

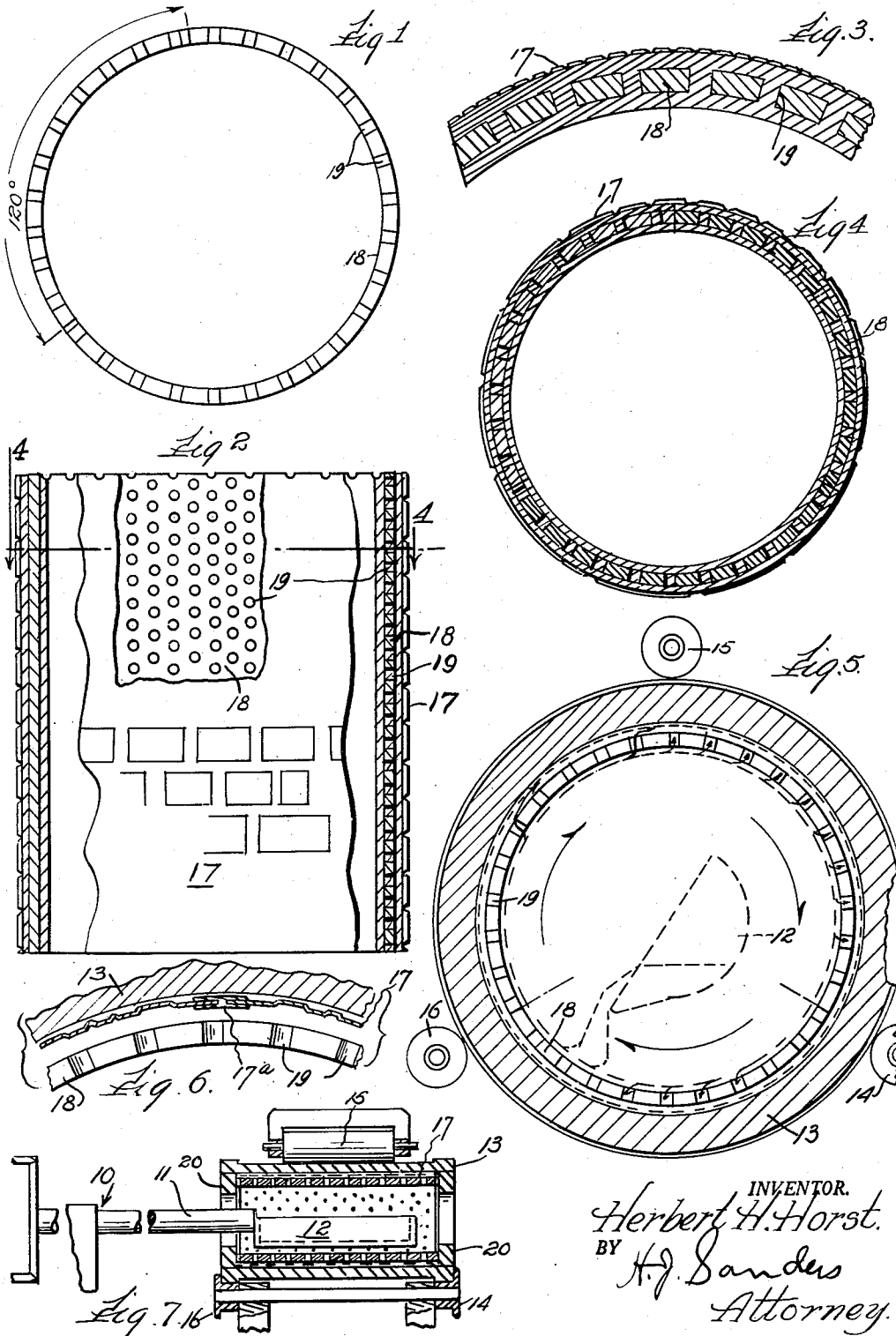
May 6, 1958

H. H. HORST

2,833,009

METHOD OF MANUFACTURING CIRCULAR LAMINATED PRINTING PLATES

Filed Oct. 8, 1956



INVENTOR.  
*Herbert H. Horst.*  
BY *H. J. Sanders*  
Attorney.

1

2,833,009

## METHOD OF MANUFACTURING CIRCULAR LAMINATED PRINTING PLATES

Herbert H. Horst, Chicago, Ill.

Application October 8, 1956, Serial No. 614,677

3 Claims. (Cl. 22—200.5)

This invention relates to the printing art and more particularly to improvements in the field of lamination employed in the manufacture of curved printing plates used extensively in magazine and newspaper printing, as well as in telephone and catalogue work employing a curved plate. This type of press may be a rotary press, a multi-color press, or presses known in the art by several other names, but all such presses employ an arcular, or what is well known to the trade as a curved printing plate, and it is in the manufacture of the latter to which the instant invention is particularly directed.

As now carried out such manufacture is very costly and requires many operations involving labor and material and in time consumed. It is therefore a very important feature of my invention to provide a simple method of lamination that includes improved means of fortifying and laminating simultaneously, resulting in less plate distortion with minimum shrinkage, and greatly improved control for accurate multi-color registry.

A further object is to provide a better curved plate for chroming operations which is also a lighter plate that is more easily handled and one that will stand up well through long use and long press runs. It is well known that there exists a constant demand for higher printing speeds and for plates that have strong resistance to cracking and breakage as such occurrences cause unlimited damage to equipment, astronomical spoilages and hazardous working conditions for the press crews.

The printing trade has been and is demanding more and better plates faster, resulting in the introduction recently of what is known as the centrifugal casting machine. In this machine individual electroplated shells, joined by a strip clincher, are placed and the casting drum rotated. Backing metal is then poured, by means of a ladle, and the centrifugal force caused by the rotating drum effects a comparatively uniform cast. It is in the operation of this machine that the instant invention is employed to realize my improved technique. There are other casting machines, stereotype and electrotype that might readily be adapted to the lamination principle, the centrifugal caster being merely an object of demonstration.

With the foregoing and other objects in view my invention consists in the method whereby the foregoing and other objects are realized as set forth in the following specification, defined in the claims and illustrated in the accompanying drawing forming part of this disclosure and wherein:

Fig. 1 is an edge view of a reinforcing screen employed.

Fig. 2 is a longitudinal view of Fig. 4, with parts broken away and sectioned.

Fig. 3 is an enlarged fragmentary sectional view of the screen within the confines of the finished plate, ready for printing.

Fig. 4 is a detail cross sectional view of the printing plate or drum taken on the line 4—4 of Fig. 2.

Fig. 5 is a sectional view of the casting drum with screen and matrix shell in place for backing.

2

Fig. 6 is an enlarged fragmentary view of the screen and matrix shell in the drum prior to casting, and,

Fig. 7 is a vertical sectional view of a typical casting drum adapted for casting.

The reference numeral 10 denotes a handle having an extension 11 for supplying the molten or backing metal by means of a ladle 12. Mounted to or supported in a centrifugal caster is the casting drum 13 which is spun by conventional spinning rollers 14, 15, 16.

The first step in the operation is the preparation of a plated shell 17, or shells, joined together by a strip clincher 17a, which shell or shells, is placed within the casting drum and the drum is rotated after, however, a precurved aluminum fortifying member 18 is also placed or inserted inside the shell 17. This member 18 may be a one piece circular member or it may be formed of sections, one section of 120 degrees and one section of 240 degrees; or it may be composed of three identical sections of 120 degrees each. These members are formed desirably of aluminum sheet, cut to size, with a plurality of holes 19 drilled or punched therethrough, thus forming a screen through which the backing metal is poured while the casting drum is rotated.

It will be readily understood that, due to the casting drum rotation, the joined electroplated shells 17 and the fortifying aluminum screen member, or members 18, are pressed together by centrifugal force, sufficiently spaced however, to provide perfect sandwiching of the member 18 in the finished product, Fig. 4, and are fitted most intimately against the inner periphery of the casting drum.

While the backing metal is being poured the metal is perfectly screened by passing through the holes of the fortifying member 18, eliminating all air bubbles and distributing the backing material uniformly over the entire cast. Sufficient metal is poured so that after the finished plates are shaved to the proper thickness the fortifying lamination member is spaced properly within the confines of the plate. This fortifying member may be of any desired thickness depending upon the thickness of the finished plate in which it is to be used. The ends of the drum 13 are partially closed by a pair of identical removable rings 20, to keep the assembly aligned after it has been placed within the drum, these rings being removed before withdrawal of the cast.

While I prefer the use of aluminum or an alloy, it is possible to employ any non-ferrous metal. When the electroplated shells 17 are cooled and removed from the drum they are placed in the press for printing.

What is claimed is:

1. The method of manufacturing curved laminated printing plates which consists in the placement of a curved electroplated shell bearing printing indicia in the casting drum of a centrifugal caster, placing a complementarily formed perforate fortifying member within said shell, rotating said drum, providing a continuous flow of fused backing material to said fortifying member to pass through the perforate portions thereof and over the outer face of said fortifying member and over the adjacent back of said shell while said casting drum is being rotated, and removing, cooling and shaving the plate to the desired thickness for placing said plate on a printing press.

2. The method of manufacturing curved laminated printing plates which consists in the placement of a curved electroplated shell bearing printing indicia in the casting drum of a centrifugal caster, placing a complementarily formed perforate fortifying member within said shell, rotating said drum, providing a continuous flow of fused backing material to said fortifying member in said drum as same is rotating to cause said material to pass through said fortifying member perforations and over the adjacent back of said shell thus fortifying and laminating the plate simultaneously, and removing, cooling and shaving

ing the plate to the desired thickness for placing same on the press.

3. The method of manufacturing sectional circular laminated printing plates which consists in the placement of a sectional electroplated shell bearing printing indicia in the circular casting drum of a centrifugal caster, connecting said plate sections by strip clinchers, placing a complementarily formed perforate fortifying member within said shell, rotating said drum, providing a continuous flow of fused backing material to said fortifying member as said drum is rotating to cause said material to pass through said fortifying member perforations and upon the back of said shell, and removing, cooling and

shaving the plate to the desired thickness for placing same on the press.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

|           |           |               |
|-----------|-----------|---------------|
| 1,028,330 | Cooper    | June 4, 1912  |
| 1,718,210 | Armstrong | June 25, 1929 |
| 2,162,825 | Richards  | June 20, 1939 |
| 2,305,852 | Durham    | Dec. 22, 1942 |
| 2,670,326 | Bungay    | Feb. 23, 1954 |
| 2,685,129 | Meyers    | Aug. 3, 1954  |