W. RHEFUS & O. WIDMAIER.

LABELING MACHINE FOR LABELING BOTTLES, PARCELS, AND THE LIKE.

APPLICATION FILED SEPT. 16, 1912.

1,098,841.

Patented June 2, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

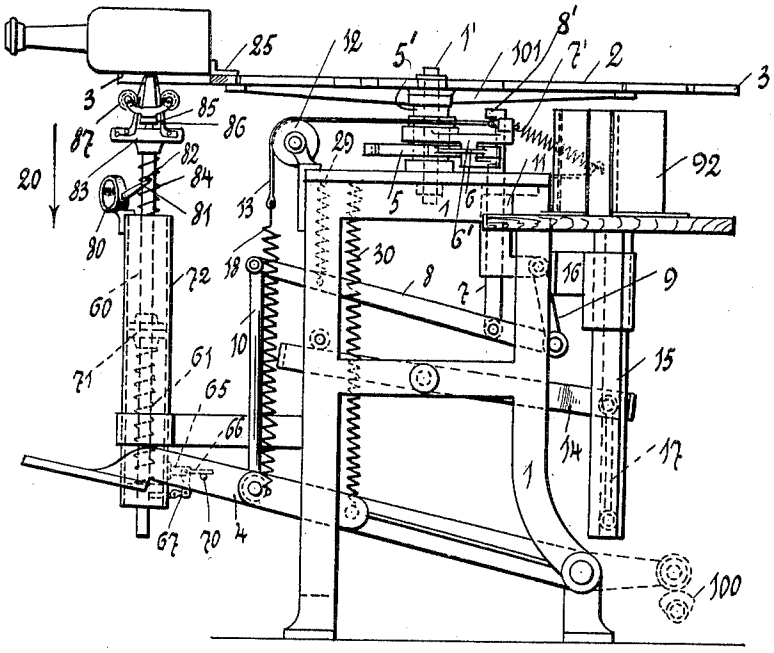
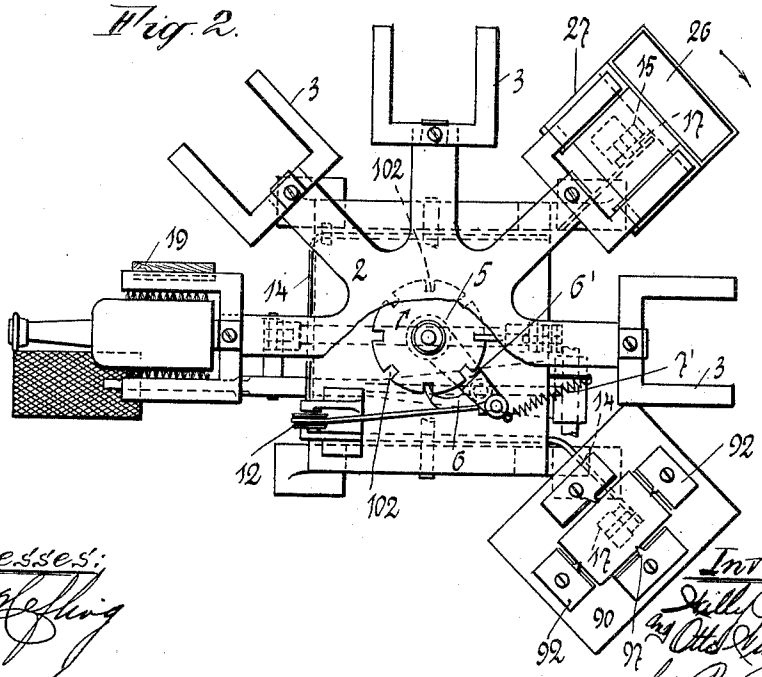


Fig. 2.



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2 SHEETS—SHEET 2.

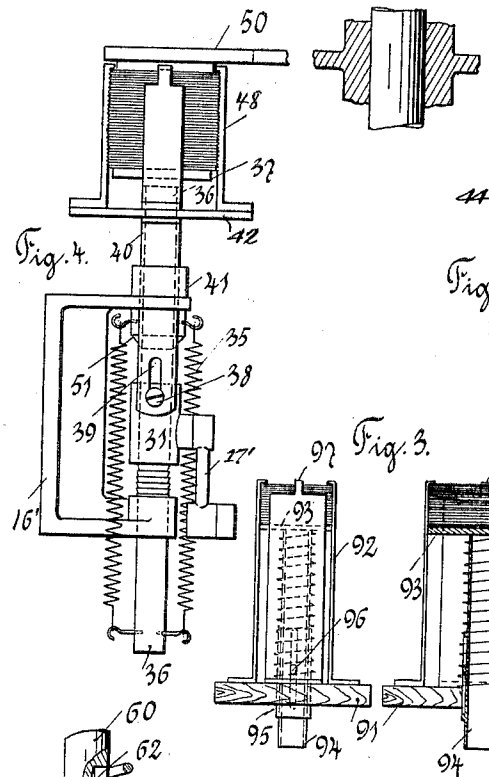


Fig. 4.

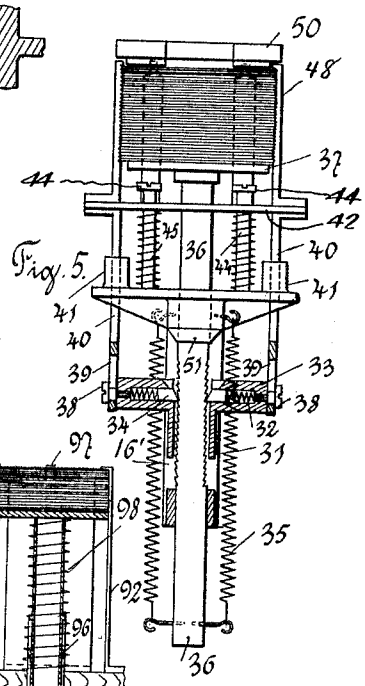


Fig. 5.

Fig. 3.

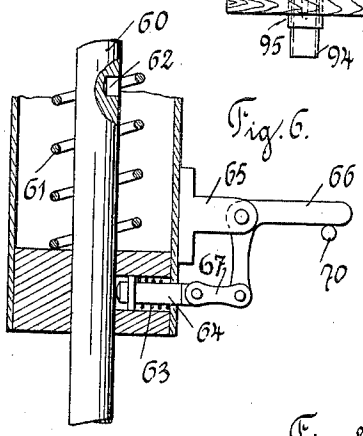


Fig. 6.

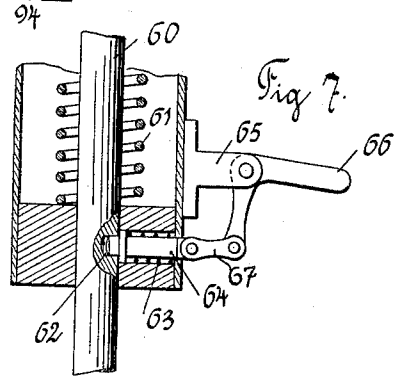


Fig. 7.

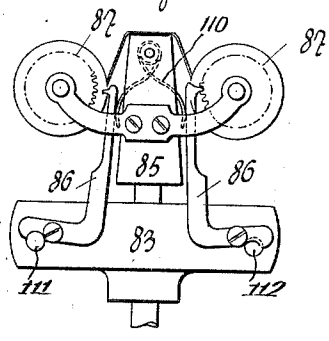


Fig. 8.

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UNITED STATES PATENT OFFICE.

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LABELING-MACHINE FOR LABELING BOTTLES, PARCELS, AND THE LIKE.

1,098,841. Specification of Letters Patent. Patented June 2, 1914.

Application filed September 16, 1912. Serial No. 720,586.

To all whom it may concern:

Be it known that we, WILLY RHEFUS, residing at Breitingstrasse 10, Paunsdorf, near Leipzig, Germany, and OTTO WIDMAIER, residing at Breitingstrasse 2, Paunsdorf, near Leipzig, Germany, both subjects of the Emperor of Germany, have invented certain new and useful Improvements in Labeling-Machines for Labeling Bottles, Parcels, and the like, of which the following is a specification.

This invention relates to labeling machines of the kind in which the objects to be labeled are passed through feed forks of an intermittently rotating arm star, either by hand or mechanically, the labels adhering to the forks, being drawn off the same and pressed against the objects to be labeled by brushes or the like.

The object of this invention is to provide a machine that is distinguished by its particular simplicity and cheapness. It is intended especially for industrial establishments of the kind where there are no shaftings or other driving means, as for instance in wine cellars and distilleries.

The gist of the invention resides in its particular construction as characterized in the claims, this construction being far more simple than the known ones, because merely reciprocating levers are employed to effect the operations required, viz: Rotating the arm star, locking the same, providing another fork with glue, and conducting the label receptacle to and against a fork, which has previously been provided with glue.

A special feature of the invention consists in a device for delivering separate papers to the fork after these have been provided with glue. This device is remarkable for its simplicity in connection with a very secure action.

In a machine of the aforementioned kind there is a yielding abutment, for instance a spring pressed stamp, by means of which the label is firmly held fast while the object to be labeled is made to pass through the respective feed fork. This yielding abutment, however, has the drawback that if the labeled bottle or the like is taken off the machine without proper caution, the label is rather easily displaced or wrinkled. To avoid this disadvantage our improved machine is provided with a locking device, which is released by the reciprocating driving lever of the machine and holds the depressed stamp fast for a certain time, releasing it only after the foot lever, which intermittently turns the arm star, has returned to its former position. In order to prevent the released stamp from rising too suddenly, it is provided with a sort of brake allowing only of a rather slow return movement of that stamp.

Another improvement consists in connecting the stamp bar with a device counting the number of strokes, and consequently also that of the objects labeled, by the mediation of a known gear; and in certain cases the abutment may, if desired, form a date stamp employed preferably in connection with an ink ribbon moved to and fro over the pressure surface of the stamp similar to the coöperation of the parts concerned in a writing machine.

Our invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the machine, Fig. 2 is a plan view of the machine with portions cut away, Fig. 3 is a label receptacle of the kind hitherto used, Figs. 4 and 5 show details of another form of construction of such receptacle, combined with means for delivering separate labels to the feed forks, Figs. 6 and 7 show details of the locking device, and Fig. 8 is a representation of the ink ribbon driving means, drawn on a larger scale.

The frame 1 of the machine supports an arm star 2, which is turned intermittently in known manner and by known means, and to the radial arms of which are secured the U-shaped label carriers 3. The intermittent rotation of the arm star 2 is effected by a foot lever 4, which is fulcrumed on the frame. The arm star is for this purpose connected with a feed disk 5, which is intermittently rotated by a pawl 6 which is moved in a forward direction against the action of the spring 7′ by means of a cord 13 running over a pulley 12 and connected to the foot lever 4. This pawl 6 slides along the circumference of said disk and is capable of entering one of the notches 102 provided

in said circumference. Upon the forward movement of the pawl 6, the disk 5, and with the same the arm star 2, said parts being connected by a sleeve 5′ pivotally secured to a stationary pin 1′ in the middle of the table of the machine, execute a revolution of a predetermined length, for instance one eighth of a revolution. The other end of the pawl 6 is fulcrumed to the free end of a lever 6′, which is freely rotatable about the said sleeve 5′. The backward movement of the pawl is effected by means of the spring 7′. The locking bar 7 is vertically guided in a guide 11 and is provided at its upper end with a notch, which allows the disk to freely turn at the beginning of its movement. The locking bar 7 locks the arm star 2 only when the upper hook shaped end 8′ of the locking bar 7 reaches the disk and enters into one of the notches provided on the periphery of the same.

A lever 8 to which the bar 7 is pivotally secured intermediate its length has its front end pivotally connected to the lever 4 by means of a bar 10 while its rear end is pivotally secured to a link 9 fulcrumed on the frame of the machine. A spring 18 secured to the foot lever 4 and connected with the pawl 6 by means of a cord 13 running over a roller 12 allows a depression of the foot lever after the arm star has been locked, whereby the glue pot and the label carrier are moved upwardly by the lever 8 coming into contact with the bail 14. The glue pot and the label receptacle are attached each to a rod 15 and may be vertically displaced in guides 16. The rods 15 are connected by two bars 17 with the bail 14 fulcrumed to the frame of the machine. As seen in the drawings, the lever comes in contact with the front end of the bail 14, after the arm star has been locked and the bail is consequently turned while the spring 18 is expanded. This turning movement of the bail would not be possible if instead of the spring 18 a rigid connection were provided between the end of the cord 13 and the foot lever 4. The rear ends of the bail 14 move upward during this time, whereby a glue pot of any suitable shape (not shown), is made to lie against the lower side of the label receptacle 3, so as to provide it with a certain quantity of glue. At the same time the label receptacle comes into contact with another arm of the arm star, which also has received some glue at some earlier time, the uppermost label then adhering to the respective part of the holder 3 until that part has arrived over the brushes 19. At this place, the bottle, parcel or the like to be labeled is passed through the space between the prongs of the respective fork in the direction of the arrow 20, so that the label adhering to the lower side of that fork is stripped off and is pasted on to the respective bottle or the like, by means of the brushes 19.

Fig. 3 shows a label receptacle for the machine in question. It consists chiefly of a ground plate 91 with side walls 92, between which moves a plate 93 acted on by a spring 98, said plate 93 serving to press the labels supported by it against small hooks 97 provided at the upper part of said side walls. When the label receptacle is brought in contact with the carrier 3, the uppermost label adheres to that carrier, and as this is continuously repeated the receptacle is gradually emptied. The Figs. 4 and 5 show another improvement of this label receptacle, viz: A device for delivering single or separate labels or sheets. A hollow cross beam 31 is moved up and down by a lever 17′; said cross beam may be coupled by means of pawls 34, guided in guides 33 and actuated by springs 32, with a presser bar 36 for the bottom of the label receptacle, said bar being also acted upon by springs 35. The bolts 38 screwed into the exterior ends of the cross arms 33 are freely movable in slots 39 of the angular parts 40, these latter being connected above their guides 41 with a plate 42 preferably carrying the movable walls of the label receptacle. The plate 42 with the parts secured to it is supported by springs 45 held in place by bolts 44. All parts of the device are affixed to the angular frame 16, which in its turn is affixed to the frame of the machine at a suitable place. The coupling piece 17′ is hinged to a rotary or an oscillating bail 14 of the machine in order to obtain a positive action of the parts just described and corresponding in action and construction exactly to the bar 17 (Fig. 1). Supposing the coupling piece 17′ to move upward, the presser bar 36 for the bottom 37 is raised partly by the said piece 17′, partly by the springs 35, and during this movement also the plate 42 with the angular parts 48 is moved upward under the pressure of the springs 45, and this movement continues until the walls 48 push against the fork 3, whereby the further movement is stopped. On the bar 36 rising further, the pawls 34 push upon the cone 51 whereby they are pressed away laterally and the presser bar becomes free, this latter then alone pressing the plate 37 with the pile of labels against the fork 3 under the pressure of the springs 35. The uppermost label now adheres securely to the fork, and on the return movement the pawls 34 are pressed into the gaps of the bar 36 by the springs 32 instantly after they have become free from the cone 51, whereby this latter with the plate 37 and the pile of labels is moved downward, contrarily to the action of the springs 35. The walls 48, which are

under the pressure of the springs, at first remain immovable in their uppermost position and follow the returning bottom only after the bolts 38 of the coupling 31 push upon the lower ends of the slots 39 of the angular pieces 40, which are firmly connected with the plate 42. The label feed fork may then be swung laterally, and the label adhering to it may be stripped off at the suitable place after which the procedure just described is repeated, and so on.

At the place where the labels are stripped off there is a yielding abutment (Fig. 1) for instance a stamp 60, which is under the pressure of a spring 61, constantly tending to remove the stamp into its uppermost original position. The upper end of said stamp receives the object to be labeled, for instance a bottle, and the label adhering to that object or bottle is held fast between the stamp and the bottle, so as to be kept securely in contact with the latter. This abutment, however, is possessed of the drawback mentioned in the preamble, that on the bottle being drawn off the depressed stamp, and in consequence of the friction between the parts concerned, the label is either displaced or wrinkled. This drawback is overcome in the present novel construction by means of a locking device, which permits the stamp to return to its former position only after the foot lever, by which prior thereto the stamp has been first moved and then locked, is let loose. For that purpose the stamp bar is provided with a bore 62, into which may take a spring pressed pin 64, when the bar 60 is pressed downward. This pin or locking pin, is preferably situated in the guide of the stamp bar. The locking contrivance in question makes it possible to throw the spring so to say out of gear, so that the bottle may be taken away without running the risk of wrinkling the label in consequence of the friction otherwise arising. In order to release the stamp for the next label feeding, a bell crank lever 66, fulcrumed at a yoke 65, is provided in the example shown; one end of this lever is connected by a link 67 with the free end of the spring pressed locking pin 64, whereas the other end of said lever extends horizontally when the lever is in its locking position. The foot lever 4 is provided with a pin 70, which pushes upon said horizontal arm of the bell crank lever when said lever is let loose, and consequently the locking pin is withdrawn and the spring 61 of the stamp 60 may exert its action anew.

In order to prevent the stamp from returning too suddenly to its former position, a brake device is provided compelling the stamp to move slowly in the direction in question. In the form of construction shown, the stamp bar 60 has a piston 71, which moves in a cylinder 72 having a return valve or the like, which allows of the free entrance of the air when the spring is compressed, whereas in the other direction the return valve allows of but a slow escape of the air and consequently of but a slow return movement of the piston with the other parts concerned. The speed of this movement may be regulated by means of a screw, a cock, or the like.

To the upper end of the brake cylinder is attached a counter of any known construction, the driving lever 81 of which is actuated by means of a pin 82 provided at the bar 60. By this contrivance the number of strokes and thus also the number of objects labeled may be automatically recorded.

The abutment may form a date stamp, the arrangement being preferably such that an ink ribbon is gradually moved along to and fro over this stamp. For this purpose a plate 83 is provided on the stamp bar 60, which may slide upon said bar and is held in a certain position by a weak spring 84 situated between said plate and the cylinder 72. When placing the bottle in proper working position and depressing the stamp bar, the said plate 83 stands still for a certain while until the collar 85 of the stamp 60 comes in contact with the upper side of the plate 83 after which the two springs 61 84 are compressed so that only then the plate and the stamp move downward simultaneously. The slight relative movement between the two parts in question is sufficient to operate a ratchet wheel 87 by the mediation of which the ink ribbon is wound off the one ink ribbon roller and on to the other roller, over the date stamp, whereby the object desired it attained. The action of the mechanism for winding the ink ribbon from one roller to the other is the same as is customary in typewriters.

As shown in Fig. 8 the ratchet wheels 87 of the ribbon spools are actuated by two feeding pawls 86 standing under the control of a spring 110. A pin 111 is adapted to be alternately placed into suitable holes 112 under the lower outer ends of the pawls 86 for alternately changing the direction of rotation of the ribbon spools.

To change the direction of movement of the ink ribbon the arrangement devised for this purpose is such that the active pawl is situated at plate 83 alternately at the righthand side and lefthand side of the stamp. The ink ribbon may be used as long as it is capable to ink the stamp exactly as in a type writing machine, and a worn out ribbon may be changed also in the same manner as in such a machine.

Instead of operating the labeling machine by hand, as before described, it may be op-

erated mechanically by any appropriate means, for instance by an eccentric 100, the shaft of which is rotated by a motor of any description. The springs 29 and 30 serve to return all parts to their original position.

What we claim as new and desire to secure by Letters Patent is:

1. In a labeling machine of the character described, in combination with the frame thereof, an intermittently revolving arm-star, U-shaped label carriers secured to the outer ends of the arms of said star, means for locking the latter in its adjusted position, means for providing some of the arms with glue, means for bringing the labels in contact with one of these arms, a foot lever, a pawl adapted to transmit the movement of said lever to said arm-star, a spring connecting said pawl and the lever, a locking disk connected with and adapted to be actuated by said spring, and means for connecting said lever with said other means and adapted to bring about the proper succession of operations, substantially as described.

2. In a labeling machine of the character described in combination with the frame thereof, an intermittently revolving arm-star, feed forks at the extreme outer ends of the arms of said star, means for holding the labels in position while the objects to be labeled are pressed against said labels, means for intermittently revolving the arm-star, means for locking the latter in its adjusted position, a label receptacle, a lift-bar for the bottom of said receptacle connected therewith and adapted to move the same onto said forks, a spring connected with said bar, movable walls forming part of said receptacle, a support for said movable walls, springs carrying said support for forcing the walls upwardly, and means for operating this bar, substantially as described.

3. In a labeling machine of the character described, in combination with the frame thereof, an intermittently revolving arm-star, feed forks at the ends of the arms of said star, means for intermittently revolving the arm-star, means for locking the same in its adjusted position, a yielding abutment, a spring adapted to force said abutment upwardly, a locking device adapted to retain said spring pressed abutment in its lower position, means for releasing said device, and a foot lever connected to said releasing device.

4. In a labeling machine of the character described in combination with the frame thereof, an intermittently revolving arm-star, U-shaped feed forks at the extreme outer ends of the arms of said star, means for intermittently revolving said arm-star, means for locking the same in its adjusted position, means for providing some of the arms with glue, and means for bringing the labels in contact with one of these arms, a foot lever, a yielding abutment, a spring adapted to force said abutment upwardly, a locking device adapted to retain the spring pressed abutment in its lower position, a pin upon said foot lever, a bell crank lever adapted to be operated by said pin, and means for transmitting the movements of said foot lever first upon the means for retaining said arm-star and then upon the means for locking the latter and finally upon the means for pressing the labels against said forks, substantially as described.

5. In a labeling machine of the character described, in combination with the frame thereof, an intermittently revolving arm-star, feed forks at the extreme outer ends of the arms of said star, means for intermittently revolving the arm-star, means for locking the same in its adjusted position, a yielding abutment, a spring adapted to force said abutment upward, a brake adapted to retard said upward movement of the abutment, a foot lever, and means connecting said lever with said other means, for insuring the proper succession of operations, substantially as described.

6. In a labeling machine of the character described, in combination with the frame thereof, an intermittently revolving arm-star, feed forks at the extreme outer ends of the arms of said star, means for intermittently revolving the arm-star, means for locking the same in its adjusted position, means for providing some of the arms with glue, means for bringing the labels in contact with one of the arms, a foot lever, a yielding abutment, a bar forming part of said abutment, a counter, a pin provided upon said bar and adapted to actuate said counter, and means for connecting said foot lever with the said other means, and adapted to bring about the proper succession of operations, substantially as described.

7. In a labeling machine of the character described, in combination with the frame thereof, an intermittently revolving arm-star, feed forks at the extreme outer ends of the arms of said star, means for intermittently revolving the arm star, means for locking the same in its adjusted position, means for providing some of the arms with glue, means for bringing the labels in contact with one of the arms, a foot lever, a yielding abutment carrying an exchangeable date stamp at its upper end, an ink ribbon above said stamp, and means for moving the ribbon, substantially as described.

8. In a labeling machine of the character described, in combiniation with the frame thereof, an intermittently revolving arm-star, U-shaped label carriers at the extreme outer ends of the arms of said arm-star,

means for intermittently revolving said arm-star, means for locking the same in its adjusted position, means for providing some of the arms with glue, means for bringing the labels in contact with one of the arms, a yielding abutment carrying a date stamp upon its upper end, an ink ribbon above said stamp, a bar forming part of said abutment, a plate adapted to be displaced with said bar, a pawl upon said plate, a spring adapted to hold said plate in its normal position, and a collar attached to said bar adapted to cooperate with said pawl, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLY RHEFUS.
OTTO WIDMAIER.

Witnesses:
WOLDEMAR HAUPT,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."