

(No Model.)

4 Sheets—Sheet 1.

T. SETTLE.

MACHINE FOR GRINDING METAL PLATES.

No. 286,855.

Patented Oct. 16, 1883.

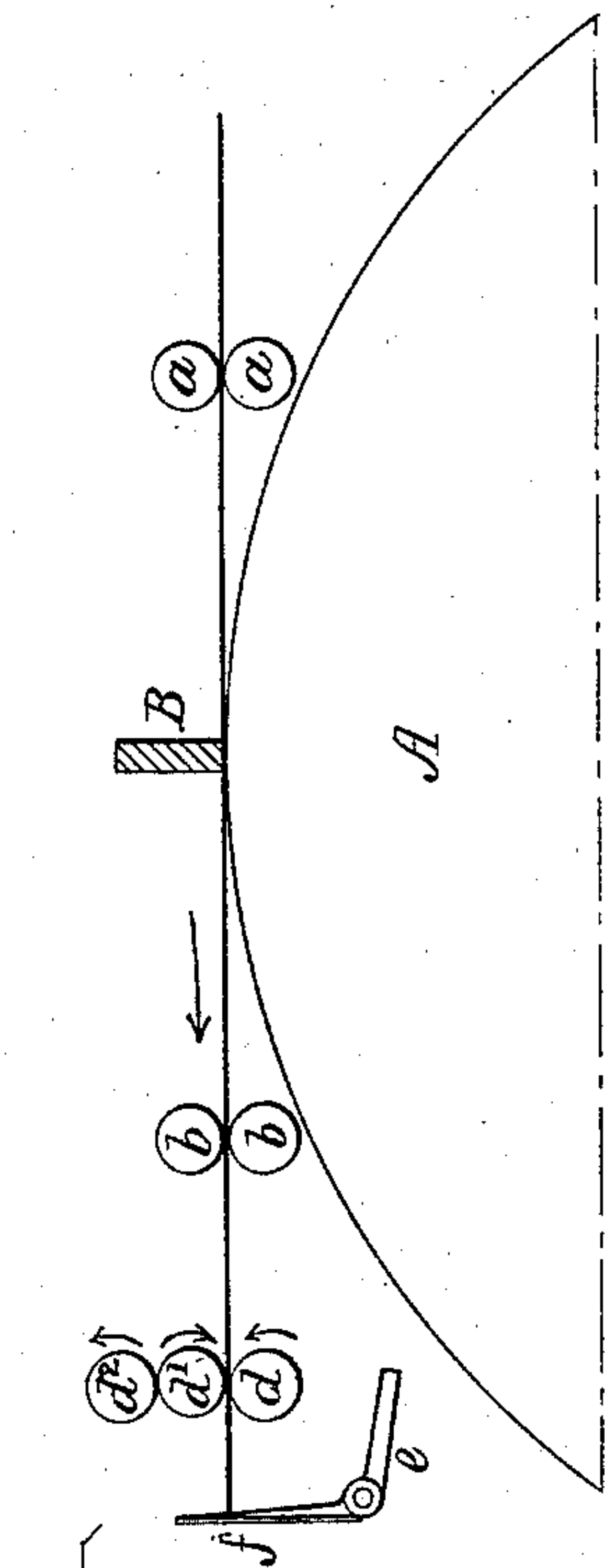


FIG. 1.

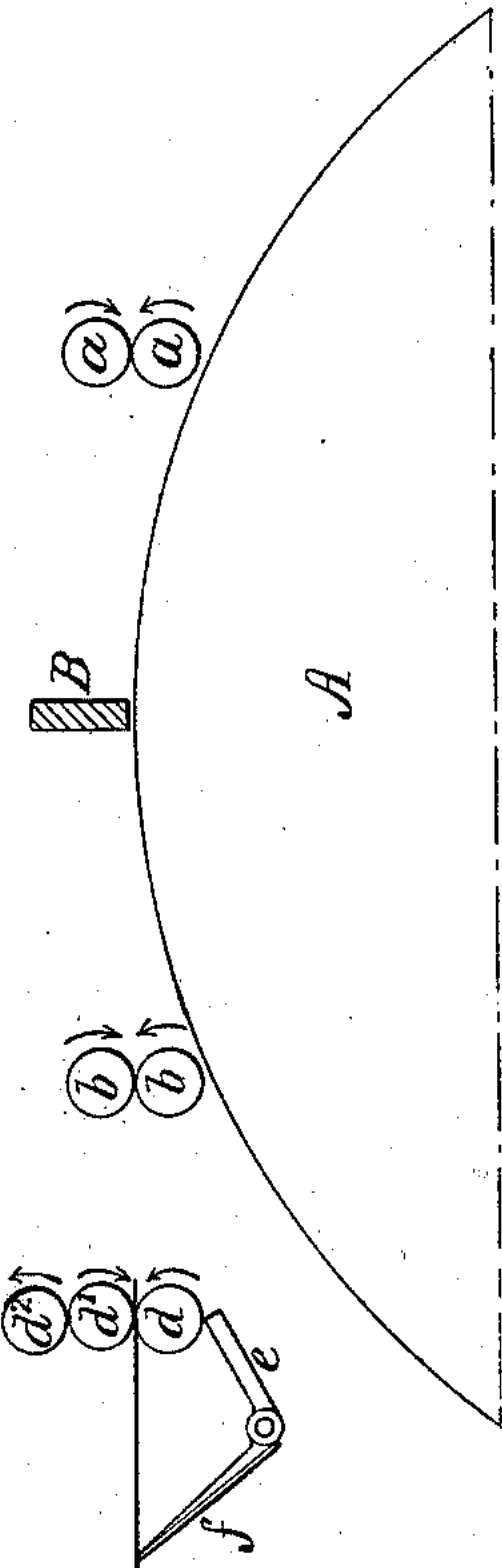
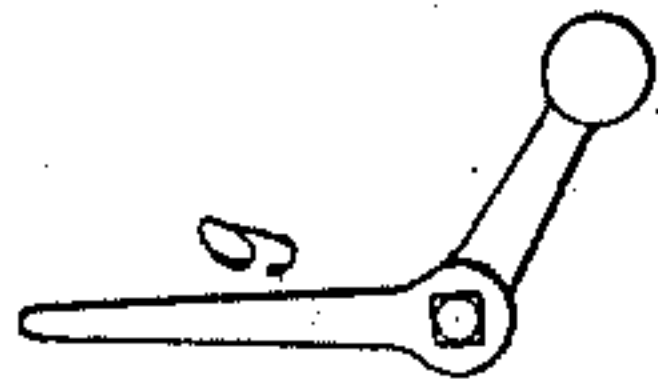


FIG. 2.

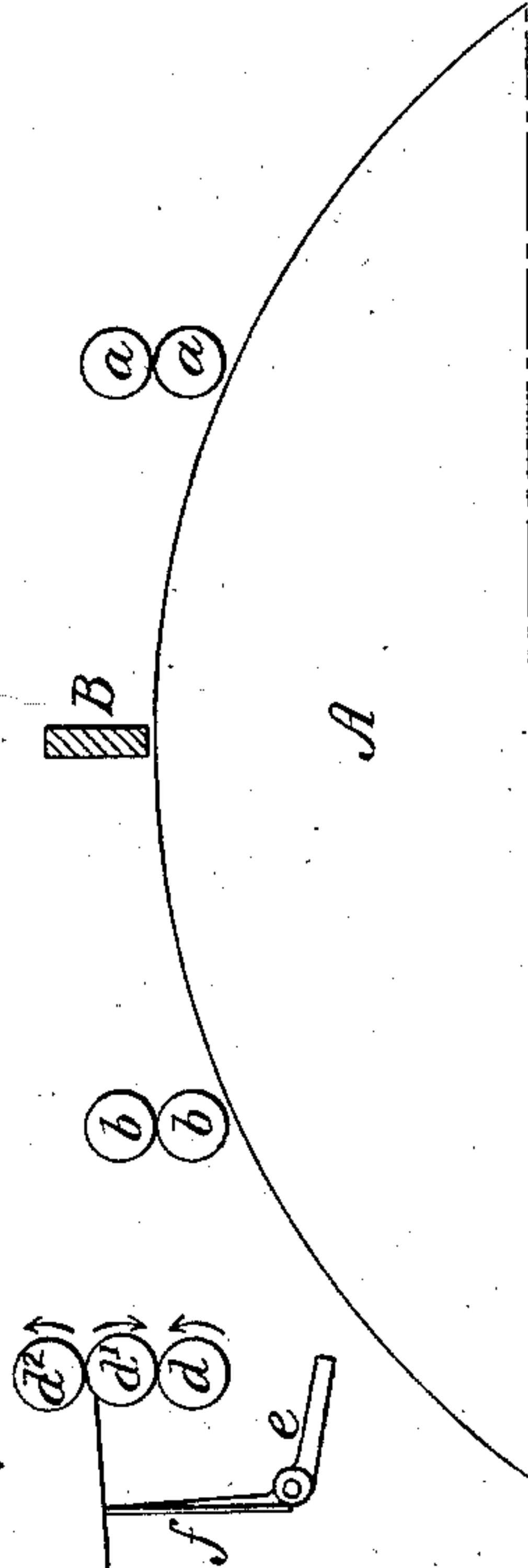
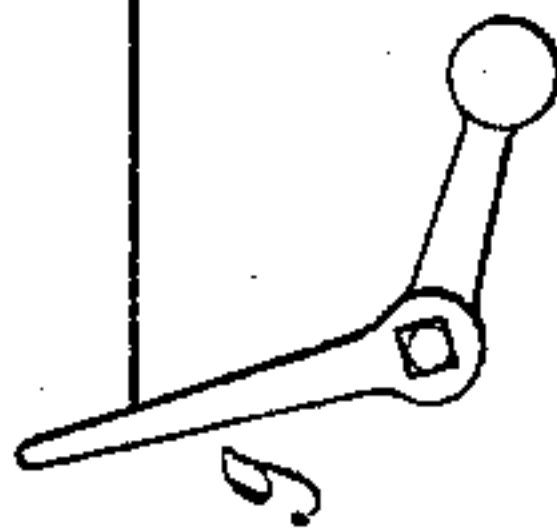
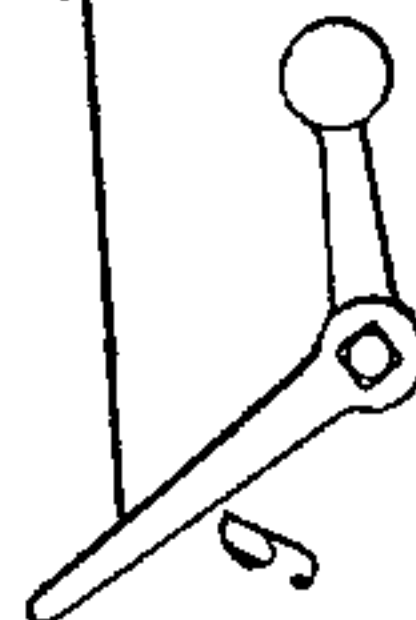


FIG. 3.



WITNESSES:

David Williams
Harry Drury

INVENTOR:

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(No Model.)

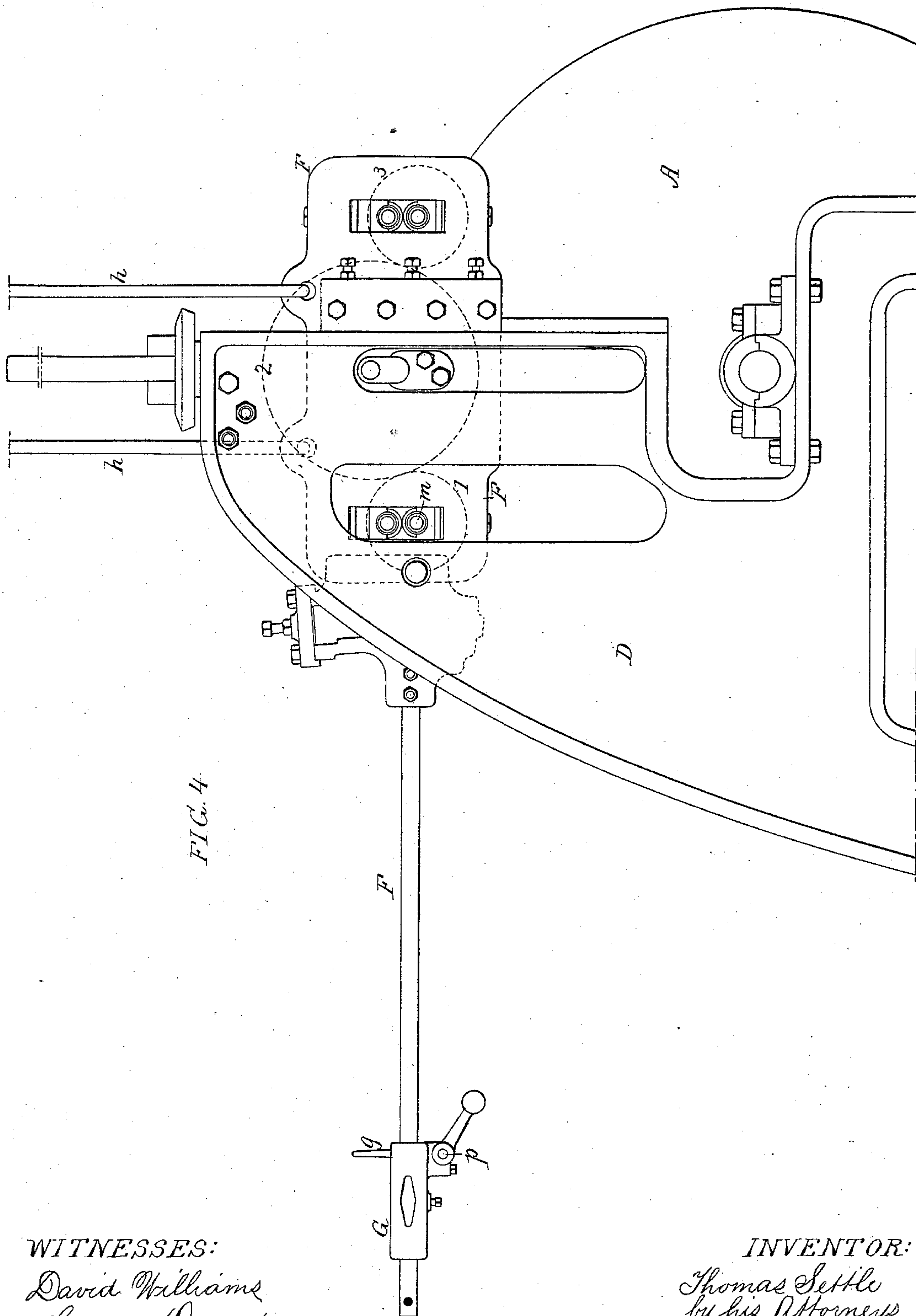
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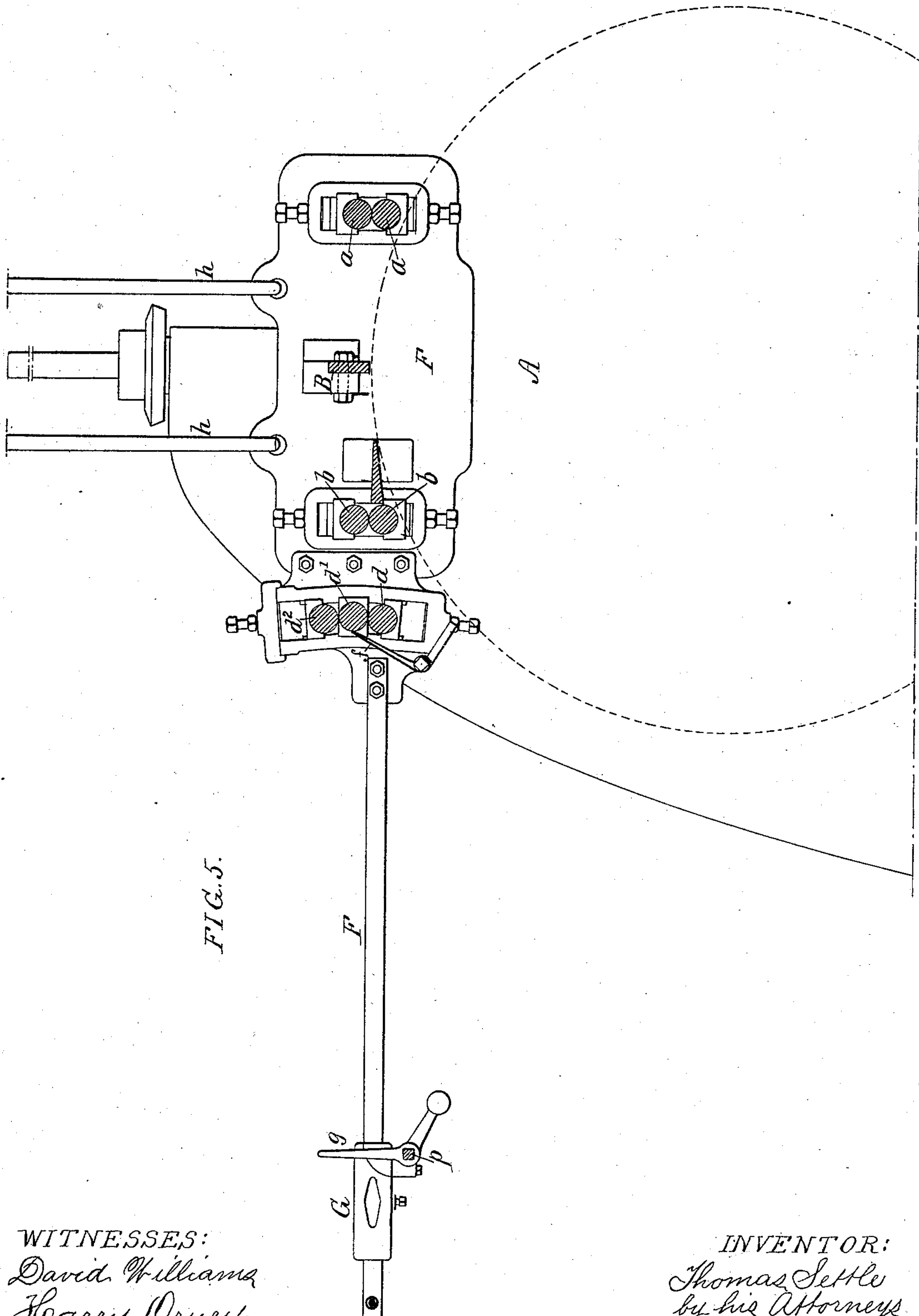
4 Sheets—Sheet 3.

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4 Sheets—Sheet 4.

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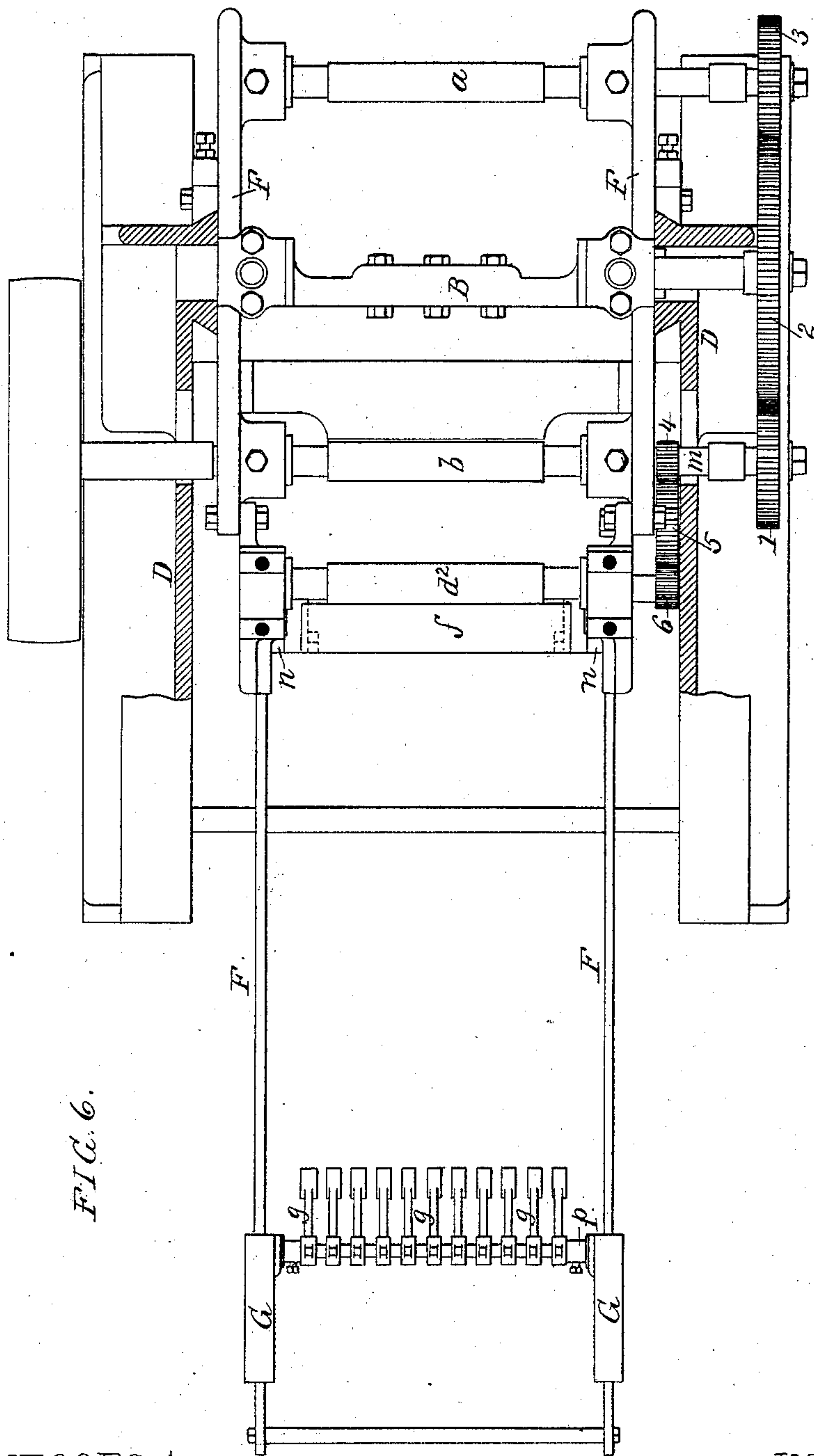


FIG. 6.

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UNITED STATES PATENT OFFICE.

THOMAS SETTLE, OF PHILADELPHIA, PA., ASSIGNOR TO HAMILTON,
ALBERT H., HORACE C., AND WILLIAM DISSTON, OF SAME PLACE.

MACHINE FOR GRINDING METAL PLATES.

SPECIFICATION forming part of Letters Patent No. 286,855, dated October 16, 1883.

Application filed July 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS SETTLE, a subject of the Queen of Great Britain and Ireland, and a resident of Philadelphia, Pennsylvania, United States of America, have invented certain Improvements in Machines for Grinding Metal Plates, of which the following is a specification.

The object of my invention is to provide a machine for grinding saws or other metal blades with a device for automatically returning the blade over the stone; and this object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawings, in which—

Figures 1, 2, and 3, Sheet 1, are diagrams illustrating the essential features of my invention; Fig. 4, Sheet 2, a side view of a saw-grinding machine with my improvements; Fig. 5, Sheet 3, a longitudinal section of the same; and Fig. 6, Sheet 4, a plan view, partly in section.

I will first describe the essential features of my invention by reference to the diagrams, Figs. 1, 2, and 3, in which A represents part of the stone of a machine for grinding saws or other metal blades or plates, and B the bar by which the blade is pressed against the stone. For convenience, I will describe the invention as applied to a machine for grinding saw-blades.

In front of the bar B are the usual feed-rolls *a a*, and in the rear of the bar are the draft-rolls *b b*, these being common in ordinary saw-grinding machines.

In the rear of the rolls *b b* are a series of rolls, *d, d', and d''*, arranged one above another, these rolls being driven in the directions pointed out by the arrows. A plate, *f*, is pivoted below and in the rear of the lower roll, *d*, the plate having weighted arms, the tendency of which is to throw the plate forward or toward the rolls, the upper edge of the plate in the present instance being adjacent to the central roll, *d'*. Some distance in the rear of the plate *f* are a series of pivoted and weighted fingers, *g*, one only being shown in the diagram, as the fingers are arranged side by side. The saw-blade passes from the rolls *b b*, between the lower rolls, *d d'*, and strikes the plate *f*, which yields, as shown in Fig. 1, and permits the plate to

pass over it, as shown in Fig. 2. Before the blade is clear of the rolls *d d'* the outer end of the same strikes the fingers *g* and causes the same to yield, as shown in Fig. 2, this movement continuing until the inner end of the blade is free, when, owing to the weighted arms of the plate *f*, the latter elevates the said free end of the blade, to which at the same time a forward thrust is imparted by the action of the weighted fingers *g*, the inner end of the blade being thus pushed between the upper rollers, *d' d''*, whereby it is returned over the stone. By this means one attendant is enabled to run the machine, whereas two are at present required—one to feed the blades to the stone, and another to return them.

Various modifications of the devices for carrying out my invention may be devised without departing from the main features of the invention. For instance, instead of an independent set of rollers, *d, d', d''*, an extra roller may be placed above the top draft-roller, *b*, so as to serve with the latter to return the blade, and spring-arms may be used in place of the pivoted and weighted plate *f* and fingers *g*; or, instead of the latter, a rotating friction-drum may be employed, the tendency of which will be to feed forward the blade resting upon it. The devices shown in the diagrams are, however, preferred, and in Figs. 4, 5, and 6 I have shown an organized machine embodying the same.

The shaft of the stone is adapted to suitable bearings on the opposite side frames, *D D*, guided on which is a frame, *F*, the latter being vertically adjustable by suitable screw-rods, and being connected by rods *h* to suitable counterbalancing devices, which it has not been deemed necessary to show in the drawings. This frame carries the bar B, the feed and draft rolls *a* and *b*, the return attachment above described, and the gearing for operating the same.

The various rolls are driven from a shaft, *m*, which in the present instance is the shaft of the lower draft-roll, *b*. This shaft has a spur-wheel, 1, geared, through an intermediate pinion, 2, and spur-wheel 3, to the shaft of the lower feed-roll, *a*. Another spur-wheel, 4, on the shaft *m*, drives, through an intermediate pinion, 5, the train of spur-wheels 6, which gear together the rolls *d, d', and d''*. The plate *f* is

pivoted to opposite studs *n* on the frame *F*, and the fingers *g* are hung to a transverse rod, *p*, carried by slides *G*, which can be adjusted on the bars of the frame *F*, so as to suit blades of 5 different lengths.

I claim as my invention—

1. The combination of the stone of a grinding-machine and rolls for feeding a blade forward over the same with a pair of return-rolls, 10 and with mechanism, substantially as described, whereby the inner end of the blade after leaving the feed-rolls is lifted up to and is thrust backward between the return-rolls, as specified.

15 2. The combination of the stone and feed-rolls, the return-rolls, the pivoted and weighted plate *f*, adjacent thereto, and mechanism, substantially as described, whereby a backward thrust is imparted to the blade, as set forth.

3. The combination of mechanism for grinding a blade or plate with a return attachment comprising a pair of feed-rolls, a pivoted and weighted plate *f* adjacent thereto, and pivoted and weighted fingers *g*, adapted to act upon the outer end of the blade, as set forth. 20

4. The combination of the return-rolls and the lifting-plate *f* with the fingers *g*, hung to a rod carried by adjustable slides, as set forth. 25

In testimony whereof I have signed my name to this specification in the presence of 30 two subscribing witnesses.

THOMAS SETTLE.

Witnesses:

HARRY DRURY,

HENRY HOWSON, Jr.