

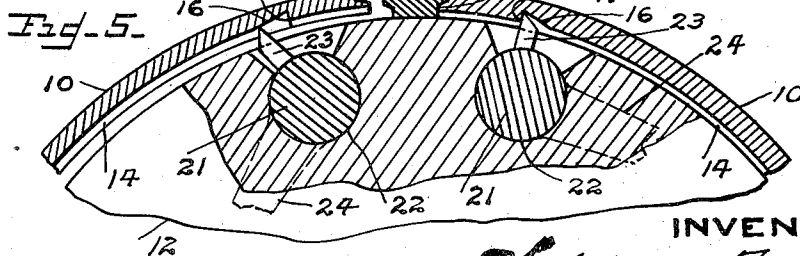
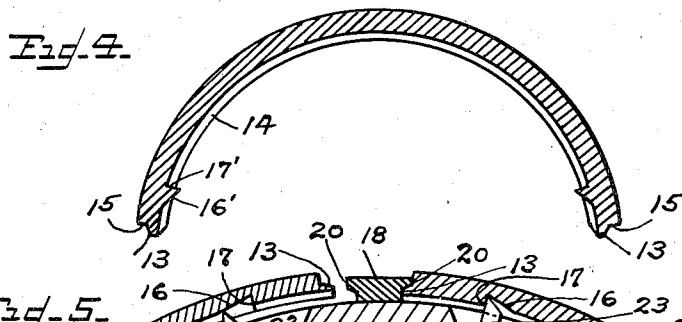
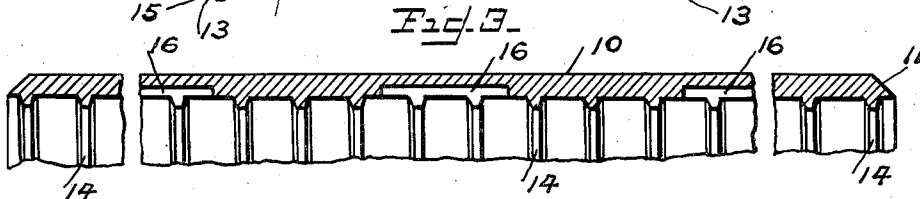
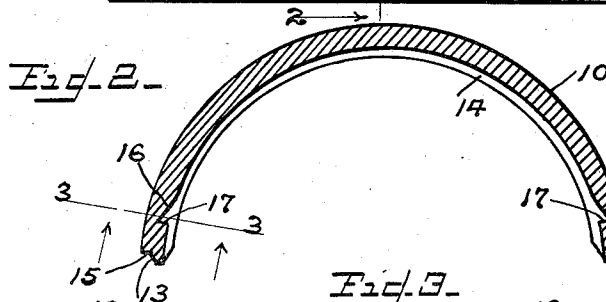
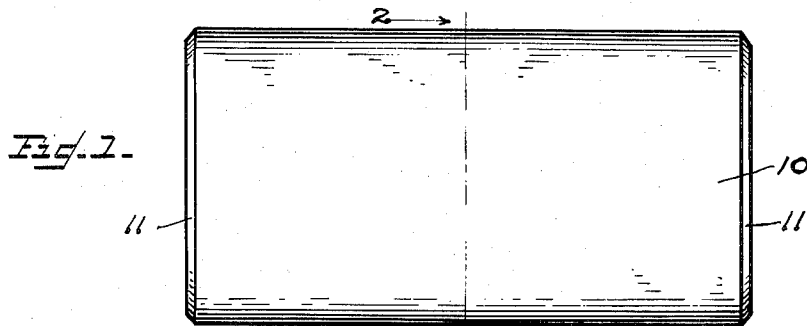
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W. F. HUCK

2,131,891

PRINTING PLATE

Original Filed Dec. 31, 1934



INVENTOR.

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## UNITED STATES PATENT OFFICE

2,131,891

## PRINTING PLATE

William F. Huck, Richmond Hill, N. Y., assignor  
to R. Hoe & Co., Inc., New York, N. Y., a cor-  
poration of New York

Original application December 31, 1934, Serial  
No. 759,983. Divided and this application Au-  
gust 21, 1937, Serial No. 160,327

10 Claims. (Cl. 101—395)

This is a divisional application of the co-pend-  
ing William F. Huck application, Serial No.  
759,983, for Stereotype plate casting molds, filed  
December 31, 1934, and the present invention  
relates to printing plates of the type disclosed in  
the above identified application, and, also, dis-  
closed in the William F. Huck Patent No.  
2,050,950, granted August 11, 1936, and which  
eventuated out of application Serial No. 759,982  
filed December 31, 1934.

In existing rotary printing machines, the  
curved or arcuate stereotype or electrotype print-  
ing plates are clamped or locked to the periphery  
of the printing or form cylinders, and particu-  
larly rotary newspaper printing machines, by ar-  
cuate clamp members or ring segments, and these  
arcuate clamp members are moved longitudinally  
or axially along the cylinders into locking en-  
gagement with the curved ends of the printing  
plates, thereby locking or clamping the opposed  
curved ends of each plate to its cylinder. The  
printing plates are further held against motion  
around the plate cylinders by margin bars which  
are secured on the peripheral portion of the  
cylinders and extend longitudinally thereof.  
When the plates are clamped to the plate cylin-  
ders, the straight longitudinal edges of the plates  
engage or abut the longitudinal edges of the  
margin bars, thereby preventing movement of  
the plates around the cylinders, but, however,  
the margin bars do not secure the plates against  
radial movement, such as may be produced by  
centrifugal force when the printing cylinders are  
rotated at relatively high operating speeds.

This means of securing the printing plates to  
the plate cylinders is commercially satisfactory  
when the printing presses are run at commercial  
speeds heretofore acceptable. However, there is  
a progressively increasing demand for higher  
operating speeds for rotary printing machines,  
and in designing rotary printing machines to meet  
this demand, it is necessary to provide additional  
securing or clamping means for each printing  
plate, therefore an object of the present inven-  
tion is the provision of a semi-cylindrical printing  
plate capable of having its opposed straight axial  
edges rigidly secured to a plate or form cylinder.

Another object of this invention is to provide  
a semi-cylindrical printing plate which is con-  
structed and arranged so that its straight axial  
edges interlock with specially constructed margin  
bars whereby the opposed axial edges of the plate  
are rigidly secured to the plate or form cylinder  
of a rotary printing machine.

A further object of this invention is to provide

a semi-cylindrical printing plate which has its  
opposed axial edges constructed and arranged for  
interlocking engagement with diametrically op-  
posed axially-extending margin bars carried by  
the peripheral portion of a plate or form cylinder,  
and the plate being constructed and arranged for  
cooperable engagement with instrumentalities for  
positively forcing the axial edges of the plate to  
interlocking engagement with the margin bars.

A more specific object of this invention is the  
provision of a cast curved printing plate which  
is constructed and arranged so that its opposed  
arcuate edges may be engaged by the conven-  
tional arcuate plate clamps to rigidly secure these  
arcuate terminals of the plate to a plate or form  
cylinder, and the opposed straight axial edges of  
the plate being constructed and arranged for  
interlocking engagement with specially con-  
structed margin bars without interfering with the  
construction or operation of the said conventional  
instrumentalities for locking the arcuate edges of  
the plate to the cylinder.

It is also an object of this invention to provide  
a rigid curved printing plate of generally im-  
proved construction and arrangement, whereby  
the device will be simple, durable and inexpensive  
in construction, as well as convenient, practical,  
serviceable and efficient in its use.

With the foregoing and other objects in view,  
which will appear as the description proceeds, the  
invention resides in the combination and arrange-  
ment of parts and in the details of construc-  
tion hereinafter described and claimed, it being  
understood that various changes in form, propor-  
tions and minor details of construction may be  
resorted to within the scope of the claims with-  
out departing from the spirit or sacrificing any  
advantages of the invention.

For a complete disclosure of the invention a  
detailed description of the improved printing plate  
will now be given in connection with the accom-  
panying drawing forming a part of this specifica-  
tion, wherein:

Figure 1 is a plan view of the improved stereo-  
type printing plate, the printing or image-pro-  
ducing characters being omitted;

Figure 2 is a transverse sectional view taken  
on the line 2—2 of Figure 1;

Figure 3 is a fragmental longitudinal sectional  
view taken on the line 3—3 of Figure 2;

Figure 4 is a transverse sectional view of a  
slightly modified form of the invention; and

Figure 5 is a fragmental transverse sectional  
view of a plate or form cylinder having plate se-  
curing or locking mechanism, of an approved

type, for securing the straight axial edges of the printing plate to the cylinder.

Referring to the drawing, in which similar reference characters designate corresponding parts, 10 indicates a semi-cylindrical stereotype or electrotype printing plate of the type disclosed in the said Huck co-pending application Serial No. 759,983. The arcuate terminals of the plate 10 are beveled in conformity with the usual practice, as indicated at 11, for engagement by the conventional arcuate plate clamps or rings. The plate clamps or rings engage the beveled arcuate edges 11 of the plate to secure these edges of the plate to the plate or form cylinder 12, and inasmuch as the construction and operation of the conventional clamps which engage the beveled arcuate terminals 11 of the plate 10 are well understood by those skilled in the art and form no part of this invention, such clamp members have not been illustrated in the drawing of this application.

At low or intermediate operating speeds of the plate cylinder 12, the conventional arcuate clamping rings which engage the beveled terminals 11 of the plate are sufficient to hold the plate 10 to the cylinder 12. At higher operating speeds of the plate cylinder, however, centrifugal force tends to bend or force the intermediate portion of each plate 10 outwardly away from the cylinders 12, and if this bending strain is of sufficient amplitude the plate will fly from its cylinder 12 and frequently results in damage to the machine or injury to the operator.

In order to provide a plate which will be securely locked to the cylinder along its straight axial edges as well as along its conventional beveled arcuate edges, the plate 10 is provided with a beveled projection 13 which extends circumferentially from each straight axial edge of the plate 10. Each projection or extension 13 is formed by cutting away the entire outer portion of each axial edge of the printing plate, as indicated at 15, and each extension 13 forms a continuation of the inner arcuate surface of the plate 10.

Spaced apertures or recesses 16 are formed in the inner face of the plate 10 to define radially extending shoulders 17 which are positioned adjacent the beveled projections 13. Each plate 10 is also provided with a plurality of spaced arcuate circumferentially extending shaving or trimming ribs 14 of conventional construction well understood by those skilled in the art. In order to secure the straight axial edges of the plates 10 to a plate or form cylinder 12, clamping or locking mechanism of the type indicated in the Patent No. 2,050,950 is employed. Each locking mechanism includes a margin bar 18 having its opposed axially-extending edges cut away to define overhanging beveled projections or extensions 20 for engagement with the beveled projections or extensions 13 of the plate 10, as will be hereinafter more fully explained. Spaced longitudinally extending shafts 21 are rockably secured to the cylinder 12, as indicated at 22, and each shaft 21 has a pawl or locking finger 23 extending radially therefrom.

In order to secure the plates 10 to a cylinder 12, the plates are positioned one at a time on the cylinder 12, in conformity with the usual practice, and the selected shafts 22 are rocked or oscillated sufficiently to cause the locking pawls or fingers 23 to move into the apertures or recesses 16 to engagement with the shoulder 17 of the opposed axial terminal of each plate to thereby cause the

beveled projections 13 of the opposed axial terminal of each plate 10 to move under and to locking engagement with the beveled extension 20 of the margin bars 18, so that each axial terminal of each plate 10 is rigidly secured or locked to the plate cylinder 12. Each shaft 22 has a lever 24 secured thereto, and this lever is operably engaged by mechanism of the type disclosed in Patent No. 2,050,950, to rock the shaft 22 and finger 23 to plate locking position and to securely hold them in locking position, but, inasmuch as the locking and actuating mechanism does not form a part of this invention the complete means for rocking and locking the shafts 22 have not been illustrated in the drawing of this application. By this arrangement, both axial edges of each plate are securely locked to the plate cylinder 12, and inasmuch as the beveled arcuate edges 11 of each plate are also secured to the cylinder by the conventional clamping means, all edges of the plate are held against outward movement to prevent the plate from being thrown from the cylinder by centrifugal force set up by the high cylinder speeds.

The modified form of the invention disclosed in Figure 4 is similar to the form disclosed in Figure 2, except the shoulders 17' are formed on lugs or bosses 16' instead of being formed by recessing the inner face of the plate. In securing a plate of the type disclosed in Figure 4 to the printing cylinder 12, the locking pawls or fingers 23 engage the shoulders 17' and force the beveled extensions 13 of the axial edges of the plate to locking engagement with the margin bars 18 in the manner which has been hereinbefore explained.

From the foregoing it is manifest that applicant has provided a simple stereotype printing plate capable of having its straight axial edges rigidly secured to the printing cylinder to thus aid in holding the plate against outward movement away from the cylinder. By locating the shoulders 17 or 17' immediately adjacent the beveled projections 13 of the plate 10, the clamping pawls or fingers 23 may operably engage these shoulders with relatively great stress to securely force the projections 13 to locking engagement with the overhanging beveled projections 20 of the plate cylinder margin bars 18 to thereby rigidly secure the straight axial edges of each plate to the plate cylinder without danger of buckling or bending the plate. Furthermore, by locating radial shoulders 17 or 17' immediately adjacent the projections 13 and rigidly engaging these shoulders by the fingers or pawls 23, each plate 10 is securely held against tangential movement away from the margin bar 18, and, also against radial movement away from the cylinder.

It will be understood that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiments be considered in all respect as illustrative and not restrictive and it will be further understood that each and every novel feature and combination present in or possessed by the method and mechanism herein disclosed forms a part of the invention included in this specification.

Having thus described my invention, what I claim as new and useful is:

1. As an article of manufacture, a semi-cylindrical printing plate having reduced projections extending circumferentially from the straight edges thereof, and shoulders formed on the inner

face of the printing plate immediately adjacent the projections.

2. As an article of manufacture, a semi-cylindrical plate having the entire outer portions of its straight edges removed to define reduced projections extending circumferentially from the straight edges, the projections forming continuations of the inner peripheral surface of the semi-cylindrical printing plate, and shoulders formed on the inner face of the printing plate immediately adjacent the said projections.

3. As an article of manufacture, a semi-cylindrical printing plate having reduced projections extending from and coextensive with the straight edges thereof, the projections forming continuations of the inner peripheral surface of the semi-cylindrical printing plate, and recesses formed in the inner face of the printing plate to define shoulders positioned immediately adjacent the said projections.

4. A cast semi-cylindrical printing plate having reduced projections extending circumferentially from and coextensive with the straight edges thereof, and shoulders formed at the inner face of the printing plate immediately adjacent the projections.

5. A cast semi-cylindrical printing plate having reduced projections extending circumferentially from and coextensive with the straight edges thereof, recesses formed in the inner face of the plate to form shoulders located immediately adjacent the projections.

6. A cast semi-cylindrical printing plate having reduced projections extending circumferen-

tially from and coextensive with the straight edges thereof, lugs formed on the inner face of the plate to form shoulders located immediately adjacent the projections.

7. A semi-cylindrical stereotype printing plate having reduced beveled projections extending circumferentially from the straight edges thereof, and radial shoulders formed at the inner face of the plate immediately adjacent the beveled projections.

8. A semi-cylindrical stereotype printing plate having the outer portions of its straight edges removed to form reduced circumferentially-extending projections which form continuations of the inner face of the plate, and radial shoulders formed at the inner face of the plate immediately adjacent the beveled projections.

9. A semi-cylindrical stereotype printing plate having the entire outer portions of its straight edges removed to form reduced beveled projections on the straight edges of the plate, and spaced radial shoulders formed at the inner face of the plate immediately adjacent the beveled projections.

10. A semi-cylindrical stereotype printing plate having the entire outer portions of its straight edges removed to form reduced projections on the straight edges of the plate coextensive therewith and each projection being beveled outwardly from the straight edge of the plate to the outer portion of the projection, and shoulders formed at the inner face of the plate immediately adjacent the projections.

WILLIAM F. HUCK.