No. 694,915. Patented Mar. 4, 1902.

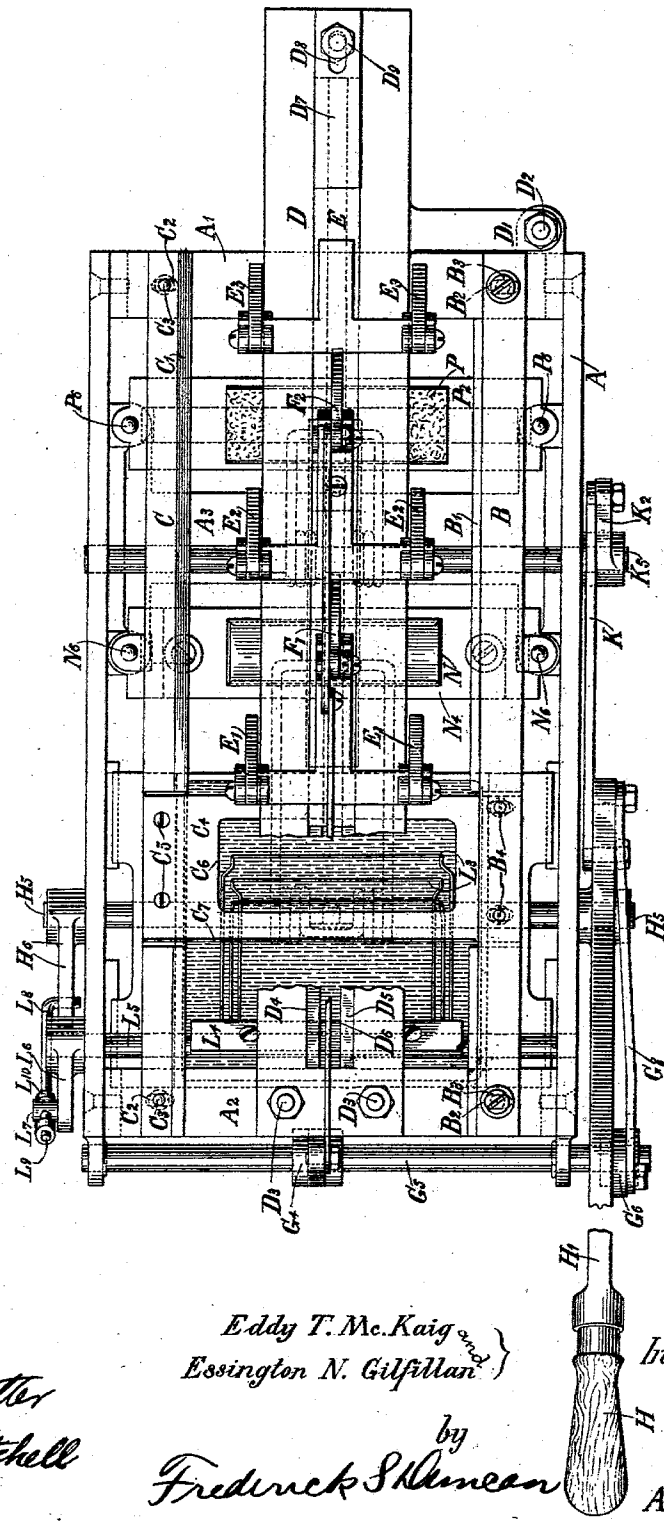
E. N. GILFILLAN & E. T. McKAIG.

LABELING MACHINE.

(Application filed July 26, 1901.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1



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(No Model.) 3 Sheets—Sheet 2.

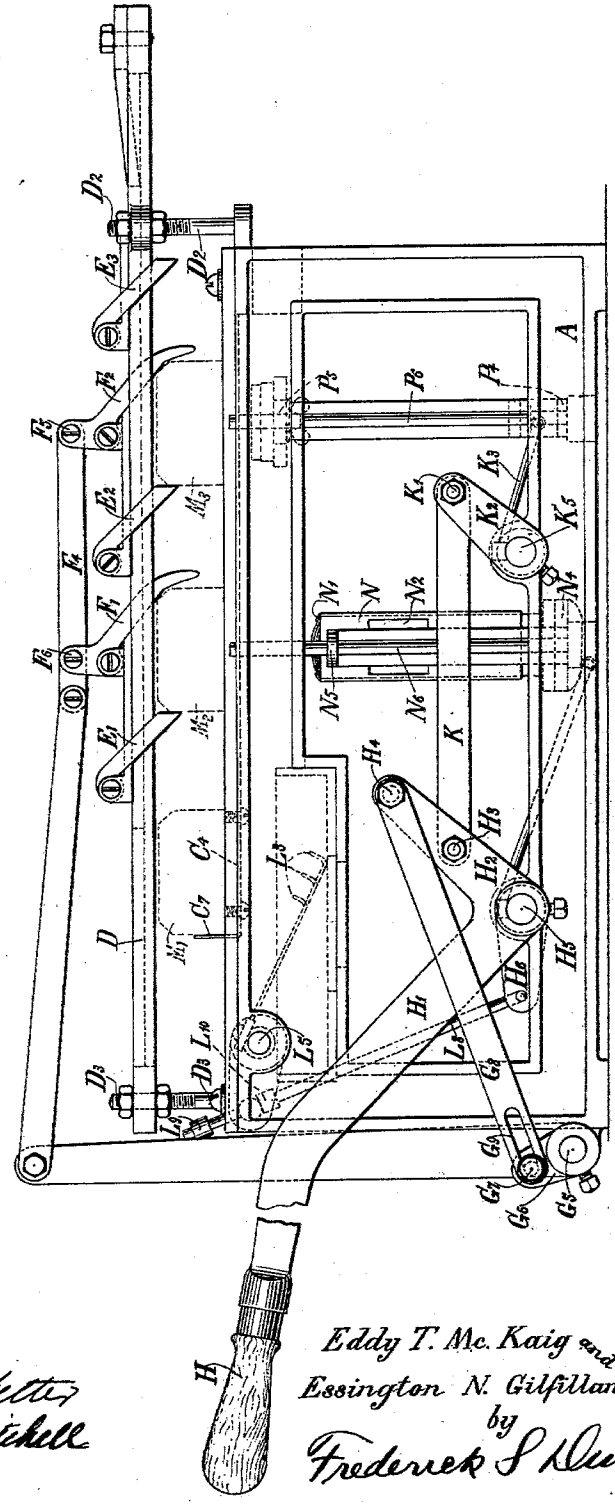


Fig. 2

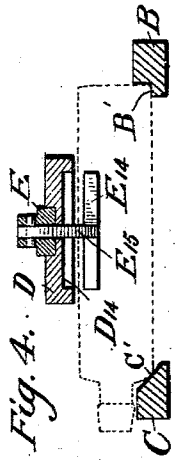


Fig. 4.

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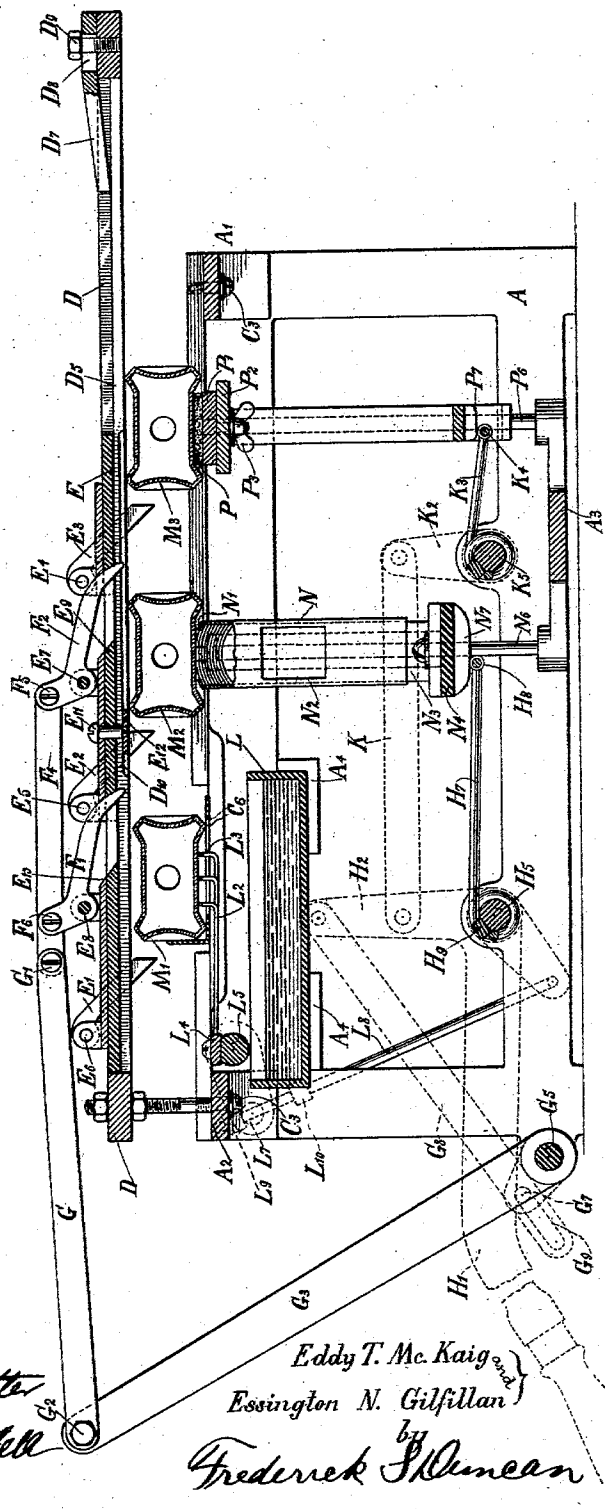
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LABELING MACHINE.

(Application filed July 26, 1901.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 3



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UNITED STATES PATENT OFFICE.

ESSINGTON N. GILFILLAN AND EDDY T. McKAIG, OF CHICAGO, ILLINOIS, ASSIGNORS TO NEW YORK LABELLING MACHINE COMPANY, A CORPORATION OF NEW YORK.

LABELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 694,915, dated March 4, 1902.

Application filed July 26, 1901. Serial No. 69,786. (No model.)

To all whom it may concern:

Be it known that we, ESSINGTON N. GILFILLAN and EDDY T. McKAIG, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Labeling-Machines, of which the following is a specification, taken in connection with the accompanying drawings, in which the same reference characters designate similar parts in each of the figures.

This invention relates to labeling-machines for applying labels to articles such as bottles, boxes, &c., while such articles are fed along a runway in an intermittent manner, so that each of said articles comes successively into coöperation with each of a series of label-applying devices, which together serve to apply and smoothly press down a label to each of said articles.

Figure 1 is a top view of a machine embodying this invention. Fig. 2 is a side view of the same. Fig. 3 is a longitudinal vertical section substantially along the central line of the machine, showing the mechanism in a different position. Fig. 4 is a partial transverse sectional view showing a modification.

The frame of this machine is composed of side members A, secured together by transverse members A', A^2, and A^3. Two longitudinal guiding members B and C are secured to the tops of the transverse frame members A' and A^2 by suitable bolts or screws, the screws B^2 passing through suitable slots B^3 in either end of the member B and serving to secure it in position and also providing means by which it may be readily adjusted laterally of the machine. The member C is secured at either end by the bolts C^3, which pass through slots C^2 in the frame members A' and A^2, so that the member C is also mounted so as to be adjusted transversely of the machine and rigidly held in any desired position. A supporting-ridge B' is formed on the inner edge of the member B. Upon the inner edge of the member C is formed the beveled portion C', as is shown in Fig. 4, upon which the articles fed along the machine rest and by which they are forced into contact with the opposite guiding member, so that these articles are supported by the ridge B' and by the beveled edge C' at either side of the machine. The gage C^4 is secured to the member C by the screws C^5 and is secured to the member B by screws or bolts B^4, which engage slots in the gage C^4, so as to provide for the lateral adjustment of the lower guiding members, which has just been mentioned. This gage is formed with a central opening C^6, as shown in Fig. 1.

The upper retaining member D is supported by bolts or pillars D^2 and D^2, extending upward from the transverse members A' and A^2. The retaining member is adjustably secured to these bolts by nuts, as shown. This retaining member forms, in connection with guiding members B and C, a runway extending longitudinally of the machine from the upturned edge C^7 of the gage to the front end of the machine at which the runway is open, since the forward end of the retaining member is supported by the lug D', formed on this member. The retaining member is formed with a longitudinal slot D^4 therein and is provided with a suitable inwardly-projecting flange D^5 on either side of the same, so as to form a narrow opening D^6 entirely through this retaining member. The reciprocating feeder E is mounted in the slot D^4 and is supported upon the ribs D^5, so as to reciprocate longitudinally of the retaining member. The extent of this reciprocation is limited by the rear end of the slot D^4 and at the front end by the adjustable stop D^7, secured to the retaining member by bolt D^9, passing through a slot D^8 in this stop. By adjusting this stop in any desired position the extent of the reciprocation of the feeder E may be correspondingly varied.

In the under side of the retaining member D there is formed at either side of the central slot D^6 a groove D^{10}, in which slides the guide-piece E^{12}, secured to the reciprocating feeder E by the screw E^{11}, so that the feeder is held down in proper engagement with the retaining member in its reciprocation. Upon the top of the feeder, which may be formed, if desired, of two thicknesses of material rigidly secured together, are pivoted at either

side of the feeder, so as to project on either side of the retaining member D, the double series of feeding-pawls E', E^2, and E^3, pivoted about the pivots E^6, E^5, and E^4, respectively, on either side of the feeder. These pawls are prevented from assuming any lower position than is shown in Fig. 3 of the drawings, but they are free to move upward about their pivots. The two holding-pawls F' and F^2 are pivoted about the pivots E^8 and E^7, secured to the reciprocating feeder, and these pawls project through slots E^{10} and E^9, formed in the top of the reciprocating feeder along the central line of the same, so that they are allowed a limited movement about their pivots to the extent indicated in Figs. 2 and 3. The lower end of these holding-pawls are curved, as is indicated in the drawings, so that they are adapted to partially embrace the articles to be fed to hold such articles in positive engagement with the feeding-pawls during the forward movement of the reciprocating feeder. The upper ends of these holding-pawls are pivoted at F^6 and F^5 to the connecting-rod F^4, the rear end of which is pivoted at G' to the link G. This is pivoted in turn at G^2 to the rocker-arm G^3, rigidly secured to the rock-shaft G^5, journaled in the lower part of the frame of the machine.

The operating mechanism of the machine comprises a handle H, secured to the end of the operating-lever H', rigidly secured to the rock-shaft H^5. The other end H^2 of this operating-lever has pivoted to its outer end by the bolt H^4 the connecting-link G^8. At the rear end of this link is formed the slot G^9, through which passes the pivot G^7 of the crank G^6, rigidly secured in any desired position upon the rock-shaft G^5 by means of the set-screw, as shown. The link K is connected at its rear end with the pivot H^3 in the operating-lever and at its forward end is pivoted, by means of the pivot K', to the crank K^2, rigidly secured in any desired position to the rock-shaft K^5 by the set-screw shown. The proportions of these parts are such that the arms H^2 and K^2 are always maintained in substantially parallel position by the connecting-link K. The spring H^7 is secured to the rock-shaft H^5 by its inner end coming into contact with the lug H^9 upon this shaft, and the spring after making several turns about the shaft on either side of this lug extends forward and is provided at its forward end with a small antifriction-roller H^8, which engages the label-box, as will be mentioned hereinafter. A similar spring K^3 is secured to the rock-shaft K^5 and is provided at its forward free end with the friction-roller K^4 for actuating the pressure-pad. The crank-arm H^6 is rigidly secured to the rock-shaft H^5 and at its outer end is pivotally connected with the rod L^8. The upper end of the rod L^8 fits loosely in the hole in the crank-pin L^7, rigidly secured to crank-arm L^6 for operating the rock-shaft L^5, mounted in the frame of the machine. The two stops L^9 and L^{10}, secured to the rod L^8, by coming in contact with either side of the crank-pin L^7 transmit a limited oscillation to the rock-shaft L^5.

The label-applying devices consist of the paste apparatus, the label-box, and the pressure-pad mounted at three stations below the runway, which is composed of the bottom guiding members B and C and the upper retaining member D, so that these label-applying devices coöperate properly with three articles, indicated in Fig. 3 as three bottles M', M^2, and M^3, although we wish to be understood that instead of bottles any other articles, such as small packages or boxes, might be labeled in this machine.

The paste apparatus consists of a paste-receptacle L, removably supported upon inwardly-projecting ribs A^4 on the side frame members A. The paster consists of three wires L^2 in substantially U form, as is seen in Fig. 1, the parallel outer ends L^3 of these wires being bent upward, as is shown in Fig. 3, so that they are adapted to come in proper engagement with the article M' by passing through the opening C^6, formed in the gage C^4. These wires, which are preferably of spring material, such as spring-steel, are fastened at their rear ends to the plate L^4, rigidly secured by screws to the rock-shaft L^5, as is indicated in Figs. 1 and 3. The material of which these paste-applying wires is composed renders it possible for these wires to accommodate themselves to any irregularities there may be in the lower surface of the article to be pasted, so that these wires apply three lines of paste to the under surface of such article, the paste-wires of course dipping into the paste and then rising into contact with the article, as is indicated in Figs. 2 and 3.

The label-box N has substantially rectangular form, the upper end of the box being formed with inwardly-projecting flanges N' to grip the outer edges of the labels, as is indicated in Fig. 3. This box fits loosely over a plunger N^3, having a curved upper surface, as shown, for bending the labels as they are forced upward, and this plunger is clamped to the support N^4 by suitable screws, which pass loosely through holes formed in either side of the plunger, so that this plunger may be adjusted slightly with respect to the support N^4. The support is mounted to reciprocate vertically upon the two guide-rods N^6, which are rigidly secured at their lower ends to the transverse frame member A^3, the support being formed with two guide-pieces, one at the lower end of the same and the other, N^5, at the upper end of this support, so that the support and label-box is accurately guided in its vertical reciprocation. The support is formed with the cam-surface N^7 on its lower side, to be engaged by the roller H H upon the actuating-spring, by means of which the label-box is raised into contact with the article to be labeled and forced yieldingly into contact with such article. It

will of course be understood that after the top label in the label-box has been forced into contact with the pasted under surface of the article to be labeled that the top label upon the label-box being lowered will stick to the article and be thereby drawn out of the label-box. The aperture N^2 is formed in the side of the label-box, and through this aperture the labels may be inserted when the label-box is raised sufficiently on the plunger. In this way the supply of labels in the box may be readily replenished from time to time.

The pressure-pad P, formed of rubber or any other elastic yieldable substance, is secured to the block P'. This block is adjustably supported upon the pressure-support P^2 and is clamped in any desired position thereon by the wing-nut P^3, several of which may be employed, if desired. The pressure-support is mounted to reciprocate vertically and is guided upon two rods P^6, secured to the transverse member A^3, as is shown in Fig. 3. It will of course be understood that two of these guide-rods P^6 are employed, one at either side of the machine, and that the pressure-support is guided at either side of the same at the two points P^4 and P^5, where the support encircles these guiding-rods. The cam-surface P^7 is formed on the lower end of the pressure-support and is engaged by the friction-roller K^4 on the actuating-spring K^3, so as to yieldingly force the support and the pressure-pad carried thereby into contact with the lower surface of the article to be labeled, as indicated in Fig. 3.

The operation of my machine in labeling articles—such as bottles, for instance—is as follows: If the machine is in the position shown in Fig. 2, the bottle M' having just been placed in position on the gage by being thrust in from the farther side of the machine, the operating-handle H is then moved downward into the position shown in Fig. 3. Through the connecting mechanism, which has previously been deseribed, the paster L^3 is thrown up into contact with the lower surface of the bottle M', as is shown in Fig. 3, to apply a number of lines of paste to this bottle, the label-box and pressure-pad being simultaneously moved upward into yielding contact with two other articles M^2 and M^3, which have previously been inserted in the machine. The link G^8 having moved sufficiently, the pin G^7 comes in contact with the forward end of the slot in this link, and thereupon the rocker-arm G^3 is actuated in a rearward direction, carrying with it the link G and the connecting-rod F^4, which operates first to raise the holding-pawls F' and F^2 to the position shown in Fig. 3 and thereafter to move the reciprocating feeder rearward to the position as shown in that figure. The operating-handle H is now raised to the position shown in Fig. 2, and this movement first withdraws the paster, label-box, and pressure-pad from contact with the bottles, and thereafter the pin G^7, then coming in contact with the rear end of the slot G^9, operates the connecting-rod F^4 to force the holding-pawls F' and F^2 down in contact with the bottles and then to move the reciprocating feeder forward, so that the bottles M' and M^2 are positively held between the holding-pawls F' F^2 and the feeding-pawls E' E^2 on either side of the reciprocating feeder, the feeding-pawls E^3 serving to engage the rear portion of the bottle M^3. The movement of the feeder continues until it reaches the position shown in Fig. 2, when each of the bottles will have been moved forward one step, the bottle M' occupying the position of the bottle M^2, and so on. Another bottle is inserted in contact with the gage and this operation is repeated. It will be seen that at each reciprocation of the operating-handle one bottle is pasted, a label is applied to another bottle, and another label is pressed home against the under surface of a third bottle by the pressure-pad and smoothed out upon it, and also each of the bottles is moved forward one station, the foremost bottle being forced out of the machine, where it may be received in any desired way.

It will be seen that since the feeding-pawls engage the bottles or other articles which are labeled by the machine in more than one place on the rear side of each of these articles, the articles are fed forward in a parallel position, and since the holding-pawls engage the forward side of each of the articles the exact extent of the feed of each of the articles is positively determined. Instead of having two feeding-pawls there might be employed any other number of these pawls, or indeed a single feeding-pawl might be used if sufficiently broad in a direction transverse to the runway of the machine, so that it would engage each article to be labeled and positively feed it forward in a parallel manner. This is shown in Fig. 4, where the feeder E has pivoted to it the feeding-pawl E^{15}, this pawl having a wide working face E^{14}, so that it engages the article throughout a considerable extent and feeds it forward in a parallel manner. As the pawl moves backward during the rearward reciprocation of the feeder, the working face of this pawl moves up into the longitudinal recess D^{14}, formed in the hole D.

Parts of this device may be used separately and might be employed in connection with other devices well known in this art without losing the advantages of this improved construction. We do not, therefore, desire to be limited to the disclosure which we have made in this case; but what is claimed as new, and what we wish to secure by Letters Patent, is set forth in the accompanying claims.

What is claimed as new is—

1. In a labeling-machine, a runway composed of lower guiding members and an upper retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls movably mounted on said feeder to engage a

series of articles and intermittently feed them step by step along said runway, label-applying devices situated below said runway and means to reciprocate said feeder and also to operate said label-applying devices to apply labels to articles intermittently fed along said runway.

2. In a labeling-machine, a runway having an upper retaining member extending along the same, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted on said feeder and projecting into said runway to intermittently feed a series of articles along said runway, a paste apparatus, a label-box and a pressure-pad mounted at stations beneath said runway to apply labels to articles fed along said runway.

3. In a labeling-machine, a runway composed of adjustable lower guiding members, and an upper adjustable retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted upon said feeder, a paste apparatus, a label-box and a pressure-pad mounted below said runway to coöperate therewith, means to reciprocate said feeder to intermittently feed forward a series of articles along said runway and means connected therewith to actuate said paste apparatus, label-box and pressure-pad to apply labels to said articles when said articles are stationary in said runway.

4. In a labeling-machine, a runway composed of lower adjustable guiding members and an upper adjustable retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted on said feeder, label-applying devices mounted beneath said runway to coöperate therewith and means to operate said feeder and said applying devices to intermittently feed forward a series of articles along said runway and to apply labels to such articles when such articles are stationary in said runway.

5. In a labeling-machine, a runway having an upper retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted in said feeder, label-applying devices underneath said runway to cooperate therewith, means to reciprocate said feeder and simultaneously to operate said holding-pawls and also to operate said applying devices to positively feed forward a series of articles intermittently along said runway to apply labels to such articles while they are stationary in said runway.

6. In a labeling-machine, a runway comprising an upper retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted in said feeder, label-applying devices comprising a paste apparatus, a label-box and a pressure-pad mounted at stations beneath said runway to coöperate with the same, means to operate said label-applying devices and said reciprocating feeder and said holding-pawls to intermittently feed a series of articles in a positive manner along said runway to place said articles directly above said applying devices at said stations and to apply labels to said articles while they are stationary in said runway at said stations.

7. In a labeling-machine, a runway comprising an upper retaining member adjustable in position to adjust the size of said runway, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted in said feeder, label-applying devices comprising a paste apparatus, a label-box and a pressure-pad mounted at stations below said runway to coöperate with said runway and means to yieldingly operate said label-applying devices and also to operate said feeder and said holding-pawls to intermittently feed forward in a positive manner a series of articles to said stations along said runway to release said holding-pawls from said articles as said feeder is retracted and to apply labels to said articles while they are stationary at said stations along said runway.

8. In a labeling-machine, a runway comprising an upper adjustable retaining member to adjust the size of said runway, a reciprocating feeder mounted in said runway, a series of feeding-pawls and a series of holding-pawls mounted on said feeder, label-applying devices mounted at stations below said runway to coöperate with said runway, means to yieldingly operate said applying devices, said means having a loose connection with said reciprocating feeder and said means operating said holding-pawls to intermittently feed forward a series of articles in a positive manner to said stations along said runway to release said articles as said feeder is retracted and to apply labels to said articles while they are at said stations.

9. In a labeling-machine, a runway comprising an upper retaining member, a reciprocating feeder mounted in said retaining member, a double series of feeding-pawls mounted in said feeder to engage a series of articles at two points along the rear of each of said articles, a series of holding-pawls mounted in said feeder, label-applying devices mounted at stations below said runway to coöperate with said runway, means to operate said label-applying devices and said feeder to intermittently feed forward a series of articles in parallel position along said runway, and to apply labels to said articles while they are stationary in said runway.

10. In a labeling-machine, a runway comprising an upper retaining member, a reciprocating feeder mounted on said retaining member, a double series of feeding-pawls mounted on said feeder to engage a series of articles at two points along the rear of each of said articles, a series of holding-pawls mounted in said feeder, and label-applying

devices mounted below said runway to cooperate therewith, and means to operate said label-applying devices and said reciprocating feeder to intermittently feed forward a series of articles in parallel position along said runway and to apply labels to said articles while they are stationary in said runway.

11. In a labeling-machine, a runway, a reciprocating feeder mounted adjacent said runway, a double series of feeding-pawls mounted on said feeder to engage a series of articles at two points along the rear of each of said articles, a series of holding-pawls mounted on said feeder to engage the front of each of said articles between the points of contact of said feeding-pawls, means to operate said holding-pawls and to reciprocate said feeder to intermittently feed forward a series of articles in parallel position along said runway and label-applying devices coöperating with said runway.

12. In a labeling-machine, a runway comprising a slotted guiding member, a coöperating guiding member to support articles and to press said articles into engagement with said slotted guiding member, and an upper retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted in said feeder, label-applying devices underneath said runway to coöperate therewith, means to reciprocate said feeder and simultaneously to operate said holding-pawls and also to operate said applying devices to positively feed forward a series of articles intermittently along said runway to apply labels to such articles while they are stationary in said runway.

13. In a labeling-machine, a runway, labeling devices mounted to coöperate with said runway, a reciprocating feeder mounted adjacent said runway, feeding-pawls mounted on said feeder to engage articles at more than one point along the rear of each of said articles, holding-pawls mounted on said feeder to engage the front of said articles to hold said articles in engagement with said feeding-pawls and means to operate said holding-pawls and to simultaneously reciprocate said feeder.

14. In a labeling-machine, a runway, a reciprocating feeder mounted adjacent said runway, a multiple series of feeding-pawls mounted on said feeder to engage a series of articles at more than one point along the rear end of each of said articles, and a series of holding-pawls mounted on said feeder, to intermittently feed forward in a positive manner a series of articles in parallel position along said runway.

15. In a labeling-machine, a runway, labeling devices mounted adjacent said runway to coöperate therewith, a feeder mounted adjacent said runway, duplicate feeding-pawls mounted on said feeder to engage articles on said runway at more than one point along the rear of each of said articles, holding-pawls on said feeder to engage the front of said articles between said feeding-pawls to hold the same in engagement with said feeding-pawls and means to operate said holding-pawls and to simultaneously operate said feeder.

16. In a labeling-machine, a reciprocating feeder, a multiple series of feeding-pawls mounted on said feeder to engage a series of articles at more than one point along the rear end of each of said articles, a series of holding-pawls mounted on said feeder and means to positively move said holding-pawls with respect to said feeder, said feeder operating to intermittently and positively feed forward a series of articles in parallel position.

17. In a labeling-machine, a reciprocating feeder, a double series of feeding-pawls mounted at either side of said feeder to engage a series of articles at two points along the rear end of each of said articles and a series of holding-pawls mounted on said feeder, to intermittently and positively feed forward a series of articles in parallel position.

18. In a labeling-machine, a reciprocating feeder, a duplicate set of feeding-pawls mounted at either side of said feeder to engage a series of articles at two points along the rear end of each of said articles, a series of holding-pawls mounted on said feeder and means to reciprocate said feeder and simultaneously to operate said holding-pawls with respect to said feeder to intermittently and positively feed forward a series of articles in parallel position and to release said holding-pawls from said articles as said feeder is retracted.

19. In a labeling-machine, a reciprocating feeder, a double series of feeding-pawls mounted at either side of said feeder to engage a series of articles at two points along the rear end of each of said articles a series of holding-pawls pivoted to said feeder and means pivotally connected with the free end of said holding-pawls to reciprocate said feeder and simultaneously to operate said holding-pawls to intermittently and positively feed forward a series of articles and to release said holding-pawls from said articles as said feeder is retracted.

20. In a labeling-machine, a runway, a reciprocating feeder mounted adjacent said runway, feeding-pawls mounted on said feeder, holding-pawls pivoted to said feeder and means pivoted to the ends of said holding-pawls to rotate said holding-pawls about their pivots and to operate said feeder.

21. In a labeling-machine, a runway, comprising a guiding member formed with a slot and a coöperating member formed with an inclined face to maintain articles on said runway in contact with said slot, a reciprocating feeder and a multiple series of feeding-pawls mounted on said feeder to engage a series of articles at more than one point on the rear end of each of said articles to intermittently feed forward said series of articles in parallel position.

22. In a labeling-machine, a runway comprising a guiding member having an inclined face to maintain articles fed along said runway in proper alinement, a reciprocating feeder mounted adjacent said runway, a multiple series of feeding-pawls mounted on said feeder to engage a series of articles at more than one point on the rear of each of said articles to intermittently feed forward said series of articles in parallel position along said runway.

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