

J., W. A. & G. F. McADAMS.
Pen-Lifter for Ruling-Machines.

No. 227,030.

Patented April 27, 1880.

Fig 1.

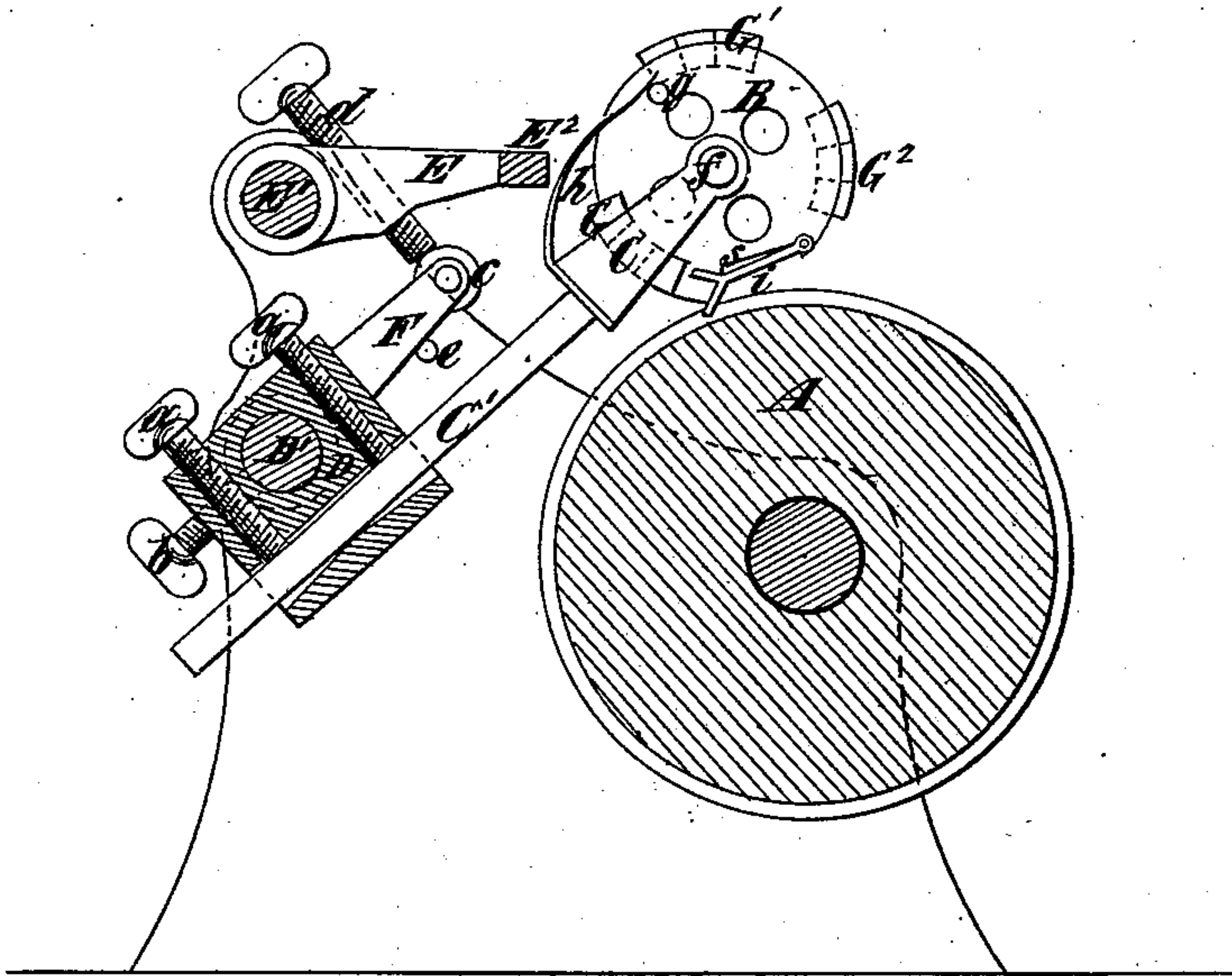


Fig 2.

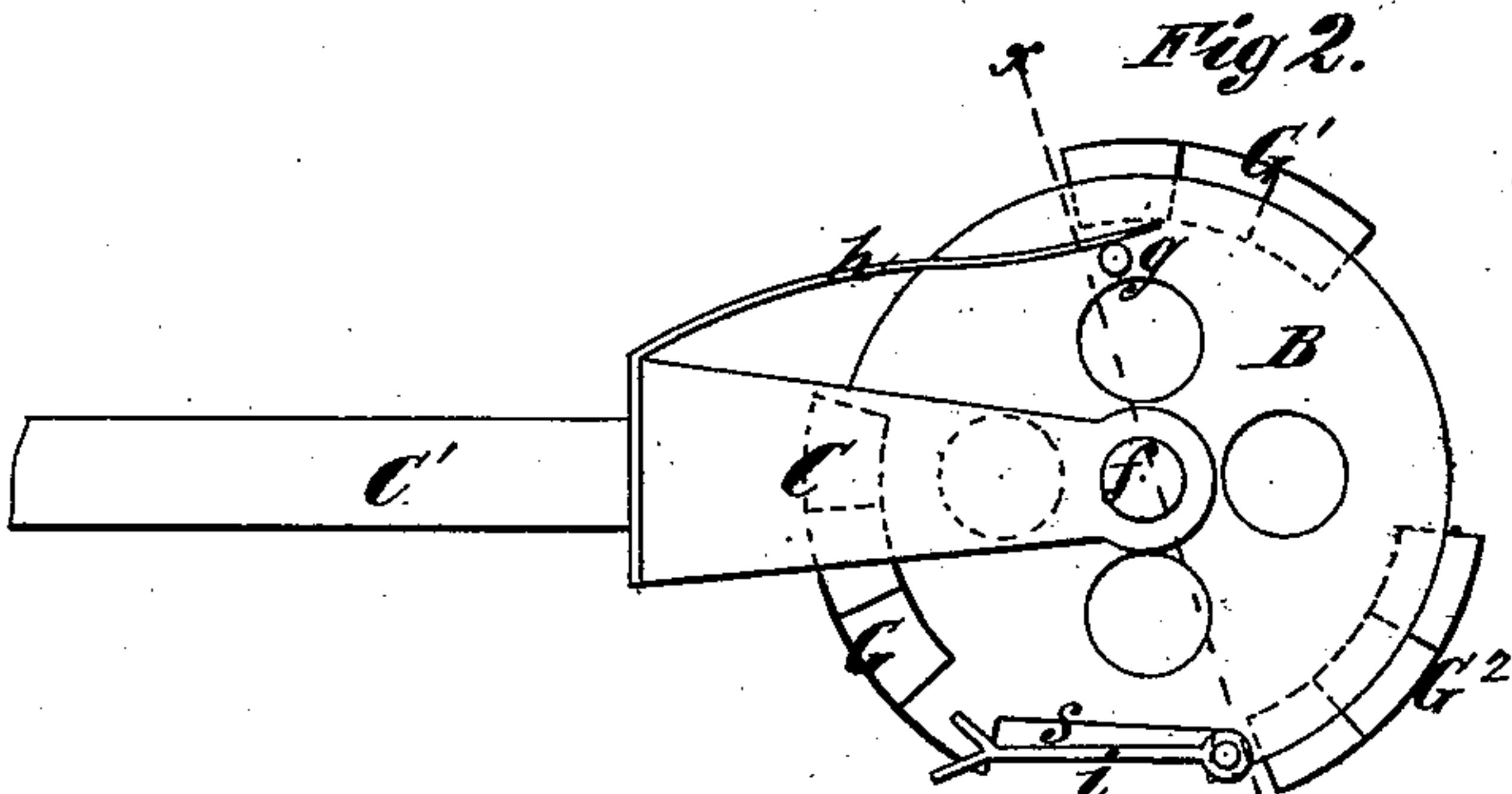


Fig 3.

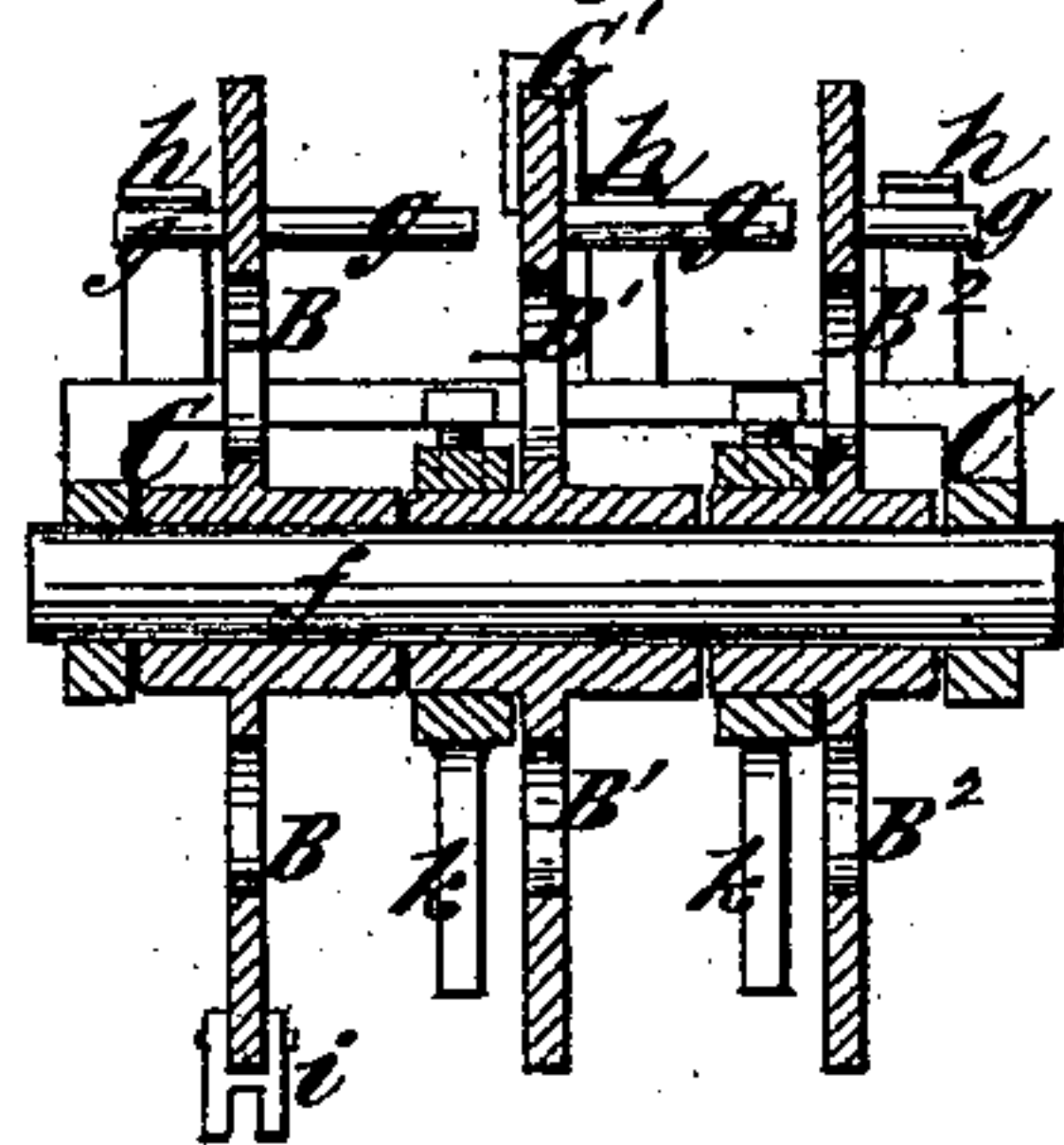
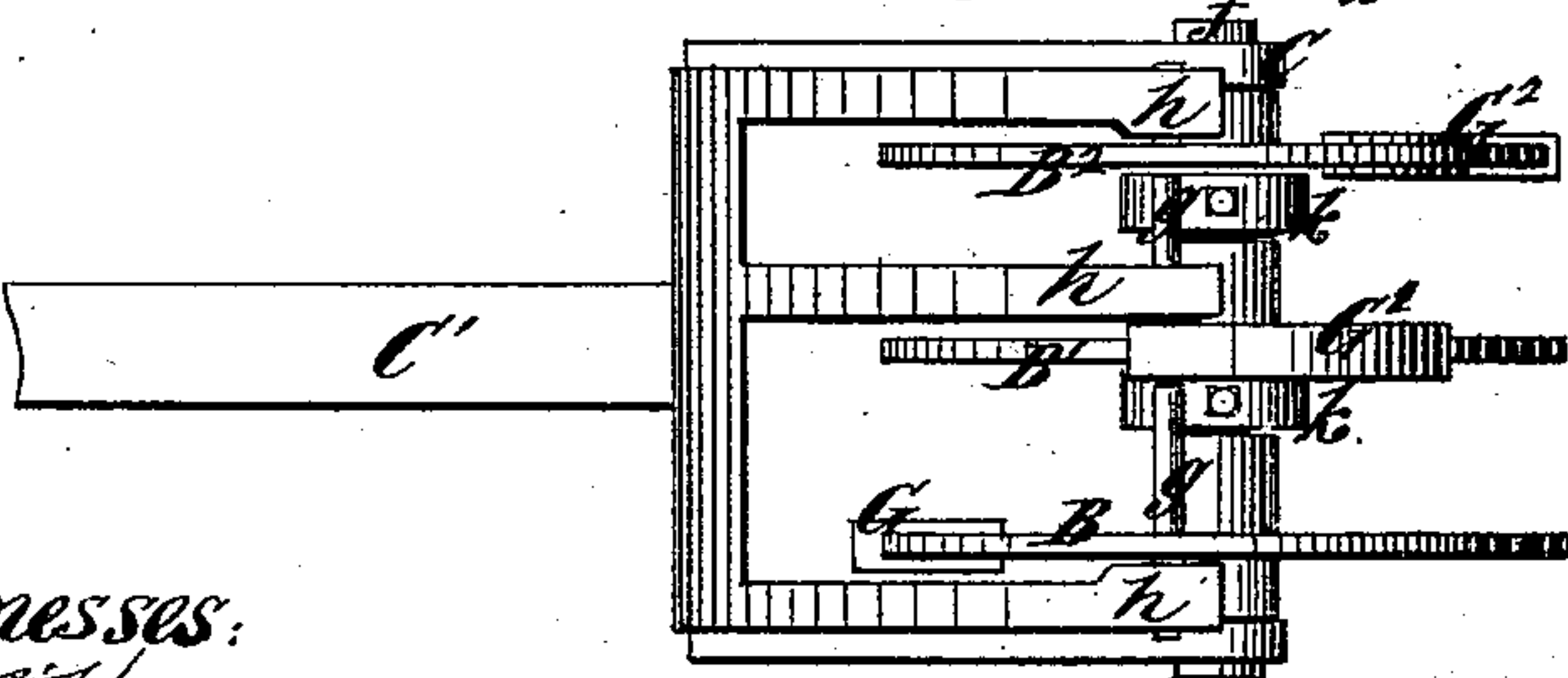


Fig 4.



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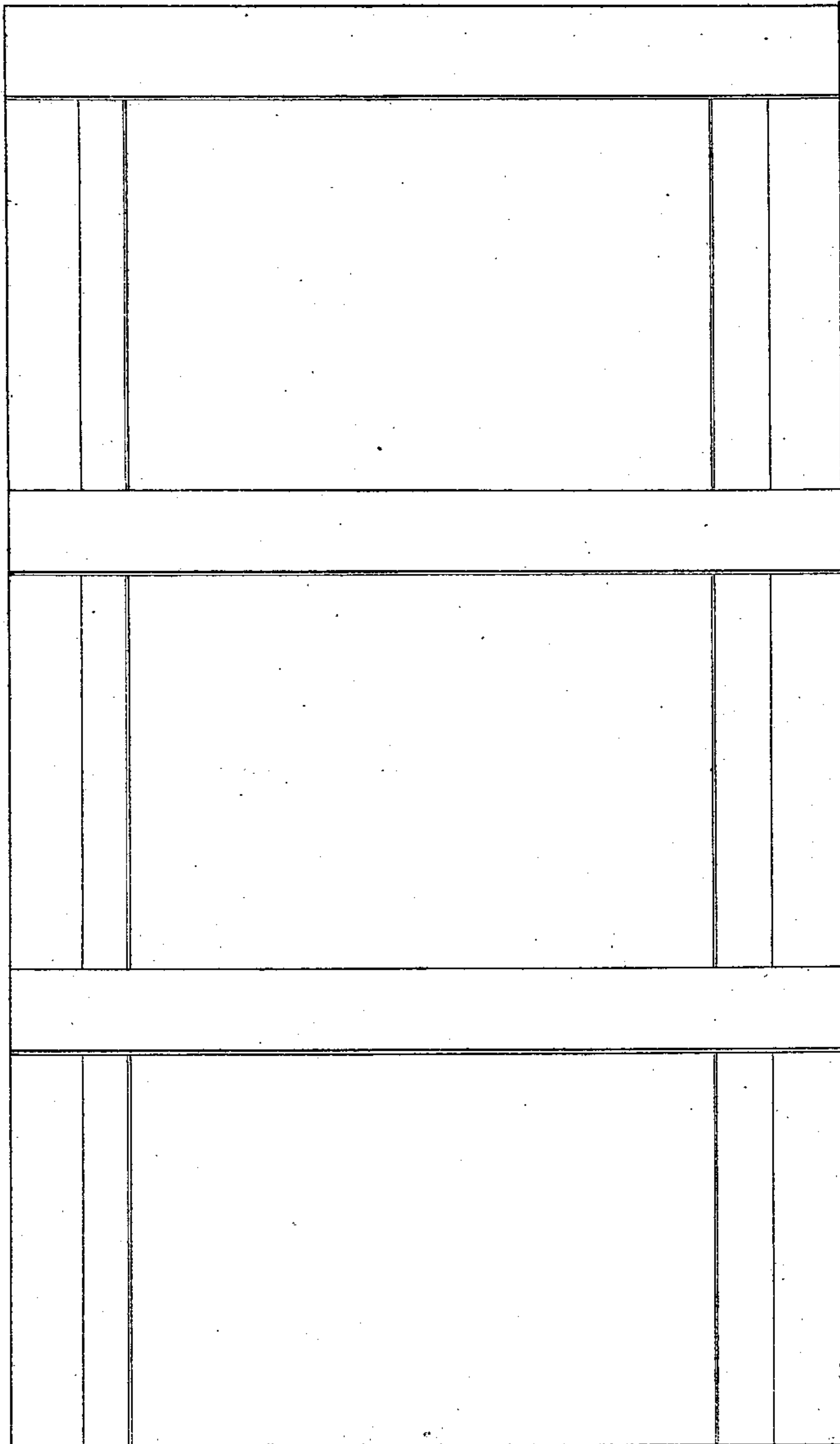
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William A. Adams
George F. Adams
By his attorney
Brown & Brown

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Fig 5.



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UNITED STATES PATENT OFFICE.

JOHN McADAMS, OF BOSTON, MASSACHUSETTS, AND WILLIAM A. McADAMS
AND GEORGE F. McADAMS, OF BROOKLYN, NEW YORK.

PEN-LIFTER FOR RULING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 227,030, dated April 27, 1880.

Application filed September 30, 1879.

To all whom it may concern:

Be it known that we, JOHN McADAMS, of Boston, in the county of Suffolk and State of Massachusetts, and WILLIAM A. McADAMS and GEORGE F. McADAMS, both of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Pen-Lifters for Ruling-Machines, of which the following is a specification.

In ruling paper by machinery with galley-lines arranged to leave a heading to the sheet or page, it is necessary to lift the pens in the feed of the sheet so as to establish said heading. This has been effected automatically by the paper as it is fed into the machine by causing the edge of the paper to strike a movable tongue attached to the inside of a roller that is provided with a cam which bears upon the sheet and lifts an arm connected to the pen-holder.

The object of our invention is to provide a convenient means for making headings of different widths, and also to provide for making several headings on one page, for the purpose of making two or more accounts on the same page.

The invention consists in the combination, in a ruling-machine, of a series of lifting cam wheels or rollers, one of which is provided with a movable tongue upon which the paper acts, and which are mounted loosely on a shaft or spindle, and clutches connecting the several wheels or rollers of the series, whereby the wheel or roller which is provided with a movable tongue, after a partial rotation, serves to transmit motion to the second wheel or roller, which, after a partial rotation, transmits its motion to the third wheel or roller.

The clutches connecting the several wheels or rollers are preferably adapted to be adjusted to vary the length of the accounts, and this may be still further varied by making the cam-faces of the wheels or rollers adjustable in their length, as hereinafter explained.

In the accompanying drawings, Figure 1 represents a transverse section of a cylinder over which the paper passes and its appurtenances, and a side view of our lifting device. Fig. 2 represents a view, on a large scale, of

said device. Fig. 3 represents a transverse section thereof on the dotted line *xx*, Fig. 2. Fig. 4 represents a plan view thereof; and Fig. 5 represents a sheet of paper ruled for several accounts.

Similar letters of reference designate corresponding parts in all the figures.

A designates the cylinder or roller of a ruling-machine, over which the paper passes, and which is provided with a series of circumferential grooves for endless cords or bands which carry the paper forward.

The lifting device is composed of a number of cam wheels or rollers, $B B' B^2$, mounted in a frame, C, provided with a shank, C' , which is held in a holder, D, mounted on the shaft D' . This holder is provided with adjusting-screws *a*, whereby the pressure on the sheet of paper may be regulated, and embodies the improvement for which Letters Patent No. 192,444 were granted to John McAdams June 26, 1877.

A set-screw, *b*, provides for securing the holder in different positions on the shaft D' .

E designates arms extending from a shaft, E' , and serving to support the pen-bar E^2 , by which the pens are supported.

F designates an arm extending from the shaft D' , carrying upon its end a roller, *c*, which impinges against an adjustable stop, (shown as consisting of a screw, *d*,) extending through one of the levers E.

By raising the lifting wheels or rollers the shaft D' is oscillated, and the roller *c*, acting on the screw *d*, raises the pen-bar and lifts the pens away from the paper. A stop, *e*, inserted in the side frame prevents the arm F and the lifting wheels or rollers from dropping down when not supported by the paper.

The lifting wheels or rollers are here shown as three in number, although more or less, but not less than two, might be used. They are represented as rotating freely on a shaft or pin, *f*, and each has a pin, *g*, extending from its side, upon which a spring, *h*, presses, and thereby serves to stop the wheel or roller with the recess *s* opposite the paper, and hold it in that position to keep the wheel or roller out of contact with the paper till started for the next ruling. The cam-faces $G G' G^2$ of these wheels

or rollers are represented as consisting of spring-clips which fit over the edges of the wheels or rollers.

The wheel or roller B, which serves as a driver, is provided with a movable tongue, *i*, upon which the edge of the sheet acts and by which the wheel or roller is caused to rotate. The first heading will thus be as long as the cam-face G, and by removing any of the clips the length of such cam-face may be decreased and the heading shortened.

The several wheels or rollers B B' B² are connected by clutches in such manner as to permit the partial rotation of one without moving the others. These clutches, as here represented, consist of the pins *g*, projecting from the sides of the wheels or rollers B B', and stops consisting of levers *k*, adjustably secured to the hubs of the rollers B' B².

When the wheel or roller B has rotated sufficiently to bring the pin *g* in contact with the lever *k* the wheel or roller B' is carried forward, and when the pin upon the last-said wheel strikes the lever *k* upon the wheel B² the said wheel or roller is also rotated.

It will be understood that the length of any account may be varied by shifting the levers *k*, and that the length of an account is equal to the distance which one of the wheels rotates after its cam-face passes the paper and before it moves the next wheel added to the distance which the next wheel or roller rotates before its cam-face strikes the paper. When only two accounts are desired on a page the cam-face G' on the wheel or roller B' is removed, and the said wheel or roller serves only as a transmitter from the wheel or roller B to B².

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a ruling-machine, the combination, with two or more lifting cam wheels or rollers, one of which is provided with a movable tongue upon which the paper acts, and which rotate independently of each other about the same axis, of clutches for transmitting motion from one to the other, whereby a partial rota-

tion of each wheel or roller is permitted before it imparts motion to the next wheel or roller, substantially as and for the purpose specified.

2. In a ruling-machine, the combination, with two or more lifting wheels or rollers, one of which is provided with a movable tongue upon which the paper acts, and which rotate independently of each other about the same axis, of adjustable cam-faces for said wheels or rollers, whereby the length of said cam-faces may be increased or diminished, and clutches for transmitting motion from one to the other of said wheels or rollers, whereby a partial rotation of each wheel or roller is permitted before it imparts motion to the next wheel or roller, substantially as and for the purpose specified.

3. In a ruling-machine, the combination, with two or more lifting cam wheels or rollers, one of which is provided with a movable tongue upon which the paper acts, of clutches for imparting motion from one to the other of said wheels or rollers, whereby a partial rotation of each wheel or roller is permitted before it imparts motion to the next, and each consisting of a pin projecting from the side of a roller which, by the rotation of the said roller, is caused to come in contact with a stop upon the next roller, substantially as specified.

4. The combination, with two or more lifting cam wheels or rollers, of clutches by which motion is imparted from one to the other, consisting of pins *g*, extending from the sides of one or more wheels or rollers, and the adjustable stop or stops *k*, secured upon adjacent wheels or rollers, substantially as specified.

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