

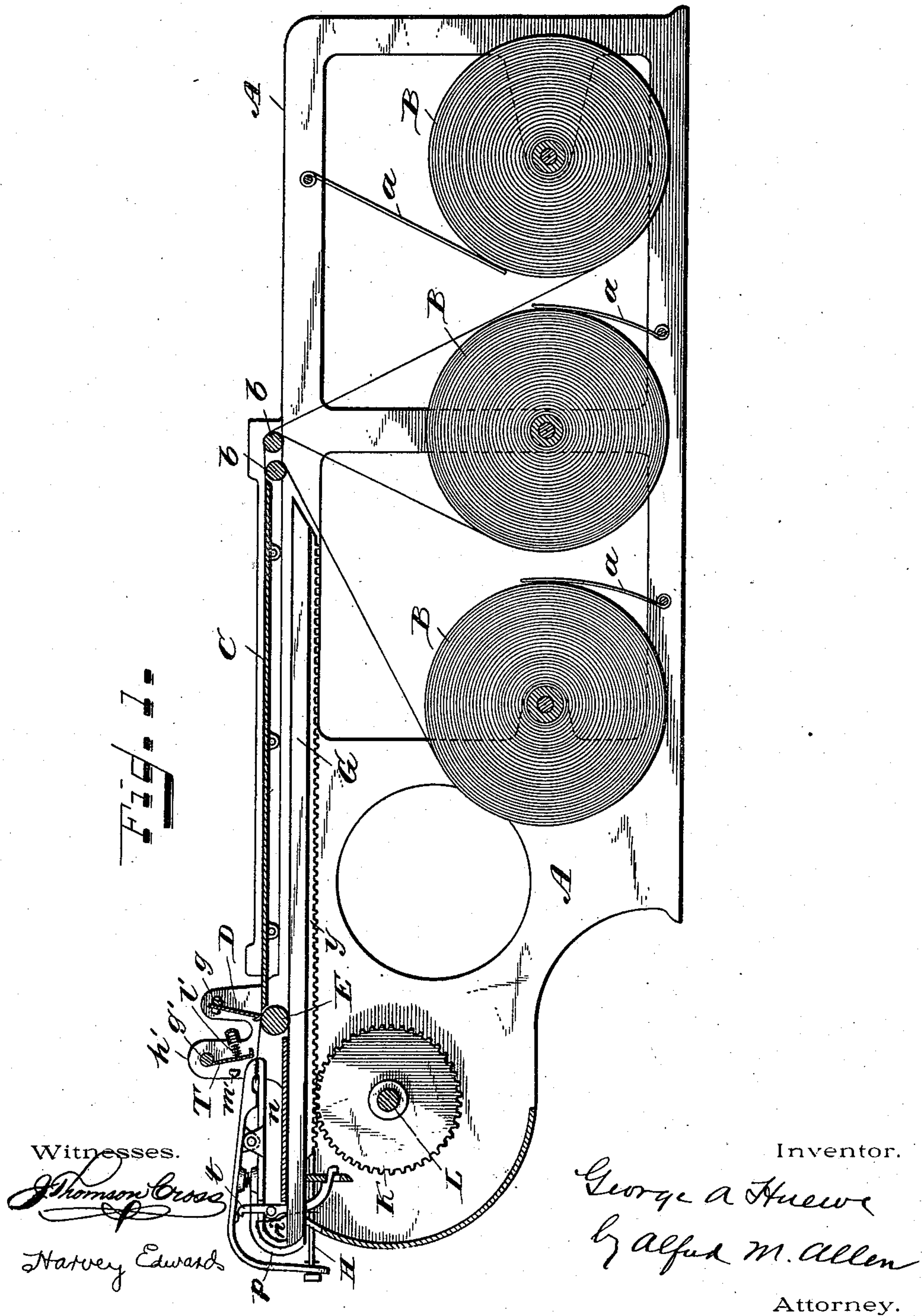
(No Model.)

4 Sheets—Sheet 1.

G. A. HUEWE.
AUTOGRAPHIC REGISTER.

No. 576,847.

Patented Feb. 9, 1897.



(No Model.)

4 Sheets—Sheet 2.

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Fig. 2.

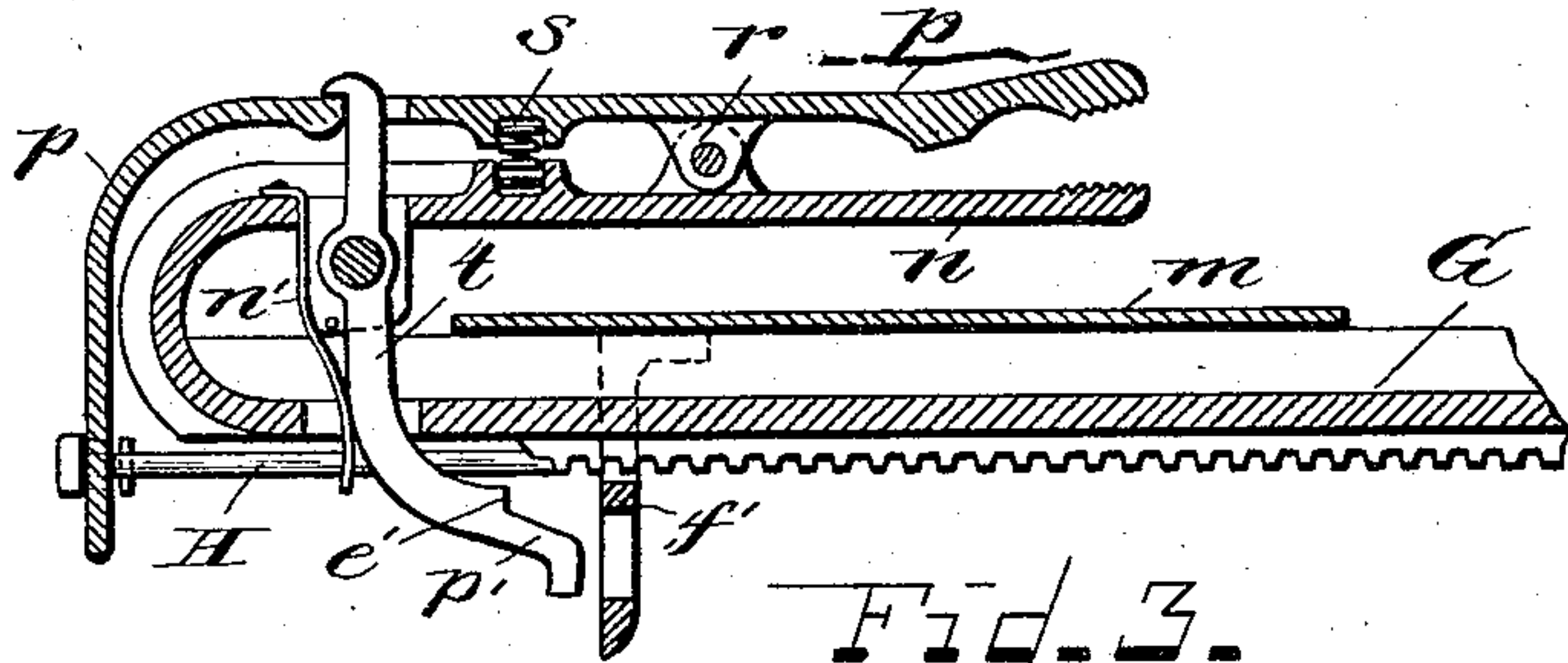


Fig. 3.

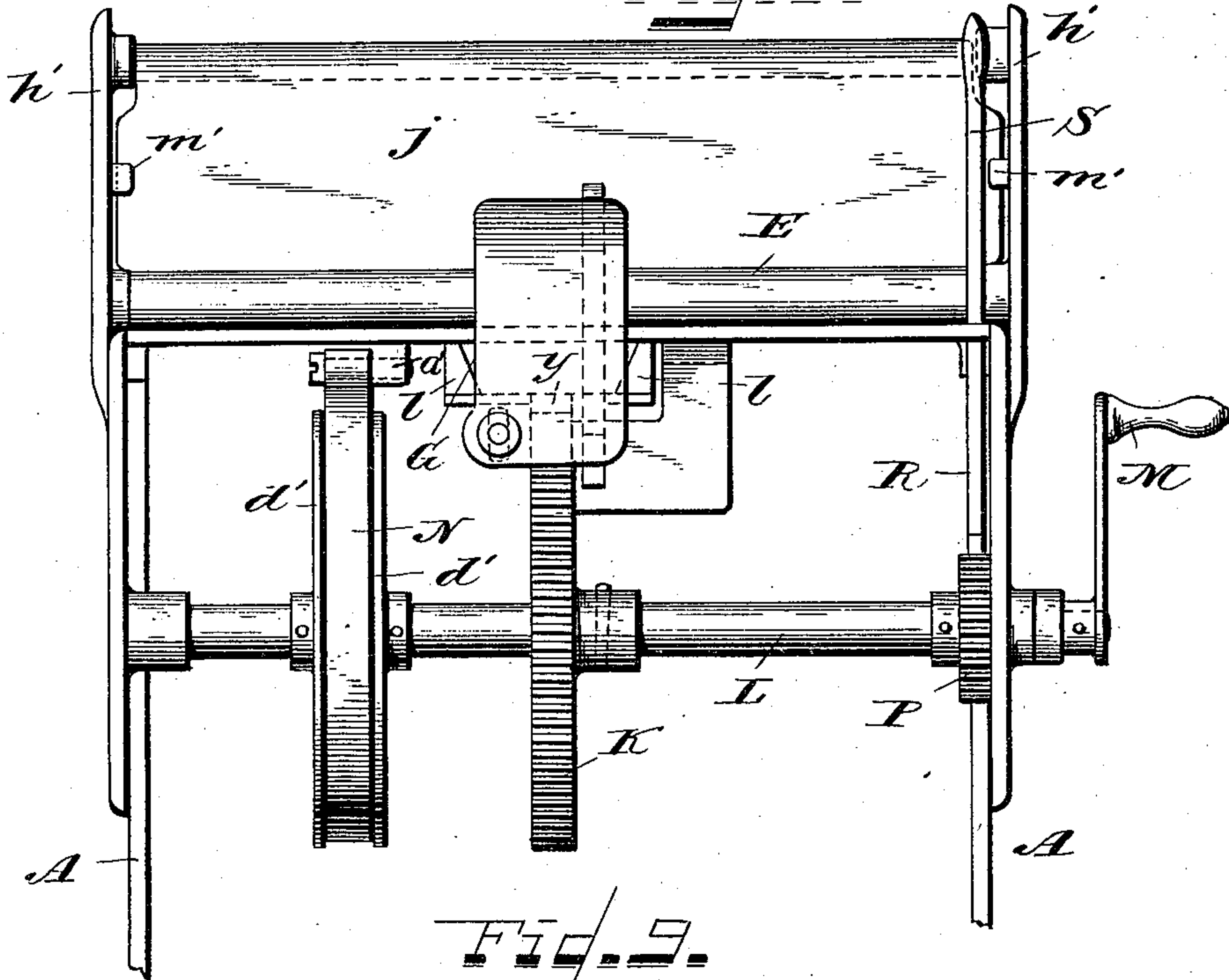
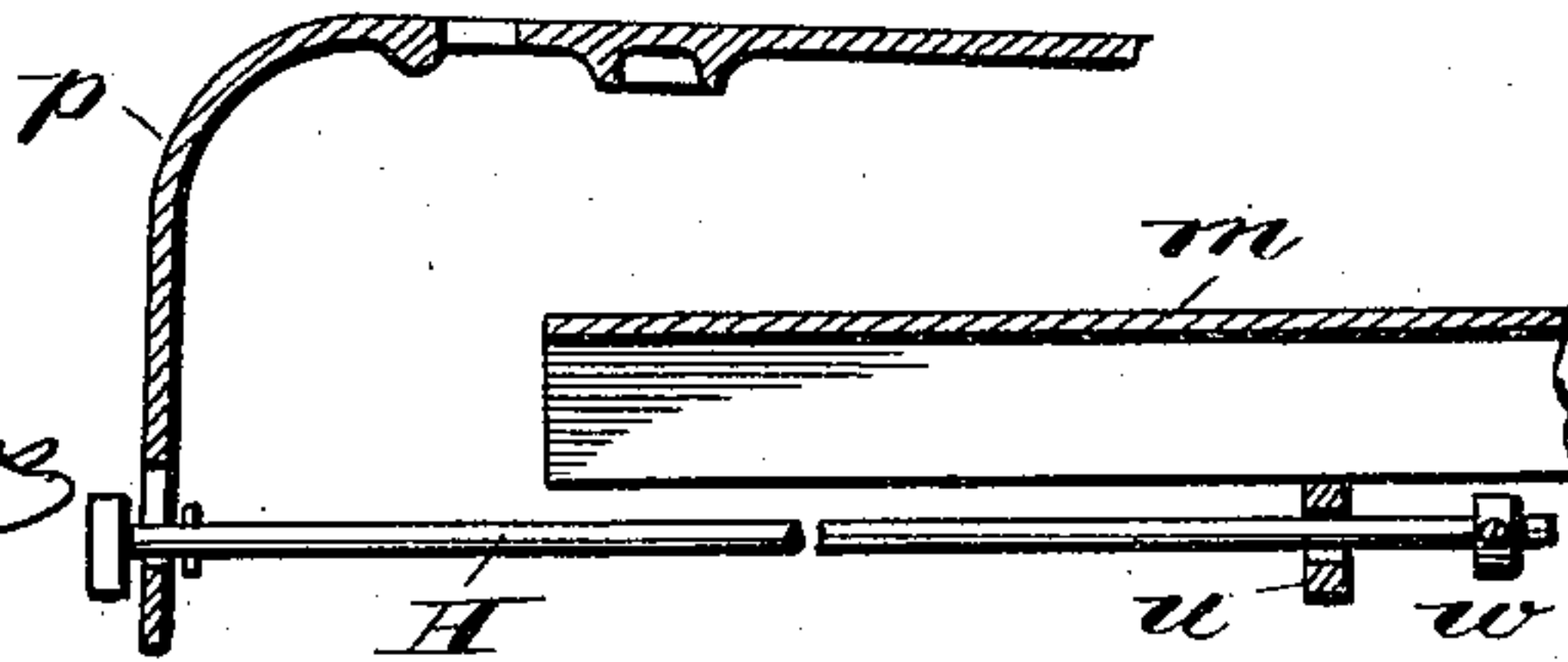


Fig. 4.



Witnesses.

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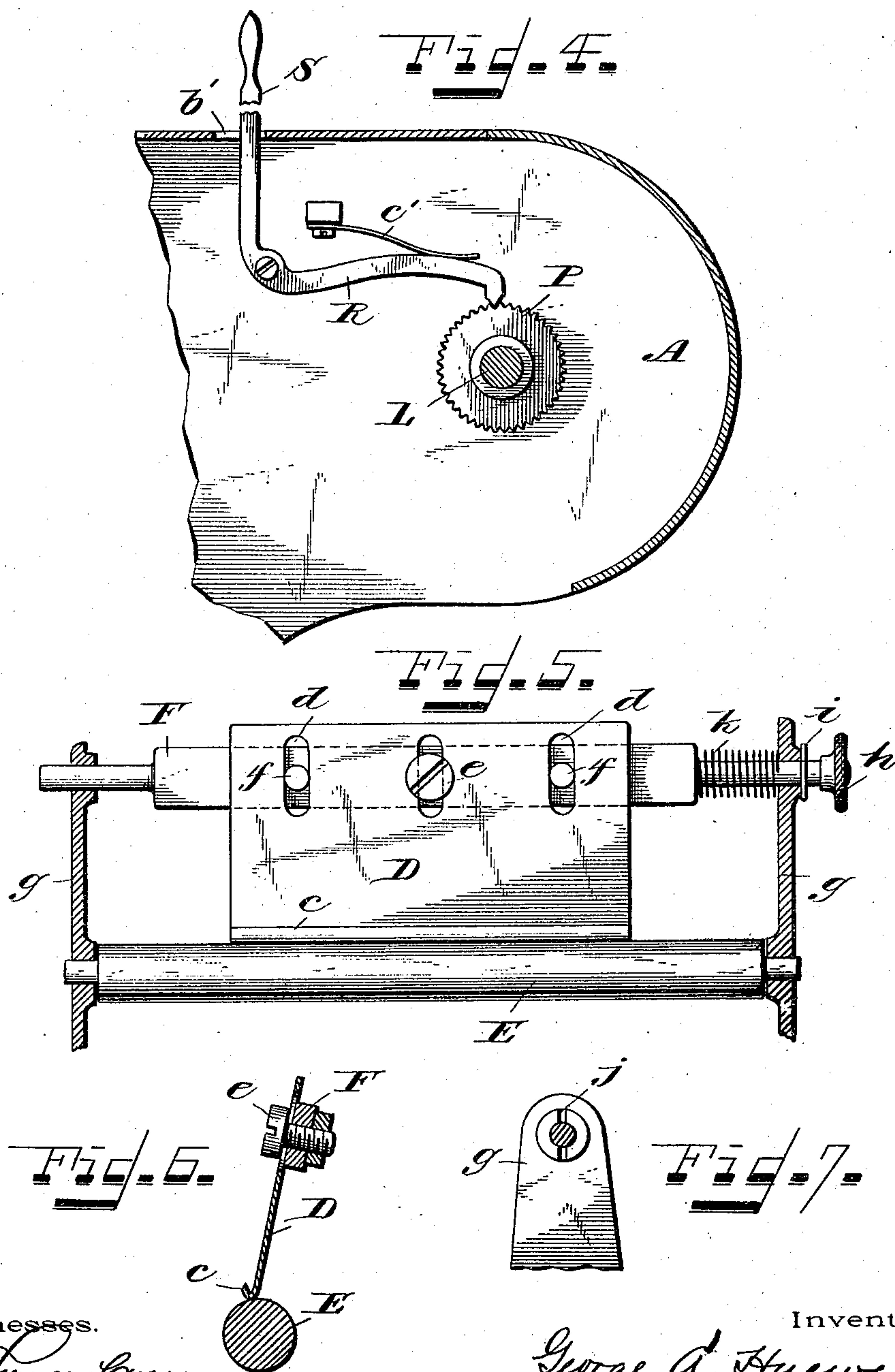
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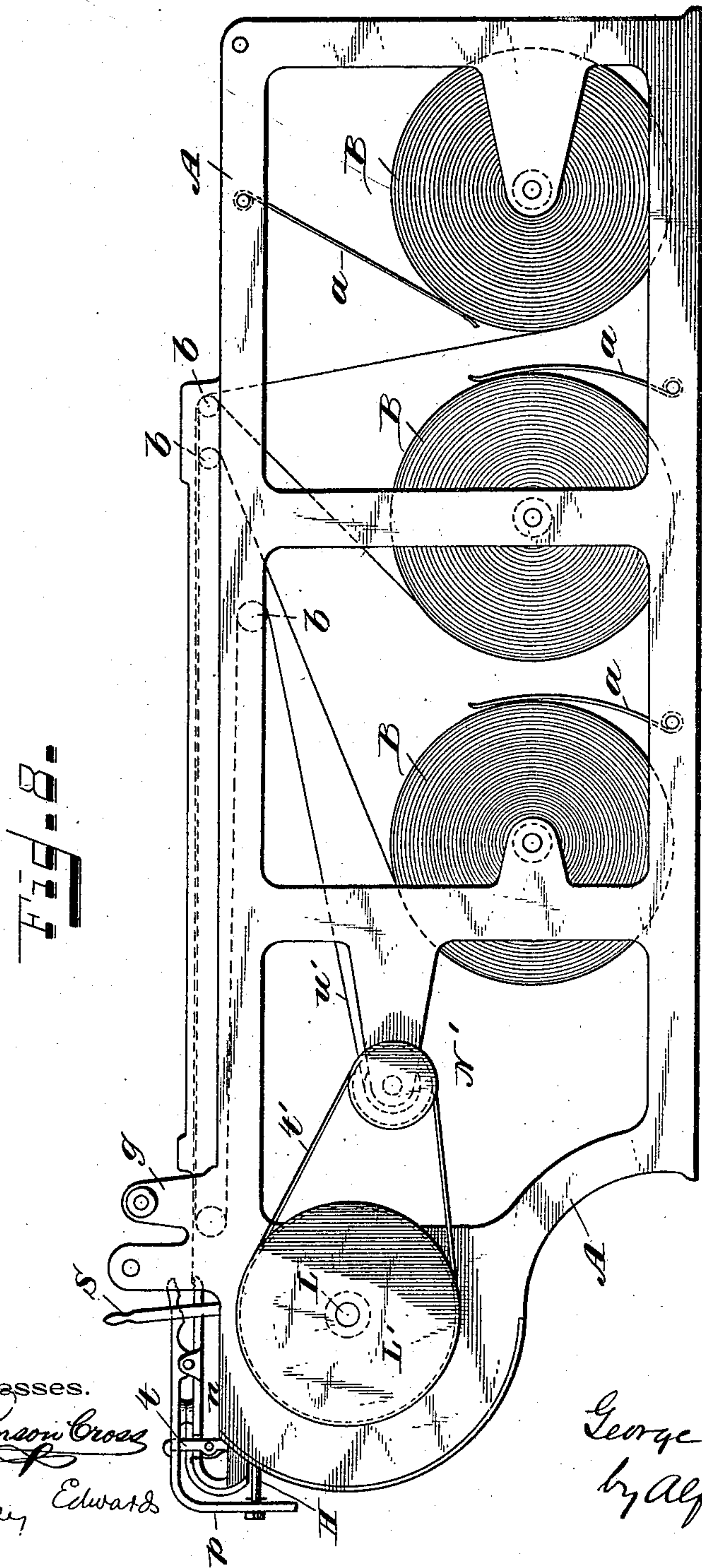
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4 Sheets—Sheet 4.

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UNITED STATES PATENT OFFICE.

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AUTOGRAPHIC REGISTER.

SPECIFICATION forming part of Letters Patent No. 576,847, dated February 9, 1897.

Application filed July 15, 1896. Serial No. 599,203. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. HUEWE, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Autographic Registers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to machines for making duplicate copies of writings, whether of sales-slips for use in stores or business memoranda of various kinds, such as bills of lading and the like, and whether it is intended to provide a record-strip to be filed away in the case for secret preservation or whether all of the slips, both original and duplicate, are intended to be drawn from the machine for such purposes as may be required.

The invention relates to that general class of duplicating-machines in which the several strips of paper are either mounted on rolls or stored in other ways in a suitable compartment and fed over a writing-tablet, where the sheets of carbon-paper or other manifold material are interposed between the sheets and a number of impressions made from one writing, the strips then being fed from the tablet, and the written portions of each strip are either all severed or cut from the strips or one or more passed to another compartment, where they are filed or stored, while the other duplicates are severed and removed.

Whether for use in recording memoranda of sales or for making duplicate copies of bills of lading, receipts, or the like, it has been customary to print on both the original and duplicate strips various headings and space-lines, and it is therefore extremely important in feeding the paper strips from the writing-tablet that the strips should register exactly through their entire length. These strips, when mounted in rows or folded, are of considerable length, and in feeding them the slip of a very small fraction of an inch in the length of a single ticket will soon bring printed portions of the strips entirely out of alinement.

Heretofore in machines of the general class under consideration it has been frequently

the custom to feed or draw off the strips of paper by means of feeding-rollers, spurred or smooth, between which the strips are passed. With the use of this means of feeding the paper, however, one or more of the strips of paper are sure to slip, and perfect registration is impracticable. One or more of the strips are also sometimes wound on a storage-roll and the forward movement given the other strips by pressure or friction rollers or plates or other devices, but this method does not remedy the defect. The strips not fed positively still slip and get out of alinement in a very short time.

Sometimes the cutting-knife has itself been made movable and the paper strips clamped between the knife and a movable plate or slide, so that the paper can be fed by advancing the knife or plate. While with this construction the paper may be fed in register, the knife-edge has to be returned to its normal position before the paper can be severed, so that it is apt to catch and displace the paper strips during the return movement and the next strips fed will not be grasped evenly, or, the paper being torn off at the knife-edge, the gripping margin between the knife and plate is so slight that the feeding mechanism will not hold properly.

It is to overcome this difficulty in the feed of the paper and the severance of it from the roll that my invention is directed, and it rests on the principle that success in this direction can only be attained when each and every strip is fed positively and at exactly the same rate of speed.

Wherever reliance is placed on a frictional or pressure contact of any kind between the strips to feed them it will be found that they will slip slightly on each other, and this slight variation of feed in a short distance soon throws the entire set out of alinement and registration, a defect well nigh fatal where such machines are intended for bills of lading, receipts of various kinds, and other copies of writings where blank spaces are left between printed portions on the slips. As my invention, therefore, has special relation to the positive feed of strips of paper, whereby they may be kept in perfect registration and alinement and the severance of the paper strips

when fed, the invention will be applicable to any machine, whether intended for duplicate writings or not, in which it is proposed to feed two or more strips of paper in perfect alignment and then to sever them from the web.

The invention consists, essentially, in the substitution for the ordinary devices of gripping-jaws to grasp and to hold the several strips and feed them uniformly without releasing until the desired amount has been fed and in the mechanism for properly controlling and operating the jaws in connection with a knife-edge secured to the case for severing the strips, all of which will be hereinafter more particularly pointed out and claimed.

In the drawings, Figure 1 is a central longitudinal section of one form of register with my improved feeding device thereon. Fig. 2 is a similar section of the feeding device. Fig. 3 is a front elevation of the machine shown in Fig. 1 with the lower portion of the framework cut away. Fig. 4 is a detail longitudinal section of the upper portion of the front end of the machine, looking toward the right-hand side of the case. Fig. 5 is a detail front view of the supplemental pressure device for the paper strips. Fig. 6 is a cross-section of same. Fig. 7 is a side view of one of the supports for same. Fig. 8 is a central longitudinal section of another form of machine with my improvements added. Fig. 9 is a detail longitudinal section of a portion of the grippers, showing the stop arrangement therefor.

In the style of machine I have illustrated, A A are the side frames, suitably braced together to hold the working parts. The paper strips are mounted in rolls B B, journaled in the frame, with tension-springs *a a* bearing thereon to keep the paper taut. The paper strips are passed around the guide-rods *b b* and over the writing-tablets C, where the usual manifolding material is interposed between the strips.

To keep the paper even and prevent any displacement at the forward end of the writing-tablet, I provide a spring-plate D, acting in conjunction with a friction-roller E, and between which plate and roller the paper strips are passed. This spring-plate D is turned up slightly at its contacting end *c* and presses upon the friction-roller E at a slightly acute angle. The plate is provided with slots *d d*, and is secured to the rod or shaft F by set-screw *e* and the studs *f f*, the slots being provided to allow for adjustment of the spring-pressure against the roller E.

The supporting-shaft F is mounted to turn in the standards *g g* on the frame, so that the plate can be swung away from contact with the friction-roller by thumb-screw *h* to permit of the insertion of the paper strips. The plate is normally locked down on the roller, with the pin *i* on the shaft taking into the slot *j* on the standard *g* and held there by the coiled spring *k*, and when it is desired to rotate the plate D the shaft F is pulled forward

in its bearings against the pressure of this spring, thus withdrawing the pin *i* from its retaining-slot, when it can be readily turned.

Instead of the spring-plate arrangement two ordinary friction or pressure rollers can be used, or the entire arrangement altogether can be dispensed with, inasmuch as it is only intended as a holding means for the paper and is not an essential part of my feeding device, although I prefer to employ it in connection with my feeding mechanism.

Sliding lengthwise in a dovetailed track or support *ll*, secured underneath the cross or top plate *m* of the framework, is a bar G, curved upward and back at its forward end to form the stationary jaw *n* of a pair of grippers, the other jaw *p* of which is pivoted in suitable lugs *r* on the lower jaw, the jaws being closed by the spring *s* when the upper jaw is released by the dog *t*, pivoted on bar G, as hereinafter described.

The forward end of the upper jaw *p* is bent downward below the front end of the bar G and is connected pivotally with the rod H, which rod extends back horizontally and parallel with the bar G loosely through the lug *n* on the top plate *m*. The outer end of this rod H carries a nut *w*, adjustable by set-screw along the rod.

Upon the lower surface of the bar G is formed or secured a rack *y*, which meshes with the gear-wheel K, mounted on the shaft L, journaled in suitable bearings in the sides of the frame and operated by hand-crank M on one side of same. N is a flat steel spring, one end of which is secured to this shaft L and the other end to a lug *a'* on the case and held from side movement by the side plates *d d* on the shaft. Mounted also on the shaft L, just within one side of the frame, is the ratchet P, engaged by the dog R, pivoted to the case, provided with a hand-lever S, passing out through a slot *b'* on the top of the case and held in engagement with the ratchet by spring *c'*. When the bar or frame G, carrying the grippers, is in its normal position, the shoulder *e'* on the lower end of the dog *t* bears against the lug *f'* on the frame and the upper end of the dog has released the upper jaw and the grippers are firmly grasping the paper strips.

T is a knife-blade pivoted on the rod *g'*, supported in the lugs *h' h'* on the case. When the grippers are extended, the springs *l' l'* press and hold the knife-bar against the lugs *m' m'*, the purpose of which is to serve as a cutting or tearing edge for the paper strips.

The machine being loaded with paper in rolls and the strips being extended with the carbon-paper over the writing-tablet and between the tension device D E under the knife-edge and being held by the grippers, the operator then turns the hand-crank M, which drives the frame G and grippers forward, feeding the paper strips from the rolls. As the grippers hold each strip exactly alike the feed of the strips is and must be positively

uniform, and there is no opportunity for the slipping of one or the other.

The operator turns the hand-crank until the nut *w* comes in contact with the lug *u*, when the forward movement is arrested. The position of adjustment of the nut *w*, it is evident, will regulate the amount of throw of the grippers, and this adjustment can be readily had for any length of strip desired.

The contact of nut *w* with the lug *u* also causes the rod *H* to pull down and in the lower end of the jaw *p*, opening the jaws, and the beveled head of the dog *t* passes up through the slot in the upper dog and locks behind the slot under pressure of spring *n'*. Thus the jaws are locked open, releasing the paper strips, and the operator tears off against the knife-edge. The user then presses the hand-lever *S*, withdrawing the pawl *R* from its ratchet *P*, and the coiled spring, which has wound up on the shaft *L* during the forward movement of the grippers, now pulls back the grippers to their normal position. The knife-blade *T* yields to the entrance of the grippers, allowing the paper strips to fall between the open jaws. The shoulder *e'* on the dog *t* strikes the lug *f'*, thus shifting the dog and allowing the jaws to close firmly on the paper.

The grippers flying back suddenly under the tension of the spring *N*, however, would cause some recoil, which might in time cause some unevenness in the registration of the paper strips, and to remedy this I provide the curved extension *p'* on the lower end of dog *t*, which, just as the shoulder *e'* strikes the lug *f'*, passes in behind the lug and prevents any recoil. As soon as the spring *n'* can act the dog *t* is thrown forward, so as to clear the opening in the lug *f'*.

In Fig. 8 I have shown the application of my feed mechanism to registers in which the lower strip is made a record-strip to be wound up and stored in the case. The construction is the same as in the dupligraph register illustrated in Fig. 1, except that an additional band-pulley *L'* is mounted on the shaft *L*, connected by band *t'* with a smaller pulley *N'* on a record or storage roller, so that the rotation of the shaft *L* in operating the feed mechanism will drive the record-roll to wind up and store away the record-strip, which strip *u'* is passed with the others over the writing-tablet, but not to the grippers, but goes back around suitable guide-rolls under the writing-tablet to the storage-roll. As the storage-roll increases in size the pulley-band slips to prevent tearing of the strip. I could also have a slip-gearing. Inasmuch as the feed for the upper strip is driven positively by the same mechanism that winds up the record-strip, there is no chance of slips during the feed.

My feed mechanism is also equally applicable to that class of registers in which the strips are severed from the rolls by cutting-knives and the record-strip filed away in the

case. In fact it can be readily adapted to any form or character of machine in which the duplicate copies of writings are made.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, gripper-jaws to grasp and hold the paper strips, means for operating them to feed the paper over the writing-tablet, and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.

2. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, gripper-jaws to grasp and hold the paper strips, means for operating them to feed the paper over the tablet, mechanism for opening the jaws to release the paper, and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.

3. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, gripper-jaws to grasp and hold the paper strips, means for operating them to feed the paper over the tablet, mechanism for simultaneously stopping the feed and opening the gripper-jaws to release the paper, and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.

4. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, gripper-jaws to grasp and hold the paper strips, means for operating them to feed the paper over the tablet, mechanism for simultaneously stopping the feed and opening the gripper-jaws to release the paper, with spring to return the grippers to their normal position, and a cutting edge secured to the case and against which the paper is severed when fed forward by the grippers, substantially as shown and described.

5. In a register for duplicate writings, gripper-jaws to grasp and hold the paper strips, means for operating them to feed the paper over the tablet, mechanism for simultaneously stopping the feed and opening the gripper-jaws to release the paper, cutting edge pivoted to the case, spring to return the grippers to their normal position, and dog to hold said grippers open during the return, released by contact with the case, to allow the grippers to close over the paper strips, substantially as shown and described.

6. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, a rack-bar, a pair of gripper-jaws with spring to close same carried at the forward end of said bar, dog to hold said jaws open when the jaws are released, and gearing meshing with said rack with hand-crank to ad-

vance said jaws to feed the paper, and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.

5 7. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, a rack-bar, a pair of gripper-jaws with spring to close same carried at the forward
10 end of said bar, stop connected with said rack-bar and lug on the frame in the pathway of said stop, to limit the feed of said jaws, and to stop the paper at any desired length
15 of feed and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.

20 8. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, a rack-bar, a pair of gripper-jaws with spring to close same, carried at the forward

end of said bar, adjustable stop with the movable one of said jaws, lug on the frame in the pathway of said stop to limit the feed of said jaws and open same, with dog to hold said
25 jaws open, and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.

9. In a register for duplicate writings, a pair
30 of gripping-jaws, with means for retracting same, dog pivoted on one of the jaws to grasp and hold open the other jaw, said dog carrying a shoulder to abut against a stop on the case and provided with a projection to catch
35 behind said stop to prevent recoil of the jaws, substantially as shown and described.

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Witnesses:

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