No. 703,322. Patented June 24, 1902.

F. H. TREAT.

COVER MECHANISM FOR PIT FURNACES.

(Application filed Nov. 12, 1901.)

(No Model.)

Fig. 1.

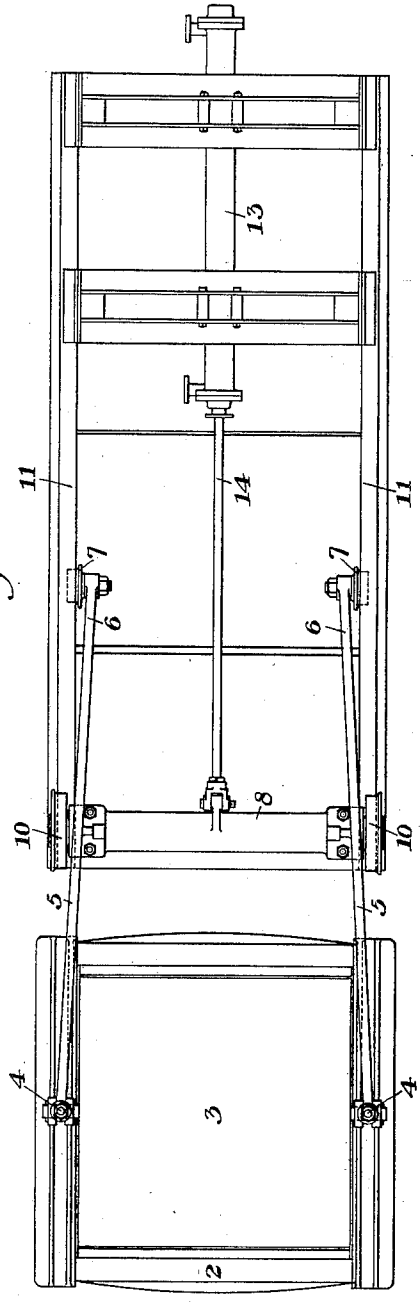
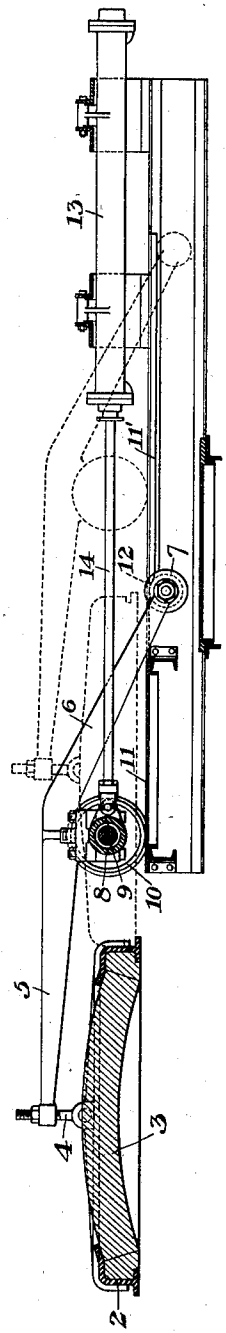


Fig. 2.



WITNESSES

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FRANCIS H. TREAT, OF PITTSBURG, PENNSYLVANIA.

COVER MECHANISM FOR PIT-FURNACES.

SPECIFICATION forming part of Letters Patent No. 703,322, dated June 24, 1902.

Application filed November 12, 1901. Serial No. 81,963. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. TREAT, of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful Cover Mechanism for Pit-Furnaces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view showing a pit-cover with operating mechanism constructed in accordance with my invention, and Fig. 2 is a sectional side elevation of the same.

My invention relates to the operating of covers for pit-furnaces, such as soaking-pits for ingots, &c.; and its object is to provide mechanism for automatically raising the door before removing it and for lowering it as it comes into place over the furnace.

To that end it consists in supporting the cover upon one or more lever-arms which are acted upon by a cam device as the door is moved toward and from the furnace to give it the desired vertical movements.

It further consists in certain constructions hereinafter described and claimed.

In the drawings I show a soaking-pit cover having the usual metallic rim portions 2 and refractory center 3, this door being supported by eyebolts 4, adjustably secured to the front arms 5 of levers whose rear arms 6 are bent inwardly and downwardly and provided with rollers 7. The levers are intermediately bolted or otherwise secured to a tubular support 8, mounted in suitable bearings upon a shaft 9, having end wheels 10 10. The wheels 10 travel upon suitable track-rails 11, while the rollers 7 on the levers travel upon the lower face portions 11′ of these rails. The track-faces 11′ are provided with curved front portions 12, placed so that the rollers pass over them as the cover reaches its position over the furnace.

The wheeled support may be reciprocated by any desirable mechanism, and I have shown for this purpose a double-acting hydraulic cylinder 13, whose piston-rod 14 is pivotally connected to the tubular carrier 8.

In the operation of the device when fluid is admitted to the cylinder to withdraw the cover from the furnace as the wheeled carrier is drawn back the lever-rollers being acted upon by the cam portions of the lower track-faces will lift the cover, the tubular support rocking slightly on its carrying-shaft. The cover is then drawn back in its elevated position. In closing the furnace fluid is admitted to the outer end of the cylinder, and as the cover reaches its position above the furnace-chamber the rollers move over the cam-faces and allow the cover to drop and seat upon the pit-top.

The advantages of my invention result from the use of the supporting-arm, which is acted upon by a cam device during the back-and-forth movements of the cover. This gives a simple, cheap, and effective construction.

The rollers upon the arms may rest upon the top of the rails by using counterweights upon the rear portions of the levers and many other changes may be made in the apparatus without departing from my invention.

I claim—

1. A pit-furnace cover, a supporting-lever therefor, a cam device arranged to act upon the lever, and mechanism for moving the cover back and forth; substantially as described.

2. A pit-furnace cover supported upon a lever-arm, mechanism for moving the lever-arm and cover to and from the furnace, and a cam device arranged to act upon the lever-arm to raise and lower the cover; substantially as described.

3. A pit-furnace cover supported upon a lever, a movable truck carrying the lever, mechanism for moving the truck and cover back and forth, and a cam device arranged to act upon the lever; substantially as described.

4. A pit-furnace cover supported upon a lever, a truck supporting the lever, a roller on the lever bearing upon the under face of a track having a cam-faced portion, and mechanism for moving the truck toward and from the furnace; substantially as described.

5. A pit-furnace cover mounted upon levers extending over and secured to a frame mounted upon a wheeled carrier, the inner ends of the levers extending downwardly and having rollers bearing upon the under face of tracks having cam-faces, and a motive cylinder connected to the wheeled carrier; substantially as described.

In testimony whereof I have hereunto set my hand.

FRANCIS H. TREAT.

Witnesses:
H. M. CORWIN,
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