Sept. 21, 1948. D. F. PUTNAM ET AL 2,449,909

INK RESERVOIR FOR MARKING MACHINES

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Fig. 1.

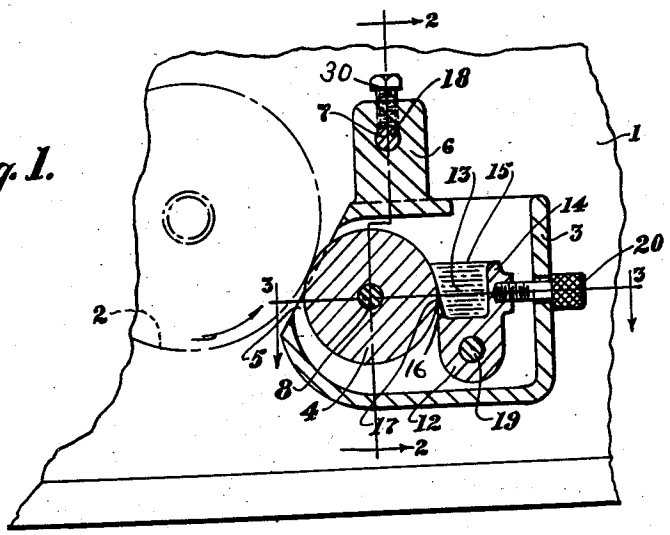


Fig. 2.

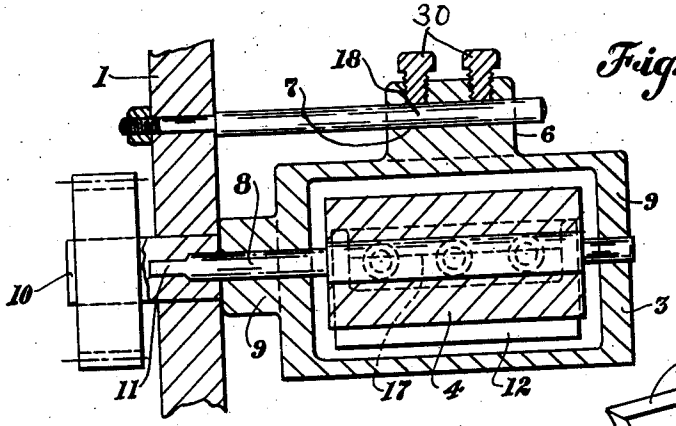


Fig. 3.

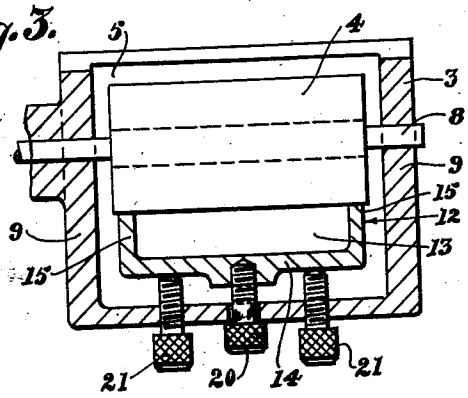
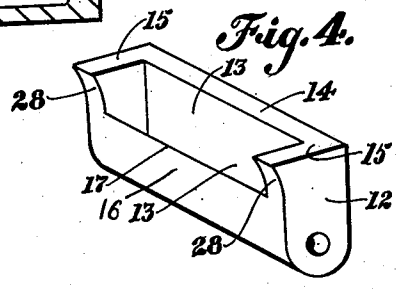


Fig. 4.



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INK RESERVOIR FOR MARKING MACHINES

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3 Claims. (Cl. 101—364)

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This invention relates to an inking mechanism for marking machines and particularly to inking mechanisms which include an ink roll from which the type of the printing element is inked and means to supply said roll with ink, and it has for one of its objects to provide a novel inking mechanism which is relatively simple in construction and very effective in operation.

Another object of the invention is to provide a novel inking mechanism which includes in its structure a combined ink reservoir and doctor element by which ink is supplied to the ink roll and surplus ink is simultaneously removed from the roll so as to leave on the roll the desired thin film of ink.

A further object of the invention is to provide a novel inking mechanism in which the supply of ink in the reservoir is at all times visible to the operator.

A further object is to provide a novel inking mechanism which is constructed so that the cleaning of ink from the reservoir at the end of the day's run is much facilitated.

Other objects of the invention will be apparent from the following description of one embodiment thereof and the novel features of the invention will be pointed out in the appended claims.

In the drawings:

Fig. 1 is a fragmentary sectional view illustrating an inking mechanism embodying our invention.

Fig. 2 is a section on the line 2—2 Fig. 1.

Fig. 3 is a section on the line 3—3 Fig. 1.

Fig. 4 is a perspective view of the combined ink reservoir and doctor element.

In as much as the present invention relates to the inking mechanism for a marking or printing machine, we have not thought it necessary to illustrate herein a complete marking machine but have indicated at 1 a portion of the frame of a marking machine which may be equipped with a printing roll 2 carrying on its periphery the type element to be inked, said printing roll being illustrated in dotted lines.

Our improved inking device presents a housing element 3 adapted to be detachably mounted on the frame, and carrying the ink roll 4 from which the type characters on the printing roll 2 are inked. The housing 3 is open at one side as indicated at 5 so that the printing roll 4 is exposed to permit it to contact with the type characters.

The housing 3 may be supported on the frame 1 in any approved way. As herein shown said housing is provided with an upstanding ear, or

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lug, 6 having an aperture 7 to receive a stud 18 projecting from the frame 1. This provides an easy means for mounting the inking device on the frame 1 or removing it therefrom.

The ink roll 4 may be an idler which is rotated by its contact with the type wheel 2, or said ink roll 4 may be positively driven to rotate at the same surface speed as that of the type wheel 2.

As herein shown the ink roll 4 is carried on a shaft 8 which is journaled in the end walls 9 of the housing 3, one end of said shaft being coupled to a driving shaft 10 which has a suitable driving connection (not shown) with the means for rotating the printing roll 2. The coupling between the shaft 8 and the driving shaft 10 will preferably be a detachable coupling as indicated at 11 which will permit the housing member 3 to be readily removed from its supporting stud 18.

The present invention relates particularly to the means for supplying the ink roll 4 with ink and for gaging the thickness of the film of ink which the roll carries as it contacts with the printing element of the type wheel 2. The invention is particularly designed for use in marking machines in which the type wheel 2 rotates in the direction of the arrow shown in Fig. 1.

For accomplishing the purpose of our invention, we have provided a combined ink reservoir and doctor member 12 which is formed in its upper side with a chamber or reservoir 13 to receive ink and is also equipped with a knife edge doctor element which cuts or skives surplus ink from the roll thereby leaving on the roll a film of ink of the desired thickness.

The member 12 is located within the housing 3 and is formed to present the ink-containing chamber 13 having a vertical back side wall 14, two vertical end walls 15 and a vertical front side wall 16. The front side wall 16 which is adjacent the ink roll 4, is lower than the back side wall 14 and the end walls 15, and said front side wall is shaped to present an upwardly directed knife edge 17 which extends longitudinally of the roll 4, the vertical plane of said wall 16 having a tangential relation to said roll. The ink roll 4 is longer in the direction of its axis than the combined ink reservoir and doctor member 12 as clearly seen in Fig. 3 and the upper portion 28 of the front face of the end walls 15 is concavely curved to fit the convex curvature of the periphery of the ink roll 12 as clearly seen in Fig. 1.

The relative position of the ink roll and the combined ink reservoir and doctor member is preferably such that the knife edge 17 of the

front wall 16 has its tangential engagement with the periphery of the ink roll at a point approximately midway between the top and bottom of said roll.

When the ink reservoir 13 is filled with ink, the latter will have contact with the roll 4 directly above the knife edge 17. As the ink roll 4 rotates in its clockwise direction, Fig. 1, it will pick up ink from the reservoir and the knife edge 17 will serve as a doctor element to cut or skive off from the ink roll any surplus ink thereby leaving on the ink roll an ink film of the proper thickness to ink correctly the type element of the printing roll 2. The surplus ink which is thus scraped or cut off from the roll 4 by the knife edge 17 is directed back into the ink chamber 13. The relative position of the ink roll 4 and the combined ink reservoir and doctor element 12 is such that the ink roll is located entirely outside of the ink-container 13.

The member 12 is preferably adjustably mounted so that the knife edge 17 may be moved toward or from the roll 4 in order to obtain an ink film on the roll 4 of the correct thickness.

As herein illustrated, the member 12 is pivotally mounted on a supporting shaft, or rod, 19 and means are provided by which the said member can be turned about its supporting rod to provide the necessary adjustment. While any suitable means for thus adjusting the member 12 may be employed, we have herein shown adjusting screws 20 and 21. There are two screws 21 which screw thread through the wall of the housing 3 and abut at their ends against the member 12. The other adjusting screw 20, which is located between the screws 21, extends loosely through the wall of the housing 3 and the inner end thereof has screw threaded engagement with the member 12, the head of the screw 20 bearing against the housing.

By a proper adjustment of these adjusting screws 20 and 21 the knife edge 17 may be adjusted into accurate parallelism with the peripheral surface of the ink roll 4 and also be adjusted so as to provide a film of ink on the roll 4 of the correct thickness.

The housing 3 is shown as having an open top and as the ink is contained in a chamber that is formed in the top of the member 12, the supply of ink in the reservoir chamber 13 is, at all times, visible to the operator, which is an advantageous feature.

Another advantage of our construction is that the device will operate with a smaller quantity of ink than those types of inking devices in which the ink roll dips into a body of ink contained in the housing.

We claim:

1. An inking mechanism for marking machines comprising an ink roll, a housing member having an open side, a combined ink-reservoir and doctor member situated within the housing and provided in its upper side with an open-topped ink-containing chamber, one side wall of which is lower than the other side walls, said lower side wall presenting at its top a knife edge, means

supporting the ink roll within the housing but entirely outside of said ink-containing reservoir and in a position to project slightly through the open side of the housing and with the plane of the knife edge top of said lower wall having a tangential relation to the cylindrical peripheral surface of the ink roll, means to rotate the roll in a direction to cause the surface thereof above the wall to move downwardly towards said knife edge, the latter constituting a doctor element which gages the thickness of the ink film adhering to the wall, and means pivotally supporting the combined ink-reservoir and doctor element for adjustment about an axis parallel to that of the ink roll thereby to vary the thickness of said ink film.

2. An inking mechanism for marking machines comprising an ink roll, a housing member having an open side, means supporting said ink roll within the housing with its periphery exposed through said open side, a combined ink reservoir and doctor member situated entirely within the housing, said combined ink reservoir and doctor member having in its upper side an open-topped ink-containing chamber provided with vertical side walls and end walls, one of which side walls is lower than the other and presents at its top an upwardly directed knife edge, means supporting the combined ink reservoir and doctor member on the opposite side of the ink roll from that which is exposed through the open side of the housing and with the lower side wall facing the ink roll with the vertically disposed knife edge having a tangential relation to the peripheral surface of said ink roll, said ink roll being longer than the combined ink reservoir and doctor member and the upper portion of the end walls of said combined ink reservoir and doctor member engaging the periphery of the ink roll and having a concavely curved shape to fit the convex curvature of the ink roll, and means to rotate the ink roll in a direction to cause the surface thereof above said knife edge to move downwardly toward the knife edge, the latter constituting a doctor element which gauges the thickness of the ink film adhering to the roll.

3. An inking mechanism for marking machines as in claim 2 having means carried by the housing to adjust the knife edge top of said lower wall of the ink chamber toward and from the surface of the roll thereby to vary the thickness of the ink film adhering to the roll.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
220,547	Prouty	Oct. 14, 1879
229,303	Browne	June 29, 1880
507,486	Corbitt	Oct. 24, 1893
1,992,613	Hartley	Feb. 26, 1935
1,995,701	Buttner	Mar. 26, 1935