H. E. SMYTHE.

SOAKING PIT.

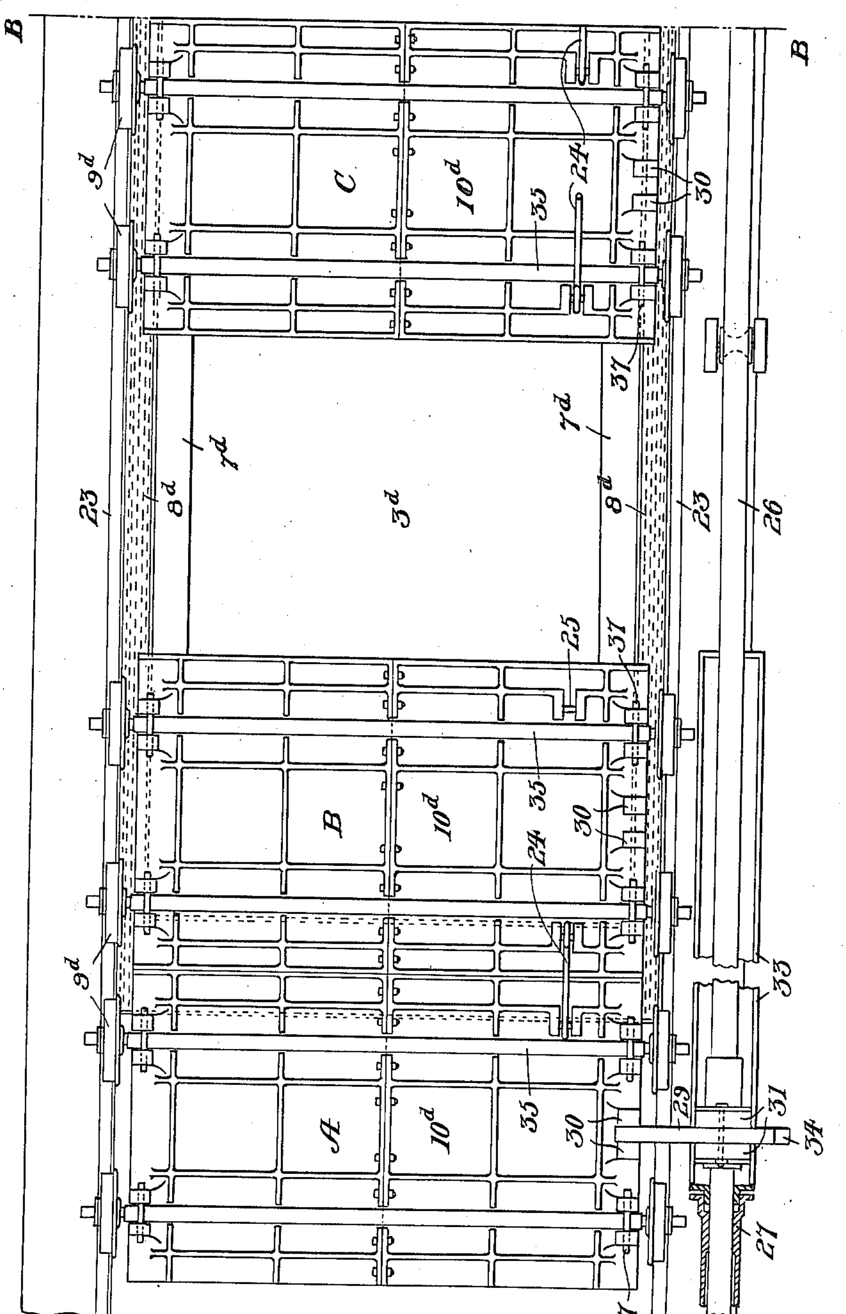
APPLICATION FILED FEB. 25, 1910.

1,044,093.

Patented Nov. 12, 1912.

4 SHEETS—SHEET 1.

FIG. 1.



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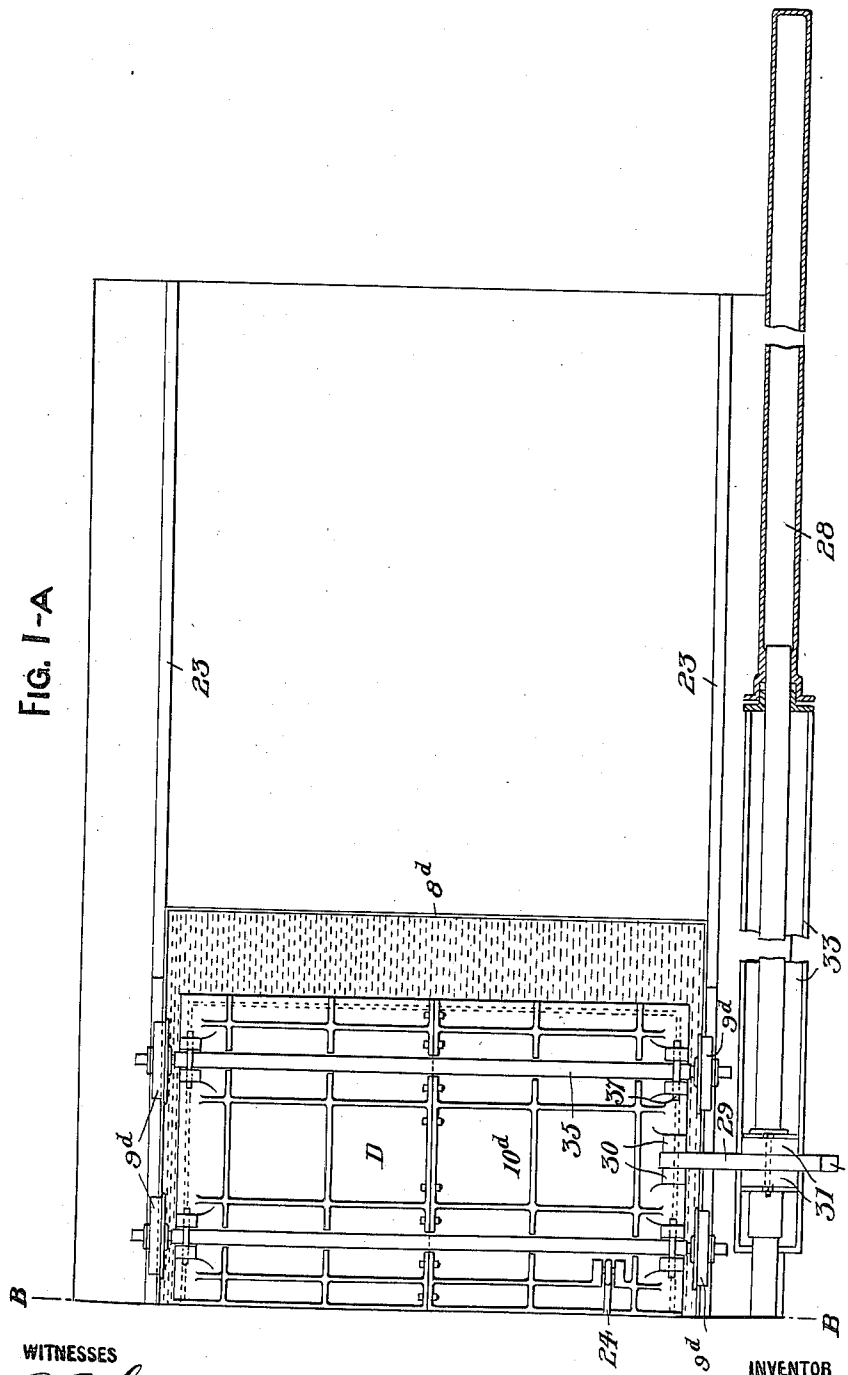
4 SHEETS—SHEET 2.

FIG. 1-A



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4 SHEETS—SHEET 3.

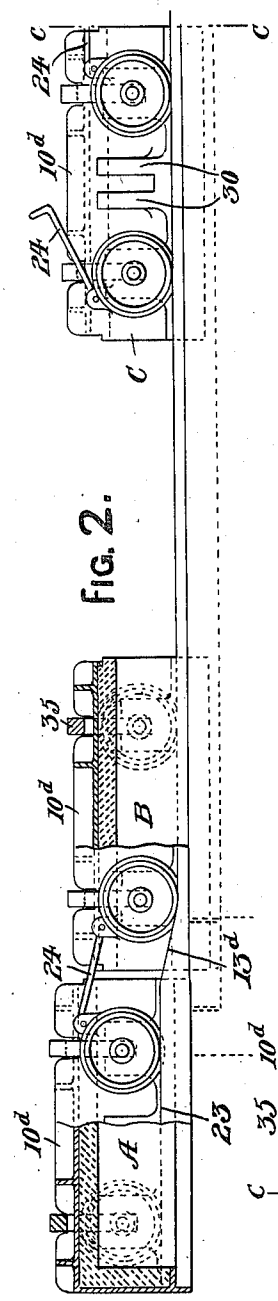

FIG. 2.

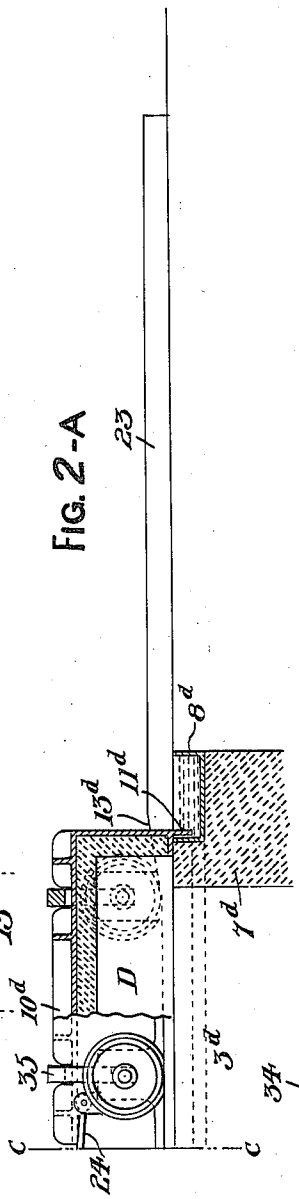

FIG. 2-A

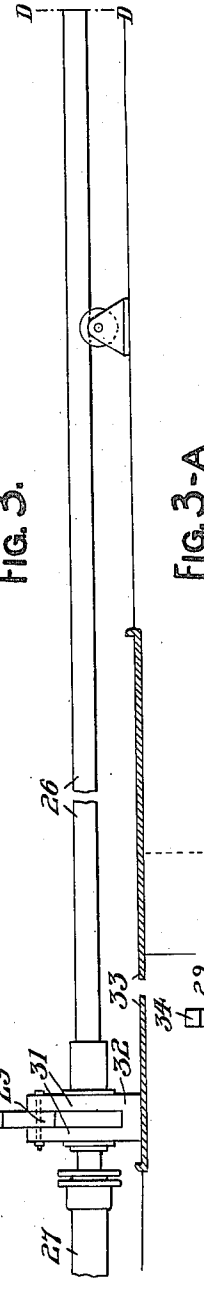

FIG. 3.

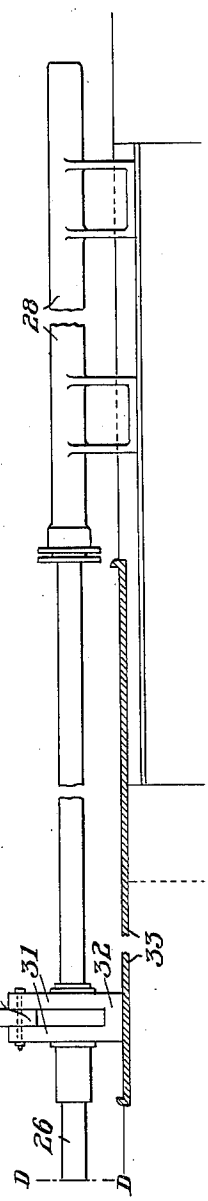

FIG. 3-A

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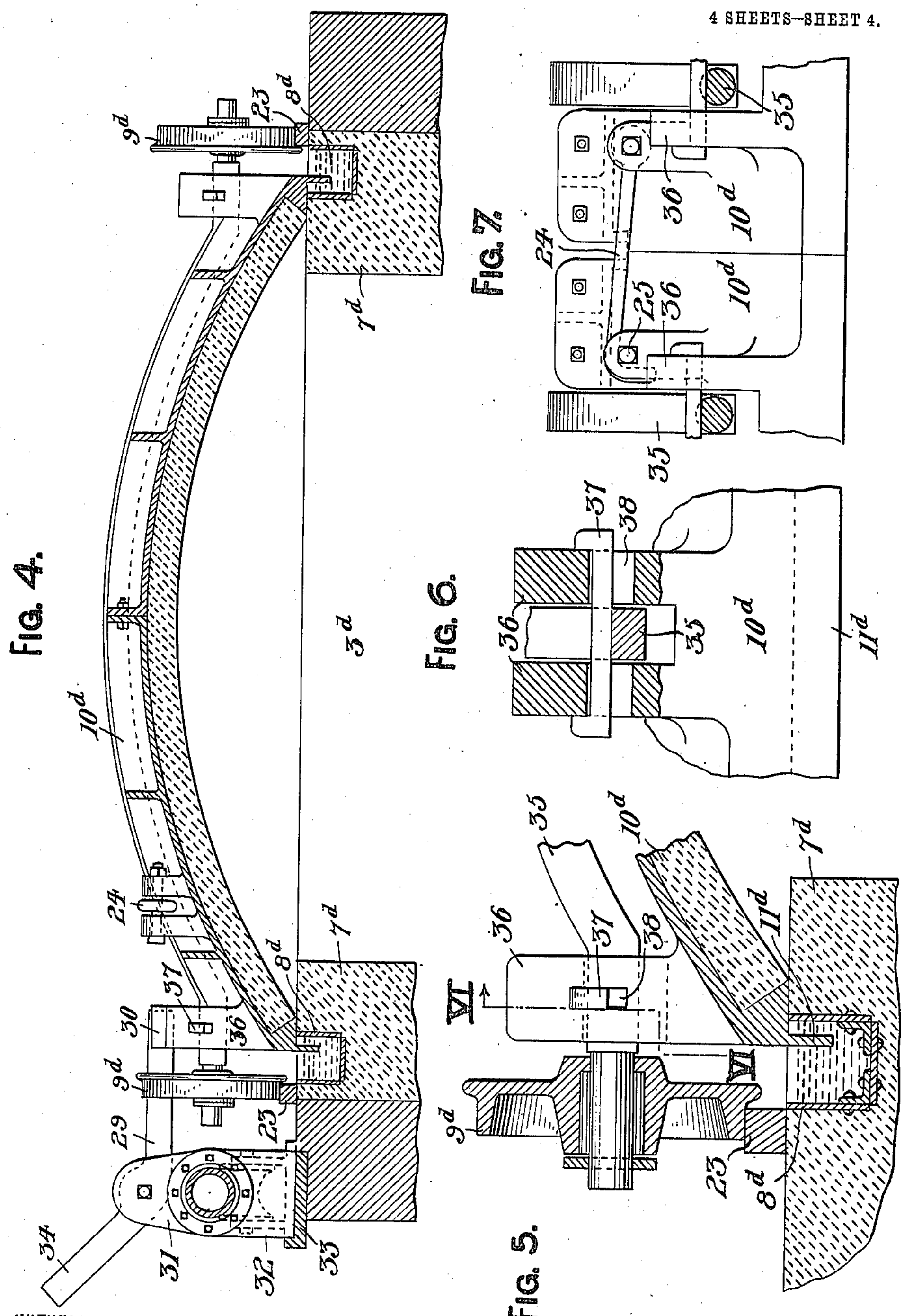
4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

HORACE E. SMYTHE, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO THE S. R. SMYTHE COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF WEST VIRGINIA.

SOAKING-PIT.

1,044,093. Specification of Letters Patent. Patented Nov. 12, 1912.

Application filed February 25, 1910. Serial No. 545,802.

To all whom it may concern:

Be it known that I, HORACE E. SMYTHE, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Soaking-Pits, of which the following is a specification.

My invention has particular reference to the improvements in the tops of soaking-pits, but it may be applied to furnace tops for various uses.

The object of my invention is to provide a soaking-pit top with means which will prevent its destruction by the intense heat within.

In the common soaking-pit and in furnaces of like construction or nature, the tops are provided with no special means for preventing the heat from rapidly burning out the covers and the walls adjacent thereto. In the preferred form of my invention, I place on the top of the furnace wall a metal channel which contains water, and I place over the furnace-mouth a metal cover lined with refractory material and provided with flanges in the water in the said channel.

Referring to the accompanying drawings, Figures 1 and 1^A, when matched on the lines B—B, are a plan, partly in section, showing a soaking-pit provided with my invention. Figs. 2 and 2^A are a longitudinal section, partly in elevation, of Figs. 1 and 1^A. Figs. 3 and 3^A are a side elevation of the cover operating mechanism employed with Figs. 1 and 1^A. Fig. 4 is a cross-section of Fig. 1; Fig. 5, a section of a portion of the cover and furnace top; Fig. 6, a section on the line 6—6, Fig. 5; and Fig. 7, a section of parts of two cover sections connected together, the section being taken between the covers and their wheels on one side.

On the drawings, 3^d represents the mouth of a soaking-pit or other furnace having the side walls 7^d, in the top of which the channels 8^d are located for the purpose of containing water for cooling the said walls. The channels are not placed next to the pit or furnace chamber, but are separated as far as possible therefrom by the material of the furnace walls, so that the heat of the furnace cannot engage the channel and cause rapid evaporation of the water therein. The cover sections 10^d are provided with the wheels 9^d which run on the rails 23.

11^d are depending flanges at the ends of all the cover sections and at the outer sides of the terminal sections; these flanges extend into the water in the channel 8^d to seal the cover to the furnace top. When the pit is entirely covered the flanges of the terminal cover sections will project into the channel 8^d. 1^A and 2^A show a terminal flange in the channel. When the flange 11^d lies near the inner edge of the channel 8^d (Fig. 2^A), each of the outer wheels of the terminal cover sections stand at the base of the incline 13^d of the rails 23, each incline sloping upwardly and outwardly to such an extent as will cause the end flange 11^d to rise above the outer flange of the channel 8^d when the terminal cover section is moved from its position over the pit to that shown on Fig. 2. From the inclines 13^d the rails extend outwardly to a sufficient distance to permit the cover-sections to uncover the pit entirely.

The cover sections 10^d are provided with the hooks 24 or other devices by which the adjacent sections may be locked together and moved as a unit as shown on Fig. 2. The hook 24 on one car engages over the pin 25 on the adjacent car, as best shown on Fig. 7.

On Figs. 1 to 1^A, I have shown four cover sections, which for convenience, I have marked A, B, C, and D, respectively. At one side of the cover sections I place the plunger 26 having its ends in the fluid pressure cylinders 27 and 28 which actuate the plunger in one direction or the other as desired. The plunger carries near each end a pivoted latch 29 which may be swung so as to have one end lie between the lugs 30 in any of the cover sections; each latch being supported between the standards 31 on the block 32, slidable on the guide 33. The latches 29 are operated by the handles 34.

Supposing it is desired to charge or draw ingots from the pit below the cover section A. The plunger 26 is actuated so as to bring the left hand latch 29 opposite the lugs 30 on the section A. The latch is then swung over with its end between the said lugs 30. The hook 24 on the section B is unhooked from the section A. The plunger is then operated to move the section A to the left, approximately to the position

shown on Fig. 2, leaving the left-hand end of the pit uncovered for drawing, charging, or other purpose. When it is desired to return the cover to its normal position, the plunger 26 is actuated to do this. The hook 24 on the section B may now be engaged with the section A, and the plunger actuated to draw both cars to the left. The section B may be left, as shown on Fig. 2 so as to cover the part of the pit normally covered by the section A. The pit section between the cover sections B and C is now open and may be drawn and charged, whereupon the sections A and B are returned to their normal positions. The sections C and D may be moved by the latch 29 at the right-hand end of the plunger in the same manner as the sections A and B are moved. If it is desired to do so, the sections A and B may be wholly removed from over the pit by continuing their joint motion to the left as already described. The sections C and D may similarly be wholly withdrawn to the right.

The axles 35 of the cover have their ends between the lugs 36 at the sides of the covers 10^d. A key 37 passed through the lugs 36 and over each axle 35 provides means whereby the cover sections are suspended on the axles as the cover sections ride up the inclines 13^d and onto the elevated rails 23, in order to lift the flanges 11^d above the channels 8^d, in a manner fully explained. As shown on Figs. 5 and 6, when the cover is seated on the top of the furnace, the keys 37, which have movement in the vertical slots 38, do not quite engage the top of the said slots, which insures that the cover sections will rest on the furnace tops, as they can not remain suspended on the keys 37.

I claim—

1. In a furnace-top having an opening therein, a plurality of movable cover sections arranged over the opening, a device having travel along the end of the cover sections, and means on said device and the cover sections for connecting the same, whereby any selected cover section may be moved to cover or uncover a portion of the furnace chamber.

2. In a furnace-top having an opening therein, a plurality of movable cover sections arranged over the opening, a device arranged to travel along the end of the cover sections, latching means for connecting the device and any selected cover section, and means adapted to connect the selected cover section to an adjacent cover section.

3. In a furnace top having an opening therein, a movable cover adapted to be seated on the furnace wall and over the opening, wheels on the cover, an inclined track adjacent to the wheels to cause the cover to rise as it moves from over the opening, and means permitting the axles of the wheels to move downwardly after the cover is seated on the furnace.

Signed at Pittsburgh, Pa., this 21st day of February, 1910.

HORACE E. SMYTHE.

Witnesses:
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MARY A. BARTH.