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STOP DEVICE

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Fig. 1.

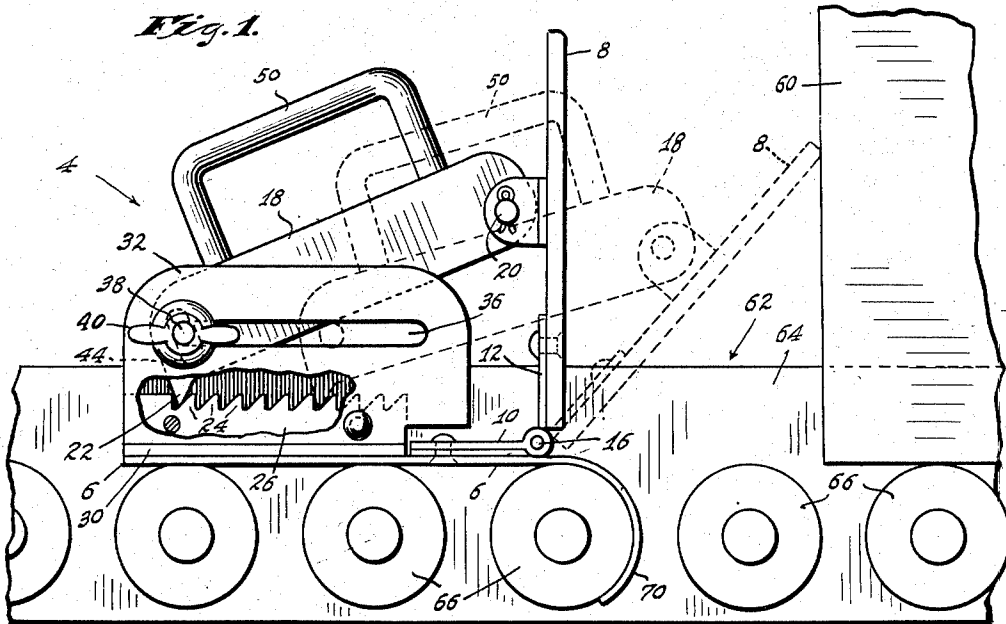
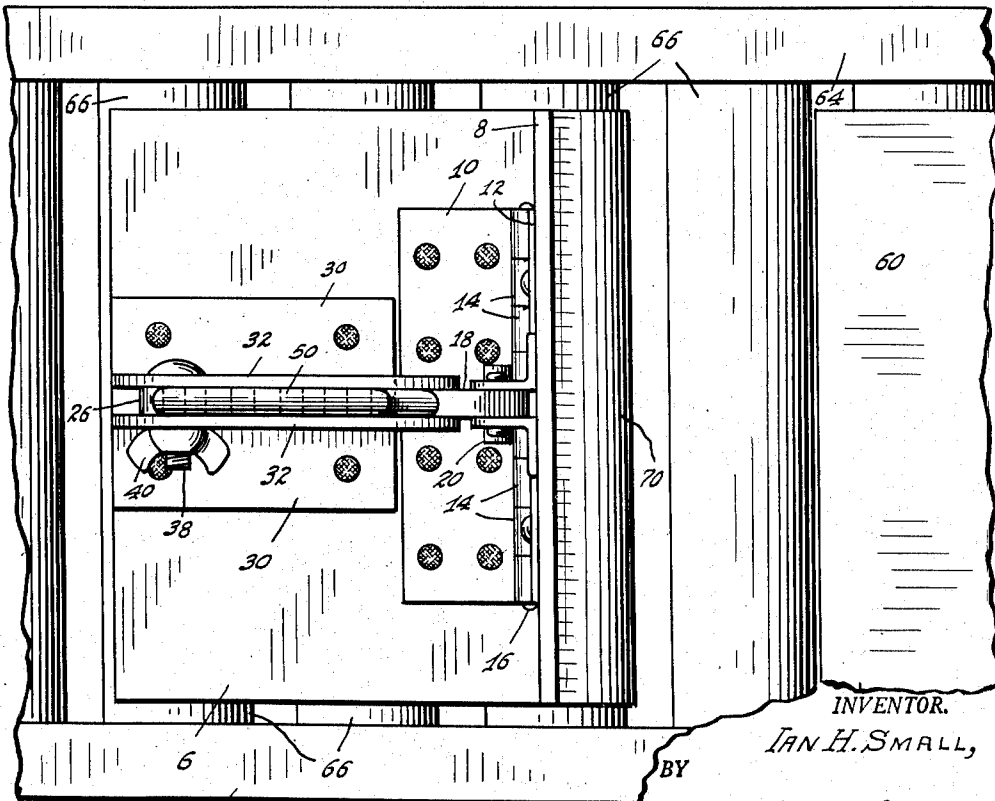


Fig. 2.

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STOP DEVICE

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Application September 25, 1947, Serial No. 776,001

1 Claim. (Cl. 193—35)

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This invention relates to a holding device adapted for use with a roller conveyor to hold load pieces in fixed position at any desired point on the conveyor.

The invention is of special usefulness in combination with the load transporting mechanism described and claimed in the joint application of myself and Loman, Serial No. 776,002, filed September 25, 1947, now Patent No. 2,605,912. In that load-transporting mechanism, a plurality of conveyor flights are mounted on a truck to support thereon a load, for example, a plurality of packages. A fixed stop is provided at the inner end of each conveyor flight, and the load is held tightly against that fixed stop by a holding device removably associated with the conveyor flight at the opposite end of the load thereon.

For use in this and many other situations, it is the object of my invention to provide a holding device which may be associated with a roller conveyor and which will be adjustable to engage and hold the load pieces at any desired point along the conveyor. It is a further object of my invention to provide such a holding device which may be positioned on the conveyor by any of the rollers thereof, which will be adjustable with respect to the position of said roller and will tend to adjust itself against the load, and which may exert some pressure on the load, as to press it tightly against an opposed stop. It is my further object to provide for the ready release of the stop from the load, whether or not under pressure, and to hold the load at a position to clear the conveyor roller-engaging position of the stop so that upon release of the adjustable portion of the stop, the whole may be removed from the conveyor without interference with the load thereon. It is a further object of my invention to make the stop of simple construction and in a form which will be convenient for use and which will permit one-hand operation and use thereof. It is a further object of my invention to make the stop of such character that it will effectively retain against displacement on the conveyor any of the different loads which may be placed thereon and whether comprising one or a series of load pieces, such as packages, work-holding baskets, or the like, regardless of variations in the lengths of the different loads.

In accordance with my invention, my improved holding device comprises a base plate adapted to span and rest on a plurality of the conveyor rollers and having means, such as a hook-shaped portion, to engage one or more of such rollers to fix the position of the base on the conveyor; and the

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base supports a load-engaging member movable through a range, preferably ahead of the base, equal to or greater than the distance between successive positions of the base on the rollers. Desirably, the load-engaging member is pivoted adjacent the front of the base, and a latch bar extends between a pivot on one or the other of the load-engaging member and the base into engagement with the teeth of a rack on the other of said members. Preferably, the latch bar is pivoted to the load-engaging member and the rack is fixed to the base, the rack-engaging end of the latch bar is constrained to movement along the rack, and the latch bar is formed to provide a handle; and with this arrangement, the device lends itself to one-hand operation and use, and the parts by their own weight tend to swing readily to load-engaging position and with this movement or with simple manual pressure on the handle, to lock themselves in proper position against the load.

These and other important features of the invention will appear from the following detailed description and claim.

In the drawing:

Fig. 1 is a side elevation of a stop or holding device embodying my invention, said stop device being shown in place on a roller conveyor; and

Fig. 2 is a plan view of the stop device looking from above in Fig. 1.

The stop device 4 shown in the drawing comprises a base member or plate 6 adapted to span and rest upon three underlying rollers of the conveyor, and which has a depending hook 7 to engage around the foremost of such rollers, and to which base 6 there is pivotally connected a load-engaging member 8. This pivotal connection may conveniently comprise a hinge plate 10 riveted to the base plate 6 and a second hinge plate 12 riveted to the load-engaging member 8, said hinge plates 10 and 12 being provided at their adjacent edges with interengaging knuckles 14 through which passes a pintle 16, hingedly connecting member 8 with base plate 6.

For holding the load-engaging member 8 adjustably in load-engaging position, there is provided a latch member 18 pivoted at 20 to said member 8 and having a pawl 22 to engage any selected one of a plurality of teeth 24 projecting upwardly from a rack 26.

For holding the rack bar 26 securely attached to the base plate 6, there are provided two angle plates 30 which are fixed to the base plate 6 and which engage opposite sides of the bar 26 in an arrangement in which upright members 32 of the

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angle plates 30 are riveted to said rack bar 26. These upright members 32 also provide a combined guideway and retaining means for the latch 18. As shown, the upright members 32 receive between them an end portion of the latch 18 for sliding movement in said guideway. For retaining the latch 18 in co-operative relation to the guideway and to the rack bar 26, the upright members 32, constituting the guideway, are provided with aligned slots 36 (Fig. 1) along which is slidable a bolt 38 which may conveniently be provided with a wing-nut 40 so that upon tightening said wing-nut the latch 18 and plate 8 may be secured in fixed relation to the base plate.

In order that the pawl 22 of the latch 18 may move into and out of engagement with the teeth on the rack bar 26, the end of the latch 18 is provided with a slot 44, the long axis of which is at a right angle to the long axis of the latch 18, the arrangement being such that the sides of the slot slidably engage the bolt 38. During movement of the work-engaging member 8, as from its solid-line position to its dotted-line position in Fig. 1, the pawl 22 of the latch member 18 rides over the teeth 24 and during this movement the pawl end of the latch 18 slides up and down with respect to the bolt 38 which is constrained to move along the slot 36.

A handle 50 is provided on the latch member 18, for its operation and for picking up the stop or holding device 4, said handle 50 and the latch member 18 being located substantially at the middle line of the base plate 6. By having the handle member 50 located on the latch 18 there is provided a ready means for lifting the pawl end of the latch from engagement with the rack bar 26 and thus facilitating the withdrawal of the load-engaging member 8 from contact with a load piece 60 at the end of a line of load pieces on the roller conveyor 62.

As shown in the drawing, the roller conveyor 62 comprises a spaced series of freely rotatable rollers 66 mounted on anti-friction bearings in side bars 64. Other usual forms of roller conveyors may be employed, and the conveyor may be either gravity or power operated.

In use, the holding device embodying my invention is lifted by the handle 50, and set down with its base resting on the rollers at the desired point along the conveyor. Its hook 70 will project downward between a pair of rollers, and the base may then move rearward to bring the hook into engagement with one of the rollers, as indicated in Fig. 1, to fix the stop device against movement in one direction lengthwise of the conveyor 62. With the device held by its handle 50, it will normally hang with its pawl 22 retracted and with the load-engaging member 8 in its rearmost position. As the device is laid on the rollers, its load-engaging member 8 will tend to fall forward to and beyond the dotted line position shown in Fig. 1, and such movement may be positively obtained by pressure on the handle in a downward and forward direction which is substantially a continuation of the motion employed in laying the device on the rollers. If a load piece is lying in its path, the load-engaging member will engage such piece and the pawl will then fall into locking engagement with a tooth 24 of the rack bar 26. Further manual pressure may be exerted on the handle, which will cause the load-engaging member to press rearward against the load piece on the conveyor, as to cause it and any others in line with it to move tightly together and

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against an associated stop at the other end of the line of load pieces.

Whether or not this pressing effect is desired, the load-engaging member 8 may be positioned in an inclined position to hold the load beyond the end of the base 6 and clear of the hook 70. When now it is desired to remove the stop, the handle 50 is lifted, which first disengages the pawl 22 from the rack teeth 24, then pivots the load-engaging member 8 rearward, and then lifts the whole device from the rollers. This result is readily obtained by a simple lifting motion on the handle, and carries the whole device clear of the conveyor rollers without interference from or movement of the load on the conveyor.

The stop is of special utility with the conveyor flights of the truck shown in the above-identified application of myself and Loman, where load pieces are to be held in fixed position on the freely rotatable rollers of each such flight and against a fixed stop at one end thereof. Each flight is loaded from one end and the load pieces moved into a closed series against a stop at the other end, leaving a few rollers at the loading end to receive a holding device. A holding device of this invention may then be placed upon those free end rollers and its handle 50 pressed downward, which moves the load-engaging member forward against the load to press the load pieces together and against the fixed stop. The pawl 22 then locks the load-engaging member in position to hold the load securely during movement of the truck, and the pawl may be clamped in locked position by tightening the wing nut on the bolt 38. Removal of the stop is equally simple, and requires merely loosening of the wing nut and a single lifting movement on the handle 50.

I claim:

The combination with a roller conveyor having a series of freely rotatable spaced rollers extending transversely between oppositely disposed parallel side members, of a stop device for holding a load on said conveyor against movement therealong; said device comprising a base plate adapted to span at least two of said rollers; hook means at one end of said plate curved conformably to the radius of said rollers so as to intimately and continuously embrace a portion of the surface of any one of said rollers an extent sufficient to securely anchor said plate against movement in a direction at normal to and along said rollers in one direction and yet permit the ready removal of said plate by slight movement thereto in an opposite direction; a load-engaging member pivoted on said plate adjacent to said hook means; spaced, oppositely disposed, angle plates extending longitudinally of and affixed to said base plate; rack means fixed between said angle plates with the teeth of said rack means projecting toward the opening between said plates; a buttressing latch member having a pawl formed thereon at one end and pivotally connected at its opposite end to said load-engaging member; said pawl being slidably guided in the space between said angle plates and adapted to engage the teeth of said rack means by gravity; said angle plates having oppositely disposed, longitudinally extending, elongate, aligned slots; said latch member having a transversely disposed, elongate slot provided therein adjacent its pawl end; and manipulatively operable securing means passing through said slots in said angle plates and said

slot in said latch member for releasably locking said buttressing latch member in an adjusted position with respect to the teeth of said rack means to hold the load-engaging member in adjusted position against an end piece of a load supported on said conveyor.

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