

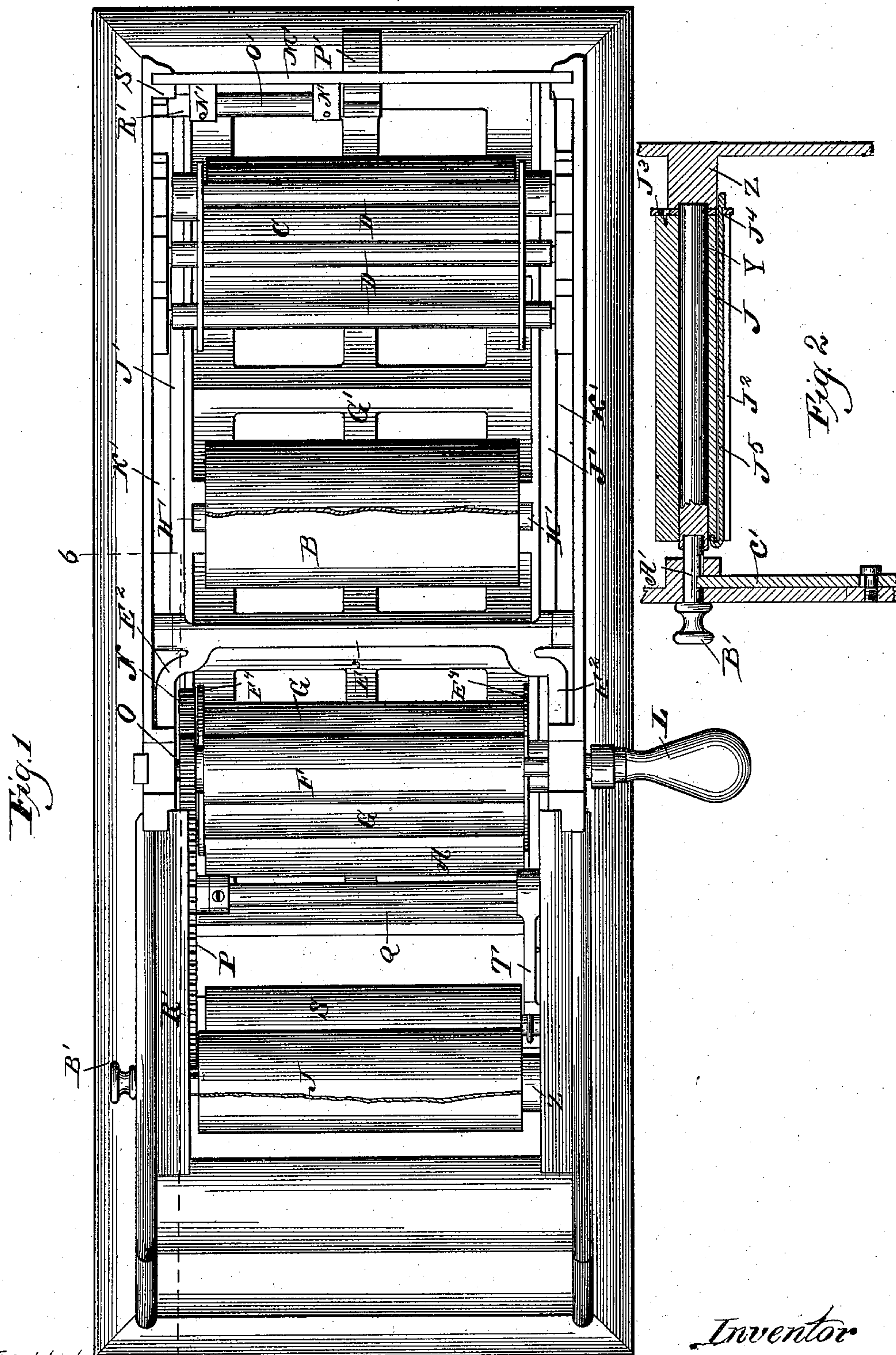
(No Model.)

3- Sheets—Sheet 1.

H. COOK.
AUTOGRAPHIC REGISTER.

No. 504,467.

Patented Sept. 5, 1893.



Witnesses:
John L. Tunisore
Martin A. Olsen.

Inventor
Hugo Cook
by Edward Weston
his atty

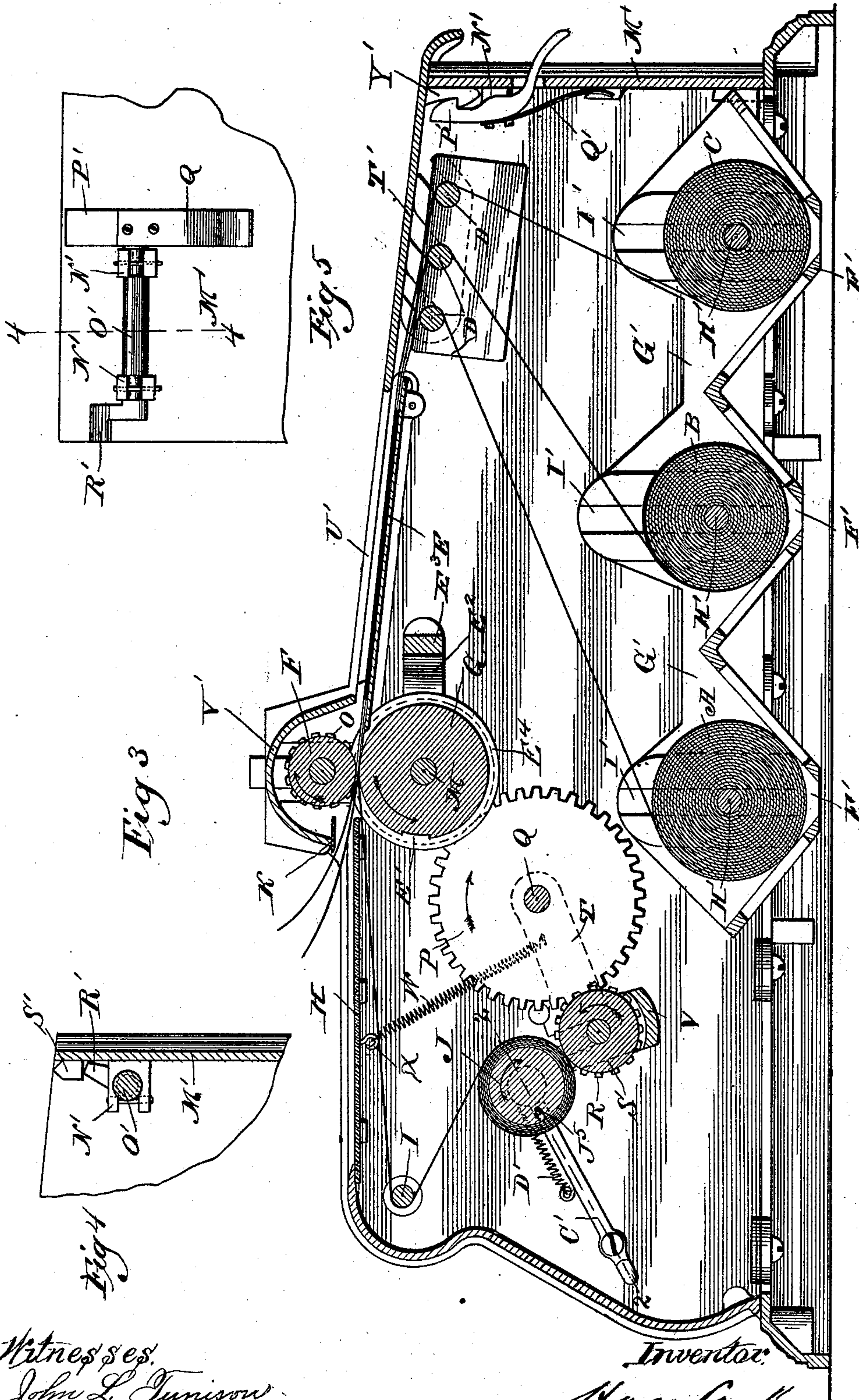
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3 Sheets—Sheet 2.

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Witnesses:
John L. Tunison
Martin A. Olsen.

Inventor:
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by Edward Rector
his attorney

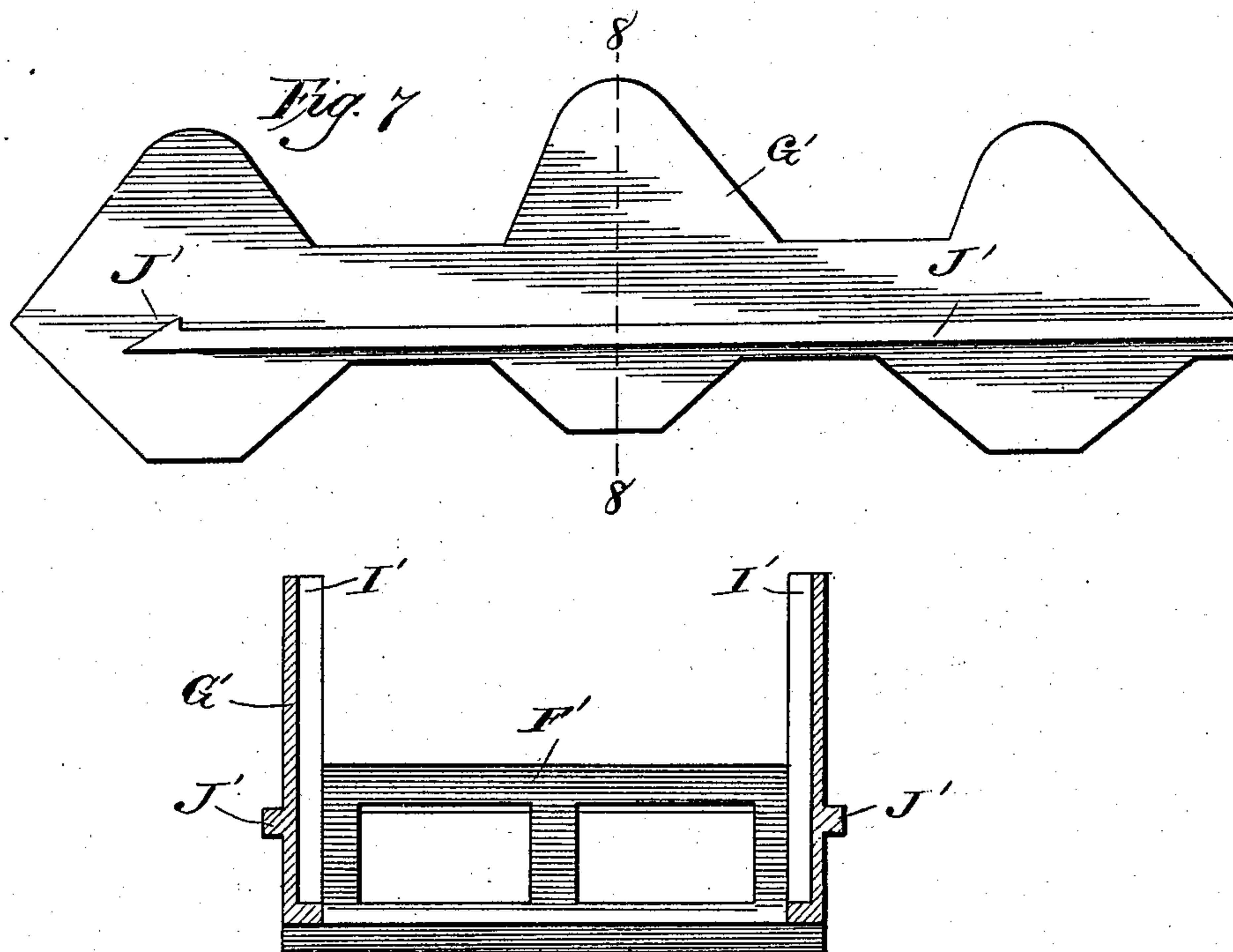
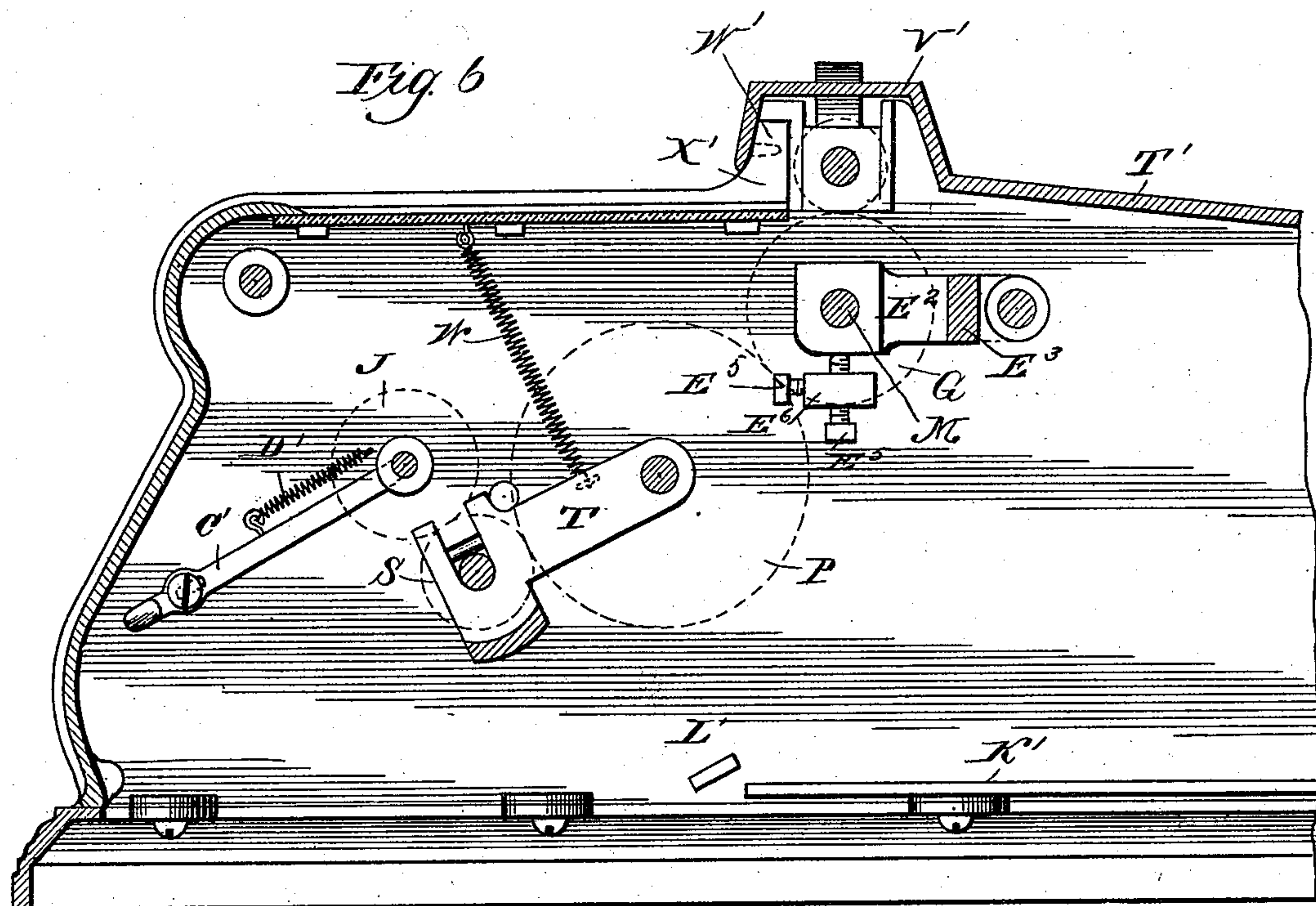
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

HUGO COOK, OF DAYTON, OHIO.

AUTOGRAPHIC REGISTER.

SPECIFICATION forming part of Letters Patent No. 504,467, dated September 5, 1893.

Application filed July 8, 1892. Renewed August 3, 1893. Serial No. 482,305. (No model.)

To all whom it may concern:

Be it known that I, HUGO COOK, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have
5 invented certain new and useful Improvements in Autographic Registers, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

10 My invention relates to that class of machines in which two or more strips of paper are led over a writing tablet where they have suitable manifolding material placed between them, by which memoranda written upon the
15 outer strip is duplicated upon the inner ones, and whence one of the strips is led back into the machine and stored as a record and the others led out of the machine and torn off into separate checks.

20 My invention consists in novel constructions, combinations and arrangements of parts, which will be hereinafter set forth and specifically pointed out in the claims.

In the accompanying drawings Figure 1 is
25 a top plan view of my improved machine with the top of the casing and the writing tablet removed and the paper strips broken away to expose the parts beneath; Fig. 2 a sectional detail of the storage reel for the record strip;
30 Fig. 3 a vertical longitudinal section through the middle of the machine; Fig. 4 a detail of the locking device for one of the end walls of the casing; Fig. 5 a detail of one corner of said end wall and the locks or latches carried
35 thereby; Fig. 6 a vertical longitudinal section of one end of the machine in a plane just within the right hand side thereof; Fig. 7 a side elevation of the frame in which the supply-rolls of paper strips are carried; and Fig.
40 8 a cross-section of said frame through the middle of one of its troughs.

The same letters of reference are used to indicate identical parts in all the figures.

45 The machine illustrated in the drawings employs three strips of paper carried in supply-rolls A, B and C, and led upward over guide-rollers D, thence forward over the writing tablet E, where the carbon sheets are interposed between them, and thence between the
50 feed-rollers F G. From the feed-rollers the lower strip, constituting the record-strip, is led forward beneath a glass plate H forming

the top of the casing at that end of the machine, thence around a guide-roller I and thence around a storage reel J. From the
55 feed-rollers the two upper strips, constituting the check-strips, are led out of the machine through a transverse opening having a knife or tearing edge K extending across its upper
60 edge, against which knife the ends of the strips may be torn off to form separate checks. The feed-roller G is turned forward, to advance the paper strips, by means of a handle
65 L, Fig. 1, secured upon the left hand end of its shaft M which projects outside the casing. This roller has fast upon its right hand end
70 a gear N, Fig. 1, which meshes with a pinion O fast upon the end of the upper roller F and also with a gear wheel P loosely mounted upon a shaft Q supported at its opposite ends in
75 the side walls of the casing. This gear wheel P meshes with a pinion R fast upon the end of a friction-roller S whose spindle is journaled in a swinging frame hung upon the shaft Q and
80 composed of two side arms T U, the former shown in Fig. 6 and the latter in Fig. 1, and a cross-bar V connecting said arms. The storage-reel J before mentioned is journaled in fixed bearings at its opposite ends, as hereinafter described, and the friction-roller S
85 bears against the paper wound upon said reel, as seen in Fig. 3. A spring W connected at its upper end to a hook upon the casing and at its lower end to the arm T of the swinging frame in which the friction roller S is journaled, and a corresponding spring connected
90 to the opposite arm U of said frame, yieldingly press the roller S against the roll of paper upon the reel J so that when the roller S is revolved in the direction of the arrow by
95 the turning of the feed-roller G to advance the paper strips it will turn the storage-reel J and wind the record-strip thereon. The feed-roller G is given one complete revolution at each operation of the machine by means
100 of the handle L, and the roller is of such size that a single revolution of it will draw forward a length of the paper strip equal to one check. The size of the friction roller S and its gearing with the feed-roller G are such that each revolution of the feed-roller G will cause the periphery of the roller S to travel a greater distance than does the periphery of the roller G, and consequently the roller S

would turn the storage-reel farther than would be necessary to wind up the length of record-strip advanced by the feed-rollers. If the resistance offered by the feed-rollers to such extra movement of the record-strip were not sufficient to overcome the frictional connection between the roller S and storage reel and cause the latter to slip upon the surface of the paper, the storage reel would wind up the record-strip faster than it was advanced by the revolutions of the feed-rollers. As it is, the storage-reel tends to draw the record-strip forward a little faster than the feed-rollers advance it, and thus maintains a tension upon the paper, the friction-roller slipping upon the paper wound upon the storage-reel when the tension reaches a certain point, and thereby maintaining an equal strain upon the strip, so that no slack is permitted in the strip between the feed-rollers and the storage-reel, and the strip is evenly and tightly wound upon the latter. Inasmuch as the friction roller S bears against the roll of paper wound upon the storage-reel, instead of bearing against a friction surface on the reel itself, a given movement of the friction-roller will always wind the same length of strip upon the storage-reel whether the quantity of strip wound upon said reel, and the consequent diameter of the roll, be great or small. As the quantity of strip wound upon the storage-reel increases the friction-roller will be gradually forced farther away from the axis of said reel, the swinging frame in which it is journaled yielding against the tension of the springs W to permit such movement.

I am aware that it is old to combine a pair of feed-rollers with a storage-reel and a driving mechanism having a frictional connection with the storage-reel, so that the storage-reel will be turned only far enough at each operation of the machine to wind up the length of strip advanced by the feed-rollers, but I believe it to be broadly new to drive the storage-reel by means of a friction-roller bearing against the surface of the paper wound upon the reel, to cause the reel to be turned just far enough to wind up the same length of strip at each operation, whether the quantity of strip wound upon the reel be great or small.

It has been found in the use of these machines that the paper strips often become deflected from their true line of movement, owing to imperfections in the strip itself or creases formed in the strips when wound into the supply rolls, or on account of unequal pressure between the feed-rollers at opposite sides of the strips, &c. The result is that in the machines as heretofore constructed when the strips were thrown out of their true line of movement from these or any other causes they became wrinkled up and creases would be pressed in them as they passed between the feed-rollers, and as the record-strip was drawn from the feed-rollers to the storage-reel unequal strains would be applied to its opposite sides and sometimes the strips would

be torn in two. When the strips became thus disarranged they could generally be readjusted only by severing them at some point in front of the feed-rollers and starting them in proper order between said rollers again.

I have devised a simple and effective means for automatically adjusting the strips, especially the record-strip, and maintaining them in their true line of movement. I accomplish this result by providing one of the feed-rollers, preferably the roller G, with a flattened side or cut away space, as at E', extending the entire length of the roller. When this cut away space is brought opposite the roller F in the revolution of the roller G, the strips will be momentarily released from the pressure of the feed-rollers and the tension upon the strips will automatically straighten them. Thus, if the record-strip has become wrinkled, or deflected to one side of its true line of movement, when it is thus released from the feed-rollers the tension maintained upon it by the storage-reel, as before described, will cause it to be immediately straightened out and carried back into its proper position. So in the case of the check-strips, if the feed-rollers have advanced one side of them more rapidly than the other and thereby put an extra strain upon that side of them, or if the strips have been pulled to one side in tearing off the preceding checks, the tension on the strips will readjust them as soon as they are released from the feed-rollers. Furthermore, the upper one of the two check-strips usually has printed matter upon it, dividing it into separate checks, each check usually containing the proprietor's name and advertisement at the top, a place for the date, and transverse lines and longitudinal columns for the entry of memoranda, and the checks being consecutively numbered, it has been found extremely difficult, if not wholly impracticable, to print these checks upon the strips at exactly equal distances apart, and even if that could be readily done it has been found difficult to cause exactly the same length of the strip to be fed forward by each revolution of the feed-rollers. The result has been that in the practical use of these machines, where the check-strips were advanced by a pair of feed-rollers, the printed checks would be delivered from the machine irregularly, so that instead of the strip being cut off or torn off between the separate checks it often had to be severed through the top or bottom of the check itself. The provisions of the releasing space in one of the feed-rollers enables the check-strips to be adjusted by hand when said space is brought opposite the other roller, the operator holding the handle of the feed-roller in proper position for that purpose while he adjusts the check-strips as desired.

Instead of the cut away space E', for the purpose above described, means might be provided for automatically separating the two feed-rollers at a given point in their revolu-

tion, to release the paper strips. To this end either one or the other of the rollers may be mounted in yielding bearings, as is quite common and requires no illustration, and one of them be provided with a cam at each end which would engage the opposite roller, or other suitable contact surface, to force the rollers apart at a given point in their revolution. Thus, in the machine illustrated in the drawings the feed-roller G is journaled in a pivoted frame composed of side arms E² and a cross-bar E³, Figs. 1, 3 and 6, maintained in proper position by adjusting screws E⁵, Fig. 6, and is provided with a disk or flange E⁴ at each end. These flanges might each be provided with a cam upon its edge, which cams, in the revolution of the roller, would bear against the roller F and force the two rollers apart, a strong spring interposed between the lug or block E⁶ and the hinged frame being substituted in such case for the adjusting screws, to permit the frame to yield.

So far as I am aware I am the first in the art to devise any means for releasing the strips at a given point in the revolution of the feed-rollers, either by spreading the rolls apart or by providing one of them with a releasing space such as E', and I desire to secure the same as my invention as broadly as may be done.

As seen in Fig. 2 one end of the spindle Y of the storage reel J is journaled in a boss Z upon the side wall of the casing. The opposite end of the spindle Y is recessed and journaled upon the end of a sliding rod A' projecting through the side wall of the casing and provided at its outer end with a thumb-piece B'. This rod is provided with a notch with which co-operates the end of a sliding catch plate C' mounted upon the side wall of the casing and normally held in engagement with said notch by a spring D', Fig. 3. The opposite end of the plate C' is curved to form a hook by which the plate may be conveniently grasped and withdrawn from the notch in the rod A', against the resistance of the spring D', Fig. 6, whereupon the rod may be pulled outward and disengaged from the spindle Y and the storage reel be removed, as will be readily understood. The three rolls of paper strips, A, B and C, Fig. 3, rest in troughs F' in a removable frame G', Figs. 3, 7 and 8. The rolls of paper have spindles H' passed through them and the opposite ends of these spindles fit in vertical guide ways I' upon the inner faces of the side walls of the frame G'. These spindles and the guide-ways in which they fit maintain the rolls of paper in proper position and prevent them being accidentally thrown out of position, while the friction of the rolls themselves against the sides of the troughs F' in which they rest offers the desired resistance to the turning of the rolls and withdrawal of the strips therefrom.

The frame G' is provided on its opposite sides with horizontal supporting ribs J', Figs. 1, 7 and 8, which rest upon shelves or flanges

K' upon the inner faces of the side walls of the casing, Figs. 1 and 6. Inclined stops L', Fig. 6, one on each side wall of the casing, co-operate with the beveled front ends of the ribs J', Fig. 7, to arrest the frame G' at the proper point when it is pushed into the casing and to hold its forward end in proper position therein.

The rear end of the casing is provided with a sliding end gate M', Figs. 1, 3, 4 and 5, confined at its opposite edges in vertical guides upon the side walls of the casing, Fig. 1. Journaled in bearings N' upon the inner face of this end gate, near its upper left hand corner, is a rock-shaft O'. This shaft has fast upon one end a latch piece P', having secured to its rear side a spring Q' bearing at its lower end against the inner face of the gate M' and tending to throw the upper end of the latch piece P' to the right in Fig. 3.

Upon the opposite end of the rockshaft O' is a locking plate R' which co-operates with a lug S' upon the adjacent side wall of the casing, Fig. 4. When the lower end of the end gate is inserted in the upper ends of its guides and the plate pushed downward into position the locking plate R' will ride over the lug S' and catch under it, as shown in Fig. 4, and thereby lock the end gate into position.

The lid T' of the casing, which has the usual opening U' in it above the writing tablet E, is removable and is secured in position by the following means: At its rear end it is formed into a hood or housing V' which incloses the upper feed-roller F. The rear side of this hood is provided at opposite sides of the lid with dowel pins W', one of which is shown in dotted lines in Fig. 6, which pins fit in holes in the rear side of upwardly projecting lugs X' upon the side walls of the casing. At its opposite end the lid is provided with a pendent hook Y', Fig. 3, which co-operates with the hooked upper end of the latch P'. In attaching the lid to the casing the dowel pins W' are first fitted in the holes in the lugs X' and the opposite end of the lid then pressed down into position, whereupon the beveled lower end of the hook Y' will rise over the nose of the latch P' and the two will become locked together as seen in Fig. 3, thereby securely holding the lid in position. The lower end of the latch P' projects through a slot in the end wall to the exterior of the casing, where it may be grasped and lifted to disengage the latch from the hook Y' and release the lid, and also to rock the shaft O' and carry the locking plate R' to the rear of the lug S', Fig. 4, to permit the end gate to be lifted out of its guides.

A novel means for securing the end of the record-strip to the storage reel is illustrated in Fig. 2. As there shown the reel J is provided with a longitudinal groove J² and has secured upon one end a flange J³ provided with an eye J⁴ coincident with said groove. This groove and eye are adapted to receive

a retaining wire J^5 whose right hand end is provided with a notch adapted to catch upon the edge of the eye in the flange and whose left hand end is reversely bent and adapted to fit in a hole in the end of the roller. In attaching the end of the record-strip to the roller the retaining wire is first removed, the end of the strip placed across the groove, the retaining wire placed over it and pressed down into the groove and then slid to the right until its right hand end passes through the eye in the flange and its left hand end enters the hole in the roller.

Having thus fully described my invention, I claim—

1. In an autographic register, the combination of a pair of feed-rollers for advancing the record-strip, a storage-reel for winding up said strip, and an independent friction-roller geared to one of the feed-rollers and bearing against the paper wound upon the storage-reel, for the purpose of turning the latter to wind up the record-strip, substantially as described.

2. In an autographic register, the combination of a pair of feed-rollers for advancing the record-strip, a storage-reel for winding up said strip, journaled in fixed bearings, and an independent friction-roller journaled in yielding bearings and driven by one of the feed-rollers and bearing against the record-strip wound upon the storage-reel, substantially as and for the purpose described.

3. In an autographic register, the combination of a storage-reel for the record-strip, a friction roller journaled in a yielding frame and bearing against the paper wound upon said reel, for turning said reel, and means for driving the friction roller, substantially as described.

4. In an autographic register, the combination of the storage reel J for the record-strip, the friction roller S journaled in the swinging frame and bearing against the paper wound upon the reel J , the spring W connected to said frame, and means for driving the roller S , substantially as described.

5. In an autographic register, the combination of the storage reel J , the feed-rollers F G , the swinging frame T T' V , the spring W applied thereto, the friction roller S journaled in said frame and bearing against the paper wound upon the roller J , and the gearing connecting said roller with the feed-roller G , substantially as described.

6. In an autographic register, the combination of a pair of feed-rollers for drawing the paper strips over the writing tablet, a storage reel for winding up the record-strip as it is advanced by the feed-rollers, dividing mechanism for the feed-rollers and storage reel, and means applied to the feed-rollers for automatically releasing the strips from the pressure of said rollers at a given point in their revolution, to permit adjustment of the strips, substantially as described.

7. In an autographic register, the combina-

tion of a storage reel for winding up the record-strip, a pair of feed-rollers for drawing the paper strips over the writing tablet and delivering the record strip to the storage reel, one of said feed-rollers being provided with a longitudinal cut away space for the purpose of automatically releasing the strips from the pressure of said rollers at a given point in their revolution, to permit adjustment of the strips, substantially as described.

8. In an autographic register, the combination of the supply reels for the paper strips, the writing tablet, and a pair of feed-rollers for drawing the paper strips from the supply reels over said tablet, one of said rollers being provided with a cut away or releasing space for the purpose of automatically releasing the paper strips from the pressure of said rollers at a given point in their revolution, to permit adjustment of the strips, substantially as described.

9. In an autographic register, the combination of the feed-rollers F G for advancing the record-strip, the roller G being provided with the cut away space E' for the purpose described, the storage reel J for winding up the record-strip, and the friction roller S bearing against the paper wound upon the storage reel and geared to the feed roller G , substantially as described.

10. In an autographic register, the combination of the reel J having the longitudinal groove J^2 and provided with the flange J^3 having an eye J^4 , and the retaining wire J^5 fitting in the groove J^2 and co-operating at one end with the eye J^4 in the flange J^3 and reversely bent at its opposite end and confined in a hole in the end of the roller, substantially as described.

11. In an autographic register, the herein described means for supporting and applying tension to the paper strip supply roll, consisting of the trough F' and vertical guides I' at each end thereof, and the spindle H' passed through the roll of paper and fitting loosely in the guides I' , whereby the roll is permitted to rest in the angle formed by the two inclined sides of the trough and its friction against them caused to produce the desired tension substantially as described.

12. In an autographic register, the herein described frame G' for supporting and carrying the paper strip supply rolls, said frame being provided with the troughs F' having the vertical guides at their ends, in combination with the spindles H' passed through the rolls of paper and fitting at their ends in the guides I' , whereby the rolls of paper are permitted to rest in the angles formed by the oppositely inclined sides of the troughs and the friction of the rolls against the same caused to produce the desired tension, substantially as described.

13. In an autographic register, the combination of the casing provided with the supporting flanges K' , the frame G' provided with the ribs J' resting upon the flanges K' ,

and containing the troughs F' having the vertical guides I' at their ends, in combination with the spindles H' passed through the rolls of paper and fitting loosely in said guides, substantially as described.

14. In an autographic register, the combination of the casing provided with vertical guide-ways at its end, the sliding end gate M' fitting therein, the spring-pressed rock-shaft O' journaled in bearings on said end gate, and the locking plate R' carried by said rock-shaft and co-operating with the lug S' upon the side wall of the casing, substantially as described.

15. In an autographic register, the combination, with the casing, of the removable lid T' provided at one end with the dowel pins W' fitting in holes in the lugs X' and provided at its opposite end with the pendent hook Y', and the pivoted spring pressed latch P' co-operating with the hook Y' and project-

ing outside the casing, substantially as described.

16. In an autographic register, the combination of the casing provided with vertical guide-ways at one end, the sliding end gate M' fitting therein, the rock-shaft O' journaled in bearings upon said end gate, the locking plate R' fast upon said shaft and co-operating with the lug S' upon the casing, the latch P' also fast upon said rock-shaft, the spring Q' applied to said latch and shaft, and the removable lid T' provided at one end with the dowel pins W' fitting in holes in the lugs X' on the casing and at its opposite end with the pendent hook Y' co-operating with the latch P', substantially as described.

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Witnesses:

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