F. O. WOODLAND.

LABEL AFFIXING MECHANISM.

APPLICATION FILED MAY 5, 1910.

1,045,241.

Patented Nov. 26, 1912.

2 SHEETS—SHEET 1.

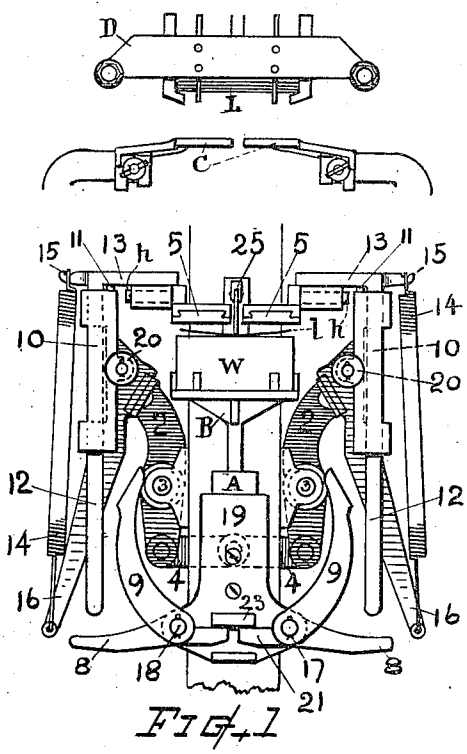

FIG. 1

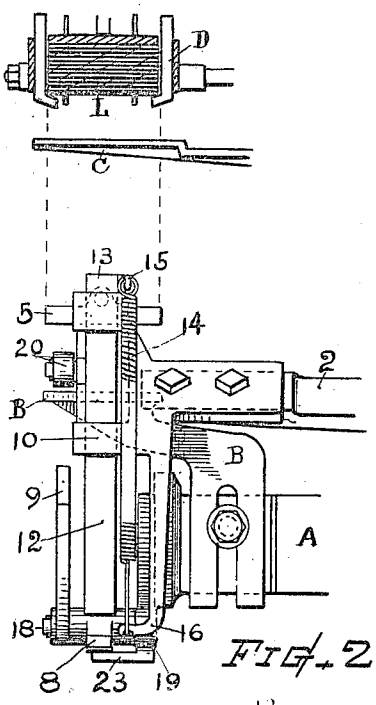

FIG. 2.

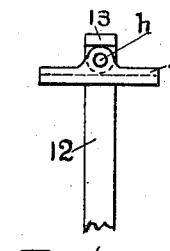

FIG. 7.

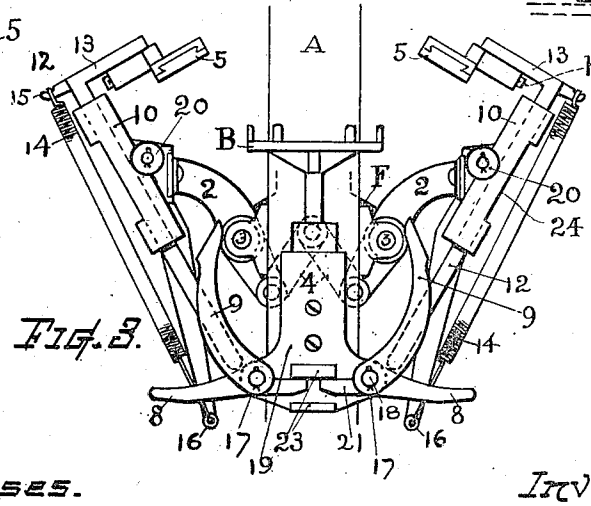

FIG. 3.

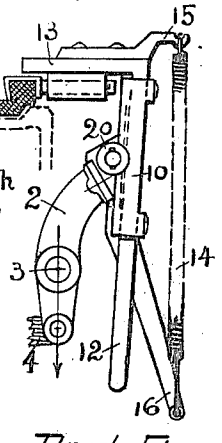

FIG. 8

Witnesses.

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2 SHEETS—SHEET 2.

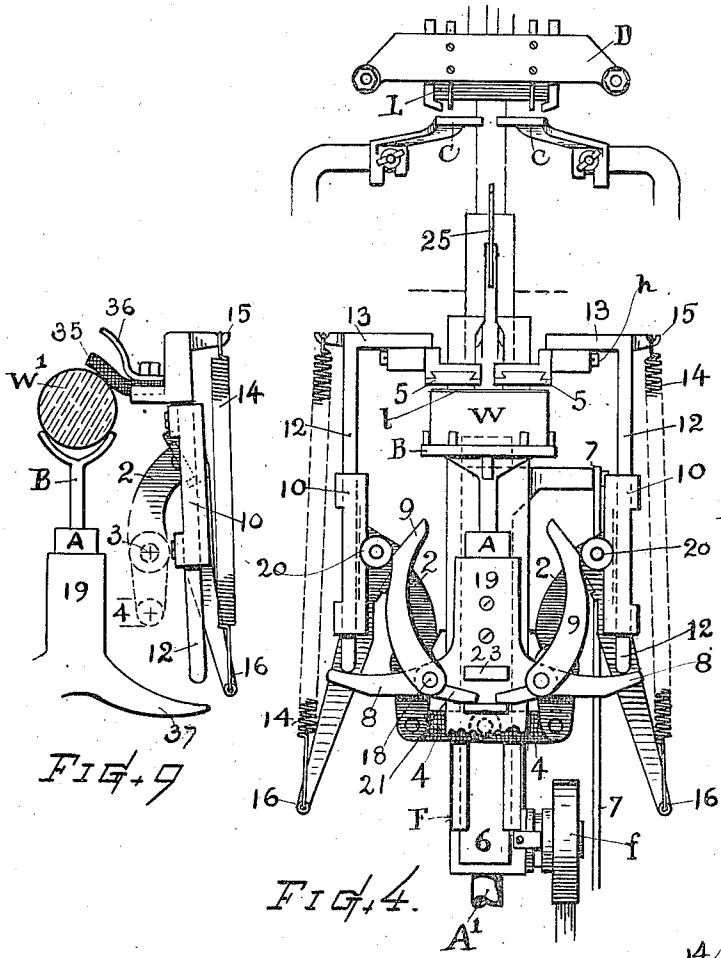

FIG. 4.

FIG. 6.

FIG. 9.

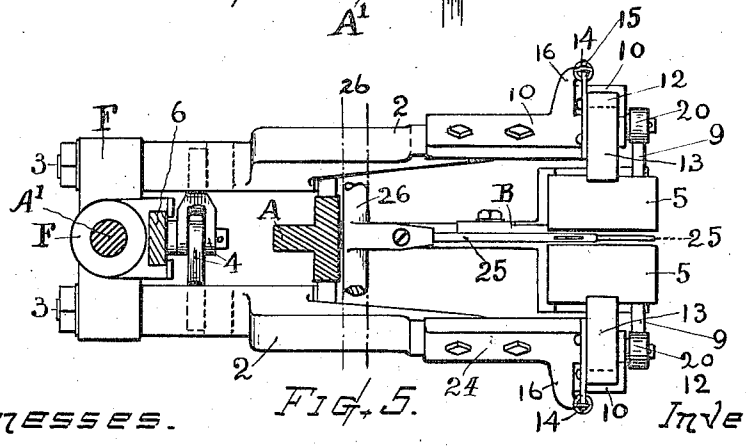

FIG. 5.

Witnesses.

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UNITED STATES PATENT OFFICE.

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LABEL-AFFIXING MECHANISM.

1,045,241. Specification of Letters Patent. Patented Nov. 26, 1912.

Application filed May 5, 1910. Serial No. 559,586.

To all whom it may concern:

Be it known that I, FRANK O. WOODLAND, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Label-Affixing Mechanism, of which the following is a specification, reference being made therein to the accompanying drawings.

This invention relates more especially to that part of a labeling machine whereby the label is, after its presentation, pressed on, smoothed down or caused to firmly adhere to the surface of the article to which it is applied; the prime object of my present invention being to provide a wiper or presser means that is adapted for affixing labels upon flat, concaved, paneled, or other shaped surfaces whereon a continued wiping movement is either inconvenient, impracticable or undesirable; also to afford a means and mode of operation that can be successfully employed upon surfaces of the character above named.

Another object is to provide a label-affixing presser attachment adapted for employment in combination with the reciprocatively moving, laterally oscillating wiper-arms or levers in a labeling machine, and operating for the affixment of the label by a continued direct pressure, or a continued pressure and slight wiping movement, in lieu of a full progressive wiping action.

Another object is to provide means for the purpose stated, whereby an increasing pressure is applied to the label up to a degree of maximum pressure; and then effecting a release of the pressure by a positive approximately direct retro movement of the presser elements.

Another object is to provide in combination with a reciprocating, laterally swinging wiper-lever or arm, of a wiper or presser element having a support in sliding connection with the lever or wiper arm, and means for controlling the sliding member for releasing the pressure upon the label by final retro action, independent of the regular movement of the wiper arm.

Minor objects and features of my invention are disclosed in the following description, the particular subject matter claimed being definitely expressed in the summary.

In the drawings (two sheets) Figure 1 represents a front view of such parts of a labeling machine as will illustrate the nature of my invention; the presser or wiper elements being at positions for commencing their downward movement. Fig. 2 is a side view of the improved mechanism. Fig. 3 is a front view showing the wiper arms as swung outward. Fig. 4 is a front view showing the wiper arms or levers as at or near the limit of their downward movement, and the pressers or wiper elements lifted from contact with the label. Fig. 5 is a plan view showing the presser members, wiper-arms, carrier-slide and supplemental controlling slide, and the grip-device, as in closed position. Fig. 6 is a separate plan view of the rocker or tilting cam-levers. Fig. 7 is a detail of the hinging of the affixer element or pad to the extension bar. Fig. 8 illustrates a modification adapted for affixing labels to paneled surfaces, and Fig. 9 illustrates a modification adapted as an inwardly-pressing wiper for convex surfaces.

The invention herein disclosed is applicable to labeling machines of the class described in my prior application for Letters Patent, Serial No. 461,028, (Patent No. 998,664) and to other labeling machines of somewhat similar general character, and reference may be had thereto for a more full understanding of such general parts of the labeling machine as are not herein shown. It is also applicable to any labeling machines wherein a label-holder, a stationary supporting rest, glue-applying pickers and reciprocating laterally movable wiper-carrying arms or levers are employed.

Referring to the drawings. A indicates a portion of the main frame; B the supporting rest upon which the article to be labeled is placed; C the glue-applying pickers; and D a bottom-delivery label-holder having means for supporting a pack of labels L thereon. Said parts and their general operating means, not shown herein, may be constructed and arranged as heretofore practised, or in any suitable manner.

F indicates the principal slide or carrier upon which the affixer mechanism is supported, said carrier preferably comprising a sleeve or head arranged to move up and down on a suitable guide or stationary rod A^1, and operated by a cam acting against a roller or stud *f* mounted on the side of the

carrier, or by any suitable means whereby a reciprocating motion may be imparted thereto in proper and efficient manner.

The numerals 2, 2, indicate the wiper-carrying arms or levers, which are pivotally fulcrumed and mounted, at 3, upon the reciprocating carrier F, and are arranged to have lateral oscillative movement for bringing the affixing pressers or wipers 5 into closed relation, as in Figs. 1 and 5, or to separated relation, as in Fig. 3.

The swinging action of the wiper-carrying arms, as shown herein, is controlled by a supplemental slide-piece 6 movably mounted to work in conjunction with the reciprocating carrier F. The downwardly projecting ears of the wiper-arms or levers 2 are connected with this supplementary slide-piece by links 4, so that when the slide-piece is shifted in relation to the carrier F in one direction, the links assume the position indicated by dotted lines in Fig. 3, thereby swinging the wiper-carrying arms outward; and when said slide-piece is shifted in the other direction the links assume the position shown in Figs. 1 and 4, thus causing the wiper-carrying arms to close together. By the transverse straight alinement of the links 4 the arms or levers 2 are locked rigid in their closed relation until the slide-piece is again shifted. The slide-piece may be actuated by any suitable means in connection with the rod 7. Such means not being a special feature of my present invention, is not herein shown.

According to my present invention supporting guides 10 are attached to the arms or swinging levers 2, said guides being disposed to stand in approximately upright positions when said arms or levers are closed together, (see Figs. 1 and 2) or in some instances to stand slightly inclined, outward or inward, as in Figs. 8 or 9.

Endwise movable extension bars or sliding members 12 are mounted in or upon the respective guides. Each of said bars is provided with an inwardly offset upper end or head 13, upon which the presser, wiper or affixer element 5 is mounted. The structure and manner of mounting these affixer elements may be modified or in some instances varied to meet the requirements of the work, or special forms of articles to be labeled. The extension bar 12 is best of rectangular or irregular cross section, and is fitted to move in the guide with a close free-sliding fit. A coiled wire pull-spring 14 is provided for resisting upward movement of the bar. Said spring is strained from a projecting ear or stud 15 fixed on the upper part of the bar 12, to a suitable stay or hook at the end of a downwardly projecting arm 16 fixed to the guiding head 10. The tension of said spring normally tends to draw the extension bar 12 downward to its lowest limit, and is gaged to exert a force or tension equal to the minimum pressure required for smoothing down the applied label by the affixer element 5. The pair of guide-way heads, pressers, extension bars and springs are of similar form, but arranged in right and left order. The lower ends of the extension-bars 12 project some distance below the lower end of the guides 10, and their ends are fitted for contact with cam surfaces. A cushioning bunter 11 of rubber, leather or other suitable material can, in any instance desired, be arranged between the guide 10 and extension bar, (see Fig. 1) for receiving the contact of the parts when drawn together by the force of the spring 14.

An important feature of my invention is the provision in combination with label-affixing element, of means for lifting or throwing off the wipers, pressers or affixing elements from contact with the package when the reciprocating carrier or wiper arms are at or near the end of the downward stroke, and without waiting for the upward stroke to be effected; thereby giving ample time for the removal and replacing of packages upon the rest. For effecting this result I provide, at suitable position below the guide-way heads 10, a pair of rockers or tilting cam-levers 17, preferably mounted upon axis studs 18 fixed in a suitable plate or bracket 19 attached to the fore end of the rest-supporting frame. The rockers are made right and left to conform to the arrangement of the affixers and wiper-arm devices. Each rocker is provided with a laterally projecting member 8 for engagement with the extension bar 12, and with an upwardly projecting member 9 adapted for engagement with a roller-stud 20 carried upon the guide 10, or moving with the wiper-carrying lever. Said rockers are also each furnished with a lug or projecting member 21 that engages with a stop-lug, or lugs 23, fixed on the pivot-supporting plate 19, for limiting the swing movement of the rocker. The rocker members or arms 8 and 9 are shaped to have suitable contact surfaces and together form a tilting cam-lever for controlling the action of the presser or wiper element. The guide-way head is preferably made with an attaching seat 24 adapted for fitting upon the end of the wiper-arm 2, and detachably secured thereto by screw-bolts in a manner that permits ready removal and interchange of the guide-way heads for other styles of wipers or affixer devices.

The numeral 25 indicates a grip device that swings down upon the label l as it is presented adjacent to the article or package W, by the descent of the pickers; said grip device serving to temporarily hold the central part of the label against the package, while it is stripped from the faces of the

pickers C as the latter ascend. The grip-device is operated by a rocking movement of its shaft 26, which can be accomplished by means heretofore employed and as heretofore practised.

In the operation, the package or article W to be labeled is placed upon the rest B; the label is glued, taken from the label-holder and presented above the package by the reciprocating pickers in usual manner, and is there gripped by the grip-device 25. This is effected while the arms are spread apart as in Fig. 4. The arms are then caused to close inward, bringing the pressers or label-affixing elements over the label, as indicated in Fig. 1. As the carrier F and arms 2 move downward the elements 5 rest upon the label, compressing it against the surface of the package, while the guides 10, which are attached to the arms 2, descend. The bars 12 remain substantially stationary, the guides moving toward the lower end of the bars 12 under an increasing pressure of the springs 14 as the latter are stretched. (See Fig. 4.) As the guides 10 approach the limit of their downward movement the studs or rollers 20 are respectively brought into contact with the upwardly projecting members 9 of the rockers or cam-levers 17, causing their laterally projecting members 8 to tilt upward against the bars 12, thereby counteracting the pull of the springs 14 and lifting the pressers 5 away from the affixed label, as indicated in Fig. 4, so that without drag of the affixing pressers upon the label the arms can be oscillated outward to open position preparatory to performing their upward movement. The top face of the laterally projecting member 8 is best formed as a curved cam-surface against which the end of the bar 12 can smoothly travel as the wiper-arms are swung outward, while the parts assume their primal positions.

In Figs. 1 to 5 the presser or wiper element 5 is shown as a flat plate affixer having a semi-elastic rubber facing, and connected with the offset head of the extension-bar by a hinge-pivot or axis-stud *h* that permits slight rocking movement of the plate; said construction being suitable for affixing labels upon plain flat surfaces.

Fig. 8 illustrates a modification of my invention as adapted for affixing labels upon paneled or depressed surfaces. The presser or wiper element 5 has its face provided with a shoulder, or conformed to the contour of the panel depression or surface. Also in this instance the extension bar 12 and its guide 10 are arranged with a slight upwardly outward inclination, the effect of which is to impart to the presser element a gradual outwardly-wiping lateral movement.

Fig. 9 illustrates a modification of my invention adapted to act as an in-pressing wiper for convex surfaces. In this case the presser or wiper element is formed of a flexible pad 35, and an overhanging metal guard 36, of the desired shape, is attached to the head of the sliding bar 12. The bar and guide 10 are disposed with a slight upwardly inward inclination. The effect of this means is to give a primary wiping action upon the label while the wiper-head moves about half way, more or less, down the side of the bottle or cylindrical surface W^1; and then an inward lateral pressure toward the cylinder, with an increasing force due to the differential between the straight line of movement and the incline of the extension-bar sliding in the guide. In this modification a solid foot-cam 37 is shown in lieu of a tilting cam-lever; but either form may be employed.

It will be understood that for labeling machines employing a plurality of pairs of wiper devices, as for body labels and neck labels, the hereinbefore described mechanism can be duplicated and applied to each pair of pressers or wiper elements for operation substantially as above set forth.

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

1. In a label-affixing mechanism, a pair of pressing wiper elements, an extendible supporter for each of said elements, movable wiper arms, guides for said supporters carried upon the wiper-arms, and tension springs connected with said supporters and their guides and strained for yieldably resisting the extension movement of the supporters and for thereby maintaining the pressure of the pressing wiper elements upon the label while affixing it to the package surface.

2. In a label-affixing mechanism, a yieldingly mounted label-smoothing wiper having an endwise movable stem, a rockable wiper-carrier and actuating means therefor, a guiding means for supporting said stem disposed upon the wiper-carrier in position to assume the general direction of its wiping movement, and a tension-spring connected with the wiper stem for giving pressive force to the label-smoothing wiper-member, by resisting the endwise sliding extension of the guides and supporting stem as the wiper-carrier is depressed.

3. In a label-affixing mechanism, the combination, with the affixing wipers or pressers, a carrying means for said affixing pressers having lateral movement for closing in and spreading apart the pressers, and reciprocative movement to effect affixing action, yieldable pressure-applying springs, and means for positively throwing off said affixing pressers from the package when the carrying-means approaches the end of its downward movement.

4. In a labeling machine, the combination, with wiper-carrying arms, label-pressing wipers yieldably connected therewith, tension-springs for said label-pressing wipers, and means for operating the wiper-carrying arms; of an independent means for throwing off the pressing-wipers from the label without interfering with the wiper-arm movement.

5. In a label-affixing mechanism, a plurality of label-affixing pressers, means whereby said pressers are carried to and from the work, and pressing force applied thereto, and a supplementary throw-off mechanism for moving the label-affixing pressers away from contact with the label, independent of the carrier movement.

6. A label-affixing mechanism, including presser-carrying mechanism, yieldably supported label-affixing pressers adapted for applying pressure at fixed positions by downward movement of the presser-carrying mechanism, and means for relieving the pressure, said means brought into action approximately at the end of the downward stroke of the presser-carrying mechanism.

7. In a label-affixing mechanism, a pair of presser-devices for smoothing or pressing the labels upon the package, carrier-means for said presser-devices, an actuating mechanism that operates said carrier-means for moving the presser-devices to and from position above the label, and giving thereto a downward pressure-applying movement, yieldable springs between said presser-device and carrier-means that impart an increasing tension to the presser-devices, and a supplemental means for relieving the presser-devices from contact with the label or package actuated by the downward movement of the carrier-means.

8. In a label-affixing mechanism, the combination, of a pair of vertically moving oscillating supporting levers, guiding members mounted thereon, slide-bars endwise movable in said guiding members and extendible therefrom, each of said slide-bars having an inwardly offset portion, a label-affixer element attached to each slide-bar, a tension spring connected to resist extension movement of the slide-bar, and means for positively moving the slide-bars and lifting the label-affixers as said supporting levers approach the limit of their downward movement.

9. In a label-affixing mechanism, a label-affixing presser hingedly connected with its supporter, an endwise slidable supporter having an offset head to which said presser is pivotally attached, a laterally oscillating wiper-arm, a guide thereon wherein said slidable supporter is mounted in approximately upright relation, a reciprocating carrier on which the wiper-arms are pivotally mounted, means for operating said carrier, and means mounted on the carrier for controlling the oscillative movement of the wiper-arms, and devices that coact with said supporters for releasing the presser from the label when said wiper-arms are at a determined position before the spreading of the arms is effected.

10. In a labeling machine, in combination with a stationary work-supporting rest, means for gluing and presenting the labels adjacent thereto; a pair of vertically reciprocating laterally moving carrying arms, a pair of label-affixing elements carried thereon, an intermediate extendible connecting means that affords an approximately direct extension between said carrying arms and label-affixing elements, springs that normally resist the extension movement, and means for positively counteracting the force of said springs and retracting the label-affixing elements from the label when the carrying arms reach a predetermined position in their movement.

11. In a label-affixing mechanism, the combination, of laterally moving wiper-arms, a reciprocating carrier having said wiper-arms supported thereon, guiding devices mounted on the wiper-arms, an extension-member movably mounted in each guiding device, wipers or presser elements supported on said extension-members, a spring connected with each extension-member for retracting it to normal position and for controlling the pressure applied upon the label; rockable cam-levers for engaging and lifting the extension-members to release the pressure, and means for actuating said cam-levers at a predetermined stage of the reciprocative carrier movement.

12. In a labeling machine, the combination, of a laterally moving wiper-arm, a directly slidable extension member mounted upon said wiper-arms and carrying the label-smoothing element, said element connected with an offset portion thereof, and means for changing the relation of said slidable extension-member in respect to the center line of the wiper-arm.

13. In a label-affixing mechanism, a pair of label-affixing elements, means whereby said affixing elements are carried to and from the work and downward pressure applied thereon, means for imparting limited lateral movement to said affixing elements while exerting their pressure on the label, and a supplementary throw-off mechanism for lifting the affixing elements from the label independently of the carrier movement.

14. In a mechanism of the class described, the combination, with the vertically reciprocating laterally moving wiper-arms, label-affixing elements, direct sliding members whereon said label-affixing elements are mounted, and yieldable tension springs

therefor; of guides for said sliding members disposed upon the wiper-arms to stand in slightly inclined positions in relation to the line of the downward reciprocative movement of the wiper-arms when in action, for the purpose set forth.

15. In a mechanism of the class described, a label-affixer element adapted for pressing a label upon a paneled or approximately flat surface, an endwise movable slide-bar having an inwardly offset head, a guide for said slide-bar, means for mounting said slide-bar upon a wiper-arm, a hinging joint connecting said affixer element to said slide-bar, the axis of said hinge being approximately parallel with the plane of the affixer and transverse to the line of the slide-bar, and a spring for retracting said slide-bar with respect to the guide.

16. In a mechanism of the class described, a pressing-wiper comprising a straight non-rotatable sliding-bar, a yieldable wiper-pad and guard attached to the upper part of said slide-bar, a guide in which said slide-bar is mounted, said guide adapted for support upon a laterally and vertically movable wiper-arm or carrier-lever, and arranged to stand at slightly inclined position in relation to the line of movement, means for yieldingly drawing the slide-bar within the guide, and means for arresting the downward movement of the slide-bar at a predetermined position, for the purpose set forth.

17. In a mechanism of the class described, a pair of oppositely disposed label-affixing elements respectively mounted upon endwise slidable members that are supported by guides which have lateral and vertical movement, and connected thereto by contractile springs that give the affixing pressure, said guides being disposed to stand in a slight oppositely inclined relation to each other and to the line of movement of said guides while performing their downward movement.

18. In a label-affixing mechanism, in combination with means for supporting an article to be labeled, means for gluing and presenting a label thereto, and a pair of wiper-arms, a grip-device for the temporary retention of the labels, a pair of label-smoothing pressers, each mounted upon an endwise slidable bar; guides for said bars attached to the wiper-arms, tension springs for yieldably maintaining the slidable bars in normal relation to their guides, tilting cam-levers with which said slide-bars contact at a predetermined stage of the movement, and means for actuating said tilting cam-levers controlled by the wiper movement.

19. In a labeling machine, the combination with vertically and laterally moving wiper-arms or levers, of guideway heads attached to said wiper-arms, and having guide-ways thereon, right and left presser-holding members slidable in said guide-ways, their ends projecting below and above the guides, pull springs connected therewith for downwardly retracting said presser-holding members, inwardly projecting pressers or wiper-elements attached to offset ends of said holding-members, rocking cam-levers pivotally fulcrumed to a stationary part on the frame, each cam-lever provided with a lifter-arm, an actuator-arm and a stop-engaging projection, a contact means carried upon the guide-way head for tilting said cam-lever to lift the presser-holding members, and means that coacts with said engaging projections for limiting the tilting action.

20. The combination, with a stationary work-supporting rest, a bottom-delivery label-holder, means for gluing and transferring labels singly from said label-holder to a position above said rest, a pair of vertically-movable oscillating guide-carrying arms and means for controlling the operation of said arms; of a pair of guides respectively secured upon the guide-carrying arms, endwise slidable bars supported by said guides and having inwardly offset top ends, label-affixing elements attached thereto, pull springs connected therewith for exerting downward pressure on the slide-bars and label-affixing elements, a pair of right and left pivotally mounted rocker-devices beneath said guides, each rocker provided with a projecting member for engaging the slide-bar, and with a projecting contact-member, and actuator means carried upon or moving with said guides, and coacting with said contact-members for operating the rockers as the guides descend, for the purpose set forth.

Witness my hand this 3rd day of May 1910.

FRANK O. WOODLAND.

Witnesses:
CHAS. H. BURLEIGH,
A. G. DAVIS.