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M. SCHNITCHEN

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LABELING MACHINE

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Fig. 1.

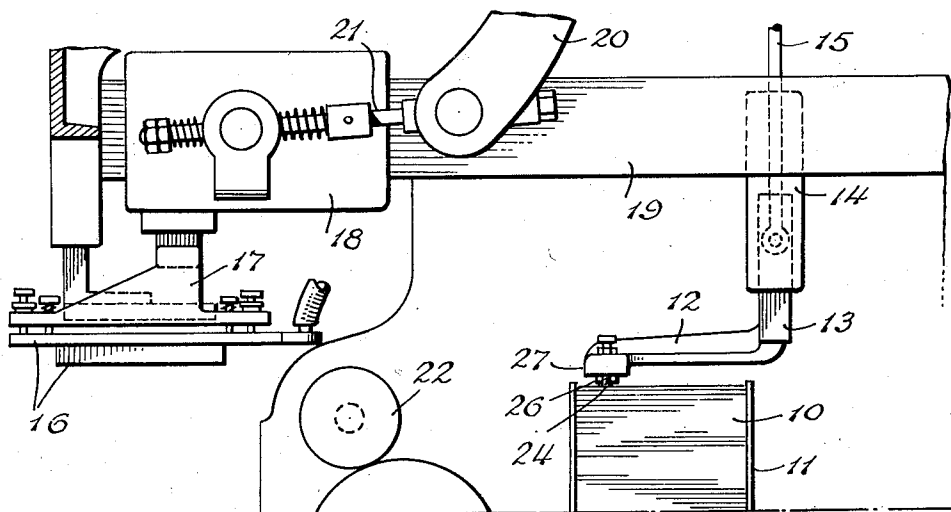


Fig. 4.

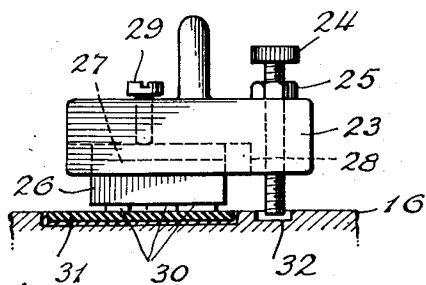
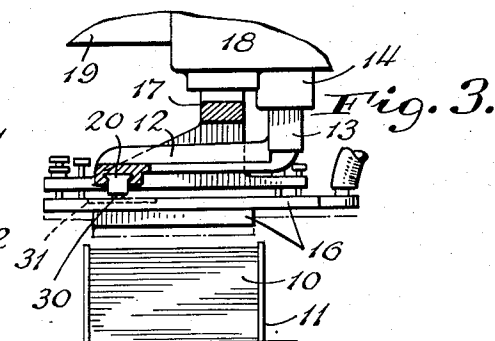
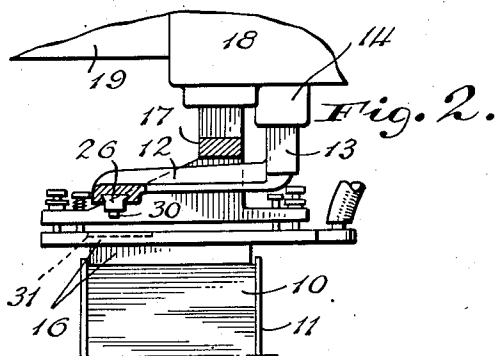
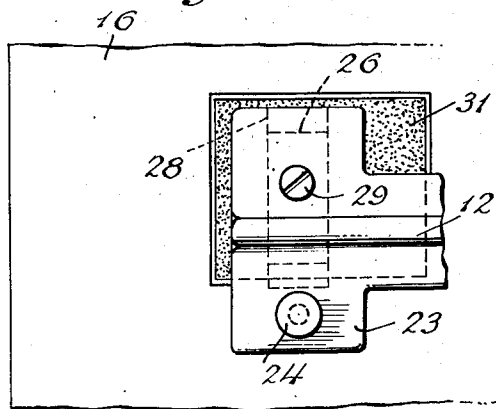


Fig. 5.



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LABELING MACHINE

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18 Claims. (Cl. 216—2)

The invention relates to labeling machines and has for its object to provide such machines with novel means for imprinting the labels at a predetermined point in the operative cycle of the machine. The invention contemplates primarily the provision of novel means for imprinting code marks and other identifying indications upon individual labels in progressive succession as an operative function in the operative cycle of the machines. Other more specific objects will appear from the description hereinafter, and the features of novelty will be pointed out in the claims.

In the accompanying drawing, which illustrates an example of the invention without defining its limits, Fig. 1 is a fragmentary elevation of a labeling machine with the novel features embodied within; Figs. 2 and 3 are fragmentary detail views partly in section showing the parts at different operative stages; Fig. 4 is a detail view, on an enlarged scale, of an example of the imprinting means, and Fig. 5 is a fragmentary plan view thereof.

For the purpose of illustration and description and without intent to define the scope of usefulness of the novel features, a form of labeling machine has been selected in which a supply of labels 10 is contained in a suitable hopper 11 or the like, in stacked arrangement, with the exposed or printed faces upward. Such machines generally include automatically controlled mechanism for elevating the stack of labels 10 at intervals to thereby periodically restore the upper end of the stack to a predetermined level; this elevating mechanism and its control means may be of any conventional and well-known arrangement. In the selected type of labeling machine, the means whereby the elevating mechanism is controlled includes a controlling member 12 carried by a slide 13 vertically movable in a stationary guide 14, and connected by means of a link 15 with the operating means whereby the member 12 is vertically reciprocated in predetermined timed relation with the other operating elements of the machine; the aforesaid operating means in conventional existing arrangements includes a suitably shaped cam for developing the vertical reciprocation of the member 12.

In the selected form of labeling machine shown in the drawing, the labels 10 are removed in individual succession from the upper end of the stack, by means of a suction head 16 carried by an open frame or yoke 17 which is supported by and vertically movable on a carriage 18. The latter is arranged to be reciprocated on a sta-

tionary rail 19 by suitable mechanism exemplified by the lever 20 and connecting rod 21 to carry each successive label 10 from the stack to the point of application at which the article to be labeled is supported in a label receiving position in any well known way. In the operation of the mechanism the yoke or open frame 17 and the suction head 16 are lowered at one terminus of the reciprocation of the carriage 18 to cause the head 16 to pick up a terminal label 10 from the stack and raise said label therefrom; the raised suction head 16 with the lifted label 10 thereon is then shifted with the carriage 18 along the rail 19 to the aforesaid point of application. At this point the yoke 17 and suction head 16 are lowered to apply the label 10 carried thereby to the particular article located at the point of application at the time. It will be understood that the suction effective at the active surface of the suction head 16 is controlled in any conventional manner in proper synchronism with the aforesaid operative steps to produce the desired results. During its travel from the stack to the point of application, the label 10 carried by the suction head 16 receives a coating of adhesive for instance by passing in tangential engagement with a suitably mounted adhesive applying roller 22; it will be understood that in the return direction the suction head 16 travels at a level above the adhesive applying roller 22 so as not to be soiled by adhesive therefrom. As so far described, the mechanical arrangement may be of any well-known type suitable for the purpose.

In existing labeling machines of the class under discussion, the member 12 acts as a feeler adapted during each downward movement in the vertical reciprocation thereof to engage the upper end of the stack of labels 10; as the height of the stack decreases because of the progressive removal of labels 10 therefrom, the downward movements of said member 12 correspondingly increase in extent, so that finally the feeler brings about an operation of the elevating mechanism whereby the upper end of the stack of labels is periodically restored to a predetermined level. In the novel arrangement the member 12 and its associated elements, in addition to controlling the elevating mechanism whereby the stack of labels 10 is periodically raised, also performs additional functions as will appear more fully hereinafter in the description.

As shown in the illustrated example, the member 12 is accordingly provided at its free end with a suitably shaped and dimensioned head 23 carrying means whereby the aforesaid feeling

operation is performed. This means is shown in the form of an adjustable screw 24 projecting downwardly from the head 23 and fixed in an adjusted position thereon, for instance, by means of a lock-nut 25.

In addition to its other functions, the head 23 serves as an imprinting device or stamp and accordingly is constructed and arranged to removably accommodate the type or other means whereby the imprinting of successive labels 10 is effected. The specific arrangement selected for illustrative purposes consists of a carrier 26 provided with bevelled flanges 27 along opposite edges adapted to fit an undercut or dove-tail groove 28 formed in the lower face of the head 23, as shown in Figs. 1, 2 and 3; the carrier 26 may be removably secured in place in the groove 28 in any convenient manner as by means of a set screw 29 threaded in the head 23 as illustrated in Fig. 4. The carrier 26 is arranged in any suitable way to removably receive and hold type 30 or equivalent means whereby the code marks or other identifying indications, or any other predetermined subjects matter are imprinted on said labels 10.

For the purpose of illustrating the manner in which the imprinting device or stamp is inked or treated in an equivalent manner, the suction head 16 is provided on its upper surface with an inking pad 31; the latter may be of any suitable construction and fixed in place on the head 16 in any convenient way and preferably is countersunk so as to lie flush with said upper surface of the head 16 as shown in Fig. 4. In order to prevent the feeler exemplified by the screw 24 from interfering with the proper inking of the type 30, a recess 32 is formed in the upper surface of the head 16 in proximity to the pad 31 as illustrated in Fig. 4; the recess 32 is arranged and located so as to lie in registry with the screw 24 when the parts are in position to ink the type 30 as will be more fully described hereinafter.

In describing the operation of the mechanism, it will be assumed that in Fig. 1 the parts are at that stage in the operative cycle subsequent to the application of a label 10 to an article, with the suction head 16 in the process of being raised on the carriage 18 to a position above the level of the adhesive applying roller 22 ready for a return movement prior to the removal of the instant terminal label 10 from the top of the stack in the hopper 11. As shown, the member 12 at this time occupies a lowered position with the feeler screw 24 in contact with the surface of the uppermost label 10 and the type 30 or equivalent means in printing engagement with said surface of the uppermost label 10 to imprint the same as will be described more in detail hereinafter.

When the yoke 17 and suction head 16 have been raised to the proper point on the carriage 18 subsequent to the application of a previously imprinted label 10 to an article, the carriage 18 is shifted lengthwise of the rail 19 toward the right in Fig. 1; in proper timing with these operations the slide 13 is shifted upwardly in the guide 14 to raise the member 12 and its head 23 with the associated elements to a point at a distance above the stack of labels 10. The movement of the carriage 18 toward the right is continued until the active surface of the suction head 16 is above and in registry with the stack of labels 10 in the hopper 11; at this stage the member 12 and the parts carried thereby project into the yoke 17. The latter is then moved downwardly on the carriage 18 to bring the suction

head 16 into contact with the top of the stack of labels 10 as illustrated in Fig. 2; it will be noted that at this stage the inking pad 31 or its equivalent is below and in vertical registry with the type 30 or other imprinting means carried by the head 23 of the member 12.

In properly timed relation, suction is made effective in the suction head 16, and the latter with the yoke 17 is raised on the carriage 18 so that the terminal label 10 of the stack is removed thereby by the action of the suction head 16; the described upward movement of the suction head 16 is continued until the inking pad 31 or its equivalent engages the type 30 or other imprinting means on the member 12. As a result of this the type 30 are inked or the equivalent imprinting means is correspondingly treated in preparation for the next imprinting operation. As the described inking of the type 30 or equivalent operation takes place, the recess 32 of the suction head 16 will prevent the feeler screw 24 from interfering therewith. When proper engagement has been established between the pad 31 and the type 30 to efficiently ink the latter, as shown in solid lines in Fig. 3, the yoke 17 is given a slight downward movement on the carriage 18 to thereby move the pad 31 away from the type 30 to the position illustrated by dotted lines in Fig. 3. The carriage 18 is then shifted along the rail 19 to the left and passes the label 10 carried by the suction head 16 at the time in progressive tangential contact with the adhesive applying roll 22 whereby the lower surface of said label 10 is covered with a coating of adhesive. The movement of the carriage 18 to the left is continued until the applying position illustrated in Fig. 1 is reached whereupon the yoke 17 is moved downwardly on the carriage 18 to cause the suction head 16 to apply the adhesive coated label 10 carried thereby to the article which occupies the label receiving position at the time. At the proper moment in the operative cycle, the suction in the head 16 is relieved and the yoke 17 is moved upwardly relatively to the carriage 18 leaving the label 10 in adhesive connection with said article. The application of said label to said article is then completed in any customary manner and the labeled article is removed from the machine either manually or automatically in any well-known way.

In predetermined timing with the aforesaid operations, the member 12 is moved downwardly to bring the feeler screw 24 into contact with the top of the stack of labels 10 and to cause the type 30 or equivalent means to produce an imprint upon the upper surface which generally is the printed or equivalent front face of label 10 located at the upper end of the stack at the time.

By suitably adjusting the feeler screw 24 on the head 23 relatively to the type 30, the imprint made by said type 30 or their equivalent may be controlled so as to be either light or heavy or in any intermediate shade. In other words, the operation of the lower end of the screw 24 relatively to the printing faces of the type 30 or other equivalent will determine the shade of the imprint made thereby; obviously, the more the screw 24 projects downwardly beyond the type 30, the greater will be the downward compression of the stack of labels 10 thereby, and the lighter will be the contact of the type 30 with the surface of the uppermost label 10 in said stack, and vice versa. It will be understood at the same time, that the feeler screw 24 in co-operation with the upper end of the stack of labels 10 controls the operation

of the stack elevating mechanism as previously set forth herein.

It will be noted, in the aforesaid cycle of operation which is repeated while the machine is in operation, that during the period in which an imprinted label 10 is being coated with adhesive and applied to an article, the next successive label 10 at the top of the stack in the hopper 11 is being imprinted by the type 30 or equivalent means. At the same time the mechanism whereby the stack of labels in said hopper 11 is periodically raised to restore the upper end of said stack to a predetermined level is efficiently and automatically controlled. While the combination of the imprinting means with the feeler for controlling the stack elevation is a desirable and efficient arrangement, it is not arbitrarily necessary; obviously, the imprinting means and the feeler may comprise separate instrumentalities without affecting the efficiency or operation thereof.

The novel arrangement provides simple and efficient means for producing code marks or other identifying indications upon the labels or for otherwise imprinting the same, during an operative period of the labeling machine in which the novel features are embodied. That is to say, a predetermined code mark or other imprint may be produced upon the exact number of labels desired, and the need for advance imprinting of a supply of labels with a given code mark or other imprint is unnecessary. Heretofore it has been the practice to provide a quantity of imprinted labels in pre-estimated number which oftentimes exceeds the actual requirements. The waste of imprinted labels which results in many instances from such proceeding is entirely avoided with the instant novel arrangement. At the same time repeated individual handling of labels incidental to existing practice is done away with, and the described imprinting is carried out as an operative step in the operative cycle of the labeling machine with a minimum of effort in minimum time periods. The instant arrangement accordingly reduces the cost of producing imprinted labels of the type in question to a maximum degree and at the same time incorporates the operation of producing such label in the operative cycles of given labeling machines. The character of the novel arrangement is such that it may be readily embodied in existing labeling machines without requiring material structural changes therein.

Various changes in the specific forms shown and described may be made within the scope of the claims without departing from the spirit of the invention.

I claim:

1. In a labeling machine including carrying means for removing individual labels in succession from a supply of said labels and carrying said individual labels over a predetermined operative path, that improvement which comprises imprinting means for producing an imprint upon the front face of successive labels in said supply container prior to their removal therefrom by said carrying means.

2. In a labeling machine including a container for a supply of labels, and transfer means for removing individual labels in succession from said supply container and transferring said individual labels into applying relation to the articles for which said labels are designed, that improvement which comprises imprinting means for producing an imprint upon the front face of

individual labels in said supply container in progressive succession prior to their removal therefrom by said transfer means.

3. In a labeling machine including a container for a vertical stack of labels, and transfer means for removing individual labels in succession from said stack and transferring said individual labels into applying relation to the articles for which said labels are designed, that improvement which comprises imprinting means for producing an imprint upon the front faces of the terminal labels in said stack in individual succession prior to the removal of said labels from the stack by said transfer means.

4. In a labeling machine, the combination of a container for a vertical stack of labels, said stack being periodically elevated to restore the upper end thereof to a predetermined level, feeler means for controlling the periodical elevation of said stack, imprinting means combined with said feeler means for imprinting the upper surfaces of the terminal labels in said stack coincidentally with the feeling thereof, and means for applying said imprinted labels to articles.

5. In a labeling machine, the combination of a container for a vertical stack of labels, said stack being periodically elevated to restore the upper end thereof to a predetermined level, feeler means for controlling the periodical elevation of said stack, imprinting means combined with said feeler means for imprinting the upper surfaces of the terminal labels in said stack coincidentally with the feeling thereof, means for applying a coating of adhesive to the other surface of said labels subsequent to the imprinting thereof, and means for applying the imprinted and adhesive coated labels to articles.

6. In a labeling machine including a container for a supply of labels, and transfer means for removing individual labels from said supply container in progressive succession, that improvement which comprises imprinting means for producing an imprint on one surface of said individual labels prior to the removal thereof from said supply container by said transfer means, and means for inking the imprinting means coincidentally with the removal of imprinted labels from said supply container by said transfer means.

7. In a labeling machine, the combination of a container for a vertical stack of labels, means for imprinting the upper surfaces of the terminal labels in said stack in individual succession, a suction head for removing the imprinted labels from said stack and transferring said labels therefrom for application to articles, and means carried by said suction head for inking said imprinting means coincidentally with the removal of the imprinted labels from said stack.

8. In a labeling machine including a hopper containing a stack of labels arranged to be periodically elevated to restore the upper end of said stack to a predetermined level, a feeler member co-operating with said stack to control its elevation, and a suction head for removing successive terminal labels from said stack and transferring said labels therefrom for application to articles, that improvement which comprises imprinting means carried by said feeler for producing an imprint on each successive terminal label prior to its removal from said stack.

9. In a labeling machine including a hopper containing a stack of labels arranged to be periodically elevated to restore the upper end of said stack to a predetermined level, a feeler member co-operating with said stack to control its

elevation, a suction head for removing successive terminal labels from said stack and transferring said labels therefrom for application to articles, that improvement which comprises imprinting means carried by said feeler for producing an imprint on each successive terminal label prior to its removal from said stack, and an inking pad carried by said suction head whereby said imprinting means is inked coincidentally with the removal of an imprinted terminal label from said stack.

10. In a labeling machine including a hopper containing a stack of labels arranged to be periodically elevated to restore the upper end of said stack to a predetermined level, a feeler member co-operating with said stack to control its elevation, and a suction head for removing successive terminal labels from said stack and transferring said labels therefrom for application to articles, that improvement which comprises a head at the free end of said feeler member, and a type carrier removably mounted on said head to constitute means for imprinting successive terminal labels of said stack.

11. In a labeling machine including a hopper containing a stack of labels arranged to be periodically elevated to restore the upper end of said stack to a predetermined level, a feeler member co-operating with said stack to control its elevation, and a suction head for removing successive terminal labels from said stack and transferring said labels therefrom for application to articles, that improvement which comprises a head at the free end of said feeler member provided in its lower surface with a guide groove, a type carrier removably mounted in said guide groove to constitute means for imprinting successive terminal labels of said stack, and a feeler device adjustably mounted on said head in predetermined relation to the type on said type carrier.

12. In a labeling machine including a hopper containing a stack of labels arranged to be periodically elevated to restore the upper end of said stack to a predetermined level, a feeler member co-operating with said stack to control its elevation, and a suction head for removing successive terminal labels from said stack and transferring said labels therefrom for application to articles, that improvement which comprises a head at the free end of said feeler member provided in its lower surface with a guide groove, a type carrier removably mounted in said guide groove to constitute means for imprinting successive terminal labels of said stack, and a feeler screw adjustably mounted on said head in predetermined relation to the type on said type carrier.

13. In a labeling machine including a hopper containing a stack of labels arranged to be periodically elevated to restore the upper end of said stack to a predetermined level, a feeler member co-operating with said stack to control its elevation, and a suction head for removing successive terminal labels from said stack and trans-

ferring said labels therefrom for application to articles, that improvement which comprises a head at the free end of said feeler member, a type carrier removably mounted on said head to constitute means for imprinting successive terminal labels of said stack, and an inking pad on said suction head for inking the type on said type carrier coincidentally with the removal of a previously imprinted terminal label from said stack.

14. In a labeling machine including a hopper containing a stack of labels arranged to be periodically elevated to restore the upper end of said stack to a predetermined level, a feeler member co-operating with said stack to control its elevation, and a suction head for removing successive terminal labels from said stack and transferring said labels therefrom for application to articles, that improvement which comprises a head at the free end of said feeler member provided in its lower surface with a guide groove, a type carrier removably mounted in said guide groove to constitute means for imprinting successive terminal labels of said stack, a feeler screw adjustably mounted on said head in predetermined relation to the type on said type carrier, and an inking pad on the upper surface of said suction head for inking the type of said type carrier coincidentally with the removal of a previously imprinted terminal label from said stack.

15. In a labeling machine including a container for a supply of label sheets, and a suction head for picking up successive label sheets from said container, that improvement which comprises imprinting means for producing an imprint upon the front faces of successive label sheets in said container prior to the removal of said successive label sheets from said supply container by said suction head.

16. In a labeling machine including means for supporting a label sheet, and conveying means for removing said label sheet from said supporting means and conveying said label sheet into applying relation to an article, that improvement which comprises imprinting means for producing an imprint on the front face of said label sheet prior to its removal from said supporting means by said conveying means.

17. In a labeling machine including transfer means for conveying a label over a predetermined operative path, that improvement which comprises imprinting means for producing an imprint on said label prior to the conveyance thereof over said predetermined path, and means for inking said imprinting means coincidently with the beginning of said conveyance.

18. In a labeling machine, the combination of a container for a supply of labels, means for imprinting one surface of individual labels in said supply in progressive succession, a suction head for removing the imprinted labels from said supply and transferring said labels therefrom for application to articles, and means carried by said suction head for inking said imprinting means.

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