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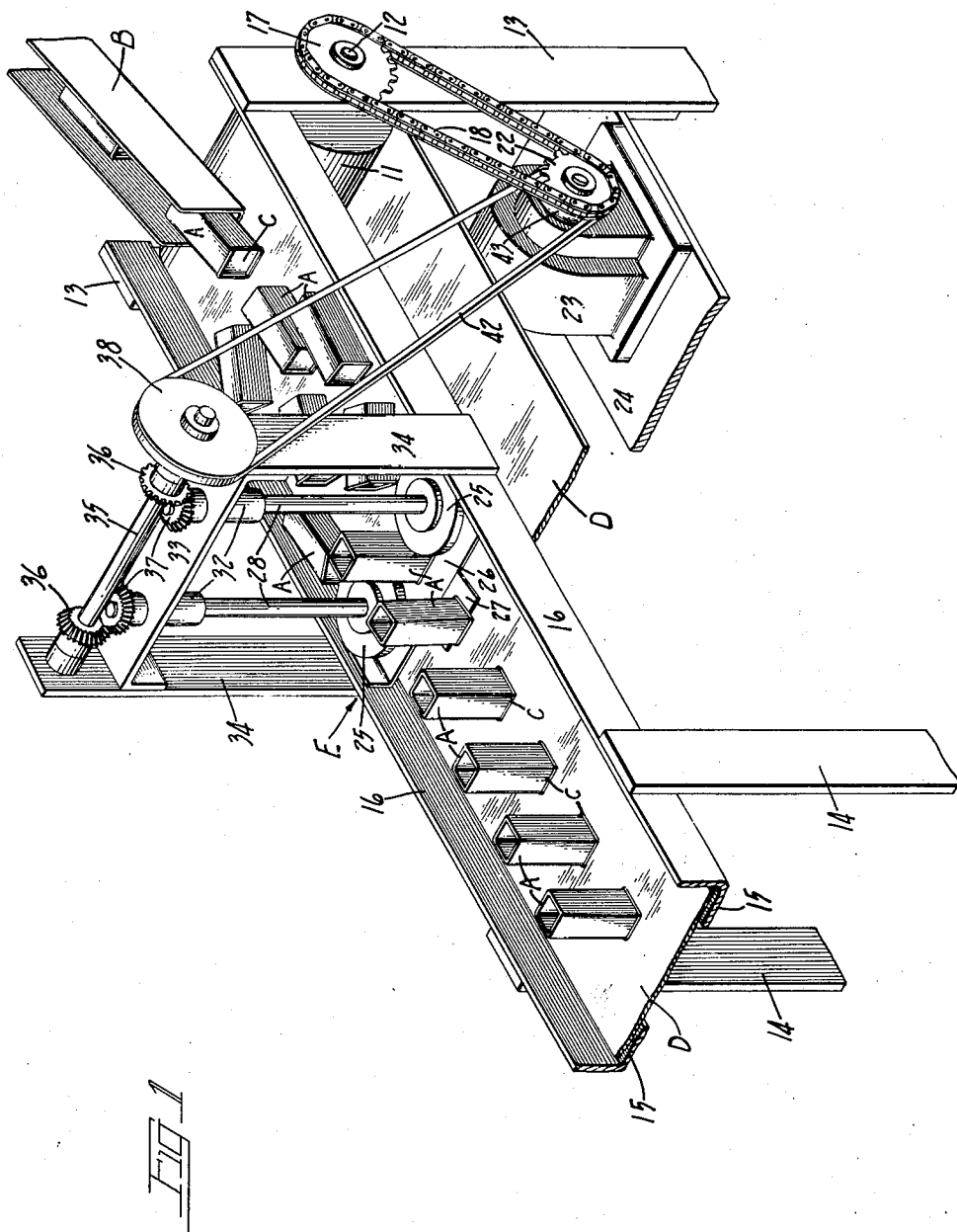
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2,370,188

CAN UPRIGHTING DEVICE

Filed Feb. 17, 1944

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FIG 2

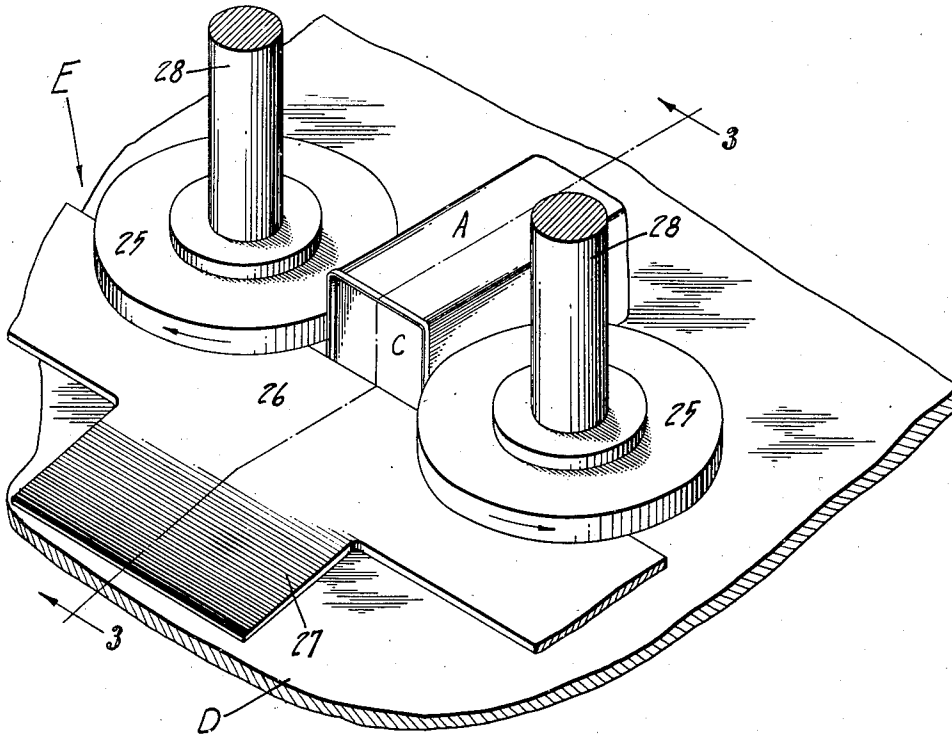
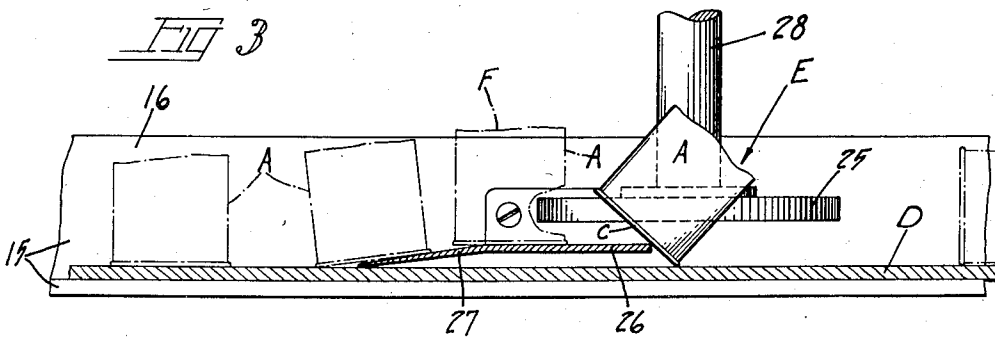


FIG 3



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CAN UPRIGHTING DEVICE

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4 Claims. (Cl. 198—33)

This invention relates to devices for uprighting cans and has particular reference to a device for receiving cans at random or in a promiscuous manner while being advanced by a conveyor and having means for engaging and uprighting individual cans.

The instant invention contemplates a device that may be inserted between different machines in a line, as for example, in a can manufacturing line, wherein tubular cans with or without sealed ends are fed from machines such as clinchers, seamers or the like. These cans are delivered rapidly onto a conveyor of the present device at random. In the case of a rectangular shaped can, having an open end as shown in the drawings, such a can when received will be resting on one side wall with the sealed end first. It is the function of this device to upright these cans individually by swinging each can into a vertical position and thence conveying the cans in an orderly manner with the open ends up. In this embodiment the same conveyor receives and delivers the cans.

An object of the invention is the provision of a device for receiving a random mass of cans, for uprighting the same individually and then delivering the uprighted cans in a predetermined order.

Another object is the provision in such a device of a conveyor for receiving the cans at random in a promiscuous manner and for delivering the uprighted cans in an orderly manner.

Still another object is the provision in a can uprighting device of the character described of a pair of rotatable members which engage an advancing can on opposite sides and adjacent a forward end which move the end of the can against a stationary stop bar and then swing the can into an upright position.

Yet another object is the provision in such an uprighting device of a conveyor for presenting the cans to the rotatable uprighting members and after uprighting each can is moved from the stationary stop bar by the next succeeding uprighted can after which the cans are advanced in an orderly manner by the same conveyor.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

Figure 1 is a perspective view of a can uprighting device embodying the present invention with parts broken away and parts shown in section;

Fig. 2 is an enlarged perspective view of the principal operating parts showing a can being delivered against a stationary bar preparatory to uprighting; and

Fig. 3 is a fragmentary sectional view taken substantially along the line 3—3 in Fig. 2, showing a can in the process of being uprighted.

As a preferred embodiment of the invention there is illustrated in Fig. 1 of the drawings a can uprighting device that may be inserted in a can line and which in the present instance is shown as receiving rectangular fibre cans A by means of an inclined chute B. Such cans may have one metal end C.

In fibre can manufacture a can A having a fibre body is passed through a clinching machine and the metal end C is secured to the body at that time. Therefore where the chute B leads from a clinching machine in such manufacture the sealed end is the forward or leading end. From the chute the cans fall in a promiscuous mass onto a conveyor D. However, the closed end remains in the lead as the cans, still advancing at random, move along toward an uprighting station E.

The conveyor D is of the continuous horizontal type and passes over rollers 11, there being one such roller shown to the right in Fig. 1. This roller is the drive roller and is shown herein as mounted on a cross shaft 12 journaled in suitable bearings formed in vertical legs 13. These legs together with similar legs 14, located at the opposite end of the device, support spaced substantially horizontal angle irons 15 over which travels the upper run of the conveyor D. Side walls 16 of the angle irons provide side guides for the conveyor.

One end of the shaft 12 carries a chain sprocket 17 (Fig. 1) over which passes a drive chain 18. This chain also takes over a chain drive sprocket 22 mounted on end of a motor shaft of an electric motor 23 which operates this device. The motor is mounted on a bracket 24 carried on the legs 13 and suitable reduction means may be used as a part of the motor if this is found desirable to obtain the proper speed. At the uprighting station E the cans are halted temporarily and the conveyor continues to move beneath the cans. This is preparatory to uprighting the cans.

In the uprighting operation, the can first is engaged by rotatable wheels or rollers 25 disposed at station E. These rollers are positioned above the conveyor D and are spaced apart a distance equal to and preferably slightly less

than the width of the cans passing through the device. Provision may be made to vary the distance between the rotatable rollers to accommodate a variety of can sizes if this is found to be desirable.

The rotatable rollers 25 preferably are made of a resilient material such as rubber for frictionally engaging the opposite sides of a can. These wheels are operated in opposite directions and thus direct a can therebetween and against a transverse stop bar 26 (Fig. 2). This bar thus momentarily halts the forward conveyor movement of each can.

The continuous rotation of the rollers 25, against the sides of the can and above the line of engagement with the bar, then swings the horizontally disposed can into a vertical position with the end which was formerly the leading end now at the bottom. The uprighted can rests on the bar 26. Fig. 3 of the drawings in full lines illustrates a can A being pivoted over the edge of the stop bar. It is during this pivotal action that the can is lifted from the conveyor.

The bar 26 extends across the device and is secured to the side guides 16. This bar is located above the conveyor D in the space between the conveyor and the rotatable rollers. The bar 26 has a slightly inclined stationary platform 27 which is formed integral with the bar at a location midway between the rotatable rollers 25 (Fig. 2).

Thus the righted can is deposited by the rotating rollers 25 onto the platform 27, the momentum of the can carrying it forward into the position indicated by dot and dash lines in Fig. 3 as at F. The uprighted can rests upon the platform until the next succeeding can pushes it forward. This action returns it onto the continuously moving conveyor D. The righted cans then are carried along in an orderly manner by the conveyor.

The rotatable rollers 25 previously described are mounted on the lower ends of vertical shafts 28 which are carried at their upper ends in suitable bearings 32 formed in a cross frame 33. This cross frame is supported on vertical frames 34 mounted on the side members 16.

The vertical shafts 28 are rotated from a transverse horizontal shaft 35 journaled in suitable bearings formed in the vertical frames 34. Bevel gears 36 mounted on the shaft 35 mesh with and drive bevel gears 37 carried at the upper ends of the vertical shafts 28.

The shaft 35 is rotated by a belt pulley 38 mounted at one end thereof (Fig. 1). Pulley 38 is operated by a belt 42 which passes around the pulley and a drive pulley 43 mounted on the motor shaft adjacent the sprocket 22. In this manner the electric motor 23 operates the rotatable rollers 25 in time with the travel of the conveyor.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. In a can uprighting device for receiving cans in a promiscuous mass and for delivering the uprighted cans in a predetermined order, the combination of means for advancing a promiscuous mass of cans in a substantially horizontal plane, spaced movable means located above said advancing means for receiving a single can therebetween and for moving the can independently of said advancing means, and stop means extending across the space between and beneath said movable means for engagement with the forward end of the can as the latter is being moved by said movable means to hold the can while said movable means acting on opposite sides of the can above said stop means turn the can into an upright position.

2. In a can uprighting device for receiving cans in a promiscuous mass and for delivering the cans in an uprighted predetermined order, the combination of a conveyor for initially advancing a mass of cans at random and for subsequently advancing orderly uprighted cans, spaced uprighting rollers located above said conveyor for receiving a single can therebetween and for moving the can independently of said conveyor, and a stop bar extending across the space between and beneath said rollers for engagement with the forward end of the can as it is being moved by said rollers to hold the same while the rollers acting on opposite sides of the can above said stop bar turn the can into an upright position.

3. In a can uprighting device for receiving cans in a promiscuous mass and for delivering the cans in an uprighted predetermined order, the combination of a conveyor for advancing a promiscuous mass of cans in a substantially horizontal plane with a predetermined end forward, spaced uprighting rollers located above said conveyor and operating in opposite directions for receiving a single can therebetween and for moving the can independently of said conveyor, actuating means for rotating said rollers in time with said conveyor, and a stop bar extending across the space between and beneath said rollers for arresting advancement of the part of the can in contact with said bar while the rollers engaging the can wall from opposite sides adjacent its forward end uniformly pivot the can about said stop bar and bring the can into an upright position.

4. In a can uprighting device for receiving cans in a promiscuous mass and for delivering the cans in an uprighted predetermined order, the combination of a conveyor for initially advancing the cans at random and subsequently in an uprighted orderly manner along a substantially horizontal plane, spaced uprighting rollers located above said conveyor for receiving a single can therebetween and for moving the can independently of said conveyor, a stop bar extending across the space between and beneath said rollers for engagement with and for lifting the forward end of the can free of said conveyor as the can is being moved by said rollers to pivot it about said stop bar and to turn it into an upright position, and a platform at the bar for retaining the uprighted can until the next oncoming can returns the righted can onto said conveyor.

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