May 20, 1930. E. T. BENNINGTON 1,759,183

SUSPENDED CARRIER

Original Filed Aug. 4, 1926 2 Sheets-Sheet 1

Fig. 2.

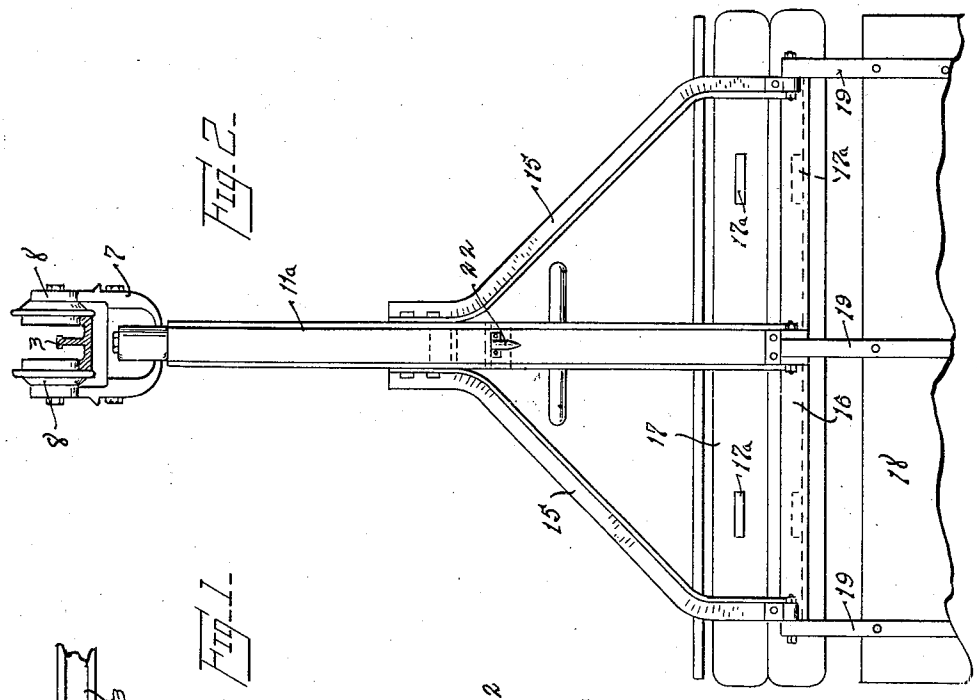
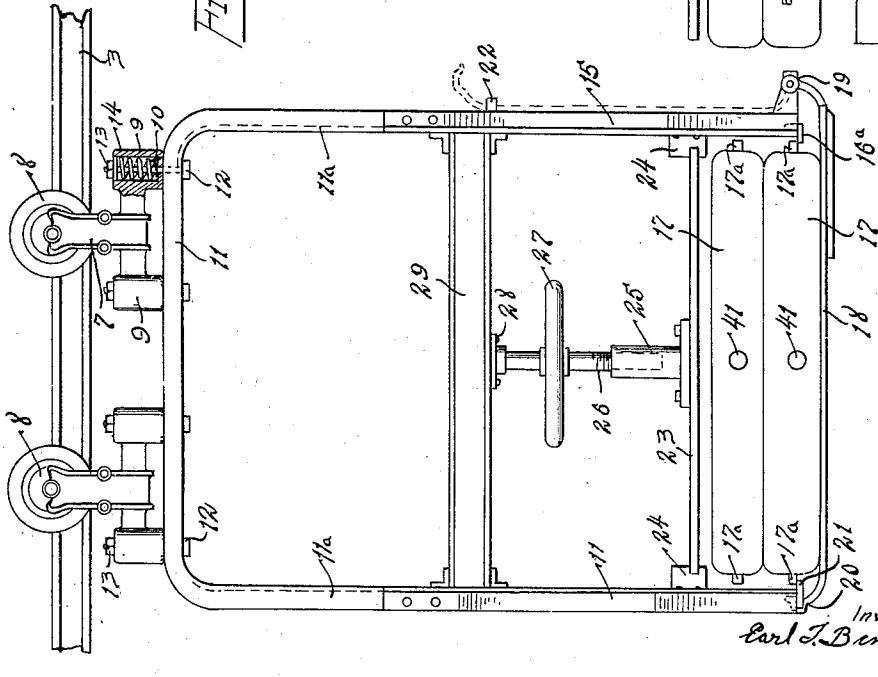


Fig. 1.



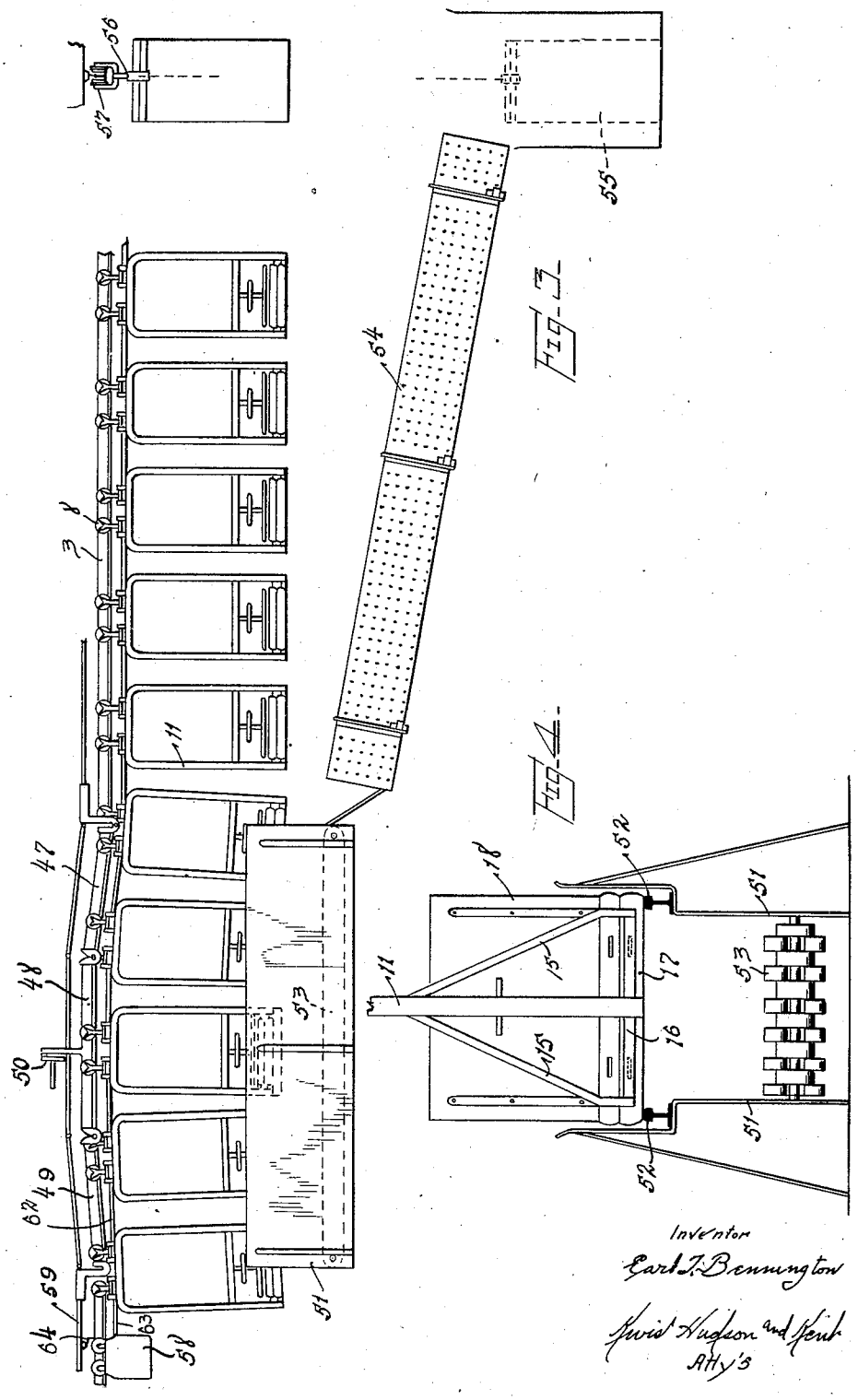
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Patented May 20, 1930

1,759,183

UNITED STATES PATENT OFFICE

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SUSPENDED CARRIER

Original application filed August 4, 1926, Serial No. 127,081. Divided and this application filed January 21, 1929. Serial No. 334,084.

This invention relates to carriers and more particularly to suspended carriers adapted for use in connection with a foundry carrier system such as is described in my copending application, Serial No. 127,081 filed August 4, 1926, of which this application is a division.

An object of this invention is to provide a suspended carrier which is adapted to support flasks in position for pouring, and which is so constructed that the flasks may be readily placed on, or removed from the carrier.

Another object of this invention is to provide a suspended carrier adapted to support flasks in position for pouring, and to so clamp the flasks that they will be held securely in position during pouring and cooling of the castings.

Still another object of this invention is to provide a suspended carrier in which the bottom member can be moved into, and retained in a predetermined position while the contents of the carrier is being discharged.

A further object of this invention is to provide a suspended carrier which is yieldingly supported from its trucks.

With the above and other objects in view the invention may be said to comprise the carrier illustrated in the accompanying drawings, hereinafter described, and particularly set forth in the appended claims, together with such variations and modifications thereof as will be apparent to one skilled in the art to which the invention appertains.

Reference should be had to the accompanying drawings forming a part of this specification in which—

Fig. 1 is a side elevation of the carrier with certain parts broken away;

Fig. 2 is an end elevation of the carrier;

Fig. 3 is a side elevational view showing a discharge station and a group of carriers of the type herein disclosed; and

Fig. 4 is an end elevation of the discharge station shown in Fig. 3.

The carrier of the present invention is designed to convey assembled sand molds from a mold forming machine to a pouring station, then to convey the molds from the pouring station to a discharge station where the sand and cooled castings are discharged from the flasks, and then to convey the empty flasks to the mold forming machine.

As shown in the drawings the carrier is suspended upon and adapted for movement along a track 3. The carrier is provided with a pair of trucks 7, each having wheels 8 which travel upon the opposite flanges of the track rails. Each truck 7 is provided with a pair of spring receiving sockets 9 at the front and rear ends thereof, each socket having a compression spring 10 therein. The main frame member of the carrier is a channel bar 11 bent to U shape and having its base portion secured to the lower ends of the truck 7 by means of bolts 12 which pass upwardly through the sockets 9 and the coil springs 10 thereon, the upper ends of the bolts 12 being provided with nuts 13 and washers 14 bearing against upper end of the springs. The frame member 11 is thus yieldingly supported from the two trucks of the carrier in a vertical position directly beneath the track 3. The vertical side portions 11^a of the frame members have angle brace bars 15 attached to opposite sides thereof and the lower ends of the brace bars 15 and side members 11^a are connected by horizontal angle bars 16 which have inwardly projecting flanges 16^a which serve to support the sand mold flasks. The flasks 17 are provided on opposite sides with projecting lugs 17^a which are adapted to rest upon the inwardly projecting flanges 16^a of the bars 16 at the lower ends of the front and rear frame members of the carriers. Two flasks 17, one containing the drag and the other the cope of the mold, are placed one on top of the other on the carrier and are supported on the carrier in position to receive the molten metal at the pouring station. In order

to provide a support for the sand molds in the flasks the carrier is provided with a bottom member 18 which is connected by hinges 19 to the lower ends of the frame members 11ª and 15 at one side of the carrier and which is normally held in the position in which it extends across the bottom of the carrier in engagement with the open bottom of the lower flask by means of a resilient flange 20 at its free end which engages with a retaining plate 21 secured to the lower ends of the side frame members opposite those to which the bottom members are pivoted. The bottom member 18 supports the molds during the pouring operation and during the passage of the molds from the pouring station to the discharge station but is released by an attendant and swung to open position as the carrier approaches the discharge station so that the sand and castings may be discharged from the flasks. When the bottom member 18 is swung to open position it may be retained in a vertical position along side of the vertical frame 11ª to which it is hinged by means of a suitable latch 22 which is mounted upon the outer side of the frame member and is adapted to extend through an opening in the bottom member 18.

To hold the sand mold during pouring and during cooling of the castings a clamping plate 23 is slidably mounted on vertical guides 24 on the frame members 11ª above the upper flask so that it can be moved into engagement with the top of the flask after the flasks have been placed on the carrier. The clamping plate 23 has a vertical screw threaded socket member 25 secured thereto at the center thereof and threaded into this socket member there is a vertical screw 26 provided with a hand wheel 27 and having a thrust bearing 28 at its upper end which is mounted upon the under side of a rigid cross bar 29 extending between the frame members 11ª. By rotating the hand wheel 27 the clamping plate 23 may be forced downwardly with the desired pressure against the top of the upper flask 17 or may be lifted out of engagement with the flask.

As the carriers approach the discharge station the bottom members 18 thereof are moved to open position to permit the sand and castings to be dislodged from the flasks. The flasks are discharged by a jarring action imparted to the carrier and to obtain this jarring action the trackway is provided with a flexible portion which is moved rapidly up and down as the carriers pass over it. This flexible portion consists of three pivoted sections 47, 48 and 49 which are connected by pivots loose enough to permit the sections to have the necessary up and down movement, the middle section 48 being connected to a suitable device for imparting reciprocating motion thereto, such as the eccentric 50. Beneath the flexible portion of the trackway there is provided a trough 51 into which the sand and castings are discharged and mounted upon the sides of the troughs 51 are rails 52 against which the bottom flasks are bumped as the carriers are moved downwardly repeatedly jarring the flasks and dislodging the sand and castings therefrom. During this bumping operation the springs 10 contained in sockets 9 of trucks 7 yield and prevent severe jolts from being transmitted through trucks 7 to track 3. In the lower portion of the trough 51 there is an endless chain conveyor 53 through which the sand may pass but which will support the castings which fall thereon. The conveyor 53 discharges the castings into an inclined perforated tumbling drum 54 which is continuously rotated to tumble castings and free the same from sand adhering thereto. The drum 54 discharges the castings into a receptacle 55 which is suspended from a hoist 56 which travels upon an overhead trackway 57, the trackway 57 leading to a storage place or other point to which it may be desired to deliver the castings.

The carriers are preferably moved along the trackway by means of suitable motor driven tractors 58, each adapted to propel a given number of carriers which are connected together by draw-bars 62 and are connected to tractors 58 by draw-bars 63. Current is supplied to the motors of the tractors as by a trolley 64 and a suitable conductor rail 59 extending alongside the trackway.

While I have shown and described the preferred embodiment of my invention, it will be understood that various changes and alterations may be made without departing from the spirit of the invention or the scope of the appended claims.

Having thus described my invention, what I claim is:

1. A suspended carrier having wheels adapted to travel along an overhead trackway and a frame having spaced side members provided with supporting bars upon which the lugs of sand mold flasks are adapted to rest, said carrier having a movable bottom member adapted to form a support for the sand molds and means for releasably securing said bottom member in closed position.

2. A suspended carrier having wheels adapted to travel along an overhead trackway and a frame having spaced side members provided with supporting bars upon which the lugs of sand mold flasks are adapted to rest, said carrier having a hinged bottom member adapted to form a support for the sand molds and means for releasably securing said bottom member in closed position, and in an upright position alongside the side member to which it is hinged.

3. A suspended carrier having wheels

adapted to travel along an overhead trackway and a frame provided with spaced side members having supporting bars attached thereto upon which the lugs of sand mold flasks slidably engage, and a bottom member hinged to one side member and detachably secured to the other.

4. A suspended carrier having wheels adapted to travel along an overhead trackway and a frame provided with spaced side members having attached thereto supporting bars upon which the lugs of sand mold flasks slidably engage, a vertically movable clamping member engageable with the top of a flask, and means for pressing said clamping member against the top of a flask.

5. A suspended carrier having wheels adapted to travel along an overhead trackway and a frame provided with spaced side members having attached thereto supporting bars upon which the lugs of sand mold flasks slidably engage, a plate guided for vertical movement between said side members, a rigid cross bar connecting said side members above the plate, and a screw interposed between the cross bar and plate for pressing the plate upon the top of a flask.

6. A suspended carrier having wheels adapted to travel along an overhead trackway and a frame having spaced side members provided with bars upon which the lugs of sand mold flasks are adapted to rest, a member hinged to said frame and adapted to form a support for the sand molds, and adjustable clamping means adapted to engage the top of said molds.

7. A suspended carrier having trucks with wheels adapted to roll along an overhead trackway, a frame having means upon which the lugs of sand mold flasks are adapted to rest, means for yieldingly connecting said frame to said trucks, a member connected to said frame and adapted to form a support for the sand molds, and adjustable clamping means adapted to engage the top of a mold.

8. A suspended carrier having trucks with wheels adapted to roll along an overhead trackway, a frame having spaced side members provided with supporting bars, means for yieldingly supporting said frame from said trucks, a bottom member hinged to one side member and detachably secured to the other, said bars and said bottom member together constituting the supporting means for the contents carried.

9. A suspended carrier having trucks with wheels adapted to travel along an overhead trackway, a frame yieldingly supported from said trucks, a bottom member hinged to said frame and adapted to form a support for the bottom surface of the contents carried, and adjustable clamping means associated with said frame and adapted to engage the top surface of the contents carried.

10. A suspended carrier having wheels adapted to travel along an overhead trackway and a frame supported from said wheels, a member hinged to said frame and adapted to form a support for the contents carried, and adjustable clamping means associated with said frame and adapted to engage the top surface of the contents carried.

In testimony whereof, I hereunto affix my signature.

EARL T. BENNINGTON.