(No Model.)

G. SCHWEMLEIN.

PAPER RULING MACHINE.

No. 288,370. Patented Nov. 13, 1883.

Fig. 1.

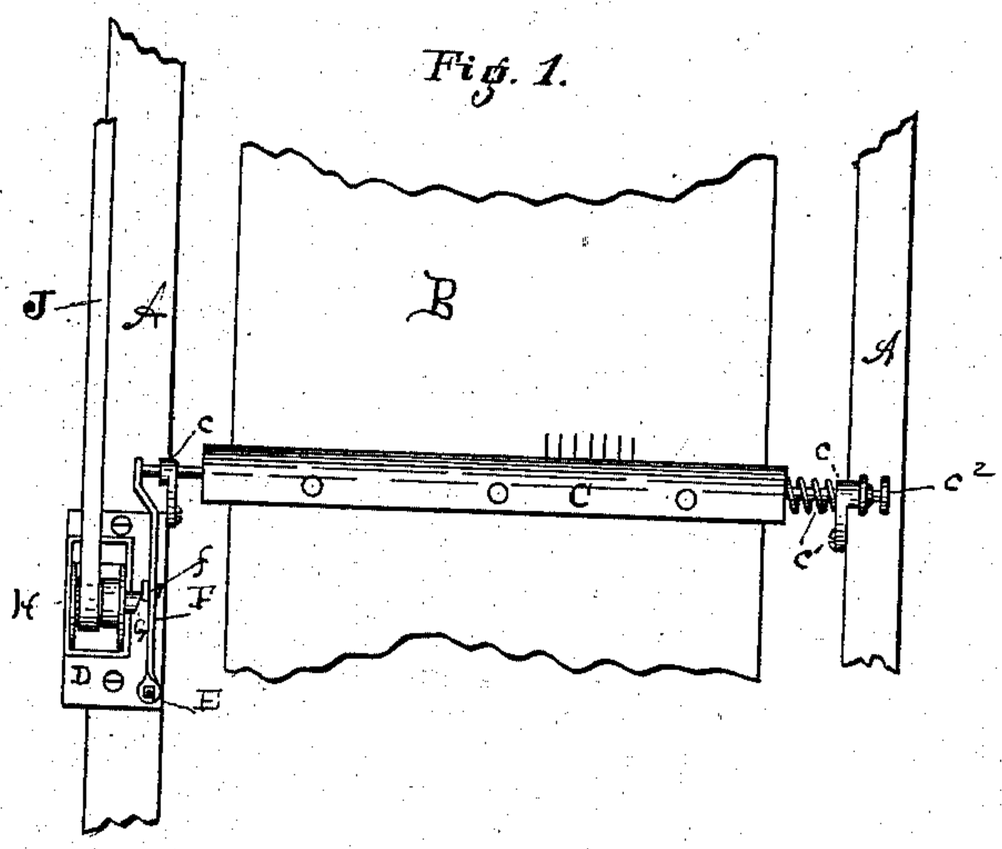


Fig. 2.

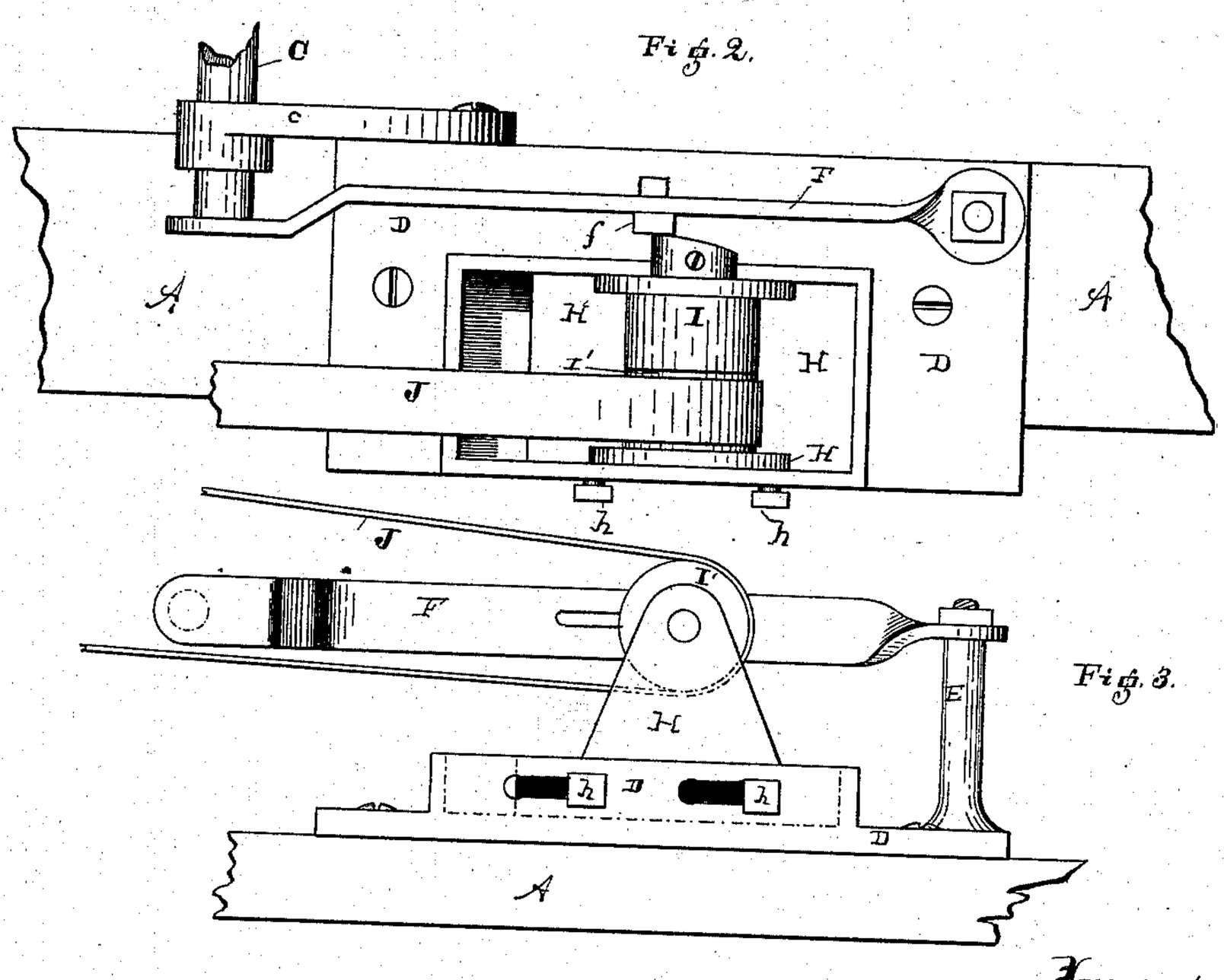
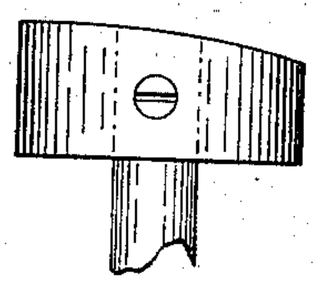


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE SCHWEMLEIN, OF CINCINNATI, OHIO, ASSIGNOR TO J. R. MILLS & CO., OF SAME PLACE.

PAPER-RULING MACHINE.

SPECIFICATION forming part of Letters Patent No. 288,370, dated November 13, 1883.

Application filed January 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SCHWEMLEIN, a citizen of the United States, residing at Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Paper-Ruling Machines, of which the following is a specification.

The object of my invention is to adapt an ordinary paper-ruling machine to produce curved or wave lines for tinting the ground for checks, drafts, &c., to prevent alteration or "raising," and also to rule ornamental borders and similar work. These objects I attain by the means illustrated in the accompanying drawings, in which—

Figure 1 is a portion of a ruling-machine in plan view, showing my device attached. Fig. 2 is a similar view, upon an enlarged scale, of the device secured upon one of the upper side frame-pieces of the machine. Fig. 3 is a side elevation of the device, looking from the outside of the machine. Fig. 4 is a top plan view of the actuating-cam, drawn to about the full size.

Similar reference-letters indicate like parts wherever they occur in the different views.

A represents the upper side frame-pieces of an ordinary ruling-machine; B, the endless sheet-carrying apron, and C the pen-beam, mounted, as usual, in standards *c*, secured to side pieces, A.

D is the base-plate of my device. It has a standard or post, E, secured upon it, which has secured upon it a spring arm or bar, F. The free end of the arm F bears against the end of the pen-beam shaft, which has longitudinal play in its bearings *c*. The end of the shaft is held in contact with the free end of the bar F by a spiral spring, *c'*, which is compressed between the opposite end of the pen-beam and the standard *c*. The play of the pen-beam is limited by a jam-nut, c^2, screwed upon the threaded end of the pen-beam shaft, or upon a bolt tapped into the end of said shaft. The bar F has a stud, *f*, secured upon it, to engage the cam-face of disk G, which is secured upon a shaft mounted in a frame, H, which is fitted to slide within a flanged opening in the base D, and held in place by set-screws *h*. Between the standards or lugs of shaft-frame H the cam-shaft is provided with a tight pulley, I, and loose pulley I', which are driven by a belt, J.

It will be seen that when the cam-shaft is set in motion the pen-beam C and pens *k* (of which there may be any desired number arranged in any suitable manner on the pen-beam) will have a longitudinally-reciprocating motion transversely to the sheet traveling upon the endless apron B, and that curved or wave lines will be made upon the sheet, instead of straight ones. The curve of the lines may be regulated in several ways. For instance, if the frame or rest which carries the cam-shaft be made stationary, the endwise motion of the pen-beam shaft may be made faster or slower by regulating the speed of cam-shaft, and thus the curves or waves would be shorter or longer, while of the same width, and the width of the curve could be regulated by moving the stud *f*, which is adjustable by a slot and set-screw nearer to or farther from the axis of rotation. Another mode of varying the curves is by moving the cam-shaft frame H and stud *f* nearer to or farther from the pivoted end of the arm F, and correspondingly adjusting the set-screws c^2, so as to regulate the longitudinal play of the pen-beam C.

It will be seen from the foregoing that my improvement can be quickly attached to any of the ruling-machines now in general use without materially changing their structure, and the machine is in condition for ordinary work by simply throwing the belt upon the loose pulley or detaching the arm F.

What I claim as new, and desire to secure by Letters Patent, is—

1. The attachment for paper-ruling machines, consisting of a vibrating arm and a cam for imparting motion to the same, suitably mounted for attachment to a paper-ruling machine, with the free end of the bar bearing against the end of the pen-beam shaft, and a spring to keep the shaft in contact with the end of the bar and the bar in contact with the cam, substantially as described.

2. The combination, substantially as hereinbefore set forth, in a paper-ruling machine,

of the pen-beam fitted to slide back and forth in its bearings transversely to the movement of the feed-apron, with the spring *c'*, arm F, and cam G, for vibrating said arm to impart motion to the pen-beam.

3. In an attachment for paper-ruling machines, the combination, substantially as specified, of the slotted arm F, the revolving longitudinally-adjustable cam G, and stud *f*, adjustable in said bar relatively to the axis of the vibrating cam, for the purpose set forth.

GEORGE SCHWEMLEIN.

Witnesses:
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GEO. J. MURRAY.