Nov. 22, 1927. 1,650,436

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ARTICLE PROPELLING MEANS FOR LABELING MACHINES AND THE LIKE

Filed Jan. 21, 1927 2 Sheets-Sheet 1

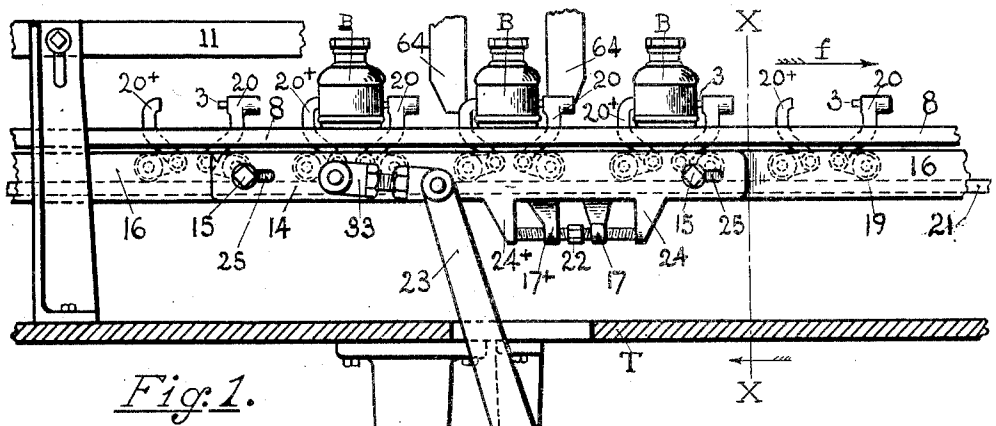


Fig. 1.

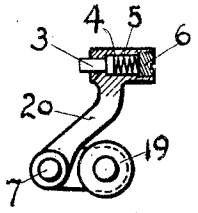
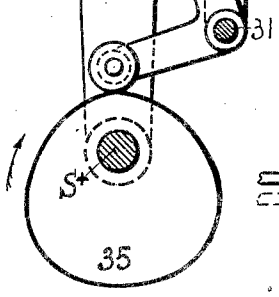


Fig. 8.



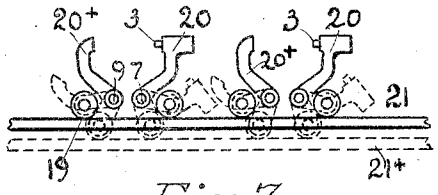


Fig. 7

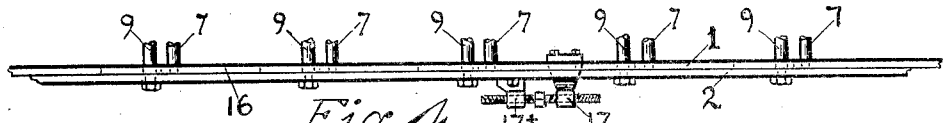


Fig. 4.

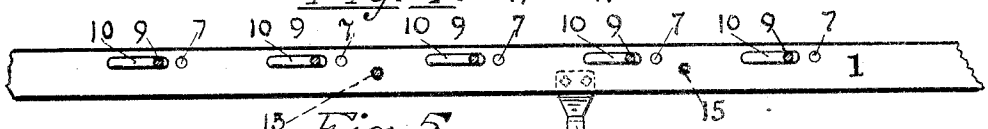


Fig. 5.

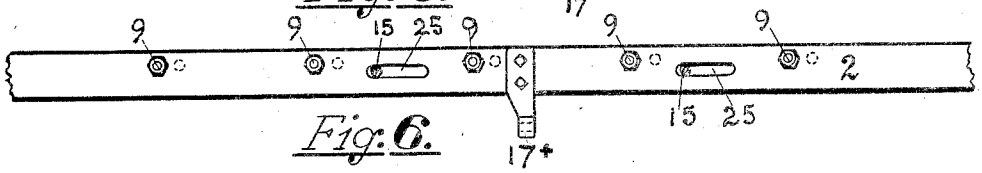


Fig. 6.

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ARTICLE PROPELLING MEANS FOR LABELING MACHINES AND THE LIKE

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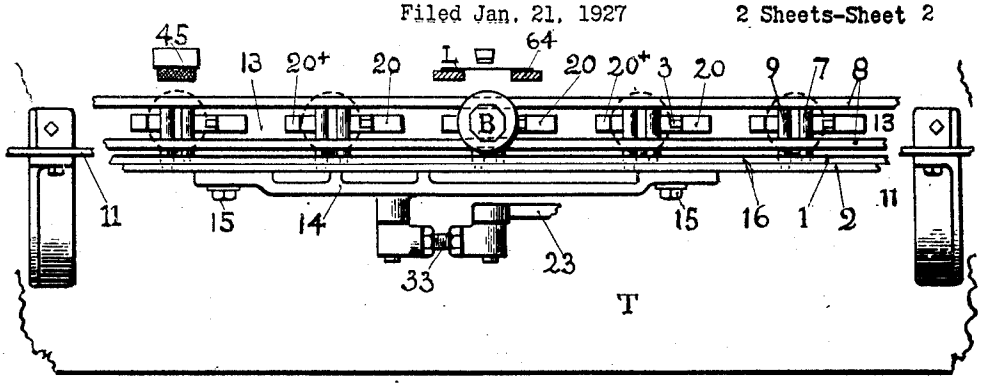


Fig. 3.

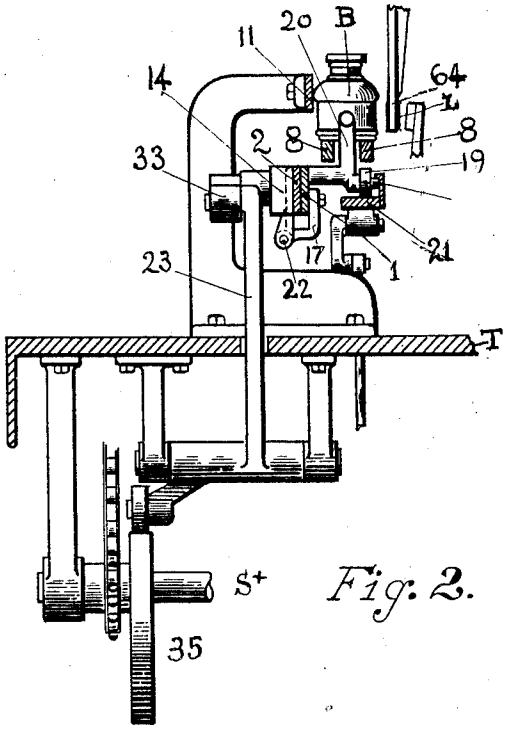


Fig. 2.

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Patented Nov. 22, 1927. 1,650,436

UNITED STATES PATENT OFFICE.

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ARTICLE-PROPELLING MEANS FOR LABELING MACHINES AND THE LIKE.

Application filed January 21, 1927. Serial No. 162,607.

This invention relates to certain novel constructions and combinations, as set forth, in mechanism for advancing or controlling the movement of bottles, containers, or other articles in labeling machines or the like, more especially applicable to machines of the character described in my previous Letters Patent No. 1,630,235, dated May 24, 1927, the prime object of my present invention being to provide an efficient and desirable means whereby the machine is adapted for operation on bottles or articles of various sizes or shapes without requiring changes in the label-applying mechanism, or in the length of reciprocative movement of the feed-mechanism.

Another object is to provide, in a feed mechanism including a reciprocating carrier having a plurality of pairs of article-gripping members mounted thereon; of means whereby the relation of all the several pairs of gripping members can be simultaneously uniformly varied for accommodating different sizes of articles.

A further object is to provide in a labeling machine including gum-applying means and label-applying means and a longitudinal track runway, whereon articles to be labeled are advanced intermittently by pairs of adjacently pivoted oppositely swinging gripper-claws or clutch members; of a compound longitudinally reciprocating claw-carrier bar composed of dual slidably united members, each pair of gripper-claws having one of the claws pivoted upon one member of said compound carrier and the other claw of each pair pivoted upon the other member of said carrier, and means for varying the longitudinal relation of the carrier-bar members one upon the other.

A further object is to provide the oppositely clutching feed grippers with facilities for accommodating variations in the diametric size or regularity in successive bottles or articles, as they run, and to insure unity of clutch for each pair of gripper-claws in the series as they are simultaneously actuated.

I attain these objects by mechanism of the character hereinafter more fully explained with reference to drawings.

The accompanying drawings (2 sheets) show such parts of a labeling machine as will illustrate the nature of my present invention.

Fig. 1 is a rear elevation of the central portion of the carrier bar, runway track, gripper-claws, and carrier-actuating means.

Fig. 2 is a transverse vertical section of the same, at line XX on Fig. 1.

Fig. 3 is a top plan view of a portion of the feed-way, with sectional indications at positions where the gum-applying pad and label-applying pickers co-act with the article upon said feed-way.

Fig. 4 is a separate plan view illustrating the composite carrier bar-structure.

Fig. 5 is a rear surface view of the front member of said carrier-bar.

Fig. 6 is a rear view of the back member of the carrier-bar.

Fig. 7 is a detail view illustrating the movement of the gripper claws.

Fig. 8 is a sectional detail, showing the gripper-claw as provided with a yieldable contact or article retaining means.

The present drawings include only such portions of mechanism as will illustrate the nature of my claimed improvements; but it will be understood that in practice, this invention is embodied in a full working machine of the character and mode of operation substantially as described in my preceding Letters Patent No. 1,630,235; and reference may be had to the description contained in said patent for a fuller understanding of the structure, organization and operation of a machine to which this invention is applicable.

Referring to the drawing numeral 8, 8, indicates parallel tracks arranged with an intervening longitudinal space 13 and having uniform surfaces upon which the bottles or articles B are supported and slide intermittently between stop stations at which the gumming, label-applying, or other lateral co-actingly associated mechanisms are respectively located. Said mechanisms are preferably combined and adapted for operation as set forth in my prior patent above referred to.

The dual track may be of any required length to include a desired number of stop stations; but in the present drawings only a portion thereof sufficient for illustrating the within described invention is shown. The tracks and adjacent bars are supported near their ends, upon the table and by suitable brackets, not shown.

11 indicates the guard rail along the back

of the runway, for keeping the articles or bottles B in proper alinement.

20—20+ indicate gripper-claws by which the bottles or articles are intermittently advanced along the tracks 8 and delivered at the several stop stations; and 16 indicates the carrier upon which the said gripper-claws are pivotally mounted in pairs to swing upward for seizing the bottles above the tracks, move them forward one interval, and to swing down below the track level for their return to primal position. 21 indicates the upwardly and downwardly moving plate for closing and opening the gripper-claws substantially as disclosed in my prior patent.

The articles B are propelled in the direction indicated by arrow *f* on Fig. 1, gripped between the leading claw 20 and following claw 20+.

In practice the articles are stopped at regular spaced intervals along the runway, the stop stations being at the positions where the bottles B are located on the drawings and at equal intervals throughout the length of the runway. The pairs of gripper-claws 20 and 20+ and carrier 16 whereon said gripper-claws are mounted, have reciprocative movement equal to the distance from one-stop station to the next. Such movement may be imparted thereto by an angle lever 23 from a suitably formed cam 35 fixed upon the operating shaft S+. The head of said lever is best connected with the gripper-carrier element by an extendable link 33, as indicated on Figs. 1, 2, and 3.

According to my present invention the gripper-carrier 16 is constructed as a composite bar, formed by two members or plates 1 and 2, (see Fig. 4) preferably of similar dimension, assembled together with co-matching adjacent surfaces, and firmly united as a rigid compound element but in a manner for affording limited endwise adjustment of the two members in relation to each other.

The several pairs of gripper-claws or article engaging members 20—20+, are uniformly spaced, from center to center of the pairs, to correspond with the spacing between the predetermined stop-stations and are pivotally mounted on the carrier 16 in the order indicated. The pivot stud 7 for the leading claw or grip-member 20 in each pair (shown at the right) is firmly fixed in the forward plate 1 of the carrier, while the pivot stud 9 for the follower claw or grip-member in each pair (shown at the left) is firmly fixed in the rear plate 2 of the carrier and respectively project through longitudinally disposed slots 10 formed in the forward plate 1 of the carrier-bar; thus all of the leading claws 20 in the series of pairs are mounted on the front plate 1, and all of the follower claws 20+ are mounted on the rear plate 2, whatever number of pairs of grippers may be employed in the series.

Combined with the carrier there is a brace or actuator-connecting member 14, secured upon the back of said dual carrier-bar by bolts 15 that pass through slot 25 in the rear member 2 and engage in threaded opening 15+ in the front member 1 in such manner that when said bolts are tightened the plates 1 and 2 are rigidly clamped together, and to the brace 14, then when said bolts are loosened endwise regulation of the parts can be effected.

The front member 1 of the carrier-bar 16 is provided with an attached projection 17 having an internally threaded opening therethrough, parallel with the bar; while the rear member 2 of said carrier-bar is provided with an attached projection 17+ of similar character. Through said projections 17 and 17+, parallel with the carrier-bar, there is a centrally headed screw-bolt 22 having a right hand thread and a left hand thread on its two portions that respectively engage in said internally threaded projections, as shown on Fig. 1. The brace member 14 is provided with two projecting lugs, 24 and 24+, and between which said screw 22 is positioned with its ends abutting against or supported by said lugs.

By rotating the screw bolt 22, the respective members 1 and 2 of the compound carrier-bar can, in response to the opposite trend of the right and left screw threads in the projections, be relatively shifted, longitudinally one upon the other, to move the pivots of the respective gripper-claws in each of the pairs towards or from each other without changing the relation of the center alinement of the pair or interval spacing of the series of pairs. Hence the gripper means is adapted for operating with bottles or articles of different sizes or shapes, without requiring any material change in the label-feed or other accompanying mechanisms. Furthermore this change from one size or style of bottle to another can be conveniently and quickly effected, requiring the stopping of the machine but a very few minutes when making the change.

A further feature of this invention consists in providing one of the gripper claws in each pair of the series, preferably the leading claws 20, with a yieldable contact element or face comprising an endwise movable stud 3, projecting from an opening in the face of the claw (see Fig. 8) and having a flanged end loosely confined within a cavity 4, formed in the head of the claw, together with a spring 5 that tends to press said stud forward, said spring being seated against a plug or stopper 6 screwed into the threaded opening at the back end of the cavity.

When the plurality of pairs of gripper-

claws close against a series of bottles or articles, there may occur some slight variations in the size or form of the several articles, but the construction here described insures uniform grip upon all in the series since the yielding contact of any pair automatically accommodates such variations without interference with the other pairs. The spring pressed contact member 3 also serves to hold cylindrical or oval shaped bottles, to prevent any rotative movement or displacement thereof between the gum applying station and label affixing station so that the labels will be accurately applied upon the previously gummed area.

45 indicates the gum-applying pad at the position where it approaches the run-way for contacting with the bottle, and 64 indicates the label-applying means or pickers representing the position for presenting the label to the bottle or article stationed upon the tracks (see Figs. 1 and 3.)

21 indicates the lifter-bar upon which the rollers 19 of the gripper-claws rest and run, said bar has up and down movements for closing and opening the gripper-claws, as illustrated on Fig. 7, by the full and dotted lines; the movement being practically the same as described in my prior patent.

I claim as of my invention, and desire to secure by Letters Patent—

1. In a machine of the character described, comprising a longitudinal feed-way for bottles or articles, a gum-applying means, a label-applying means, and means for disposing the articles thereon severally at predetermined interval stations along said feedway, consisting of a series of pairs of pivotally supported co-acting grippers between which the articles are clasped and advanced, a reciprocating carrier element comprising a pair of longitudinal adjustably connected members respectively supporting the pivots of one gripper in each of the co-acting pairs, means for reciprocatively operating said carrier the distance of the interval between stations, means for closing and opening the pairs of grippers, a unitary means for simultaneously regulating the pivotal relation of the individual grippers in all the respective pairs for operating upon different sizes of articles, means for rigidly securing said carrier-members to each other, and means connecting the carrier with its actuating mechanism.

2. In a mechanism of the character described, a longitudinal runway for supporting articles to be labeled, a plurality of pairs of adjacently pivoted oppositely swinging article-gripping claws that move the articles intermittently from station to station along said runway, a dual carrier element for said gripper-claws composed of adjacently associated members, the respective gripper-claws in each pair being pivotedly supported, one claw upon one of said carrier members, and the other claw upon the other of said carrier members, means connecting the dual members adapted for varying their longitudinal relation one to the other, means for longitudinally reciprocating the carrier element and means for closing and opening the gripper-claws at the respective limits of the reciprocative movement.

3. In a mechanism of the character described including a runway for supporting and directing the articles to be advanced intermittently from station to station thereon, a reciprocating carrier having movement parallel with said runway, a series of pairs of gripping-claws pivotally mounted on said carrier, with the centers of the respective pairs uniformly spaced apart to coincide with the distance between stop-stations; of means for simultaneously uniformly increasing or reducing the distance between the pivotal axes of the individual gripper-claws in each of the pairs, without disturbing the central spaced relation of the pairs in respect to each other in the series.

4. In a mechanism of the class described, the combination with a runway for articles, a reciprocating carrier element composed of a pair of adjacent, co-matching parallel bar-members, a plurality of uniformly spaced pairs of individually pivoted gripper-claws, one of said bar-members having the pivot studs of one claw in each pair securely fixed therein, also provided with adjacent longitudinal slots, the pivot studs for the other claw in each pair extending loosely through said slots and securely fixed in the other bar-member, said bar members each provided with an internally threaded projection, a rotatable screw having right-hand and left-hand screw threads respectively engaging in said projections, an actuator-attaching brace provided with lugs for confining said screw and with slots and bolts for clamping together the carrier bar-members, means for operating the carrier, and means for controlling the action of the gripper-claws.

5. In a mechanism for the purpose specified, a track-way for slidably supporting articles for labeling, adapted to afford a series of stop-stations at regular spaced intervals, a plurality of pairs of article gripper claws centrally spaced to coincide with the station intervals said claws individually pivoted to oppositely swing above and below the track-way level, a compound gripper-carrier comprising two longitudinally parallel adjacently co-matching bars, the pivot stud of the following claw in each pair being supported in the other of said bars, a right and left screw connecting projections fixed on the bars, the lower offset end of each claw provided with a free running roller, an up and down moving lifter bar upon which said rollers rest and travel, means for actuating

said lifter bar, parallel with the trackway, a brace attached to and having means for clamping said carrier bars together as a unit, and an adjustable link connecting said brace with actuating means, for reciprocating said compound gripper-carrier.

6. In a mechanism of the class described, in combination, an article supporting runway, a plurality of pairs of co-acting gripper-claws, said claws individually pivoted oppositely adjacent to the central line of the pair and closable against the leading and following sides of the article standing upon the runway, a compound gripper-carrier element comprising two longitudinally parallel adjustably united members, the pivoting studs of the leading gripper-claw being supported in one of said members, the pivoting studs of the following gripper claw being supported in the other of said members, means for simultaneously uniformly increasing or diminishing the distance between the individual pivot studs in the several pairs of gripper-claws while maintaining the relative spacing and center line relation of all the respective pairs in the series, and means for rigidly securing the members at regulated position.

7. In a mechanism of the class described the combination with a runway for articles, and pivotally mounted claws that oppositely grip the article at its leading and following sides for moving it along said runway, of a compound claw-carrier element comprising two longitudinally associated members, and an actuator-attaching brace having means for rigidly clamping said carrier-members together, the pivot stud for the leading gripper claw being supported in one of said carrier members, and the pivot stud for the following gripper-claw being supported in the other of said carrier members, means for regulating the longitudinal relation of said carrier members in respect to each other, said means comprising a right and left screw-threaded member arranged for oppositely moving said carrier members upon said actuator-attaching brace.

8. In a labeling mechanism comprising a runway for supporting and guiding articles to be labeled, a reciprocating compound carrier moving parallel with said runway, a plurality of pairs of gripper-claws individually mounted on the respective members of said carrier, means for simultaneously closing said pairs of gripper-claws against the opposite sides of the articles to be advanced along said runway, a yieldable contact member in combination with the gripping end of one claw in each pair of gripper claws, and a spring normally exerting outward pressure against said contact member.

9. In a mechanism for the purpose described including a runway for supporting articles to be labeled, a reciprocating gripper-carrier, a carrier-actuating means, and pairs of oppositely closing gripper-claws mounted upon said carrier, one gripper-claw of the pair having a flanged plunger stud movably projecting through an opening in its front end, an expanding spring acting against said stud within the chambered head of claw, a stopper confining the spring within the chamber, and means for operating the pairs of gripper-claws for clasping and releasing the articles.

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