(No Model.) 5 Sheets—Sheet 1.

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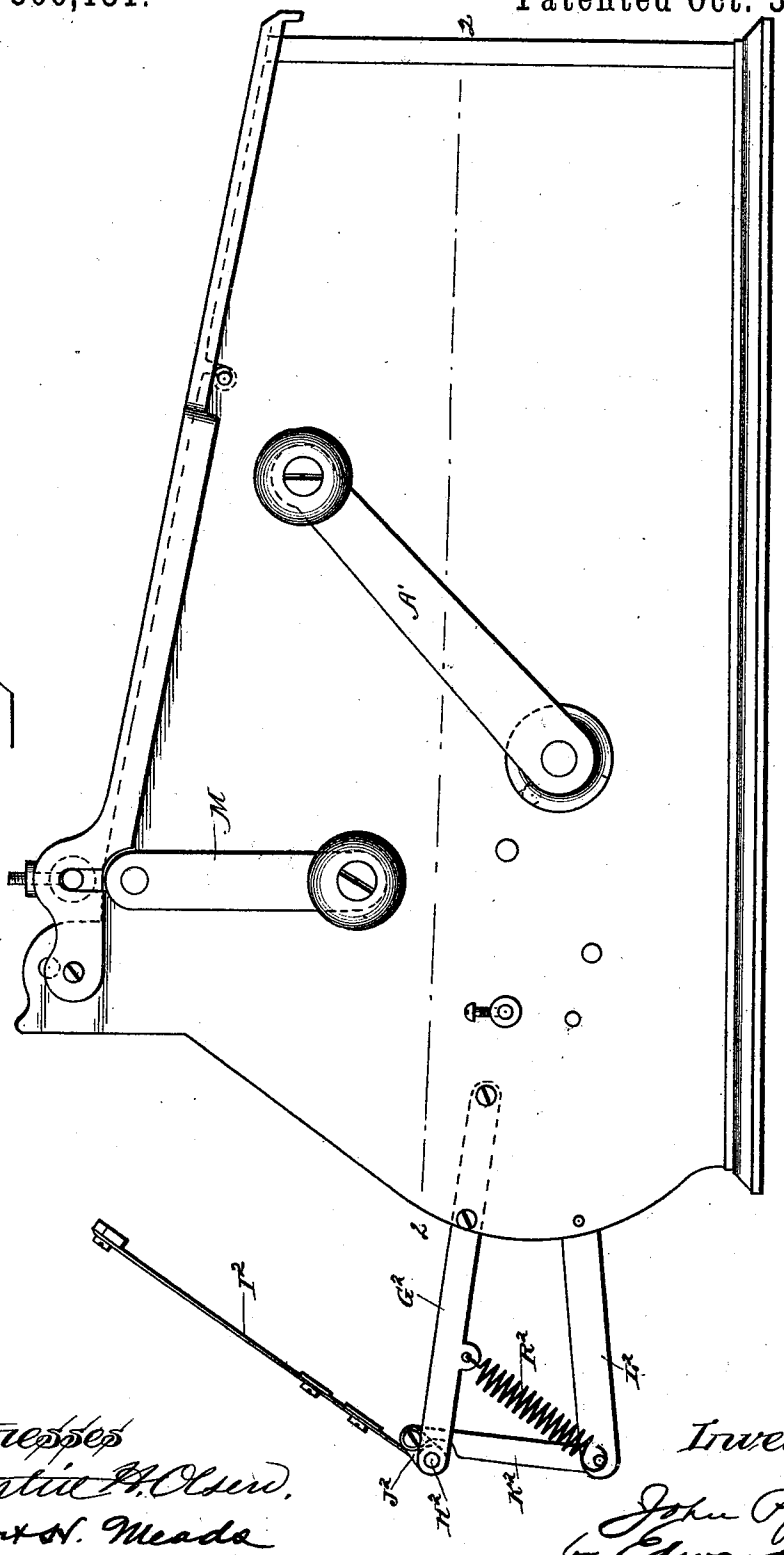
AUTOGRAPHIC REGISTER AND METHOD OF MANIPULATING AND STORING THE RECORD STRIP THEREIN.

No. 506,131. Patented Oct. 3, 1893.

Fig. 1.



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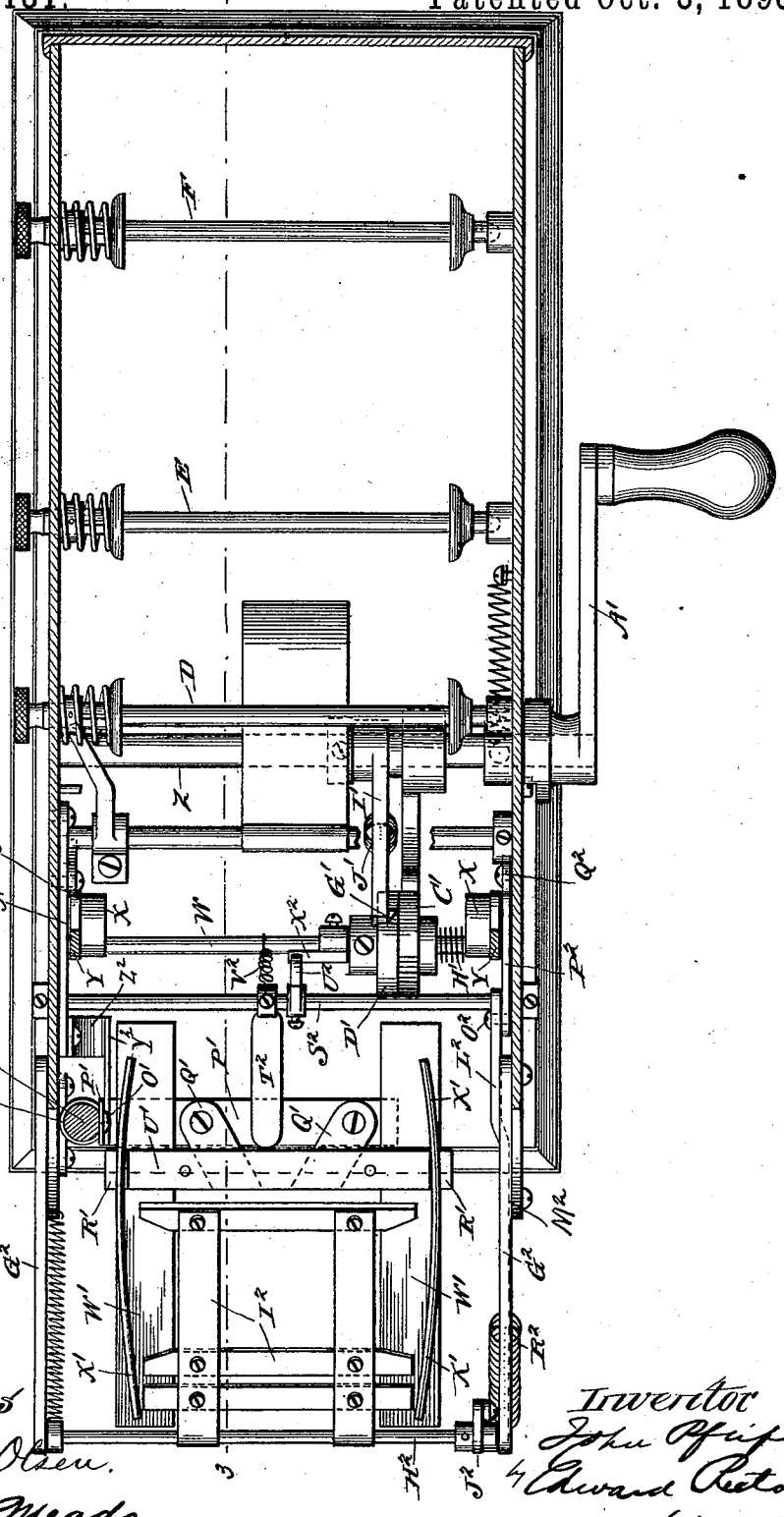

Fig. 2.

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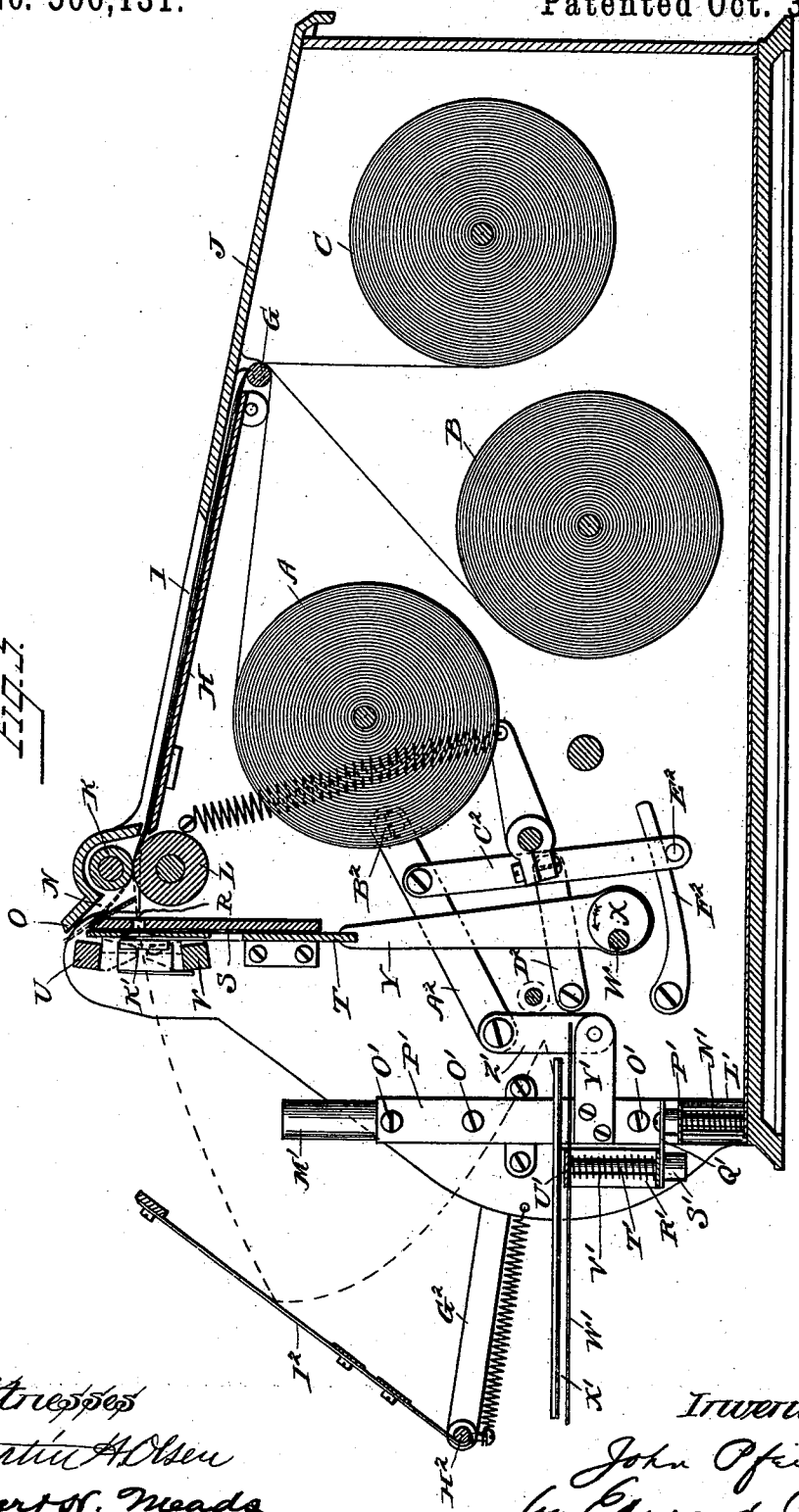
Fig. 3.



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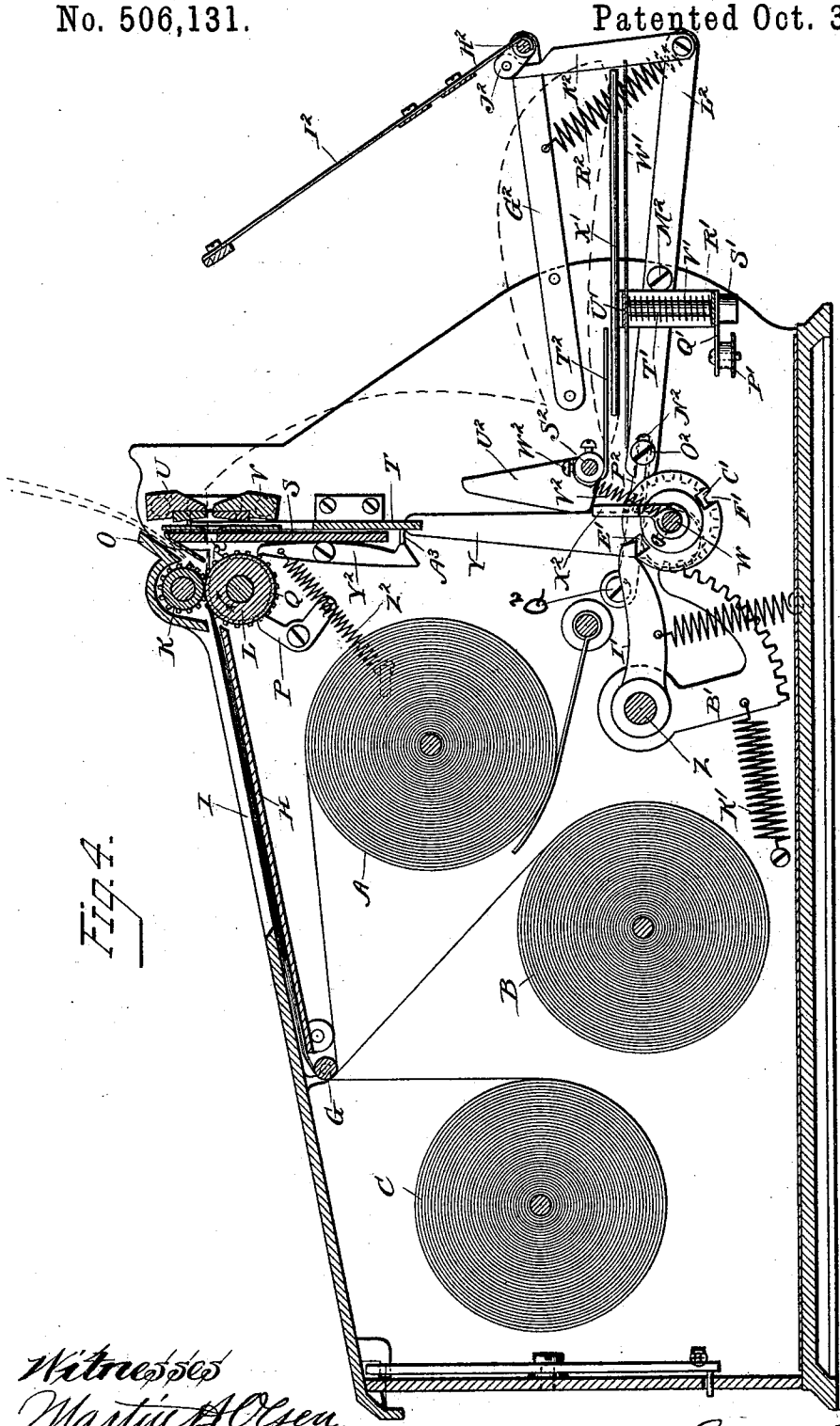

Fig. 4.

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AUTOGRAPHIC REGISTER AND METHOD OF MANIPULATING AND STORING THE RECORD STRIP THEREIN.

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Fig. 4.

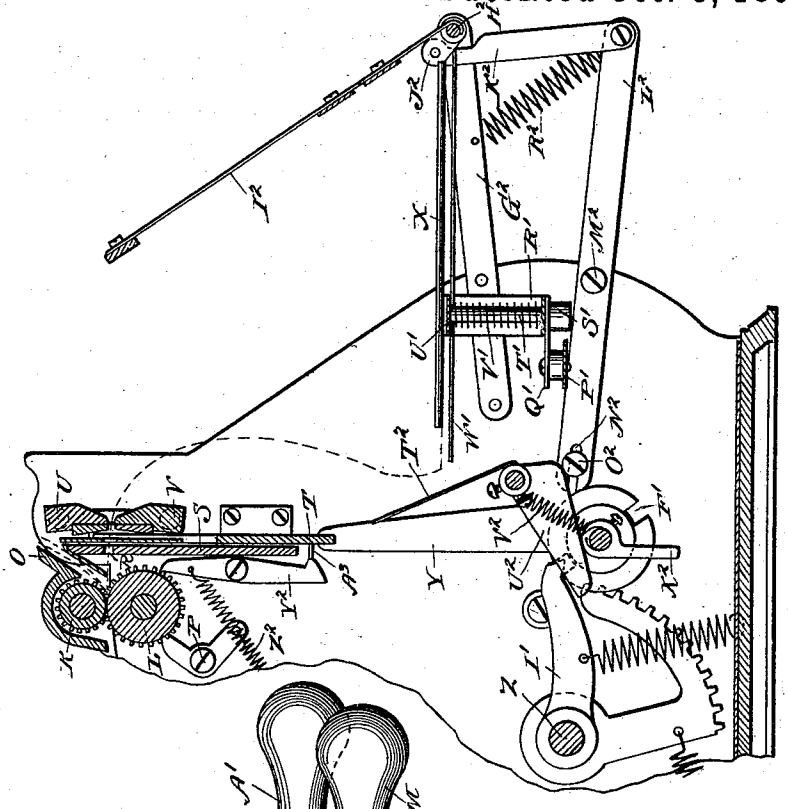
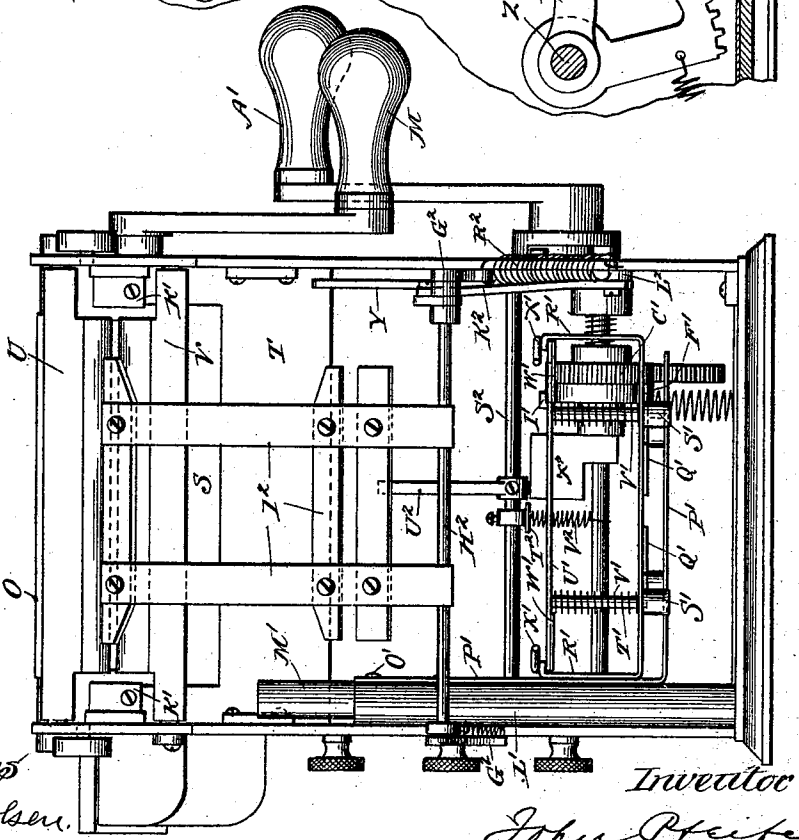


Fig. 5.



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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 AND METHOD OF MANIPULATING AND STORING THE RECORD-STRIP THEREIN.

SPECIFICATION forming part of Letters Patent No. 506,131, dated October 3, 1893.

Application filed April 26, 1893. Serial No. 471,898. (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 and the Method of Manipulating and Storing the Record-Strip Therein, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of autographic registers or manual recorders in which are usually employed two or more paper strips, led over an exposed writing tablet, where the desired memoranda is written upon the upper one and duplicated by interposed manifolding material upon the lower ones, and whence the lower strip is led to and stored in a storage compartment within the machine, to form a permanent record, while the other strip or strips pass out of the machine and are severed into detached checks. The principal feature of my invention relates to the method and means of manipulating and storing the under or record-strip. This strip, in my new machine, is carried upon a supply-roll within the machine, led thence over the writing tablet and between a pair of feed-rollers, and is then creased transversely at suitable intervals and folded and filed in the storage-compartment of the machine.

The novelty of my invention will be hereinafter set forth and particularly pointed out in the claims.

In the accompanying drawings Figure 1 represents a side elevation of the machine, with the end of the casing which inclosed the storage-compartment removed, and some of the mechanism within the machine shown by dotted lines; Fig. 2 a sectional plan view of the machine approximately on the line 2—2 of Fig. 1; Fig. 3 a vertical longitudinal section of the machine approximately on the line 3—3 of Fig. 2, looking toward the right of the machine; Fig. 4 a vertical longitudinal section approximately on the same line, looking toward the left of the machine; Fig. 5 an elevation of the front end of the machine, with a portion of the casing removed, as in the other views; and Fig. 6 a sectional detail of the creasing and filing mechanisms, with the storage-frame in elevated position, and showing the position the record-strip occupies immediately after the presser-frame has been actuated to file a reverse fold of the strip upon the storage-frame.

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

The paper strips, in this instance three in number, are carried in three supply-rolls A B C upon spools D E F, Fig. 2, suitably mounted in the supply end or compartment of the machine. From the supply-rolls the strips are led upward over a guide-roller G, thence forward over the writing tablet H, which is exposed through an opening I in the top J of the casing, thence between a pair of feed-rollers K L geared together and arranged to be turned by a handle M fast upon the left hand end of the spindle of the lower roller, which projects through the casing for that purpose, Fig. 1. From the feed-rollers the two upper strips, constituting the check-strips, are led upward through a transverse opening in the casing, at N, and are adapted to be torn off into checks against a tearing edge O integral with the top of the casing. A pawl P engaging a ratchet Q on the extreme left hand end of the lower roller L prevents retrograde movement of the rollers. This much of the machine is old in substantially the form illustrated.

The novelty of my invention consists in the method and means for creasing, folding and filing the record-strip after it leaves the feed-rollers, and may now be described. From the feed-rollers the strip is led through a horizontal slot R extending from side to side of the machine in a fixed vertical plate S and through a co-incident slot in a vertically reciprocating plate T mounted at its ends in suitable guide-ways upon the side walls of the casing, and thence through a narrow horizontal opening between two pivoted jaws or presser-bars U V. It will be seen from this construction that if the lower edge of the upper jaw U be swung to the left in Fig. 4 until it bears against the reciprocating plate T, and the latter be lifted until the paper strip passing

through its slot is carried upward between the plate S and jaw U a crease will be thereby formed in the paper strip; and that, likewise, if the upper edge of the lower jaw V be swung to the left and the plate T pulled downward until the paper strip is carried between said jaw V and the plate S a crease will also be formed in the paper strip. By means hereinafter described the plate T is moved in one direction, and one of the jaws U V moved to co-operate with it in the manner above described, at each operation of the machine, to form transverse creases in the paper strip.

Journaled in the lower portion of the machine, beneath the reciprocating plate T, is a rotary shaft W having fast upon it near its opposite ends two eccentrics X, Fig. 3, which project through and fit within circular openings in the lower ends of two vertically extending arms or pitmen Y, which latter are flexibly connected at their upper ends to the reciprocating plate T at the opposite lower corners of the latter, so that upon each half revolution of the shaft W the plate T will be reciprocated in one direction, and upon the succeeding half revolution of the shaft it will be reciprocated in the opposite direction. The shaft W is given a half revolution at each operation of the machine by means which may be now described.

Journaled in the sides of the casing in front of the rotary shaft W, and projecting at its left hand end through the casing, is a rock-shaft Z having fast upon its outer end a lever or handle A′, Fig. 1. Within the casing this shaft has fast upon it a toothed segment B′ which meshes with a gear-wheel or segment C′ loose upon the rotary shaft W, Figs. 2 and 4. Fast upon the shaft W at the right of the gear C′ is a disk D′ provided with two diametrically opposite notches E′ F′ with which co-operates a laterally projecting tooth G′ upon the side of the gear C′. A coiled spring H′ surrounding the shaft W between the gear C′ and one of the eccentrics X presses the gear to the right against the disk D′. The throw of the operating lever A′ is such that a full downward movement of it will cause the segment B′ to throw the gear C′ one half revolution, and as the tooth G′ of the gear is normally engaged with one of the notches in the disk D′ a half revolution will be imparted to the shaft W. Upon the return upward movement of the lever A′ and backward movement of the gear C′ the tooth G′ will slip out of the notch in the disk D′ with which it had been engaged, being beveled off upon one side for that purpose, the gear C′ sliding to the left upon the shaft W against the pressure of the spring H′, and when the gear reaches normal position the tooth will enter the opposite notch in the disk D′, so that upon the next downward movement of the lever A′ the shaft W will be given another half revolution, and so on. A pawl I′ hung upon the rock-shaft Z is pressed by a spring J′ against the periphery of the disk D′ and co-operates with the notches therein when the parts are in normal position, to prevent retrograde movement of the shaft W. A coiled spring K′, Fig. 4, connected to the segment B′, yieldingly holds the operating lever in and restores it to normal position.

From the foregoing description it will be seen that at each depression of the lever A′ the shaft W will be given a half revolution and the plate T reciprocated in one direction or the other to crease the record-strip in the manner heretofore described. The presser-jaws U V are oscillated upon their pivotal supports by means of lugs or plates K′, Figs. 3 and 4, upon the rear side of the reciprocating plate T at the opposite ends of the transverse slot therein. These lugs or plates co-operate with squared portions of the jaws U V formed by cut-away spaces or recesses in the opposite ends of said jaws, Fig. 5. When the plate T is lifted the upper ends of the lugs K′ engage the squared portions of the jaw U near the forward edge of the latter and swing the lower edge of the jaw against the plate T. Likewise when the plate T is drawn downward the lower ends of the lugs K′ co-operate with the jaw V in a similar manner to swing its upper edge against the plate T, as will be readily understood.

The parts above described constitute the creasing mechanism of the machine in this particular instance, and I will now proceed to describe the folding or filing mechanism by which the record-strip is stored in compact form after it has been creased.

In an upright tubular bearing L, at the right hand side of the machine, Figs. 2 and 3, is mounted a vertically sliding rod M′ whose lower end is reduced in size and has surrounding it a weak coiled spring N′, Fig. 3, which counterbalances the weight of the rod M′ and parts carried by it and yieldingly holds them in the positions to which they may be moved. The left hand side of the tubular bearing L′ is cut away or provided with a vertical slot through which may pass screws O′, Fig. 3, by which there is secured to the rod M the vertical arm of a plate P′ whose lower end is bent at a right angle and extends horizontally across the machine, as seen in Fig. 2. By means of two rearwardly projecting plates Q′ secured to the plate P′ the latter carries a second transverse plate R′ whose opposite ends are bent upwardly and stand in vertical position with their extreme upper ends slightly bent inwardly, as seen in Figs. 2 and 5. The plate R′ is provided upon its under side with two bearings S′ having vertical bores co-incident with holes in the plate R′, and in these bearings are guided vertical rods T′ which have fastened to their upper ends a transverse plate U′, Fig. 2, overlying the plate R′ and with its opposite ends resting immediately beneath the inturned upper ends of the plate R′, Fig. 5. The rods T′ which carry the plate U′ are surrounded by coiled springs V′ resting

at their lower ends upon the plate R′, which springs serve to yieldingly hold the plate U′ in its upper position and restore it to such position after it has been depressed. Secured to the opposite ends of the plate U′, in this instance to its under side, are two forwardly and backwardly extending plates W′ W′, the plates U′ and W′ W′ constituting a rectangular vertically-movable frame. Secured to the upper inturned ends of the plate R′, at the opposite ends of the plate U′, Fig. 2, are two curved wires or rods X′ for a purpose hereinafter explained.

Secured to the vertical arm of the plate P′, Fig. 3, is a rearwardly extending plate Y′ to which is pivoted the lower end of a link Z′ whose upper end is pivoted to one end of an arm or plate A^2 whose opposite end is pivoted to the side of the casing at B^2. It will be seen that upon lifting the rear end of the arm A^2 the plate P′ and vertically sliding rod M′ and all the parts carried by them, above described, will be lifted, and upon depressing it they will be depressed. The arm A^2 has pivoted to it near its rear end a pendent link C^2 which has pivoted to it near its middle the rear end of an arm D^2 whose forward end is pivoted to the side of the casing. The lower end of the link C^2 is provided with a laterally projecting stud E^2 upon which rests the rear end of an arm F^2 loosely pivoted at its forward end to the side of the casing.

It will be seen that the right hand one of the two eccentrics X, heretofore described, lies between the arms D^2 and F^2, so that when the shaft W is rotated in the direction of the arrow from the position shown in Fig. 3, the eccentric X, acting as a cam, will lift the arm D^2 during the first half of the revolution of the shaft W, and during the second half of its revolution will engage and depress the arm F^2. In this manner during the first half of revolution of said shaft the arm A^2 will be lifted and carry with it all of the parts connected to it, above described, and during the second half of revolution of the shaft it will be depressed and carry with it all of said parts.

Journaled at its opposite ends in the extreme forward ends of two forwardly extending fixed arms G^2 is a rock-shaft H^2 which has secured to it a vibrating presser or filing-frame I^2.

To the end of a short arm J^2 fast upon the rock-shaft H^2, Figs. 1, 2 and 4, is pivoted the upper end of a link K^2 whose lower end is pivoted to the extreme outer end of a lever L^2 which is pivoted near its middle to the side of the casing at M^2 and which is provided at its rear end with a slot N^2 in which fits and plays a laterally projecting stud or screw O^2 upon the forward end of an arm P^2 pivoted at its rear end to the side of the casing at Q^2. This arm P^2 overlies the left hand one of the two eccentrics X heretofore described, so that during the revolutions of the shaft W′ said eccentric will lift said arm during each upper half-revolution of it from the normal position shown in the drawings, Fig. 4. The lifting of the arm P^2 will lift the rear end of the lever L^2 and throw its forward end downward and thereby, through the medium of the link K^2 and arm J^2, rock the shaft H^2 and throw the presser-frame I^2 rearward and downward toward or against the frame composed of the plates U′ W′ W′ heretofore described. A strong coiled spring R^2 secured at its upper end to one of the arms G^2 and at its lower end to the outer end of the lever L^2 yieldingly holds said lever and its connected parts, including the presser-frame I^2, in the normal position shown and restores them to such position after they have been displaced therefrom.

From the foregoing description it will be seen that upon depressing the operating handle or lever A′ and giving the shaft W a half revolution from the normal position shown in the drawings, the vertically sliding rod M′, Fig. 3, and all the parts carried by it, will be lifted by the action of the right hand eccentric X, through the connections above described; and that at the same time the shaft H^2, Fig. 4, will be rocked and the presser-frame I^2 thrown downward, by the action of the left hand eccentric X and connecting parts. The parts carried by the vertically sliding rod M′ will thus be met in their upward movement by the presser-frame I^2 in its downward movement, and when said presser-frame engages the frame composed of the plates U′ W′ W′ the latter will yield and its supporting rods T′ be forced downward through their bearings S′ on the plate R′, against the resistance of the coiled springs V′, thus permitting the new folds of the paper strip to be pressed past and caught under the curved retaining wires X′. If a double length or reverse fold of the paper record-strip should, at the beginning of such operation, hang between the presser-frame I^2 and the storage-frame composed of the plates U′ W′ W′, as indicated by the dotted lines in Fig. 4, it will be pressed flatly down upon the storage-frame, and its outer edges, near its forward and rear ends, will be caught under the inwardly curved front and rear ends of the wires X′ above described, Fig. 2, so that said lengths or folds of the strip will be held by such retaining wires.

Journaled at its opposite ends in the side plates of the casing, above and slightly forward of the shaft W, is a rock-shaft S^2, Fig. 4, which has fast upon it a forwardly projecting arm or plate T^2, and also a cam plate U^2 at a right angle to the plate T^2. A coiled spring V^2 secured at one end to a screw W^2 upon the rock-shaft or upon the hub or sleeve which in this instance carries the plates T^2 U^2, tends to rock the shaft S^2 rearward and hold the plate T^2 in a vertical position and the plate U^2 in a rearwardly extending horizontal position. Fast upon the rotary shaft W is an arm X^2 adapted to co-operate with

the cam plate U^2 and rock the shaft S^2 against the resistance of the spring V^2. In the position of the parts shown in Fig. 4 the arm X^2 occupies a vertical position and is engaged with the plate U^2 and holds the latter in vertical position and the plate T^2 in forward horizontal position; but at the first forward movement of the shaft W the arm X^2 will be carried away from the plate U^2 and the spring V^2 will thereupon immediately rock the shaft S^2 rearward and carry the plate T^2 to vertical position, Fig. 6, which position it will continue to occupy until the shaft W has completed nearly a full revolution and the arm E^2 engaged with the plate U^2 at the next succeeding operation of the machine. When in the horizontal position shown the plate T^2 serves to hold down the rear ends of the folds of the record-strip resting upon the frame U' W' W'; when the operating lever is depressed and the shaft W given a half revolution forward the plate T^2 is thrown upward out of the way of the presser-frame I^2; and at the next succeeding operation of the machine, after the presser-frame I^2 has been returned to normal position, the plate T^2 is thrown downward again against the folds of the paper strip.

From the foregoing description of the construction and operation of the several parts the general mode of operation of the entire machine may be understood, as follows: At the end of a given operation of the machine, when the parts are left in the position shown in the drawings, the record-strip, between the creasing point and the storage-frame, will hang in approximately the position shown in Fig. 3; when the next sale is made the clerk will enter the desired memoranda upon the paper strips through the opening I in the top of the casing, and will then turn the handle N until the feed-rollers have advanced all three of the paper strips far enough to project the full length of the checks upon the outer strips through the opening in the top of the casing, ready to be torn off against the knife edge before described. This will advance an additional length of the record-strip and cause the portion of the strip between the creasing point and storage-frame to occupy approximately the position shown in Fig. 4, with a double length or reverse fold of the strip lying between the storage-frame and the presser-frame I^2, ready to be pressed down by the latter. The clerk will next depress the operating lever A' to its limit of stroke, giving the rotary shaft W a half revolution by means of the segment B' and the clutch connections between it and the shaft, with the following results: The eccentrics X upon the opposite ends of the shaft W will, through the medium of the arms Y Y, lift the creasing plate T and cause the record-strip to be creased between the plate S and the upper presser-bar U, in the manner heretofore described; the right hand eccentric X, Fig. 3, will actuate the parts connected with the storage-frame U' W' W' and lift the latter; the left hand eccentric, Fig. 4, will actuate the parts connected with the rock-shaft H^2 and throw the presser-frame I^2 downward against the rising storage-frame, the arm X^2 having previously released the plates U^2 T^2 and the latter having been thrown up to vertical position by the spring V^2, out of the way of the presser-frame I^2, and the latter will press the two lengths of the record-strip flatly down upon the storage-frame and cause them to be caught and held by the retaining wires X', the storage-frame being gradually depressed against the pressure of the springs V' as the thickness of the pile of record-strip upon it (between it and the retaining wires X') increases; as the shaft W completes its half-revolution the left hand eccentric X will be carried away from the arm P^2 and the spring R^2 will draw upward the outer end of the lever L^2 and restore the rock-shaft H^2 and presser-frame I^2 to normal position. At the end of this operation of the machine, therefore, the storage-frame and connected parts will be left in elevated position, and the record-strip, between the creasing point and the storage-frame, will hang in approximately the position indicated by the dotted lines in Fig. 6. At the next operation of the machine, the turning of the feed-rollers to advance the strips the proper distance will cause the record-strip between the creasing point and storage-frame to again occupy the position indicated in Fig. 3. Upon then again depressing the operating lever A' to its limit of stroke and thereby giving the rotary shaft W a second half revolution, thus completing a full revolution of it, the eccentrics X X will draw downward the arms Y Y and creasing plate T and crease the record-strip between the plate S and the lower presser bar V; the arm X^2 will engage the cam plate U^2, which had been left in horizontal position by the last operation, and carry it to vertical position, throwing the arm T^2 forward and downward against the record-strip piled upon the storage-frame, which latter had been left elevated by the last operation; and the right hand eccentric X, Fig. 3, will engage the arm F^2 and depress the storage-frame and connected parts to the normal position shown in the drawings. During this second operation the presser-frame I^2 and connected parts will remain stationary, since the left hand eccentric X engages the arm P^2, which actuates these parts, only during the upper half-revolution of said eccentric. The record-strip between the creasing point and storage-frame is not in position for the presser-frame to act upon it at this operation, but at the next succeeding operation of the machine, when an additional length of it has been advanced by the feed-rollers, a full double length or reverse fold of it will lie between the presser-frame and storage-frame, as in Fig. 4, and at this second operation of the machine the presser-frame will be again actuated to press

the strip down upon the storage-frame in the manner before described. The presser-frame is thus actuated only at each alternate operation of the machine, and operates each time to press two lengths or a double fold of the record-strip down upon the storage-frame, as will be readily understood.

For the purpose of preventing operation of the feed-rollers except when the operating lever A′ of the creasing and filing mechanism is in normal position, there is provided a locking pawl Y^2, Figs. 4 and 6, pivoted to the side of the casing and provided with a tooth or pointed upper end adapted to co-operate with the ratchet Q upon the lower feed-roller, a coiled spring Z^2 tending to throw the pawl into engagement with said ratchet. When the parts are in normal position the pawl is held out of engagement with the ratchet by a stud A^3 projecting from the rear side of the creasing plate T, near the lower end of the latter. Whenever the plate T is lifted or depressed from the position shown the pawl Y^2 will be released by the pin A^3 and the spring Z^2 will move its upper end into engagement with the ratchet Q of the feed-roller and prevent forward movement of the latter. Movement of the feed-roller in the reverse direction is at all times prevented by the pawl P heretofore described. It will of course be understood that the presser and storage frames and associated parts heretofore described are entirely inclosed within the casing of the machine, the forward end of the casing being removed in the views illustrated in the drawings.

I am aware that it has heretofore been proposed, in autographic registers, to employ a supply of record-strip folded back and forth into the form of bellows-fold, and to lead said strip from such supply over the writing tablet and cause it to resume such folded condition in the storage-compartment of the machine; but in such instances it was necessary to crease and fold the record-strip before placing it in the machine for use. In my machine the record-strip is carried in the form of the ordinary supply-roll, the same as are the check-strips, and is creased and folded and stored away in compact form by the operation of the machine itself.

So far as I am aware I am the first in the art to employ a creasing mechanism of any sort in a machine of this character, and the first to carry out in any manner the broad mode of operation of the machine, consisting in leading the record-strip from its supply-roll, over the writing tablet and to the creasing mechanism, creasing it, and then storing it in reverse folds within the storage-compartment of the machine. Such being the case, my invention, in its broader scope, is not restricted to any details of construction or arrangements of parts which I have illustrated and described, but contemplates the broad combinations set forth in my claims without further restrictions than are there implied.

Having thus fully described my invention, I claim—

1. In an autographic register, the herein described method of manipulating the paper strips, consisting in leading said strips from their supply-rolls across the writing tablet to a pair of feed-rollers, delivering the check-strip or strips from the feed-rollers to a point outside the machine, where they may be torn off to form detached checks, advancing the record-strip from the feed-rollers to a creasing point located between the supply- and storage-compartments, creasing it at proper intervals at said point, and then advancing the creased strip to the storage-compartment and folding it in reverse folds and mechanically pressing said folds into compact form for storage, substantially as described.

2. In an autographic register, the combination of a creasing mechanism for creasing the record-strip at proper intervals, and an independent vibrating presser-frame for pressing the creased strip in reverse folds within the machine, substantially as described.

3. In an autographic register, the combination of feed-rollers for drawing the record-strip over the writing tablet and delivering it at the creasing point, a creasing mechanism for creasing the strip at proper intervals, and a presser-frame for piling the creased strip in reverse folds for storage, substantially as described.

4. In an autographic register, the combination of a creasing mechanism for creasing the record-strip at proper intervals, a storage-frame, and a vibrating presser-frame co-operating with the storage-frame to pile thereon the reverse folds of the creased record-strip, substantially as described.

5. In an autographic register, the combination of a creasing mechanism, a vertically reciprocating storage-frame, and a vibrating presser-frame co-operating therewith to pile the record-strip in reverse folds upon the storage-frame, substantially as described.

6. In an autographic register, the combination of a creasing mechanism, a vertically reciprocating yielding or spring-supported storage-frame, and a vibrating presser-frame co-operating therewith to pile the record-strip in reverse folds upon it, substantially as described.

7. In an autographic register, the combination of a creasing mechanism, a yielding storage-frame provided with detaining means for catching and holding the folds of the paper strip pressed upon it, and a presser-frame co-operating with the storage-frame to file the record-strip in reverse folds upon it and engage them with the detaining devices, substantially as described.

8. In an autographic register, the combination of a creasing mechanism, a reciprocating frame or support, a storage-frame carried

thereby and yieldingly supported thereon so as to be capable of being depressed independently of said reciprocating frame, and a vibrating presser-frame co-operating with the storage-frame to pile the record-strip thereon in reverse folds, substantially as described.

9. In an autographic register, the combination of a creasing mechanism, a reciprocating frame or support, a storage-frame carried thereby and yieldingly supported thereon by springs, detaining wires carried by the reciprocating frame and co-operating with the storage-frame to hold the record-strip piled thereon, and a vibrating presser-frame co-operating with the storage-frame and detaining wires, substantially as described.

10. In an autographic register, the combination of a creasing mechanism for creasing the record-strip at proper intervals, a presser-frame for piling the creased strip in reverse folds, and a single operating handle and connections for actuating the creasing mechanism and presser-frame, substantially as described.

11. In an autographic register, the combination of a creasing mechanism for creasing the record-strip at proper intervals, a reciprocating storage-frame, a vibrating presser-frame co-operating therewith to pile the record-strip in reverse folds upon the storage frame, and a single operating handle and connections for actuating the creasing mechanism and storage and presser-frames, substantially as described.

12. In an autographic register, a reciprocating creaser or creasing plate provided with a transverse slot or opening for the passage of the record-strip and adapted to crease said strip upon opposite sides at alternate reciprocations, to facilitate the folding of the strip back and forth in reverse folds, substantially as described.

13. In an autographic register, the combination of a reciprocating creaser or creasing plate and a movable presser-bar actuated thereby and co-operating therewith to crease the record-strip between them, substantially as described.

14. In an autographic register, the combination of a reciprocating creaser or creasing plate provided with a transverse slot or opening for the passage of the record-strip, and two movable presser-bars actuated thereby and co-operating therewith to crease the record-strip upon opposite sides at alternate reciprocations of the creasing plate, substantially as described.

15. In an autographic register, the combination of a fixed plate provided with a transverse slot or opening for the passage of the record-strip, a reciprocating creasing plate adjacent to said fixed plate and provided with a corresponding transverse opening, and two movable presser-bars upon the opposite side of the creasing plate and actuated thereby to crease the record-strip upon opposite sides at alternate reciprocations of the creasing plate, substantially as described.

16. In an autographic register, the combination of the operating rock shaft and handle, the rotary shaft, means intermediate the rock-shaft and rotary shaft for rotating the latter, the reciprocating creasing plate, and means intermediate said plate and the rotary shaft for causing the latter to actuate the plate, substantially as described.

17. In an autographic register, the combination of the rotary shaft, means for giving said shaft a half revolution at each operation of the machine, the creasing mechanism actuated at each half revolution of said shaft, to crease the record-strip, and the vibrating presser-frame and connections actuated once at each complete revolution of the rotary shaft to press two lengths or a reverse fold of the record-strip upon the storage pile, substantially as described.

18. In an autographic register, the combination of the rotary shaft, means for giving it a half revolution at each operation of the machine, the creasing mechanism actuated at each half revolution of said shaft, the storage-frame alternately raised and lowered by the half revolutions of said shaft, and the presser-frame co-operating with the storage-frame and actuated once during each complete revolution of the shaft, substantially as described.

19. In an autographic register, the combination of the rotary shaft, means for giving it a half revolution at each operation of the machine, the eccentrics or cams upon the opposite ends of said shaft, the vertical arms carried thereby, the reciprocating creasing plate actuated by said arms, the vertically reciprocating storage-frame actuated by one of said cams at each half revolution of the shaft, and the vibrating presser-frame actuated by the other of said cams at each complete revolution of the shaft, substantially as described.

20. The combination of the feed-rollers K L, the fixed plate S provided with the transverse slot, the reciprocating creasing plate T provided with the corresponding slot, the movable presser-jaws U V actuated by lugs or projections K′ upon the plate T, and means for reciprocating the plate T, substantially as described.

21. The combination of the rotary shaft W making a half revolution at each operation of the machine, the vertically reciprocating storage-frame actuated thereby, the oscillating plates T^2, U^2, the former co-operating with the storage-frame, the spring V^2 connected to said plates, and the arm X^2 fast upon the shaft W and co-operating with the plate U^3, substantially as described.

22. The combination of the vertically reciprocating plate P′, the reciprocating rods

T′ mounted in bearings carried by said plate, the storage-frame U′ W′ W′ carried by said rods, the coiled springs V′ surrounding the rods T′ and yieldingly supporting the frame U′ W′ W′, the curved detaining wires X′ carried by the plate P′, the presser-frame I² co-operating with the frame U′ W′ W′ and detaining wires X′, and means for supporting and reciprocating the plate P′ and presser-frame I², substantially as described.

23. The combination of the rock-shaft Z, the operating lever A′ fast thereon, the segment B′, the rotary shaft W, the toothed segment or gear C′ loose thereon and meshing with the segment B′, the clutch between the gear C′ and shaft W, and the creasing and storing mechanisms actuated by the shaft W, substantially as described.

24. The combination of the rock-shaft Z, the operating lever A′ fast thereon, the segment B′, the rotary shaft W, the gear C′ loose upon said shaft, the disk D′ fast upon said shaft and provided with the two diametrically opposite notches co-operating with the tooth G′ upon the gear C′, the locking pawl I′ also co-operating with said notches, and the creasing and storing mechanism actuated by the shaft W, substantially as described.

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