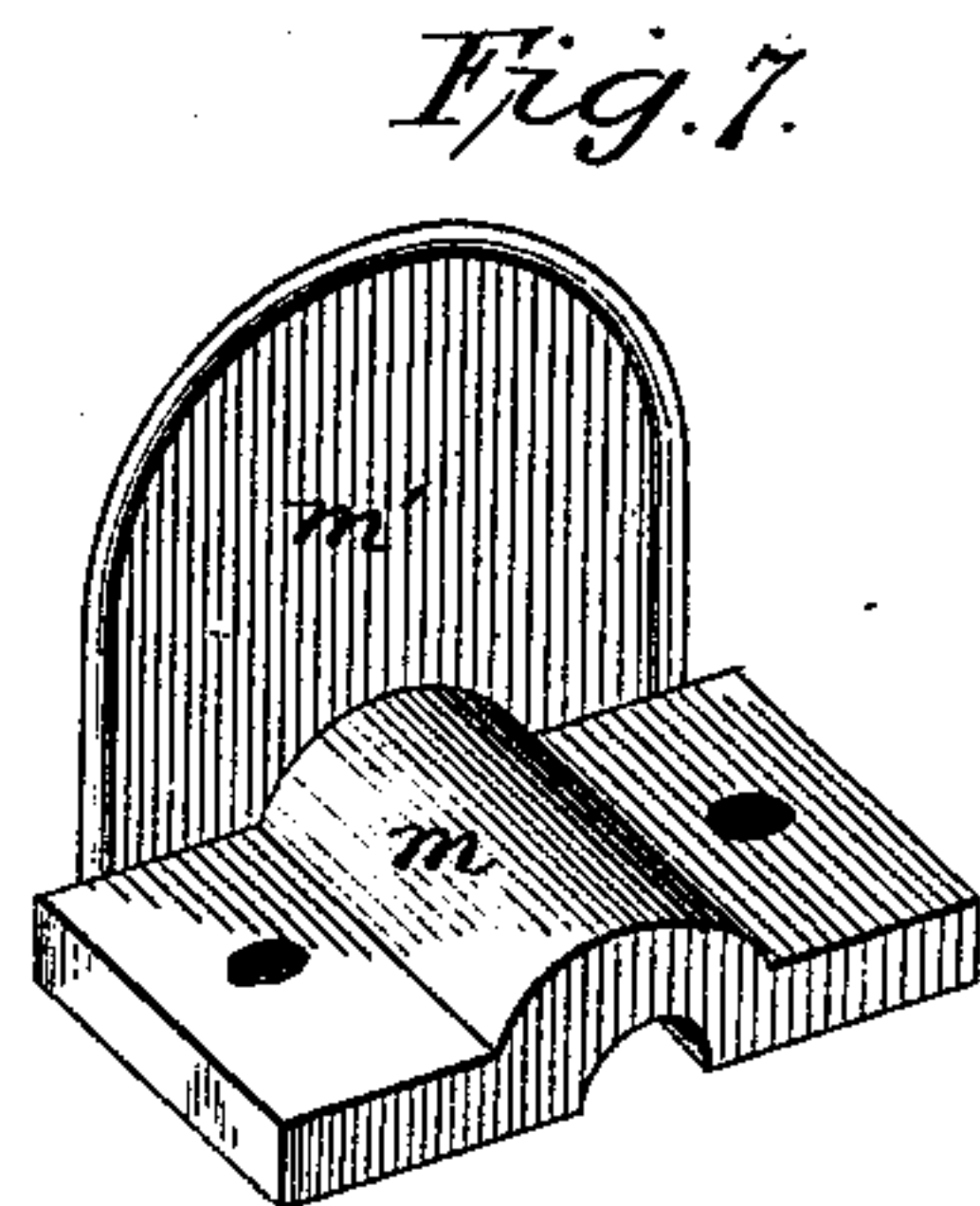


Fig. 7.

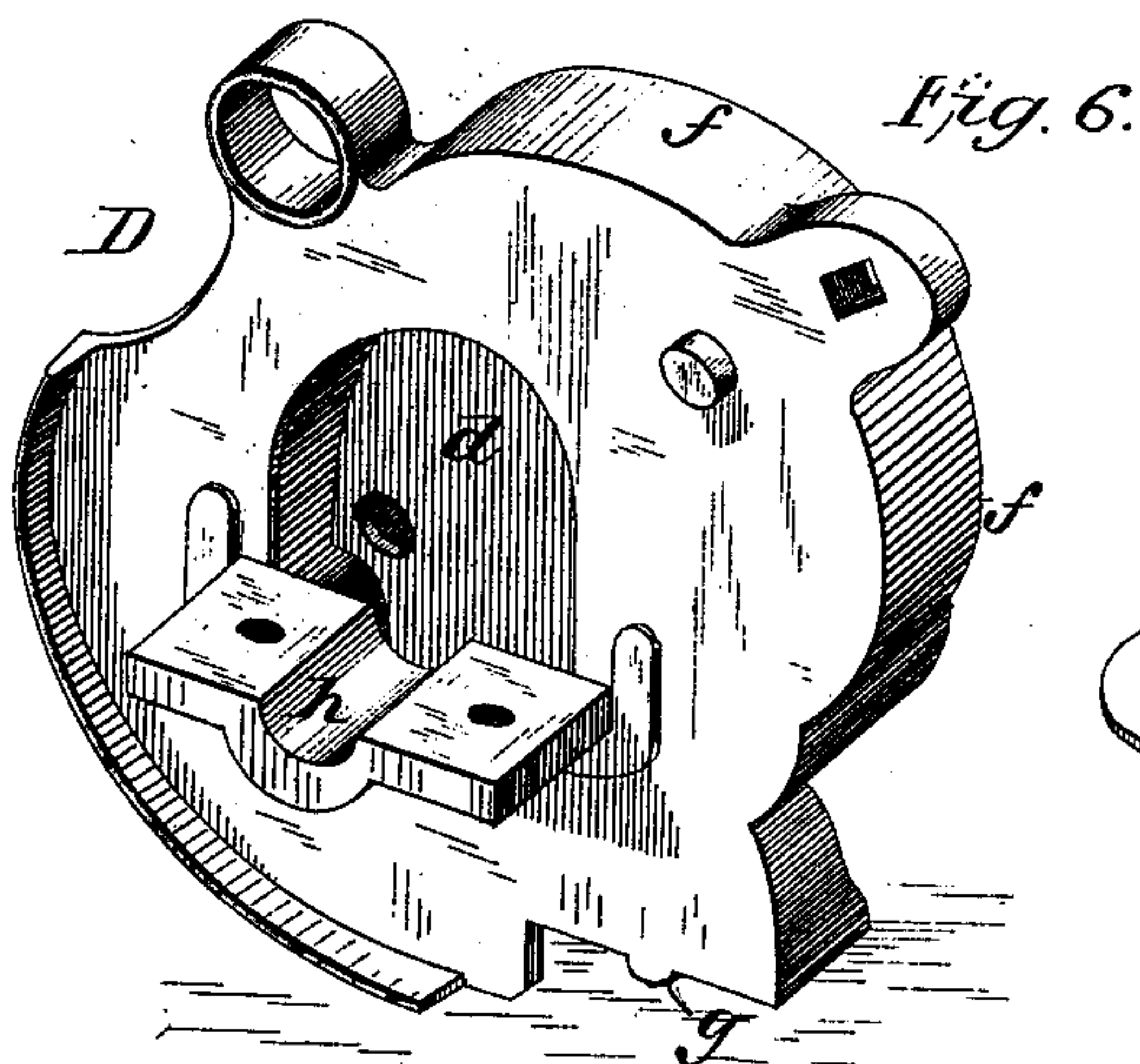


Fig. 6.

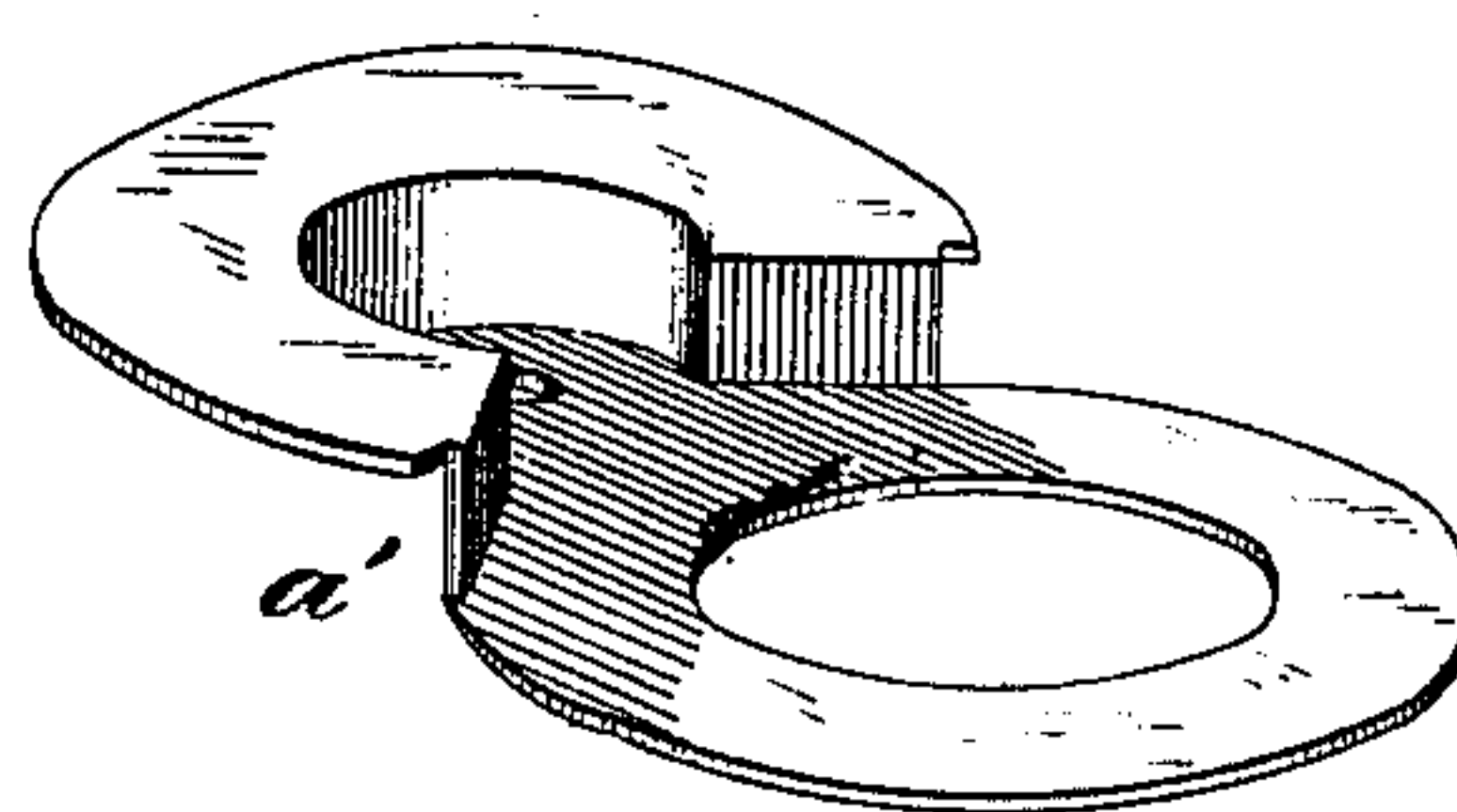


Fig. 8.

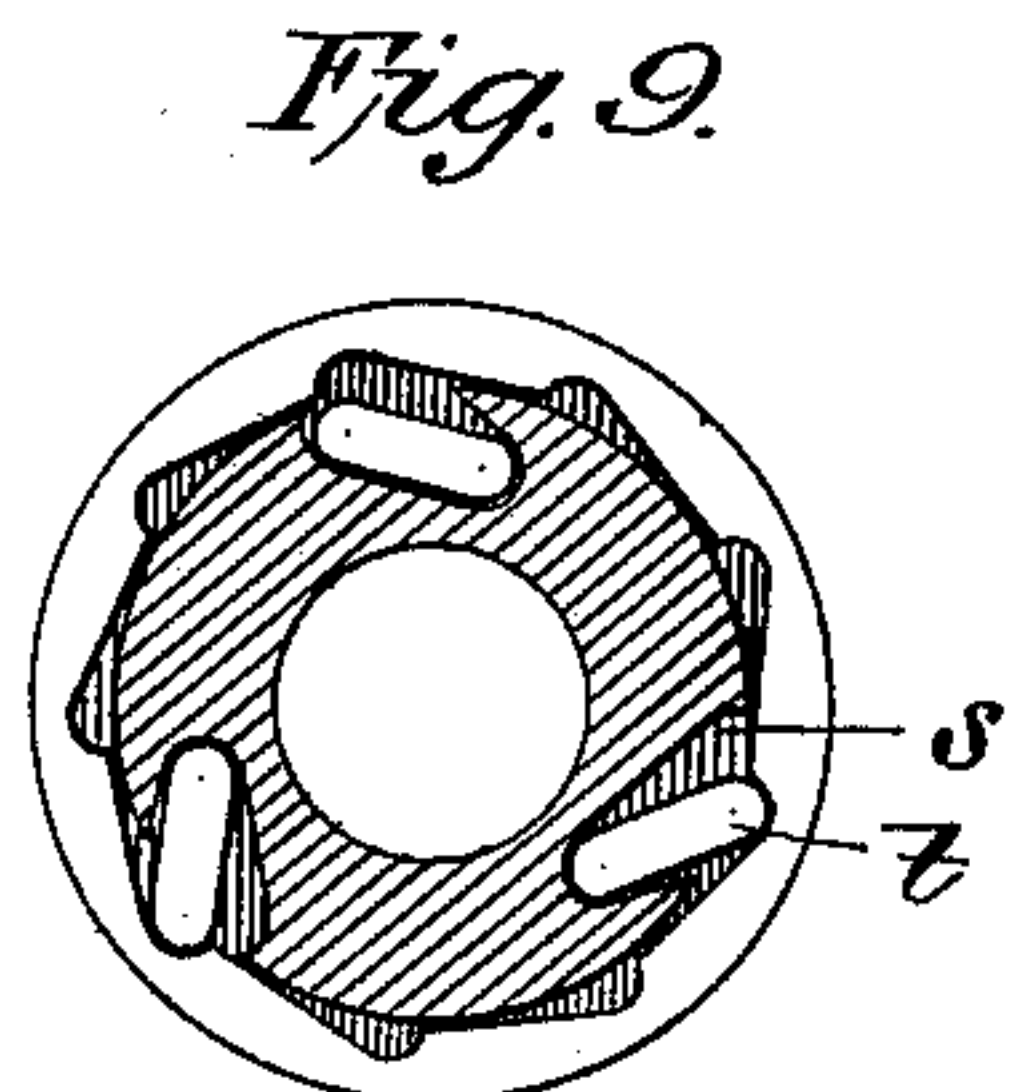


Fig. 9.

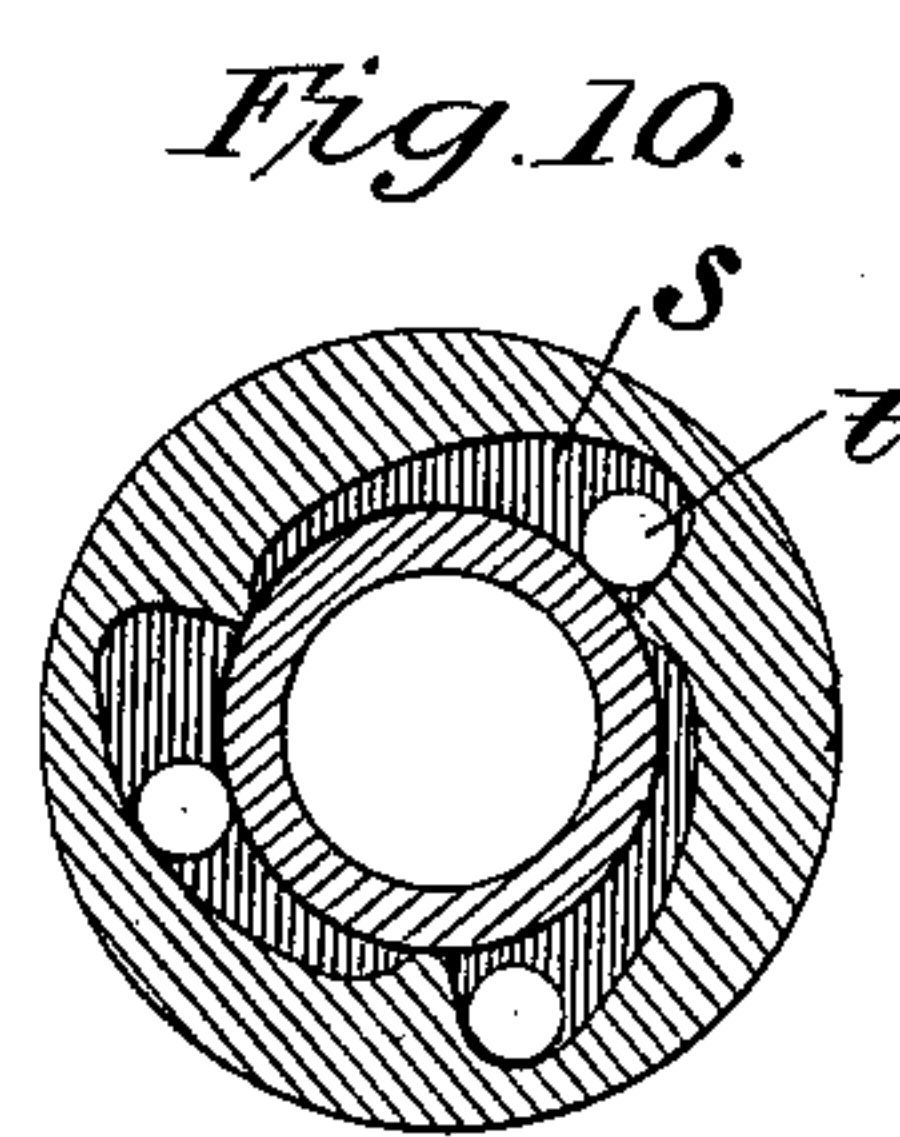


Fig. 10.

Witnesses.

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UNITED STATES PATENT OFFICE.

SAMUEL W. MARTIN AND CHARLES H. PAXSON, OF SPRINGFIELD, OHIO,
ASSIGNORS TO MAST, FOOS & CO., OF SAME PLACE.

LAWN-MOWER.

SPECIFICATION forming part of Letters Patent No. 229,725, dated July 6, 1880.

Application filed December 16, 1879.

To all whom it may concern:

Be it known that we, SAMUEL W. MARTIN and CHARLES H. PAXSON, of Springfield, in the county of Clarke and State of Ohio, have
5 invented certain Improvements in Lawn-Mowers, of which the following is a specification.

This invention relates to that class of machines in which a rotary head provided with spiral knives operates, in connection with a
10 fixed blade, in the bottom of the frame, and more particularly to that form of machine in which the fixed blade is hung between two ground-wheels, which carry the entire machine.

The object of the invention is to secure a
15 uniform height of cut on uneven ground without the use of a floating frame or vibrating handle, to reduce the width of the machine, and to render the machine simple in construction.

20 With these ends in view the invention consists in the manner of hanging the cutter-head in the machine, in the construction and arrangement of the driving-gear, and in the construction of the main frame, as hereinafter explained in detail.

25 Figure 1 represents a top-plan view of the machine; Fig. 2, an end elevation of the same with the ground-wheel partly broken away at the center in order to expose the clutch to view; Fig. 3, a transverse central section of the gearing on one side of the machine, taken on the line *x x*, Fig. 2; Fig. 4, a longitudinal vertical section of the machine on the line *y y*, Fig. 1; Figs. 5 and 6, perspective views of one
30 of the frame-plates, looking from opposite sides of the same; Figs. 7, 8, 9, and 10, views of details.

35 A A represent the two ground-wheels, mounted on journals on the sides of the main frame; B, the rotary cutting-head, and C the fixed blade or knife at the bottom of the machine.

40 The main frame consists of two end or side plates, D, a cross-brace, E, connecting the plates at the top, and the knife or knife-supporting bar C, connecting the plates at the bottom. The two frame-plates D, which are
45 duplicates of each other, except that one is

right and the other left handed, are constructed each in a single piece, as shown in Figs. 5 and 50 6. Each plate has on the outer side a rigid journal or neck, *a*, to receive the ground-wheel, and a similar neck, *b*, to receive an intermediate gear-wheel, the first neck being extended outward farther than the other, and located 55 upon an outwardly-extended projection or offset, *c*, formed on the plate, as shown in Figs. 3, 5, and 6. This offset or protuberance on the plate is recessed or made hollow in the back from the inner side of the plate, as shown 60 at *d*, to form a pocket for the cutter-head pinion, and in its edge the offset is provided with an opening, *e*, which forms a communication between the opposite sides of the plate, so that the cutter-head pinion, which is applied 65 on the inside, may engage with the driving-pinion, applied on the outside, as hereinafter more fully explained. The plate is also provided on the outside with flanges *f*, to encircle and assist in concealing the driving-gear, and 70 on the lower edge is provided with a bearing, *g*, to receive the fixed knife. On the inner side the plate has a half box or bearing, *h*, to receive the shaft of the cutter-head, said box being located at the bottom of the previously- 75 mentioned opening *d*, which is of such size as to admit of the cutter-pinion being passed through it when the parts are being assembled.

The shaft-bearing or box *h* is provided with a cap or top plate, *m*, secured in place by 80 screws, and constructed, as shown in Fig. 7, with an upwardly-extending flange or plate, *m'*, which serves to close the opening *d*, as represented in Fig. 3, and thus exclude dirt and other foreign matters. 85

The cutter-head C, which may be of any ordinary or approved construction in its main features, has a central shaft provided on its extreme ends, outside of the points of bearing, with driving-pinions *k*, secured rigidly thereon. 90 In assembling the parts of the machine these pinions are first introduced into the openings or recesses *d* from the inner sides of the frame-plates, and the cutter-shaft dropped into place in the bearings *h*, whereupon the edges of pin- 95 ions *k* will be exposed on the outer side of the

plates through the openings *e*. The cross-brace *E* and the knife are then applied and secured in place, so as to connect and hold the frame-plates in a firm and rigid manner, and the cap-plates *m* secured in place, so as to fasten the cutter-shaft in position and close the recesses or openings *d*. Each of the main-plate journals *b* next receives from the outside a double pinion, *n o*, consisting of the large pinion *n*, to gear into the cutter-pinion *k*, and the small pinion *o*, cast in one piece with the large pinion, and designed to gear into a driving wheel or pinion, *p*. This pinion *p* is of large size, and is mounted loosely on a hollow neck or sleeve, *r*, formed centrally on the inner side of the ground-wheel *A*, which latter is in turn mounted loosely on the journal *a* of the frame-plate.

The pinion *p* has on the outer side a hub or neck containing, next to the sleeve *r*, eccentric or inclined cavities *s*, in which are seated loosely small balls, rollers, or pieces of metal *t*, arranged either as shown in Figs. 9 or 10, as preferred, and which serve to lock the pinion *p* and the ground-wheel together as the latter turns forward, but permit the ground-wheel to turn backward freely and independently.

A pawl and ratchet or other common form of clutching devices may be used between the ground-wheel and pinion, if preferred.

During the advance of the machine the ground-wheel, through the clutching devices, drives the pinion *p*, which, in turn, drives the small pinion *o* and its larger companion *n*, which latter drives the pinion *k* of the cutter-head, imparting to the same a very rapid rotation.

The parts are so constructed that the axis of the cutter-head stands somewhat in front or in advance of the axis of the ground-wheels. This arrangement is advantageous for several reasons, but more particularly because it permits a more compact and advantageous disposition of the gearing, and because the cutter-head is thereby enabled to cut forward to a point nearly in line with the front of the main wheels, thus adapting the machine to cut closely to a wall or fence, and avoiding the necessity of trimming and finishing after the machine with a sickle.

It will be noticed that, although the machine is adapted to work up closely to a wall, the ground-wheels, projecting in advance of the cutter, serve as guards, and by striking the wall first check the advance of the machine, so as to prevent the cutter-head from striking and being injured.

As an additional protection for the cutter-head, the frame-plates are extended forward and provided on the inside with curved flanges *w*, which encircle the ends of the cutter-head blades, as clearly represented in Figs. 3 and 4. These flanges also serve to prevent grass from being wound inward around the ends of the cutter-head shaft.

Referring to Fig. 4, it will be seen that the

guards *w* terminate in advance of the fixed blade *C*, thus allowing the free escape of grass between them.

The handle *K*, by which the machine is propelled, will be attached rigidly to the frame and extended backward, as shown in the drawings. Any suitable construction and mode of attachment may be adopted.

Owing to the location of the fixed knife, and the fact that the whole machine turns together upon the journals of the main wheels, the rise and fall of the handle, and the consequent rocking of the frame within ordinary bounds, is of no moment, it being found in practice that the machine will cut steadily and at practically uniform height on rough as well as on smooth ground.

Referring to Figs. 1 and 3, it will be noticed that the spokes of the ground-wheels are located at the outer side, and that the wheel is dished or made concave on the inner side in such manner as to permit the sleeve *r* and the pinion *p* thereon to set back within the wheel. This arrangement materially reduces the width of the machine, besides rendering the mechanism more compact, and is applicable alike to any and all machines of this class whether carried upon two wheels alone or not.

By mounting the pinion on a sleeve on the main wheel a long bearing is secured for each without widening the machine, and this fact it is, combined with the dishing of the wheels, that admits of the pinion being successfully located therein.

On each side of the machine a covering-plate, *a'*, such as shown in Fig. 8, is applied over the gearing against the flanges *f* of the main frame. These plates, in connection with the flanges, entirely conceal the gearing.

Having thus described the invention, what is claimed is—

1. The combination of the main frame, the two ground-wheels supporting the same, and the cutter-head mounted in the frame, with its axis in advance of the axis of the wheels, and its front side in rear of the front of the wheels, substantially as and for the purpose described.

2. A frame-plate for a lawn-mower, recessed to permit two pinions to be applied from opposite sides and geared together, substantially as shown and described.

3. The frame-plate recessed at *d* and provided with the opening *e*, forming a communication between the opposite sides of the plate, as shown and described.

4. The frame-plate for a lawn-mower, having the recess *d*, opening *e*, and bearing *h*, as described and shown.

5. The frame-plate provided with the opening *d* and bearing *h*, as shown.

6. In combination with the frame-plate having the opening or recess *d* and bearing *h*, the cap-piece *m*, provided with the flange *m'*.

7. The combination of the frame-plate having recess *d*, the cutter provided with pinion

k, the double pinion *n o*, the pinion *p*, and the ground-wheel clutched to pinion *p*, as described.

5 8. In a lawn-mower, the combination of a frame-plate and two spur-pinions located on opposite sides of said plate and gearing together in one and the same plane through an

opening in the plate, substantially as described and shown.

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Witnesses:

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