

(No Model.)

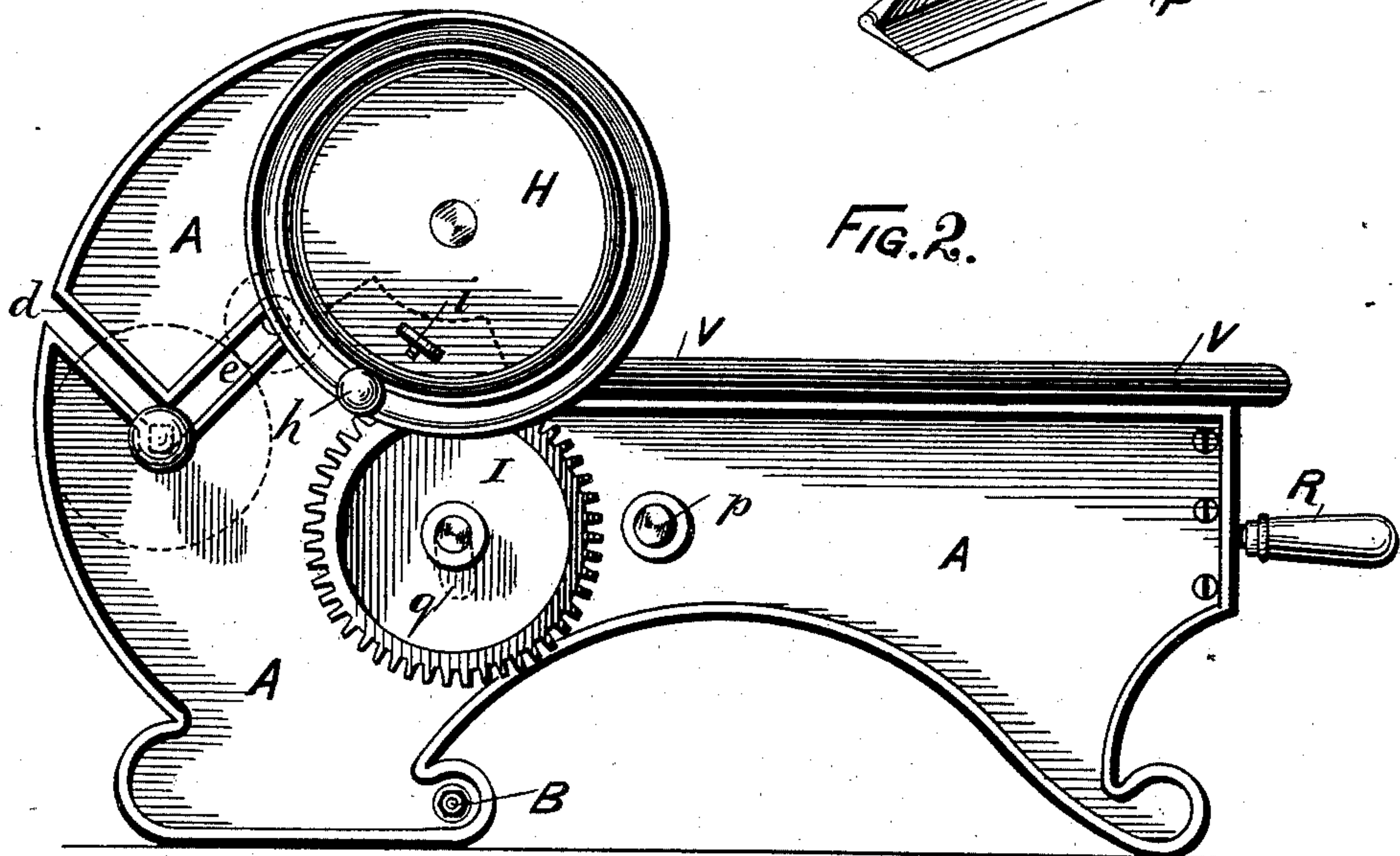
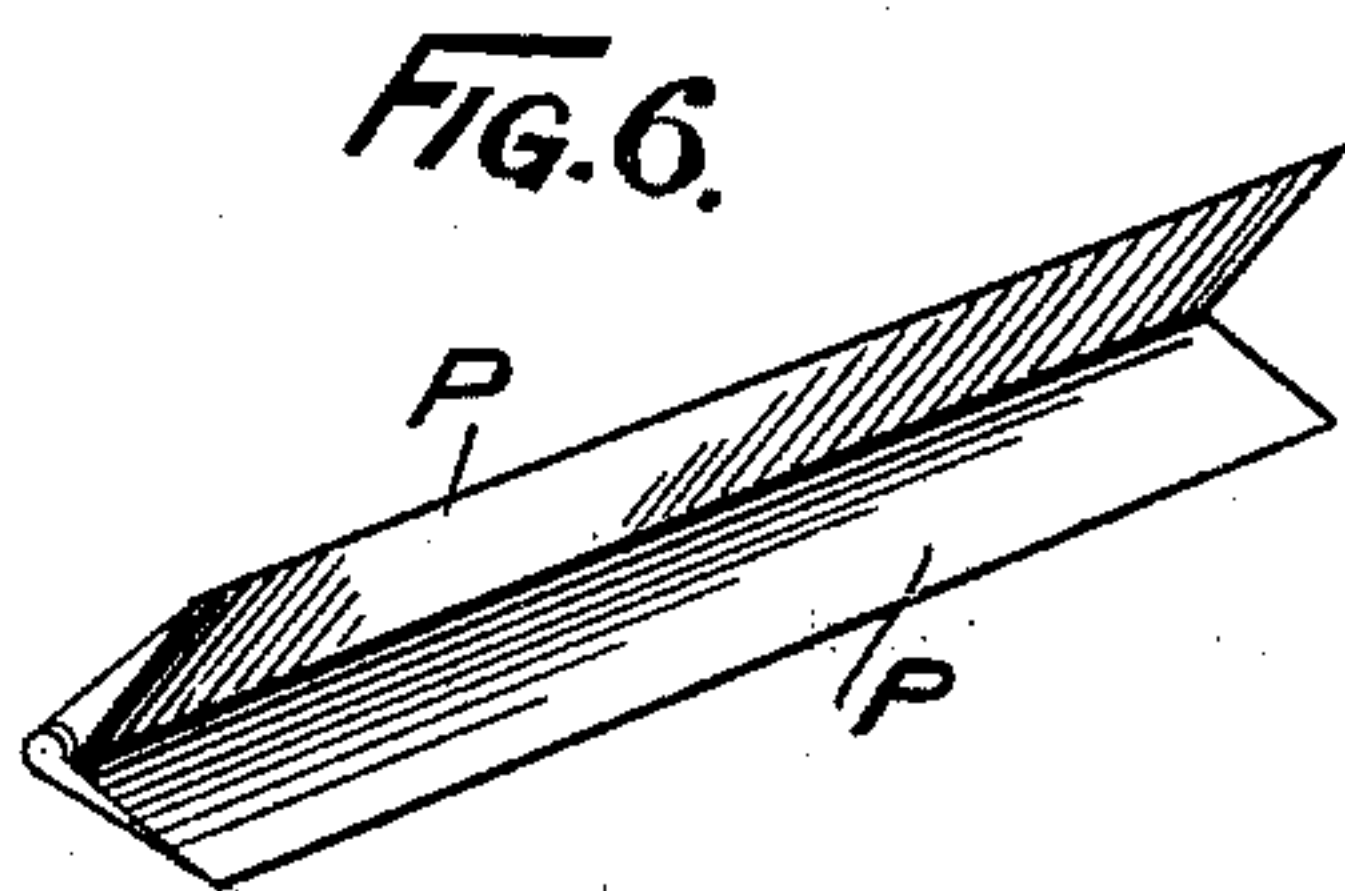
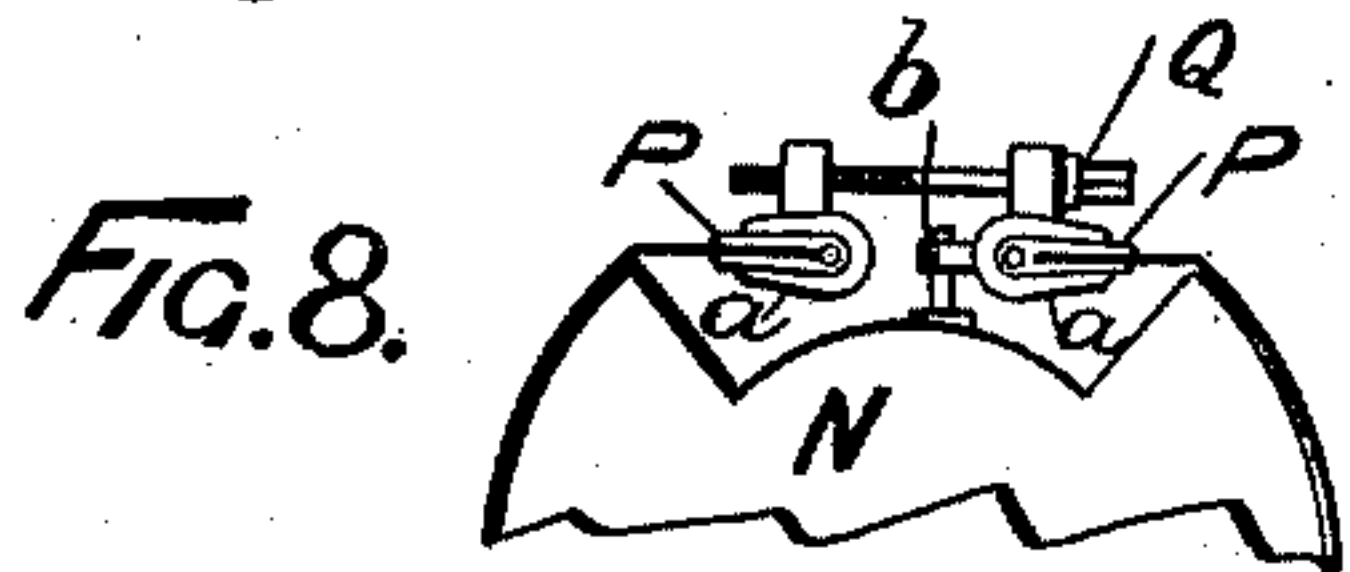
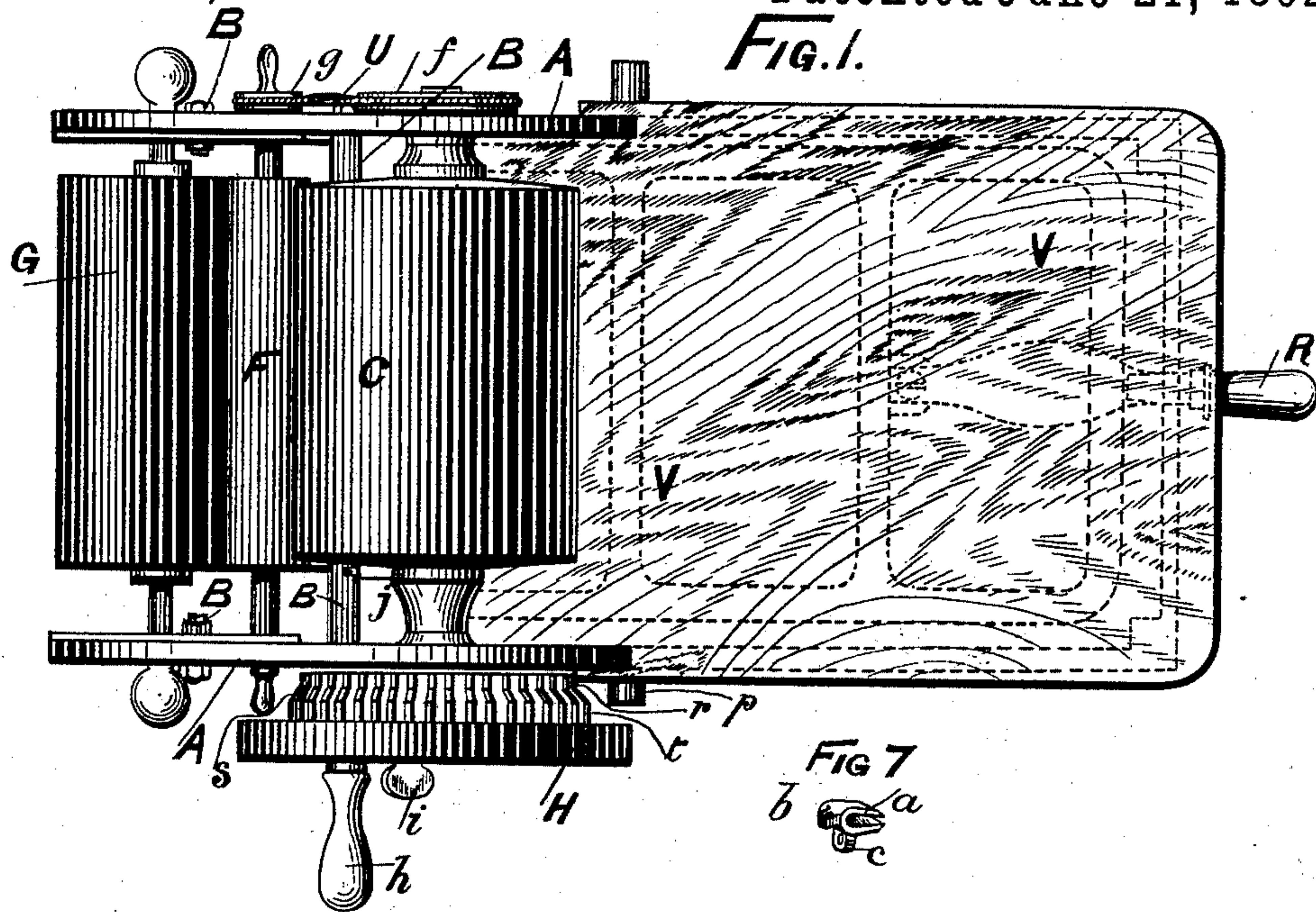
3 Sheets—Sheet 1.

M. WRIGHT.

WRITING AND PRINT COPYING MACHINE.

No. 477,482.

Patented June 21, 1892.



Witnesses:—
J. A. Rutherford
J. H. Daly.

Inventor:
Martin Wright.
By James L. Norris.
Attorney.

(No Model.)

3 Sheets—Sheet 2.

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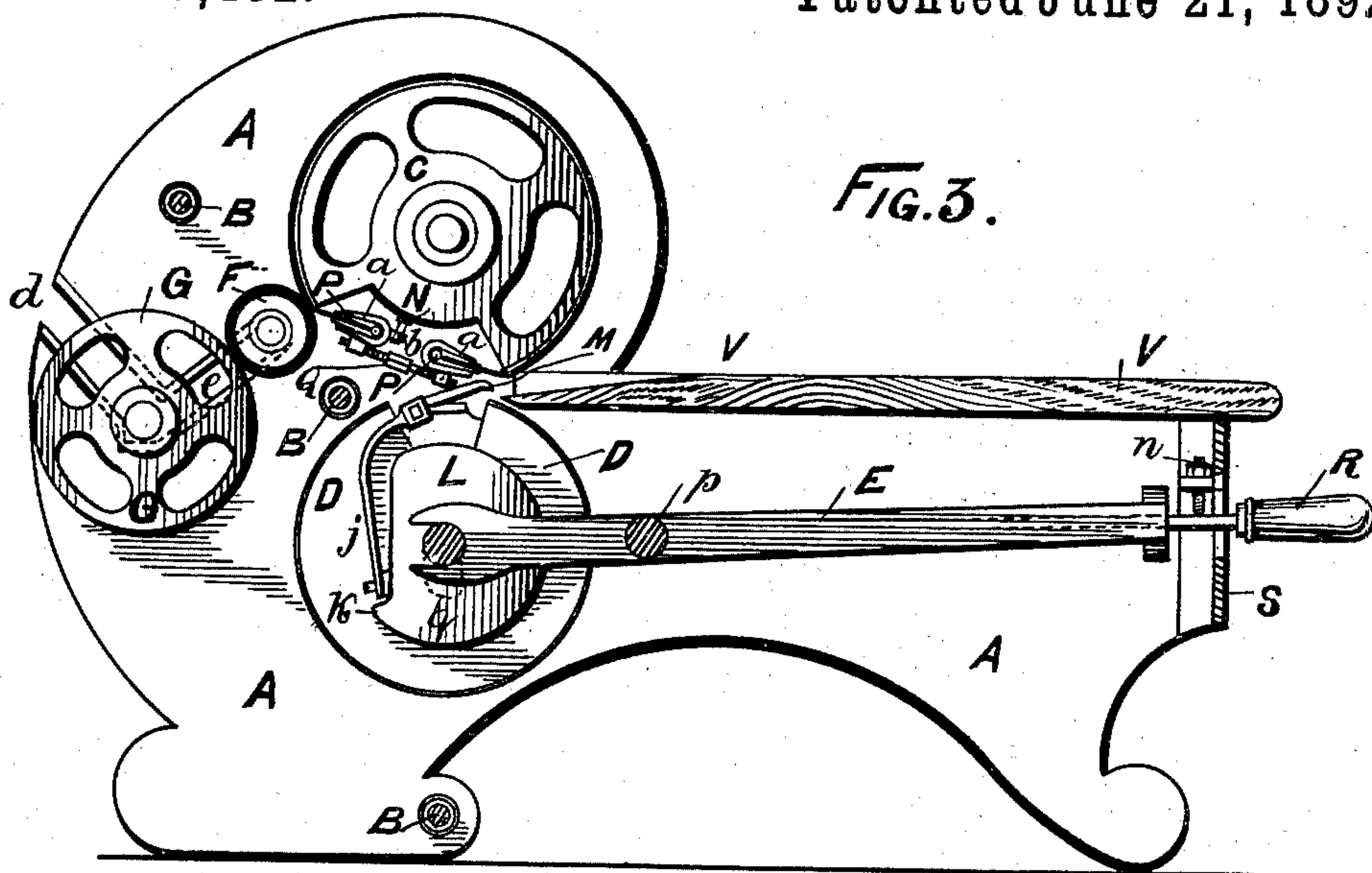


FIG. 4

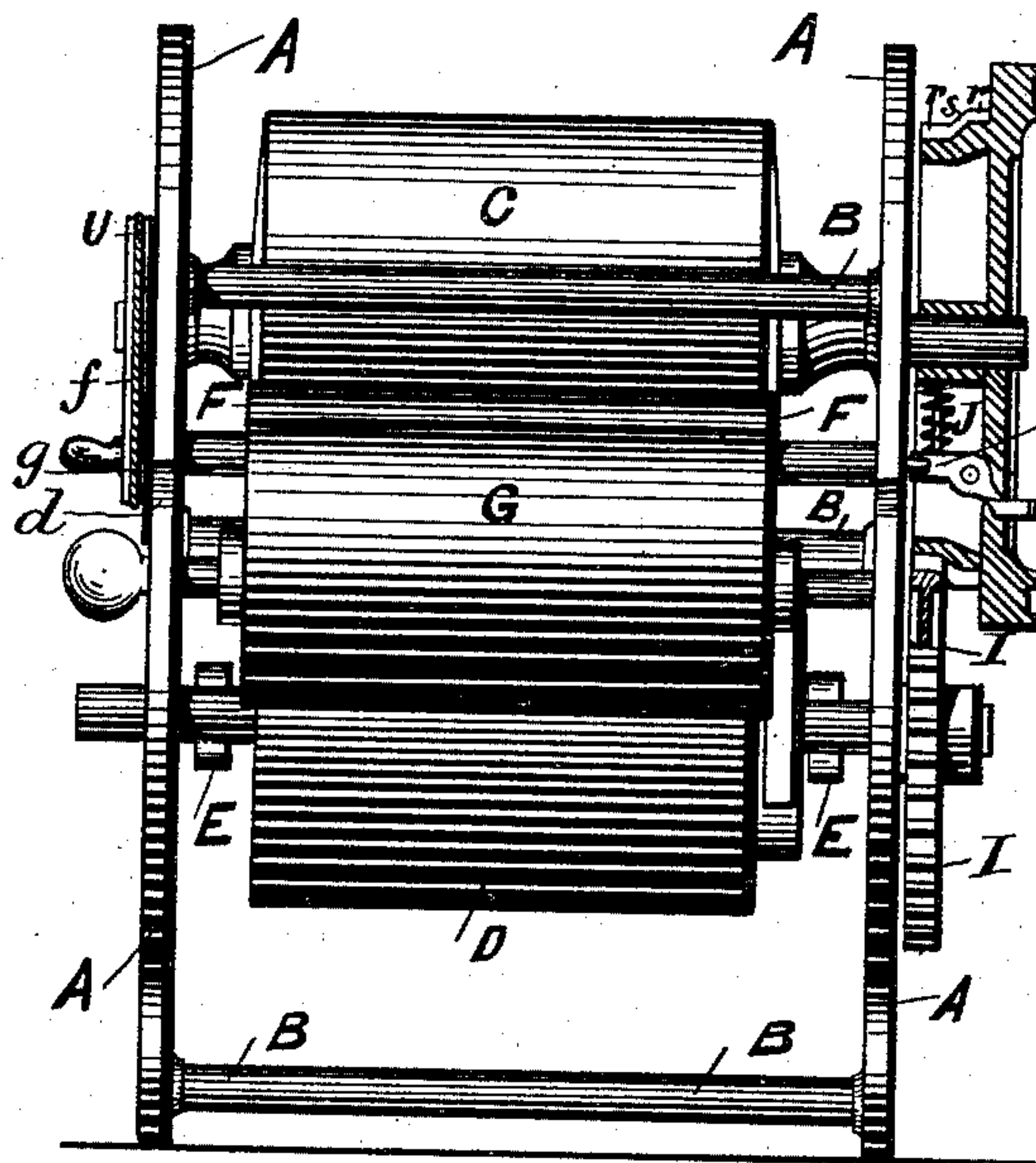
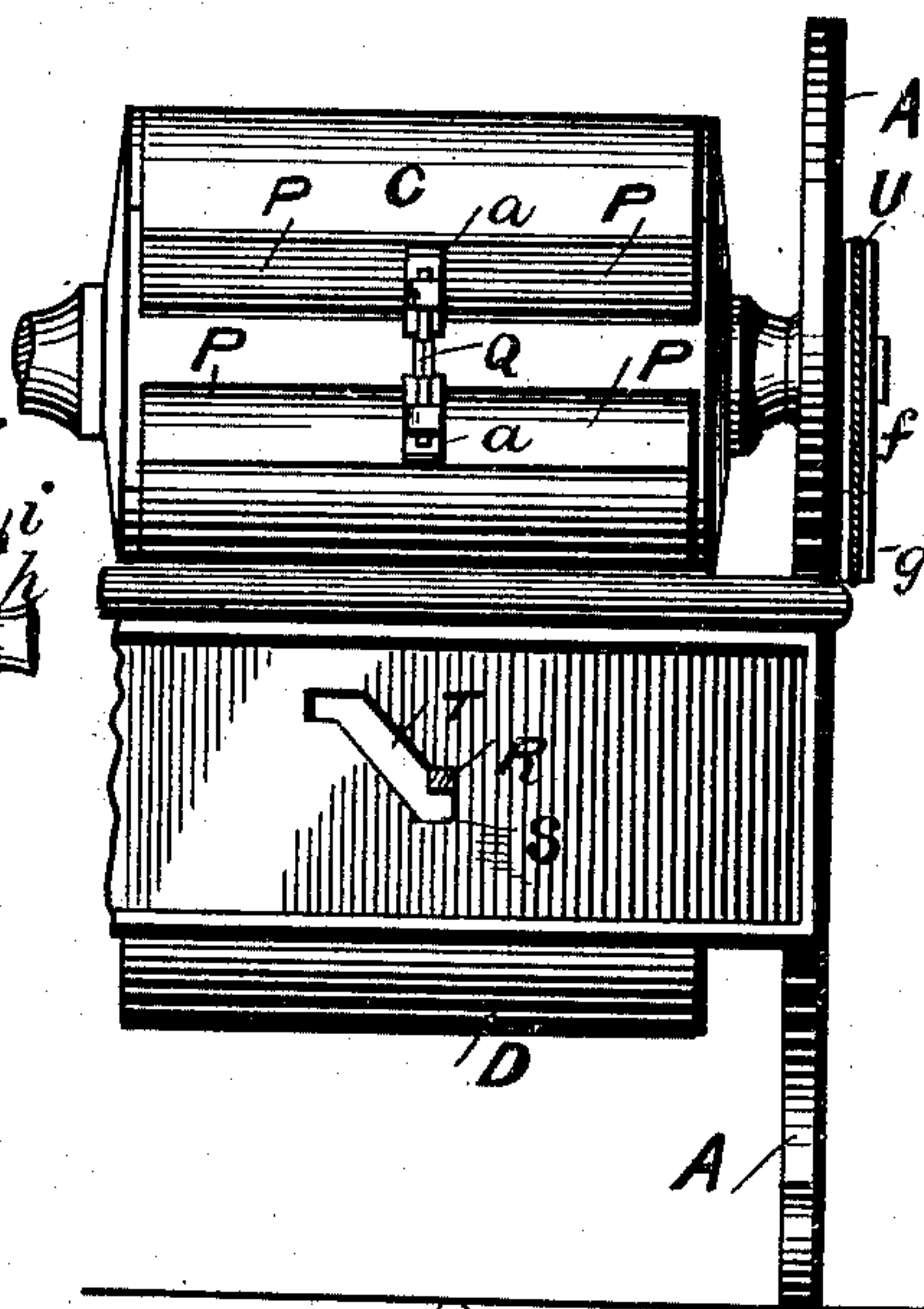


FIG. 5.



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3 Sheets—Sheet 3.

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FIG. 9.

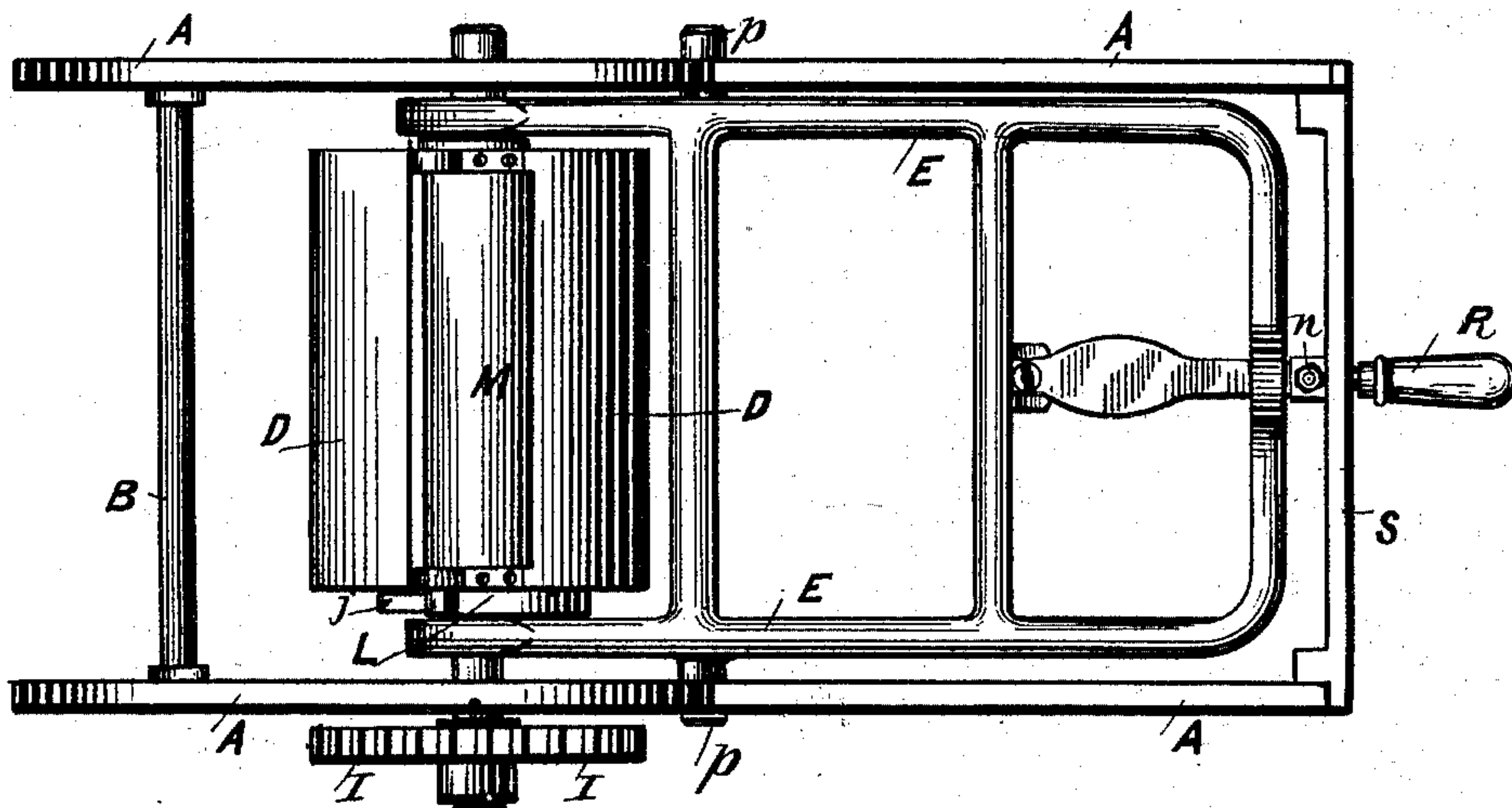


FIG. 11.

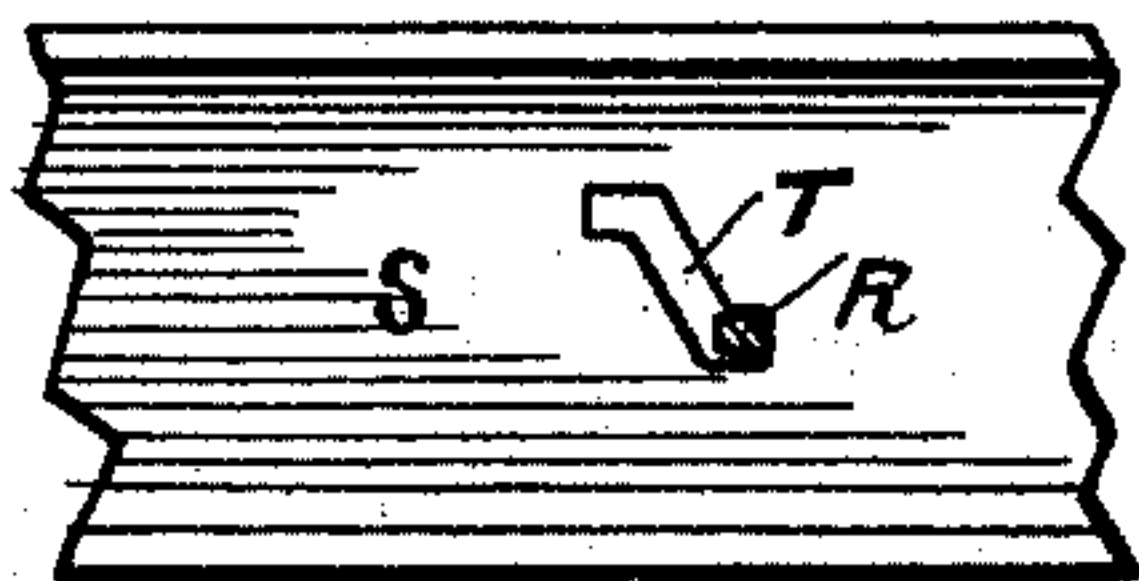


FIG. 12.

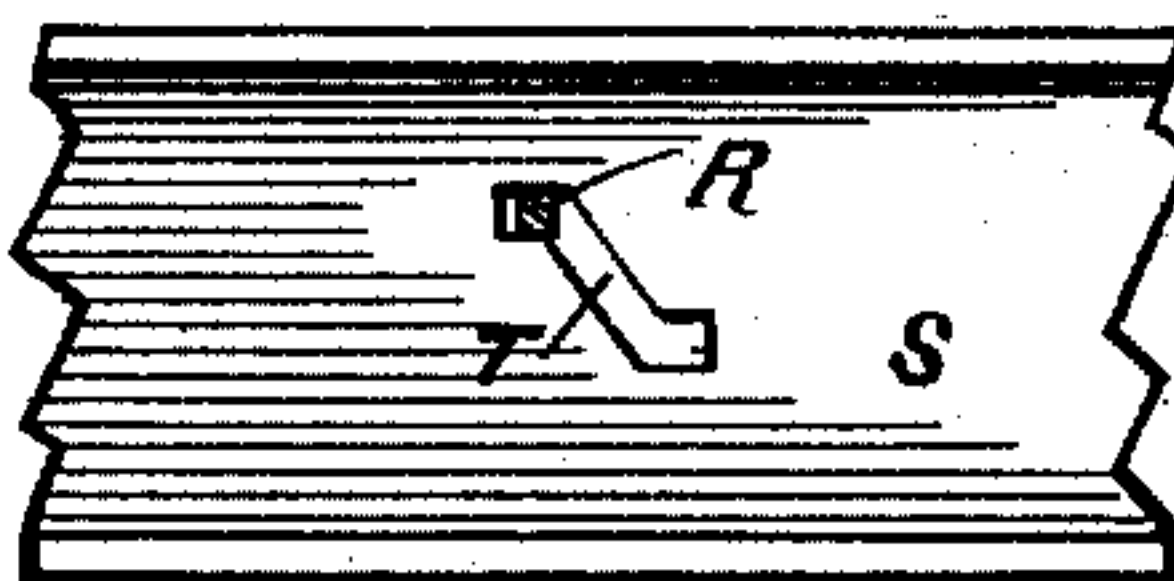
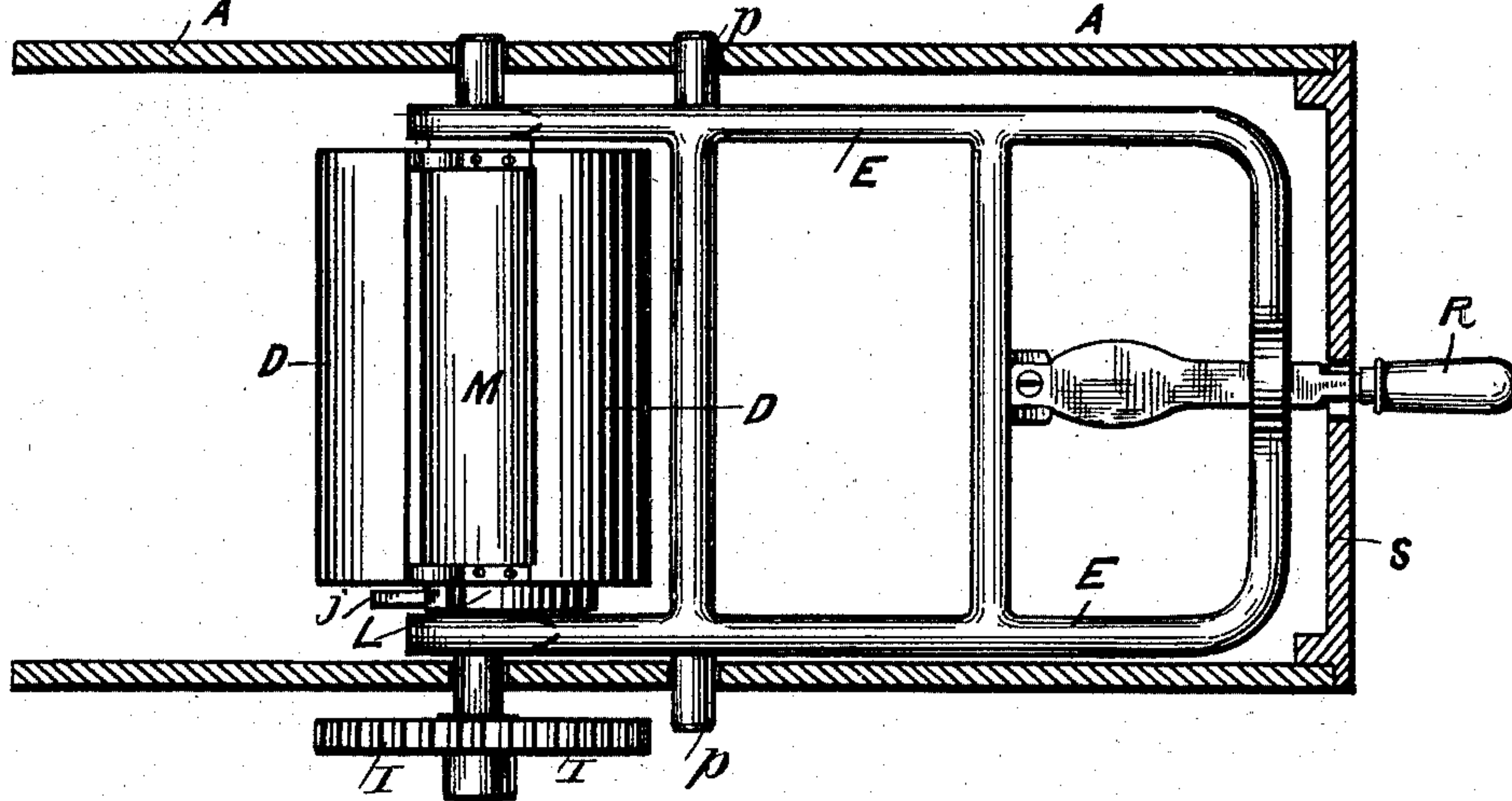


FIG. 10.



Witnesses:-

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Robert Connel

Inventor:

Martin Wright.
James L. Morris.
Attorney.

UNITED STATES PATENT OFFICE.

MARTIN WRIGHT, OF LEICESTER, ENGLAND.

WRITING AND PRINT COPYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 477,482, dated June 21, 1892.

Application filed August 22, 1891. Serial No. 403,447. (No model.) Patented in England November 14, 1890, No. 18,392.

To all whom it may concern:

Be it known that I, MARTIN WRIGHT, a subject of the Queen of Great Britain, residing at Highfield Works, Leicester, England, have invented new and useful Improvements in Writing and Print Copying Machines, (patented in Great Britain, No. 18,392, dated November 14, 1890,) of which the following is a specification.

The object of this invention is to construct a machine in a novel manner and with special detail parts in order that fac-simile copies or transfers of writings and prints can be made in desired quantities from an original.

For the purpose of my invention I employ gelatine compound material on paper or other suitable material, which after being moistened can be strained over a cylinder for receiving the original writing or print.

The machine is composed of two side frames, a cylinder, a pressure-drum, an inking-roller, and a ductor; also, a loosely-mounted frame, which can be temporarily fixed for pressure or for release, as desired, of the pressure-drum which it carries.

My invention will be clearly understood by the annexed drawings.

Figure 1 is a plan of the machine complete; Fig. 2, an elevation from the gear-wheel or motion side; Fig. 3, a longitudinal section; Fig. 4, a back elevation with main gear-wheel in section and showing stop and releasing pawl; Fig. 5, a front elevation with left-hand-side frame removed; Fig. 6, a perspective elevation of one clip for securing the gelatinized-paper clip; Fig. 7, a detached elevation of dogs employed for fixing the clips. Fig. 8 is a detail view of a modified construction for operating the clips. Fig. 9 is a detail plan view to more clearly illustrate the laterally-movable frame, the latter being in the position it occupies when pressure is applied to the paper-carrying cylinder. Fig. 10 is a detail plan view similar to Fig. 9, showing the position of the laterally-movable frame when pressure is removed from the paper-carrying cylinder. Figs. 11 and 12 are detail views showing different positions of the handle of the laterally-movable frame.

In the drawings the letter A indicates two side pieces of a stationary supporting-frame; B B, transverse bolts connecting the side pieces; C, cylinder on which gelatinized pa-

per or sheet is stretched; D, drum for giving pressure and for carrying paper to be printed; E, pivoted laterally-movable frame carrying pressure-drum; F, inking-roller; G, ink-feeding roller; H, main driving-wheel fixed on axle of cylinder; I, gear-wheel on axle of pressure-drum; J, stop on side-frame; K, pawl to abut against stop J at each rotation of cylinder-wheel H; L, cam fixed on frame E; M, gripper pivoted to pressure-drum and operated by cam L; N, post in recess of cylinder C; P P, clips for securing gelatinized paper around cylinder C; Q, double-ended screw for coupling clips P P and for tightening them up for stretching gelatinized paper on cylinder C; R, lever for operating frame E and pressure-drum D; S, front plate; T, angled slot in plate S; U, crossed band for operating inking-roller F from cylinder C, and V table or laying-on board.

The method of fixing the gelatinized paper on the cylinder and the operation of the machine for printing fac-similes, copies of writings, or prints are as follows: The gelatinized paper being cut to a given length has its two ends inserted between the folding leaves of the grippers P P, and these are kept in close contact by dogs *a a*, which are forcibly slid over one end of each clip to about the center. The gelatinized paper is then dampened, and after a little time the eye *b* of one dog is looped onto the post N and the gelatinized paper wrapped round the paper or sheet carrying cylinder C to bring the other dog and clip into the recess. The ends of the double-screwed pin Q are then inserted into the ears *c c* of the two dogs *a a* and turned to draw the two dogs and clips toward each other to stretch the gelatinized paper into close contact and level upon the cylinder. The original writing or print is now passed through between the cylinder C and pressure-drum D for transferring the imprint onto the gelatinized surface. The pressure-drum is then lowered by a lift of the lever R to move it clear of the cylinder C. The inking-roller F is dropped into the slots *d*, (one in each side frame,) and then the ink-feeding roller G, several turns of which will sufficiently coat the roller F with ink for the printing. The roller F is now lifted up the reverse slot *e*, which permits the roller G to slide to the bottom of slot *d*

and the squares of its axle to lodge in corresponding grooves to serve as a support to the roller F, which is also pressed into contact with the gelatinized paper on cylinder C. The band U is now passed over the pulleys *f g* and the cylinder revolved by the handle *h* on the main wheel H, in order to "ink up" the impression on the gelatinized paper.

The paper to be printed is placed upon the table V and the pressure-drum lifted, the pawl of the cylinder C being against the stop J. A sheet of paper is pushed forward for its edge to enter the mouth of the pressure-drum and under the gripper M, the pawl K, by pressure on the thumb-piece *i*, is removed and the wheels H I rotated. This causes the cylinder C and pressure-drum D, which are of the same diameter, to rotate in contact and simultaneously with the first motion of the pressure-drum D. The tail end *j* of the gripper bears against and rides up the incline *k* of the cam L, which compels the gripper M to seize the sheet of paper for drawing it through the machine. The gripper retains its hold on the sheet of paper until the tail end arrives to the end of the circular-faced portion of the cam at *l*, when from the action of a slight spring the gripper is opened. This releases the sheet of paper and allows it to fall onto the bench on which the machine is placed. At this particular part of the drum's rotation the pawl K comes into contact with the stop J and arrests the motion of the machine. It is only necessary for obtaining a repetition or succession of printed copies to first insert the sheet into the gripper-opening and then to turn the handle *h*, and, simultaneously pressing on thumb-piece *i*, to release the pawl K from the stop J. Any degree of pressure of the drum D against the cylinder C can be obtained and regulated at will by the adjustment-screw *n*, against which the lever R bears when said lever is forced down the inclined slot T and under the screw *n*.

The frame E is supported by pivots *p*, working in the bearings of the side pieces A of the supporting-frame, and the ends of the shaft which carries the drum D are also adapted to work in slots or holes *q* in the side pieces A all in such manner that the frame E can be shifted laterally or sidewise. The frame E is provided at its outer end with a handle or lever R, extending through the inclined slot T in the cross-bar or front plate S, so that when the handle is lowered to raise the drum D such handle rides down the incline T and shifts the frame laterally to the position represented in Fig. 9. When the handle R is raised to lower the drum D, such handle rides up the incline and shifts the frame E laterally to the position represented by Fig. 10.

The main wheel H has a double set of teeth *r r*, each connected by a web *s*, so that the lowering of the drum D and of its side motion by the lever R do not take the wheel I out of gear with the teeth of the drive or main wheel H. By this arrangement the cylinder C and

drum D are kept in sequence whether the drum be up or down.

Instead of the screw Q being threaded at both ends, as above mentioned, it may have one plain end with shoulder to pass into slot of one ear *c*, as at Fig. 8, and provided with a square head to enable it to be turned by a swivel-key to draw the clips toward each other to tighten the gelatinized material.

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

1. The combination, with a supporting-frame, a paper or sheet carrying cylinder, and inking devices, of a laterally-movable swinging frame carrying a pressure-drum, means for moving the frame laterally as it is swung to raise or lower the drum, and continuously-meshing gears for rotating the cylinder and drum in unison, substantially as described.

2. The combination, with a supporting-frame, of a paper or sheet carrying cylinder having adjustable paper-holding clips, inking devices, a laterally-movable swinging frame carrying a pressure-drum provided with a gripper, means for moving the frame laterally as it is swung to raise or lower the drum, and continuously-meshing gears for rotating the cylinder and drum in unison, substantially as described.

3. The combination of a supporting-frame having a cross-bar or plate provided with an inclined slot, a paper or sheet carrying cylinder, a laterally-movable swinging frame carrying a pressure-drum and provided at its outer end with a handle extending through the inclined slot, and gears for rotating the cylinder and drum in unison when the drum is raised or lowered, substantially as described.

4. The combination, with a supporting-frame, of a paper or sheet carrying cylinder, clips for holding the paper or sheet on the cylinder, means for adjusting the clips toward each other for stretching the paper or sheet, a swinging frame carrying a pressure-drum, and continuously-meshing gears for rotating the cylinder and drum in unison, substantially as described.

5. The combination, with a supporting-frame, of a paper or sheet carrying cylinder, a driving-wheel mounted on the shaft of the cylinder and having two sets of teeth connected by a web, a laterally-movable frame carrying a pressure-drum, and a gear-wheel mounted on the shaft of the pressure-drum and meshing with one or the other set of teeth on the driving-wheel as the frame is moved laterally, substantially as described.

In witness whereof I have hereunto signed my name, in the presence of two subscribing witnesses, this 10th day of February, 1891.

MARTIN WRIGHT.

Witnesses:

WM. VAUGHAN ICKE,
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