

Feb. 13, 1923.

1,444,779

H. W. CLARK

ART OF PRINTING AND RELIEF EMBOSSING

Filed July 21, 1921

2 sheets-sheet 1

Fig.1.

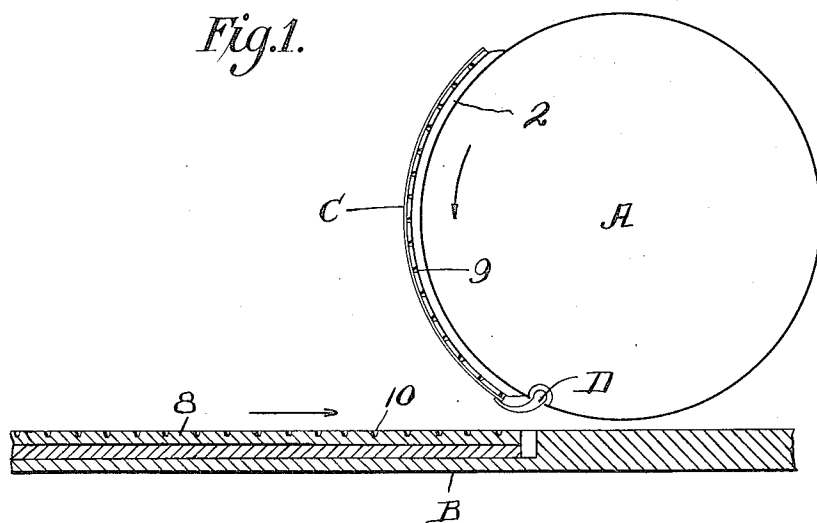
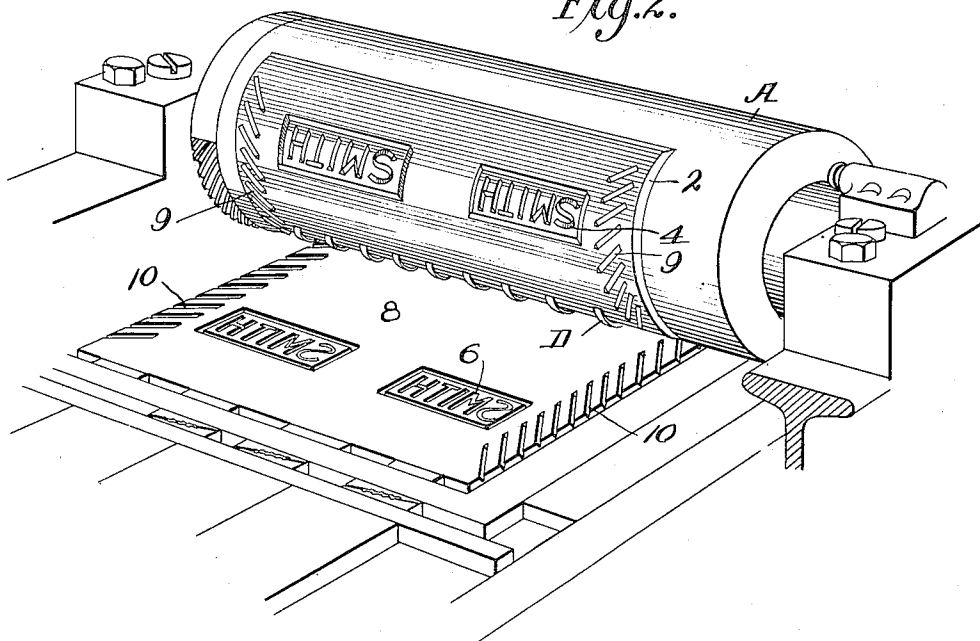


Fig.2.



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2 sheets-sheet 2

Fig. 3.

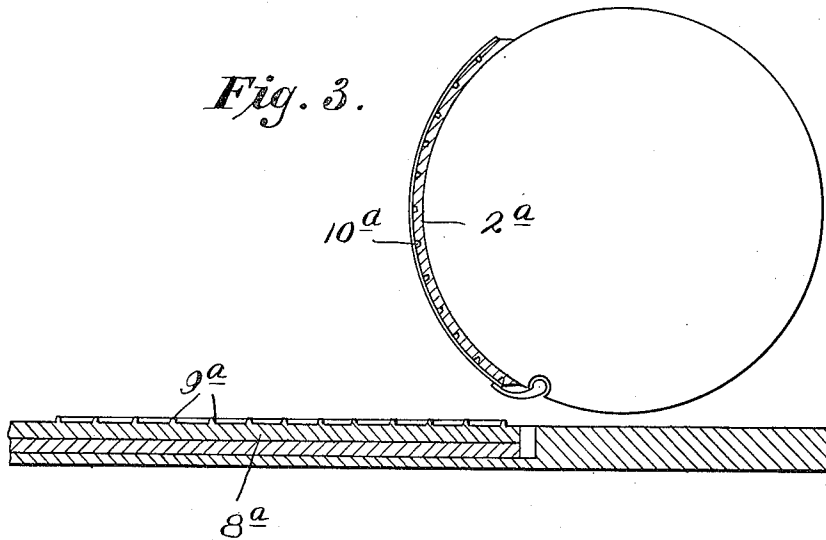
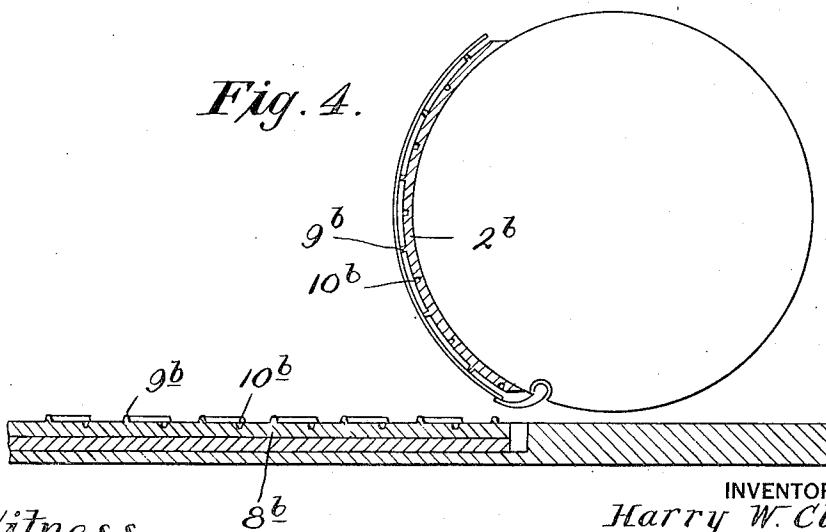


Fig. 4.



Witness

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Patented Feb. 13, 1923.

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UNITED STATES PATENT OFFICE.

HARRY W. CLARK, OF KANSAS CITY, KANSAS, ASSIGNOR OF ONE-HALF TO W. P. GOSHORN, OF KANSAS CITY, MISSOURI.

ART OF PRINTING AND RELIEF EMBOSsing.

Application filed July 21, 1921. Serial No. 486,514.

To all whom it may concern:

Be it known that I, HARRY W. CLARK, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in the Art of Printing and Relief Embossing, of which the following is a specification.

My invention relates to the art of printing and embossing and pertains more particularly to new and useful means for holding sheets from puckering, wrinkling, or otherwise becoming marred while being printed in relief and embossed, so that these two operations may be successfully combined in one.

Heretofore, in printing in relief and embossing labels, letter heads, and other sheets, it has been customary to perform the printing operation on one press and the embossing operation on another press. These two operations were necessary because when performing the embossing operation, the male die in crowding a portion of the paper into the engraved part of the female die would pucker, wrinkle, or otherwise mar said paper, so that such defects would plainly show on the colored surface of the paper and spoil the same for commercial purposes. This damaging of the paper was due to the fact that the point of contact between the surfaces of the male and female dies was too small to hold the paper taut and prevent it from becoming damaged as above stated.

By the use of my invention the two operations of printing in relief and embossing the paper may be successfully combined in one operation on one press at a considerable saving of time, labor and expense. I obtain these desirable results by providing the male and female dies with simple but effective means for firmly holding the paper from becoming puckered, wrinkled, or otherwise marred while being printed in relief and embossed; and in order that the invention may be fully understood, reference will now be had to the accompanying drawings, in which:

Fig. 1 is a broken side elevation partly in section of the cylinder and reciprocatory bed of a printing press with the dies in position.

Fig. 2 is a perspective view of the parts disclosed by Fig. 1.

Fig. 3 is a modified form.

Fig. 4 shows another modified form.

Referring now in detail to the various parts disclosed by the drawings, A designates the rotary cylinder of the press, and B the reciprocatory bed of usual form.

2 designates the male die which is glued or otherwise fixedly mounted upon the cylinder A. Said male die 2 is provided with embossed letters or other characters 4 adapted to enter corresponding letters or characters 6 countersunk in the female die 8. The female die 8 is locked in the usual way upon the reciprocatory bed B.

The male die 2 is provided near its two side margins with a series of projections 9, arranged at any angle, but preferably at an angle of forty-five degrees to said side margins and so disposed that their ends overlap, so that one will enter a corresponding depression 10 in the female die 8 before the preceding one leaves its respective depression and thus maintain a continuous grip upon the sheets C as they successively pass between the dies 2 and 8 during the combined operation of printing in relief and embossing. The depressions 10 are arranged adjacent to the side margins of the female die 8 and successively receive the projections 9 as the dies 2 and 8 pass each other during each revolution of the cylinder A.

The projections 9 are, preferably, of the same height as the embossed letters or characters 4 but may be made slightly higher or lower if preferred, the object being to hold each sheet C taut while passing between the dies.

The operation is as follows: during each rotation of the cylinder A, a sheet C is fed to said cylinder in the usual manner and is held in position over the male die 2 by the usual grippers D. As the cylinder A rotates and the bed B moves in the direction of the arrows, Fig. 1, the male and female dies 2 and 8, respectively, are brought together and that portion of the sheet C overlying the embossed characters 4 is forced downwardly into the corresponding depressions 6. Ordinarily this forcing of a portion of the sheet C into the depressions 6 would cause said sheet C to pucker or wrinkle and thus spoil it for use, but the projections 9 by forcing the two side margins of the sheet C into the depressions 10 hold said sheet C

taut, so that it cannot be damaged as stated. After the sheets C have been printed their margins containing the marks left by the projections 9 are trimmed off.

5 From the foregoing it will be understood that the means for holding the sheets C taut during the combined operations of printing in relief and embossing, constitutes the important feature of the invention, and while
10 said means, preferably, consist of projections on the male die 2 and corresponding depressions in the female die 8, such arrangement may be reversed as disclosed by Fig. 3, by putting the projections 9^a upon
15 the female die 8^a and the depressions 10^a in the male die 2^a; or if preferred the dies 2^b and 8^b may each be provided with projections 9^b and depressions 10^b, as shown by Fig. 4, for engaging and holding the sheets
20 taut.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. In combination, two coacting dies
25 adapted to be mounted on a cylinder press

and print in relief and emboss sheets, one of said dies having overlapping elongated depressions near its two side margins, and overlapping elongated projections on the companion die adapted to force portions of 30 each sheet into said depressions and thus hold each sheet taut during the printing and embossing operation.

2. In combination, two dies adapted to be mounted on a cylinder press and print in 35 relief and emboss sheets, one of said dies having a series of oblique depressions adjacent each side margin, and series of projections adjacent the side margins of the companion die to force portions of each sheet 40 into said depressions and thus hold each sheet taut during the printing and embossing operation.

In testimony whereof I affix my signature, in the presence of two witnesses.

HARRY W. CLARK.

Witnesses:

F. G. FISCHER,
L. J. FISCHER.