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H. N. DURHAM

2,180,732

STEREOTYPE PLATE

Filed April 26, 1938

Fig. 1.

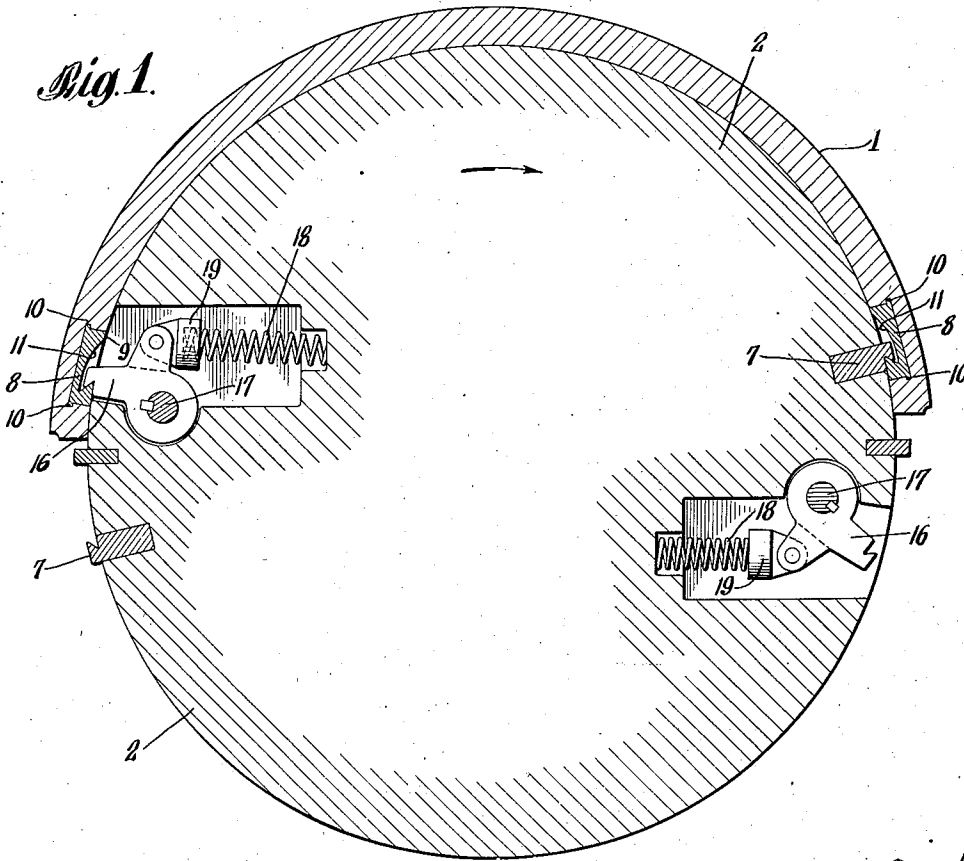


Fig. 2.

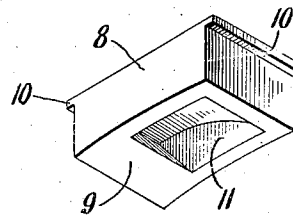
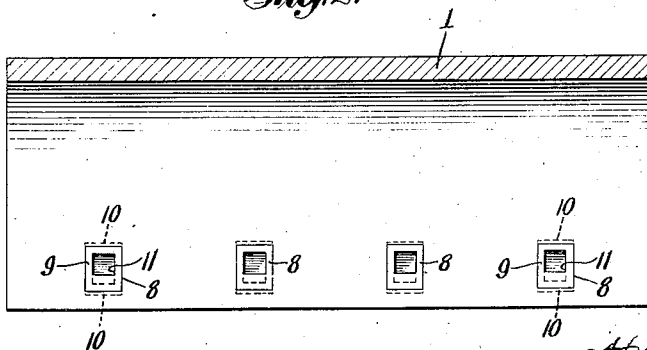


Fig. 3.

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STEREOTYPE PLATE

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Application April 26, 1938, Serial No. 204,270

6 Claims. (Cl. 101—378)

The invention relates to new and useful improvements in the art of stereotyping, and more particularly to such improvements in the method of manufacture and in the structure and operation of hemicylindrical stereotype plates which are held on the press cylinders, wholly or in part, by peripheral tension.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawing, referred to herein and constituting a part hereof, illustrates one embodiment of the invention, and together with the description, serves to explain the principles of the invention.

Of the drawing:

Fig. 1 is a transverse section through the plate cylinder of a printing press, showing a plate embodying the invention and mechanism for holding it on the cylinder under peripheral tension;

Fig. 2 is an elevation, looking at the interior of one half of a stereotype plate embodying the invention;

Fig. 3 is a detached perspective view of one of the hook engaging insets.

The invention provides an improved cylindrical stereotype plate especially adapted for successful and satisfactory use when held upon the plate cylinder of the press by peripheral tension applied to the head and tail ends of the plate, with or without other holding means being applied to the plate, and to this end a plate is provided with greatly strengthened head and tail portions, better adapted to take the pull of the tensioning hooks, or like means, mounted on the cylinder. To this end there is integrated with the heads and tails of the plates, and embedded therein a plurality of hook-engaging devices, spaced apart along its straight edges, said devices being of relatively hard metal, having a higher melting point and a lower specific gravity than stereotype metal. A plate equipped with these insets may be subjected to very great peripheral tension without danger or breakage, deformation or strain, as often occurs when the tension is placed directly on the stereotype metal. The invention includes also as an article of manufacture the hook-en-

gaging insets having the capacities and characteristics described, which are positioned in the casting chamber and then cast into the plate, and are usable over and over, being recovered from the molten plate metal, and again used in the casting chamber in the manner described. These are usually formed with the male member on the press cylinder and the female member in the plate.

The invention also provides a novel method of casting curved stereotype plates having the hook-engaging devices of my invention embedded in the plates, whereby the devices are preliminarily detachably positioned along the straight edges of the core. The plates are cast by the usual pouring and cooling process, during which process the hook-engaging devices are cast into, and made integral with, the plate, and when the casting box is opened by the recession of the drag with the plate in it these engaging devices embedded in the plate are detached from the casting box core by this usual opening movement of the drag. Claims to said method and to a casting box structure capacitated to carry it out are presented in my application Serial No. 251,210, filed January 16, 1939, which is a division of the present application.

Referring now in detail to the embodiment of the invention illustrated by way of example in the accompanying drawing, and referring primarily to the novel stereotype plate of my invention, such a plate 1 is shown in Fig. 1 mounted on the plate cylinder 2 of a printing press, the stereotype plate being in tension peripherally about the plate cylinder with powerful resilient pressure exerted on the head end and the tail end of the plate, to effect the powerful peripheral tension on the plate. The particular form of means exemplarily shown herein for exerting the resilient peripheral tension on the plate is substantially the same as is shown and claimed in Patent No. 2,047,357 dated July 14, 1936, to C. S. Crafts. In that patent the projecting hooks or holding members are mounted in the cylinder, and the hook-engaging recesses are formed in the plate, and that is considered to be the more advantageous form for these devices, and they are thus shown herein. As herein shown, a plurality of spaced-apart hooks 7 are mounted in a straight line along an element of the plate cylinder 2, near the head of the stereotype plate, and are under-cut on their lead or forward sides so as to engage within recesses formed in like relation within and along the straight lead edge of the plate, to hold the plate in position upon

the cylinder. In accordance with the present invention, cooperating with these hooks 7 are a series of hook-engaging devices 8, which are embedded in the stereotype plate during the plate-casting operation. These devices are of relatively hard metal to give them strength and durability, as they are capable of being used over and over in successive stereotype plates. These devices are made of metal which has a higher melting point and a lower specific gravity than stereotype metal. Thus when the used plates are thrown back into the melting pot or stereotype metal reservoir, the devices will not melt, and will also float on the molten stereotype metal and are thus recovered for further use.

In the embodied and present preferred form, these devices 8 have their inner curved faces 9 flush with the inner cylindrical face of the stereotype plate, and the body of the device, which is embedded in the plate, has portions, preferably lateral projections, for firmly holding the device in the plate, and as shown these are in the form of lips or beads 10 projecting outwardly from inner edges of the body of the device. The devices are recessed on their inner surfaces, as shown at 11, to engage with and fit over the hooks 7, to hold the head edge of the plate in position on the plate cylinder. A plurality of similar spaced-apart hook-engaging devices 8 are cast into the straight tail edge portion of the plate 1, and these engage with a series of tensioning hooks 16, which are fixed upon a shaft 17. This shaft 17 is journaled within a recess in the plate cylinder 1, and the hooks are subjected to powerful resilient peripheral plate tensioning action by means of springs 18, in compression between the plate cylinder and sockets 19 pivotally attached to the hooks 16. Any suitable means (not shown) may be employed to slightly rock shaft 17 to put on and take off the stereotype plates. In a plate of this type exceedingly powerful peripheral tension may be placed on the stereotype plates without danger of breakage or deformation or other failure due to the nature of the stereotype metal. Duplicate mechanism is shown on the other half of cylinder 2, which has the usual arrangement of two plates around generally used on presses for newspaper printing.

The foregoing is a disclosure of my present preferred form of the invention, as to the novel devices, mechanism and method of my invention, and also of the present preferred form of practicing the invention, but it will be understood that departures may be made from said disclosure without departing from the principles of the invention and without sacrificing its chief advantages.

What I claim is:

1. A stereotype printing plate adapted to be held upon the plate cylinder by peripheral tension and having a plurality of spaced-apart metallic hook-engaging insets cast into and integrated with the plate along and adjacent at least one of its straight edges.

2. A stereotype printing plate adapted to be held upon the plate cylinder by peripheral tension and having a plurality of spaced-apart metallic hook-engaging insets cast into and integrated with the plate along and adjacent at least one of its straight edges, said insets consisting of hard metal having a higher melting point and a lower specific gravity than stereotype metal.

3. A stereotype printing plate adapted to be held upon the plate cylinder by peripheral tension and having a plurality of spaced-apart metallic hook-engaging insets cast into and integrated with the plate along and adjacent at least one of its straight edges, said insets being embedded flush with the inner surface of the plate and having internal recesses into which hooks on the plate cylinder may engage to peripherally tension the plate.

4. As an article of manufacture, a hook-engaging inset adapted to be cast into a stereotype plate, comprising a body of relatively hard metal, having a higher melting point and a lower specific gravity than stereotype metal, and portions on the body which interlock with the stereotype metal as the plate is cast and cools, and an interior recess adapted to engage with a hook on the plate cylinder to tension the plate peripherally about the cylinder.

5. As an article of manufacture, a hook-engaging inset adapted to be cast into a stereotype plate, comprising a body of relatively hard metal, having a higher melting point and a lower specific gravity than stereotype metal, and portions on the body which interlock with the stereotype metal as the plate is cast and cools, and a portion formed to engage with tension exerting devices on the plate cylinder for peripherally tensioning the plate about the cylinder.

6. For use in casting stereotype plates with spaced-apart, metallic hook-holding insets embedded along the straight edges of the plate, and in combination a metallic inset of hard metal, having a higher melting point and a lower specific gravity than stereotype metal, said inset having a portion formed to engage with a tension exerting device on the plate cylinder for peripherally tensioning the plate about the cylinder.

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