WAX CARBON SPOT PRINTING MACHINE

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This invention relates to a wax carbon spot printing press for applying wax carbon spots to sheets of paper. The present application is a continuation in part of our copending application entitled “Wax Carbon Spot Printing Machine,” filed October 20, 1951, and bearing Serial No. 252,776, now abandoned.

A main object of the present invention is to provide an improved wax carbon spot press having a higher capacity than prior presses, and which press, though having a higher capacity, prints wax carbon spots of an even and uniform thickness on sheets of paper.

Prior wax carbon spot presses have usually included an impression roller, and a plate roller cooperating with the impression roller to print wax carbon spots on sheets of paper fed to the impression roller and carried by the impression roller. The plate roller has been coated with wax carbon by a variety of means, all of which have been located below or to one side of the plate roller. We have discovered a practical arrangement by which the wax carbon fountain can be located above the plate roller so that wax carbon can be fed down to the plate roller. By this arrangement, the capacity of the press has been markedly increased because of the ability of the arrangement to distinctly and uniformly coat a plate roller traveling at a higher speed than heretofore thought possible.

Another object of the present invention is to provide a machine as described above in which there is a transfer roller for transferring wax carbon to the plate roller, said transfer roller having a grained or rubber surface to assist in high capacity transfer of wax carbon to the plate roller.

Further objects of the present invention will be apparent from the following description taken in connection with the accompanying drawings, wherein

Fig. 1 is a somewhat diagrammatic view taken in side elevation through a wax carbon spot printing press embodying the concepts of the present invention.

Fig. 2 is a view in side elevation taken in the same direction as Fig. 1, but taken rearwardly thereof and showing the drive to the various rollers.

Fig. 3 is a fragmentary front view of the grained transfer roller for transferring wax carbon to the plate roller.

Referring to the accompanying drawings, wherein similar reference characters designate similar parts throughout, the wax carbon spot printing press shown includes a frame, generally entitled 9, in which is journaled a plate roller 11, engageable with an impression roller 13, also journaled in the frame. Plate roller 11 and impression roller 13 are adapted to cooperate to print wax carbon spots on sheets of paper, which are successively fed to the impression roller by a sheet feed mechanism, generally entitled 15, of conventional construction, said sheets being adapted to be successively picked up by a gripper mechanism 17 provided on the impression roller.

After a sheet has had one or more wax carbon spots applied thereto, it is carried around by the impression roller to a sheet removing mechanism generally entitled 33, or in any other suitable manner, so that the wax carbon spots applied to the sheets will be refloowed during the period of travel between the point of tangency between the plate and impression rollers and the point where the sheets of paper are removed from the impression roller. This refloowing serves to smooth out the irregularities produced in the wax carbon spots created when a sheet and the associated printing plate are separated.

Immediately after refloowing, it is desired to fix or solidify the wax carbon spots and, to this end, a cool blast of air is adapted to be directed onto the wax carbon spots by an air supply arrangement, generally entitled 35, which arrangement is operable to fix or solidify the wax carbon spots immediately after removal from the impression roller 13. Preferably, a retaining or supporting arcuate guide 37 is provided adjacent the periphery of sprockets 25 to support the sheets, such as sheet A in Fig. 1, against outward movement thereof which would be otherwise caused by the blast of air from mechanism 35.

The increased capacity of the press is not due to any of the mechanism above described but is solely produced by the mechanism for coating the plate roller 11 with wax carbon. This arrangement is best shown in Fig. 1, wherein it can be seen that wax carbon is fed down to the plate roller 11 from a point above the roller. There is a heated wax carbon fountain, generally entitled 39, having a fountain roller 41 associated therewith for supplying a coat of wax carbon to an oscillating ducer roller 43, which is bodily oscillated about its axis by a conventional arrangement, generally entitled 45, from the dot-dash line position (see Fig. 1) against fountain roller 41, to the solid line position against a relatively large roller 53. The fountain 39 has a suitable heating coil 40 embodied in its base. Roller 53 transfers a wax carbon coating to a small rotating roller 55, which transfers a wax carbon coating to a relatively large axially oscillating roller 57. Roller 57 transfers a wax carbon coating to small rotating rollers 59 and 65 engaging the periphery of a large transfer roller 61, which has a grained or rubber surface 63 and engages the plate roller 11 to coat the plates thereof. Counterwisedly of small rollers 59 and 65 is a rotatable roller 67 functioning to wipe the surface of the transfer roller 61 prior to the application of wax carbon thereto by rollers 59 and 65. All the above rollers and the drive roller 43 are journaled at their ends in frame 9. Shaft 44 about which the ducer roller 43 bodily oscillates, is journaled at its ends in frame 9.

Certain of the rollers disclosed in Fig. 1 are adapted to be driven from pulleys or sprockets 31 by gearing disclosed in Fig. 2 wherein the individual gears are labeled with the numbers of their corresponding rollers followed by the subscript "a." By provision of the grained or rubber surface or cover 63 on transfer roller 61, in conjunction with the downward feed of a wax carbon coating to roller 61, a wax carbon printing press has been provided for directly printing wax carbon spots on sheets of paper at a rate sub-
stantially greater than possible with prior wax carbon printing presses.

While we have shown the preferred form of our invention, it is to be understood that various changes may be made in its construction by those skilled in the art without departing from the spirit of the invention as defined in the appended claims.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:

1. A wax carbon spot printing press of the class described, comprising an impression roller, a plate roller in engagement therewith, and adapted to print wax carbon spots on sheets of paper carried by the impression roller between the rollers, a grained wax carbon transfer roller approximately the same diameter as the plate roller above the plate roller for coating the plates of the plate roller with wax carbon, means for entirely coating the peripheral surface of the grained transfer roller with wax carbon, including a heated wax carbon fountain disposed above the transfer roller and a plurality of rollers leading from the wax carbon fountain down essentially in a vertical line to the transfer roller.

2. A wax carbon spot printing press of the class described, comprising an impression roller, a plate roller in engagement therewith, and adapted to print wax carbon spots on sheets of paper carried by the impression roller between the rollers, a grained wax carbon transfer roller approximately the same diameter as the plate roller above the plate roller for coating the plates of the plate roller with wax carbon, means for entirely coating the peripheral surface of the transfer roller with wax carbon, including a heated wax carbon fountain disposed above the transfer roller and a plurality of rollers leading from the wax carbon fountain down essentially in a vertical line to the transfer roller, means for heating the impression roller to partially reflow the wax carbon applied to the sheets carried by the impression roller, and means for removing the sheets from the impression roller after application of wax carbon spots thereto and after reflowing of the wax carbon spots, including a mechanism for cooling the sheets immediately after removal.

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