July 18, 1939. F. W. STORCK 2,166,271

INKING DEVICE FOR MAIL HANDLING MACHINES

Filed April 2, 1937

Fig. 8.

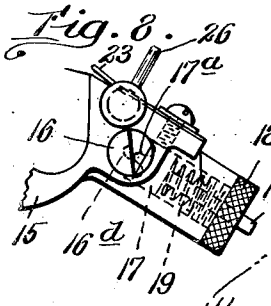


Fig. 1.

Fig. 2.

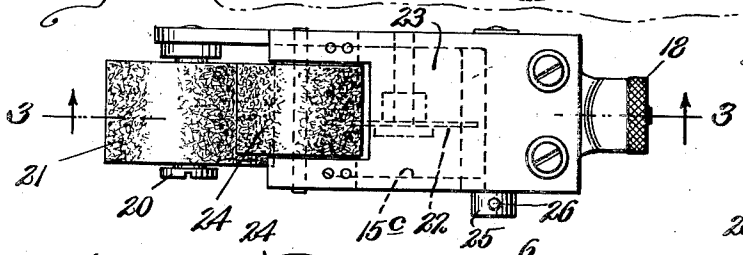


Fig. 5.

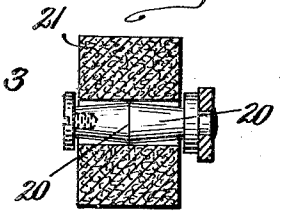


Fig. 3.

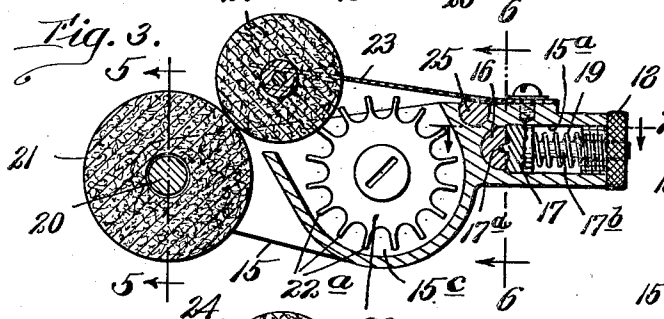


Fig. 7.

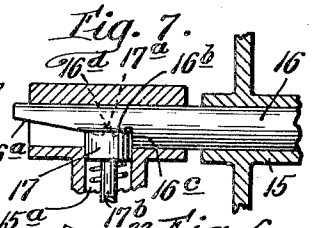


Fig. 6.

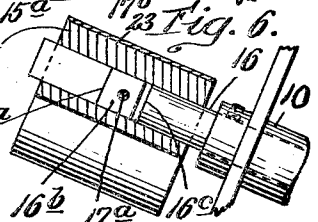
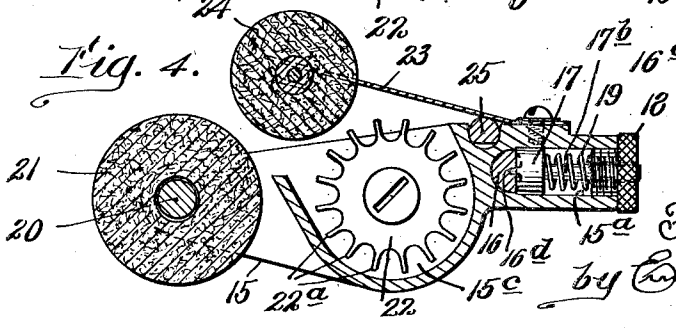


Fig. 4.



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INKING DEVICE FOR MAIL HANDLING MACHINES

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Application April 2, 1937, Serial No. 134,558

5 Claims. (Cl. 101—351)

This invention relates to fluid applicators and more particularly to a device for applying ink, of a substantially fluid consistency, to a printing member or die.

Inking devices embodying the requirements to which the present invention is particularly adaptable may be found in mail handling or marking machines and machines of a similar character that employ a printing die or the like that is inked prior to contact with the matter on which the die is to be impressed.

A mail handling machine of this general character is fully shown and described in my U. S. Letters Patent No. 1,629,130, issued May 17, 1927.

Mail handling machines may be adapted to perform several different functions in sequence or selectively, i. e., seal the envelope flaps, affix postage stamps, cancel the postage stamps and/or imprint indicia thereon, or the machine may be required to perform certain of these functions or a selected combination of the functions.

To perform the function of cancelling affixed postage stamps for the purpose of printing postal permit or like indicia on the mail, the machine is provided with a rotatable die embodying the matter to be printed, as is well known. This die is actuated to contact a desired position on the face of the mail matter.

A suitable printing ink is applied to the die and preferably in a limited, although sufficient, amount to make a satisfactory imprint when the die is impressed on the mail matter. An excessive application of ink on the printing die causes an unduly heavy impression when the printing die contacts with the mail matter, with the attendant result of untidy smearing as the mail matter is placed in the usual stack formation or subsequently handled.

Accordingly, one of the primary objects of my present invention is to provide an ink applicator device for a printing die or the like and wherein ink will be automatically supplied for application to the die in a substantial relation to the amount required to make continuous satisfactory impressions of the die upon the member to be printed upon.

Another object of my invention is to provide my applicator device with a simple arrangement whereby the fluid supply is conveniently rendered inoperative when the function of the printing die is not required.

A further object of the invention is to provide an applicator device in the form of a self-contained unit that may be readily adapted and applied to a machine having a printing die or the like to be inked.

A still further object of the invention is to provide means whereby the applicator unit may be conveniently removed from the machine and again replaced in its operative position.

Still another object of the invention is to provide a device of a simple construction with few working parts.

These objects are stated as a general explanation and are not to be construed as a limitation of the invention.

With the above and other objects in view, my invention comprises a novel combination and arrangement of parts hereinafter described and more specifically pointed out in the appended claims.

In the accompanying drawing I have illustrated my device embodied with a portion of a mail handling machine sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawing:

Fig. 1 is a side elevation of my applicator device embodied with a portion of a mail handling machine having a printing die, the portion of the machine and printing die is illustrated by broken lines.

Fig. 2 is a plan view of the applicator shown at Fig. 1.

Fig. 3 is a longitudinal section taken substantially along line 3—3, Fig. 2.

Fig. 4 is a view corresponding to Fig. 3, but shows some of the parts in a different position.

Fig. 5 is a transverse section of the primary inking or applicator roller and is taken substantially along line 5—5, Fig. 3.

Fig. 6 is a sectional view taken substantially along line 6—6, Fig. 3.

Fig. 7 is a sectional view taken substantially along line 7—7, Fig. 3, and

Fig. 8 is a fragmentary view showing the frame positioned on its pivot for removal of the frame.

General description

To illustrate a practical embodiment of my invention, I have preferred to show a portion of a mail handling machine adapted to impress indicia on envelopes. A machine of this character is usually provided with a frame 10 and feed rolls 11, 12 that advance the envelope so that it will be engaged by a rotating printing die 13 and its coacting pressure and feed roller 14. The envelope is advanced by the rotating printing die 13 and roller 14 to the coacting feed rollers 11a,

12a and whereby the envelope is further advanced.

The printing die 13 is actuated in a timed relation to the advancement of the envelopes so as to print the indicia at a desired point on the envelopes as is well known in the art and, therefore, further illustration and description of these features is thought to be unnecessary.

As the printing die 13 is rotated, preparatory to engaging with the envelope, it engages with means by which the face of the die is provided with a coating of a substantially liquid ink.

The fluid applicator device frame

I prefer to construct my applicator device as a self-contained unit and in this instance the frame 15 is pivoted on a stud 16 which, in turn, is secured in the machine frame 10. This stud 16 is provided with a slab side 16a extending lengthwise of the stud and disposed at an inclined plane from the outer terminating end of the stud to a flat seat 16b adjacent a shoulder portion 16c of the stud 16. The seat 16b is provided with an indent 16d adapted to receive a locating pin 17a extending from the concaved end face of a plunger head 17 which is adapted to engage with the stud seat 16b and against the shoulder 16c so as to position the frame in its proper alignment. This plunger head 17 is slidably mounted in a bore 15a in the frame 15 and is provided with a guide spindle 17b which, in turn, is slidably guided in a nut 18 threadedly engaged in the frame bore 15a.

Surrounding the guide spindle 17b is a compression spring 19 which has its bearing at one end against the plunger head 17 and its opposed end bearing against the nut 18. This spring urges the outer face of the plunger head 17 against the stud seat 16b and this structure permits the frame to be rocked, for a purpose hereinafter mentioned, with the locating pin 17a in its engaging position. This structure also permits the applicator unit to be readily and easily removed from the machine and again replaced in its operative position.

The primary applicator roller

A stud 20 is secured in the frame 15 and rotatably supports the primary applicator roller 21 in a position to be engaged by the printing die 13. The stud 20 is provided with a crown portion that engages in the bore of the roller and this permits a limited universal movement of the roller on its supporting stud 20, see Fig. 5. This structure permits the face of the applicator roller 21 to automatically align itself with the face of the printing die and thus insures a uniform contact between the two members.

A resilient downward pressure is exerted on the frame by means of the plunger 17, the end face of which is adapted to bear full against the stud seat 16b, see Figs. 3 and 4, when the unit is in its lowest position, as shown by broken lines, Fig. 1, and the position that the unit assumes when the roller 21 is not engaged with the face of the die 13, which is usually cut away to prevent engagement of other than the indicia, with the coacting pressure roller.

As the primary applicator roller 21 is engaged by the indicia on the die, the unit frame is raised upwardly, causing the plunger 17 to compress the spring 19. This upward movement of the frame 15 causes the face of the plunger 17 to be rocked and bear at a single point on its stud seat 16b, see Fig. 1. The plunger spring 19 urges the plunger in a direction to seat squarely with the stud seat 16b and the frame end to which the roller 21 is pivoted is urged in a downward direction toward the printing die.

The ink conveyor

The unit frame 15 has a fluid reservoir 15c that is provided with a rotatable conveyor element. In this instance, the conveyor element is in the form of a disc 22 having a plurality of radially extending projections 22a. I have found that by providing a conveyor of this character, the amount of fluid conveyed from the reservoir and deposited, as will be hereinafter described, may be limited or controlled by the area of the terminating ends of the projections. It is obvious that the conveyor element may be made in various forms and the projections of a various character such as, for example, the terminating ends of the projections may be cup-shaped or of other suitable shapes for regulating the amount of fluid that will adhere thereto or be conveyed thereby, as the element is rotated in contact with the fluid in the reservoir.

The secondary applicator roller

Secured to the frame 15 is a resilient arm 23 adapted to rotatably support a roller 24 that is provided with an absorptive face. This roller 24 is also provided with a shaft 24a, the opposed ends of which engage in bearing supports 23a that are formed in a manner so as to permit a sliding movement of the shaft ends lengthwise of their bearing supports. When in operative position, see Figs. 1 and 3, this roller 24 engages with the peripheral face of the primary applicator roller 21 and the terminating ends of the conveyor projections 22a. With the present structure including the bearing supports 23a, the roller 24 is permitted to substantially float to center and seat itself relative to the primary inking roller 24 and the ink conveying member 22 regardless of whether the projections 22a just engage with the absorptive face of the roller 24 or, through use or otherwise, indent themselves into the roller as the elements are rotated. It is to be noted that, when in operative position, the pressure exerted on the roller 24, by the resilient supporting arm 23, is partially absorbed by its contact with the face of the primary roller and, therefore, in a measure, retards the natural tendency of the projections 22a from cutting into the absorptive roller 24.

Rotatably mounted in the frame 15 is a cam stud 25 that is provided with an operating lever 26. This cam stud 25 is adapted to engage with a resilient arm 23 to position the roller 24 in operative or inoperative position. In the event that a supply of fluid is not required on the primary applicator roller, the cam stud 25 may be rotated to engage and lift the arm 23 and roller 24 to an inoperative position and out of contact with the roller 21 and the conveyor projections 22a, see Fig. 4.

Operation

Preferably both the primary roller 21 and the secondary roller 24 are formed of an absorptive material. When these rollers are new or dried out from lack of use, it is customary, to facilitate operations, to first apply fluid ink to these rollers from a squirt can or like device so that the rollers may become quickly saturated.

When using an ink of the pigment in oil character, these rollers will remain sufficiently saturated for an extended period of time, dependent

on the character of the fluid, and thus preliminary application is unnecessary to a proper functioning of my fluid applicator.

The printing die **13** is driven, as aforesaid, and the indicia engages with and rotates the primary applicator roller **21**. Rotation of the primary roller **21** causes the secondary roller **24** to be rotated in engagement with the conveyor projections **22***a*, thus causing the projections to be rotated through the fluid supply in the reservoir **15***c*.

As the conveyor projections **22***a* are rotated through the fluid, fluid will adhere to the ends thereof and as these ends engage with the roller **24**, the fluid will be absorbed by this roller.

Rotation of the roller **24**, as above mentioned, will cause a portion of this supply to be transferred to the primary roller **21** and thus to the printing die **13**.

I prefer to form the terminating conveyor ends **22***a* of such area that they will carry an oversupply of ink to the applicator roller rather than an under-supply as, with my convenient means for inoperatively positioning the applicator roller **24**, the operator may readily discern when too much ink is being impressed by the die on the mail matter, and thus discontinue the supply until again required. If an insufficient supply was furnished to the die, the operator would be required to manually augment the supply in the applicator roller from a commonly used squirt can or like device.

Having thus described my invention, it will be obvious that many changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope thereof, therefore I do not wish to be limited to the specific details herein disclosed, but what I claim is:

1. A fluid applicator that includes a primary applicator, a fluid reservoir and a second substantially floating applicator roller provided with an absorptive face and adapted, when rotated, to transfer fluid therefrom to said primary applicator, together with means for conveying fluid from said reservoir to said second applicator, said means comprising a rotatable element disposed relative to said reservoir and having a plurality of radially extending portions, each terminating in a limited area which is adapted to engage in said fluid and subsequently contact with said second applicator as said element is rotated, said second applicator being mounted to resiliently engage with both said primary applicator and said conveying means, with means for rotating said applicators and element in unison.

2. An inking unit, for a machine of the character described and having a rotating printing member, comprising a frame, a fluid reservoir in said frame, an applicator rotatably mounted to said frame with means to convey fluid from said reservoir to said applicator, in combination with a pivot for said frame, said pivot having a cam portion and a seat portion, spring-pressed means carried by said frame and adapted to engage with said seat portion in a manner to position said unit along its horizontal plane and whereby said spring-pressed means permits of a limited rocking movement of said unit in a vertical plane.

3. A device of the character specified having a rotatable member to be inked with means for rotating said member; a self-contained inking unit for said member comprising a frame, a pivot for said frame, spring-pressed means associated with said frame and coacting with said pivot in a manner to yieldingly retain said frame in a normal position and whereby said frame is resiliently urged to a normal position when rotatively displaced therefrom between determinate points, a primary inking roller rotatably supported by said frame, a fluid reservoir integral with said frame, a rotatable element disposed within said frame, said element having a plurality of radially extending portions adapted to operatively engage in said reservoir, an intermediate applicator roller resiliently supported on said frame and disposed to retain said intermediate roller in simultaneous engagement with said primary roller and element with means for disposing said applicator roller in operative and inoperative positions.

4. A device of the character specified having a rotatable member to be inked with means for rotating said member; a readily removable self-contained inking unit for said member comprising a frame having one end freely mounted on a pivot support, means including said pivot support whereby said frame is normally positioned on said pivot with a spring-pressed element coacting with said pivot to continuously urge said frame to its normal position when rotatively displaced therefrom, a primary inking roller rotatably supported by said frame, a fluid reservoir integral with said frame, a rotatable element disposed within said frame and adapted to engage in said reservoir to convey fluid therefrom, an intermediate applicator roller resiliently supported on said frame and disposed to retain said intermediate roller in simultaneous engagement with said primary roller and element with means for disposing said intermediate roller in operative and inoperative positions.

5. A device of the character specified that includes a rotatable member to be inked with means for rotating said member; a self-contained inking unit for said member that comprises a resiliently mounted frame supported on a single pivot, a primary inking roller carried by said frame and adapted to be engaged with said member and rotated thereby, a fluid reservoir in said frame, a rotatable element supported by said frame and disposed to operatively engage in said reservoir, said element being provided with radially extending portions, each terminating in a limited area, an intermediate applicator roller resiliently mounted on said frame and provided with an absorptive face with means for optionally positioning said applicator in operative and inoperative positions relative to said primary inking roller and said rotatable element, said means including a resilient support for said intermediate applicator and a cam device engaging with said resilient support, together with means for actuating said cam.

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