

B. H. WRIGHT.
CONVEYER.

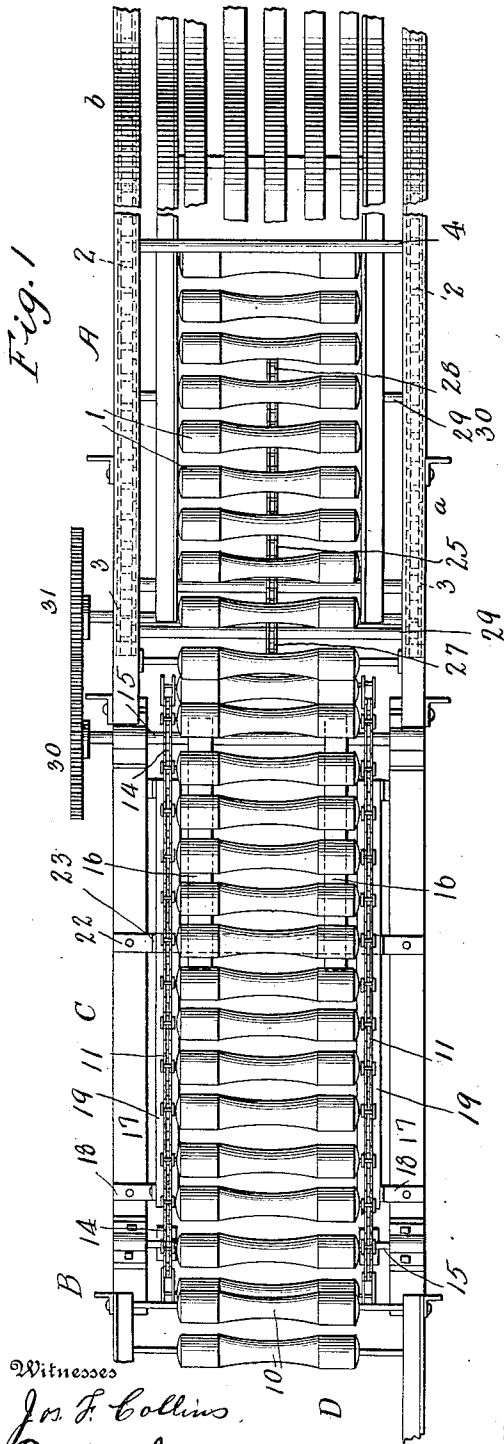
APPLICATION FILED MAY 26, 1908.

Patented Feb. 20, 1912.

2 SHEETS—SHEET 1.

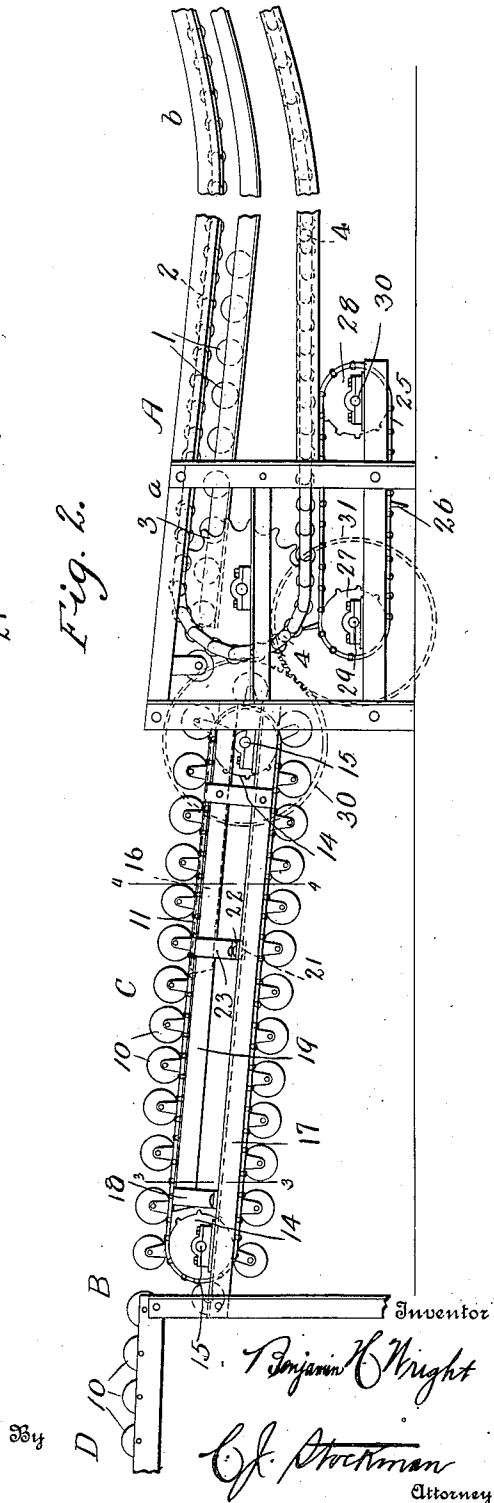
1,017,941.

Fig. 1



Witnesses
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Fig. 2.



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2 SHEETS—SHEET 2.

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Fig. 3.

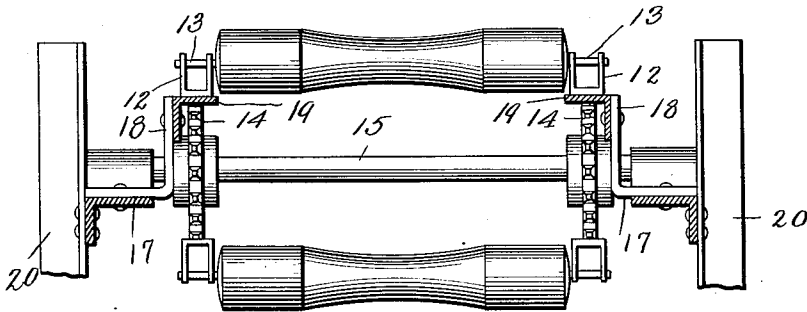


Fig. 4.

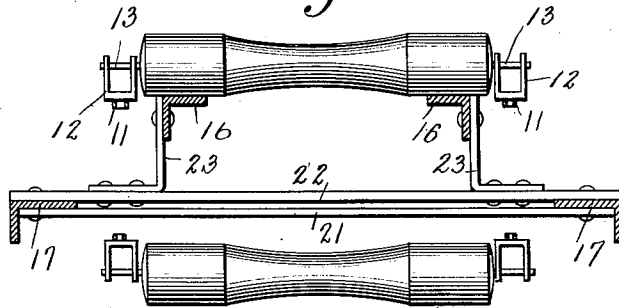


Fig. 5.

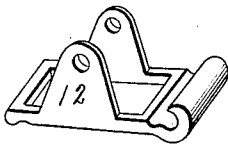
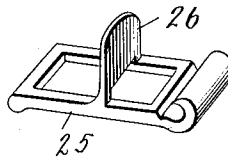


Fig. 6.



Witnesses

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R. Stockman.

Benjamin H. Wright Inventor

By C. J. Stockman Attorney

UNITED STATES PATENT OFFICE.

BENJAMIN H. WRIGHT, OF LONDON, ENGLAND, ASSIGNOR TO THE ALVEY-FERGUSON COMPANY, OF LOUISVILLE, KENTUCKY, A CORPORATION OF KENTUCKY.

CONVEYER.

1,017,941.

Specification of Letters Patent.

Patented Feb. 20, 1912.

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To all whom it may concern:

Be it known that I, BENJAMIN H. WRIGHT, a subject of Great Britain, residing at London, England, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

This invention has relation to conveyers, or systems of conveyers, for transferring from one place to another in a bottling establishment, warehouse, or elsewhere articles, goods, or packages of any description, such as boxes, barrels etc., hereinafter generically referred to as "packages."

It has special reference to a feeding means for use as a part of or in connection with power conveyers, that is to say, conveyers in which a power-actuated traveling means is employed to conduct the packages.

In its best embodiment, it is used with, or as a part of a conveyer, or conveying system, in which the packages are fed automatically to an elevator having a section arranged at an upward inclination along and upon the bed of which the packages are propelled by means of suitable traveling devices which engage the packages.

The objects and advantages of the present invention will fully appear from the following description, considered in connection with the accompanying drawings which exemplify what I at present consider to be the best means for carrying my present objects into practical effect.

It is to be understood at the outset that my invention is not restricted to the illustrated embodiment, but that many changes may be made in the latter, and many means may be employed which are apparently widely different from those illustrated and described, without departing from the spirit of the invention, or the scope of the subjoined claims.

In the accompanying drawings illustrating this preferred embodiment of the invention:—Figure 1 is a plan view of part of a gravity conveyer and part of an elevator with my package delivering means arranged between the same. Fig. 2 is a side elevation of the same parts. Fig. 3 is a cross section on the line 3—3 of Fig. 2, looking in the direction of the arrow. Fig. 4 is a cross section on the line 4—4 of Fig. 2, looking in the direction of the arrow. Fig. 5 is a detail view of a link of the feeder-chain.

Fig. 6 is a detail view of a link of the conveyer-chain.

The same characters of reference designate the same parts in the several views.

A designates what I consider to be the best type and form of power conveyer for use in a system of conveyers comprising my present invention. The illustrated conveyer A is an elevator of the type in which a bed or way is provided to support the packages and means are provided to propel the packages along and upon said bed or way, the receiving portion *a* of which is arranged in an approximately horizontal plane while another of its sections (*b*) is arranged at an upward inclination. The bed or way here shown is provided with freely rotatable elements such as the rollers 1, hereinafter generically referred to as rollers and the illustrated traveling means comprise a pair of endless chains 2, 2 arranged at the sides of the conveyer and traveling over suitably arranged sprockets, of which those at the receiving end of the elevator are designated by the numerals 3, 3. The chains receive their motion from these sprockets and are provided with package-engaging devices preferably composed of freely rotatable flights 4 arranged at intervals along the length of the chains and extending transversely of the conveyer from one chain to the other, and traveling above the way or bed of the latter. These flights constitute the best form of package engaging and propelling devices.

The special object of the present invention is automatically to prevent delivery of a package to the elevator or other power conveyer employed, until one of the traveling devices is in position properly to engage the package, thereby overcoming the well recognized disadvantages incident to the use of these conveyers having no means for preventing the delivery of packages thereto until the traveling or propelling devices referred to can properly engage the same, or incident to conveyers having no means for preventing movement of packages which are improperly engaged by the traveling devices. In pursuance of this object I have provided what may appropriately be termed a feeding mechanism B having an intermittently moved means, as C, for carrying the packages to the power conveyer A with which the feeding mechanism is asso-

ciated and combined. The movement of the carrying means C is at predetermined times such as to convey a package to the conveyer A when the traveling means of the latter are in position properly to engage such packages, and the pauses in the movement of the feeding mechanism occur at those times in the travel of said means when a package-engaging device of the latter would not properly engage a package. This, broadly, constitutes one of the features of novelty of the present invention.

In order that the feeding mechanism B may properly perform its intended function, it is preferred to operate it by or under the control of the traveling means of the power conveyer and this constitutes a further broad feature of novelty of the present invention. In further pursuance of the object of the present invention the traveling package carrier of the feeding means B comprises a series of freely rotatable elements, 10, hereinafter generically referred to as "rollers," and means are provided whereby these rollers are rotated during their travel toward the power conveyer with which the feeding mechanism is associated and combined. The packages thus derive from the rotation of the rollers 10 an impulse which moves them onward upon the rollers, in addition to the onward movement which they receive from the travel of the rollers toward the power conveyer. Provision is made for stopping rotation of the rollers during the pauses in their onward travel, whereby they exert no tendency to feed the packages at such time.

The rollers 10 here shown are carried by a pair of endless traveling chains 11, 11 having links formed or provided with U-shaped projections 12, constituting bearings for the journals 13 of said rollers. The chains 11 engage and derive motion from sprockets 14 mounted upon shafts 15 arranged at the ends of the feeding mechanism. One or more supports 16 are provided near the delivery end of the feeding mechanism and are arranged in position to engage the rollers 10. These supports perform the double function of a means for causing rotation of the rollers engaged therewith, when said rollers are traveling, and of preventing rotation of the rollers engaged therewith during the pauses of the travel of said rollers. They preferably are made of angle iron as shown.

The frame of the feeding mechanism may be of any suitable construction but I prefer to construct it of angle irons 17 extending longitudinally at each side thereof and provided with bent arms 18 to which are attached other angle irons 19 which support the upper or working run of the chains 11, 11. The end supports are vertically arranged angle irons 20. Cross braces 21, attached to the angle irons 17, are arranged at intervals

and adjacent thereto are tie rods 22 which support bent arms 23 which in turn carry the angle irons 16 upon which the rollers 10 travel.

It is preferred to extend the feeding means at an inclination downward toward the power conveyer A, and to arrange the supports 16 throughout a portion only of the length of the feeding mechanism, whereby the rollers 10 which are in the receiving portion of the feeding means, and in advance of the supports 16, are free to rotate at all times and will cause the packages to move by gravity thereon toward the delivery end, thus further inducing a maximum extent of movement of the packages from a minimum extent of travel of the package carrying means.

The means devised by me and preferred for imparting intermittent movement to the carrying means of the feeding mechanism from the moving mechanism of the power conveyer A is as follows:—Mounted below the receiving end of said conveyer is a traveler 25 having one or more projections 26 extending into the path of movement of the flights 4 throughout a portion of the travel of the latter. This traveler is preferably formed of an endless chain having suitable links formed or provided with the projections 26 referred to. This chain travels over sprockets 27 and 28 which are mounted on shafts 29 and 30 respectively. The sprockets 3 and 27 are so arranged with relation to each other that the flights 4 and the projections 26 travel in diverging planes at the receiving end of the conveyer A, thereby becoming automatically disengaged from each other when a flight 4 is contiguous to the place at which it engages a package: thus stopping the feeding of the package at such time and thereby preventing movement of a package from the feeding mechanism to the conveyer at a time when the package would be delivered upon the top of the flight. The sprocket 28 is so arranged with respect to the plane of travel of the flights 4 which are approaching their working position as to conduct the projection 26 into the path of the latter. The shaft 29 carrying the sprocket 27 is suitably connected with the shaft 15 at the delivery end of the feeding mechanism, so as to drive the same. For this purpose intermeshing gears 30 and 31 may desirably be employed.

The receiving end of the conveyer A is preferably provided with a freely rotatable roller 32, or other suitable means, arranged in advance of its traveling mechanism and adapted to support the end of any package which may project from the carrying means of the receiving mechanism.

It will be apparent that in practice a complete system of conveyers will include a means for delivering packages to the feeding

mechanism. This means may constitute a gravity conveyer such as is indicated at D and is shown more fully in Patent No. 714,432 granted to The Alvey-Ferguson Company of Louisville, Kentucky, for the invention of Benjamin H. Alvey, which company also owns Patent No. 790,811 for the invention of Benjamin H. Alvey, aforesaid, relating to the elevator herein partially illustrated and in connection with which I prefer to employ my hereindescribed feeding mechanism.

Particular attention is invited to the fact that the feeding mechanism is arranged in the plane of the receiving portion of an elevator the conducting element whereof engages a wall of the packages, and that said feeding mechanism acts to convey each package to a position where its said wall will be engaged by the approaching package-engaging or conducting elements: as contradistinguished from constructions wherein loose and unpackaged material is fed to traveling buckets from a hopper having a reciprocatory slide for controlling its feed, and also from constructions wherein the thing conveyed by the feeding mechanism, whether in the form of a hanger, a bucket or otherwise, constitutes a part of the apparatus. In this connection it will be noted that the packages herein illustrated form no part of the conveying apparatus and are not of any special construction, and have no special means whatever by which they are suspended or otherwise carried by the power conveyer, the package engaging devices of the latter simply engaging a wall of the package, as already stated; and that packages of various sizes and shapes and kinds may be conveyed without any alteration in the construction or in the size of the conveying apparatus.

It will further be noted that the device is particularly applicable to the class of elevators having an approximately horizontal section leading to and merging into the base of an inclined section and provided with a way or bed which supports the packages and further provided with flights for pushing the packages over said way or bed, and that in combination with such a construction it affords the distinct advantage of preventing access of a package to the elevator at a time when the flight would improperly engage such package.

Having thus described the invention what I believe to be new and desire to secure by Letters Patent, is:

1. A conveying mechanism, comprising a bed or way and a traveling package carrier arranged end to end, said bed or way being adapted to engage the packages being conveyed and said carrier being adapted to conduct the packages relatively to the bed or way, mechanism movable relatively to the carrier and bed or way for moving the pack-

ages along the latter and means controlled by said mechanism for imparting intermittent package-conveying movement to the carrier.

2. A conveying mechanism for packaged articles, comprising a bed or way adapted to engage the packages being conveyed, an intermittently moving package-carrier arranged in advance of the receiving end of the bed or way and forming a continuation of the latter, mechanism having a package-engaging element which travels over the bed or way, and instrumentalities whereby the movement of said carrier is controlled by said traveling means.

3. The combination with a power conveyer having traveling means adapted to transport a package from the receiving end of the conveyer by its engagement with a wall of the package, of a traveling carrier arranged in the plane of the receiving portion of the conveyer, and mechanism for producing relative movement of said traveling means and carrier at times so related to each other that a package will be automatically positioned with its said wall in front of the approaching traveling means.

4. The combination with a power conveyer, having a way adapted to support packages and traveling means for conducting the packages over said way, of means for feeding packages thereto comprising an intermittently movable package carrier arranged in the plane of said way and means for moving said carrier at predetermined times in the movement of the package conducting means.

5. The combination with a power conveyer having a way adapted to support packages and traveling means for conducting the packages over said way, of means for feeding packages thereto comprising an intermittently movable package carrier arranged approximately in the plane of said way and means operated by said conducting means for operating said carrier.

6. The combination of a power-conveyer and a means for feeding packages thereto, arranged end to end, said power conveyer comprising a bed or way and a package-engaging element which travels over the bed or way, and the means for feeding packages to the bed or way comprising a traveling carrier, a traveler arranged in the path of the package-engaging element of said power conveyer and operated intermittently thereby, and means for transmitting movement from said traveler to the package-carrier of the feeder.

7. The combination with a power conveyer having a bed or way adapted to engage the packages being conveyed and an endless traveling means provided with a package-engaging flight for moving the packages upon said way, of means for con-

veying the packages to the bed or way, comprising a package-carrier and means operated by said flight for moving the carrier intermittently.

5. 8. The combination with a power conveyer having a bed or way adapted to engage the packages being conveyed and an endless traveling means provided with a flight whose plane of travel is such that during the working run of said means it will engage a package on the bed or way, a package-carrier having its end in operative relation with an end of the bed or way, an endless traveler disposed in the plane of travel of the returning flight so as to be intermittently operated thereby, and means for transmitting movement of the traveler to the package-carrier.
9. The combination with a power conveyer having traveling package-engaging elements, of means for feeding packages thereto, comprising a traveling package-carrier arranged in advance of the receiving end of the conveyer and means for causing said package carrier to travel intermittently toward the conveyer under the control of the package engaging elements.
10. A conveying mechanism for packaged articles, having a bed or way, a traveling package conducting means provided with a package-engaging element whose planes of travel are above and below the bed or way, a traveling package-carrier having an end in operative relation with an end of the bed or way and means operated by the package conducting means for operating the carrier and stopping its movement at predetermined times with reference to the travel of said element.
11. A conveying mechanism, comprising a bed or way, a traveling package conducting means provided with a package-engaging flight whose planes of travel are above and below the bed or way, and mechanism for automatically feeding a package to the bed or way, comprising a traveling package-carrier and means actuated by said flight for intermittently moving said carrier, the carrier and bed or way being arranged end to end and the parts being so correlated that the movement of said package-carrier will be automatically determined by the position of the flight so as to prevent engagement of a rising flight with the bottom of a package.
12. A conveying mechanism for packaged articles, having a bed or way, a traveling package-conducting means provided with a package-engaging flight, and mechanism for automatically positioning a package on the bed or way in front of said flight, said mechanism comprising a traveling package-carrier whose end is operatively related to the receiving end of the bed or way and means for intermittently moving said carrier, said means including an element hav-

ing connection with the carrier and arranged in the path traversed by said flight in its travel to its package-engaging position, the parts being so related that the carrier-moving means will be disengaged from the flight at a place in the movement of the latter which would cause an improper engagement of the flight with the package.

13. A package-feeding mechanism, comprising traveling rollers to support the packages, means for moving said rollers toward the discharge end of the mechanism, intermittently, and means for preventing rotation of the rollers when the same are not traveling toward the discharge end of the mechanism.

14. A package-feeding mechanism, comprising rollers which support the packages and are arranged to travel in a plane inclined toward the discharge end of the mechanism, means for moving the rollers toward the discharge end of the mechanism, intermittently, and means for preventing their rotation when they are not traveling toward the discharge end of the mechanism.

15. A package feeding mechanism, comprising a traveling package-carrier inclined toward the discharge end of the mechanism and provided with rollers to support the package, means for moving the carrier intermittently toward the discharge end of the mechanism, and roller-engaging means arranged at the discharge end of the mechanism and adapted to revolve the rollers while they are traveling toward the discharge end of the mechanism and to prevent them from revolving when they are not so traveling, said package-carrier extending sufficiently forward of the roller-engaging means to provide a series of rollers free from engagement with the latter and adapted to feed the packages toward the same when the carrier is not traveling.

16. The combination with a power conveyer having traveling package-conducting means, of means for feeding packages thereto, comprising a traveling carrier having rollers to support the packages, and means operated by the package-conducting means for moving said carrier toward the power conveyer.

17. The combination with a power conveyer having traveling package-conducting means, of means for feeding packages thereto, comprising a traveling carrier having rollers to support the packages, means in the path of the package-conducting means for operation thereby, said means arranged to be disconnected from the package-conducting means when a package-engaging device of the latter is in position improperly to engage a package, and devices for transmitting movement from said means to the package carrier.

18. The combination with a power con-

veyer having traveling package-conducting means of mechanism for feeding packages thereto, comprising a traveling carrier inclined toward the power conveyer and having rollers to support the packages, means operated by the package-conducting means for moving said carrier toward the power conveyer, and means for preventing rotation of the rollers at the discharge end of the feeding mechanism when the carrier is not moving toward the power conveyer.

19. The combination with a power conveyer having traveling package-conducting means, of mechanism for feeding packages thereto, comprising a traveling carrier inclined toward the power conveyer and having rollers to support the packages, means operated by the package-conducting means for moving said carrier toward the power conveyer, and means for preventing rotation of the rollers at the discharge end of the feeding mechanism when the carrier is not moving toward the power conveyer, said carrier extending sufficiently forward of the latter means to provide a series of rollers free from engagement with said latter means and adapted to feed the packages toward the same when the carrier is not traveling.

20. A conveyer, provided with a traveling package conducting means, having package-engaging elements, an endless chain having projections which are engaged by the package-engaging elements throughout a portion of the movement of the parts, a package-feeding means, and means whereby the package-feeding means is moved toward the conducting means by movement of said chain.

21. In a conveying mechanism an upwardly inclined section having a bed to support the packages, conducting means comprising an endless traveler and devices to engage the packages and force the same upward upon said bed, traveling means having elements which are engaged by the package-engaging devices throughout a portion of the travel of the latter, and a carrier for feeding the packages to said conducting means, having connection with said traveling means and moved toward the conveying means thereby.

22. In a conveying mechanism, a conveyer having an upwardly inclined section and a receiving section arranged at an angle with said inclined section, and provided with a bed for supporting packages being moved over said sections, means for conducting packages over said bed, a traveling feeding mechanism arranged in the plane of the receiving portion of the conveyer, and means whereby said feeding mechanism is operated by said conveyer.

23. In a conveying mechanism, a conveyer having an upwardly inclined section and a

receiving section arranged at an angle with said inclined section, and provided with a bed for supporting packages being moved over said sections, package engaging devices for conducting packages over said bed, a traveling feeding mechanism arranged in the plane of the receiving portion of the conveyer, and means whereby said feeding mechanism is operated by said conveyer, including a traveling element having connection with the feeding mechanism and arranged in the path of movement of said package-engaging devices.

24. In a conveying mechanism, an upwardly inclined section having a bed to support the packages, conducting means comprising an endless traveler and devices to engage the packages and force the same upward upon said bed, traveling means having elements which are engaged by the package-engaging devices throughout a portion of the travel of the latter, and a carrier for feeding the packages to said conducting means, having connection with said traveling means and moved toward the conveying means thereby, said carrier inclined toward the conducting means and having rollers, and means for preventing rotation of the rollers when they are not moving toward the conducting means.

25. In a conveying mechanism, a conveyer having an upwardly inclined section and a receiving section arranged at an angle with said inclined section, said sections having a bed for supporting the packages, and means for conducting the packages over said bed, combined with a feeding device arranged in the plane of the receiving section of the conveyer and provided with a traveling element having rotative package-carriers, and means whereby said element is moved by a moving part of said conveyer.

26. In a conveying mechanism, a conveyer having an upwardly inclined section and a receiving section arranged at an angle with said inclined section, said sections having a bed for supporting the packages, and a traveling package engaging flight for conducting the packages over said bed, combined with a feeding device arranged in the plane of the receiving section of the conveyer and provided with a traveling element having rotative package-carriers, and means whereby said element is intermittently moved, having an actuating device arranged in the path of said flight.

27. In a conveying mechanism, a conveyer having an upwardly inclined section and a receiving section, arranged at an angle with said inclined section, said sections having a bed for supporting the packages, and means for conducting the packages over said bed, combined with a feeding device arranged in the plane of the receiving section of the conveyer and provided with a traveling carrier

having rotative devices to support the packages, means whereby the rotation of said device is stopped at the conclusion of the traveling movement thereof, and means
5 whereby said element is moved by a moving part of said conveyer.

28. In a conveying mechanism, a conveyer having an upwardly inclined section, and a receiving section, arranged at an angle with
10 said inclined section, said sections having a bed for supporting the packages, and means for conducting the packages over said bed, combined with a feeding device arranged in the plane of the receiving section of the con-

veyer and provided with a traveling carrier 15
having rotative devices to support the packages, means whereby the rotation of said device is stopped at the conclusion of the traveling movement thereof, and means operated by the package conducting means for
20 moving said element toward the conveyer.

Signed at London, England, this sixth day of May 1908.

BENJAMIN H. WRIGHT.

Witnesses:

H. D. JAMESON,
F. L. RAND.