June 20, 1933. E. T. BADEN 1,914,708

CONVEYER UNLOADING DEVICE

Filed Oct. 27, 1930

Fig. 2.

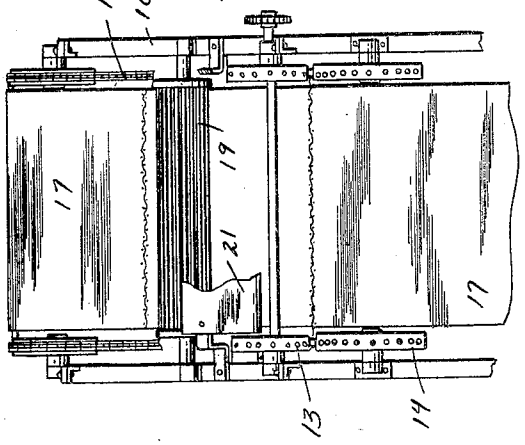
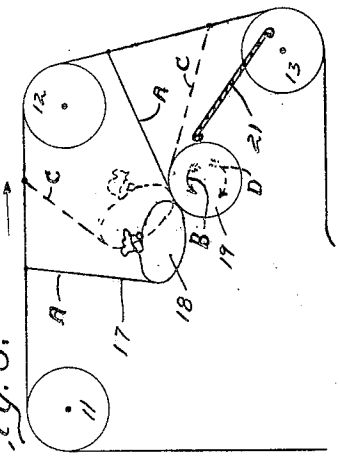


Fig. 5.



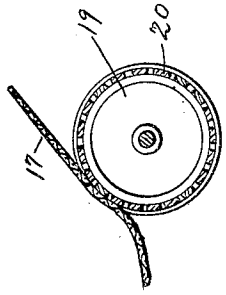


Fig. 4.

Fig. 1.

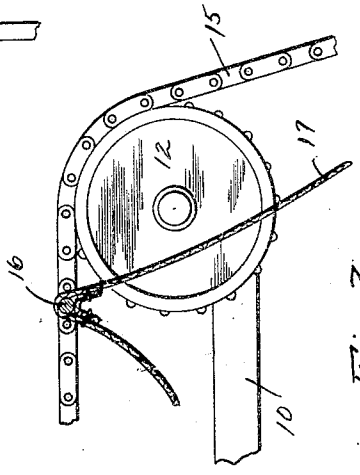
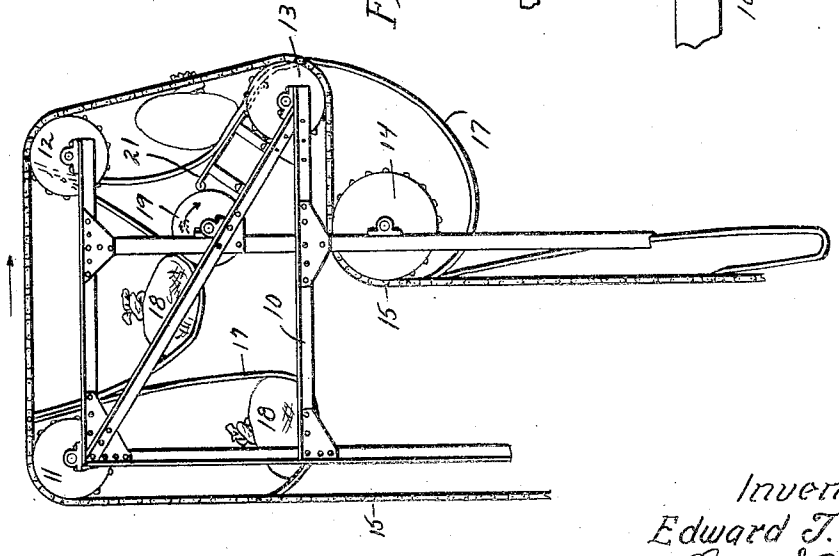


Fig. 3.



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UNITED STATES PATENT OFFICE

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CONVEYER UNLOADING DEVICE

Application filed October 27, 1930. Serial No. 491,455.

My invention relates to that class of conveyers known as the sling type, and is so arranged that articles held in the slings may be raised vertically and then when at a proper point of elevation, the articles will be automatically removed from the slings.

More specifically it is the object of my invention to provide an unloading device of this character of very simple, durable and inexpensive construction, and which requires no power to operate, and which at the same time will prevent an article in the sling from becoming caught within the folds of the sling.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawing, in which:

Figure 1 shows a side elevation of a part of a frame on which is mounted a sling conveyer, and having articles to be conveyed and unloaded shown in some of the slings.

Figure 2 shows a front elevation of same with parts broken away to show the construction of the unloading drum.

Figure 3 shows a detail view illustrating one of the sprocket wheels, a sprocket chain thereon, and a portion of the sling conveyer connected to the sprocket chains.

Figure 4 shows a detail, vertical, sectional view through the unloading drum illustrating a portion of a conveyer sling in engagement therewith; and

Figure 5 is a diagrammatical illustration showing the various movements of the unloading drum as the slings progress past it.

Referring to the accompanying drawing, I have used the reference numeral 10 to indicate generally the supporting frame. Mounted on this frame are a series of pairs of sprocket wheels, the sprocket wheels of each pair having their axes in alinement, but spaced apart from each other. The first pair of sprocket wheels is indicated by the numeral 11, the second pair by the numeral 12, the third pair by the numeral 13 and the fourth pair by the numeral 14.

Passing around these sprocket wheels are two sprocket chains 15. At equally spaced intervals throughout the sprocket chains there are fixed to the sprocket chains transverse shafts 16, and supported upon these transverse shafts 16 is a flexible conveyer 17 of the sling type. The amount of slack in the slings is such that when the sling is traveling upwardly, as shown at the left in Figure 1, a pocket will be formed in the sling into which an article marked 18 may be contained during such upward travel.

The two upper pairs of sprockets 11 and 12 are preferably so arranged that the sprocket chains between them run in a substantially horizontal direction, and the pair of sprockets 13 is so arranged that the sprocket chains travel downwardly and outwardly away from the frame, as shown at the right in Figure 1. The sprockets 14 are so positioned that they will direct the sprocket chains toward the central portion of the main frame, so it may run downwardly closely adjacent to the part of the sprocket chains that runs upwardly, and thereby be enabled to pass through relatively small openings in the floors through which the conveyer is extended.

For the purpose of unloading articles from the slings in such manner that they cannot become caught in the folds of the slings, I have provided the following mechanism:

Mounted upon the main frame is a drum 19 having its periphery formed of slats 20, preferably spaced apart so they will have a gripping effect upon the under surface of the sling. This drum is loosely mounted and is rotatable freely in either direction, and no power is required to drive it. This drum 19 is mounted about midway between the sprockets 12 and 13 and to the left of a vertical line through the sprockets 12, as viewed in Figure 1. A stationary inclined platform 21 is extended from the drum 19 downwardly and outwardly toward the upper end of the sprockets 13, for the purpose hereinafter made clear.

In practical use, with my invention, and assuming that the upper sling has progressed to the point shown in Figure 1 and is in en-

gagement with the drum 19, then obviously as the sling advances the drum 19 will be rotated in the direction shown by the arrow in Figure 1, and this movement will prevent folds or pockets being formed in the sling.

When, however, the sling has advanced to the position shown by solid lines A in Figure 5, the downward movement of the leading end of the sling A would tend to form a slack in the sling, and when this condition arises the drum will rotate in a direction shown by the arrow B in Fgure 5, thus preventing the sling from forming a fold which might tend to pinch the articles contained within the pocket.

When the sling progresses to the position shown by dotted lines in Figure 5, indicated by the letter C, then the leading end of the sling is being pulled downwardly and away from the drum, and the friction thus applied to the drum causes it to rotate in a direction shown by the arrow D in Figure 5, and this movement of the drum prevents the formation of a fold or pocket in the sling and rolls the articles contained in the pockets out upon the inclined platform 21 to a point of discharge.

In practice I have found that my unloading conveyer of the sling type may be made with pockets relatively deep, so they may carry articles vertically and yet these articles will be automatically discharged and without danger of forming folds or pockets which might tend to pinch the articles within the slings.

I claim as my invention:

1. In a device of the class described, the combination of a conveyer of the sling type, three sets of guides for the conveyer, the first and second sets being arranged to guide the conveyer in an approximately horizontal direction and the third set for guiding it downwardly, a downwardly and forwardly inclined platform in the rear of said third set of guides, anti-friction means at the rear of said platform for engaging the lower end of a sling as it is advanced forwardly and at the time the leading end of said sling passes over the second set of guides, whereby movement of the lower end of the forward side of said sling will be retarded or reversed as its outer end moves downwardly and as the outer end of the back side of the sling moves toward the second guides to prevent slack in the sling and to impart rolling movement to a load carried in the sling as it is delivered to said inclined platform.

2. In a device of the class described, the combination of a conveyer of the sling type having a horizontal portion and a downwardly extending portion, a downwardly and forwardly inclined platform below the horizontal portion and back of the downwardly extending portion, anti-friction means at the rear end of said platform for engaging the lower end of a sling as it is advanced forwardly and at the time the leading end of the sling moves along the downwardly extending portion of said conveyer, whereby movement of the lower end of the forward side of said sling will be retarded or reversed as its outer end moves downwardly and as the outer end of the back side of the sling moves toward the downwardly extending portion of said conveyer.

Des Moines, Iowa, September 23, 1930.

EDWARD THOMAS BADEN