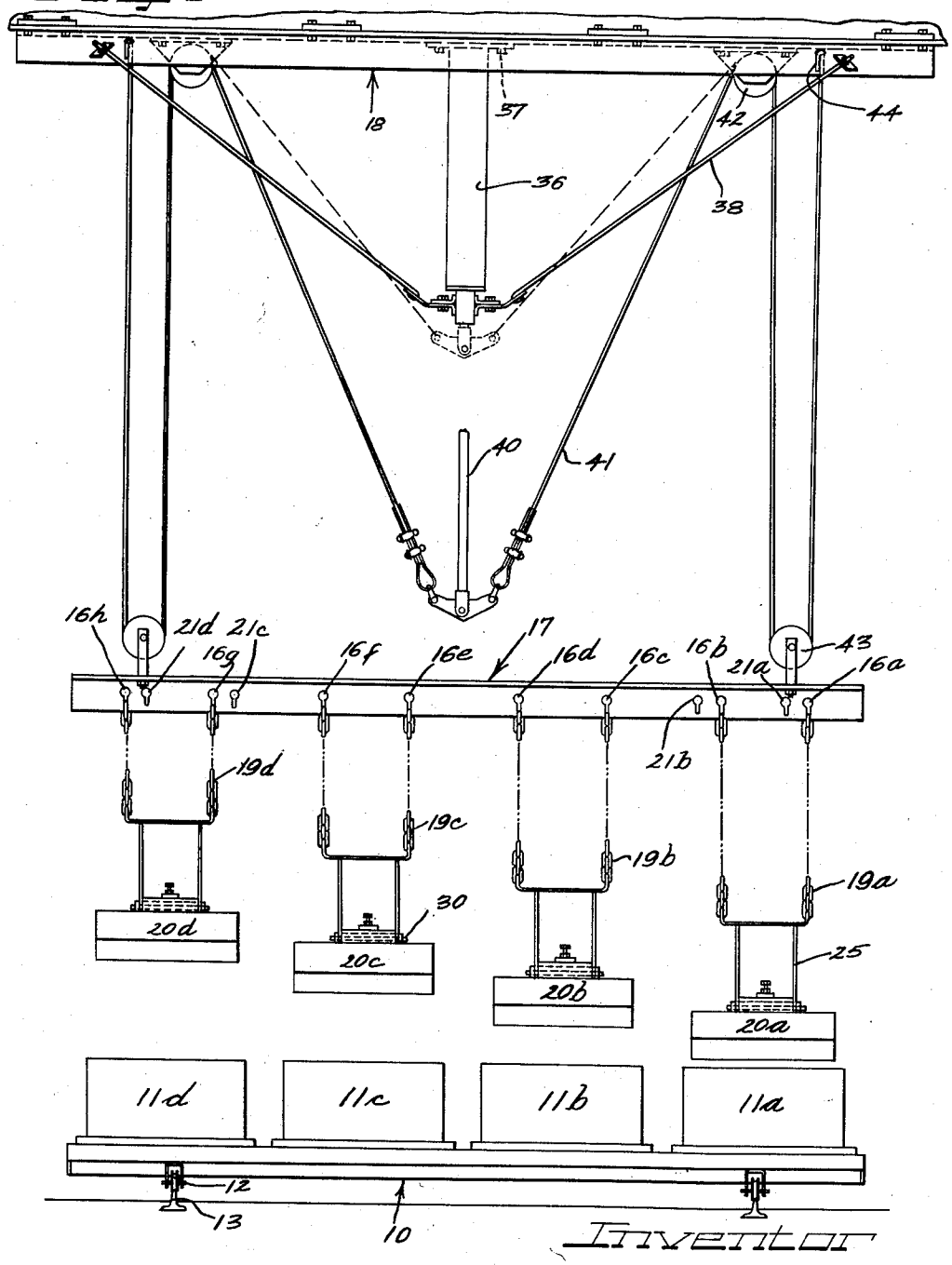
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WEIGHT SETTING DEVICE

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Fig. 1



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Fig 3

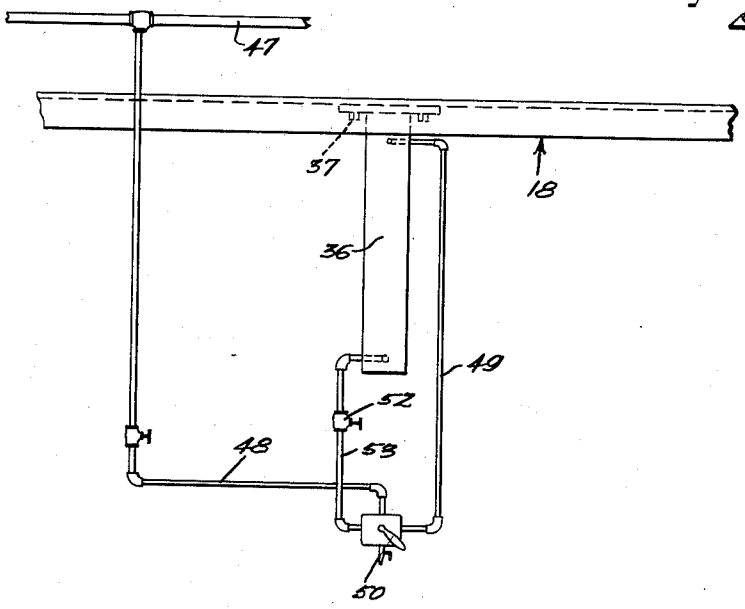


Fig 2

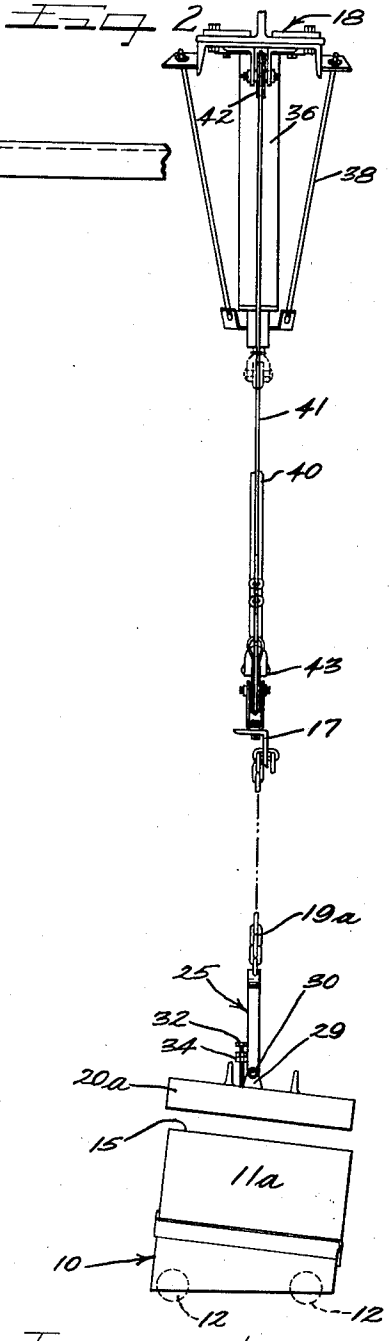
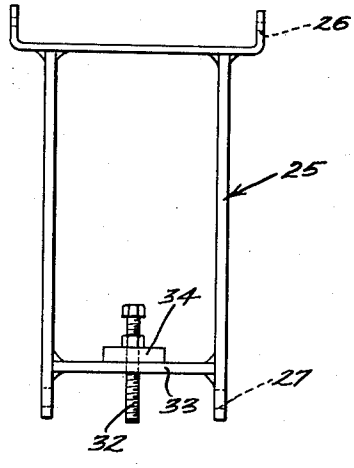


Fig 4



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WEIGHT SETTING DEVICE

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7 Claims. (Cl. 22—64)

This invention relates to a weight setting device for placing weights on two or more molds and more particularly to a weight setting device for pallet conveyor systems having two or more molds on each pallet.

Most small molds made in a foundry require weights to prevent the cope half of the mold from rising due to the metal pressure during pouring. The weights may vary from 50 pounds to 125 pounds, depending on the size mold and casting weight. The weights are provided with openings which must line up with the pouring basin in the mold. It will thus be appreciated that manual lifting of weights on and off of molds is undesirable.

It is an object of the present invention to provide a novel weight setting device for placing weights on two or more molds while permitting manual guiding of each weight into position by a single operator.

It is a further object of the present invention to provide a novel weight setting device for pallet conveyor systems and to a novel method of employing the same.

It is another object of the present invention to provide a weight setting device adjustable to place weights on two, three or more molds in rapid sequence.

It is a still further object of the present invention to provide a novel apparatus for rapidly setting a plurality of weights which is faster and less expensive than previous devices.

According to the present invention, there is provided a weight setting device for placing weights on a plurality of molds comprising means for supporting the weights at successively greater heights above the respective molds, and means for simultaneously lowering said weights, whereby the weights may be successively manually guided into position on the respective molds.

Other objects, features and advantages of the present invention will be readily apparent from the following detailed description of a preferred embodiment thereof taken in conjunction with the accompanying drawings in which:

Figure 1 is a fragmentary somewhat diagrammatic front elevational view of the apparatus of the present invention as applied to a mold pallet conveyor system having pallets carrying four molds;

Figure 2 is a partial somewhat diagrammatic side elevational view of the structure of Figure 1;

Figure 3 is a partial diagrammatic elevational view of a portion of the pneumatic system for controlling the raising and lowering cylinder; and

Figure 4 is a front elevational view of the weight carrying yoke for adjusting the angular position of the weight carried thereby.

As illustrated in Figures 1 and 2, the weight setting device of the present invention is particularly adapted to cooperate with a pallet 10 having a plurality of molds 11*a*–11*d* thereon, the pallet having wheels 12 riding on stationary tracks 13 of the pallet conveyor system. It will be observed from Figure 2 that the pallet 10 may support the mold with its upper surface 15 sloping relative to the horizontal.

As shown in Figure 1, a movable beam 17 is supported generally horizontally from a support channel 18. The beam 17 has a plurality of keyhole-type slots 16*a–h* which serve to receive the upper ends of each pair of chains 19*a–d* supporting the respective weights 20*a–d*. The beam 17 may be provided with auxiliary slots 21*a–d* which serve to adapt the beam to use with two or three molds. According to one embodiment of the invention, the four central slots 16*c–f* in the beam 17 are spaced eight inches apart while the slots 21*b* and 21*c* are five inches outwardly from slots 16*c* and 16*f*, respectively. The slots 16*b* and 16*g* are two inches outwardly from slots 21*b* and 21*c*, and slots 21*a* and 21*d* are six inches outwardly from slots 16*b* and 16*g*. There is a further two inch spacing between slots 16*a* and 21*a* and between slots 16*h* and 21*d*. For three molds per pallet, the center weight is supported from slots 16*d* and 16*e*, while the outer weights are supported from slots 21*a* and 21*b*, and 21*c*, 21*d*. For two molds, the weights are supported from slots 16*b*, 16*c*, and 16*f*, 16*g*, (the pairs of supporting slots being spaced seven inches).

The weight carrying frames or yokes 25 include upper apertures 26 receiving the chains 19*a–d* and have lower aligned apertures 27 for accommodating attachment to the weights 20*a–d*, the weights having upstanding ears 29, Figure 2, with apertures for alignment with the apertures 27 in the yoke 25, and a rod 30 being inserted through the aligned apertures to retain the weight with the yoke. As best seen in Figure 2, the ears 29 are displaced from the center of gravity of the weights so that the weights tend to rotate about the bar 30.

To adjust the angle of the weights 20*a–d* to correspond to the slope of the top surface 15 of the molds, a screw adjustment member 32 is threadedly supported by the yoke 25 by means of a cross piece 33 and a nut block 34 so that the lower end of the adjustment member 32 will engage the weight and limit pivoting thereof about the rod 30.

For progressively lowering the weights 20*a–d* toward the respective molds 11*a–d*, a single air cylinder 36 is supported from the channel 18 by means of bolts 37 and braces 38. The cylinder 36 controls a piston rod 40 and is designed to extend the rod 40 to raise the weights and to retract the rod to lower the weights. The piston has connected thereto, a pair of cables 41 which are symmetrically arranged with respect to the piston and extend over upper pulleys 42 carried by the channel 18, around pulleys 43 carried by the beam 17 and are secured at 44 to the channel 18 so as to lower the weights slowly. By way of example, the weights 20*a*–20*d* may be arranged at two inch increments of height so that a single operator can successively guide each weight into position without lifting the same.

The piston control circuit is illustrated in Figure 3 wherein the reference numeral 47 indicates the air supply line which is operative to supply air through the line 48 and the line 49 to the upper end of the cylinder 36 to raise the weights. The needle valve 52 controls the rate of flow of air to the lower end of the cylinder 36 through the line 53 during lowering of the weights.

The operation of the device will now be readily understood. With the weights suspended from the load beam 17 in the manner illustrated in Figure 1, the operator gradually lowers the weights guiding the first weight 20*a* into position on the molde 11*a*. Thereafter, the weight 20*b* may be, for example, two inches above the mold 11*b* and further lowering of the beam 17 brings the weight 20*b* into contact with the mold 11*b* under the guidance of the operator. The other weights are likewise successively positioned by the operator in a relatively rapid sequence under the control of the single

air cylinder 36. The operation of the device is entirely similar for two or three molds or a larger number.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. A weight setting device for placing weights on a plurality of molds, comprising at least three weights, means for supporting said weights at successively greater heights above the respective molds, and means for simultaneously lowering said weights at the same rate to accommodate successive manual guiding of the weights into position on the respective molds, the differences between the successively greater heights being substantial to establish a predetermined order in which the weights engage the molds and to provide a substantial time interval between engagement of each weight with its corresponding mold and the engagement of the next succeeding weight with its mold, whereby an operator may move from one weight to the next succeeding one in said predetermined order and position each weight in turn as the weights are lowered.

2. A weight setting device for placing weights on a plurality of at least three molds, comprising a transverse load beam, means for supporting at least three weights from said beam at successive heights above the respective molds, the heights of the weights above the molds becoming progressively greater from one end of the beam to the other, and means for lowering said beam to simultaneously lower said weights at the same rate to accommodate successive manual guiding of the weights into position on the respective molds.

3. A weight setting device for placing weights on a plurality of molds, comprising a transverse load beam, a plurality of weight carriers for support from said beam, lengths of flexible supporting members of successively greater length supporting different ones of said weight carriers at successive heights above the respective molds, and means for lowering said load beam to simultaneously lower said weight carriers at the same rate toward said respective molds.

4. A weight setting device for placing weights on a plurality of molds, comprising a transverse load beam, a plurality of weight carriers suspended from said load beam at varying heights above the respective molds, means pivotally connecting each of said weights to one of said carriers at a position displaced from the center of gravity of the weight; and screw adjustment means carried by said carriers for abutting the weights carried thereby to limit the pivotal movement of the weight about the pivotal connecting means and to adjust the disposition of the weights to conform to the disposition of the top surfaces of the molds.

5. A weight setting device for placing weights on a plurality of molds, comprising a horizontal fixed support channel, an air cylinder depending from said channel, a transverse load beam, pulley and cable means supporting said load beam generally horizontally from said support channel, piston means carried by said cylinder and connected with said cable means for raising and lowering said load beam, and a plurality of weight carriers suspended from said load beam at successive heights above the respective molds, whereby weights secured to said weight carriers may be successively manually guided into position on the respective molds.

6. A weight setting device for use in a conveyor system employing a pallet carrying a plurality of molds, comprising a fixed support, a horizontal load beam suspended from said support above said conveyor system, a plurality of weight supporting structures each including at least one flexible suspension member and each carrying a weight to be lowered into engagement with one of the molds, means for raising and lowering said beam, means defining a plurality of attachment slots displaced along said beam, said lots being adapted to accommodate said flexible members and being so positioned that two, three or four weights can be selectively suspended from said beam in accordance with the number of molds on the pallet while maintaining a symmetrical disposition of the weights with respect to the longitudinal center of the beam.

7. A weight setting device for use in a conveyor system employing a pallet carrying a plurality of molds, comprising a fixed support, a horizontal load beam suspended from said support above said conveyor system, a plurality of weight supporting structures each including a pair of flexible suspension members for carrying a weight to be lowered into engagement with one of the molds, means for raising and lowering said beam, and means defining a plurality of attachment slots at positions displaced longitudinally of the beam, said slots being arranged symmetrically on opposite sides of the longitudinal center of the beam with the slot arrangement being such that proceeding from the center of the beam toward either end there is formed a first slot located a predetermined distance from said center, a second slot spaced from the first slot by twice said predetermined distance, a third slot, a fourth slot, a fifth slot spaced from the third slot by twice said predetermined distance, and a sixth slot spaced from said fourth slot by twice said predetermined distance, pairs of said slots being adapted to accommodate said pairs of flexible members so that two, three or four weights can be selectively suspended from said beam in accordance with the number of molds on the pallet while at all times maintaining a symmetrical disposition of the weights with respect to the longitudinal center of the beam.

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