May 29, 1951 G. W. HEGEL 2,554,984

TRANSFER CAR OPERATING MECHANISM

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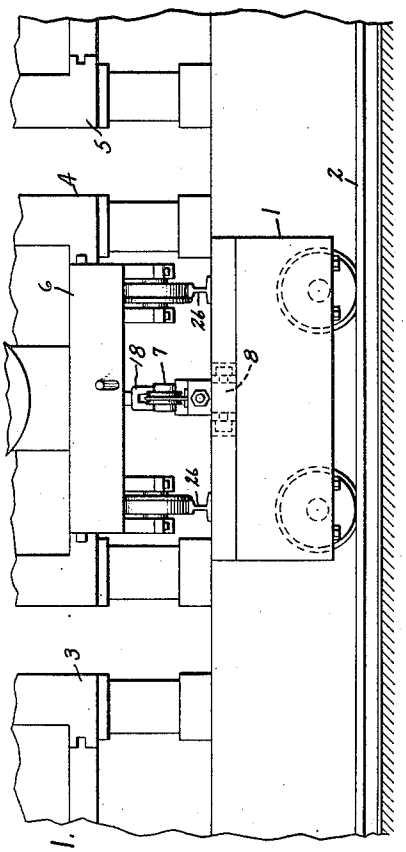


Fig. 1.

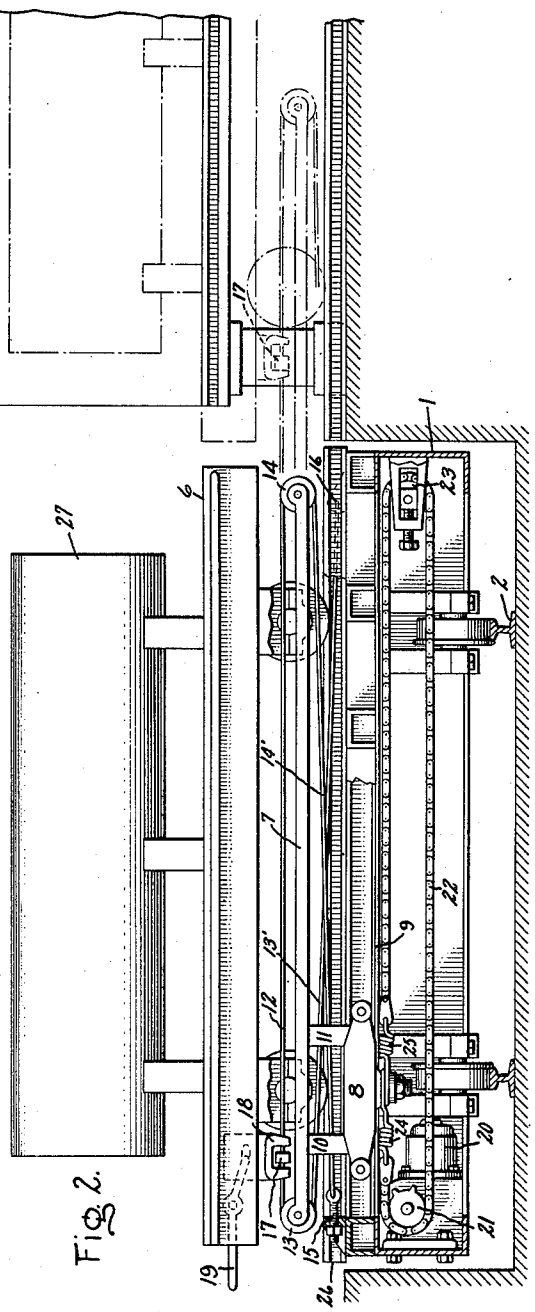


Fig. 2.

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TRANSFER CAR OPERATING MECHANISM

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1

My invention relates to a transfer car operating mechanism, more particularly to operating mechanism for a transfer car used in moving furnace cars into and out of furnaces and from one furnace to another, and has for its object simple and reliable mechanism providing a multiplying movement for increasing the distance over which the furnace car is moved so that the furnace car can be moved beyond the transfer car into the furnace.

In carrying out my invention in one form I provide an elongated member or boom secured at one end to a carriage mounted on the transfer car for movement transversely of the transfer car. On each end of the boom I provide a pulley, together with a cable extending around the pulleys and having its ends secured to opposite sides of the transfer car. In the operation of the device the furnace car is attached to the cable and thereafter the carriage is moved to the opposite side of the transfer car. The carriage moves with it the furnace car and, at the same time, the cable moves along the elongated member so as to give the furnace car a movement in addition to that provided by the movement of the carriage itself.

For a more complete understanding of my invention, reference should be had to the accompanying drawing, Fig. 1 of which is a fragmentary elevation view showing transfer car operating mechanism embodying my invention, while Fig. 2 is a view mainly in section showing the apparatus of Fig. 1.

Referring to the drawing, I have shown my invention in one form as applied to a transfer car 1 mounted for movement on a track 2 in front of a plurality of furnaces, three of which, 3, 4, and 5 are shown. This transfer car is used to move the furnace cars 6, only one of which is shown, forming the bottom walls of the furnace into and out of the furnaces and to desired positions along the track 2 for the loading of the charge to be heated prior to the heating operation and the disposal of the heated charge after it has been heated.

My invention has particular application to mechanism for moving the furnace car 6 from the transfer car to a heating position in the furnace and from the furnace on to the transfer car and, more particularly, the provision of means for moving the furnace car a desired distance after it has been moved off the transfer car 1.

In one form of my invention I provide an elongated member or boom 7 on the transfer car 1, which member is mounted at one end, the left-hand end as seen in Fig. 2, on a carriage 8 mov-

2

able in a predetermined straight path on a track 9 extending crosswise of the car 1 substantially midway of the length of the car. As shown, the boom 7 is secured to the carriage by means of posts 10 and 11 so that it is horizontal and extends transversely of the car 1 and parallel with the track 9, just above the top of the car. For the purpose of providing a multiplying movement, I provide a cable 12, such as a wire, rope, chain, etc., which extends around pulleys 13 and 14 mounted on opposite ends of the boom 7 with lengths 13' and 14' extending from each pulley back toward the opposite end of the boom and crossing each other, the ends of the cable being secured by suitable means to opposite or more remote sides of the transfer car at the points 15 and 16. A suitable latching projection or knob 17 is provided on the upper length of the cable 12 extending between the pulleys near its left-hand end adjacent the carriage when the carriage, as seen in Fig. 2, is in its left-hand retracted position, by means of which knob 17 a furnace car may be secured to the cable. As shown in Fig. 2 the furnace car is provided at its left-hand end with a vertically movable latch 18 which may be lifted by means of a lever 19 and which is provided with projections embracing the knob 17.

The carriage 8 may be moved on the track 9 to move the car 6 into the furnace 4 by means of an electric motor 20, usually provided with a brake to stop and hold the carriage at a desired position, which is connected to drive a sprocket gear 21 with which engages a chain 22 passing around a second sprocket wheel 23 on the opposite side of the transfer car and having its ends secured to the carriage 8 through suitable shock-absorbing springs 24 and 25. As the carriage 8 is moved toward the right hand from the position shown in Fig. 1 across the car 1 to its opposite side, the marriage moves with it the boom 7 whereby the furnace car 6 is moved toward the right hand on a pair of rails 26 forming a track mounted on top of the car 1. At the same time the cable 12 is caused to move over the pulleys 13 and 14 by reason of the fact that the ends of the cable are secured to the opposite side of the car 1. It will be understood that when the boom is moving toward the right hand, as seen in Fig. 2, the cable moves with reference to the boom, likewise toward the right hand, as well as moving in the same direction with the boom. As a result of this multiplying action, the knob 17 is given a movement which is twice the movement of the carriage 8 whereby the knob is moved to the right-hand end of the boom and the furnace car 6 is

moved beyond the transfer car 1 into furnace 4. This is indicated by the position of the knob 17 relative to the boom after the furnace car has been moved into the furnace, as shown by dash and dot lines in Fig. 2.

When it is desired to remove a car from a furnace, the boom 7 is moved underneath the car until the knob 17 comes under the latch 18. The latch is then lowered and the boom moved back over the transfer car whereby the furnace car is moved on the transfer car as shown in Fig. 2. As shown, the charge carried by the furnace car is a cylindrical steel billet 21.

As shown in Fig. 2, the boom 7 is somewhat shorter than the width of the transfer car 1 so that when the carriage 8 is in its left-hand retracted position, the ends of the boom are within the side boundaries of the transfer car. This permits the free movement of the transfer car along the track 2 either with or without a furnace car 6.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In combination with a transfer car, of a carriage mounted on said transfer car for movement transversely of said car, an elongated member having a first end secured to said carriage and extending in the direction of movement of said carriage, a pulley at each end of said elongated member, a cable passing around said pulleys having a length extending between said pulleys and extending from said pulley on said first end to the more remote side of the car, means securing the ends of said cable to said car, means for connecting a second car to be moved to said length of said cable at a point adjacent said carriage, and means for moving said carriage on said transfer car to its opposite side thereby to move said second car to a position beyond said opposite side of said transfer car.

2. In combination with a transfer car, of a pair of rails on said transfer car extending transversely thereof, a carriage mounted on said rails, an elongated member having a first end secured to said carriage and extending in the direction of said rails, a pulley on each end of said elongated member, a cable passing around said pulleys having a length extending between said pulleys and extending from said pulley on said first end to the more remote side of the car, means securing the ends of said cable to said car, a second pair of rails on said transfer car extending transversely thereof, means for connecting a second car on said second pair of rails to said length of said cable at a point adjacent said carriage, and means for moving said carriage on said transfer car to its opposite side thereby to move said second car a distance greater than the movement of said carriage.

3. The combination with a transfer car, of a carriage mounted on said transfer car for movement transversely of said transfer car, a boom having a first end secured to said carriage and extending substantially parallel with the path of movement of said cariage, said boom having a length substantially equal to the width of said transfer car so that the ends of said boom are within the side boundaries of said transfer car when said carriage is moved to a retracted position adjacent one side of said transfer car, a pulley on each end of said boom, a cable passing around said pulleys having a length above said boom extending between said pulleys and extending from each pulley to the remote side of said car, means securing the ends of said cable to opposite sides of said transfer car, and means for connecting a second car to be moved to said length of cable at a point adjacent said carriage so that when said carriage is moved from said retracted position to the opposite side of said transfer car said second car is moved to a position beyond said transfer car.

4. The combination with a transfer car, of a carriage mounted on said transfer car for movement transversely of said transfer car, a boom having a first end secured to said carriage and extending substantially parallel with the path of movement of said carriage, said boom having a length substantially equal to the width of said transfer car so that the ends of said boom are within the side boundaries of said transfer car when said carriage is moved to a retracted position adjacent one side of said transfer car, a pulley on each end of said boom, a cable passing around said pulleys having a length above said boom extending between said pulleys and extending from said pulley on said first end to the remote side of said transfer car, means securing the ends of said cable to said transfer car, connection means secured to said upper length of said cable at a point substantially adjacent said carriage when said carriage is in said retracted position for connecting a second car to said cable, and driving means connected to said carriage for moving said carriage transversely of said transfer car to its opposite side whereby a second car connected to said connection means can be moved to a position beyond said opposite side of said transfer car.

5. The combination with a transfer car for furnaces and the like, of a carriage mounted on said transfer car for movement transversely of said transfer car, a boom having a first end secured to said carriage and extending substantially parallel with the path of movement of said carriage, said boom having a length substantially equal to the width of said transfer car so that the ends of said boom are within the side boundaries of said transfer car when said carriage is moved to a retracted position adjacent one side of said transfer car, a pulley on each end of said boom, a cable passing around said pulleys having a length above said boom extending between said pulleys and extending from each pulley to the remote side of said transfer car, means securing the ends of said cable to opposite sides of said transfer car, connection means secured to said upper length of said cable at a point adjacent said carriage when said carriage is in said retracted position for connecting a second car to said cable, and driving means connected to said carriage for moving said carriage transversely of said transfer car to its opposite side thereby to move said connecting means at twice the speed of said carriage whereby a second car connected to said connection means is moved to a position beyond said opposite side of said transfer car.

GEORGE W. HEGEL.

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The following references are of record in the file of this patent:

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