E. E. ANGELL.

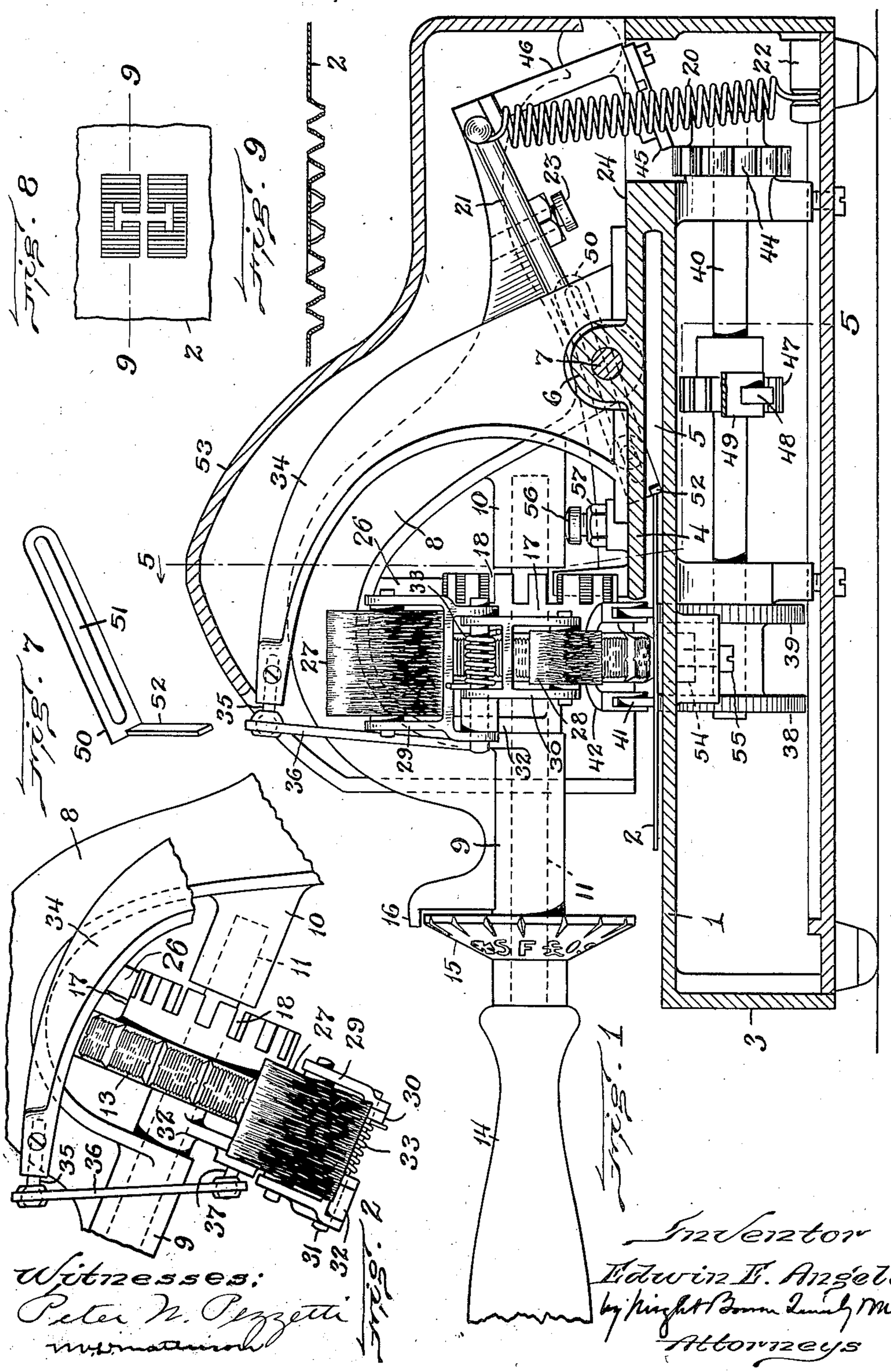
APPARATUS FOR PROTECTING COMMERCIAL PAPER.

APPLICATION FILED FEB. 12, 1908.

936,398.

Patented Oct. 12, 1909.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3

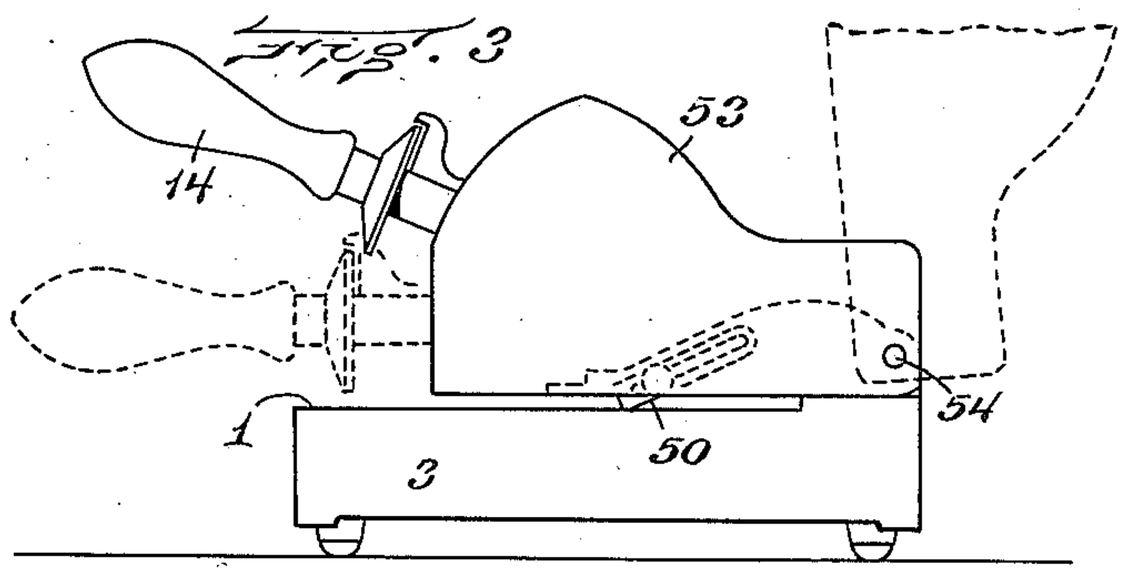


Fig. 4

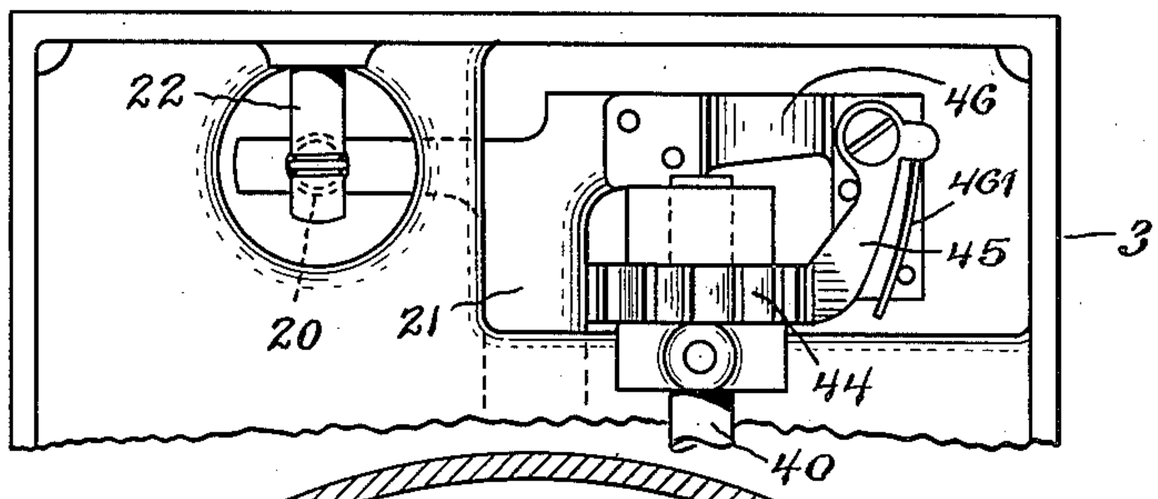


Fig. 5

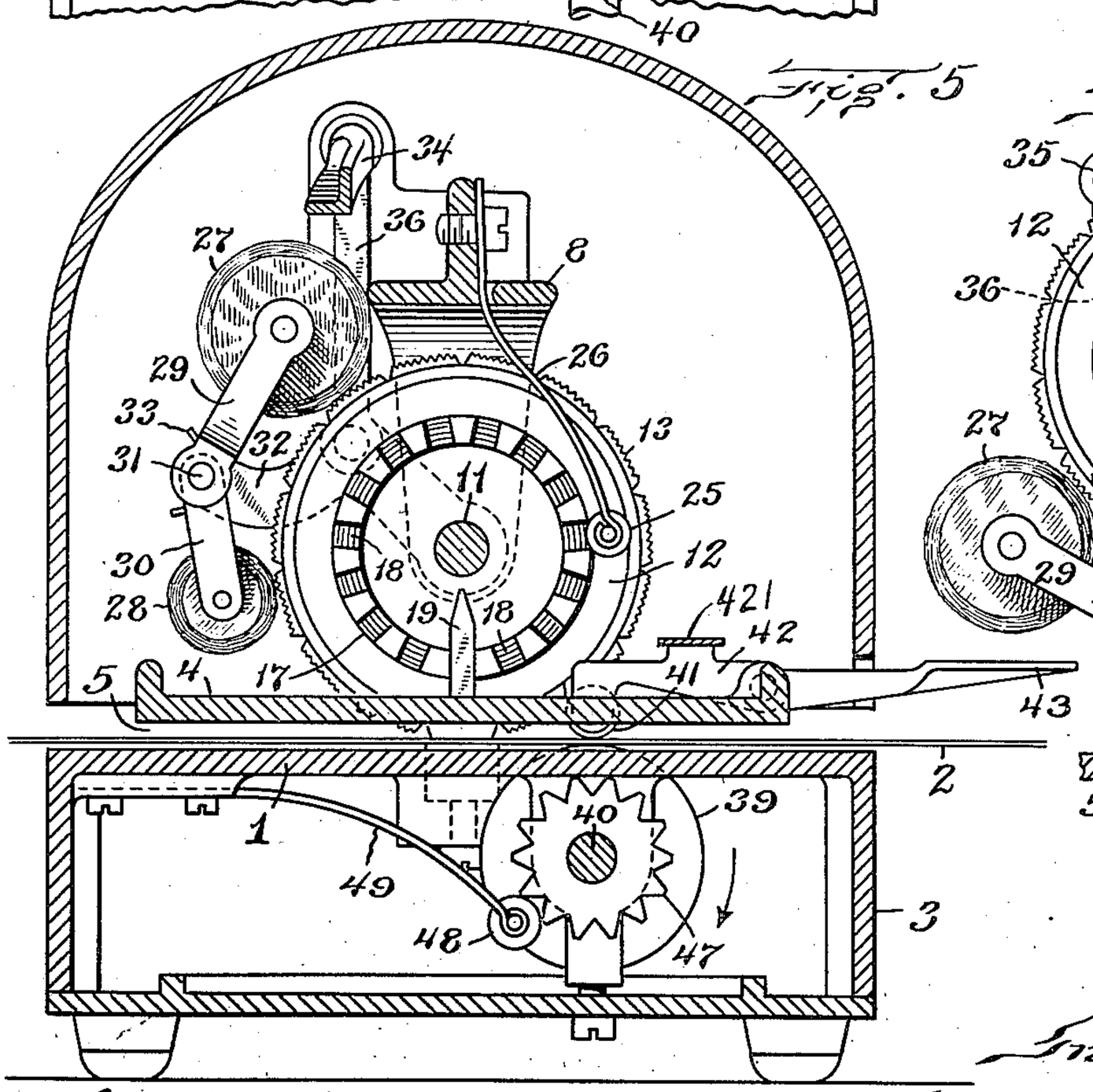
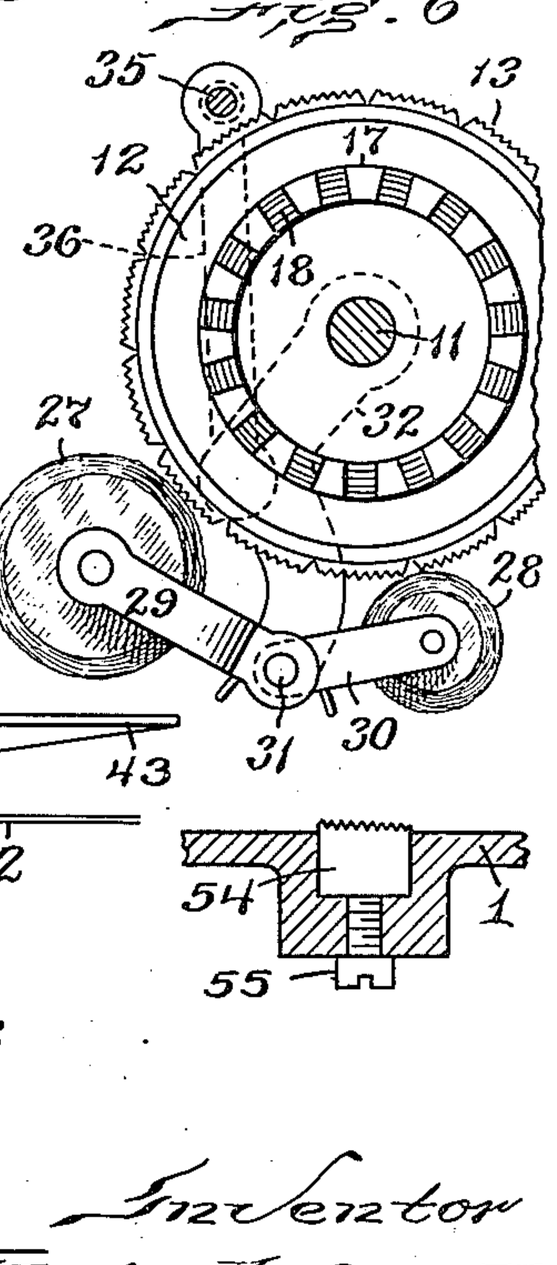


Fig. 6



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR PROTECTING COMMERCIAL PAPER.

936,398. Specification of Letters Patent. Patented Oct. 12, 1909.

Application filed February 12, 1908. Serial No. 415,525.

To all whom it may concern:

Be it known that I, EDWIN E. ANGELL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Protecting Commercial Paper, of which the following is a specification.

This invention relates to machines for indelibly marking upon commercial papers, such as checks, bonds, stock certificates and the like, the monetary value of the same so that it cannot be altered without detection.

It has for its particular object to provide a means for inking the dies by which the desired marks are made in the sheet, so that a number of impressions may be made by the same die, and the die inked before each impression.

Other objects are to provide improved means for feeding the sheet between impressions, and to make possible the more ready and accurate locating of the die, from which an impression is to be taken, in the proper position.

The invention accordingly consists in an apparatus constructed and arranged with instrumentalities for effecting the above-named objects.

Of the accompanying drawings,—Figure 1 represents a longitudinal sectional view of an appartus embodying my invention, with the parts in the position they occupy when impressing the work. Fig. 2 represents a fragmentary view, showing the marking dies and inking device in their inoperative position, that is, the position they occupy when the work is being fed. Fig. 3 represents an external elevation of the apparatus. Fig. 4 represents a plan view of the rear part of the apparatus as seen from below, illustrating the work-feeding mechanism. Fig. 5 represents a cross-section on line 5—5 of Fig. 1, looking in the direction of the arrow. Fig. 6 represents a fragmentary sectional elevation seen from the same point of view, showing the parts in the position illustrated in Fig. 2. Fig. 7 represents a perspective view of a gage for positioning the work. Fig. 8 represents a plan view of a sheet, showing the character of work performed by the machine. Fig. 9 represents an enlarged sectional view of the sheet taken on line 9—9 of Fig. 8.

The same reference characters indicate the same parts in all the figures.

The essence of the invention consists in the inking means, the work-feeding devices, and the devices for locating the marking dies, and for convenience in illustrating the construction and operation of the same, they are shown as applied to a machine for performing the method described and claimed in my Patent No. 869,823, granted October 29, 1907. This machine includes a table 1 for supporting the work, which is ordinarily a sheet of paper, such as indicated at 2. This table or work-support forms the upper surface of a box-like structure 3 within which is contained the work-feeding apparatus, and from the rear of which extends a plate or frame 4. The latter is preferably united integrally with the box structure and extends parallel to the work-supporting surface, leaving a space 5 to receive the work. This frame or plate has bearings 6 which contain the pivot stud 7 of a die-holding arm or bracket 8. The latter is capable of oscillating about the axis of the pivot so that dies carried by it may be brought toward and from the work.

The carrying arm has bearings 9 and 10 in which is journaled a shaft 11 having fixed to it a disk 12 with a cylindrical periphery upon which are fixed the marking dies 13. There is also secured to the shaft 11 a handle 14 by which it may be rotated so as to rotate also the die-holding disk 12 to bring any desired die into operative position. It is the lowermost die which impresses the work. Consequently when any particular character is to be marked, the holder must be turned until the die representing the same is directly under the shaft 11. This shaft extends approximately at right angles to the pivot 7 so that the adjusting movement of the die-holder is transverse to the impressing movement of the carrying arm, and so that the handle 14 serves both to adjust the dies and to depress them against the work. A disk 15 is also fixed to the shaft 11, and this disk bears characters corresponding to those marked by the dies, which

disk, by reference to a stationary indicator 16 fixed to the carrying arm 8, serves to show which of the dies is in the operative position.

Extending from the rear side of the die-holding disk is a cylindrical flange 17 which is provided in its edge with notches 18, one of which is opposite each die. A tooth or projection 19 rises from the forward end of the plate 4 so as to enter the lowermost notch when the die-holder is depressed. This locks the die-holder and prevents its being rotated to dislodge the operative die while the latter is in contact with the work. The projection is of such a height that it enters the lowest notch immediately after the downward movement of the holder has commenced, and is not clear of the notch until the holder has returned almost completely to its uppermost position. A spring 20 is attached to an extension 21 of the die-holding arm 8 at the rear of the pivot 7, and its other end is fastened to a stud 22 in the frame. This spring serves to raise the die-holder until an adjustable stop 23 strikes the surface 24 of the frame. Coöperating also with the notches in the flange 17, is a detent 25 consisting of a roll carried by a leaf spring 26, of which one end is fastened to the arm 8. This detent bears against the flange 17 and is adapted to enter slightly in one of the notches, thereby retaining the holder yieldingly against accidental displacement in such a position that the lowermost notch is directly above the tooth 19.

The marking dies both indent and ink the paper. The ink for this purpose is supplied by rolls 27 and 28 bearing yieldingly against the periphery of the die-holder. By rotating the latter, the several dies may be brought against the rolls and caused to receive a deposit of ink. As the greater proportion of the ink thus deposited is left on the paper at each impression, the die must be re-inked for every impression made thereby. Heretofore with machines of this character, it has been necessary to revolve the die-holder far enough to pass the operative die across the roller before each impression. When several impressions were made by the same die in succession, it has been necessary to revolve this die out of the operative position sufficiently far to contact with the inking device, and then return it to the operative position between the successive impressing movements thereof. This has required the expenditure of considerable time and increased the danger of inaccuracy due to the chance that the die may not be exactly returned to its marking position. One of the main features of this invention is the provision of an inking device which moves relatively to the die-holder and deposits ink upon the operative die between impressions by the latter without necessitating any alteration of the adjustment of this die for this purpose.

The ink rolls are held in frames 29 and 30 which swing about a pivot pin 31 carried by an arm 32. This arm is pivotally mounted upon the die-holder shaft 11 so that it may swing in a plane parallel to that of the die-holding disk. The roll carrying frames project from one side of the arm 32 so that the rolls extend across the periphery of the disk and are pressed yieldingly against the faces of the dies by a spring 33, the ends of which bear against the frames 29 and 30.

Rigidly connected with the plate or frame 4 and always stationary with respect thereto, is an arm 34 which extends beside the swinging die-holding arm 8. From the end of this arm projects a stud 35 to which is jointed a link 36 having connection with a stud 37 projecting from the side of the arm 32. The length of this link is such that when the handle 14 and die-holder are raised, the roll-carrying arm is in the position shown in Figs. 2 and 6, the roll 28 being just beyond the lowermost die. Now when the handle is depressed, the shaft 11 is lowered, and the arm 32 being restrained by the link 36, is swung about the stud 37, causing the inking rolls to be raised and the lower roll 28 to be drawn across the face of that die which is in position to print. This roll thus passes between the operating die and the paper shortly before the die reaches the paper, and is withdrawn far enough so as not to come into contact with the paper itself. Upon return of the die-holder, the pivoted end of the arm 32 is raised, and the rolls thereby carried downward and beneath the holder, causing the roll 28 to again pass over the face of the operative die. This action is repeated as often as the die-holder is raised and lowered, so that the operative die is inked previous to each impression, no matter how numerous such impressions may be, and without necessitating shifting of the adjustment of the die-holder. Thus successive impressions may be made by one die as rapidly as the handle 14 can be raised and lowered. In order to permit the link 36 to swing and accommodate itself to the swinging motion of the die-holder, it is connected with the arm 34 and roll holder by ball and socket joints. The studs 35 and 37 both have spherically formed heads which enter spherical sockets in the ends of the link 36.

The paper is fed step-by-step after each impression, by means of feed-wheels 38 and 39 fixed to a shaft 40 and projecting through the table 1. It is pressed against these feed-wheels by rolls 41 on a holder 42 which is pivoted to the plate 4, is depressed by a spring 421, and manipulated by a finger-piece 43 when sheets are to be inserted or re-

moved from between the feed and press rolls. The feed rolls are moved a limited distance during each return movement of the die-holder, the mechanism for this purpose consisting of a ratchet wheel 44 on the shaft 40 and a pawl 45 carried at the end of an arm 46 which projects downward from the extension 21 of the die-holder carrying arm 8. This pawl is yieldingly pressed toward the ratchet by a spring 461, as shown in Fig. 4 (which figure represents the parts as viewed with the apparatus inverted and the bottom of the box removed). The inclination of the ratchet teeth is such that when the die-holder is depressed and the pawl raised, the latter slips over the teeth, but engages them on its return movement. There is an auxiliary positioning device consisting of a toothed wheel 47 secured to the shaft 40, and a roll 48 carried at the end of a spring 49 fixed beneath the table 1. This roll enters the notches between the teeth of the wheel, holding it yieldingly at the end of each step, and also serves to advance the wheel, and consequently the feed, through exactly the right distance, in case for any reason it should not be carried through exactly that distance by the pawl 45.

Gages 50 are provided to determine the distance from the edge of the paper at which the impressions are made. These gages are metal plates with long slots 51 which receive screws set into the opposite edges of the plate 4, as shown in dotted lines in Fig. 1. The gages have tongues 52 extending at right angles to the body of the gage into the space 5 and bearing against the upper surface of the table 1. These tongues are engaged by the edge of the paper.

The upper parts of the apparatus are inclosed in a cover 53 which is pivoted at 54 to the rear part of the lower box structure, so that it can be swung back, as shown by dotted lines in Fig. 3, to expose the parts above the work-supporting table 1.

I claim:—

1. An apparatus for protecting commercial paper, comprising a swinging bracket, a die holder rotatably mounted in said bracket and carrying a series of impression dies on its periphery, an ink roll carrier journaled coaxially with said die holder, an ink roll mounted upon said carrier in engagement with the periphery of the die holder, a stationary bracket mounted beside said swinging bracket and overhanging the paper support, and a link connecting said stationary bracket and roll carrier together, whereby swinging of said first bracket causes oscillation of the roll holder and travel of said ink roll over a plurality of dies, including the operative die.

2. An apparatus for marking sheets with conventional characters and coloring the impressions, including a support for the sheets, an impression member bearing a series of characters, arranged to move toward and from said support, an ink roll mounted with capability of traveling across the face of said impression member, a stationary bracket or arm, and a link having a ball-and-socket connection with said bracket and ink roll for actuating said roll to travel in this manner between the impression member and the sheet as the former approaches the sheet.

3. An apparatus for protecting commercial paper, comprising a support for sheets to be marked, a shaft mounted with capability of rotating about its own axis and of oscillating about an axis perpendicular thereto toward and from said support, a die holder mounted on said shaft and bearing a circular series of marking dies, an arm mounted to oscillate about said shaft, an ink roll carried by said arm and arranged to engage said dies, and connections rendered operative by oscillation of the shaft and die holder toward and from said support to cause said arm to oscillate and carry said ink roll over a plurality of the inking dies.

4. An apparatus for protecting commercial paper, comprising a support for sheets to be marked, a pivotally mounted bracket, a die holder having a series of impression dies rotarily mounted in said bracket so as to overhang said support and to be movable toward and from the same by oscillation of the bracket, an arm pivotally mounted beside said die holder, means for causing said arm to oscillate relatively to said die holder as the bracket is oscillated, a roll-carrying frame pivoted to said arm, and an ink roll rotatably mounted in said frame and yieldingly held against the die holder so as to travel across the dies thereon upon oscillation of said arm.

5. An apparatus for protecting checks and other commercial paper, comprising a support for the work, a swinging holder, impression dies carried by said holder adapted to mark the paper so that legible conventional characters will appear, and located so that the swinging of the holder will carry them toward and from said work-support, an arm pivoted to said holder, a roll carrier pivoted to said arm, an ink roll carried thereby and projecting over the dies, a spring pressing said roll against the dies, and a link jointed to said arm and to a stationary abutment so as to swing the arm when the holder is depressed and thereby carry the ink roll between the paper and the operative die to deposit ink on the latter.

6. An apparatus of the character described, comprising a support for the work, a pivoted bracket, a shaft journaled in said

bracket and extending approximately at right angles to the pivot thereof, a die holder on said shaft having a cylindrical periphery, impression dies on the periphery of said holder adapted to impress the paper so as to produce a visible representation of a character and adjustable by rotation of said shaft so as to bring any die into position to print, a flange on said die holder having notches, a fixed projection adapted to enter one of the notches when the holder is moved toward the work, to prevent alteration of the adjustment thereof, and a spring adjuster normally acting in connection with the notches to maintain the adjustment when out of connection with said fixed projection, while at the same time permitting manipulation of the die holder.

In testimony whereof I have affixed my signature, in presence of two witnesses.

EDWIN E. ANGELL.

Witnesses:

ARTHUR H. BROWN,

P. W. PEZZETTI.