Dec. 9, 1930. C. E. CONSTABLE 1,784,273

BUNDLE TRANSFERRING DEVICE FOR CONVEYERS

Filed Nov. 11, 1929

Fig. 1.

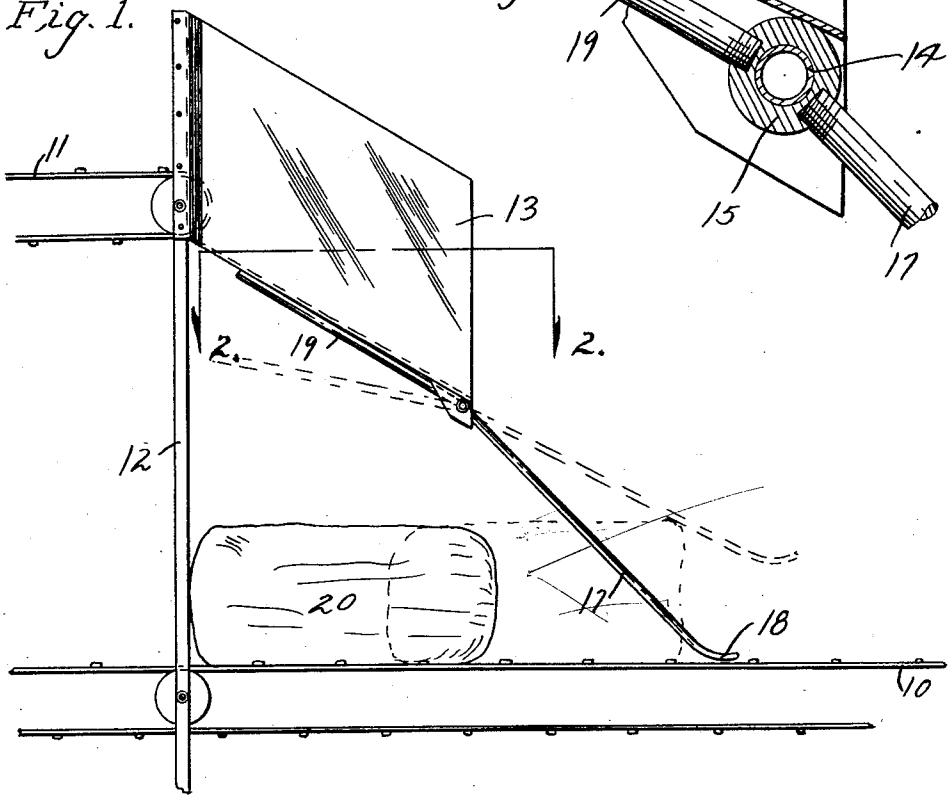
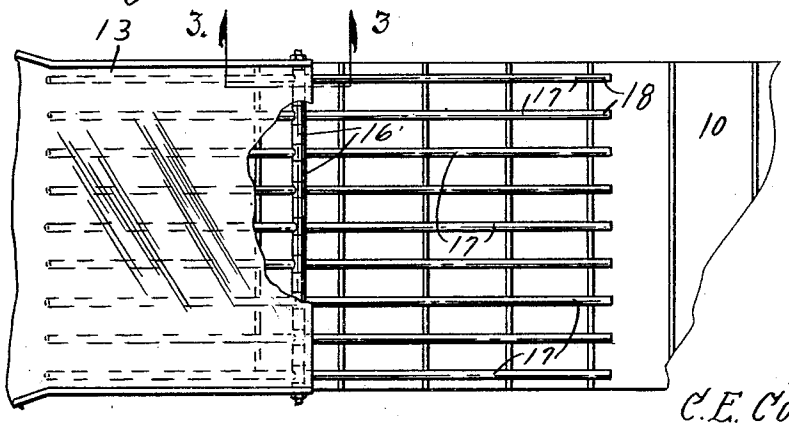


Fig. 3.

Fig. 2.



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Patented Dec. 9, 1930 1,784,273

UNITED STATES PATENT OFFICE

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BUNDLE-TRANSFERRING DEVICE FOR CONVEYERS

Application filed November 11, 1929. Serial No. 406,348.

My invention is particularly designed for use in commercial laundries in which conveyers are employed to transfer the wrapped bundles of laundry articles to a delivery point from one or more positions elevated above the conveyer.

In this connection it should be explained that when a bundle of laundry articles has been wrapped it must be handled gently and carefully to avoid tearing the wrapper or applying such pressure to the bundle as to crush the laundry articles.

The object of my invention is to provide a set of fingers for forming a chute down which the bundles from an elevated position may slide into the delivery conveyer, said fingers being so arranged that they will deliver the bundle gently and without turning it over from the elevated position to the conveyer, and at the same time provide a set of fingers of this class which, when a bundle on the conveyer is being carried under the fingers, they will be elevated by said bundle to position to permit the bundle to slide under them without disturbing the bundle or crushing the articles contained therein, and at the same time provide means whereby, when a bundle is passing under the fingers, no bundle can slide down the fingers upon the bundle on the conveyer. In other words, it holds any bundle that happens to be upon the fingers from sliding off upon the conveyer until such bundle on the conveyer has passed beyond the fingers.

More specifically it is the object of my invention to provide a device of this class in which the fingers are normally held out of frictional contact with the top of the conveyer to avoid wear, and also to provide a series of these fingers, each of which is independently pivoted and counterbalanced, so that each finger will apply only a slight yielding pressure upon a bundle being carried by the conveyer under the fingers, to thereby avoid the possibility of having all of the weight of the entire set of fingers applied to only one part of the bundle passing under the fingers and thereby avoid crushing the bundle or tearing the wrapper.

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 drawings, in which:

Figure 1 shows a side elevation of a bundle transferring device mounted between an upper conveyer and a lower conveyer, the dotted lines showing the position of the tilting fingers when forced to an elevated position by a bundle passing under them upon the lower conveyer.

Figure 2 shows a top or plan view of same, a portion of the stationary chute being broken away to show the counterbalancing rods of the fingers; and

Figure 3 shows an enlarged, detail, vertical, sectional view illustrating the lower portion of the chute, showing the support for the shaft of the tilting fingers and the means for supporting the tilting fingers and counterbalancing rods upon the pivotal support.

Referring to the accompanying drawings, I have used the reference numeral 10 to indicate a horizontally arranged belt conveyer of the construction ordinarily used in commercial laundries for carrying bundles to a delivery point. The reference numeral 11 indicates a similar conveyer in an elevated position with relation to the conveyer 10. Supported upon a suitable frame 12 adjacent to the delivery end of the conveyer 11 is a sheet metal chute 13 inclined downwardly and in a direction in which the lower conveyer is designed to travel.

Beneath the bottom of this chute 13 adjacent to the delivery end thereof, I have mounted a tubular shaft 14 extended transversely of the delivery end of the chute 13. Rotatively mounted upon this shaft 14 is a series of rings 15 held spaced apart from each other upon the tube by collars 16. To each of the rings 15 there is fixed a bundle transferring finger 17, which is inclined downwardly and in the direction of travel of the lower conveyer 10. The lower end of this finger is preferably curved upwardly at 18.

Secured to the opposite side of each of the rings 15 is a counterbalancing rod 19 dis-

posed at such an angle that when its bundle transferring finger is in position slightly spaced apart from the conveyer 10, it will engage the under surface of the chute 13 and limit the downward movement of the finger 17 as illustrated by solid lines in Figure 1.

It will be noted by reference to Figure 1 that the fingers 17 are somewhat longer than the counterbalancing rods 19, and hence the fingers will normally stand by gravity in the position shown by solid lines in Figure 1. However, when a slight pressure is applied to the under surface of the fingers 17, such for instance as would be applied thereto by a bundle 20 upon the conveyer 10, the fingers 17 will readily rise because of the counterbalancing weight of the rods 19, and those of the fingers 17 which are engaged by the bundle 20 will be elevated to position shown by dotted lines in Figure 1, and the bundle may readily pass under the fingers without danger of having the wrapper torn or the articles within the bundle crushed by the weight of the fingers 17.

In this connection it should be explained that by having the fingers independently pivoted, and each provided with its own counterbalancing weight, each of the fingers that happen to be engaged by the bundle will exert only a slight pressure upon the bundle, whereas if the fingers were connected to move up and down in unison, then one finger might possibly have all of the weight of the bundle transferring device applied by it to the bundle, which might tear the wrapper or crush the contents of the bundle.

In practical operation, and assuming that bundles were being delivered at intervals by the conveyer 10, and other bundles delivered at intervals by the upper conveyer 11, and that all of these bundles were to be delivered to a single point of delivery at the terminus of the conveyer 10, then obviously if the bundle upon the conveyer 11 were discharged into the chute 13, it would slide down said chute and be delivered upon the tilting fingers 17, and by them guided gently and without danger of being turned over upon the conveyer 10.

Assuming, however, that at the same time a bundle 20 were approaching the fingers upon the lower conveyer, then this bundle would cause the fingers 17 to tilt upwardly out of the way of the bundle 20, and this would cause the bundle from the upper conveyer to be retained upon the fingers 17 until the bundle 20 passed beyond the range of the fingers 17, whereupon the fingers would then drop by gravity to position adjacent to the lower conveyer and permit the bundle retained by the fingers to slide off upon the lower conveyer without possibility of having one bundle placed on top of another.

My device can obviously be readily used for purposes other than the delivery of laundry bundles, and bundles may be delivered into the inclined chute 13 by means other than a conveyer.

I claim as my invention:

1. The combination with a conveyer of a bundle transferring device comprising a series of fingers pivotally supported above the conveyer and inclined downwardly and in the direction of travel of the conveyer and having their lower ends curved upwardly, a counterbalancing weight for each finger so arranged that the fingers normally stand in position adjacent to the conveyer, said fingers being so shaped and arranged that when moved to an elevated position they will retain a bundle thereon.

2. The combination with a conveyer of a bundle transferring device comprising a series of fingers independently pivoted and extended downwardly and in the direction of travel of the conveyer, and means applied to each finger for counterbalancing its weight so that a slight pressure upon the fingers in the direction of travel of the conveyer will elevate its free end.

3. The combination with a conveyer of a bundle transferring device comprising a series of fingers independently pivoted and extended downwardly and in the direction of travel of the conveyer, means applied to each finger for counterbalancing its weight so that a slight pressure upon the fingers in the direction of travel of the conveyer will elevate its free end, and means for limiting the downward movement of the fingers so they will not frictionally engage the conveyer.

4. The combination with a conveyer of a bundle transferring device comprising a frame, an inclined chute supported by the frame, a shaft mounted beneath the delivery end of the chute, a series of rings mounted upon the shaft, a transferring finger connected to each ring and extended downwardly and in the direction of travel of the conveyer and having its lower end curved upwardly, and a counterbalancing rod fixed to each ring and so positioned that when they engage the under surface of the chute, the lower ends of the corresponding fingers will be held spaced above the conveyer.

5. The combination with a conveyer, of a bundle transferring device comprising a bundle supporting member inclined downwardly and in the direction in which the conveyer is designed to travel, said member being pivotally supported at its upper end and designed to receive bundles to slide by gravity over said member upon the lower conveyer, said parts being so arranged that the bundle on the lower conveyer will engage said member and move it upwardly to position to permit the bundle to pass under.

Des Moines, Iowa, October 19, 1929.

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