July 17, 1928. 1,677,679

W. E. MOLINS

PRINTING APPARATUS FOR USE WITH CIGARETTE MACHINERY

Filed April 18, 1927 2 Sheets-Sheet 1

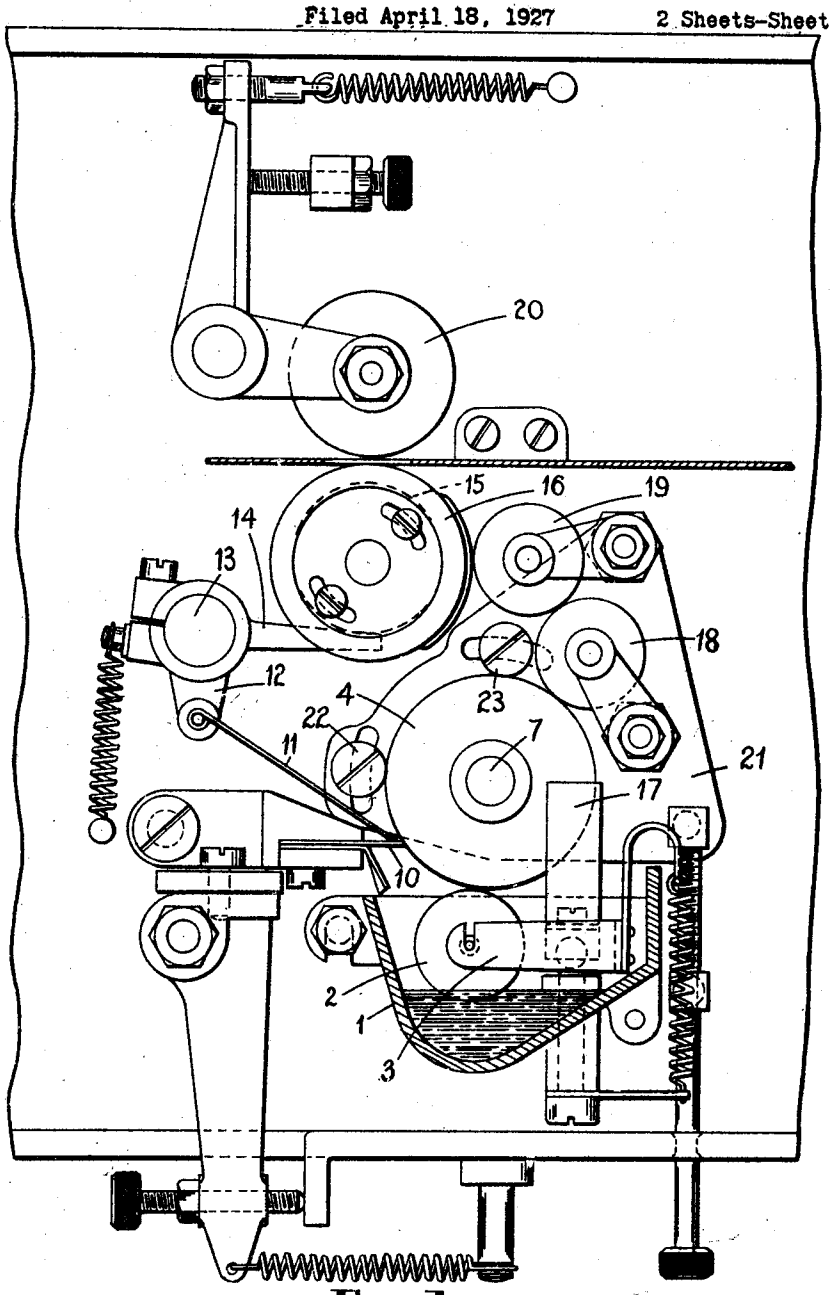


Fig. 1.

Inventor.

Walter E. Molins.

By Watson, Cole, Moore & Grindle

Attys

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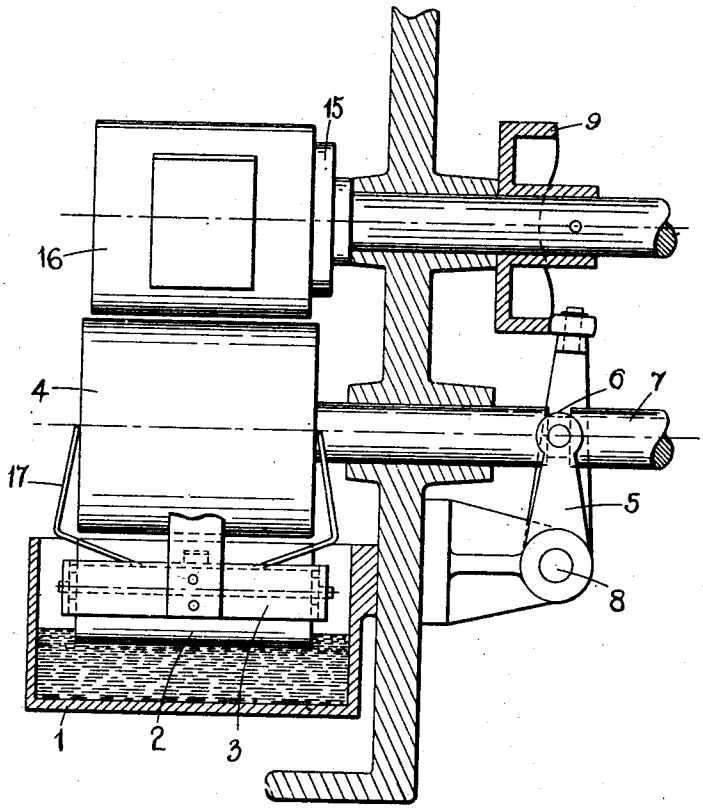


Fig. 2.

Inventor.
Walter E. Molins,
By Watson, Coit, Morse & Grindle,
Attys.

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UNITED STATES PATENT OFFICE.

WALTER EVERETT MOLINS, OF DEPTFORD, LONDON, ENGLAND.

PRINTING APPARATUS FOR USE WITH CIGARETTE MACHINERY.

Application filed April 18, 1927, Serial No. 184,810, and in Great Britain May 19, 1926.

This invention is for improvements in or relating to cigarette making machines and more particularly to a printing device for use on a cigarette making machine of the continuous rod type, and has for its object the provision of a printing unit which is simple in its construction, clean in its operation and devoid of the defects which usually contribute to inconsistent printing.

It has hitherto been the practice to mount a furnishing roller in one side wall of an ink duct in such a manner that the ink is in constant contact with the surface of the roller and the roller, due to its close fit with the ink duct, serves to retain the ink in the duct. It is found, however, that however good the fit between the roller and the duct may be made, there is a tendency, due to wear, for the ink to leak from the duct with the consequent loss of efficiency in the device. Further, clotted ink and dust are liable to produce an irregular supply of ink to the furnishing roller.

Again, the furnishing roller in such a device runs at a comparatively low speed, whereas the furnishing roller in the device according to the present invention is arranged to run at substantially the speed of the printing roller, thus driving the transfer roller which dips into the ink at a high speed so as to ensure that the ink is always thoroughly mixed.

The present invention consists of a printing device for use upon a cigarette making machine of the continuous rod type which comprises in combination a furnishing roller arranged to receive ink from an ink duct, means (for example a doctor blade) arranged to control the quantity retained upon the surface of said roller and a transfer roller or rollers, disposed between the furnishing roller and a printing roller, operable to maintain a consistent supply of ink to said printing roller.

The invention is more particularly described with reference to the accompanying drawings, in which:—

Fig. 1 illustrates in side elevation one method of carrying the invention into effect, and

Fig. 2 illustrates one method of reciprocating the furnishing roller in the direction of its rotational axis.

Referring to the drawings, one method of carrying the invention into effect comprises an ink duct 1 in which is adapted to rotate a transfer roller 2 supported upon a yieldingly controlled bracket 3 in such a manner that the roller 2 is adapted to bear upon the surface of a smooth furnishing roller 4 and to be driven at a comparatively high speed by the same so as to ensure that the ink in the duct is always thoroughly mixed. The furnishing roller 4 is reciprocated in the direction of its longitudinal axis by a pivoted lever 5 engaging with a groove 6 in the spindle 7 of the roller 4. The lever 5 is pivoted at 8 and the free end thereof is arranged to be reciprocated in any desired manner, for example by the crown cam 9 rotatable from the main drive of the machine. The furnishing roller is arranged to engage with a fixed doctor blade 10, which is mounted so as to be adjustable towards and away from the surface of the furnishing roller 4. Adapted to engage with the upper surface of the doctor blade 10 is an oscillating scraper 11. The scraper 11 is pivotally attached to a link 12 adapted to oscillate about a pivot pin 13 through the action of an arm 14 mounted so as to engage with a cam 15 secured to one face of a printing roller 16, so that as the said arm is moved about its pivot, the scraper removes any excess of ink which may have accumulated on the upper surface of the doctor blade 10. The furnishing roller 4 is mounted so as to engage with a yieldingly controlled scraper 17 at each end thereof, which is adapted to remove any ink which may run over on to the end faces of the roller. Mounted above the furnishing roller so as to engage with the surface thereof, is a transfer roller 18 which in turn is adapted to engage with a second transfer roller 19. The second transfer roller is mounted so as to engage with the embossed portion or portions of the rotatable printing roller 16. Mounted directly above the printing roller is a pressure roller 20 over the surface of which a web of cigarette paper is adapted to be drawn. The transfer rollers 18 and 19 are mounted upon a plate 21 arranged to pivot about the spindle 7 of the furnishing roller 4 and adapted to be clamped in position by means of binding screws 22 and 23. The above arrangement permits of the simple adjustment of the transfer rollers 18 and 19 relatively to the printing roller 16.

The operation of the device is as follows:—

Ink is transferred from the ink duct to

the surface of the furnishing roller 4 and the quantity which is to be transferred from the surface of the roller 4 to the surface of the first transfer roller 18 is regulated by the position of the doctor blade 10 relatively to the surface of the furnishing roller 4. A surplus of ink is prevented from accumulating upon the upper surface of the doctor blade by the oscillating scraper 11. The surface of the first transfer roller 18 which has received ink from the surface of the furnishing roller 4 engages with the surface of the second transfer roller 19, and provides the same with a film of ink. The embossed portion or portions of the printing roller 16 are adapted to engage with the inked surface of the second transfer roller and receive the desired amount of ink therefrom.

The adjustability of the doctor blade 10 and the action of the reciprocating furnishing roller 4 on the first and second transfer rollers, provides a simple and efficient method of providing the printing roller with a constant quantity of ink which may be easily regulated.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a printing device, the combination with a furnishing roller adapted to receive ink, of a doctor blade arranged to control the quantity of ink retained on said roller, and means for scraping the surface of said doctor blade to remove surplus ink.

2. In a printing device, the combination with a furnishing roller adapted to receive ink, of a doctor blade arranged to control the quantity of ink retained on said roller, and an oscillating member for scraping the surface of said doctor blade to remove surplus ink.

3. In a printing device, the combination with a furnishing roller adapted to receive ink, of a doctor blade arranged to control the quantity of ink retained on said roller, a rotatable cam, and means driven thereby for scraping the surface of said doctor blade to remove surplus ink.

4. A printing device for use upon a cigarette making machine of the continuous rod type which comprises in combination a furnishing roller arranged to receive ink from an ink duct, a doctor blade arranged to control the quantity of ink retained upon the surface of said roller, means for moving the said doctor blade and furnishing roller relatively to one another, means for scraping the upper surface of said doctor blade, a printing roller, and at least one transfer roller disposed between the furnishing roller and said printing roller operable to maintain a consistent supply of ink to said printing roller.

5. A printing device for use on a cigarette making machine of the continuous rod type which comprises in combination a furnishing roller arranged to receive ink from an ink duct and reciprocate in the direction of its rotational axis, a fixed doctor blade arranged to control the quantity of ink retained upon the surface of said roller, a reciprocating scraper operable to clean the upper surface of said doctor blade, a printing roller, and at least one transfer roller disposed between the furnishing roller and the printing roller operable to maintain a consistent supply of ink to said printing roller.

6. A printing device for use upon a cigarette making machine of the continuous rod type which comprises in combination a furnishing roller arranged to receive ink from an ink duct and reciprocated in the direction of its rotational axis, a fixed doctor blade arranged to control the quantity of ink retained upon the surface of said roller, a reciprocating scraper operable to clean the upper surface of said doctor blade, a printing roller, a plate arranged to swing about the axis of the furnishing roller, and at least one transfer roller carried upon said plate and operable to maintain a consistent supply of ink to said printing roller.

In testimony whereof I hereunto affix my signature.

WALTER EVERETT MOLINS.