

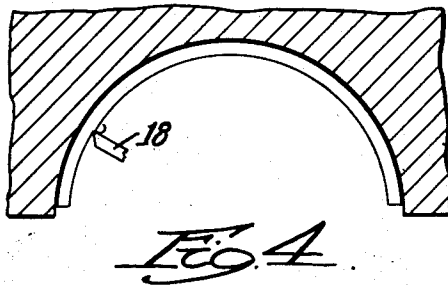
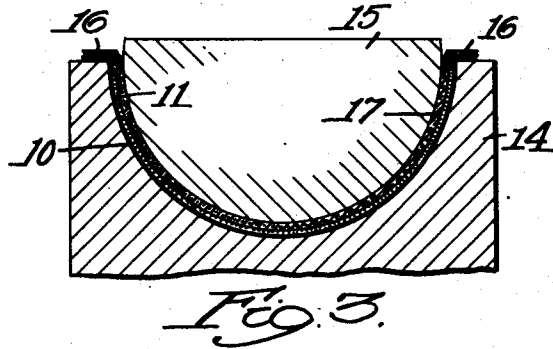
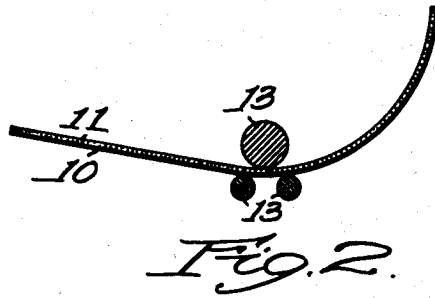
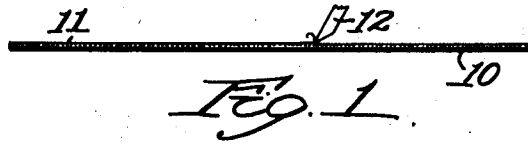
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METHOD OF PREPARING ELECTROTYPE PLATES

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METHOD OF PREPARING ELECTROTYPE PLATES

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4 Claims. (Cl. 29—148)

The principal object of this invention is to provide a method of backing up electrotype plates in such a way that when the plate is curved to produce a concave plate, the external surface will be stretched only a little so that the stretching of the surfaces of a series of plates may be substantially uniform. Another object is to produce an improved electrotype printing plate.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing, in which

Fig. 1 is an edge view of an electrotype plate showing one step in the operation of producing a complete printing plate;

Fig. 2 is a similar view showing the bending operation;

Fig. 3 is a cross section of a mold in which the plate shown in Figs. 1 and 2 has been placed and against which a back has been cast to fully back up the plate, and

Fig. 4 shows the shaving of the plate in a shaving arch to produce it in its final state.

The general practice in the art of electrotyping is to provide a thin shell by electrodeposition on a flat surface in the form of a mold, generally of wax, lay it face down and pour backing metal on the back of it to build up the plate to the desired thickness. This produces a flat plate. The back of the plate is usually shaved while the plate is still flat. Then the plate is put into a bending machine and curved into a substantially semi-cylindrical shape.

It will be obvious that the curving of a plate fully backed up in this manner is open to certain difficulties for the reason that the part which it is desired to curve is the electrotype shell only, while this electrotype shell has to be curved around the cast back. The electrotype shell stretches during the bending process and as most of these plates are backed up to a thickness of approximately one quarter of an inch this stretching may be considerable.

The art has been practiced so long that in the case of plates which are to print a single color, the errors caused by the bending will be likely to be unnoticeable on the printed sheet or the printing plate can be partially corrected by hand operations. When it is desired to superimpose one or more colors on the printed sheet, it becomes a difficult matter to have the surfaces of the several electrotype plates stretched in the old manner since it is entirely impossible to have this stretching uniform in the series of plates.

This invention is designed to minimize the

stretching of the electrotype plates or shells so as to reduce the amount of error that is possible in the final printing surface, particularly for color printing. The invention is not limited to color work and can be used to advantage in the printing of a single color.

In the manufacture of a printing plate according to this invention a very thin electrotype plate or shell 10 is formed in the usual way by electrodeposition on a flat mold of wax or the like and of course, it has the printing surface upon it.

The second step in the process is to pour a backing 11 of backing metal in a molten state on the back of the thin shell. In the act of hardening it adheres to the shell. This is a thin backing and the shell is not thick enough to withstand the pressure and wear to which it will be subjected on a printing machine.

The next step is to run the plate 10—11 under a shaving knife 12 and cut the back of the plate to a uniform level and also take the skin of the casting off the back. Now this comparatively thin plate is run through a bending machine 13 and brought to a semi-cylindrical configuration. The shell is then placed in a casting box 14 having the usual central core 15 held in place by clips 16 or the like. Additional stereotype metal is poured into this mold so as to form a solid well attached back 17 on the surface of the backing member 11.

This plate now is of the usual thickness of a stereotype plate and can be subjected to all the pressure and vibration inherent in printing on high speed printing presses. The plate is a solid piece although made of three parts and is ready for use subject to the final shaving done by a knife 18 in a well known manner. In this way it will be seen that, instead of bending a plate of full thickness so that the sheet of electrodeposition material 10 has to bend around a very thick and slowly bending body of metal, it is bent in the condition shown in Fig. 2 which prevents the extreme amount of bending action which would be the case with a plate of full thickness.

I have found by experimenting with color printing that the parts of the plates are very much more nearly in the corresponding positions on the several plates of a color series when the plates are made in this way. By the old method there would be places where the color outlines would not match and that has given considerable trouble in this industry.

Although I have illustrated and described only one way of carrying out the invention, I am aware of the fact that modifications can be made there-

in by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited in this respect otherwise than as set forth in the claims, but what I do claim is:—

1. In the method of preparing an electrotype printing plate which comprises forming a thin layer by electrodeposition, providing a thin metal back thereon, bending the plate to the desired shape and thereafter casting a thick back on the first back.

2. The method of preparing an electrotype plate which consists in forming a thin layer by electrodeposition, casting a thin metal back thereon, bending the plate to the desired shape, casting a thick back on the previously cast back, and shaving the interior of the plate to fit it for the printing cylinder.

3. The method of preparing an electrotype plate which consists in forming a thin layer by electrodeposition, casting a thin metal back thereon, shaving the back to uniform thickness, bending the plate to the desired shape, casting a thick back on the shaved surface of the previously cast back, and shaving the interior of the plate to fit it for the printing cylinder.

4. In the method of preparing an electrotype plate which comprises forming a thin layer by electrodeposition, casting a thin metal back thereon, bending the plate to a semi-cylindrical shape, and casting a thick back on the previously cast back.

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