W. RITSCHARD.

AUTOGRAPHIC REGISTER.

APPLICATION FILED FEB. 12, 1908.

1,146,520.

Patented July 13, 1915.

2 SHEETS—SHEET 1.

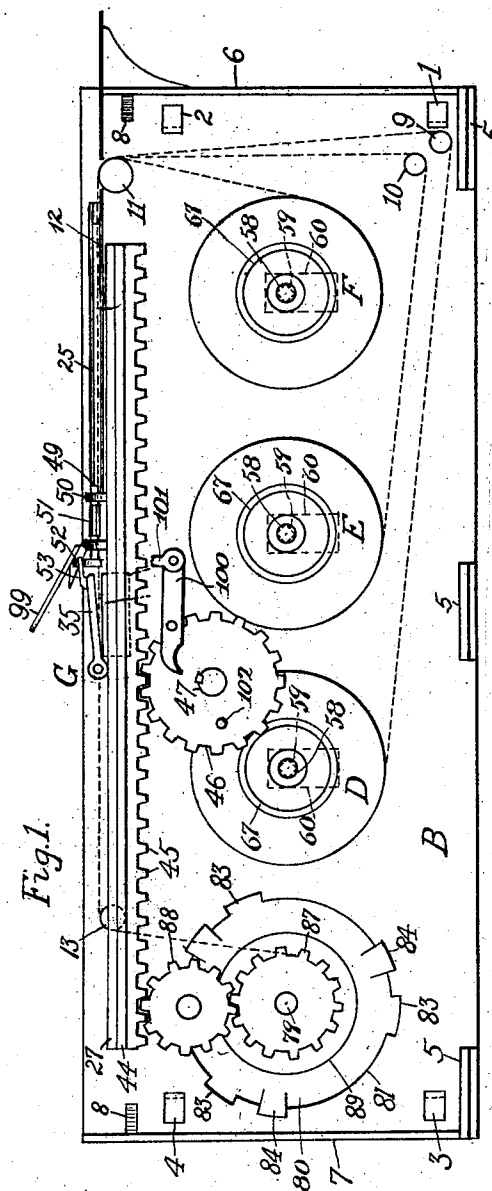


Fig. 1.

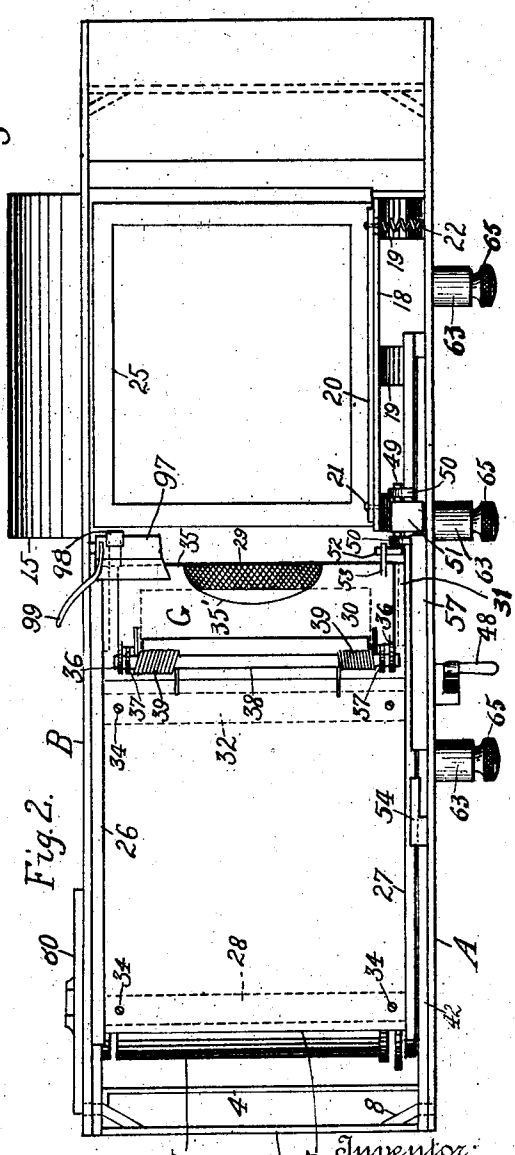


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

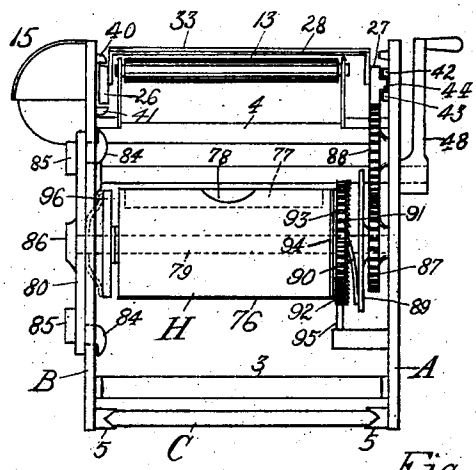


Fig. 4.

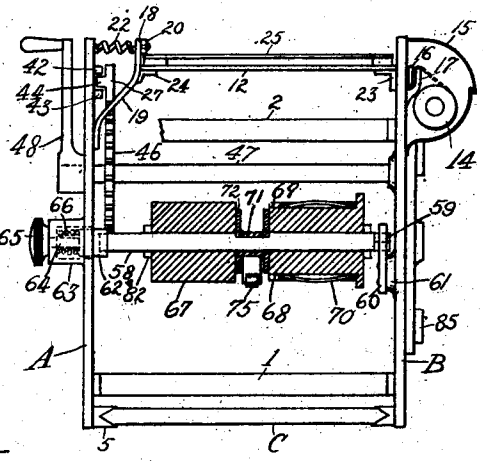


Fig. 5.

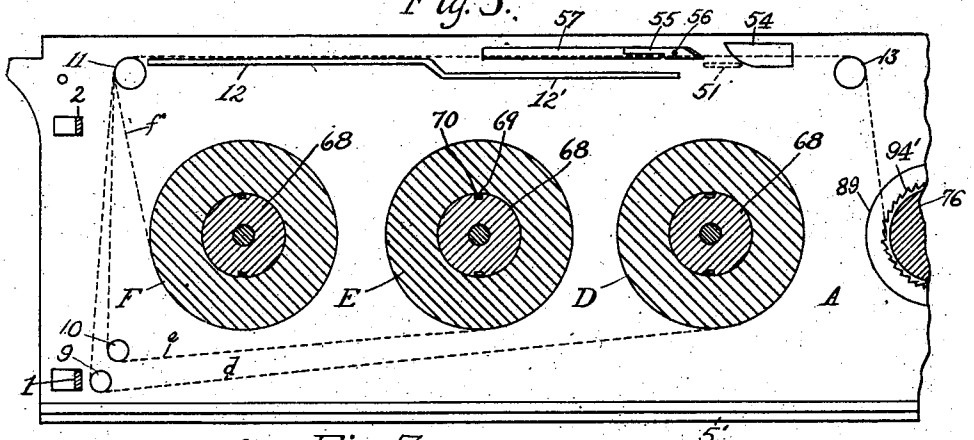


Fig. 6.

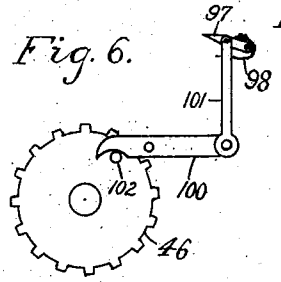


Fig. 7.

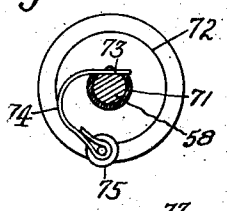


Fig. 9.

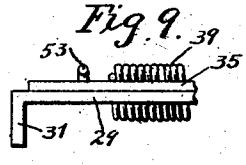
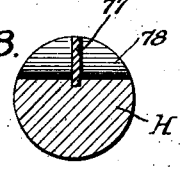


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM RITSCHARD, OF NEW YORK, N. Y., ASSIGNOR TO UNITED AUTOGRAPHIC REGISTER CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

AUTOGRAPHIC REGISTER.

1,146,520. Specification of Letters Patent. Patented July 13, 1915.

Application filed February 12, 1908. Serial No. 415,488.

To all whom it may concern:

Be it known that I, WILLIAM RITSCHARD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Improvement in Autographic Registers, of which the following is a specification.

My invention relates to autographic registers, and more particularly to that form of autographic register in which a plurality of rolls of paper are supported in a casing, and the webs of paper carried forward over a platen or writing surface. Sheets of carbon paper or other manifolding material are interposed between the webs of paper so that the original record or writing of the top web of paper is transmitted to the lower webs of paper, and when such record has been made on the portion of paper over the writing surface, the several webs of paper are carried forward to bring a fresh portion in position, one of the webs being rewound on a record roll within the casing, and the remaining webs torn off.

One of the objects of my invention is the provision of new and improved means for feeding the paper forward over the writing surface.

Another object of the invention is the provision of an improved device for supporting the record roll within the casing.

A still further object of the invention is to provide means to engage the inner surfaces of the hollow tubular cores of the supply rolls and act as a friction brake or retarding device for the rolls.

Other objects of the invention will appear hereinafter, the novel combinations of elements being set forth in the appended claims.

Referring to the accompanying drawings in which is illustrated a construction embodying one form of my invention,—Figure 1 is a side elevation of the machine with the adjacent side of the casing removed; Fig. 2 is a plan view; Figs. 3 and 4 are front and rear end elevations respectively; Fig. 5 is a sectional side elevation of the opposite side from that shown in Fig. 1, part being broken away, and certain parts of the machine being omitted for the sake of clearness; Fig. 6 is a detail showing means for automatically operating the tearing blade; Fig. 7 is a detail view of a retarding device for a supply roll; Fig. 8 is a sectional detail view of the record roll; and Fig. 9 is a fragmentary detail view of the paper clamp.

The casing comprises side plates A and B connected by braces 1, 2 and 3, 4, located at opposite ends of the casing and which form with the side plates a rigid frame. The bottom C of the casing is made removable in order to permit the supply rolls to be inserted or removed, and as here shown is slidable endwise in the guides 5. The ends 6 and 7 of the casing are preferably hinged near the upper corners of the side plates A, B as by means of the lugs 8 formed on or secured to the end plates, and journaled in the upper corners of the side plates. This construction permits the end plates to be swung outward from the bottom and gives access to the guide rolls and supply roll.

The webs of paper extend from the supply rolls D, E to the guide rollers 9, 10 and 11 and over the platen or writing surface 12 to the paper clamp G. The guide roller 11 is omitted from Fig. 4 to clearly show parts that would otherwise be obscured. The paper from the supply roll F may extend directly to the guide roller 11, and from thence over the writing surface and forward to the guide roller 13 at the front end of the machine and down to the record roll H. The manifolding material which may consist of a roll of carbon paper 14 is contained in a receptacle 15 secured to the side of the casing. The roll 14 in this instance comprises two sheets of carbon paper the free ends of which extend across the writing surface and are interposed in the usual way between the webs of paper from the supply rolls. At the side of the casing adjacent to the carbon roll, the sheets of carbon are securely held or clamped in position by means of a bar 16 which fits between a bracket 17 and the side of the casing. Extending along the left hand side of the writing surface is a supporting member 18 secured to the side A of the casing by means of depending arms 19 which are curved outwardly to space said member from the side of the casing. The ends of the carbon sheets are clamped between the supporting member 18 and a clamping bar 20 pivoted at 21 to the member 18. The opposite end of the bar 20 is yieldingly held in position by a spring 22 which pulls the bar toward the number 18 but permits the bar to be swung back and the carbon sheets placed in position. Any

other suitable means may be used for holding the carbon paper and securing it in position over the writing surface. The writing surface or platen 12 which may consist of flat sheet metal or other material is supported by brackets 23, 24 secured to the side B and the supporting member 18 respectively. The platen 12 is preferably formed with an integral extension 12' at its forward end, offset to provide room for the paper clamp. A rectangular frame 25 is secured in position over the platen 12 and spaced therefrom a sufficient distance to permit the webs of paper to pass freely between said frame and the platen.

The paper clamp G is supported by a carrying frame comprising bars 26 and 27, a cross bar or brace 28 at the front end and a bar 29 which forms the lower or stationary member of the paper clamp. The bar 29 is provided at its ends with depending flanges 31 by means of which it is rigidly secured to the frame. An additional brace 32 may be used in front of the paper clamp if desired, and a sheet metal plate 33 may be secured to the braces 28 and 32 by screws 34. The upper member 35 of the paper clamp is hinged to the lower member by means of lugs or bosses 36, 37, secured to or formed on the upper and lower clamping members, and a hinge rod 38. Coil springs 39 serve to hold the clamping edges of the jaws firmly in engagement with the paper, and if desired the engaging surface or edges of the clamping jaws may be roughened or knurled as shown, or provided with any other well known expedient to prevent the paper from slipping.

The carrying frame is adapted to have a longitudinal reciprocating movement and is supported and guided on one side by the ribs 40, 41 on the inner surface of the side B of the casing. The opposite side A of the casing is provided with ribs 42, 43 spaced apart to receive a similar rib 44 formed on the bar 27. The lower edge of the bar 27 is formed with rack teeth 45 which mesh with corresponding teeth on the drive pinion 46. The pinion 46 is keyed to a shaft 47 journaled in the sides of the casing and provided outside the casing with a hand crank 48.

Referring to Figs. 1 and 2 a short rock-shaft 49 is journaled in lugs 50 on the inside of the rack bar 27. This rock-shaft has secured thereto an outwardly extending trigger 51, and a rock arm 52 which extends inwardly beneath a finger 53 secured to the upper clamping jaw 35. Secured to the side A of the casing is a cam 54 adapted to engage the trigger 51 at the end of the forward movement of paper clamp and rock the shaft 49 and arm 52. This movement of the arm 52 lifts the finger 53 and opens the paper clamp. During the return movement of the clamp the trigger 51 is held down by a horizontal rib 57. At the forward end of the rib 57 is a latch 55 pivoted at 56. As the trigger 51 is moved downward by the cam 54, the front end of the latch is tilted downward until the trigger passes beyond the latch and permits it to swing back by gravity to its horizontal position and prevent the trigger from moving up above the rib 57 as the paper clamp is returned.

The method of supporting the supply rolls within the casing will now be described. The spindles 58 which support these rolls each has an end 59 squared or flattened to fit in a correspondingly shaped opening in a bearing plate 60 secured to a lug 61 on the side B of the casing. The other end of the spindle is held by a socket 62 extending through an opening in the side A of the casing into a box 63 cast integral with the casing. A stem 64 on the socket 62 extends outward through the box 63 and is provided with a thumb piece 65. A coil spring 66 holds the socket normally in engagement with the spindle but permits the spindle with its roll of paper to be readily inserted or removed. Mounted on the spindle 58 are spools or cores 67 and 68 which are free to rotate on the spindle. These spools are made of a size to fit closely in the tubular cores upon which the commercial rolls of paper are usually wound. In order to prevent the roll of paper from turning independently of the spools one of the spools, as 68, is preferably formed with recesses 69 in which are secured leaf springs 70 bowed so as to extend outward beyond the periphery of the spool and frictionally engage the core of the paper roll.

Between the spools 67 and 68 is placed a friction device for preventing the roll of paper from turning too freely. This device comprises a tubular sleeve 71 and end flanges 72. The sleeve 71 has a portion cut away from one side, and the spindle 58 has a corresponding flattened portion 73. The sleeve fits on the spindle with the edges formed by the cut away portion in the same plane as the flattened surface of the spindle. A friction spring 74 has one end secured to the flat surface formed by the sleeve and spindle, and its free end is preferably provided with a roller 75 which normally projects a short distance beyond the peripheries of the spools 67, 68. When the roll of paper is placed on the spools the roller 75 bears against the inner surface of the tube on which the paper is wound and prevents the roll from turning too freely. The flanges 72 protect the friction spring, but the sleeve and flanges may in some cases be omitted, the spring then being secured directly to the spindle. The relative position of the springs and spools on the shafts 58

may be varied, if desired. The arrangement shown however, in which the retarding device is near the center of the spindle, prevents a one sided tension of the web of paper. The spools are held in position on the spindle by the collars 82.

The record roll H which is formed by the web of paper from the supply roll F, is wound on a spool 76 of wood or other suitable material. This spool has a longitudinal slot to receive a wedge or flat bar 77 by means of which the web of paper is secured to the spool. A recess 78 in the spool permits the bar 77 to be grasped by the thumb and finger and thereby readily removed. The spool 76 is mounted on a spindle 79, one end of which is journaled in the side A of the casing. The opposite end of the spindle has a bearing in a circular plate or disk 80 removably held in the side B of the casing. This side B is formed with a circular opening 81 somewhat smaller than the disk 80, said opening having recesses 83 to receive lugs 84 formed on the bearing disk 80. The disk 80 is secured in position in the side B of the casing by projecting the lugs 84 through the recesses 83 and then rotating the disk to bring the lugs 84 out of alinement with the recesses 83, as indicated in Fig. 1. The disk 80 is also provided with a central bearing 86 for the end of the spindle 79, and with outside lugs 85. Loosely mounted on the inner end of the spindle 79 is a toothed gear wheel 87 meshing with an idler pinion 88 which in turn meshes with the rack-teeth 45. The gear wheel 87 carries a disk 89 provided with a spring pawl 90 which engages ratchet teeth 91 formed on the lateral surface of a disk 92. The disk 89 which is secured to the gear wheel 87 may be replaced by a segment or an arm if desired. The disk 92 which forms a driving member for rotating the spool 76, is preferably provided with a fiber plate 93 in frictional engagement with a similar plate 94 secured to the spool 76. The gear 92 is also provided with ratchet teeth 94′ on its periphery which are engaged by a spring pawl 95 to prevent backward rotation of the disk. A spring pressed disk 96 is placed between the outer end of the spool 76 and the bearing plate 80 to hold the fiber plates 93 and 94 in frictional contact.

The tearing blade 97 is pivoted in the casing and its tearing edge is normally held up by the spring 98. A handle 99 is used to swing the blade down to tearing position. If desired, means may be provided for moving the blade automatically. One arrangement which may be used for this purpose consists of a lever 100 having one end connected by a link 101 to the tearing blade and the other end in position to be moved by a pin 102 on the gear wheel 46 and move the tearing edge down as the paper clamp reaches its forward position.

To prepare the autographic register for use, the bottom C may be removed and the spindles 58 with their spools 67, 68, taken out of the casing and the supply rolls D E, F placed thereon. The rolls with their spools and supporting spindles are then placed in position in the casing. The web *f* from the supply roll F is then carried up over the roller 11, and forward over the platen 12, between the clamping jaws 29 and 35, over the front roller 13, and down to the spool 76 to which it is secured by means of the clamp bar 78. A carbon sheet is next placed in position over the web *f*. The web of paper *e* from the roll E is next placed in position, as shown with its free end extending about to the tearing edge of the blade 97. Another carbon sheet is then placed in position and the free ends of the two carbon sheets secured by the clamp bar 20, and finally the web *d* is placed in position and the clamping jaws allowed to firmly grip the three webs of paper from the supply rolls. The machine is now ready for use. When the portion of the paper in position over the platen has been written upon and it is desired to feed the paper forward, the hand crank 48 is turned to rotate the gear 46 and move the rack-bar 27 forward. The rack-bar carries with it the paper-clamp and the three webs of paper which are securely held thereby. During this forward movement of the paper clamp and its supporting frame, the trigger 51 moves above the rib 57 until it reaches the cam 54 which moves the trigger downwardly to open the paper clamp as before explained. The ends of the webs *d* and *e* are now free and the operator grasps them with one hand at the recess 35′ while with the other he moves the blade 97 down against the paper and then tears off the two webs. The crank 48 may now be turned backward to return the parts to their initial position. During this return movement the trigger 51 rides along the under surface of the rib 57 and holds the paper-clamp open. As the paper-clamp reaches the limit of its return movement the trigger 51 passes beyond the rib 57 and permits the clamping jaws to snap shut on the three webs of paper ready for another operation. It will be observed that the tearing edge of the blade 97 is a short distance forward of the initial position of the clamping jaws, and that the upper clamping jaw is up enough to readily clear the ends of the paper, which insures that all the webs will be caught by the clamp when the trigger 51 is released.

During the forward movement of the rack-bar the gears 88, 87 are operated to rotate the record roll H and take up the web *f* as fast as it is fed forward by the paper

clamp. The friction driving connection between the spool 76 and the disk 92 permits the backward rotation of the spool relatively to the disk which is necessary as the record roll increases in size and the peripheral speed of the record roll relatively to that of the paper clamp increases. The pawl 90 permits backward rotation of the gears 87, 88 independently of the disk 92, while the pawl 95 positively prevents backward rotation of said disk.

The paper-clamp and means for operating it form an important feature of the present invention as they form a means for positively feeding the paper forward without the slipping or creeping that occurs when the paper is fed forward in the usual way by a pair of rollers. The present arrangement also insures the paper being moved forward exactly the same distance each time, and that all the webs shall be moved an equal distance. This is specially desirable when printed forms are used and it is necessary to maintain the several webs in alinement and move them forward the same distance each time the machine is operated.

The present invention may readily be adapted to autographic registers having any desired number of webs of paper more or less than those shown in the drawings, and certain features of the invention may obviously be applied to a machine using a single web of paper, or to a machine in which all the webs are torn off as they are used, and I wish therefore to have protection on all such forms of the invention as come within the scope of the appended claims.

I desire further not to be limited to the exact construction shown, as various changes in the details of construction and arrangements of parts might be made by those skilled in the art without departing from the spirit and scope of the invention.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. The combination with a casing, of means for supporting a web or webs of paper therein, a platen, a paper clamp movable with respect to the platen to engage the paper and move it over the platen, and a stationary guide coöperating with the clamp and holding it open during its return movement.

2. The combination with a casing, of means for supporting a web or webs of paper therein, a writing surface or platen, a pair of clamping jaws to engage the paper, means to impart a reciprocating movement to the clamping jaws, a device for opening said jaws at the end of their forward movement, and a stationary device for holding said jaws open during their return movement.

3. In an autographic register, the combination with a casing, of means for supporting a web or webs of paper therein, a writing surface, a clamp comprising paper-clamping jaws, means for reciprocating said clamp, means for holding said jaws closed during the forward movement of the clamp, a device for opening said jaws at or near the end of said forward movement, a stationary device for holding the jaws open during the return movement of the clamp, and permitting them to be closed at the end of said return movement, and a tearing edge in position to sever the paper.

4. In an autographic register, the combination of a casing, a writing surface, means for supporting a web of paper, a paper clamp adapted to engage the web of paper, means for moving the clamp and feeding the paper over said writing surface, means for automatically opening the clamp when it reaches a predetermined position, and stationary means for positively preventing the clamp from being opened until it reaches said position.

5. In an autographic register, the combination with a supply roll, of a record roll, a ratchet-wheel carried thereby, a pawl, a rotatable member co-axial with the record roll and carrying said pawl, means for rotating said member, a friction device between the ratchet-wheel and record roll permitting a forward movement of the ratchet wheel independent of the record roll, and means for preventing backward rotation of the ratchet wheel.

6. In an autographic register, the combination of a casing, a plurality of supply rolls therein, a roll-supporting spindle, said casing being formed with an opening in the side wall thereof to permit the insertion or removal of the spindle and its roll, a plate having a bearing for the end of the spindle, and lugs on said plate engaging the inner surface of said side wall and securing the plate in position over the opening.

7. In an autographic register, the combination with a writing surface or platen, of means for moving a web or webs of paper over the platen, a tearing blade, means for holding said blade out of operative position during such movement, and automatic means for moving the blade into tearing position.

8. In an autographic register, the combination with a writing surface or platen, of a paper-clamp, means for moving the paper-clamp bodily forward to feed a web or webs of paper over the platen, a tearing blade out of contact with the paper during such movement, and positive means for automatically moving the tearing blade into contact with the paper when the paper-clamp reaches a predetermined position.

9. In an autographic register, the combination with supply rolls, of a record roll, a casing containing said rolls, a writing sur-

face extending from a point near one end of the casing toward the center thereof, means for guiding a web of paper from one of the supply rolls over the writing surface and in a horizontal direction beyond said surface, a device for feeding said web of paper forward and on to the record roll, and a covering of sheet material for the horizontal portion of said web beyond the writing surface.

10. In an autographic register, the combination with a casing of a supply roll and a record roll within the casing, a writing surface, means for supporting and guiding a web of paper from the supply roll over the writing surface to a point beyond the writing surface and from thence to the record roll, a paper clamp comprising clamping jaws located respectively above and beneath said web of paper, means for operating the clamp to feed the paper forward and a covering of sheet material carried by the clamp and covering that portion of the web of paper extending beyond the writing surface.

11. In an autographic register, in combination, a writing tablet over which a web is adapted to be drawn, a tearing-blade adapted to move into and out of engagement with the web, means adapted to feed the web, and means whereby the tearing-blade is automatically moved into contact with the web at the end of the movement of the feeding means.

12. In an autographic register, in combination, a writing tablet over which webs are adapted to be drawn, a tearing blade operatively associated with said tablet and normally held in inoperative position, and means adapted, during the movement thereof in one direction, to advance the webs and move said tearing blade into operative position against the same.

13. In an autographic register, in combination, a casing, a writing tablet over which the webs are adapted to be drawn, web-drawing means, a tearing blade supported by said casing and coöperating with said tablet to prevent movement of said webs relatively to said tablet, means normally holding said tearing blade in inoperative position, and means operatively associated with said web-drawing means for automatically moving said tearing blade into operative position as the webs are drawn over said tablet.

14. In an autographic register, in combination, a casing, a writing tablet, means for drawing a web thereover, an oscillating tearing blade mounted upon said casing and adapted to coöperate with said tablet to hold the web, means normally holding said tearing blade in inoperative position, an arm operatively connected to said blade, and means operatively associated with said first-mentioned means adapted to coöperate with said arm to move said blade into operative position as the web is drawn over said tablet.

15. In an autographic register, in combination, a writing tablet over which the webs are adapted to be drawn, web-drawing means, a tearing blade operatively associated with said tablet within the web supporting portion and normally held in inoperative position, and means operatively connected to said web-drawing means for moving said tearing blade into operative position as the webs are drawn over said tablet.

16. In an autographic register, in combination, a writing tablet over which the webs are adapted to be drawn, web-drawing means, a tearing blade operatively associated with said tablet to prevent movement of said webs relatively to said tablet and normally held in inoperative position, and means operatively associated with said web-drawing means for moving said tearing blade into operative position when said web-drawing means reaches the outer limit of its travel.

17. In an autographic register, in combination, a writing tablet over which the webs are adapted to be drawn, web-drawing means, a tearing blade operatively associated with said tablet and normally held in inoperative position and means for limiting the outward movement of said web-drawing means and simultaneously moving said tearing blade into operative position against the webs.

18. In an autographic register, in combination, a writing tablet over which the webs are adapted to be drawn, web-drawing means, a tearing blade operatively associated with said tablet and normally held in inoperative position with respect thereto and out of contact with said web-drawing means, and means operatively associated with said web-drawing means for moving said tearing blade into operative position with respect to said tablet as the webs are drawn thereover.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM RITSCHARD.

Witnesses:
JOHN F. RULE,
M. MORRIS.