

(No Model.)

4 Sheets—Sheet 1.

J. PFEIFER.
AUTOGRAPHIC REGISTER.

No. 496,894.

Patented May 9, 1893.

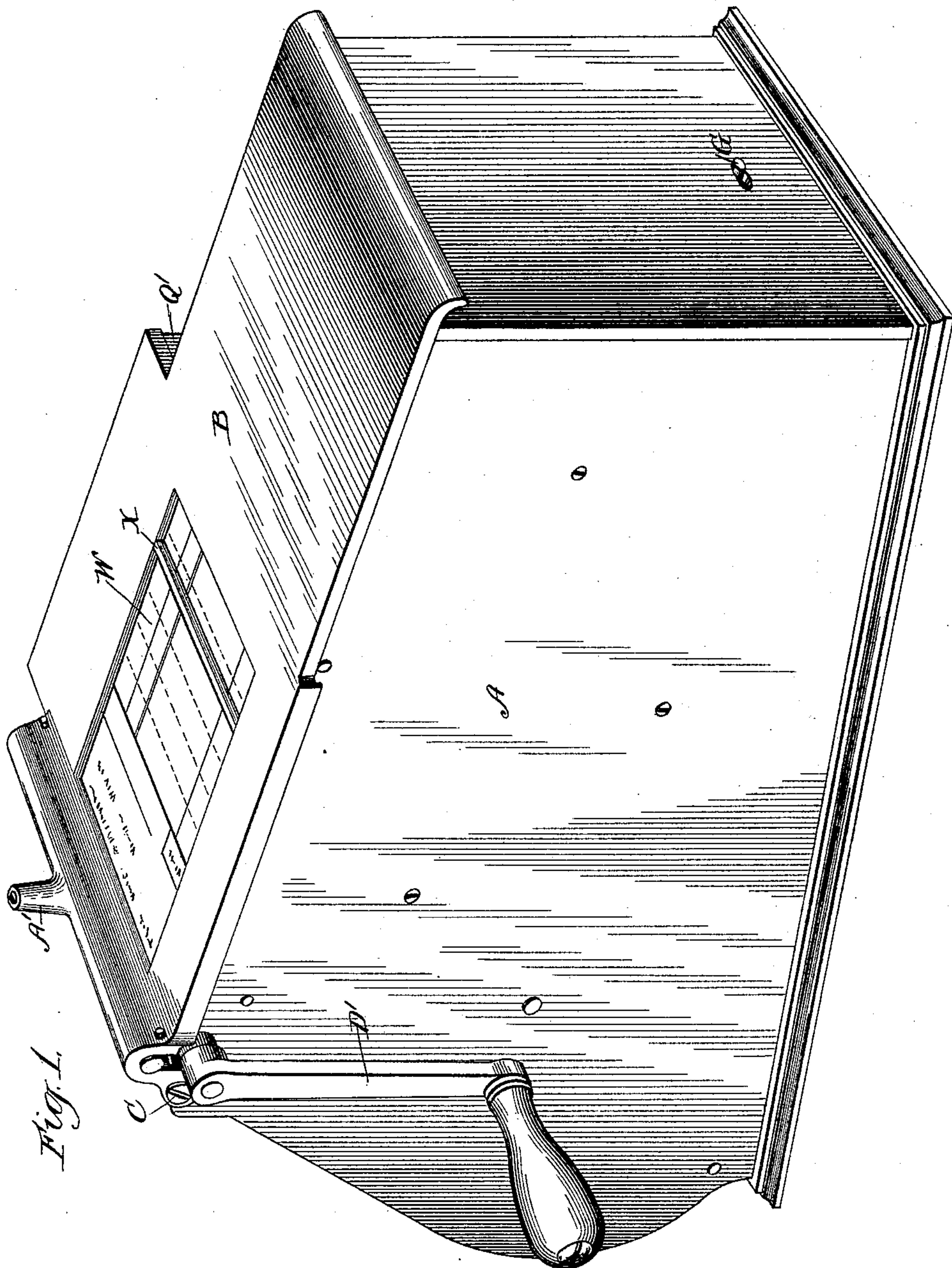


Fig. 1.

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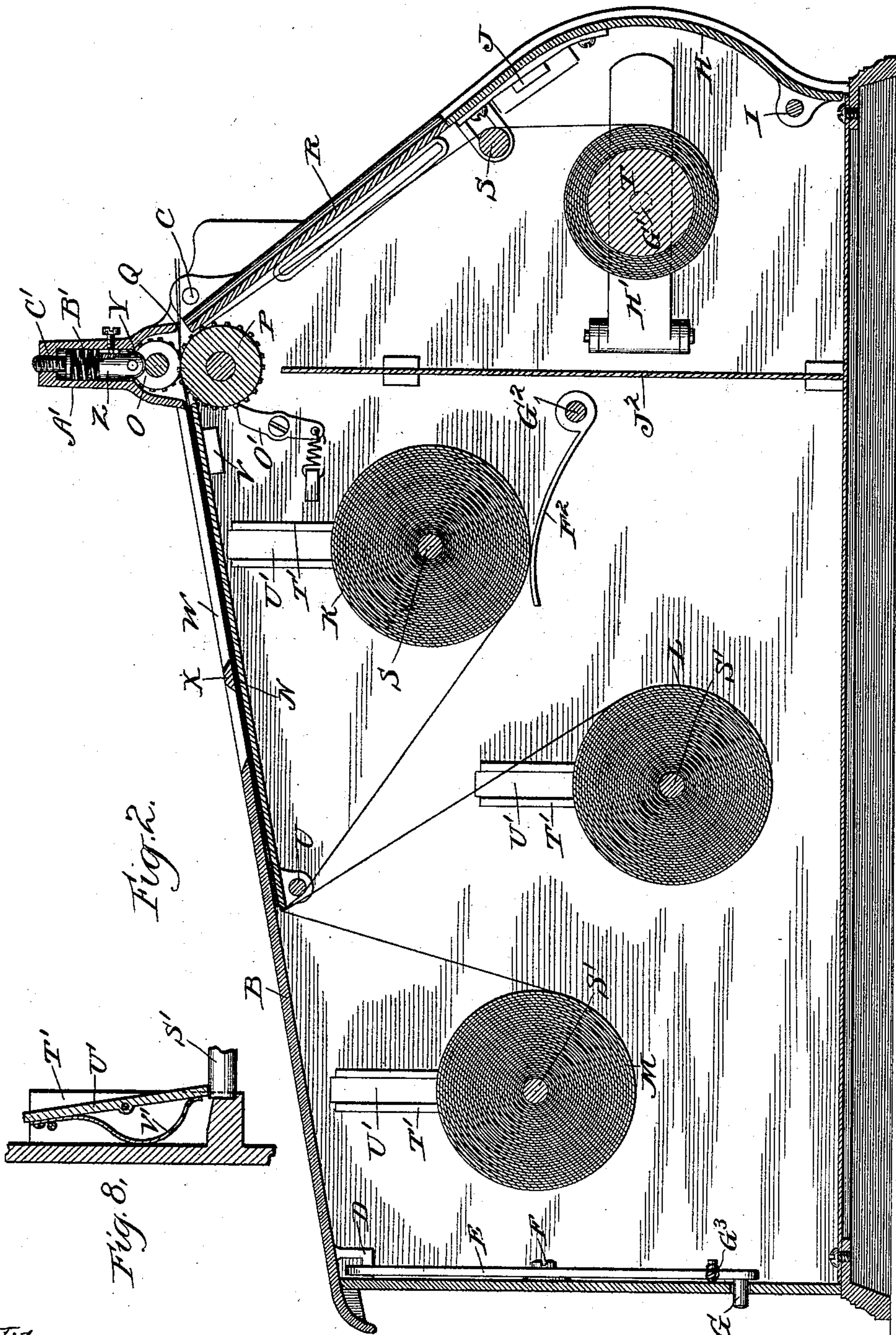
(No Model.)

4 Sheets—Sheet 2.

J. PFEIFER.
AUTOGRAPHIC REGISTER.

No. 496,894.

Patented May 9, 1893.



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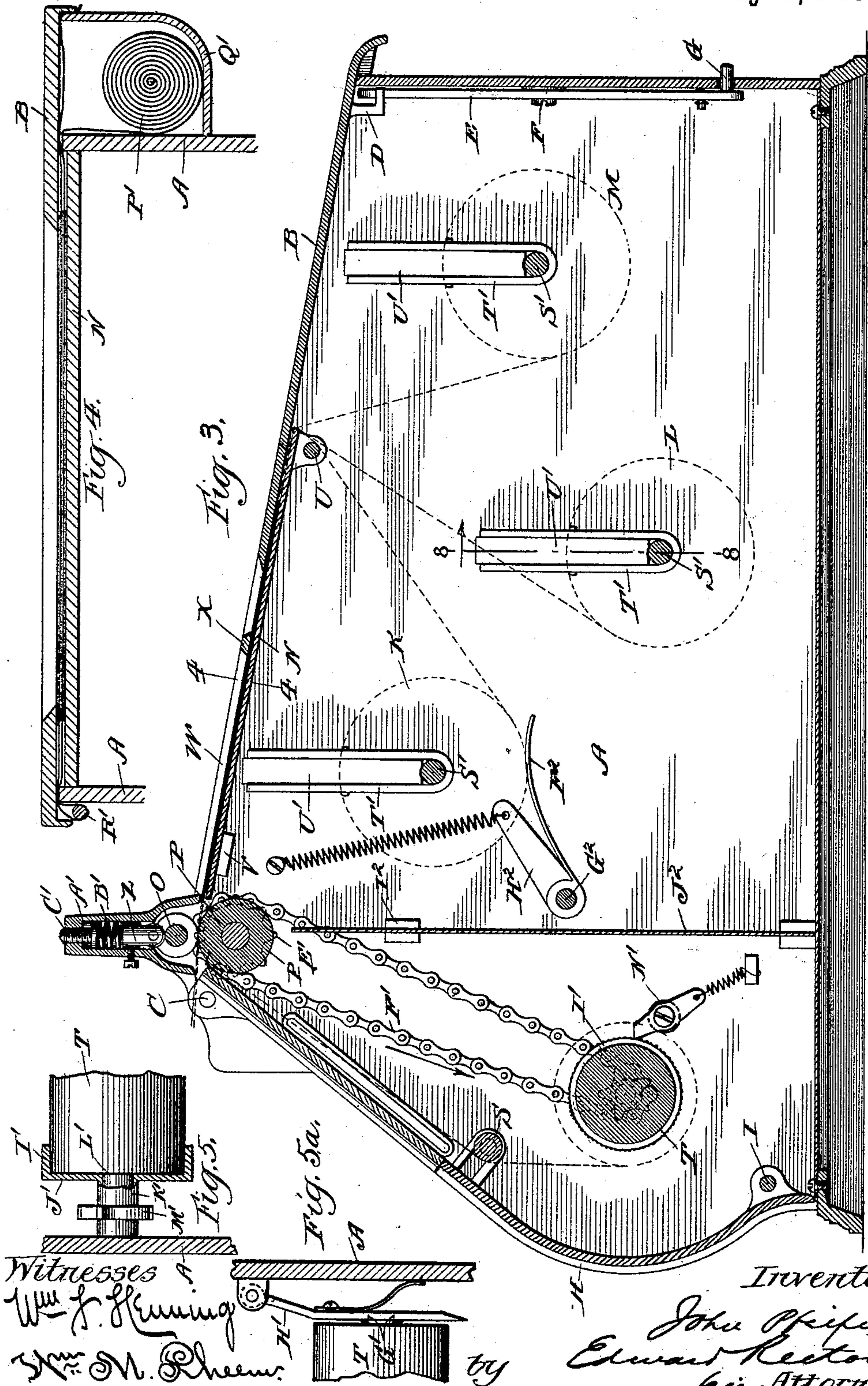
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4 Sheets—Sheet 3.

J. PFEIFER.
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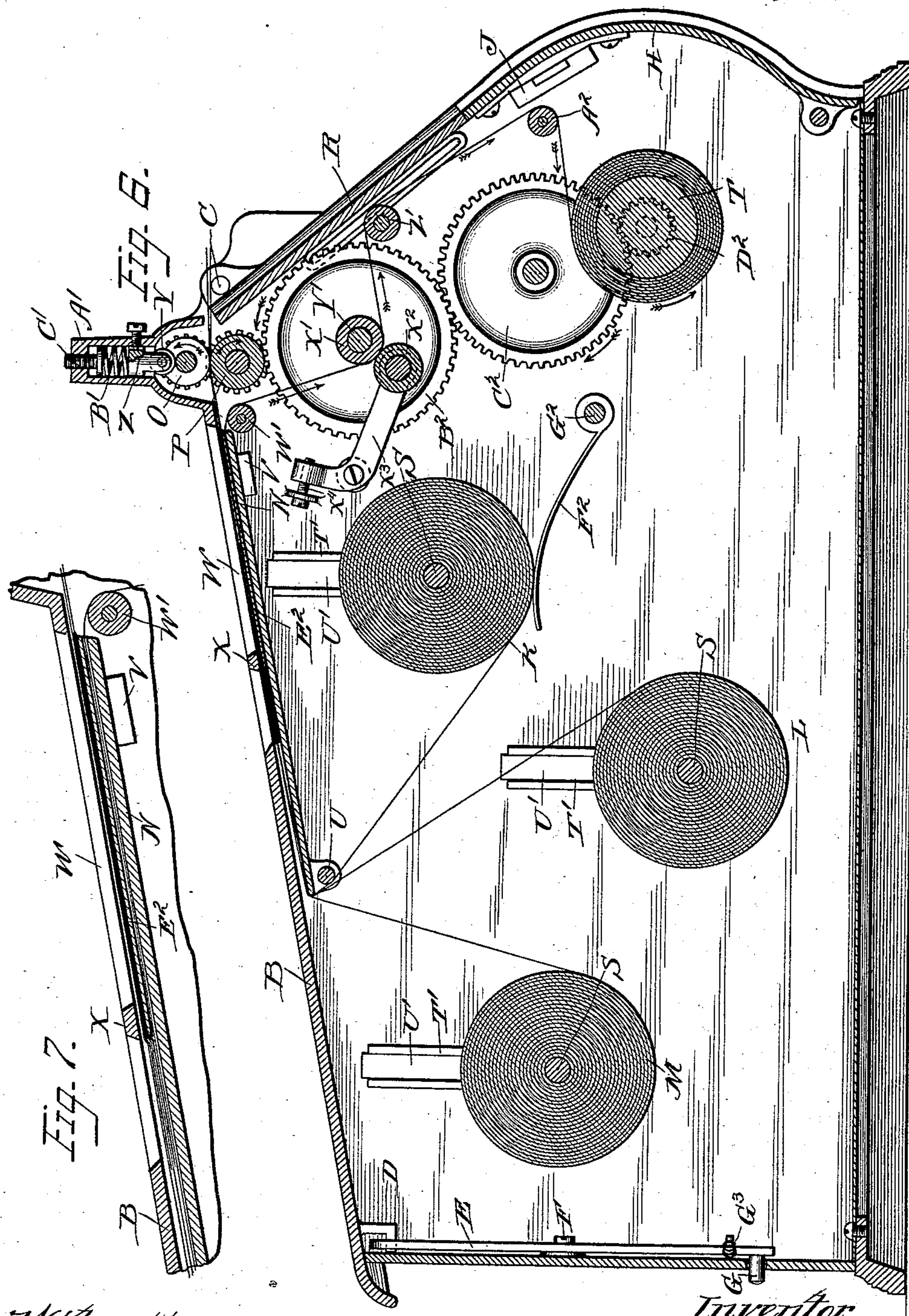
(No Model.)

4 Sheets—Sheet 4.

J. PFEIFER.
AUTOGRAPHIC REGISTER.

No. 496,894.

Patented May 9, 1893.



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UNITED STATES PATENT OFFICE.

JOHN PFEIFER, OF DAYTON, OHIO, ASSIGNOR TO THE NATIONAL CASH REGISTER COMPANY, OF SAME PLACE.

AUTOGRAPHIC REGISTER.

SPECIFICATION forming part of Letters Patent No. 496,894, dated May 9, 1893.

Application filed November 19, 1892. Serial No. 452,555. (No model.)

To all whom it may concern:

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

My invention consists in certain novel constructions, arrangements and combinations of various parts of the machine, all of which will be hereinafter described and particularly pointed out in the claims.

In the accompanying drawings Figure 1 is a perspective view of my improved register; Fig. 2 a vertical central section of the same looking toward the left hand side of the machine; Fig. 3 a vertical section of the machine just within the right hand side of the casing, looking toward the right; Fig. 4 an enlarged sectional detail of the lid, writing tablet, paper and carbon strips passed over the latter, and the carbon strip receptacle, showing the novel arrangement of the carbon strip; Fig. 5 an enlarged sectional detail of the frictional driving device for the storage reel; Fig. 5^a a sectional detail of the spring bearing for the opposite end of the reel; Fig. 6 a vertical section through the middle of the machine, showing a modification in the construction and arrangement of some of the parts; Fig. 7 an enlarged sectional detail longitudinally through the writing tablet and parts above it; and Fig. 8 a sectional detail of one of the bearings for the paper strip supply-rolls and the spring catch-plate therein.

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

The casing A of the machine, of the usual or any suitable shape, is provided with a lid B hinged to the side plates of the casing at C and provided on its under side near its opposite end with a catch plate D with which co-operates a hooked latch E pivoted at F to the end wall of the casing and provided at its lower end with a stud G which projects through a slot in said wall. A spring G³ yieldingly holds the lower end of the latch in its right hand position. By moving the stud G to the left in this slot the upper end of the

latch E will be thrown to the right and disengaged from the catch upon the lid, whereupon the latter is free to be swung upward and forward to or beyond a vertical position to give access to the interior of the casing. At its opposite end the casing is provided with a door H hinged to the side plates at I and controlled by a lock J. This door is unlocked and opened to give access to the storage reel, hereinafter described. The paper strips, in this instance three in number, are carried in rolls K L M mounted upon spindles supported at their opposite ends in bearings upon the side plates of the casing, as hereinafter described. From the supply-rolls the paper strips are led upward over the front end of the writing tablet N, thence forward over said tablet and between a pair of feed-rollers O—P, whence the two upper strips, constituting the check-strips, are led out of the machine through a transverse slot at Q, while the lower one of the three strips, constituting the record-strip, is led forward and downward behind a glass-covered window R, over a guide roller S, and thence around the storage-reel T hereinafter referred to. The plate N, constituting the writing tablet, is hinged to the opposite side plates of the casing at U, and at its opposite end rests upon lugs V upon said side plates. When the lid of the casing is swung upward to vertical position the plate N may likewise be swung upward, to give access to the supply-rolls of the paper strips. The lid B is provided with a rectangular opening W above the writing tablet N and preferably with a cross bar X extending transversely of the opening W near its lower end and dividing it into two parts, for the purpose hereinafter explained. The upper feed-roller O is journaled in a housing formed on the lid B and is driven from the roller P either by gearing or by friction alone. At or near its middle the roller O is provided with a circumferential groove in which fits a pressure roller Y carried by a vertically-movable block Z confined in a tubular housing A'. A coiled spring B' is confined in the housing A' above the block Z and its pressure upon said block is regulated by a set screw C' which extends through the top of the housing into position to be turned by a screw-driver. By means

of the screw C' the pressure of the feed-roller O upon the feed-roller P may be adjusted as desired, and as the pressure is applied to the roller O at its middle, the latter is caused to bear upon the roller P with approximately equal pressure throughout its length. The operating handle or crank D', Fig. 1, is fast upon the left hand projecting end of the spindle or shaft of the feed-roller P. At its right hand end the roller P has fast upon it a sprocket-wheel E' over which is passed an endless sprocket-chain F' which drives the storage-reel T. The storage-reel T consists preferably of a comparatively large wooden roller which is provided at its left hand end with a projecting journal G' which has its bearing in a plate H' which is hinged to the side plate of the casing at one end, as seen in Figs. 2 and 5^a and spring-pressed against the end of the roller T. At its opposite end the roller T is confined within a circular flange I' upon a disk J', Fig. 5, and abuts against said disk. The disk J' is carried by a sleeve K' loosely mounted upon a stub shaft L' secured to the side plate of the casing. The sleeve K' has fast upon it a sprocket-wheel M' over which the chain F' passes. The disk J' is thus driven from the feed-roller P, and the storage-reel T is driven by frictional contact with said disk. The relative diameters of the feed-roller P and the roller T of the storage-reel, and of the sprocket-wheels E' M', are such that the storage-reel tends to draw forward the record-strip faster than it is advanced by the feed-rollers, but the frictional connection between the disk J' and roller T permits the former to turn independently of the latter when the resistance offered by the record-strip is sufficient to overcome the frictional connection between the roller and disk, and thus the storage-reel is caused to wind up the exact quantity of the record-strip advanced to it by the feed-rollers. I have shown the flange I' of the disk J' as provided with a milled or toothed edge in Fig. 3 and a pawl N' spring-pressed against the same to prevent backward movement of the parts. Likewise I have shown a pawl O' co-operating with the feed-roller P in Fig. 2 to prevent reverse movement of said roller.

The paper strips have manifolding material interposed between them above the writing tablet N, for the purpose of causing the matter written upon the upper strip to be duplicated upon the lower ones. Heretofore where three paper strips were employed there have been generally used two separate sheets or strips of carbon paper led transversely across the writing tablet between the paper strips. These two strips of carbon paper have usually been wound into a single roll, which was carried in a suitable receptacle upon the side of the machine, but owing to the peculiar character of the usual carbon paper employed in these machines, it has been found difficult to properly wind two strips into a single roll, and in my present machine I have obviated

the necessity of doing this by employing a single strip of carbon paper, led from its supply-roll across the writing tablet, between the two lower strips, thence around a roller or guide rod and back across the tablet between the upper and middle strips. This arrangement of the carbon strip is shown in Fig. 4, where it will be seen that it is carried in a roll P' in a receptacle Q' secured to the outer side of the casing, and led thence across the writing tablet N, between the middle and lower strips, around a guide rod R', and thence back across the plate N between the middle and upper strips. Its free right hand end may be confined between the flanged edge of the lid B and the upper edge of the outer side of the receptacle Q', or between the lid B and the upper edge of the side plate of the casing. When the portions of the strip which overlie the writing tablet have been used until they no longer give distinct copies, the lid can be raised and the free end of the carbon strip drawn to the right until fresh portions of the strip are brought over the tablet, and the lid be then closed and the used portion of the strip torn off, against the flanged edge of the lid which rests upon the upper edge of the receptacle Q'. As seen in Figs. 3 and 8 the spindles S' which carry the supply-rolls of the paper strips rest at their opposite ends in bearings T'. Each of these bearings has vertically-extended sides between which is pivoted near its middle a plate U' having secured to its outer side a curved spring V', Fig. 8, which bears against the side plate of the casing and tends to press the lower end of the pivoted plate U' inward and its upper end outward, its upper end resting against a cross pin W'. The plates U' are thus yieldingly held in a slightly inclined position, the lower ends of the two plates at the opposite ends of each one of the rolls being nearer together than their upper ends, so that when the roll is placed between their upper ends and slid downward in the bearings T' the lower ends of the plates will be forced outward against the pressure of the springs V' until the spindle of the roll clears the lower ends of the plates, whereupon the latter will spring inward above the ends of the spindle and lock the latter in the bearings. When it is desired to move one of the spindles, after all of the paper strip has been unwound from it, the upper ends of the plates U' at its opposite ends are pressed inward to disengage their lower ends from the spindle, whereupon the latter is free to be withdrawn.

Under the construction shown in Figs. 1, 2 and 3 all three of the paper strips are led between the feed-rollers O P, so that equal lengths of them are drawn forward at each operation of the machine, the upper two being torn off to form the detached checks, and the lower one being wound upon the storage-reel. In such case all of the matter written upon the upper check-strip is duplicated upon both of the other strips, so that there is pre-

served upon the record-strip a duplicate of all the memoranda entered upon the check-strips. In many cases, however, it is not necessary or desirable to preserve upon the record-strip any more than the total or footings of the various items entered upon the check-strips, with perhaps the number of the check and sometimes the date. In such cases it has heretofore been common to expose to the manifolding material only a sufficient portion of the record-strip to have duplicated upon it such footings, &c., and in such event, as the record-strip would be used up much more slowly than the check-strips, it could not be led with the check-strips between the feed-rollers without causing an unnecessary amount of it to be drawn forward at each operation. It has therefore in such instances been either drawn over the writing tablet directly by the storage-reel or else led between a pair of feed-rollers which turned at a much less speed than the feed-rollers for the check-strips. In Figs. 6 and 7 I have shown such modifications of the machine illustrated in the preceding figures as serve to convert it into a machine such as just described. In Fig. 6 the record-strip, instead of being led between the feed-rollers O P which advance the check-strips, is led from the front end of the writing tablet N over a guide-roller W', thence downward between a roller X' fast upon a shaft Y' and a second roller X² journaled in arms X³ adjustable by screws X⁴, thence forward over a roller Z', thence downward around a roller A², and thence rearward around the storage-reel T. The latter is driven by gearing from the feed-roller P, the pinion upon the feed-roller meshing with a gear wheel B² fast upon the shaft Y', the wheel B² meshing with a wheel C² and the latter with a pinion D² which may be fast upon the hub of a flanged disk corresponding to the disk J' in Fig. 5, to form a frictional driving connection similar to that in Fig. 3, the storage reel being turned at each operation just far enough to wind up the portion of the record-strip advanced by the rollers X', X². The various items of each transaction are entered upon the outer check-strip through the portion of the opening W at the right of the cross-bar X in Fig. 6, and the footings, date and such other memoranda as it is desired to have duplicated upon the record strip only are entered upon the outer check-strip through the portion of the opening W at the left of the cross-bar X. Located above the writing tablet N and overlying that part of it which is beneath the portion of the opening W at the right of the cross-bar X is a thin metal plate E² between which and the writing tablet N the record-strip is led, while the two check-strips pass over said plate. The plate E² may be supported at its opposite sides either upon the writing tablet or upon the side plate of the casing. This plate prevents any of the memoranda entered upon the check-strips at the right of the cross-bar X from be-

ing duplicated upon the record-strip, while permitting the memoranda entered at the left of said bar to be duplicated upon said strip. It will be understood that the lower carbon sheet rests upon the upper side of the plate E², the plate separating it from the record-strip, both of the carbon sheets being in this instance of the same width or formed of reverse folds of the same strip as described in connection with the preceding views. The provision of the plate E² obviates the necessity of slotting the writing tablet N beneath the cross-bar X and leading the record-strip downward through said slot, as has heretofore been done, and permits all three of the strips to be led forward over the whole length of the writing tablet.

I have shown a tension device applied to the supply-roll K of the record-strip, consisting of a curved plate F² which is fast upon a rock-shaft G² mounted at its opposite ends in the side plates of the casing. The shaft G² has fast upon it an arm H² to the outer end of which is connected a coiled spring I² secured at its upper end to the side plate of the casing and operating to press the plate F² against the paper roll K and thereby offer resistance to the unwinding of the roll. A similar tension device may be applied to each of the other rolls if desired.

In machines of this class it is desirable to keep the storage-reel and the record-strip wound thereon entirely within the control of the proprietor or his authorized agent, and wholly inaccessible to the clerk who uses the machines. At the same time it is desirable that the clerk should be able to obtain access to the supply rolls of the paper strips, so that he may be able to adjust or straighten said strips if they should become creased or deflected from their proper path, or to release them in case their edges should become caught and crumpled or torn, as sometimes occurs. To that end I have divided the casing of my machine into two compartments by a fixed partition plate J², extending from the bottom of the casing to a point just below the feed-roller P, as seen in Figs. 2 and 3. The portion of the casing to the right of this partition in Fig. 3 constitutes the supply-compartment and contains the supply-rolls of the paper strips, while the portion of the casing to the left of the partition constitutes the storage-compartment and contains the storage-reel upon which the record-strip is wound after it has been drawn over the writing tablet. Access to this storage-compartment can only be had by opening the door H, and this door is controlled by the lock J whose key the proprietor may keep in his possession. On the other hand access to the supply-compartment may be had by simply disengaging the latch E from the catch of the lid B and lifting the latter. This latch is always accessible from the exterior of the casing by means of its projecting stud G, so that the clerk can at any time obtain access to the

supply-compartment of the machine for any necessary purpose.

Having thus fully described my invention, I claim—

5 1. In an autographic register, the combination of the feed-rollers for advancing the paper strips, a storage-reel, a flanged friction disk at one end of said reel in which the roller of the reel fits and against which the end of
10 the roller abuts, a spring bearing for the opposite end of the roller operating to press the roller against the friction disk, and driving mechanism for the feed-rollers and friction disk, whereby the storage-reel is actuated to
15 wind up the portion of the record-strip advanced to it by the feed-rollers and permits excess of movement of the driving mechanism, substantially as and for the purpose described.

20 2. In an autographic register, the combination of a pair of feed-rollers for advancing the paper strips, an operating handle and a sprocket-wheel fast upon one of said rollers, a storage-reel, a flanged friction disk at one
25 end of said reel within which the roller of the reel fits and against which the end of the roller abuts, a spring bearing for the opposite end of the roller operating to press the roller against the friction disk, a second sprocket
30 wheel fast upon the hub of the friction disk, and a sprocket-chain passed over said sprocket-wheel and over the sprocket-wheel upon the feed-roller, substantially as and for the purpose described.

35 3. In an autographic register, the combination of the pair of feed-rollers O P for drawing the paper strips forward from their supply-rolls over the writing tablet, the operating handle D' and sprocket-wheel E' fast upon
40 the roller P, the flanged disk I' loose upon the shaft L' and provided with the sprocket-wheel M', the chain F' passed around the sprocket-wheels E' M', the roller T of the storage-reel fitting within the flanged disk J'
45 at one end, and the spring-pressed plate H' hinged to the casing and affording a bearing for the opposite end of the roller T, substantially as and for the purpose described.

50 4. In an autographic register, the combination, with the writing tablet having the check-strips and record-strip led over it, of the single carbon-strip wound in a supply-roll carried in a receptacle at one side of the writing
55 tablet and led thence across the tablet between two of the paper strips, thence around

a roller or guide and back across the tablet between one of said two strips and the third strip, substantially as and for the purpose described.

5. In an autographic register, the combination of the casing A having the receptacle Q' 60 secured to its side, the writing tablet N mounted in the casing A, the hinged lid B extending over the top of the receptacle and provided with the opening W above the tablet N, and the single carbon-strip P' carried 55 in a roll in a receptacle Q' and led thence across the tablet N between the middle and lower paper strips, thence around the guide R, thence backward over the tablet N between the middle and upper strips, and having its free end confined between the lid B 70 and the upper edge of the receptacle Q', substantially as described.

6. In an autographic register, the combination, with the spindles S' of the paper strip 75 supply-rolls, of the bearings T' secured upon the sides of the casing A and having the vertically-extended sides, and the spring-pressed plates U' pivoted therein and co-operating 80 with the spindles S' in the manner described.

7. In an autographic register, the combination, with the writing tablet over which the paper strips and manifolding material are 85 passed, of a guard plate overlying a portion of the tablet, over which plate the check-strips are led and between which plate and the writing tablet the record-strip is led, whereby the matter entered upon the check- 90 strips over said plate is not duplicated upon the record-strip, while that entered upon the check-strips over the portion of the writing tablet not covered by said plate is duplicated upon said strip, substantially as and for the 95 purpose described.

8. In an autographic register, the combination of the feed-rollers O P for advancing the paper strips, the roller O being provided at 100 its middle with a circumferential groove, the housing A', the sliding block Z movable therein and having mounted in it the pressure roller Y fitting in the groove in the feed-roller O and bearing against the spindle of said roller, the spring B', and the adjusting screw C', substantially as described.

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