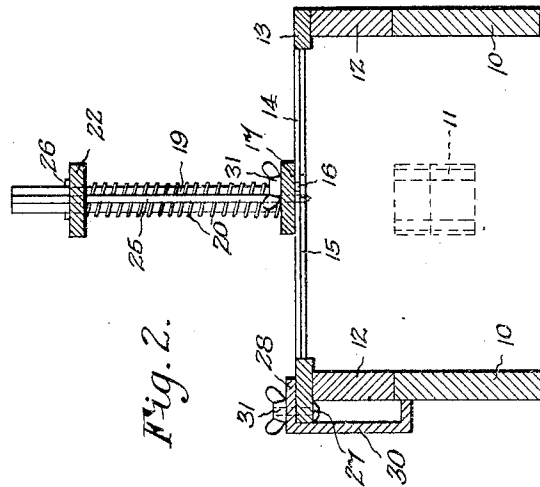
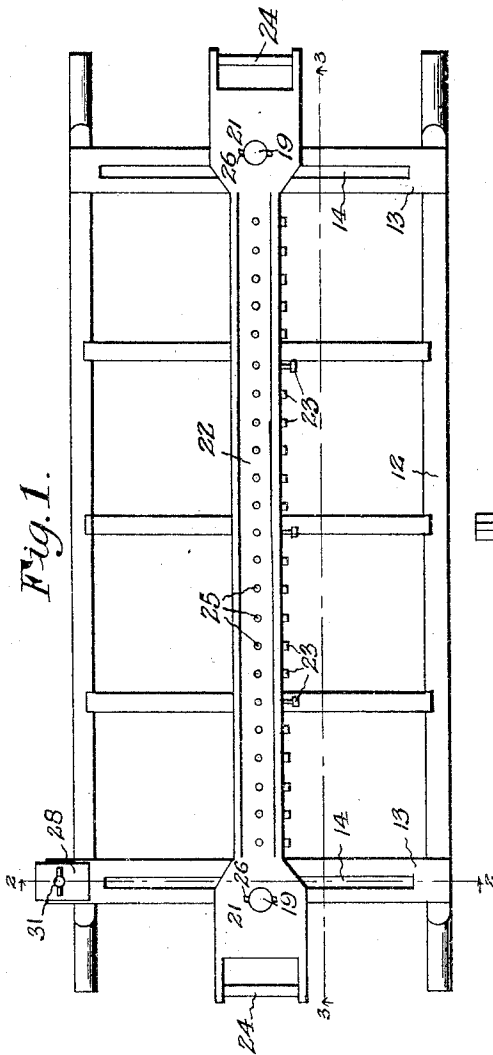


C. B. MOORE.
MOLD VENTING APPARATUS.
APPLICATION FILED MAR. 28, 1910.

959,149.

Patented May 24, 1910.

2 SHEETS—SHEET 1.

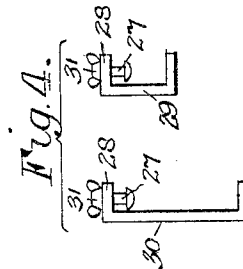


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2 SHEETS--SHEET 2.



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UNITED STATES PATENT OFFICE.

CHARLES BROOKS MOORE, OF NEWPORT NEWS, VIRGINIA.

MOLD-VENTING APPARATUS.

959,149.

Specification of Letters Patent.

Patented May 24, 1910.

Application filed March 28, 1910. Serial No. 551,871.

To all whom it may concern:

Be it known that I, CHARLES BROOKS MOORE, a citizen of the United States, residing at Newport News, in the county of Warwick and State of Virginia, have invented certain new and useful Improvements in Mold-Venting Apparatus, of which the following is a specification.

My present invention relates to an apparatus for venting molds whereby the gases generated by the molten metal may escape without injury to the mold or the casting, and my object is to provide a novel apparatus of this character especially adapted for use in connection with molding grate bars.

The molding of grate bars of various sizes is usually attained by the use of both a cope and a drag, as I have herein shown, though in many cases the latter is dispensed with, and the mold formed in the ground. As will be seen my invention is well adapted to both of these operations.

In the accompanying drawings, Figure 1 is a top plan view of my improved apparatus. Fig. 2 is a transverse section there-through on line 2—2 of Fig. 1. Fig. 3 is a longitudinal section, on line 3—3 of Fig. 1, and, Fig. 4, is a side elevation of a pair of guide pieces, one for use with a drag and one for use with a cope.

Referring to these figures, 10 represents the drag in which is molded the grate bar form 11, and 12 represents the cope to rest thereon.

My improved apparatus comprises a pair of end frames 13, each adapted to rest transversely upon the cope 12 at one end, and provided with a longitudinal slot 14 and an enlarged longitudinal recess 15 in its lower face co-extensive with said slot. Through the slots 14 of frames 13 project the shanks of bolts 16, the heads of which extend into recesses 15, said shanks being adapted to extend also through openings, for the reception of the same, in the enlarged ends 17 of the narrow elongated base member 18 having a longitudinal series of apertures and having posts 19 rigidly upstanding from its said end 17 and about which are coiled springs 20.

The posts 19 project upwardly and loosely through the enlarged ends 21 of a carrier member 22 which is superposed in parallel relation above base member 18 and has a longitudinal series of apertures in vertical alinement with the said apertures of said

base member. This carrier member is supported away from the base member, by the springs 20, and is provided with a plurality of set screws 23, each of which communicates with one of its afore-mentioned apertures, its said ends 21 having extremities in the form of handles 24 by which it may be moved downward toward the base member 18 against the tension of springs 20. Locked through the apertures of the carrier 22 by set screws 23 are venting pins 25, which extend downwardly and loosely through the alined apertures of the base 18, the posts 19 having cross-pieces 26 above the carrier to limit its movement away from the base and prevent withdrawal of pins 25 entirely from said base.

One of the ends of the base 18 and one of the ends of the adjacent frame 13, are provided with apertures to receive the shanks of bolts 27 adapted to extend through the flanges 28 of guide members 29 and 30 shown in Fig. 4, these guide members being interchangeable, members 29 being used when a cope only is employed, and members 30 being somewhat longer so as to extend down beyond the cope and engage the drag when a drag is used.

In use, the frames 13, with as many bases 18 and carriers 22 as there are grate bar forms 11, are placed on the cope after the drag has been packed and before the cope has been packed, and the several bases and carriers adjusted until their venting pins are alined above the center of the forms 11. The apparatus is then removed and the cope is packed, after which the apparatus is replaced and the carrier pressed down to cause the pins to project into the mold and vent the same. When adjusting the apparatus, certain of the venting pins 25, which, in their downward movement, would strike either the cross-bars of the cope 12, or the spacing members of the forms 11, are removed by loosening their respective set screws 23. The adjusting bolts 16 and the guide piece clamping bolts 27 are all provided, as shown, with winged nuts 31 whereby they may be readily manipulated.

I claim:

1. The combination of adjusting frames adapted to rest upon a cope and the like, a base member having its end portions adjustably connected to said frames, and having a plurality of openings, inter-changeable guide members having means to connect them to

said base members and said frames, a carrier superposed above, and movable toward and away from, said base, and a series of venting pins carried by said carrier and projecting through the openings in said base.

5 2. The combination of adjusting frames, adapted to rest upon a cope or the like, a base member having a plurality of apertures, means to connect said base member upon
10 said frames, adjustable longitudinally of the latter, inter-changeable guide members having means to secure the same upon said base and one of said frames, a carrier superposed above, and movable toward and away from,

said base, and having a plurality of aper- 15
tures in alinement with said base apertures, and a plurality of set screws in communication with said apertures, and venting pins removably held within said carrier apertures by said set screws and extending 20
through the apertures in the base.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES BROOKS MOORE.

Witnesses:

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F. A. HUDGINS.