E. J. PIPER.

Ruling-Machines.

No. 148,381. Patented March 10, 1874.

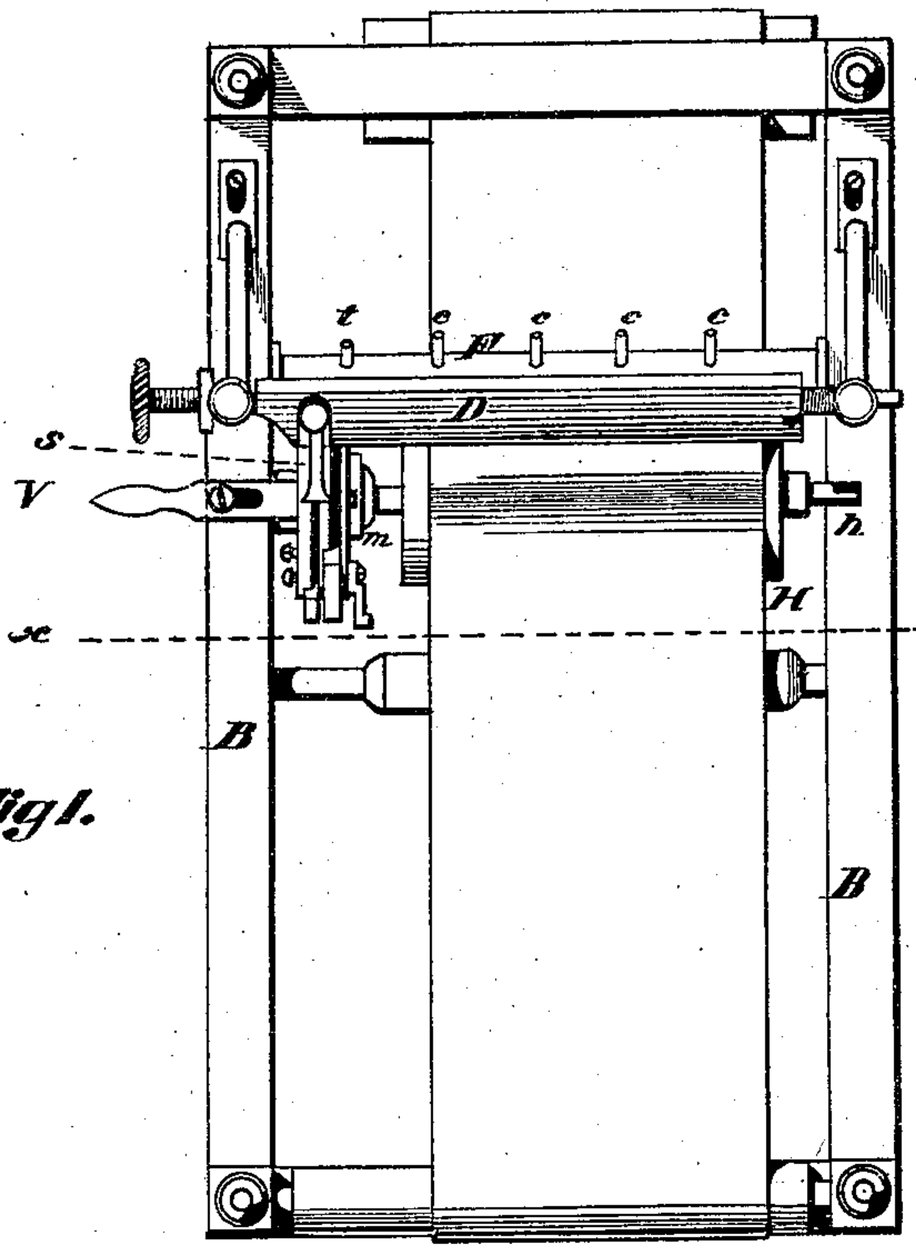

Fig I.

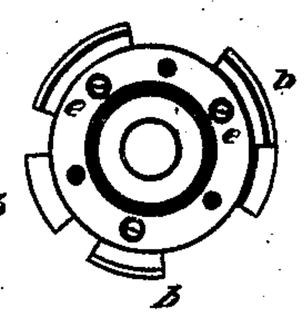

Fig III.

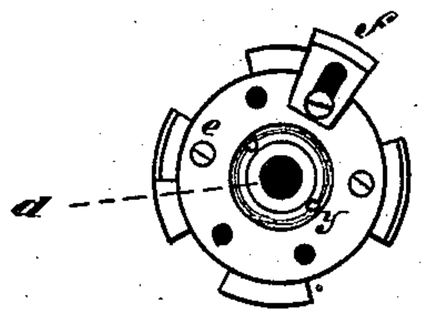

Fig IV.

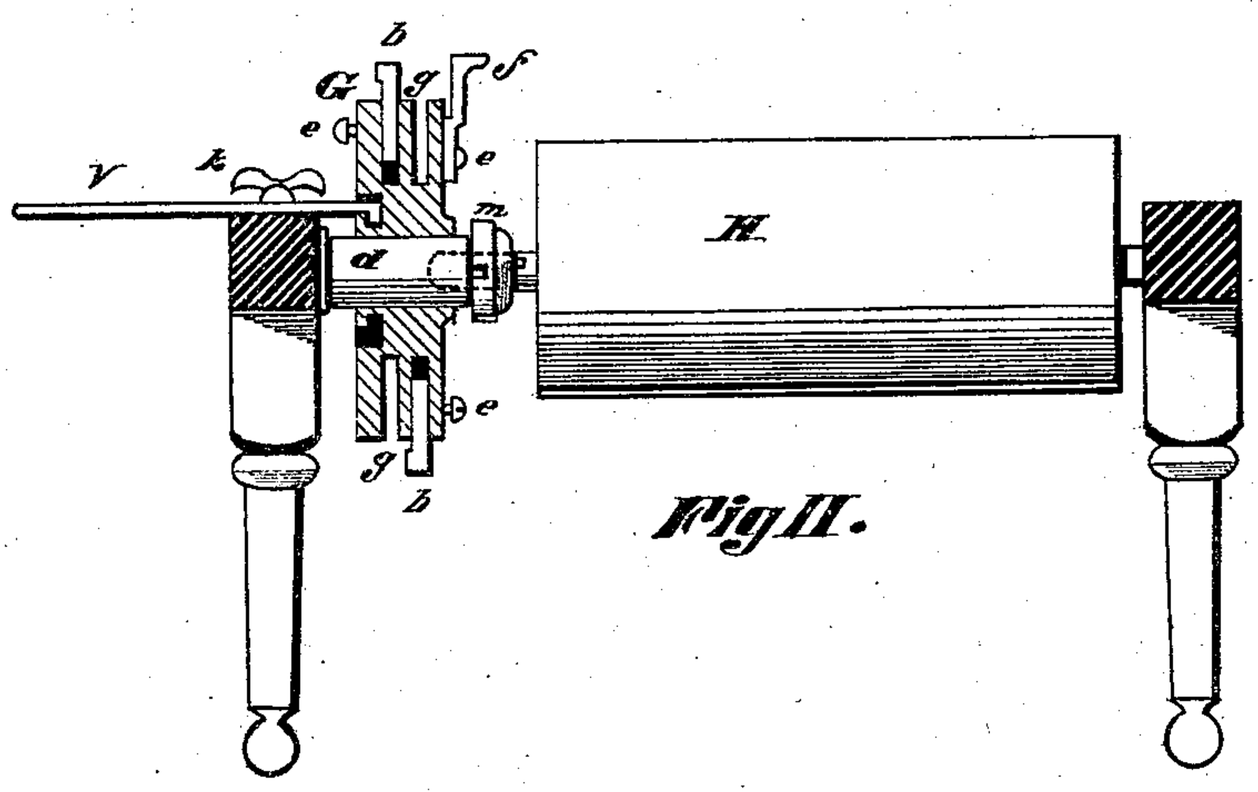

Fig II.

Witnesses

C. L. Black

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UNITED STATES PATENT OFFICE.

EDWIN J. PIPER, OF SPRINGFIELD, MASSACHUSETTS.

IMPROVEMENT IN RULING-MACHINES.

Specification forming part of Letters Patent No. **148,381**, dated March 10, 1874; application filed February 7, 1874.

To all whom it may concern:

Be it known that I, EDWIN J. PIPER, of Springfield, Hampden county, State of Massachusetts, have invented certain Improvements in Ruling-Machines, of which the following is a specification:

My invention consists in the combination with the drum or pen-cylinder of a ruling-machine, and with the pen-bar and stop-gate thereof, of a detached hub with adjustable cams, arranged upon an axle from the frame, coincident with the axis of the pen-cylinder, and in which the shaft of the pen-cylinder finds a bearing, and so that the hub can be thrown in clutch with the pen-cylinder to operate the pen-bar and stop-gate relatively thereto, or released when it is desired to do continuous ruling, and can have its cams quickly and accurately adjusted to various-sized drums that may be used in the ruling-machine; the object of the invention being to simplify the construction of this class of machinery, by enabling one set of cams, while operating both the pen-bar and stop-gate, to be adapted to the various-sized cylinders required.

In the drawings, Figure I is a plan view of a machine having my improvements. Fig. II is a partial side section upon line *x x*, Figs. III and IV being detail views.

B B is the frame, having the pen-bar D and stop-gate F working in the usual manner in bearings therefrom, the stop-gate containing the pins *c c c*, &c., which come against the apron and regulate the feed of stock. The pen-cylinder H has one end of its shaft resting in the frame at *h*, while the other is received within the axle *d*, which proceeds from the frame. Loose upon the axle *d* is the hub G, which has a groove in one side, as shown in Fig. II, to receive the end of shipper-handle V, and is also provided with deep recesses *g g* in its perimeter to contain the cam-sections *b b b*, &c., which recesses *g g* have screw-holes communicating with them from the sides of the hub to admit the clamp-screws *e e e*, &c., intended to hold cam-sections *b b b* and cams *f f*, &c. The handle V is slid upon the frame, when released by its thumb-screw *k*, to move the hub G upon its axle, and the face of the hub toward the pen-cylinder is provided with the pin *y* to engage with the clutch *m* upon the shaft of the pen-cylinder. The cams *b b*, &c., operate the pen-bar D, through the pawl *s*, and the cams *f f* trip the stop-gate by means of the pawl *t*.

When it is desired to change the pen-cylinder in the machine, to either substitute a larger or smaller one, it is lifted out from its bearings in the frame and axle *d*, and the cams *b b b* and *f f* are quickly adjusted by means of their clamp-screws *e e e*, &c., to the altered diameter of the pen-cylinder.

The pen-cylinders used with this machine require no more than their shaft to bear in the frame and axle, as the clutch *m* is made interchangeable with all sizes, and is simply keyed to the shaft.

By having both stop-gate and pen-bar operated by a set of cams on one hub, I am able to accurately and quickly make all changes needed in the relative position of the cams to meet the varied requirements of the ruling and feeding, while the machine, with a set of different-sized pen-cylinders, needs only the one set of cams.

I am aware that machines having pen-cylinders, with the cam-heads fixed directly to each of their ends, have been used; also that the stop-gate shaft has been made to throw a pulley, containing cams to operate the pen-bar, into clutch with another pulley upon the pen-cylinder, to cause the two to intermittingly move together, but disclaim all contained in these or similar devices; but

What I claim is—

The hub G, provided with adjustable cams *b b b f f* and pin *y*, in combination with clutch *m* of a pen-cylinder shaft, for operating both the pen-bar and stop-gate, substantially as described.

EDWIN J. PIPER.

Witnesses:
R. F. HYDE,
G. V. SMITH.