Oct. 23, 1928. 1,689,177

F. W. STORCK

INKING DEVICE

Filed July 29, 1924

Fig. 1

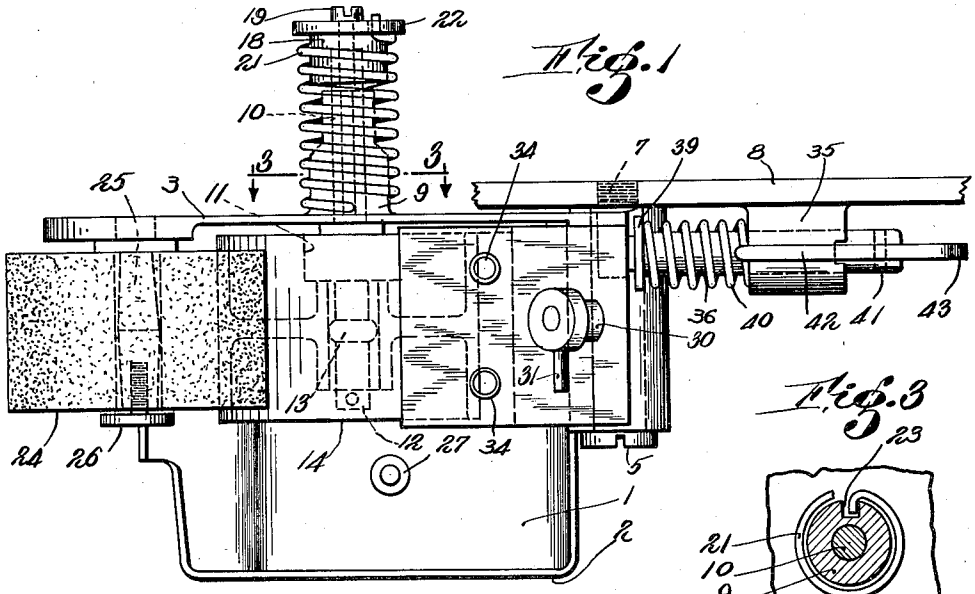


Fig. 3

Fig. 2

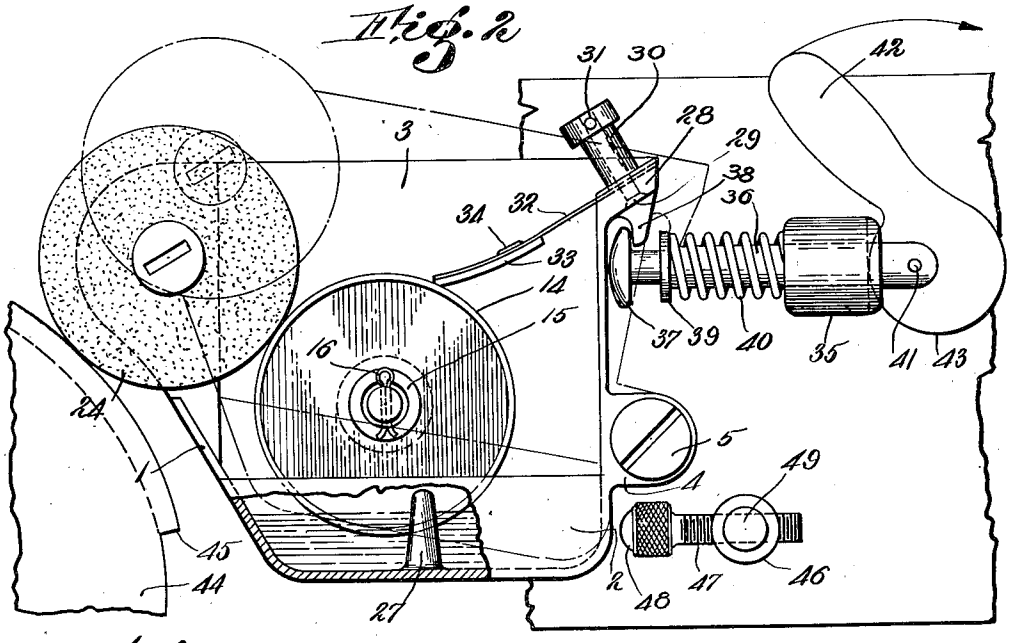
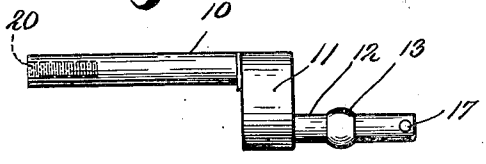


Fig. 4



Inventor
Frederick W. Storck,
by Franklin T. Phillips, Jr.
his Atty.

Patented Oct. 23, 1928. 1,689,177

UNITED STATES PATENT OFFICE.

FREDERICK W. STORCK, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO STANDARD MAILING MACHINES COMPANY, OF EVERETT, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

INKING DEVICE.

Application filed July 29, 1924. Serial No. 728,877.

My invention relates to that type of device designed to distribute fluid ink by means of an inking-roller passing over the surface of a printing die which is to receive the ink and make an imprint therewith. It has been the object of my invention to provide means whereby the ink may be distributed in the desired quantity uniformly over the surface of the inking-roller so that it may be spread by the inking-roller uniformly upon the printing die, thereby effecting clear and uniform printing. My invention consists further and more particularly in the various features of my device hereinafter described and claimed.

My device may be best understood by reference to the accompanying drawings in which

Fig. 1 is a top view of my device.

Fig. 2 is a side view thereof.

Fig. 3 is a cross section on line 3—3 of Fig. 1.

Fig. 4 is a side view of the shaft on which the feed-roller is mounted.

Referring now more specifically to the drawings 1 is an ink pot having a low front wall 2 and a high back wall 3. On one side of the ink pot 1 is an integral lug 4 having a cylindrical bore through which passes loosely a post 5 the end of which is threaded at 7 so that it may be screwed securely into the wall 8 of the printing machine on which my device is mounted.

On the back wall 3 of the ink pot 1 is an elongated boss 9 provided with a cylindrical bore within which loosely fits the shaft 10 which has integral therewith a cylindrical off-set portion 11 which carries an off-set shaft extension 12. This off-set shaft extension 12 is surrounded by an annular boss 13 (see Fig. 4). The feed roller 14 has a deep hub 15 which fits loosely over the shaft extension 12, bearing in its central portion upon the annular boss 13. The feed roller 14 is held in place on shaft 12 by means of a cotter pin 16 which passes through a hole 17 near the end of the shaft extension 12. The shaft 10 is held in position by means of the cap 18 which is provided with a cylindrical socket into which the end of the shaft 10 enters. A screw 19 passing through the cap 18 enters a threaded hole 20 in the end of shaft 10 and secures the cap fast to the shaft 10. A coil spring 21, one end of which passes through a hole in the flange 22 of the cap 18 and the other end of which enters a slot 23 in the lug 9 and bears against the back of the back wall 3 of the ink pot 1, tends to thrust outwardly against the cap 18 and at the same time to revolve the cap 18 and the attached shaft 10 in a clockwise manner thereby tending to elevate the feed roller 14 and thrust it toward and against the felt ink roller 24 which is mounted upon a spindle 25 and retained in position thereon by the broad headed screw 26. It will be noted in Fig. 1 that the spindle 25 tapers from its milddle part toward each extremity so that the felt ink roller 24 bears in a more or less balanced position upon the spindle 25.

In the bottom of the ink pot 1 is a post 27 for a purpose to be hereinafter specified. The top of the side of the ink pot 1 above the lug 4 has an outwardly slanting projection 28 on which is mounted a threaded post 29 upon which is screwed a screw-cap 30 provided with a turning bar 31. A leaf spring 32, having a hole therein through which the post 29 passes, is retained by said screw cap 30 in such position that a leather scraper 33, fastened by rivets 34 to the under side thereof, bears upon the periphery of the feed roller 14.

On the wall 8 is mounted an annular bracket 35 within which is slidably mounted the rod 36 which has an enlarged head 37 which fits closely between the adjacent wall of the ink pot 1 and the dependent lug 38 beneath the projection 28. The rod 36 is provided with an annular flange against which rests one end of a coil spring 40 which surrounds the rod 36. The other end of the coil spring 40 butts against the annular bracket 35. This spring 40 tends to thrust the rod 36 toward the ink pot 1. The end of rod 36 is cleft and within the slot thus formed is mounted by means of the pivot 41 a cam lever 42 having a rounded cam surface 43 which bears against the annular bracket 35. The shape of the cam is such that when the lever 42 is moved in the direction of the arrow shown in Fig. 2 the rod 36 will be pulled in the same direction.

It will be understood of course that my device is so mounted that the felt ink roller 24 is adjacent to a printing roller 44, a part

of the periphery of which bears a printing die 45 which is slightly offset on the periphery of the roller.

Mounted on the wall 8 adjacent to and below the pivot 5 is a post 46 through a threaded hole in which is screwed the stop 47 which is provided with a rubber tip 48. A set-screw 49 may be set up so as to retain the stop 47 in any desired position.

The operation of my device is as follows: Ink of a fluid nature is placed in the ink pot 1 in such quantity that the post 27 is nearly submerged, the post serving as a gauge. The lever 42 is then set in the position shown in Fig. 2, thereby permitting the ink pot 1 to drop to such a position that the felt ink roller 24 will be positioned slightly off that part of the periphery of the roller 44 which is not covered by the printing die 45. The extent to which the roller 24 is permitted to drop is adjustably limited by the stop 47. As the roller 44 rotates the printing die 45 carried on the periphery thereof will strike the felt ink roller 24 and thrust it slightly upward thereby rocking the ink pot 1 on the pivot 5 and slightly compressing the spring 40 as the rod 36 is forced backward. The yielding spring resistance to upward and backward movement of the roller 24 thus occasioned will keep the roller 24 from bouncing off the printing die 45 upon its initial contact therewith, and thus ensure the uniform spreading of ink from the roller 24 to the surface of the printing die. The ink roller 24 will contact with substantially uniform pressure upon the surface of the printing die 45 on all portions in the course of rotation.

It will be observed that since the rollers 14 and 24 are rockably mounted upon their respective shafts or spindles they are mutually self aligning and will automatically adjust themselves to such positions as the influence of the printing die may occasion.

The feed roller 14 tends to gather and carry upon its periphery too much ink so that it is necessary to remove a large part thereof. This is accomplished by the leather scraper 33 and the amount of ink removed may be regulated by varying the pressure of the scraper against the periphery of the feed roller 14 by means of flexing to a greater or less extent the spring 32 by turning the cap 30 on or off the post 29 to a slight extent.

The amount of bearing pressure of the feed roller 14 against the ink roller 24 may be regulated by adjusting the torque of the coil spring 21, which may be done by loosening or removing screw 19 and turning the cap 18 slightly before tightening or replacing the screw.

It will be observed on Fig. 1 of the drawings that the feed roller 14 is wider than the ink roller 24 so that as they shift their alignment, when rocking on their respective shafts, the ink roller will always bear upon the surface of the feed roller and be uniformly supplied with ink. It will also be observed that the scraper is somewhat wider than the feed roller upon which it bears so that as it rocks upon its shaft the edges of its periphery will not run off contact with the scraper and thereby cause an excess of ink to be carried thereby to the ink roller. Although the scraper will remove all excess ink from the periphery of the feed roller it will not, of course, remove the accumulation of ink from the adjacent vertical edges of the periphery, which ink tends to be thrown off these edges by the centrifugal force of the rotation of the roller. This affords a further and very important reason why the feed roller is made substantially broader than the ink roller, namely in order that ink flowing from, or thrown from, the edges of the feed roller may not come in contact with the ink roller and thereby occasion excess inking.

The agitation of the ink in the ink pot by the action of the feed roller running therein, and by the rocking of the ink pot has a very desirable effect as it keeps the ingredients of the ink properly mixed.

By such means and adjustments as I have described a proper and uniform distribution of ink upon the printing die is assured. It is to be observed moreover that the rollers and scraper are readily removable for cleaning or replacement. The ink pot cover moreover and various parts mounted thereon may be readily removed so as to permit the substitution of another like device filled with ink of a different color. This is a very great convenience.

When it is desired to throw the device out of operative position with respect to the printing roller the lever 42 is moved in the direction of the arrow shown in Fig. 2 thereby causing the head 37 of the rod 36 to engage the lug 38 and tilt the device upon the pivot post 5 so as to throw the ink roller 24 upward and away from the printing roller 44.

Having thus fully described my invention what I claim is:

1. In a device of the character specified the combination of an ink pot, an ink roller, a lug provided with a slot projecting from the back of said ink pot, said lug having a cylindrical bore to support a shaft, a shaft loosely mounted in said bore, said shaft being provided with an offset extension, a feed roller mounted on said extension, a cap attached to said shaft, and a coil spring, one end of which enters said slot and the other end of which is attached to said cap, said spring being adapted to rotate said shaft and swing said feed roller mounted on said extension thereof toward said ink roller.

2. In a device of the character specified the combination of an ink roller, a feed roller, a flexible scraper arranged to bear on said feed

roller, a threaded post whereon said scraper is loosely mounted by means of a hole through which said post passes, and a threaded member arranged to be screwed downward upon said post and to contact with and flex said scraper.

3. In a device of the character specified the combination of an ink pot, means whereby said ink pot is pivotally mounted to swing toward or away from the operative position of said device, an ink roller carried thereon, means for supplying ink from said pot to said ink roller, and means for moving the said ink pot into or out of said operative position, said means comprising a slidably mounted rod connected with said ink pot and a spring connected with said rod and arranged to actuate said rod so as to cause it to yieldably thrust said ink pot toward said operative position.

4. In a device of the character specified the combination of an ink pot, a feed roller, an ink roller, said rollers being rockably mounted, and a scraper arranged to bear on said feed roller, said scraper being wider than said feed roller and said feed roller being wider than said ink roller.

5. In a device of the character specified the combination of an ink pot, a feed roller, an ink roller, and a scraper arranged to bear on said feed roller, said scraper being wider than said feed roller and said feed roller being wider than said ink roller.

In witness whereof I have hereunto affixed my signature.

FREDERICK W. STORCK.