E. E. ANGELL, DEC'D.

J. E. MACY, ADMINISTRATOR.

PRINTING APPARATUS.

APPLICATION FILED APR. 28, 1917.

1,307,532. Patented June 24, 1919.

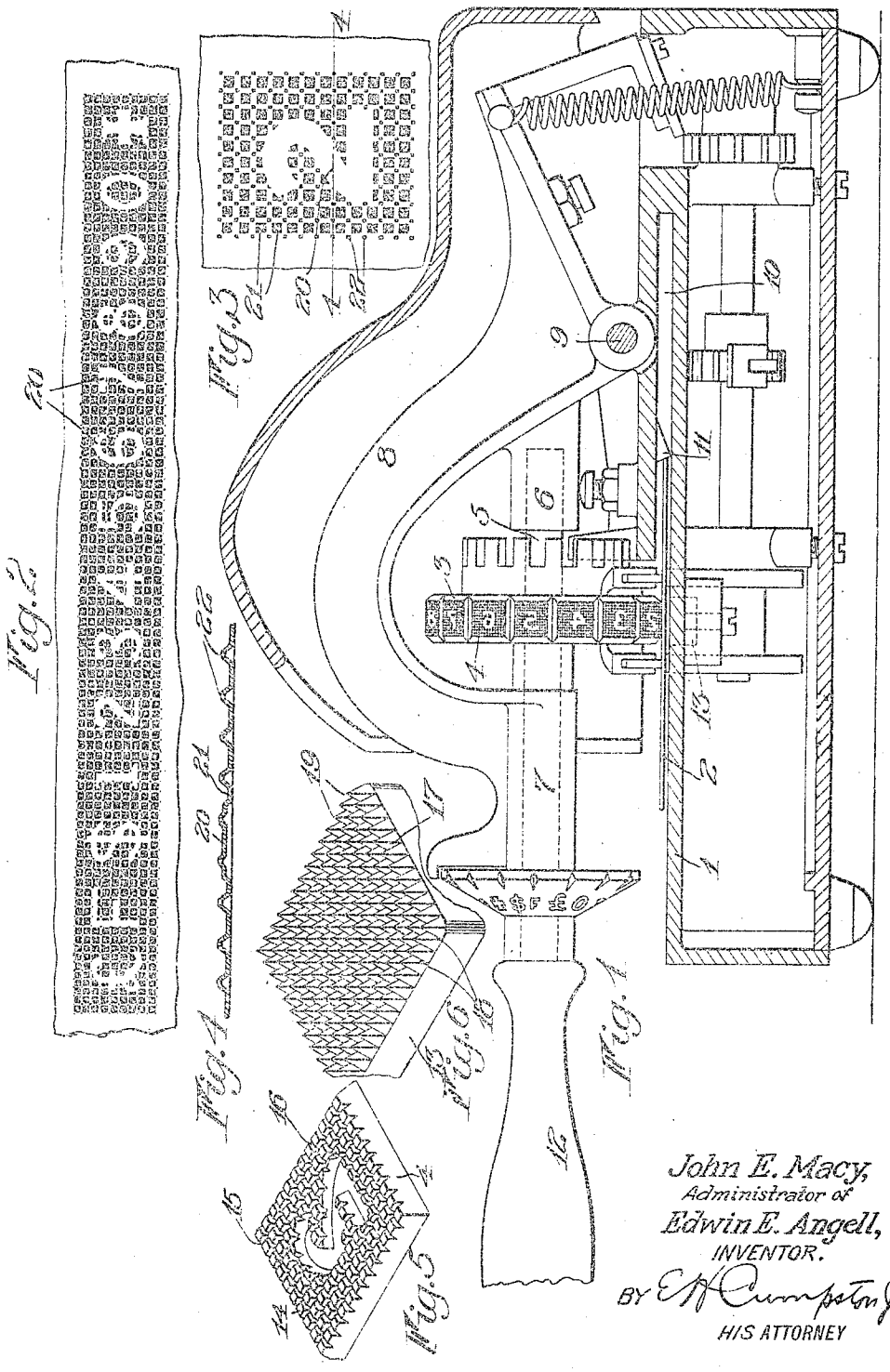


Fig. 2

Fig. 3

Fig. 1

Fig. 6

Fig. 4

Fig. 5

John E. Macy,
Administrator of
Edwin E. Angell,
INVENTOR.
BY C. F. Crumpton Jr.
HIS ATTORNEY

UNITED STATES PATENT OFFICE.

EDWIN E. ANGELL, DECEASED, LATE OF BOSTON, MASSACHUSETTS, BY JOHN E. MACY ADMINISTRATOR, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO TODD PROTECTOGRAPH COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

PRINTING APPARATUS.

1,307,532. Specification of Letters Patent. Patented June 24, 1919.

Original application filed May 10, 1911, Serial No. 626,302. Divided and this application filed April 28, 1917. Serial No. 165,210.

To all whom it may concern:

Be it known that EDWIN E. ANGELL, deceased, late a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, (whose administrator is JOHN E. MACY, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts,) invented a new and useful Improvement in Printing Apparatus, of which the following is a specification.

This application is a division of the application of Edwin E. Angell, Serial No. 626,302, filed May 10, 1911, which issued as Patent No. 1,282,166, October 22, 1918, for method of protecting commercial paper.

One object of this invention is to provide a printing apparatus for marking checks, bonds and other commercial papers with an inked impression of the value thereof, or other indicia, so constructed as to emboss or disrupt the fibers of the paper over the area to which the ink is applied, so that the paper will become impregnated with the ink and thus indelibly marked with the desired inscription.

This and other objects and advantages are fully explained in the following detailed description of one embodiment of the invention which is illustrated in the accompanying drawings, in which—

Figure 1 represents a longitudinal sectional elevation of the apparatus.

Fig. 2 is a plan view of a part of a check or other commercial paper bearing symbols representing value applied according to the invention.

Fig. 3 is a view of one of these symbols on an enlarged scale.

Fig. 4 is a cross-sectional view of that part of the paper bearing the symbol shown in Fig 3, taken on the line 4—4 of said figure, but representing the same on an enlarged scale.

Fig. 5 shows one of the types by which the symbols are applied.

Fig. 6 shows the bed against which the paper is pressed by the type and by which the perforations between the deposits of ink made by the type are made.

This invention, in its present embodiment, is used in conjunction with an apparatus disclosed in the United States Letters Patent to Angell, No. 936,398, granted October 12, 1909, which apparatus will now be described, but it is to be understood that the present invention is susceptible of employment in a wide variety of applications and is in no wise limited to use with the particular apparatus of the above Patent No. 936,398.

In the machine, 1 represents a table upon which the check or other paper represented by 2 is laid when being stamped. Over the table is mounted a type wheel 3 having a number of types 4, which wheel is carried by a shaft 5 journaled in bearings 6, 7, in an arm or bracket 8, which is pivoted at 9 over the table 1. A space 10 is left, as shown, between the pivot and table to allow the paper to be inserted far enough to receive the impression at the desired point. 11 represents a gage which may be adjusted to limit the amount of insertion of the paper. By raising the handle 12, which is on the shaft 5, the bracket 8 may be swung about its pivot 9, thereby raising the type wheel and allowing the paper to be placed under it. By turning the handle about the axis of shaft 5, the type wheel, which is connected to said shaft, may be placed so that any one of the types 4 may come into position for impressing the paper. When the paper is engaged by the type, it is pressed by the latter against bed 13, shown in dotted lines in Fig. 1, and in detail in Fig. 6, set into the table and by the latter indented or punctured. The superficial area of the bed is equal to, or perhaps slightly greater than that of any one of the types, so that it acts upon the entire area of paper acted upon by the type, but on the opposite side of the paper from the type.

The types or printing plates, one of which is shown in Fig. 5, have numerous flat-faced projections 14, which, when coated with ink and pressed upon the paper, leave isolated spots or dots of ink, and when not inked, depress minute areas of the paper. Preferably the projections are formed by making two sets of parallel grooves in the face of the marking die, the grooves 15 of one set being transverse and preferably perpendicular to those of the other set 16. Such grooves are sufficiently narrow and spaced so far apart that the ends of the intermediate projections have area enough to leave deposits of ink of material size. In the particular embodiment of the invention here illustrated, the number or other conventional symbol is formed on the paper by leaving a blank space of the paper surrounded on all sides by the dots. Accordingly to produce this result the type is provided with a recess having the outlines of the figure, but reversed, as indicated in Fig. 5. It is within the contemplation of the invention, and would not be a departure therefrom to arrange the projections 14 in the reversed form of the symbol, thereby printing the symbol in the form of a collection of dots arranged in the form of the symbol. That is, the marking member would be provided with a raised portion corresponding to an ordinary printing type, but cut across its face by intersecting grooves.

The bed 13, against which the paper is pressed by the printing member, has its face cut by intersecting grooves 17 and 18 which are spaced equally and aline parallel to the corresponding grooves 15 and 16 of the printing member. The grooves are of such width, however, as to reduce the ends of the projections left between them to comparatively sharp points 19. The bed is so placed on the machine with reference to the printing members that the rows of points on the bed will enter the grooves 15 and 16 of the die when the latter is pressed toward the bed and will thus puncture the paper at the intersections of the blank lines between the dots thereon. Thus the points mutilate the paper between the areas upon which ink is deposited and in so doing raise burs upon the face of the paper which flank the inked areas and prevent erasure of the ink thereon.

The effect on the paper is illustrated in Figs. 3 and 4, from which it will be seen that there is a plain area 20 in outline corresponding to the symbol surrounded on all sides by isolated small depressed areas 21 upon which are deposits of ink, and between which are sharply raised and perforated projections 22. In the embodiment of the invention above suggested, where the projections 14 are arranged in the form of a symbol, the effect upon the paper is to produce a number of inked depressions and perforated raised protuberances collectively making the form of the symbol, while the space around such symbol is blank.

Where, in the foregoing description the term "ink" has been used, it is intended to include any coloring matter suitable for use in writing and printing.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:—

1. A printing plate having in its printing face two sets of parallel grooves, of which the grooves of one set intersect those of the other set, forming isolated flat topped printing projections.

2. In a machine of the class described, the combination with a set of type forms each having its face cut by shallow intersecting grooves to divide said face into a plurality of pyramidal frusta, of a platen having its impression surface cut by intersecting grooves deep enough to form a plurality of pyramidal points relatively spaced to register with the intersections of the grooves in the type forms, and means for establishing coöperative relationship between said platen and any desired type form.

3. In a machine of the class described, the combination with an adjustable type carrier provided with type forms each of which has its face cut by shallow intersecting grooves to divide said face into a plurality of flat faced ink receiving surfaces, of a platen having its impression face cut by intersecting grooves deep enough to form a plurality of pyramidal points relatively positioned to register with the intersections of the grooves in the type form, means for adjusting the type carrier to position any desired type form opposite the platen, and means for applying ink to the ink receiving surfaces on the type forms.

4. In a machine of the class described, the combination with an adjustable type carrier provided with type forms each of which has its face recessed to outline a character and the unrecessed portion thereof cut by shallow intersecting grooves to form a plurality of flat faced projections, of a platen having its impression face cut by intersecting grooves to form points relatively positioned to register with the intersections of the grooves in the type forms, means for applying ink to the aforesaid flat faced projections, and means for adjusting the type carrier to position any desired type form opposite the platen.

5. In a machine of the class described, the combination with an adjustable type carrier provided with rectangular type forms having their faces recessed to form characters and the unrecessed portions thereof cut by shallow intersecting grooves to form a plurality of flat faced projections, of a platen having its impression face cut by intersect-

ing grooves deep enough to form sharp points relatively positioned to register the intersections of the grooves in the type forms, means for applying ink to the aforesaid flat faced projections, means for adjusting the type carrier to position any desired type form opposite the platen, and work feeding devices constructed to feed the work a distance equal to the width of the type form printed from.

JOHN E. MACY,
Administrator of Edwin E. Angell, deceased.

Witnesses:
GROSVENOR CALKINS,
HELEN M. DEARBORN.