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B. J. J. GOULDING

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APPARATUS FOR CASTING CURVED STEREOTYPE PRINTING PLATES

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Fig. 1.

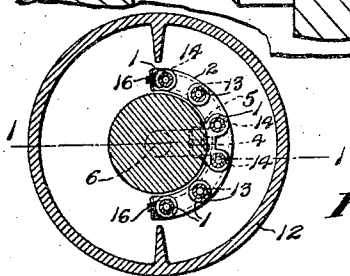
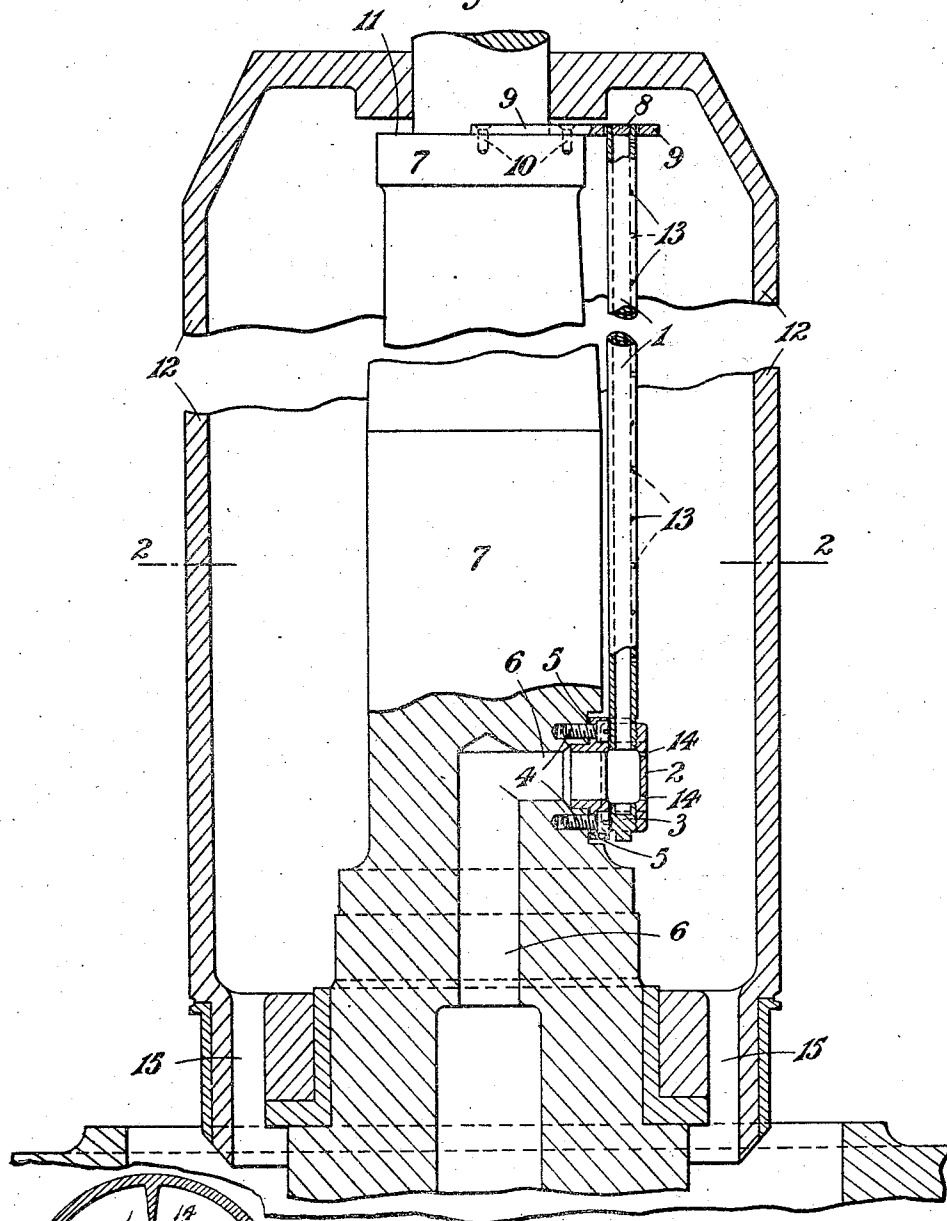


Fig. 2.

Inventor.
B. J. J. Goulding
By Rogers, Kennedy, Campbell
Attys.

UNITED STATES PATENT OFFICE.

BENJAMIN JOSEPH JOHN GOULDING, OF ALTRINCHAM, ENGLAND, ASSIGNOR TO
LINOTYPE AND MACHINERY LIMITED, OF LONDON, ENGLAND, A BRITISH LIM-
ITED LIABILITY COMPANY.

APPARATUS FOR CASTING CURVED STEREOTYPE PRINTING PLATES.

Application filed May 10, 1924. Serial No. 712,240.

To all whom it may concern:

Be it known that I, BENJAMIN JOSEPH JOHN GOULDING, a British subject and resident of Linotype and Machinery Works, Altrincham, in the county of Chester, Eng-
land, have invented new and useful Improve-
ments in or Relating to Apparatus for Cast-
ing Curved Stereotype Printing Plates, of
which the following is a specification.

This invention relates to apparatus for
casting curved stereotype printing plates and
more particularly to the means for cooling
such plates, and it has for its object to con-
struct such means so that, as compared with
existing arrangements they shall secure an
efficient cooling with a consumption of con-
siderably less water, and in considerably less
time.

The invention is particularly applicable
to machines wherein the plates are cast about
a vertical cylindrical hollow core in which
grooves are cut, the diameter at the bot-
tom of which grooves is approximately the
same as that of the printing press cylinder
on which the plates are to be used, and which
is rotatable about its axis so that plates can
be successively cast thereon on respectively
diametrically opposite sides.

Devices heretofore provided for the above
purpose have generally been of cylindrical
form, each having comprised an annular
chamber of comparatively large capacity,
the whole of which had to be filled with
water before the latter could be sprayed
through perforations in one side of the cy-
lindrical wall, on to the interior surface of
the core. The means according to the pres-
ent invention comprise a series of vertical
pipes of comparatively small diameter,
ranged in a semi-circle concentrically within
the hollow core and having their outwardly
directed services perforated so that jets
issuing therefrom will impinge on the half
of the interior surface of the core against
which the molten metal is poured for cast-
ing the plate.

The invention will now be described with
reference to the accompanying drawings in
which:—

Figure 1 is a view partly in elevation, and
partly in vertical section substantially on
the line 1—1 of Figure 2 of the pertinent
parts of an arrangement embodying the

present improvements, the constructional
form here represented as a convenient ex-
ample, being that hereinbefore particular-
ised, in which two curved plates are capable
of being cast on respectively opposite sides
of the same rotatable hollow core, and

Figure 2 is a horizontal section on line
2—2 of Figure 1.

The vertical pipes which are identified
in the drawings by the numeral 1, and which,
in the example illustrated, are six in num-
ber, are all tightly jointed at their lower
ends into a semi-circular hollow chamber
2, of small internal capacity. In this said
example the just mentioned jointing is ef-
fected by screwing the pipes 1 into the
crown or top of the chamber 2, as shown in
Figure 1 which also shows that the interior
of said pipes is in open communication with
that of the chamber 2, and that in the lower
side of the latter there is fitted a plug 3
aligned with the particular pipe 1 repre-
sented in that figure, it being understood
that there is a similar plug in alignment
with each other of the pipes 1; these plugs
are provided for enabling access to be had
to the interior of the chamber 2 and pipes
1, for cleaning or other purposes.

The chamber 2 is secured by screws 4, in
water-tight connection—the latter ensured
by a packing ring 5—to a passage 6 in the
central pillar 7, into which passage, water
under pressure is admitted subject to the
control of the operator or to automatic
control.

The pipes 1, at their upper ends, are
tightly closed by screwed plugs 8, and are
held in proper spaced relationship by a per-
forated bracket plate 9 which is rigidly se-
cured, as by screws 10 to the pillar 7, con-
veniently, as shown, to a shoulder 11 near
the top of the latter. The pillar 7, as or-
dinarily, is located centrally within the
hollow core 12, which latter is capable of
being intermittently turned about the pillar
so as to bring diametrically opposite parts
or halves of the core successively into cast-
ing position.

The pipes 1, are so disposed within the
hollow core 12, that when, after a plate has
been cast, water is supplied to them, this
water sprays through staggered holes 13 in
them or other holes 14 in the chamber 2, on

to only the half of the core on which the said newly-cast plate is located and then in course of setting. When this cast plate is sufficiently cool or set, the supply of cooling water is cut off and the casting box, as in existing practice, is opened and the core turned through a half rotation so as to carry this plate to the delivery position and bring the other half of the core 12, into casting position preparatory to the casting of the next plate.

The casting box is not shown in the drawings as it constitutes no part of the present invention and moreover it is so well known as to render its illustration unnecessary.

The waste water from the interior of the core 12 leaves the latter by way of the outlets 15 at the lower part of said core.

Besides the before described plugs 3, there are other plugs 16 fitted into respectively opposite ends of the chamber 2, which further facilitate the cleaning out of the said chamber and pipes 1.

By the foregoing means, by reason of the small capacity of the connected hollow chamber 2 and pipes 1, these devices become filled with water almost simultaneously with the opening of the controlling valve, and consequently the spray is delivered through the perforations 13, 14, on to the interior surface of the core 12 almost at the same instant. This represents a considerable economy in comparison with hitherto known arrangements both as regards consumption of water and time, for heretofore, after the opening of the controlling valve, the whole of the annular chamber had to be filled before the water jets could reach the surrounding wall of the core, and, moreover, after the valve has been closed, the whole contents of the chamber runs away to waste. Further than this, it is to be noted that immediately after the opening of the valve, the water commences to trickle out of the lower perforations whether of the hitherto used cylinder or the pipes 1 and chamber 2, and continues to so trickle until said cylinder or pipes are filled, and owing to the difference in the capacity of these two devices the cylinder takes longer to fill and consequently a greater loss or consumption of water results.

It is to be understood that the invention is applicable to apparatus for casting curved stereotype printing plates of other than the semi-cylindrical form of the before described example, for instance it can, with equally good results, be applied to apparatus to cast plates of circumferential extent varying from say a quarter cylinder to a practically complete cylinder, these variations involving merely corresponding reductions or increases in the number of the perforated pipes 1 and length of chambers 2.

Having described my invention, I declare that what I claim and desire to secure by Letters Patent is:—

1. In apparatus for casting curved stereotype plates, the combination with a hollow vertical core and a central pillar about which the core is rotatable in two stages, each a semi-rotation, for the casting of plates successively on diametrically opposite sides of the core, of a series of vertical pipes ranged in a semi-circle within the annular space between the core and pillar, the perforations being directed outwardly to deliver jets of cooling liquid supplied to the pipes on to approximately one half only of the interior surface of the hollow core during the interval between the stages of its rotation.

2. In apparatus for casting curved stereotype printing plates, the combination with a hollow vertical core and a central pillar about which the core is rotatable in two stages, each a semi-rotation, for the casting of plates successively on diametrically opposite sides of the core, of a series of vertical pipes located in the annular space intermediate the core and pillar and having outwardly directed perforations adapted to spray cooling liquid on to the inner surface of the core, and a chamber in open communication with the pipes and with a source of supply of cooling liquid.

3. In apparatus for casting curved stereotype printing plates, the combination with a hollow vertical core and a central pillar about which the core is rotatable in two stages, each a semi-rotation, for the casting of plates successively on diametrically opposite sides of the core, of a series of vertical pipes located in the annular space intermediate the core and pillar and having outwardly directed perforations adapted to spray cooling liquid on to the inner surface of the core, and a chamber in open communication with the pipes and with a source of supply of cooling liquid, said chamber having its outer wall perforated to spray cooling liquid on to the inner surface of the core, and means securing the chamber to the central pillar.

4. In apparatus for casting curved stereotype printing plates, the combination with a hollow vertical core and a central pillar about which the core is rotatable in two stages, each a semi-rotation, for the casting of plates successively on diametrically opposite sides of the core, of a series of vertical pipes located in the annular space intermediate the core and pillar and having outwardly directed perforations adapted to spray cooling liquid on to the inner surface of the core, a semi-circular chamber to which the pipes are secured so as to be in open communication with its interior, a passage in the central pillar connected to a source

of supply of cooling liquid, and means securing the chamber in water-tight connection to the pillar with its interior in open communication with the passage.

5 5. In apparatus for casting curved stereo-
type printing plates, the combination with a
hollow vertical core and a central pillar
about which the core is rotatable in two
stages, each a semi-rotation, for the casting
10 of plates successively on diametrically oppo-
site sides of the core, of a series of vertical
pipes located in the annular space interme-
diate the core and pillar and having out-
wardly directed perforations adapted to
15 spray cooling liquid on to the inner surface

of the core, a semi-circular chamber to which
the pipes are secured so as to be in open
communication with its interior, a passage in
the central pillar connected to a source of
supply of cooling liquid, means securing the 20
chamber in water-tight connection to the
pillar with its interior in open communica-
tion with the passage and a perforated
bracket plate fast to the central pillar
adapted to hold the pipes in proper spaced 25
relationship.

In testimony whereof I have affixed my
signature hereto.

BENJAMIN JOSEPH JOHN GOULDING.