No. 831,495. PATENTED SEPT. 18, 1906.

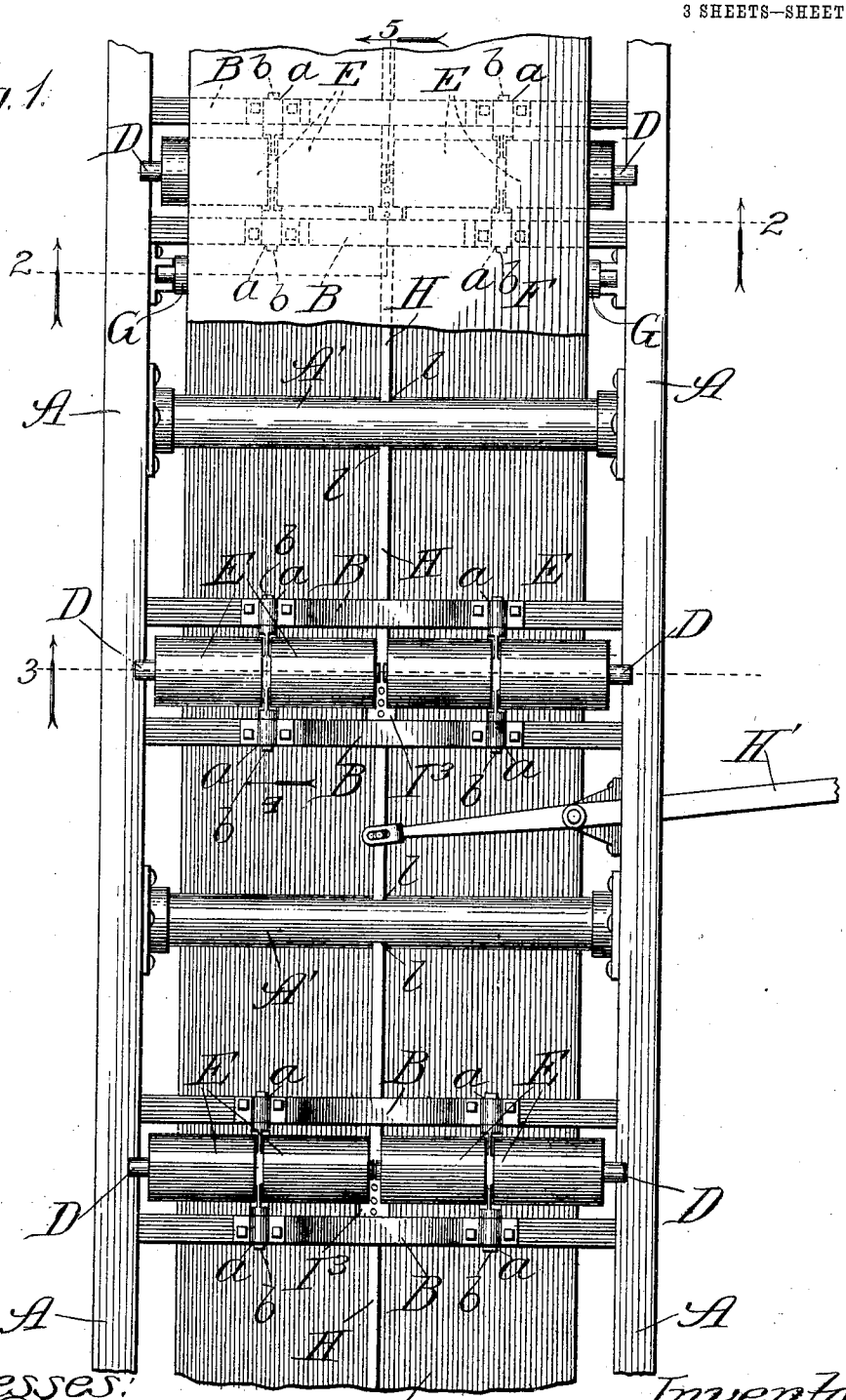
C. H. ANDERSON.

CONVEYER.

APPLICATION FILED OCT. 18, 1904.

3 SHEETS—SHEET 1.

Fig. 1.



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Inventor:
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THE NORRIS PETERS CO., WASHINGTON, D. C.

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3 SHEETS—SHEET 2.

Fig. 2.

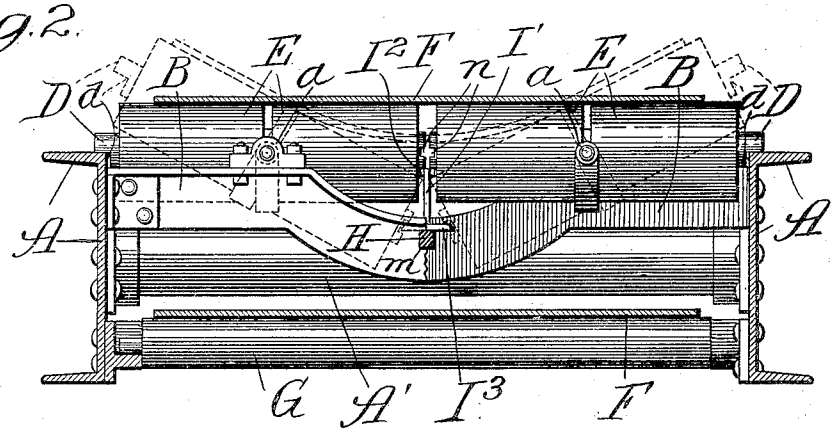


Fig. 3.

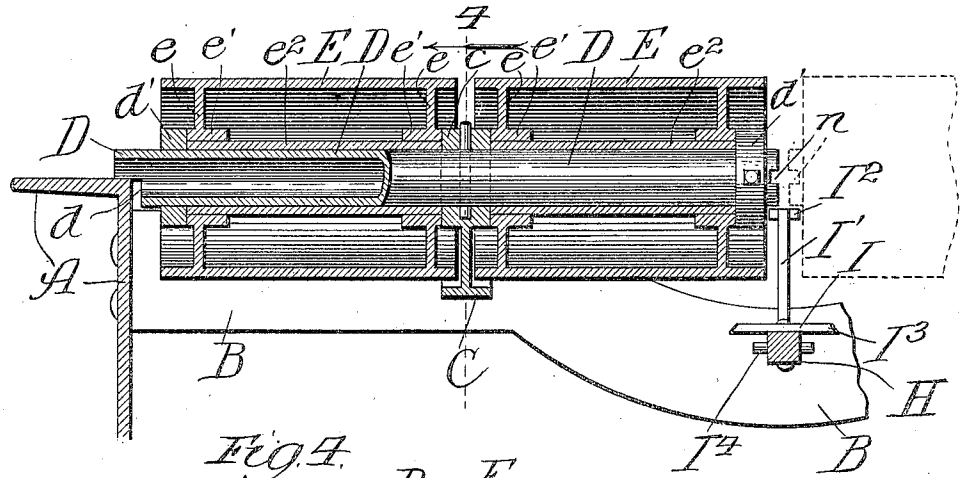
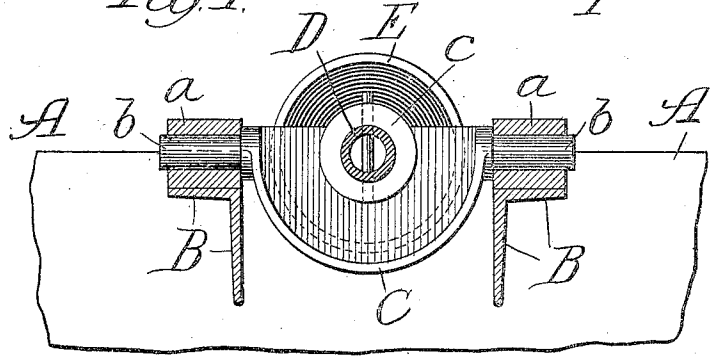


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

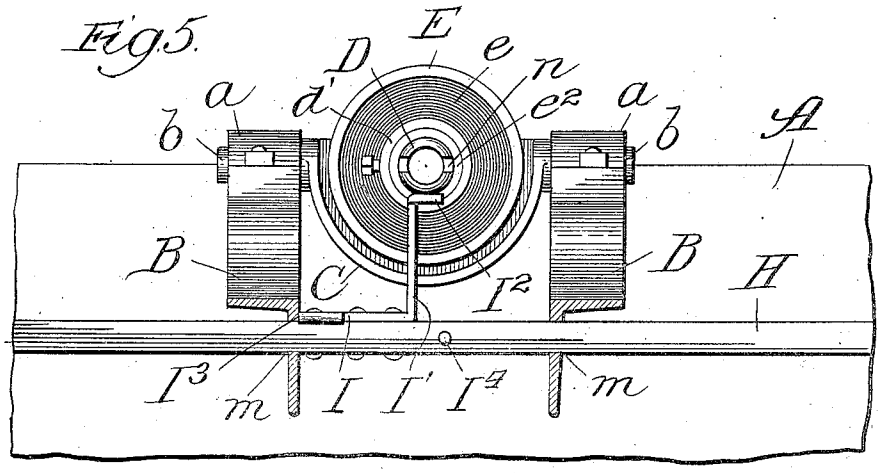


Fig. 6.

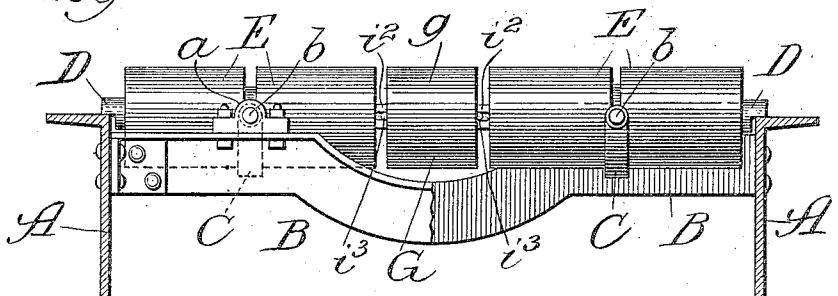


Fig. 7.

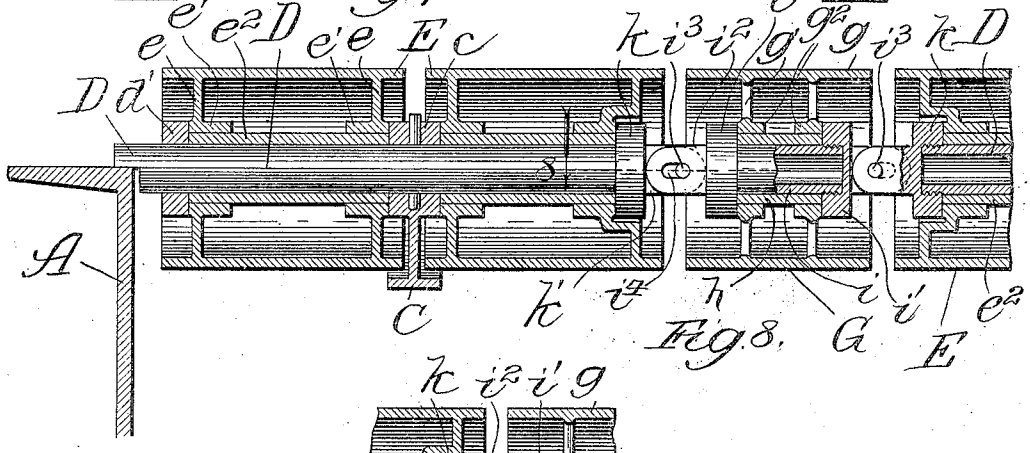
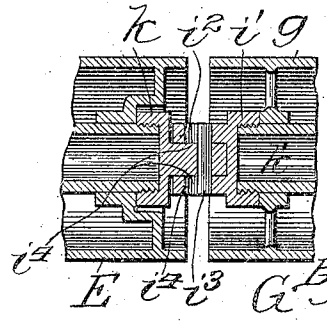


Fig. 8.



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UNITED STATES PATENT OFFICE.

CHARLES H. ANDERSON, OF CHICAGO, ILLINOIS.

CONVEYER.

No. 831,495. Specification of Letters Patent. Patented Sept. 18, 1906.

Application filed October 18, 1904. Serial No. 228,933.

To all whom it may concern:

Be it known that I, CHARLES H. ANDERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Conveyers, of which the following is a specification.

My invention relates to improvement in the construction of conveyers, and more especially portable sectional conveyers employed in warehouses, on wharfs in loading and unloading vessels, &c.; and my object is to provide the conveyer or conveyer-section with improved belt-sustaining means mounted in the conveyer-frame and operating under the weight of the merchandise being conveyed to cause the belt to present a flat or concave carrying-surface, as required to maintain the merchandise, whether in bulk, bales, boxes, or otherwise, safely in place upon the belt while being conveyed.

Conveyers of the type to which my invention relates have hitherto been provided with belt-sustaining rollers adjustable to cause the belt to extend either straight or more or less concave along its carrying stretch, thus adapting the conveyer for carrying boxes or the like rectangular packages or for carrying barrels or the like; but such conveyers require that the rollers be adjusted in advance for either one or another type of package and are not adapted to permit both to be conveyed at one time.

In carrying out my invention I provide a series of belt-sustaining rollers between the end rollers or pulleys of the conveyer so mounted in the conveyer-frame that they will cause or permit the belt to extend with a straight or flat upper carrying-surface while conveying, for example, a large flat-sided case and cause or permit the belt to assume a concave form at its carrying-surface when carrying a barrel or the like, whereby different types of packages may be conveyed by the belt at one time and be held against danger of falling off.

In the drawings, Figure 1 is a broken fragmentary plan view of a conveyer-section constructed with my improvements, part of the upper stretch of the conveyer-belt being broken away to disclose features which would otherwise be hidden; Fig. 2, a section taken on the irregular line 2 2 in Fig. 1; Fig. 3, an enlarged broken section taken on line 3 in Fig. 1; Fig. 4, a broken section taken on line 4 in Fig. 3 corresponding with line 4 in Fig. 1; Fig. 5, an enlarged broken section taken on line 5 in Fig. 1; Fig. 6, a cross-section of the conveyer, illustrating another construction of the rollers; Fig. 7, an enlarged broken longitudinal section of the construction shown in Fig. 6, and Fig. 8 a fragmentary section taken on line 8 in Fig. 7.

A A are the side channel-beams of a conveyer-section. At intervals along the conveyer-frame are pairs of cross-braces B B, fastened at their ends in the upper parts of the channel-beams and bent downward between their ends, as illustrated most plainly in Figs. 2, 3, and 6. On the braces B are the journal-boxes *a a*, in pairs, as shown, to receive the trunnions *b* of spacer-blocks C. The spacer-blocks C may be of the semicircular form shown in Fig. 4, with perforated hubs *c*. Extending through the hubs *c* of each spacer is a tube or shaft D, cut away at its outer end, as shown at *d*, to present a shoulder, which will rest upon the surface of the adjacent beam A when the tube or shaft D is in the horizontal position.

E E are rollers or drums, provided near opposite ends with centers *e*, formed with perforated hubs *e'*. Extending through the perforated hubs and fastened therein are short tubes or quills e^2, adapted to fit and be journaled upon the shaft D. The rollers E and their central tubes e^2 rotate upon the shaft D and are confined upon the shaft between the spacer C and collars *d'* on opposite end portions of the shaft. It will be understood that the rollers E rotate independently upon the shaft and that the said shaft, with its rollers, may rock in the vertical plane on the trunnions *b*.

As illustrated in Fig. 1, the rocking roller devices described are in pairs, terminating at their inner ends near the center of the conveyer and resting at their outer ends when in horizontal position upon the upper surfaces of the beams A. Downward pressure upon the outer end portions of the conveyer-roller devices causes them to extend horizontally, as indicated by full lines in Fig. 2, while downward pressure upon the inner end portions of the conveyer-roller devices causes them to assume inclined positions on their trunnions. The upper stretch of the endless conveyer-belt F rests upon the rollers E, as shown. The lower or return stretch of the conveyer-belt F may rest upon rollers G. It will be understood that in operation the endless conveyer-belt is caused to travel, power

being applied thereto at one or both ends of the conveyer in a common manner. When, for example, a case or box of greater width than the distance between bearings *a* on a brace B is placed upon the belt F to be conveyed, it will so bear upon the rollers E as to cause them to extend in the horizontal plane, the belt extending flat under the box. When, for example, a barrel is placed upon the conveyer, it will press down upon the belt and cause the rollers to yield more or less, as shown by dotted lines in Fig. 2, whereby the belt will be concave. Thus it will be seen that boxes, bales, or the like, which require the belt to extend flatwise, and barrels or the like, which require that the belt shall be concave, may follow each other in rapid succession along the conveyer.

In the construction shown in Figs. 6, 7, and 8 the roller devices instead of extending close to the center line of the conveyer are somewhat shorter and their shafts D are pivotally connected to the opposite ends of an intermediate roller device G. The roller device G comprises a drum portion *g*, having centers *g'*, formed with hubs g^2, fastened upon a short tube *h*. The tube *h* is journaled upon a short shaft *i*, threaded at opposite ends to receive caps *i'*. In this construction the shafts D are also threaded at their inner ends to receive caps *k*. On the caps *i'* are projecting ears i^2, having elongated slots i^4 to receive a cross-extending pin i^3, and on each cap *k* is a projecting lug or ear *k'*, fitting between the adjacent ears i^2 and having a perforation k^2, in which the pin i^3 is fastened. In this construction the intermediate roller G rises and falls in a straight line in the rocking movements of the roller devices by which it is carried, the elongated slot-and-pin connections between the roller devices and intermediate rollers allowing for movement between them. It is desirable when any light flat form of merchandise, for example, is alone to be conveyed by the conveyer to lock the rollers in the raised position, whereby the belt will not sag along its center. When conveying grain, coal, or other material in bulk, it is desirable that the belt shall be maintained concave irrespective of the weight of the material and that the rollers shall be fastened in the depressed position. In order that the rollers may when desired be locked either in the raised or depressed position when desired, means for this purpose are provided in the present construction. H is a bar extending longitudinally and centrally of the conveyer through guide-openings *l* in the cross-braces A' of the frame and through sockets *m* in the braces B. The bar may be moved longitudinally in either direction by means of the lever H', extending beyond one side of the conveyer-frame. Fastened to the bar H between each pair of cross-braces B is a plate or strip I, having an upward-projecting arm portion I', terminating in a horizontal head or stop I^2. The end of the plate I forms a stop I^3, adapted to contact with one brace B, and extending through the bar is a pin I^4 to contact with the other brace B. In the adjacent ends of the shafts D are coincident recesses *n*, as shown in Fig. 3. When the roller devices extend horizontally, as shown in Figs. 3 and 5, the bar H may be slid to the position shown to move the head I^2 beneath the adjacent ends of the shafts D to lock them in raised or horizontal position. When the roller devices are depressed, as shown by dotted lines in Fig. 2, the bar H may be slid to cause the plate portion I to enter the recesses *n* of the shafts and lock them in their depressed position. When the locking mechanism is not to be employed, the bar H may be slid to move the pin I^4 against the brace B, which moves the locking device to one side and out of the way. It will be understood that the bar H is provided with the locking mechanism shown at each pair of roller devices, whereby the locking of all of the said devices in the raised or lowered positions may be accomplished in one operation.

While I prefer to construct my improvements throughout as shown and described, they may be variously modified in the matter of details of construction without departing from the spirit of my invention as defined by the claims.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a conveyer, the combination with the conveyer-frame of conveyer-roller devices pivotally mounted between their ends on supports in the frame to rock freely on said supports and thus automatically position themselves under the weight of articles being conveyed, substantially as and for the purpose set forth.

2. In a conveyer, the combination with the conveyer-frame and endless traveling conveyer-belt thereon, of conveyer-roller devices for the belt pivotally mounted between their ends on supports in the frame to rock freely on said supports and automatically position themselves under the weight of articles being conveyed by the belt, to shape the belt for the conveyance of said articles.

3. In a conveyer, the combination with the conveyer-frame and endless traveling conveyer-belt thereon, of shaping means for the said belt comprising series of supports for opposite side portions of the belt pivotally mounted between their ends in the frame to rock freely on their pivots, and automatically adjust themselves, under the weight of articles being conveyed by the belt, to shape the belt for the conveyance of said articles.

4. In a conveyer, the combination with the conveyer-frame and endless traveling conveyer-belt thereon, of series of supports for

opposite side portions of said belt, comprising roller devices pivotally mounted between their ends in opposite side portions of said frame to rock freely on their pivots under the weight of articles carried by the belt and thus automatically shape the belt for the conveyance of said articles, substantially as set forth.

5. In a conveyer, the combination with the conveyer-frame and endless traveling conveyer-belt thereon, of means for shaping the said belt according to the shapes of the articles being conveyed thereby, comprising series of supports for opposite side portions of said belt pivotally mounted between their ends in the frame to rock freely on their pivots between raised and depressed positions under the weight of articles being conveyed by the belt, and means for locking the supports in one of said positions when desired.

6. In a conveyer, the combination with the conveyer-frame of series of companion conveyer-roller devices pivotally mounted between their ends on supports in the frame to rock freely on said supports and thus automatically position themselves under the weight of articles being conveyed, and intermediate rollers pivotally connected with the adjacent ends of the companion roller devices, substantially as and for the purpose set forth.

7. In a conveyer, the combination with the side beams thereof, of a plurality of companion cross-braces secured to said beams, and a plurality of companion conveyer-roller devices pivotally mounted between their ends and between said companion braces, respectively at opposite sides of the center of the conveyer, to rock on their pivots, substantially as and for the purpose set forth.

8. In a conveyer, the combination with the side beams thereof, of a plurality of companion cross-braces secured to said beams, and a plurality of companion conveyer-roller devices each comprising a shaft, rollers upon said shaft, a spacer-block on the shaft between said rollers, trunnions on the spacer-block and bearings on the companion cross-braces for said trunnions toward one side of the frame.

CHARLES H. ANDERSON.

In presence of—
WALTER N. WINBERG,
E. P. RICH.