

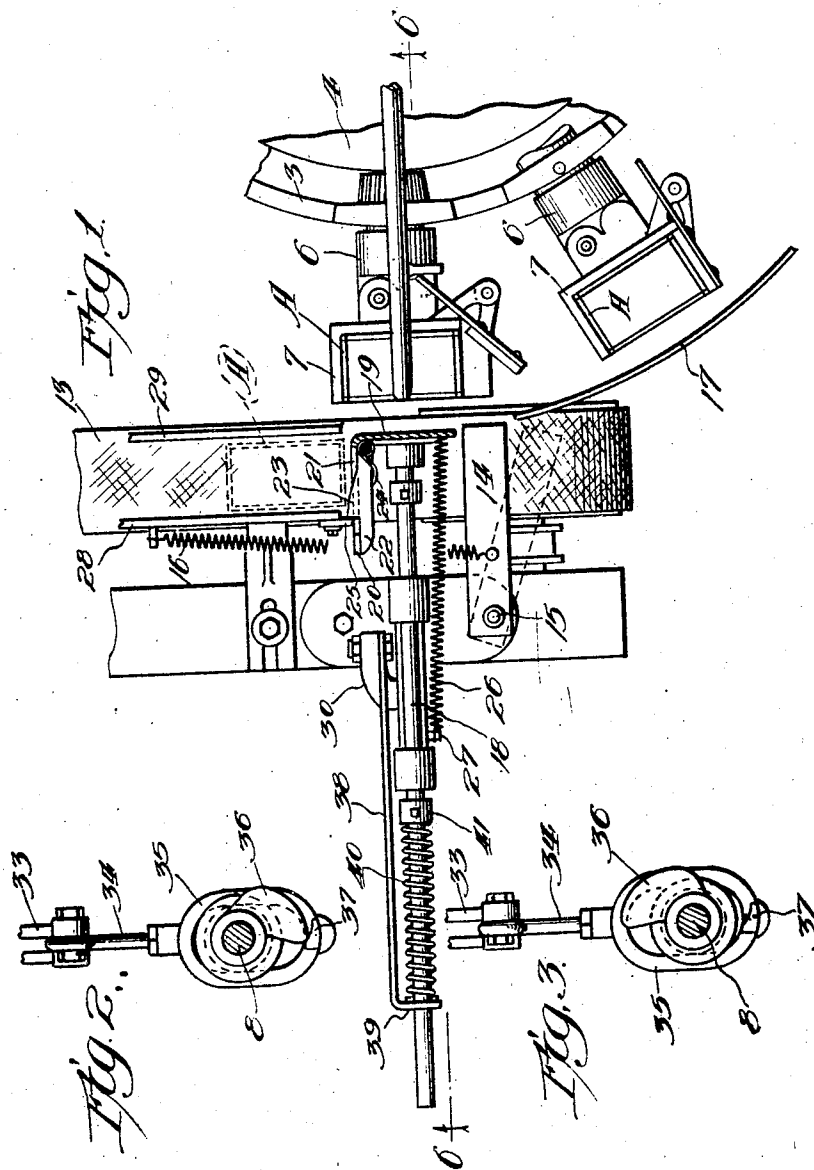
Nov. 3, 1925.

1,559,615

G. HOEPNER

MECHANISM FOR TRANSFERRING CARTONS OR OTHER ARTICLES

Original Filed May 15, 1922 3 Sheets-Sheet 1



Inventor:
 George Hoepner
 Witness: *Harry S. Gutter* by *Wm. F. Freundreich*, Att'y

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MECHANISM FOR TRANSFERRING CARTONS OR OTHER ARTICLES

Original Filed May 15, 1922 3 Sheets-Sheet 2

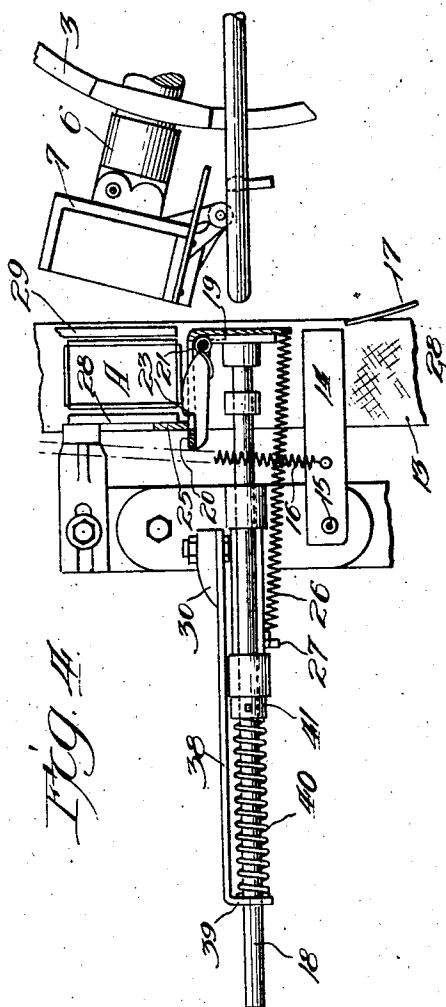


Fig. 4

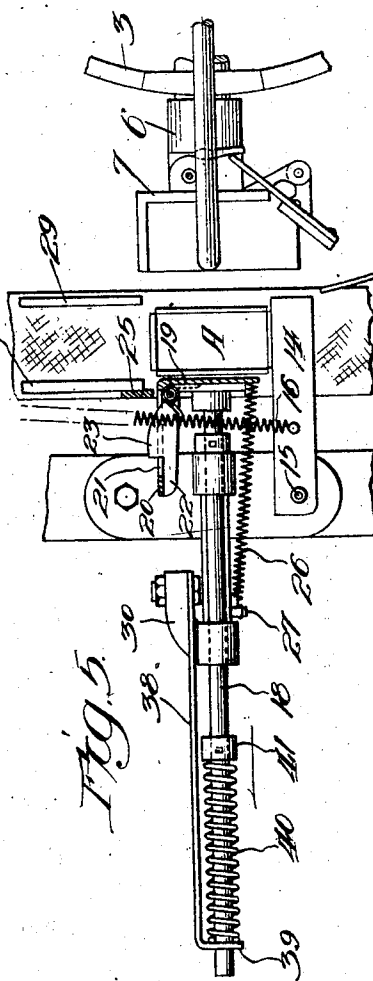


Fig. 5

Witness:

Harry S. Guther by

Inventor:
George Hoepner,

Wm F. Freudenreich,

Att'y.

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Original Filed May 15, 1922 3 Sheets-Sheet 3

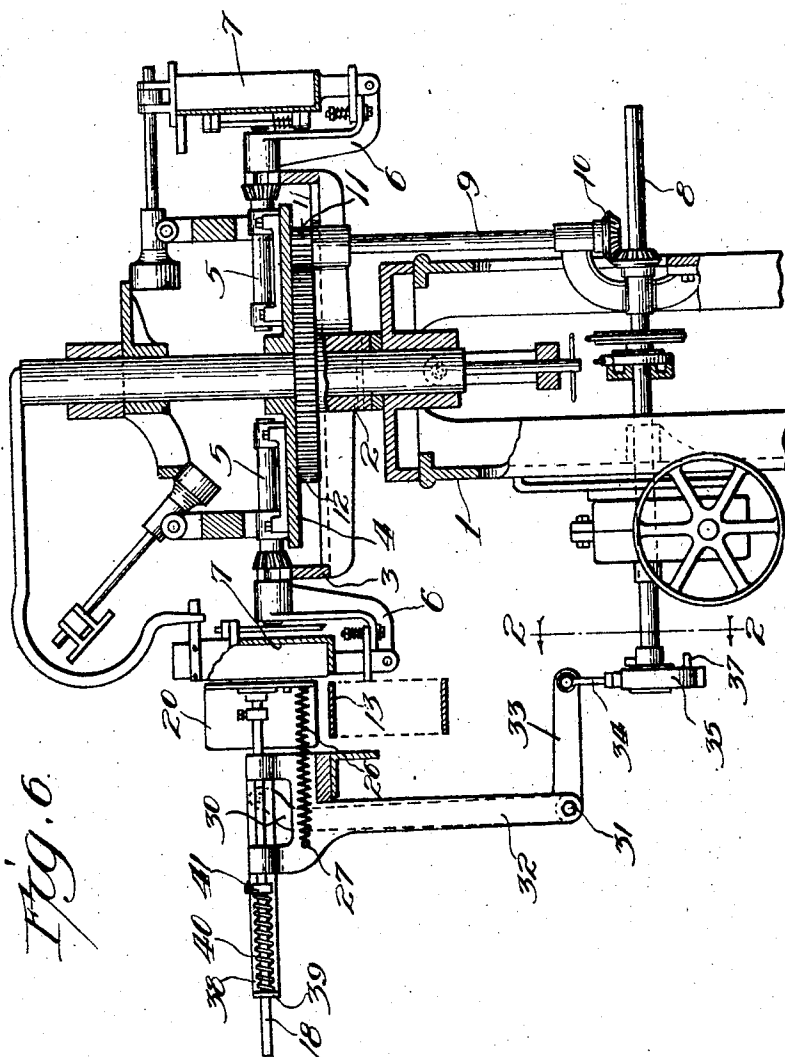


Fig. 6.

Witness:

Harry S. Gauthier

Inventor:

George Hoepner,

by Wm. F. Fendler, Atty

Patented Nov. 3, 1925.

1,559,615

UNITED STATES PATENT OFFICE.

GEORGE HOEPNER, OF CHICAGO, ILLINOIS.

MECHANISM FOR TRANSFERRING CARTONS OR OTHER ARTICLES.

Original application filed May 15, 1922, Serial No. 561,045. Divided and this application filed October 29, 1923. Serial No. 671,481.

To all whom it may concern:

Be it known that I, GEORGE HOEPNER, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Mechanism for Transferring Cartons or Other Articles, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

The present application is a division of an application filed by me on May 15, 1922, Serial No. 561,045, for automatic carton sealing machine.

There are many mechanisms or apparatuses in which it is desirable to transfer articles moved along a way, as for example articles carried by a belt-like conveyor, to a suitable receiving mechanism into which the articles must be delivered one at a time, and at such times when the mechanism is in position to receive them. For example, it is common practice to fill cartons as they are carried past a weighing machine on a conveyor, and then to transfer the filled cartons one at a time to a sealing mechanism. In order properly to transfer the cartons from the conveyor, it is necessary that each carton be accurately positioned with respect to the transferring mechanism before the latter can act.

Specifically considered, the object of the present invention is to produce a simple and novel mechanism whereby filled cartons will be automatically fed from a way or conveyor into a holder or receiver, in such a manner that the feeding mechanism will be positively controlled by individual cartons as they reach a predetermined point, thus insuring perfect synchronism between the feeding of cartons and the movement of the carrier for the holder when there are cartons to be delivered, and preventing the operation of the feeding mechanism at other times.

Viewed in its broadest aspect, my invention may be said to have for its object to produce a simple and novel mechanism for transferring articles from a conveyor or way in such a manner that the mechanism is under the control of an article and will

not operate except when such an article has been brought to a predetermined position with respect thereto.

A further object of the present invention is to produce a simple and novel feeding mechanism for cartons or other articles which will insure against the breaking of or damage to the mechanism in case one or more of the cartons or other articles should happen to become jammed in the mechanism.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claims; but for a full understanding of my invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawings, wherein:

Figure 1 is a top plan view of a mechanism arranged in accordance with a preferred form of my invention, for transferring cartons from a conveyor into a sealing machine a fragment of the sealing machine being shown; Figs. 2 and 3 are sections, on an enlarged scale, taken approximately on line 2—2 in Fig. 6, showing two different positions of the cam actuator for the feeding mechanism; Figs. 4 and 5 are views similar to Fig. 1, showing different positions of the parts, smaller fragments of the sealing machine being shown than in Fig. 1; and Fig. 6 is a section, on a smaller scale, taken approximately on line 6—6 of Fig. 1.

In the drawings I have illustrated my invention as applied to the feeding of filled cartons to a sealing machine and, for the sake of brevity, I shall confine the detailed description to this particular form and use.

Referring to the drawings, 1 represents a suitable base on which is mounted a short pedestal 2 supporting a horizontal annular track 3. Arranged within the track is a rotatable table 4 provided with radial shafts 5 extending outwardly over the track; there being on the outer end of each of the said shafts an L-shaped bracket 6 carrying a carton-holder 7. A horizontal driving shaft 8 is supported by the base of the machine. There is also a vertical shaft 9 driven from the shaft 8 by suitable gearing 10 and provided at its upper end with a pinion 11 meshing with a large gear wheel

12 fixed to the under side of the table. Therefore, as the shaft 8 revolves, it causes the table and the carton holders carried thereby to be rotated about a vertical axis. The carton holders are open on their outer sides so that cartons may be inserted into them in directions radial to the table. The present invention is not concerned with the details of the sealing mechanism, which is fully described and claimed in my aforesaid application; and it is therefore believed that this brief description of the sealing mechanism is sufficient to make clear the use to which my invention is put.

The filled cartons are brought to the sealing machine on an endless horizontal conveyor 13 arranged close to the sealing machine and extending for some distance past a plane extending through the same at right angles and containing the axis of rotation of the sealing machine. Extending across the top of the conveyor is a stop bar 14 so positioned that when the conveyor carries a carton up to the same, a vertical plane at right angles to the conveyor and containing the axis of rotation of the sealer will pass through the center of the carton. Therefore, if one of the holders 7 lies with its open side directly opposite the carton, the latter may push off the conveyor into the holder. The stop bar is preferably hinged to a stationary support at the end farthest removed from the sealer, as indicated at 15, being held in its normal position by means of a spring 16. Therefore, in the event of some accident which would prevent a carton from being fed or transferred from the conveyor to the sealer, the oncoming cartons could push that carton against the stop with sufficient force to swing the stop out of the way and permit the jammed carton to be ejected; there being a curved rail 17 extending from a point above the conveyor near the free end of the stop so as to lie between an ejected carton and the sealer and prevent such carton from interfering with the sealer. The cartons are moved from the conveyor into the holders by means of a pusher bar 18 whose axis is in a vertical plane arranged at right angles to the conveyor and containing the axis of rotation of the sealer; the bar having at its front end a transverse plate 19 of approximately the width and height of a carton, so that the pressure will be distributed over an entire side of the carton, while it is being pushed off the conveyor into the holder. The plate 19 has a rearwardly-extending flange 20 at the edge directed toward the oncoming cartons. This flange is provided with a horizontal slot 21. In the angle formed between the pusher plate and its flange is mounted a dog 22 having a nose 23 that is adapted to project through the slot 21. A light spring 24 tends to hold the dog

pressed against the inner face of the flange with the nose projecting through the slot. At the rear edge of the conveyor is placed a stationary stop 25 in such position that when the pusher is at the forward limit of its movement, as shown in Fig. 1, the nose of the dog will drop in front of the stop, thus holding the pusher plate against being retracted from a position near the front edge of the conveyor. The dog is then in such a position that an oncoming carton, such as indicated in dotted lines at A in Fig. 1, will strike the nose of the dog and, under certain conditions, will push the dog back clear of the stationary stop and thus free the pusher device. A tension spring 26, arranged between the plate 19 and a stationary part 27, tends constantly to retract the pusher device into the position shown in Fig. 5, wherein the pusher plate lies wholly on one side of the path of movement of a carton on the conveyor. The cartons on the conveyor are preferably caused to travel between stationary parallel guides 28 and 29, which may be said to form a way for the cartons. While the pusher device will be retracted by a spring at any time when the spring is left free to act, it must be moved through its forward or working stroke positively and in definite time relation to the movements of the sealer. To accomplish this I have connected the pusher rod to the free end of one arm 30 of a bell crank lever which is pivotally supported at its elbow, as indicated at 31, on a part 32 of the stationary frame. The arm 30 is approximately vertical, while the other arm 33, of the bell crank lever, is approximately horizontal and lies above and parallel to a projecting end of the main shaft 8. To the free end of the arm 33 is attached one end of a connecting rod 34, the other end of which is provided with a closed elongated loop 35 surrounding the main shaft. On the main shaft is a cam 36, and on the lower end of the loop is a laterally-projecting lug 37 lying in the path of the cam. It will be seen that as the main shaft rotates, the cam will strike the lug once during each revolution and will force the lug, and therefore the connecting rod, down. This causes the vertical arm of the bell crank lever to be moved in the clockwise direction, as it appears in Fig. 6, namely, in the direction to perform a working stroke. I prefer so to construct the parts that the nose of the dog, which preferably has a square working face or shoulder for engagement with the stop, cannot be pushed into a released position from the position shown in Fig. 1: That is, while engaging the stop, without exertion of a considerably greater pressure than that required to overcome the resistance of the light spring acting on the dog. In other words, while the parts are in the positions

illustrated in Fig. 1, a carton may be carried up to the pusher device by the conveyor and, although it engages with the locking dog, it will not release the latter, but will come to rest and allow the conveyor to slip along underneath it. However, the pusher device is not at the extreme end of its working stroke while it is being held against retraction on account of the engagement of the dog with the stop, but is in a slightly retracted position; Fig. 4 illustrating the parts as they appear when the pusher device is in its extreme forward position. The sealer and the pusher mechanism are so coordinated that just before a holder in the sealer reaches the receiving position, namely, when the parts are in the positions illustrated in Fig. 4, the cam engages with the lug 37 and pushes it down slightly. The result is that the pusher rod is given a slight forward movement to bring it to the end of its working stroke, thus carrying the nose of the dog away from its cooperating stop. Only a slight pressure is now necessary to force the dog into a released position, and the carton, whose movement may have been arrested by the dog, will again begin to travel with the conveyor and will push the dog back so that as soon as the cam has passed the cooperating lug, the retracting spring is left free to carry the pusher device back into the position shown in Fig. 5. By the time that the carton holder has travelled from the position shown in Fig. 4 to that shown in Fig. 5, the actuating cam will have almost completed another revolution. Consequently the pusher device will be driven through a quick working stroke, while the holder remains in the position shown in Fig. 5; the carton in the meantime having been carried along by the conveyor into engagement with the bar 14, so as to lie in front of the pusher device, and the carton will therefore be moved by the latter into the holder during such working stroke. The cycle can be clearly understood from Figs. 1, 4 and 5. Thus, in Fig. 1, the carton shown in dotted lines has been brought into position to drop the catch when the pusher device has been given the slight forward movement to the position shown in Fig. 4. In Fig. 5 the pusher device has been retracted and the carton has been carried by the conveyor in front of the pusher device so that immediately thereafter the carton will be pushed into the holder, as shown in full lines in Fig. 1.

As another safety factor, in order to prevent possible injury due to accidental jamming of cartons in the feed mechanism, I prefer to make the connection between the bell crank lever and the pusher rod such that the bell crank lever may, under abnormal conditions, oscillate without mov-

ing the rod. To this end I place a spring between the bell crank lever and the pusher rod, the spring being strong enough to give to the connection the requisite rigidity during normal operation, to permit the rod to stand still while the bell crank lever is moving through a working stroke, in case the pusher device meets an obstruction. In the arrangement shown, I have fastened to the upper end of the arm 30 of the bell crank lever a bar 38 that extends rearwardly parallel with the pusher rod and has its rear end bent at right angles, as indicated at 39; the pusher rod extending freely through the part 39. A strong spring 40 is placed around the pusher rod, the same being engaged at its rear end with the member 39 and at its front end with a collar 41 adjustably secured upon the rod. It will therefore be seen that if something should happen to make it impossible for the pusher rod to force a filled carton ahead of it off the conveyor, the forward movement of the upper end of the vertical arm of the bell crank lever would simply produce a compression of the spring 40; thus avoiding any danger of breaking or damaging any of the mechanism. Such a situation would occur if the carton holder reached the receiving point at a time when the oncoming carton could not be squarely aligned with it but was compelled to remain somewhat out of alignment and thus strike against the outer edge of one of the side walls of the holder instead of entering the holder. In such a case the yieldable connection between the actuating lever and the pusher rod would permit the lever to move independently of the rod, in making its working stroke, and no damage to the mechanism could result.

While I have illustrated and described with particularity only a single preferred form of my invention, I do not desire to be limited to the exact structural details thus illustrated and described; but intend to cover all forms and arrangements which come within the terms employed in the definitions of my invention constituting the appended claims.

I claim:

1. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter between a position in which it lies on one side of the conveyor and a position in which it extends across the conveyor, means for actuating said pusher member, a stationary member, and a dog co-operating directly with said members to lock the pusher member in a position overlying the conveyor, said dog being located in the path of and being adapted to be tripped by an object carried toward said pusher member by the conveyor.

2. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter between a position in which it lies on one side of the conveyor and a position in which it extends across the conveyor, means for actuating said pusher member, a stationary member, and a dog mounted on one of said members and adapted to engage the other of said members to lock the pusher member in a position overlying said conveyor, said dog lying in the path of an object carried toward the pusher member by the conveyor.

3. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter between a position in which it lies on one side of the conveyor and a position in which it extends across the conveyor, means for actuating said pusher member, a stationary member, and a dog mounted on said pusher member and adapted to engage said stationary member to lock the pusher member in a position in which it overlies said conveyor, said dog lying in the path of an oncoming object on the conveyor and being movable in the same direction as such object to reach a release position.

4. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter, a spring tending constantly to hold said member retracted in a position in which it lies on one side of the conveyor, a locking dog associated with said member and serving to lock it against retraction in a position overlying the conveyor, said locking dog being arranged in the path of an object approaching said member on the conveyor, and means acting intermittently on said member in a direction tending to move it in the opposite direction from that in which the spring tends to move it.

5. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter, a spring tending constantly to hold said member retracted in a position in which it lies on one side of the conveyor, a locking dog associated with said member and serving to lock it against retraction in a position overlying the conveyor, said locking dog being arranged in the path of an object approaching said member on the conveyor, and means acting intermittently on said member to move it forward past the position in which it is held by said dog and thus leave the dog free to be swung to a release position.

6. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter, a spring tending constantly to hold said member retracted in a position in which it lies on one side of the conveyor, a locking dog associated with said member and serving to lock it against re-

traction in a position overlying the conveyor, said locking dog being arranged in the path of an object approaching said member on the conveyor, and means acting intermittently on said member in a direction tending to move it in the opposite direction from that in which the spring tends to move it, said means including a spring connecting element much stronger than the aforesaid spring.

7. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter, a stop arranged above the conveyor just beyond the said member in the direction of travel of the conveyor, a spring tending constantly to hold said member retracted in a position in which it lies on one side of the conveyor, a locking dog associated with said member and serving to lock it against retraction in a position overlying the conveyor, said locking dog being arranged in the path of an object approaching said member on the conveyor, and means acting intermittently on said member in a direction tending to move it in the opposite direction from that in which the spring tends to move it.

8. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter, a stop arranged above the conveyor just beyond the said member in the direction of travel of the conveyor and yieldable in the direction of travel of the conveyor, a spring tending constantly to hold said member retracted in a position in which it lies on one side of the conveyor, a locking dog associated with said member and serving to lock it against retraction in a position overlying the conveyor, said locking dog being arranged in the path of an object approaching said member on the conveyor, and means acting intermittently on said member in a direction tending to move it in the opposite direction from that in which the spring tends to move it.

9. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter, a spring tending constantly to hold said member retracted in a position in which it lies on one side of the conveyor, a locking dog associated with said member and serving to lock it against retraction in a position overlying the conveyor, said locking dog being arranged in the path of an object approaching said member on the conveyor, a bell crank lever connected at one end to said pusher rod, and a device adapted to act intermittently on the other end of said bell crank lever to swing the lever in a direction to carry the pusher member forwardly across the conveyor.

10. A movable conveyor, a pusher member arranged above and adapted to reciprocate

transversely of the latter, a spring tending constantly to hold said member retracted in a position in which it lies on one side of the conveyor, a locking dog associated with said member and serving to lock it against retraction in a position overlying the conveyor, said locking dog being arranged in the path of an object approaching said member on the conveyor, a bell crank lever connected at one end to said pusher rod, and a rotatable cam in position to act on the other arm of said bell crank lever at a predetermined point in its rotation to cause the lever to move said member in a forward direction across the conveyor while leaving the lever free to be moved independently of the cam at other times.

11. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter, a spring tending constantly to hold said member retracted in a position in which it lies on one side of the conveyor, a locking dog associated with said member and serving to lock it against retraction in a position overlying the conveyor, said locking dog being arranged in the path of an object approaching said member on the conveyor, a bell crank lever connected at one end to said pusher rod, and a device adapted to act intermittently on the other end of said bell crank lever to swing the lever in a direction to carry the pusher member forwardly across the conveyor, the connection between the bell crank lever and the pusher member including a spring which is stronger than the aforesaid spring.

12. A rotatable element having a plurality of holders at the periphery, a conveyor extending past said element in proximity to the path of said holders, a pusher member arranged above said conveyor and movable transversely of the conveyor at right angles to the adjacent portion of the path of travel of said holders, a spring tending to retract said member to a position clear of the conveyor; mechanism adapted to move said member in the direction of a working stroke only at intervals bearing a definite time relation to the travel of the holders, leaving the spring free to act during the remainder of the time; a stationary member; and a dog mounted on one of the aforesaid members and adapted to engage the other of said members to lock the pusher member against retraction by the spring, the dog lying in the path of an object carried toward the pusher member by the conveyor and being adapted to be tripped by such object to release the pusher member.

13. In combination, a conveyor, a pusher member arranged above and movable transversely across the conveyor, a holder adjacent to the conveyor and movable across the line of movement of said pusher member, a

spring for retracting said member, an actuator for moving said member through a working stroke toward said holder, an element adapted to engage said actuator at intervals bearing a definite time relation to the movement of said holder to cause said member to move to the end of a working stroke and leave it free at other times, a stationary stop, and a dog adapted to be tripped by an object carried toward said pusher member by the conveyor mounted on said pusher member in position to engage with said stop and hold the pusher member against retraction.

14. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter between a position in which it lies on one side of the conveyor and a position in which it extends across the conveyor, said member comprising a rod having at one end a plate arranged at right angles thereto, said plate having a flange extending rearwardly from that edge which is directed toward an object approaching said member on the conveyor, means for actuating said pusher member, a stationary stop adjacent to the path of travel of said flange, and a dog carried by said flange and adapted to engage said stop to lock the pusher member in a position overlying the conveyor, said dog being located in the path of and being adapted to be tripped by an object carried toward said pusher member by the conveyor.

15. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter between a position in which it lies on one side of the conveyor and a position in which it extends across the conveyor, means for actuating said pusher member, a stationary stop located on one side of the conveyor adjacent to said member, and a dog mounted on said member and adapted to engage the other of said members to lock the pusher member in a position overlying said conveyor, said dog being movable in the direction of travel of the conveyor into a release position and projecting into the path of an object carried toward the pusher member by the conveyor.

16. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter, a spring tending constantly to hold said member retracted in a position in which it lies on one side of the conveyor, a stationary stop at one side of the conveyor and adjacent to said member, a locking dog mounted on said member in position to engage with said stop when said member is in a position overlying the conveyor and lock said member against being retracted, said locking dog being arranged in the path of an

object approaching said member on the conveyor and being adapted to be moved thereby to a release position, and means acting intermittently on said member to
 5 move it forward to the end of a working stroke past the position in which it is held by said dog and thus carry the dog away from the stop and leave the dog free to be moved to a release position by said
 10 object.

17. A movable conveyor, a pusher member arranged above and adapted to reciprocate transversely of the latter, a spring tending constantly to hold said member
 15 retracted in a position in which it lies on one side of the conveyor, a stop arranged at one side of the conveyor adjacent to said member, a locking dog associated with said member and adapted to engage said
 20 stop to lock said member against retraction in a position overlying the conveyor, said locking dog being arranged in the path of an object approaching said member on the conveyor and movable thereby to a
 25 release position, a bell crank lever connected at one end to said pusher rod, and a device not connected to the lever adapted to act intermittently on the other end of said lever to swing it in a direction to move
 30 the pusher member forwardly across the conveyor far enough to carry the dog out of engagement with the stop and thus leave the dog free to be moved into its release position.

35 18. A movable conveyor, a holder movable past the conveyor and following a path which brings it adjacent to the conveyor at a predetermined point in its movement, a pusher member adapted to push an
 40 object from the conveyor into engagement with the holder when the latter reaches a predetermined point, a spring for retracting said member, a lever for actuating said member through a working stroke, a
 45 stationary stop at one side of the conveyor, a dog mounted on said member at such a point that it will engage with said stop after said member has been retracted slightly from the end of its working stroke
 50 and lock said member against further retraction, said dog lying in the path of and adapted to be tripped by an object carried toward said pusher member by the conveyor, and means disconnected from said
 55 lever adapted to engage the same intermittently to cause the latter to move the pusher member to the end of its working stroke.

19. A movable conveyor, a pusher member
 60 arranged above and adapted to reciprocate transversely of the latter, said member comprising a rod having on one end a plate arranged parallel with the direction of travel of the conveyor and having on the edge
 65 directed toward an advancing object a rear-

wardly-directed flange arranged at right angles thereto, said flange having a slot extending through the same, a stop arranged above the conveyor just beyond the said member in the direction of travel of the conveyor, a spring tending constantly to hold
 70 said member retracted in a position in which it lies on one side of the conveyor, a locking dog pivotally mounted on said plate and adapted to project into the path of an object
 75 approaching said plate on the conveyor, a stop on one side of the conveyor in position to be engaged by said dog to hold said member against retraction in a position overlying said conveyor, and means acting inter-
 80 mittently on said member in a direction tending to move it in the opposite direction from that in which the spring tends to move it.

20. A movable conveyor, a series of holders movable past the conveyor and following
 85 a path which brings them successively into positions adjacent to the conveyor, a pusher member adapted to push an object from the conveyor into engagement with the holder
 90 when the latter reaches a predetermined point, a spring for retracting said member, a lever for actuating said member through a working stroke, a stationary stop on one side of the conveyor, a dog mounted on said
 95 member at such a point that it will engage with said stop after said member has been retracted slightly from the end of its working stroke and lock said member against further retraction, said dog lying in the path of
 100 and adapted to be tripped by an object carried toward said pusher member by the conveyor; and means disconnected from said lever and operating in predetermined time relation to the movement of said holders,
 105 adapted to engage the same intermittently to cause the latter to move the pusher member to the end of its working stroke whenever a holder registers with said pusher member.
 110

21. In combination with a way along which articles are adapted to travel, an article pusher movable across said way to remove therefrom an article disposed in front
 115 of said pusher, means for intermittently advancing said pusher, means normally effective to fully retract said pusher after each advance thereof, and an automatic latch mechanism for said pusher automatically applied when no article is correctly positioned
 120 on said way for removal therefrom by said pusher whereby to prevent full retraction of the pusher, and automatically removed when an article is correctly positioned on said way whereby to permit full retraction
 125 of the pusher and subsequent advance of said article to a position in front of said pusher wherein it will be removed from the way upon the next advance of the pusher.

22. In combination, with a way along 130

which articles are adapted to travel, an article pusher movable across said way to remove therefrom an article disposed in front of said pusher, means for intermittently advancing said pusher, means normally effective to fully retract said pusher after each advance thereof, a latch mechanism for said pusher automatically applied when no article is correctly positioned on said way for removal therefrom by the pusher whereby to prevent full retraction of the pusher, and automatically removed when an article is correctly positioned on said way whereby to permit full retraction of the pusher and advance of the article to a position in front of said pusher wherein it will be removed from said way upon the next advance of the pusher, and a latch releaser mounted for contact with an article correctly positioned on said way as the pusher commences its return stroke and effective upon such contact to remove said latch.

23. In combination with a way along which articles are adapted to travel, an article pusher movable across said way to remove therefrom an article disposed in front of said pusher, means for intermittently advancing said pusher, means normally effective to fully retract said pusher after each advance thereof, a latch mechanism for said pusher automatically applied when no article is correctly positioned on said way for removal therefrom by the pusher whereby to prevent full retraction of the pusher and automatically removed when an article is correctly positioned on said way whereby to permit full retraction of the pusher and subsequent advance of the article to a position in front of said pusher wherein it will be removed from said way upon the next advance of the pusher, and a latch releaser mounted on said pusher for contact with an article correctly positioned on said way as the pusher commences its return stroke and effective upon such contact to remove said latch, said latch releaser so mounted upon said pusher as not to contact an article incorrectly positioned on said way.

24. In combination with a way along which articles are adapted to travel, an article pusher movable across said way, means for intermittently advancing said pusher, means normally effective to fully retract said pusher after each advance thereof, and means for preventing full retraction of the pusher when no article is correctly positioned on said way for removal therefrom by said pusher.

25. In combination with a way along which articles are adapted to travel, an article pusher movable relative to said way, means for intermittently advancing and retracting said pusher, and a latch mechanism for said pusher automatically released when an article is correctly positioned on said arti-

cle way whereby to permit full retraction of said pusher, and automatically applied to prevent such full retraction when no article is correctly positioned on said way for removal therefrom by said pusher.

26. In combination with a way along which articles are adapted to travel, an article pusher movable intermittently across said way, means for intermittently advancing and retracting said pusher, a normally applied latch for said pusher, and a latch releaser mounted on said pusher for contact with an article correctly positioned on said article way and effective upon such contact to remove said latch.

27. In combination with a way along which articles are adapted to travel, an article pusher movable intermittently across said way, means for intermittently advancing and retracting said pusher, a normally applied latch for said pusher, and a latch releaser mounted on said pusher for contact with an article correctly positioned on said article way and effective upon such contact to remove said latch, said latch releaser so mounted on said pusher as not to contact an article incorrectly positioned on said article way.

28. In combination with a way along which articles are adapted to travel, an article pusher movable across said way, means for intermittently advancing and retracting said pusher, a normally applied latch for said pusher effective when applied to prevent full retraction of said pusher and when removed to permit such full retraction, and a latch releaser mounted on said pusher and actuated by contact with an article correctly positioned on said way to remove said latch.

29. In combination with a way along which packages are adapted to travel, a package pusher movable across said way, means for intermittently advancing and retracting said pusher, a normally applied pusher latch, and a latch releaser actuated by contact with a package correctly positioned on said way to remove said latch.

30. In combination with a way along which packages are adapted to travel, a package pusher movable across said way, means for intermittently advancing and retracting said pusher, a pusher latch, a spring normally maintaining said latch applied, and a latch releaser carried by the pusher and actuated by contact with a package correctly positioned on said way to remove said latch.

31. In combination with a way along which packages are adapted to travel, a package pusher movable across said way, means for intermittently advancing and retracting said pusher, a rock shaft, a normally applied pusher latch thereon, and a latch releaser on said shaft actuated by con-

tact with a package correctly positioned on said way to remove said latch.

32. In combination with a way along which articles are adapted to travel, an article pusher movable transversely of said way for successively removing articles therefrom, means for advancing said pusher, means normally effective to retract said pusher, and a normally applied latching mechanism for said pusher effective to prevent full retraction of said pusher when no article is correctly positioned on the way for removal by the pusher and releasable by the actuation of an article correctly positioned on said way to permit full retraction of the pusher.

33. In combination with a package way along which packages are adapted to travel, an article pusher having a package stop face disposed across said way and a package pushing face effective to remove a package disposed in front of said pusher, means for advancing and retracting said pusher, a latch mechanism for said pusher automatically applied and removed at each advance of said pusher and effective when applied to prevent full retraction of the pusher, and a latch releaser disposed beyond said stop face of the pusher for contact with a package correctly positioned on said way and effective upon actuation to remove said latch and permit the pusher to be fully retracted so that said package may advance to a position in front of the pushing face of the pusher for transfer thereby upon the next advance of the pusher.

34. In combination with a package way along which packages are adapted to travel, a package pusher having a stop face nor-

mally disposed across said way to prevent packages from advancing therealong, means for advancing said pusher, means normally effective to fully retract said pusher whereby to permit a package to advance into a position in front of said pusher for transfer thereby upon the next advance of the pusher, a normally applied latch mechanism effective to prevent full retraction of the pusher, and a latch releaser disposed beyond the stop face of the pusher for contact with a package correctly positioned on said way whereby to remove said latch and permit full retraction of the pusher.

35. In combination with a way along which packages are adapted to travel, a package pusher having a pushing face disposed substantially parallel to said way and a package stop face disposed at substantially right angles thereto, means for intermittently advancing said pusher across said way, means normally effective to fully retract said pusher whereby to clear the package stop face thereof from the way and permit a package on said way to advance to a position in front of the pushing face of the retracted pusher, a normally applied latch mechanism effective to prevent full retraction of the pusher, and a latch releaser operatively connected with said latch mechanism and disposed past the stop face of said pusher for contact with a package correctly positioned on the package way and effective upon such contact to move said latch and permit full retraction of the pusher.

In testimony whereof, I sign this specification.

GEORGE HOEPNER.