

*J. Mc Adams.*  
*Ruling Mach.*

*N<sup>o</sup> 104,047. Patented Jun. 7. 1870.*

Fig. 3.

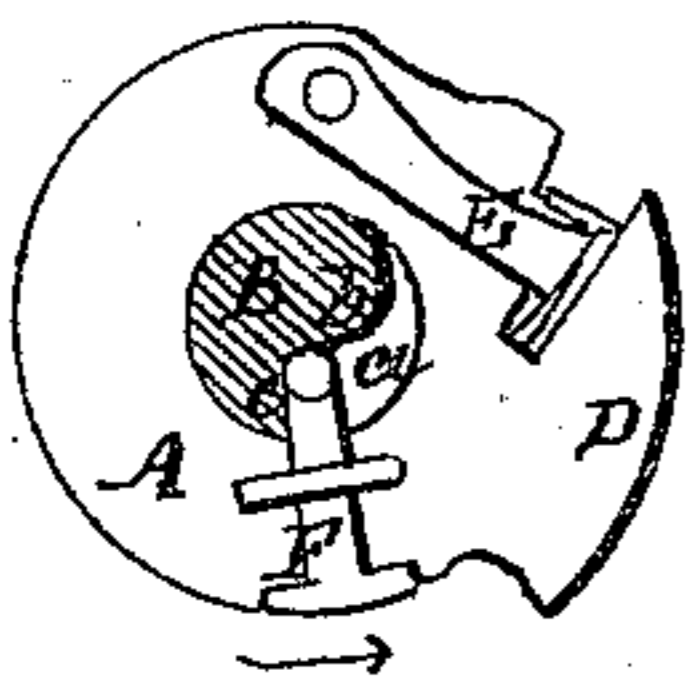


Fig. 1.

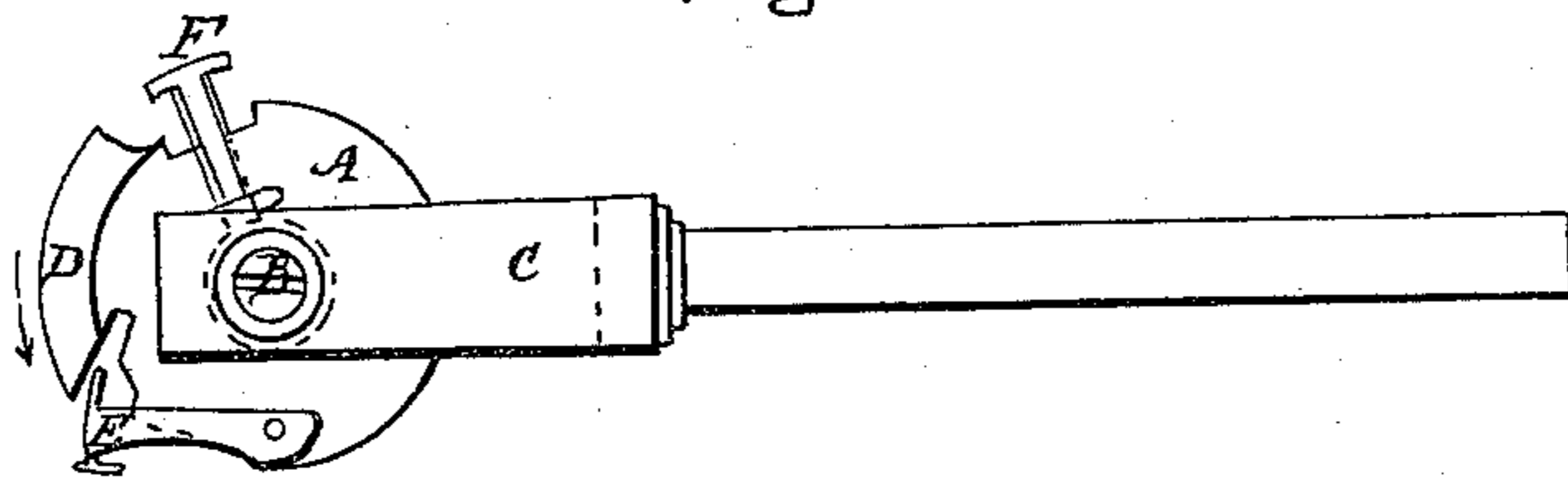
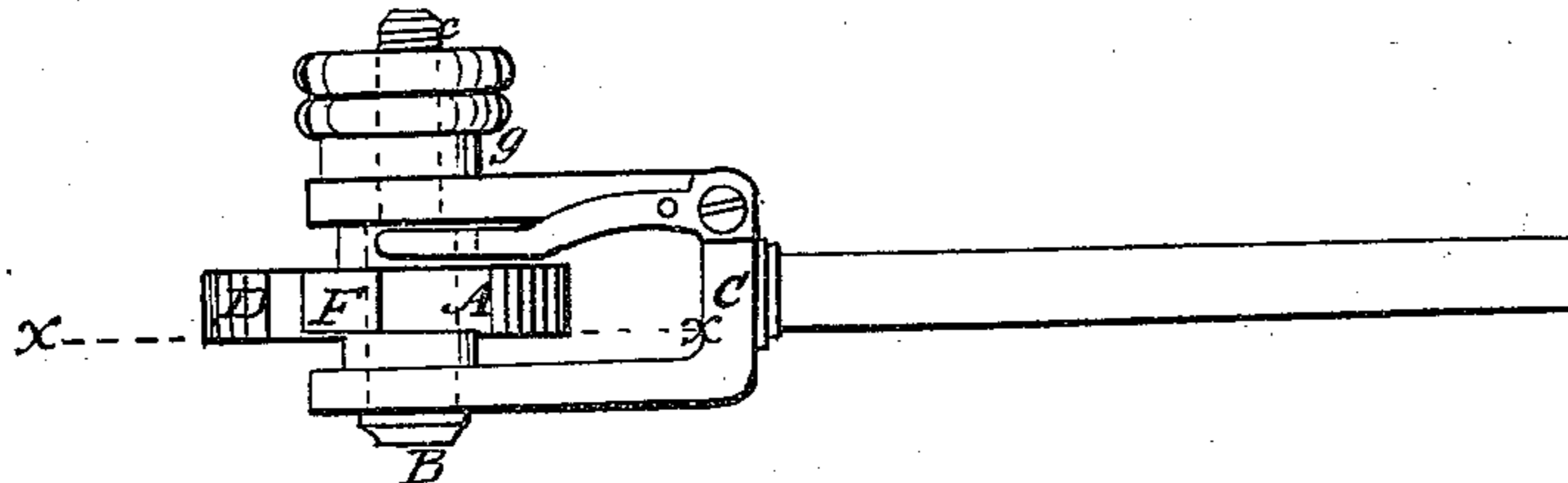


Fig. 2.



Witnesses

*Fred. Haynes*  
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Inventor

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# United States Patent Office.

JOHN McADAMS, OF BROOKLYN, NEW YORK.

Letters Patent No. 104,047, dated June 7, 1870.

## IMPROVEMENT IN RULING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN McADAMS, of the city of Brooklyn, in the county of Kings, and State of New York, have invented a new and useful Improvement in Pen-Lifters for Ruling-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a side view of a pen-lifter, in part, constructed in accordance with my improvement;

Figure 2, a plan of the same; and

Figure 3, a view of the roller portion of said device, taken transversely through its axis, as denoted by the line *xx* in fig. 2.

Similar letters of reference indicate corresponding parts.

In ruling paper by machinery, with lines arranged to leave a heading to the sheet, 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.

Such a pen-lifting device was patented February 7, 1854, to John and William McAdams, and it is upon this device that my improvement is based.

The invention consists in a combination, with the cam-shaped roller and movable tongue to said device, of a movable drop, arranged in rear of the cam, and thrown or worked outward in a positive manner, as the roller is rotated, by the feed of the sheet, so as to take up, or continue, as it were, the lifting action of the cam, but suddenly dropping or working inward at the close of the lift, to bring the reduced portion of the roller suddenly and squarely down upon the sheet, whereby the several pens are instantly and simultaneously put and retained in ruling position, which avoids that irregularity that attaches to a gradual drop of the pens at the close of the cam-action, as in the previous device of the kind hereinbefore referred to; and

The invention further consists in a combination, with such movable drop, of an adjustable cam-like center-pin to the roller, whereby the period of drop may be varied or regulated, while the machine is running, to suit different widths of heading.

Referring to the accompanying drawing—

A represents the roller of the pen-lifter, turning on a center-pin, B, in an arm, C, which is connected with the pen-holder as heretofore, or in any suitable manner.

D is the lifting-cam or cam-shaped projection on the roller A; and

E, the movable tongue against which the edge of the sheet in its feed catches, to rotate the roller, and cause its cam to lift the pens, as required.

Arranged in rear of the cam D, and connected with the roller, is a movable drop, F, preferably fitted to slide radially within or through the roller, and curved on its outer face, to correspond with the curvature of the cam, or thereabout.

This drop has a positive outward motion given it, during the rotation of the roller, by the feed of the sheet, to make it bear on the latter, and continues, as it were, the lifting action of the cam, but is released, or allowed to work suddenly inward, during its contact with the sheet, so as to bring the roller, at its reduced portion or break in its surface, in rear of the cam, suddenly and squarely down upon the sheet, which causes the several pens carried by the holder to be instantly and simultaneously put and retained in ruling position on the sheet, and causing a temporary stop to the points of the pens at starting, by reason of the elasticity at the points inducing them to travel with the paper. This produces a regularity to the heading or simultaneous ruling start to all the pens, which obviates that unevenness in the commencement of the lines that, under a mere cam-action of the roller, it has heretofore been impossible to prevent.

To secure to this drop F its proper action, as described, it may be caused, at its inner end, to travel around a suitably-shaped cam, or be otherwise controlled to secure its being thrown and held outward during the lift of the pens, and afterward suddenly dropping or working inward. This may be done by forming a recess, *a*, in or on the center-pin B, on which the roller turns, so as to produce a cam, *b*, having an abrupt heel, *c*, which cam and the circular portion of the body of the pen the inner end of the radially-sliding drop F follows, giving to the latter its specified action.

Instead, however, of employing a fixed center-pin, I prefer to make the same adjustable, or capable of turning, to vary the relative position of the cam *b* to the lifting-cam D and movable tongue E, whereby the inward motion of the drop F over the heel *c* of the cam *b* is made, sooner or later, as required, accordingly as the pens are required to fall into ruling position on the sheet, to suit different widths of heading, or to give them an exactness of action at a particular point in the feed. Hence, I make the center-pin B a screw, having a thread, *f*, on its outer end, onto which a locking-nut, *g*, is fixed, whereby, on slackening the latter, said pin may be turned to change

the position of the cam *b*, as required, and be afterward tightened up, or made stationary again at its new set.

This is a simple means, and admits of the specified adjustment being made while the machine is running, which is a great point gained.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The combination of the movable drop *F* with

the roller *A*, the cam *D*, and the movable tongue *E* of the pen-lifter, substantially as specified.

2. The combination of the adjustable cam *b*, or adjustable center-pin carrying said cam, with the movable drop *F*, the cam *D*, and movable tongue *E* of the roller *A*, essentially as herein set forth.

Witnesses:

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