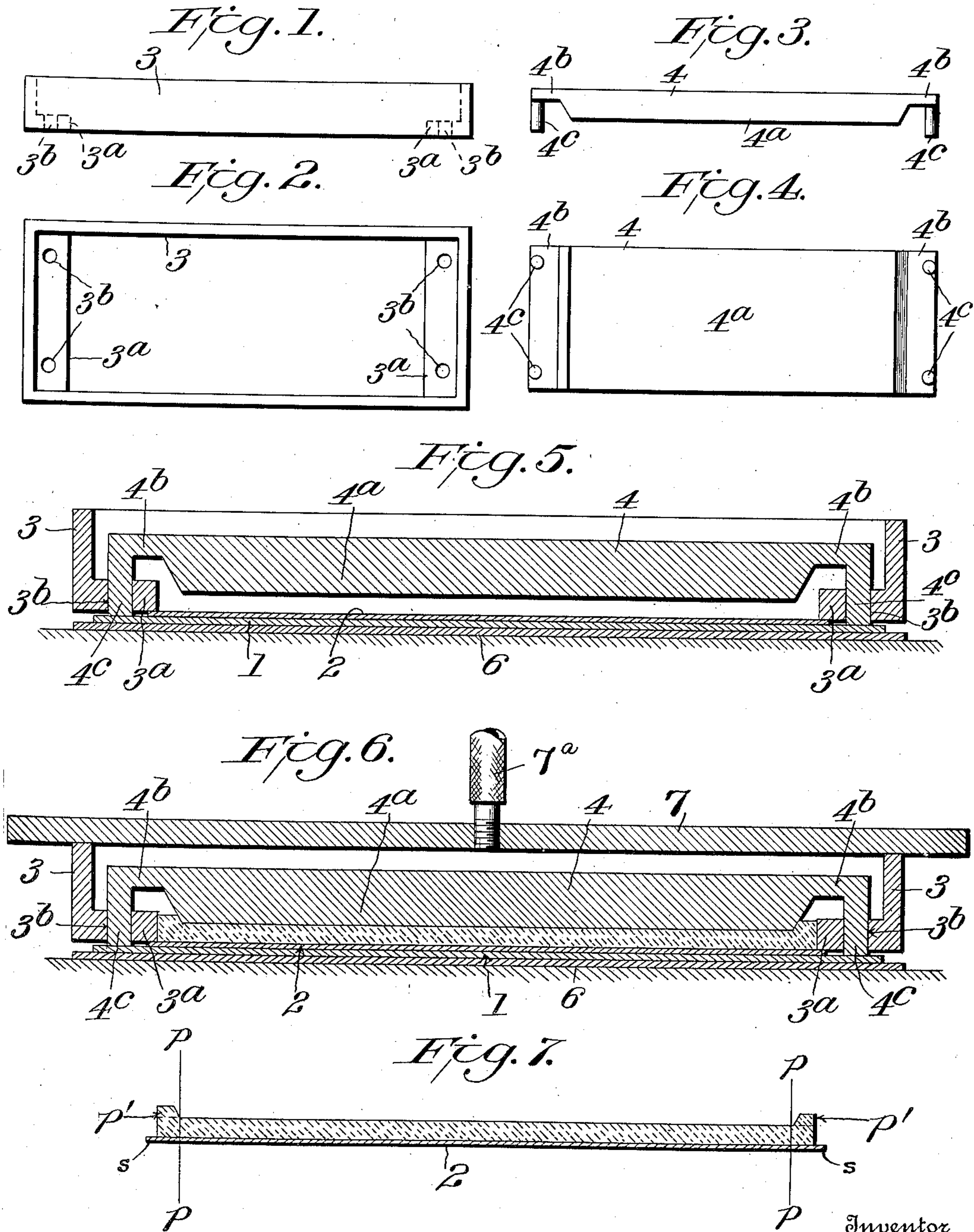


M. A. DROITCOUR.
MANUFACTURE OF PRINTING PLATES.
APPLICATION FILED OCT. 19, 1910.

997,050.

Patented July 4, 1911.



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MANUFACTURE OF PRINTING-PLATES.

997,050.

Specification of Letters Patent.

Patented July 4, 1911.

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To all whom it may concern:

Be it known that I, MICHAEL A. DROITCOUR, of Oak Park, in the county of Cook and State of Illinois, have invented certain
5 new and useful Improvements in the Manufacture of Printing-Plates; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings,
10 which form part of this specification.

This invention is an improvement in the art of manufacturing printing plates, and is particularly designed for use in the manufacture of "toned" or "made-ready" printing plates which are usually formed of a
15 printing surfaced shell of copper, or hard metal, backed up with softer metal to form a plate.

The object of the present invention is to
20 enable the rear side of the plate to be made plain surfaced or finished during the process of backing up the shell, so that the body of the plate will be produced of the desired thickness at one operation and the back of
25 the plate will not require to be shaved in order to prepare it for the press.

While the invention is particularly adaptable for use in the manufacture of "toned" printing plates as specified, it is also equally
30 useful in forming flat surfaced printing plates, and greatly lessens the amount of work required in finishing up such plates ready for the press after the casting operation.

35 In the accompanying drawings I have illustrated conventionally an apparatus for carrying out the invention which will suffice to enable those familiar with the art to readily utilize the same.

40 In said drawings—Figures 1 and 2 are side and plan views of a novel chase which may be used in carrying out the invention. Figs. 3 and 4 are side and bottom plan views of a novel back finishing member which may
45 be used in carrying out my invention. Fig. 5 is a longitudinal section through an apparatus showing the parts in position preparatory to casting a plate. Fig. 6 is a similar view showing the plate cast. Fig. 7 is a sectional view of the plate removed.
50

In order to facilitate an understanding of the invention I will explain the same as used in backing a toned printing plate.

Upon a suitable support, as 6 in Fig. 5, I place a toning member or underlay 1 upon
55 which is placed a shell 2, which is held down in place upon the support by means of a chase 3, (Figs. 1 and 2) which chase is preferably provided at its ends with inwardly projecting flanges 3^a which engage the inner
60 ends of the shell 2, and are provided with vertical holes 3^b at points which lie beyond the outer ends of the shell 2. I shall herein refer to member 2 as a "shell", but I intend to include thereby any body which will
65 either form the surface of the printing plate by becoming an integral part thereof, such as an electrotypes or steel shell; or a body, such as a matrix, which simply shapes the printing surface of the plate when the latter
70 is cast. In other words the particular construction of this shell or part 2 is not an essential feature of the present invention.

The chase 3 is of such depth that if the interior of the chase is partially filled with
75 metal it will suffice to form a plate of the desired thickness. In other words the chase is of greater depth than the thickness of the printing plate to be formed. The face or printing surface of such printing plate will
80 be at the lower side of shell 2, (if the latter is such as to form an integral part of the printing plate, as in Figs. 5 and 7). Or at the bottom of the recesses in the matrix laid under the chase, if part 2 be a matrix or
85 replaced by a matrix.

In order to regulate the thickness of the complete printing plate, and to finish the back thereof simultaneously with the formation of the plate, I employ a back finishing
90 member 4, see Figs. 3 and 4, which is preferably formed of cast-iron or other heavy metal to which the plate backing metal will not readily adhere. This back finishing member 4 is adapted to fit into the chase 3
95 (see Fig. 5) and has a body portion 4^a which preferably substantially coincides in area with the area of the interior of the opening in the bottom of the chase, and this body 4^a is finished on its under side in the manner in
100

which the back of the plate is to be finished. The printing plates are preferably made smooth on their backs, therefore the under side of this body 4^a is made flat and smooth; 5 but it could be finished to correspond with the back of the plate, if the latter was ribbed or grooved. The back finishing member 4 is provided with end flanges 4^b which extend beyond the ends of the body portion 4^a 10 and are adapted to overlie the flanges 3^a of the chase; and to the under side of these flanges 4^b are attached pins 4^c which are adapted to engage with and pass through the holes 3^b in the flanges 3^a, as indicated in 15 Figs. 5 and 6. The pins 4^c and holes 3^b are fitted to accurately position the body 4^a over the shell 2, and the pins 4^c rest upon the underlay or surface 1 beyond the ends of the shell 2, see Figs. 5 and 6, and the pins are 20 of such height that when they rest upon the surface 1 as indicated in Fig. 5, the lower surface of the body 4^a of the back finishing member will be held exactly parallel with the surface 1, and at such distance from said 25 surface as is desired for the thickness of the finished plate. In other words the distance between the bottom of the body 4^a of the member 4, when inserted in the chase and ready for casting, see Fig. 5, and the top of 30 the support 1 will exactly equal the desired thickness of the plate, and the lower surface of the body 4^a is exactly parallel with the surface of the support 1. When the parts are in this position molten metal can 35 be poured into the chase and will run down around and under the edges of the body portion 4^a of the back finishing member 4 and fill the space under said body within the chase, and rise above the lower surface of 40 body 4^a; and because of said body after the metal is cooled the printing plate will have its face trued by the surface of the support 1 or formed by the shell 2, and its back will have been trued and finished by the under 45 surface of the body 4^a of the back finishing member 4; and when the plate is removed from the chase it is only necessary to trim off the margins *s* of the shell, and the sprues *p'* on the edges of the plate along the lines *p*, Fig. 7. When the metal sets, the back 50 finishing member 4 is removed; the chase is also removed and the formed printing plate is then ready to be trimmed to size, beveled and made ready to print from without any 55 further work on or manipulation of the back of the plate, except to remedy possible flaws in the original type or cut, which can be taken care of in the regular manner.

In forming the plate I preferably use the 60 process set forth in my application filed April 18, 1910, Serial No. 556,158, in which the shell 2 is a printing shell and supported upon a toning member, as 1, in turn supported upon a suitable plane-surfaced support, as 6, 65 in Figs. 5 and 6; and after the chase and

back finishing members are adjusted over the shell, with the pins 4^c resting upon the surface of the underlay, as in Fig. 5, beyond the ends of the shell, molten metal 70 is put into the chase and the chase is sealed as by a platen 7, see Fig. 6, and the molten metal runs under the member 4 and the under surface of body 4^a brings the top of the metal to a true level above the 75 shell 2. Compressed air is then admitted into the sealed chase above the metal, and causes the shell 2 to contact closely at all points with the underlay or matrix 1. If the parts be properly fitted the chase 3 can be air tightly sealed by pressure between the 80 support 6 and platen 7 which may be parts of any suitable press. And the air can be admitted into the chase through a pipe 7^a connected with platen 7 and to a suitable compressed air supply or pump (not shown). 85 After the metal is set the pressure is released, and the chase and backing plate removed and the plate trimmed as above described. The shell may also be toned prior to the application of the backing, as set 90 forth in my application filed April 16, 1910, Serial No. 555,830.

The invention could obviously be employed for casting printing plates directly from a flat matrix substituted in place of 95 shell 2. And the invention can be used for casting printing plates either with plane surfaced or toned shell. In all cases it will be seen that simultaneously with the casting of the plate its back is finished by the mem- 100 ber 4. Members 4 and related chases 3 should be provided of different sizes in accordance with the sizes of plates to be produced.

While I prefer to cast a plate under air 105 pressure, as described in my application No. 556,158 aforesaid, I do not consider the invention restricted thereto; and the essential distinguishing feature of the present invention being the finishing of the back of the 110 printing plate by means of a suitable member simultaneously with the application of the backing to the printing surface or shell. Or in other words finishing the body of the plate both face and back during the forma- 115 tion thereof at one operation.

What I claim is:

1. The process of manufacturing printing plates with finished backs, consisting in plac- 120 ing the printing-surface forming-member on a plane surface, surrounding it with a metal-retaining member, placing in said metal-retaining member a back-finishing member and supporting the latter a distance above the printing-surface forming-member ac- 125 cording to the desired thickness of the finished plate, backing the printing-surface-forming-member to form a plate by filling the space between the printing-surface form- 130 ing-member and said back finishing-mem-

ber with metal and subjecting the metal to pressure until it sets.

2. The process of making printing plates with finished backs, consisting in placing
5 a printing-surface forming-member upon a plane surfaced support; placing a chase around said printing-surface forming-member; placing a back-finishing-member within the chase and supporting the same parallel
10 with and above the printing-surface forming-member a certain distance according to the desired thickness of the finished plate, backing the printing-surface-forming-member with metal to form a plate by filling the
15 space between the printing-surface forming-member and the under surface of said back-finishing-member with metal and subjecting the metal to pressure until it sets.

3. The herein described method of making
20 ing printing plates with finished backs, consisting in placing a printing shell upon a suitable support, applying a chase around the edges of said shell; placing a back-finishing-member in the chase so that the under
25 surface of the body of said member shall be parallel with the support and at a distance above the same equal to the desired thickness of the finished plate; backing the printing-surface-forming-member with metal to
30 form a plate by filling the space between said shell and back-finishing-member with backing metal sealing the chase and subjecting the metal therein to fluid pressure until it sets.

35 4. The process of making printing plates, consisting in placing a printing-surface forming-member upon a support; placing a chase upon the margins of said printing-surface forming-member, placing a back-finishing-member within the chase and supporting the same parallel with and above the
40 printing-surface forming-member a distance equal to the desired thickness of the plate, filling the space between the printing surface member and the under surface of said back-finishing-member with molten metal; subjecting the molten metal to fluid pressure until it sets; then removing the plate, and trimming the edges thereof.

50 5. The herein described method of making printing plates, consisting in placing a printing shell upon a suitable support; placing a chase upon the edges of said shell; placing a back-finishing-member in the chase, the
55 under surface of the body of said member being parallel with the shell support and located a distance above the said support equal to the thickness of the finished plate; filling the space between said shell and back-finishing-member with molten metal; subjecting the molten metal to fluid pressure until it sets; then removing the plate and trimming the edges thereof.

6. The herein described method of making
65 ing toned printing plates with finished back

and surface, consisting in placing a toned printing shell upon a suitable support, applying a chase over and around the edges of said shell, placing a back-finishing-member in the chase, said member having an under
70 surface parallel with the shell support, and located a distance above the said support equal to the thickness of the finished plate; filling the space between said shell and back-finishing-member with metal to back the
75 shell; subjecting the molten metal to fluid pressure until it sets, and finally removing the completed plate and trimming the edges thereof.

7. An apparatus for forming printing
80 plates, comprising a support upon which a shell or matrix is to be laid; a chase adapted to be laid over the shell or said matrix and having inwardly projecting flanges adapted to engage the margins of said shell or matrix,
85 a back-finishing-member having a body adapted to be inserted in said chase over the shell or matrix, and means for supporting said member upon the surface on which the shell or matrix is supported, so as to hold
90 the under surface of the body of the finishing-member parallel with said surface, and at a distance therefrom corresponding to the desired thickness of the finished plate.

8. In apparatus for forming printing
95 plates, the combination of a plane-surfaced support upon which a shell or matrix can be laid; a chase adapted to be laid upon such shell or matrix on the support and having inwardly projecting flanges adapted
100 to engage the margins of said shell or matrix; a back-finishing-member having a body adapted to be inserted in said chase over the shell or matrix and having supporting pins adapted to rest upon the surface
105 on which the shell or matrix is placed so as to hold the under surface of the body of the finishing-member parallel with said surface, the space between the under surface of said back-finishing-member and the
110 surface of said support equaling the desired thickness of the finished plate.

9. In apparatus for forming printing plates, a support for a shell or matrix, a chase adapted to be placed upon the shell or
115 matrix forming the printing surface of the plate; a back-finishing-member adapted to be placed within said chase and adapted to finish the back of the plate simultaneously with the casting thereof; and means to support said member independently of the chase
120 and at a desired distance above said shell or matrix; with means for sealing the chase, and means for introducing fluid pressure therein during the casting of a plate, substantially as described.

10. An apparatus for finishing printing plates, comprising a support for a shell or matrix, a chase adapted to be laid upon the
130 shell or matrix forming the printing-surface

of the plate and hold it upon the support;
and a back-finishing-member adapted to be
placed within said chase and provided with
means to support it above the shell or
5 matrix independently of the chase, and also
having a body-portion opposite the open-
ing in the chase adapted to finish the back
of the plate simultaneously with the casting
operation; with means for sealing the chase,
10 and means for introducing fluid pressure

therein during the casting of a plate, sub-
stantially as described.

In testimony that I claim the foregoing
as my own, I affix my signature in presence
of two witnesses.

MICHAEL ANDREW DROITCOUR.

Witnesses:

SIMON BARLOW,
PERCY G. SHAW.
