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PRINTING ATTACHMENT FOR MACHINE
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PRINTER ATTACHMENT FOR MACHINE

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The present invention relates to a printing device and more particularly to an extremely simple printing device in which a printing wheel is caused to move by the work passing under it and in which the positioning of the impression on the work may be readily varied.

Prior art printing devices are known in which the article or sheet upon which the printing is to be done, known as the work, is caused to move along a given path by some mechanical means, such as pusher fingers, a conveyor, etc. In such printing machines, the work comes in contact with a friction wheel on a cylinder carrying the type and thus causes the cylinder to rotate. Such machines in the past have often been used as attachments for other machines. For example, such printing devices or machines have often been used in connection and in conjunction with a machine which made a box, closed and sealed a box, or the like.

Where printing machines are to be used as attachments for existing machines, some of which are complex, a prime consideration is that the printing machine be as simple as possible and require as few modifications as possible in the primary machine to which it is attached. Also, it is desirable that the printing machine be not only as simple as possible but also that the point on the work at which the impression is made may be varied from time to time as different types of work are fed through the primary machine or as other requirements may dictate.

As pointed out above, fairly simple printing machines have been known to the prior art but these machines have often been such as to require that the primary machine be modified or a position on the primary machine chosen for attachment of the printing machine which, in all cases, did not give the best results from the printing standpoint.

Thus, one of the known prior art machines had not only a printing roller or cylinder, but also had an impression roller underly the printing cylinder. In some machines this would be a serious disadvantage due to the fact that it would be desirable to place the printing machine adjacent, preferably above, the bed of the primary machine, and with an underlying impression roller, this would not be possible without cutting into the bed of the primary machine. Further, the prior art machines have not provided a simple and efficient adjustment whereby the printing machine could be caused to make the impression upon different areas of the work.

An object of the present invention therefore is to provide a simple and inexpensive printing machine which can be readily attached to existing machinery with a minimum modification thereof.

It is another object of the present invention to provide a printing device for attachment to another machine which will place its impression on the work at the same point on successive pieces of work going through the primary machine.

A further object of the present invention is the provision of a simple printing device which may be readily and rapidly adjusted to provide variation in the positioning of the impression on the workpieces.

It is yet another object of the present invention to provide a printing device having a minimum number of parts and which may be attached to a primary machine without modification thereof.

Other objects and the nature and advantages of the instant invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is a side elevation of a printing device in accordance with the present invention installed on a machine;

Fig. 2 is a partial sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a plan view of the device of Fig. 1;

Fig. 4 is a schematic view of the printing wheel of the present invention and showing the arrangement for making the impression close to the leading edge of the work;

Fig. 5 is a fragmentary view of the work and showing the position of the impression corresponding to Fig. 4;

Figs. 6, 7, 8, and 9 are similar views showing other adjustments and their corresponding positions.

Referring now to the drawings, there is shown in Figs. 1, 2, and 3 a plate 10 of a carton set-up machine or the like having on one side thereof a mount angle 11 and on the other side thereof a clamp bar 12, the mount angle 11 and the clamp bar 12 being secured together at their top and bottom by screws 13 and 14. Mount angle 11 has a shaft 16 secured thereto by a screw 17 and nut 18. The shaft 16 rotatably supports a printing wheel 20 which has thereon a peripherally extending rubber tire 21 and is longitudinally slotted at 22 to receive type 23.

Also secured to the mount angle 11, as by the nut and bolt 25, is an ink roller bracket 26 which has extending therefrom a shaft 27 carrying an inking wheel 28 which is spaced from the ink roller bracket 16 by a spacer 29. Inking wheel 28 has secured to the periphery thereof an inking felt 30. An angle pin 31 prevents the inking wheel 28 from coming off the end of the shaft 27.

In Fig. 1 it may be seen that the side of the printing wheel 20 has three tapped holes 32, 33, and 34. A screw 35 is shown threaded in the hole 32 and has secured thereto one end of a spring 36, the other end of which is secured to a clamp 37 on the plate 10.

The work 40 which is to receive the impression from the type 23 is, in one instance of use, an egg carton in knocked down position. The machine on which the printing device is placed is one which automatically sets up the egg carton 40. This workpiece is of two thicknesses of cardboard at the leading edge, i.e., the edge which first engages with the tire 21. The mount angle 11 is adjusted to such height when it is installed that the work 40 will contact the tire 21 as it proceeds out from under the plate 10, under the urging of feed fingers 41 carried by a slide 42 driven by rod 43. Slide 42 carries a shim plate 42' and moves in the bed plate 15 of the primary machine. The continued forward motion of the work 40 causes the tire 21 and the printing wheel 20 to rotate in a clockwise direction as shown in Fig. 1, so that the type 23 first comes in contact with the felt 30 of inking wheel 28, and picks up therefrom a non-air-drying ink. Further rotation of printing wheel 20 brings the type 23 into contact with the work 40 and the printing wheel 20 continues to rotate as long as any part of work 40 having the proper thickness is passing under and engaging the rubber tire 21. When work 40 passes beyond the printing wheel 20 or when a part of work 40 which is of less than the necessary thickness is under the printing wheel 20, the spring 36 will contract and because of its connection with wheel 20 will rotate wheel 20 until the spring 36 attains its shortest possible
length; the spring 36 thus serves to return the printing wheel 20 to an initial position after the passage of that part of work 40 which is thick enough to engage with the rubber tire 21. Of course, where only one printing on a particular work 40 is desired, the initial position of type 23 and the diameter of printing wheel 20 must be considered in connection with the length of the work 40.

Referring to Fig. 4, there is shown schematically the printing wheel 20 and the screw 35 for the spring 36 in the hole 32. With this arrangement, the type 23 is as close as possible, in a clockwise direction, with the bottom point of the printing wheel 20 where the work 40 will engage the rubber tire 21. This positioning will cause the type 23 to press on the work 40 in an area 44, which is relatively close to the leading edge of work 40, as may be seen in Fig. 5. Where it is desired to have the type 23 contact the work 40 in an area somewhat further back from the leading edge of work 40, the screw 35 is engaged in the intermediate hole 33 in printing wheel 20, as may be seen in Fig. 6. In this position, the type 23 will engage the work 40 in an intermediate area 44, as shown in Fig. 7. A further removal of the contact area of type 23 from the leading edge work 40 is obtained by placing screw 35 in the hole 34 of printing wheel 20 as shown in Fig. 8, with this position, the area 44, the furthest area from the work 40, will become printed by the type 23, as shown in Fig. 9.

It will be obvious to those skilled in the art that various changes may be made without departing from the spirit of the invention and therefore the invention is not limited to what is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. A printing attachment for a machine comprising a support, a printing wheel means, means mounting said printing wheel means on said support for rotational movement, a longitudinally extending spring, means securing one end of said spring to an anchor remote from said printing wheel, and plural circumferentially spaced means on said printing wheel means radially outwardly from the axis thereof for securing the other end of said spring thereto in one of several alternate positions to vary the initial printing point of said printing wheel means, said circumferentially spaced means lying closer to the axis of the printing wheel means than the means securing said one end of said spring, whereby the axis of the printing wheel means and the two remote ends of said spring will lie on a straight line when said wheel is at rest.

2. A printing attachment for a machine comprising a support, a printing wheel means, means mounting said printing wheel means on said support for rotational movement, a longitudinally extending coiled tension spring, means securing one end of said spring to an anchor remote from said printing wheel, and plural circumferentially spaced means on said printing wheel means radially outwardly from the axis thereof for securing the other end of said spring thereto in one of several alternate positions to vary the initial printing point of said printing wheel means, said circumferentially spaced means lying closer to the axis of the printing wheel means than the means securing said one end of said spring, whereby the axis of the printing wheel means and the two remote ends of said spring will lie on a straight line when said wheel is at rest.

3. A printing attachment for a machine having a plate extending above and transversely of a work feed path comprising support means mounted on said plate, a printing wheel means, means rotatably mounting said printing wheel on said support for rotational movement, a downwardly extending coil extension spring, means securing the upper end of said spring to said plate, and plural circumferentially spaced means on said printing wheel means radially outwardly from the axis thereof for securing the lower end of said spring thereto in one of several alternate positions.

4. The printing attachment of claim 3, wherein said last mentioned means comprises a plurality of holes in said printing wheel extending generally parallel to the axis thereof and a post engageable in said holes, the lower end of said spring being secured to said post.

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