

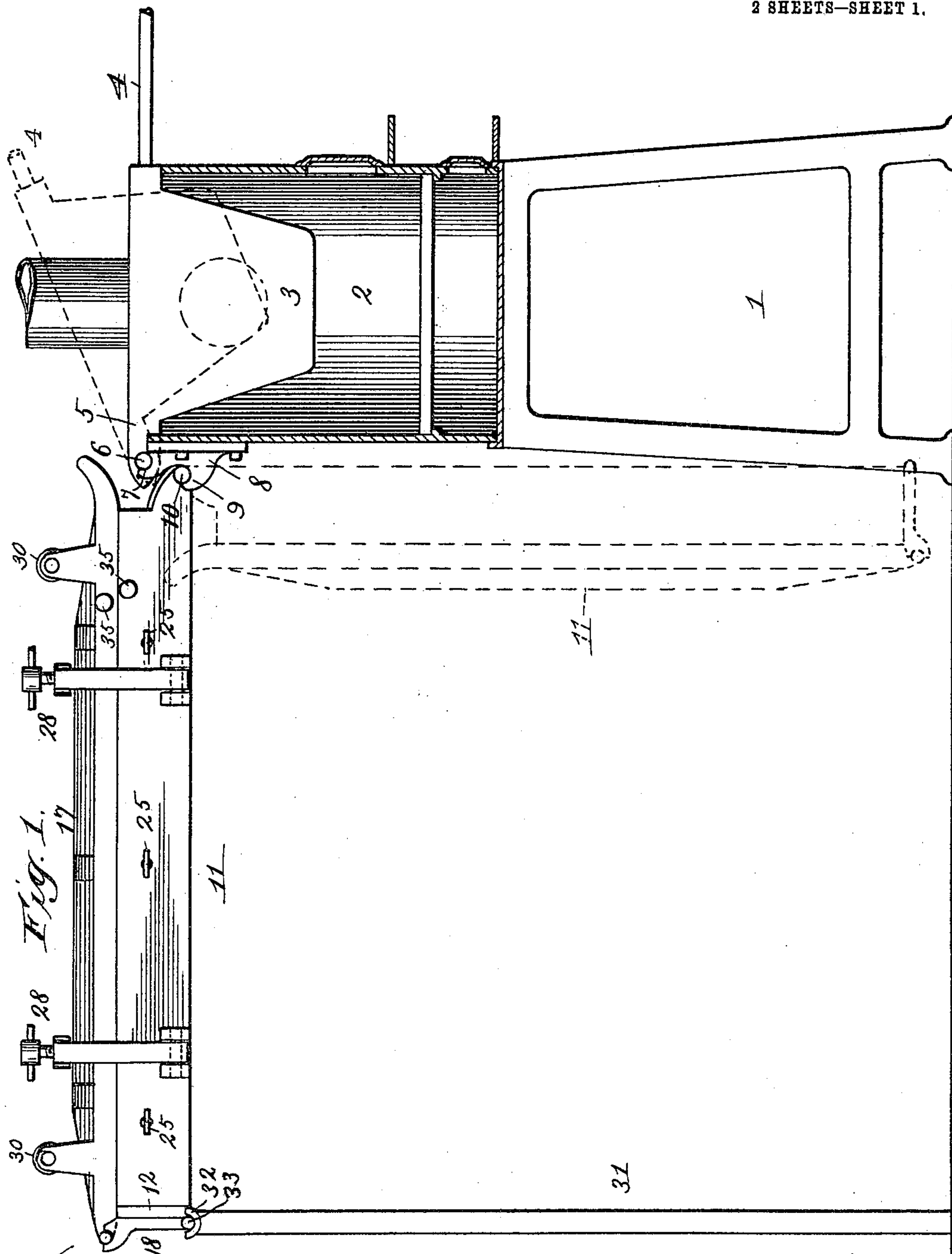
No. 808,070.

PATENTED DEC. 26, 1905.

J. E. CAPS & G. H. VINING.
STEREOTYPE PLATE CASTING APPARATUS.

APPLICATION FILED NOV. 9, 1903.

2 SHEETS—SHEET 1.



Witnesses:

A. M. Arthur

P. A. Hickey

Inventors:

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By F. G. Fischer

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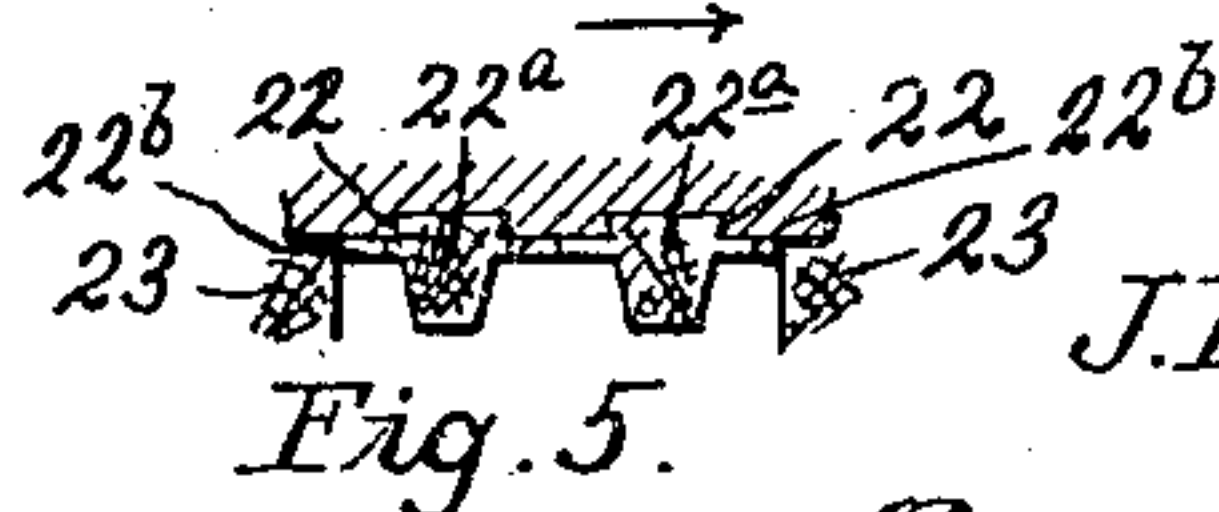
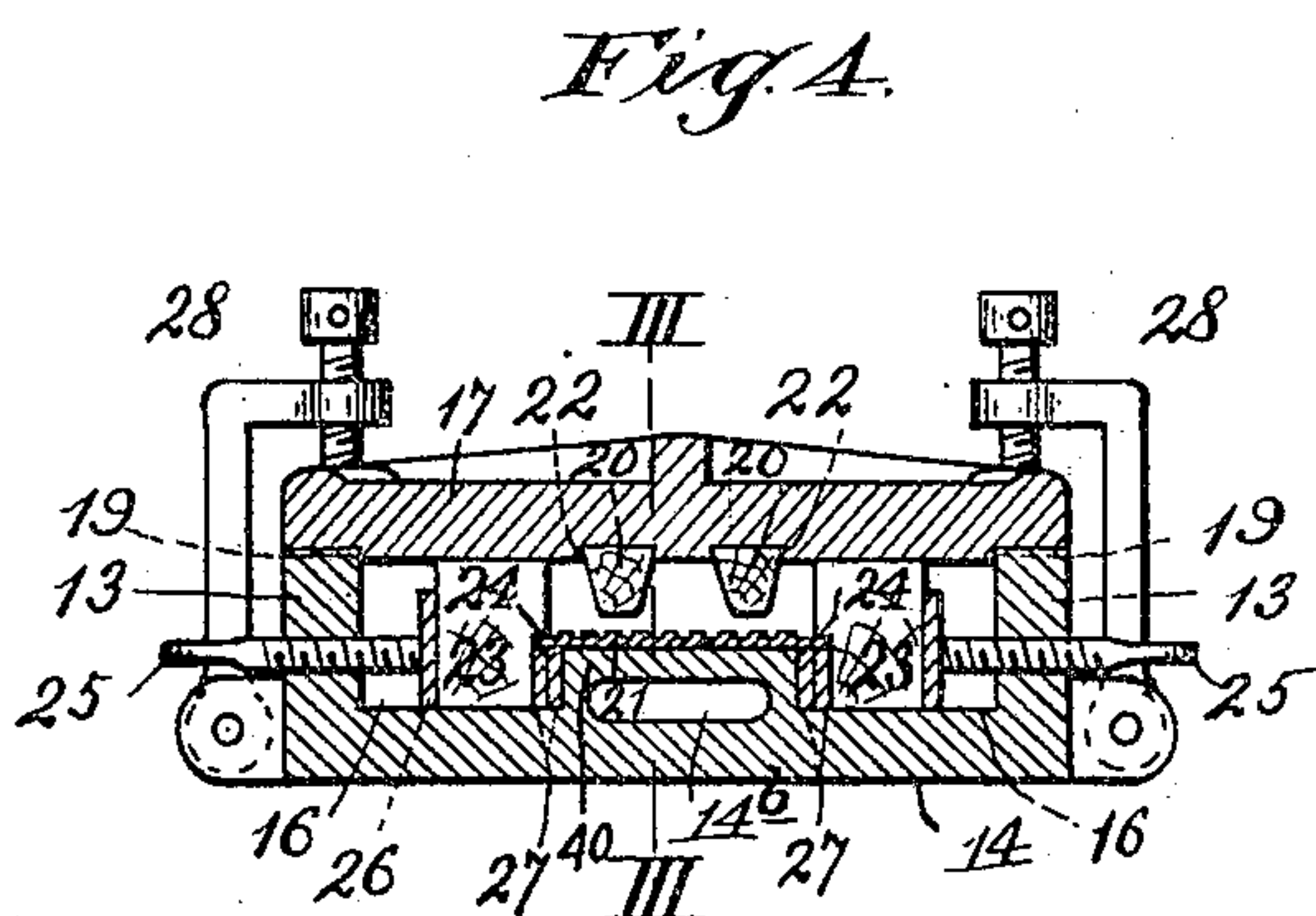
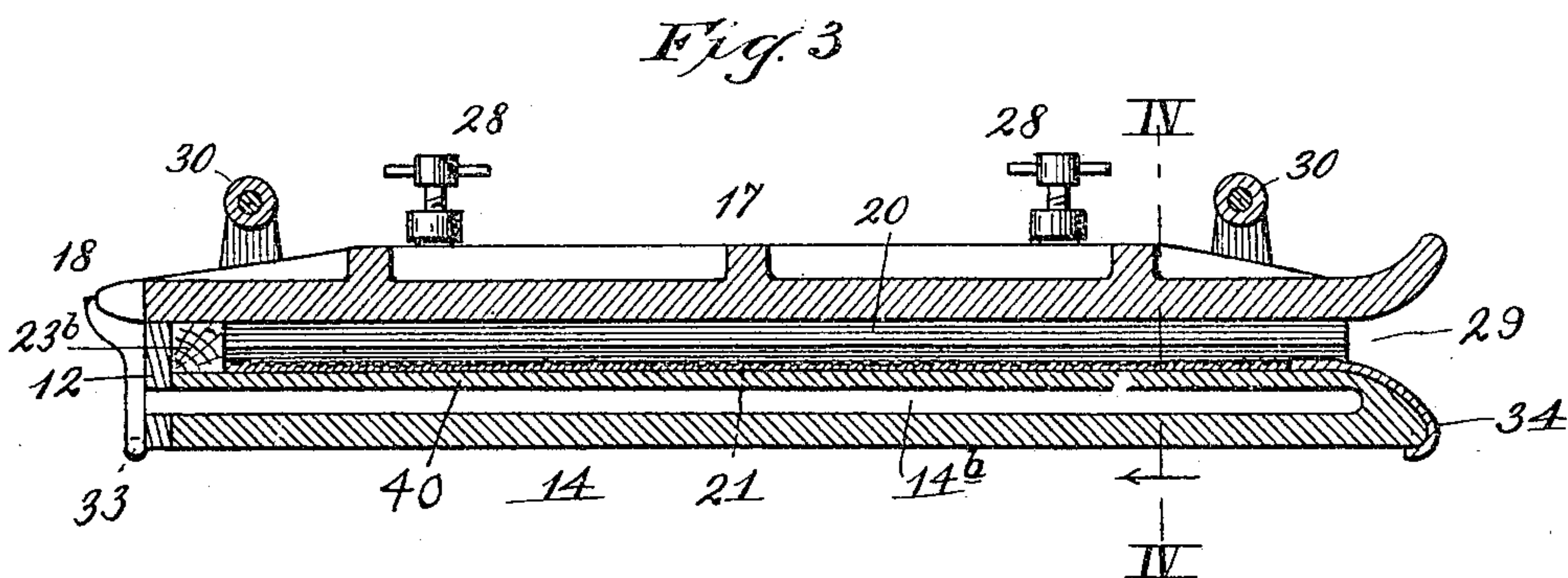
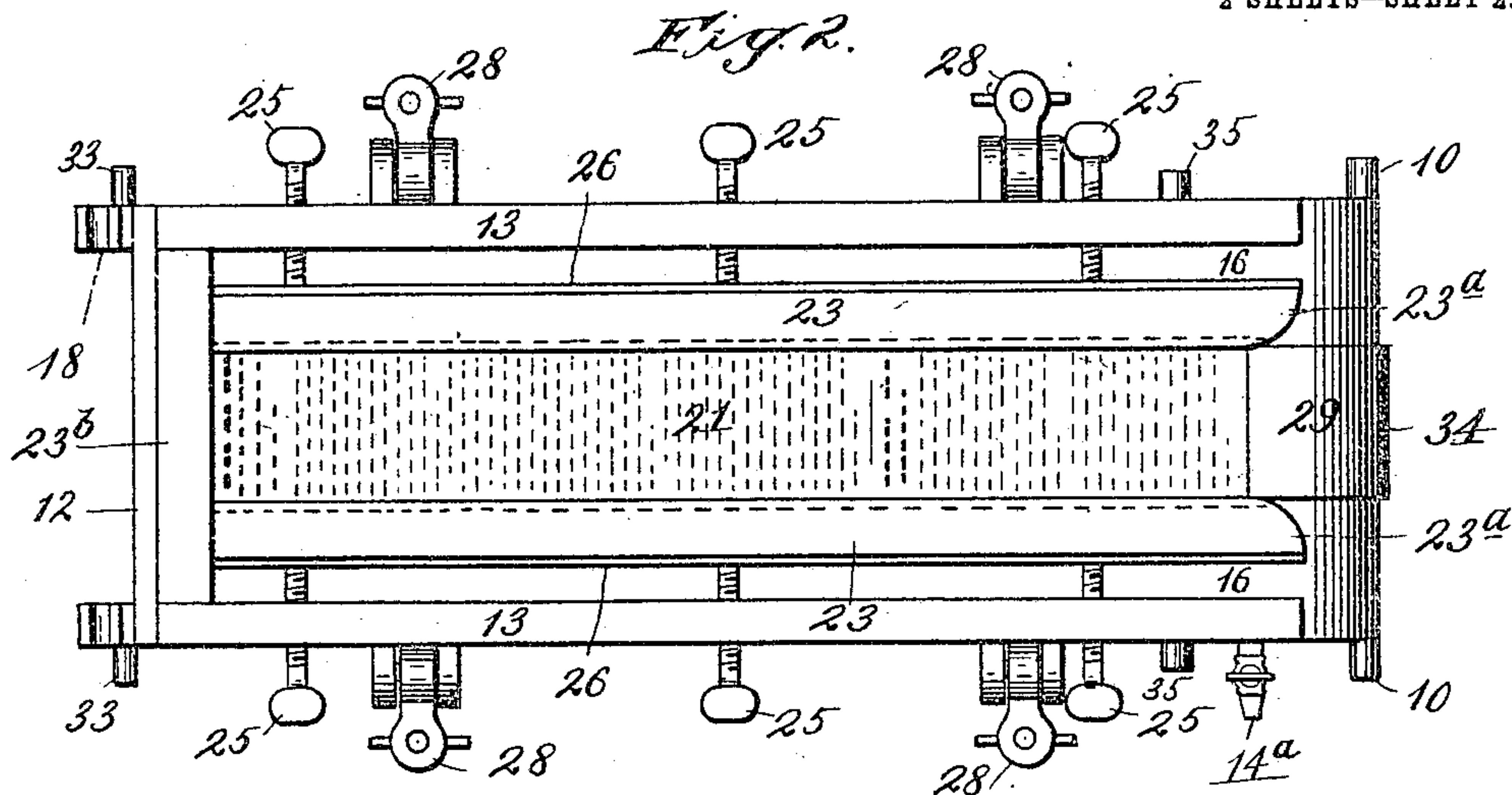
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A. M. Arthur
P. H. Hickey

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Atty.

UNITED STATES PATENT OFFICE.

JOHN E. CAPS, OF KANSAS CITY, MISSOURI, AND GEORGE H. VINING, OF VININGTON, ARKANSAS, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO VINING'S NEWS BUREAU, OF KANSAS CITY, MISSOURI, A CORPORATION OF MISSOURI.

STEREOTYPE-PLATE-CASTING APPARATUS.

No. 808,070.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed November 9, 1903. Serial No. 180,491.

To all whom it may concern:

Be it known that we, JOHN E. CAPS, residing at Kansas City, in the county of Jackson and State of Missouri, and GEORGE H. VINING, residing at Vinington, in the county of Boone and State of Arkansas, citizens of the United States, have invented certain new and useful Improvements in Stereotype - Plate - Casting Apparatus, of which the following is a specification.

Our invention relates to an apparatus for casting type-high stereotype printing-plates from a matrix; and one of our objects is to provide a casting apparatus wherein plates may be quickly cast ready for use without undergoing the usual trimming operation, except that of sawing off the end where the metal is poured.

A further object of the invention is to provide means for casting plates of different width within the same casting-box.

The above objects are attained by arranging a support for the casting-box adjacent to the crucible, so the molten metal can be poured from the crucible without carrying it to the casting-box by lining the latter with adjustable non-conducting material which will not repel the molten metal while being poured into the casting-box, and thus produce an imperfect cast, and by providing removable strips and adjustable gages within the box.

In order that the invention may be fully understood, reference will now be made to the accompanying drawings, in which—

Figure 1 represents a side elevation, partly in section, of the apparatus. Fig. 2 is a plan view of a casting-box forming part of the invention with its lid removed, showing how the matrix is held in position. Fig. 3 is a longitudinal section of the casting-box, taken on line III III of Fig. 4. Fig. 4 is a transverse section of the same, taken on line IV IV of Fig. 3. Fig. 5 is a detail cross-section of a modified form of core-strip employed to prevent the molten metal from contacting with any portion of the casting-box lid.

In carrying out the invention we employ a stand 1 for the support of a furnace 2, carrying a crucible 3 at its upper end, in which the stereotype metal is melted. Said crucible is provided with a handle 4 at its upper end and an oppositely-disposed spout 5, from which

the metal is poured into the casting-box. Spout 5 is provided with a pair of trunnions 6, journaled in the upper bearings 7 of a bracket 8, secured to the upper portion of the furnace for the support of the crucible when the latter is in a tilted position. (See dotted lines, Fig. 1.) Bracket 8 is also provided with a lower set of bearings 9 for the reception of trunnions 10, formed integral with the gate end of a casting-box 11, in which the stereotype-plate is formed. Casting-box 11 comprises an end wall 12, side walls 13, and a bottom 14. Elevated above the bottom portion is a central longitudinal table 40, which is hollow, being provided with a longitudinal channel 14^b, having suitable water connection 14^a.

17 designates a lid for closing the upper portion of the casting-box, which is detachably secured to the rear end of the latter by hinges 18. The under side of the lid is provided with shoulders 19, which engage the upper portion of the walls of the box to insure bringing core-strips 20 to their proper position with relation to matrix 21 when the lid is closed. Core-strips 20 are detachably secured in longitudinal dovetail grooves 22 in the under side of the lid, so they may be removed and core-strips of different form substituted when desired. The core-strips form longitudinal recesses in the plate to relieve the latter of unnecessary metal and weight.

Matrix 21 is reliably held in position upon the elevated table by longitudinal gages 23, having shoulders 24 for engagement with the upper longitudinal edges of the matrix. The upper edges of gages 23 are above the surface of the table and, as illustrated in Fig. 4, may be in contact with the inner surface of the cover. Said gages are rendered adjustable for the accommodation of matrices of different width by set-screws 25, projecting into the casting-box through side walls 13 against metallic strips 26, interposed between said adjusting-screws and the gages for the purpose of reinforcing the latter and preventing their warping out of shape from contact with the molten metal.

The table 40 is only equal in width to the most narrow column. Consequently when a wide-column matrix is placed in position the edges of the latter will overlap the sides of said elevated portion and leave intervening

spaces between the latter and gages 23. These spaces are filled with one or more reglets 27 for the support of said overlapping edges and to prevent the matrix from being compressed by the inward adjustment of gages 23. The upper edges of these reglets are flush with the surface of the table and when in place form lateral extensions of the casting-surface. The ends of gages 23 are rounded, as at 23^a, to guide the molten metal to the matrix, and their opposite terminals abut against a transverse gage 23^b, which rests against the adjacent end wall of the casting-box.

28 designates pivotal clamps secured to the side walls of the casting-box for the purpose of rigidly securing lid 17 in position thereon preparatory to pouring the molten metal therein, and in order to prevent waste of metal during the pouring operation the gate end 29 of the box and lid are flared outwardly to provide a funnel-shape entrance for the metal.

Lid 17 is provided near its opposite ends with a pair of handles 30, so that after it has been securely clamped upon the casting-box the latter may be carried to the crucible, where it is supported by brackets 8 and a standard 31, having a forked upper end 32 for the reception of lugs 33, formed integral with the rear portion of the casting-box. This standard is removed preparatory to pouring the metal to permit the casting-box to swing to the vertical position. (Shown by dotted lines, Fig. 1.)

34 is a removable tongue which conforms to the internally-flared end of bottom 14 and has its inner end in contact with the end of the matrix and its outer end recurved, so as to clasp the bottom of the box. This tongue is preferably of equal thickness with the matrix, and lying as it does at the flaring end of the channel formed by table 40 and gages 23 it prevents the metal from flowing around the end of the matrix, which would make it difficult to remove the plate after the latter is solidified.

35 35 designate lugs arranged in pairs on the opposite sides of the box and lid, with an intervening space for the introduction of a bar or lever for prying the lid from the box should the core-strips 20 adhere to the plate.

22^a designates a modified form of core-strip provided with flanges 22^b for completely covering the under side of the lid between the gages 23, so the molten metal will not contact with any portion of said lid.

Core-strips 20 and gages 23 are preferably constructed of chemically-treated wood or other non-conducting material, so a full plate may be cast without previously heating the casting-box to a high temperature. Consequently a saving in fuel and time is effected.

In operation the casting-box is supported in a horizontal position by standard 31 and bracket 8, with its gate end adjacent to the

crucible-spout, while the matrix is being placed in position beneath the shoulders of gages 23. After the completion of the latter operation the lid is rigidly secured upon the box by clamps 28, and the box is permitted to swing to the dotted position shown in Fig. 1. The molten metal is then poured from the crucible into the casting-box until it appears at the gate end of the latter, when the crucible is lowered and the casting-box removed to a nearby table, where the lid is removed for use on another casting-box, it being our intention when making a number of casts to employ but one lid for two or more casting-boxes—that is, the lid is removed from the first box while the latter and its plate are cooling and placed upon the second box ready for a cast. The cooling process is greatly facilitated by attaching a hose to the end of pipe 14^a, which conducts the cold water to a longitudinal channel 14^b, extending through the central portion of bottom 14, and by removing the non-conducting gages.

We consider table 40 a very important feature, inasmuch as it permits the matrix to be held reliably by gages 23 without bending, the table and adjusting-strips 27 taking the direct pressure from the set-screws 25. Also we attach considerable importance to the means for varying the width of the surface of the table and means for cooling the box in combination with the non-conducting gages 23 and core-strips 20.

By lining the casting-box with non-conducting material the molten metal is prevented from coming into contact with the cool metal sides of the box. Consequently a full plate is produced which does not require trimming, except as above mentioned, to make it fit properly beside a similar plate when set up ready for printing.

While we have shown the casting-box only wide enough for the production of a single-column plate, it is obvious that it may be made to cast a plate of any desired width. We also reserve the right to make such changes as properly fall within the scope of the appended claims.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In an apparatus of the character described, a casting-box having a table elevated above the bottom thereof; combined with means on one side of said table for varying the width of its surface.

2. In an apparatus of the character described, a casting-box having a table elevated above the bottom thereof; combined with means on either side of said table for varying the width of its surface.

3. In an apparatus of the character described, a casting-box having a table elevated above the bottom thereof; combined with removable strips on either side of said table,

and strips having their upper edges flush with the surface of the table.

4. In an apparatus of the character described, a casting-box having a table elevated 5 above the bottom thereof; combined with an adjustable gage on one side of said table, said gage having its upper edge above the surface of the table.

5. In an apparatus of the character described, a casting-box having a table elevated 0 above the bottom thereof; and an adjustable gage on one side of said table, said gage having its upper edge above the surface of the table; combined with means located between 5 the table and gage for varying the width of the surface of the table.

6. In an apparatus of the character described, a casting-box having a table elevated 0 above the bottom thereof, removable strips on either side of said table having their upper edges flush with the surface thereof; and adjustable gages outside said strips and having their upper edges above the surface of the table.

7. In an apparatus of the character described, a casting-box having side walls and a central longitudinal table elevated above the 5 bottom of the box; combined with gages lo-

cated between the table and side walls, and means for adjusting said gages. 30

8. In an apparatus of the character described, a casting-box having a hollow table elevated above the bottom of the box, water connections with the interior of the table, non-conducting gages on either side of said table, 35 and a cover having non-conducting material on the under face thereof.

9. The combination of a furnace, a bracket secured to said furnace provided with upper and lower bearings, a ladle resting in the upper 40 portion of said furnace provided with a spout at one side and a handle at its opposite side, trunnions formed integral with said spout journaled in the upper bearings of the bracket, a casting-box having an open end adjacent to 45 the spout, and trunnions integral with the open end of said casting-box journaled in the lower bearings of the bracket.

In testimony whereof we affix our signatures in the presence of two witnesses.

JOHN E. CAPS.

GEORGE H. VINING.

Witnesses:

F. G. FISCHER,

T. A. HICKEY.