Oct. 29, 1929. H. D. BLACK 1,733,716

INKING APPARATUS OF PRINTING MACHINES

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Fig. 1.

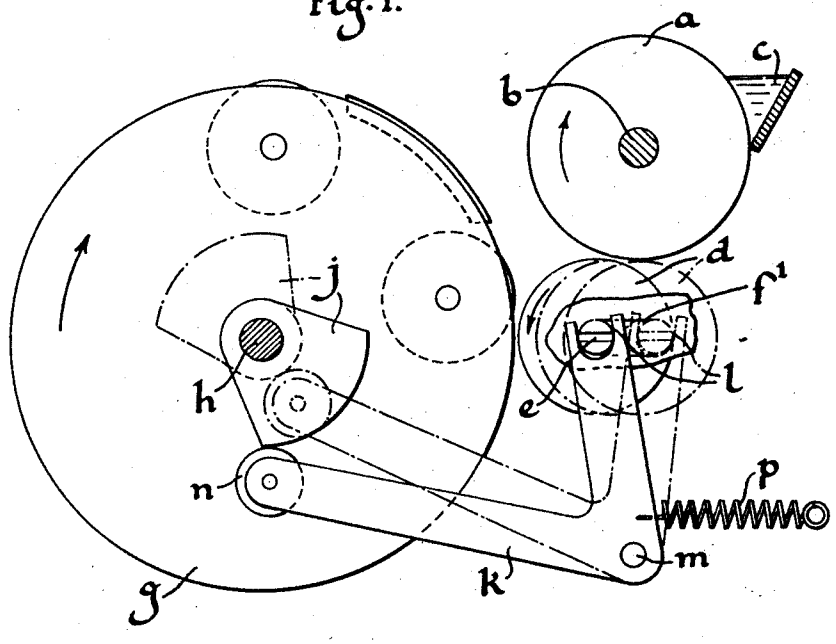
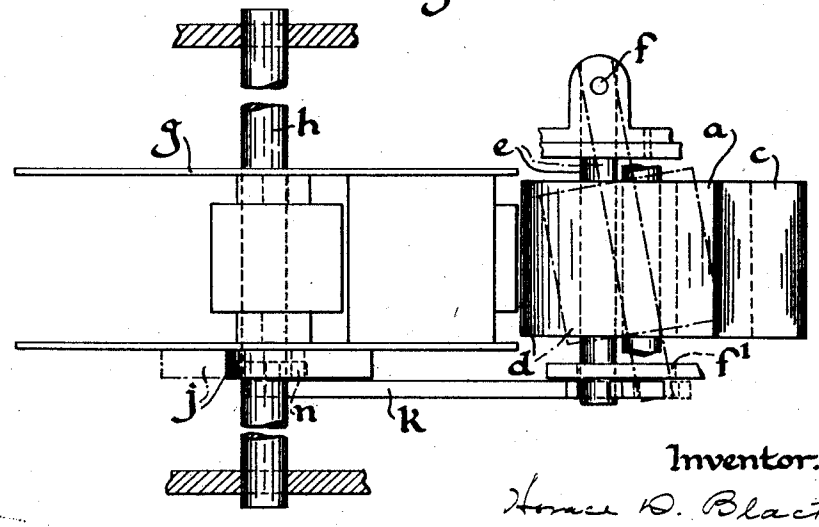


Fig. 2.



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UNITED STATES PATENT OFFICE

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INKING APPARATUS OF PRINTING MACHINES

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This invention relates to improvements in the inking apparatus of printing machines such as combined ticket printing and issuing machines in which the process of distribution of the ink and the linking of the platen has of necessity to be in as simple a form as possible owing to lack of space.

The method employed in the ordinary form of printing machine of breaking up and distributing the ink through the medium of a number of composition rollers, some of which are provided with a lateral oscillating movement in order to obtain the fine distribution necessary in the ordinary form of printing, is incapable of application to these machines owing to limitations of space.

The method employed of conveying the ink from the ink duct to the type face by means of one or more rollers has hitherto only yielded comparatively poor results and the object of my invention is to provide means for improving the inking effect obtained by the above means. To this end, according to the invention, I arrange the inking roller and the ink duct roller which are formed of or coated with the usual resilient composition and are of comparatively short length, in such a manner that they contact obliquely with one another, the effect of this oblique contact giving to the inking roller a somewhat similar distribution to that obtained with the lateral oscillating roller in the ordinary form of inking train.

I am aware that in a machine for manufacturing and printing cigarette tubes in which an intermediate roller is arranged between the ink duct roller and the distributing roller, it has been proposed to mount such intermediate roller on an axis at an angle to the printing cylinder axis which arrangement occupies more space than can conveniently be provided in printing machines of the type to which my invention is applied.

In a suitable arrangement for carrying out the invention, the inking roller is carried on a pivot beneath the fixed revolving ink duct roller, the movement of the said inking roller being controlled by a cam, secured to the shaft of the platen or printing cylinder, and rotating therewith, which operates one end of a bell-crank lever, the free end of the inking roller shaft being carried in a slot provided in the other end of the said bell-crank lever.

The method of operation is as follows:—

Normally, the inking roller is in oblique frictional contact with the ink duct roller and revolves therewith. The cam secured to the shaft of the printing cylinders bears against the end of the bell-crank lever during rotation and forces it downwards, thus drawing the inking roller, carried in the slot in the end thereof, into contact with the said printing cylinder. This contact is maintained until the bearing surface of the cam is rotated out of contact with the said lever, when the lever is returned to its normal position by means of a spring.

In order that the invention may be fully understood, I will now describe it by reference to the accompanying drawings, in which:—

Figure 1 is a sectional elevation of one method of applying the invention, and

Figure 2 is a plan view thereof.

a is the ink duct roller, revolving on its spindle *b*, and *c* is the ink reservoir. *d* is the inking roller which revolves on the spindle *e*, normally arranged obliquely to the spindle *b*. One end of this spindle *e* is pivoted at *f* to the framing of the device and the other end thereof rides in a slot f^1 of the framing. *g* is the printing cylinder carrying type to be inked and which is mounted on the spindle *h*. *j* is the cam secured to the said spindle *h* and revolving therewith and *k* is the bell-crank lever, in a slot *l* in one end of which the free end of the spindle *e* engages, and which is pivoted at *m* and carries at its other end the roller *n* against which the cam *j* bears to bring the inking roller *d* into contact with the printing cylinder *g*. *p* is the spring provided for returning the said roller *d* to its normal position.

The operation of the arrangement is as follows:—

The roller *d* is normally held by the spring *p* in oblique frictional contact with the roller *a*, as shown by the dotted lines in Figures 1 and 2. As the cylinder *g* rotates the cam *j* depresses the bell-crank lever *k* thereby

swinging the inking roller d on its pivot f out of contact with the roller a and into contact with the printing cylinder g. This contact is maintained until the bearing surface of the cam j is rotated out of contact with the said lever k when the roller d is automatically returned to its normal position by the spring p.

It will be understood that as the rolls a and d are formed of, or coated with the usual resilient composition, and are of comparatively short length, surface contact over their entire length is ensured.

Claims:

1. An inking device for printing machines, comprising a printing cylinder, an ink duct roller and an inking roller, said rollers being so mounted with respect to one another that an oblique contact is obtained, and means for oscillating one of said rollers to bring the same out of engagement with the other, and into parallel engagement with said cylinder.

2. In a ticket printing and issuing machine, a printing cylinder, an ink duct roller, an inking roller, mechanism synchronized with the rotation of said printing cylinder for causing said inking roller to alternately engage said ink duct roller in oblique contact, and said printing cylinder in parallel contact.

3. An inking device for printing machines, comprising a printing cylinder mounted on a shaft, an ink duct roller and an inking roller, the latter being mounted on a shaft pivoted at one end, a bell crank lever slotted at one end to receive the free end of said pivoted shaft, and a cam mounted on said printing cylinder shaft and revolving therewith for operating the opposite end of said bell crank lever, said rollers being so mounted with respect to one another that when said bell crank lever is in operation, the roller mounted on said pivoted shaft will be oscillated and intermittently brought into oblique contact with the other roller.

HORACE DRUMMOND BLACK.