

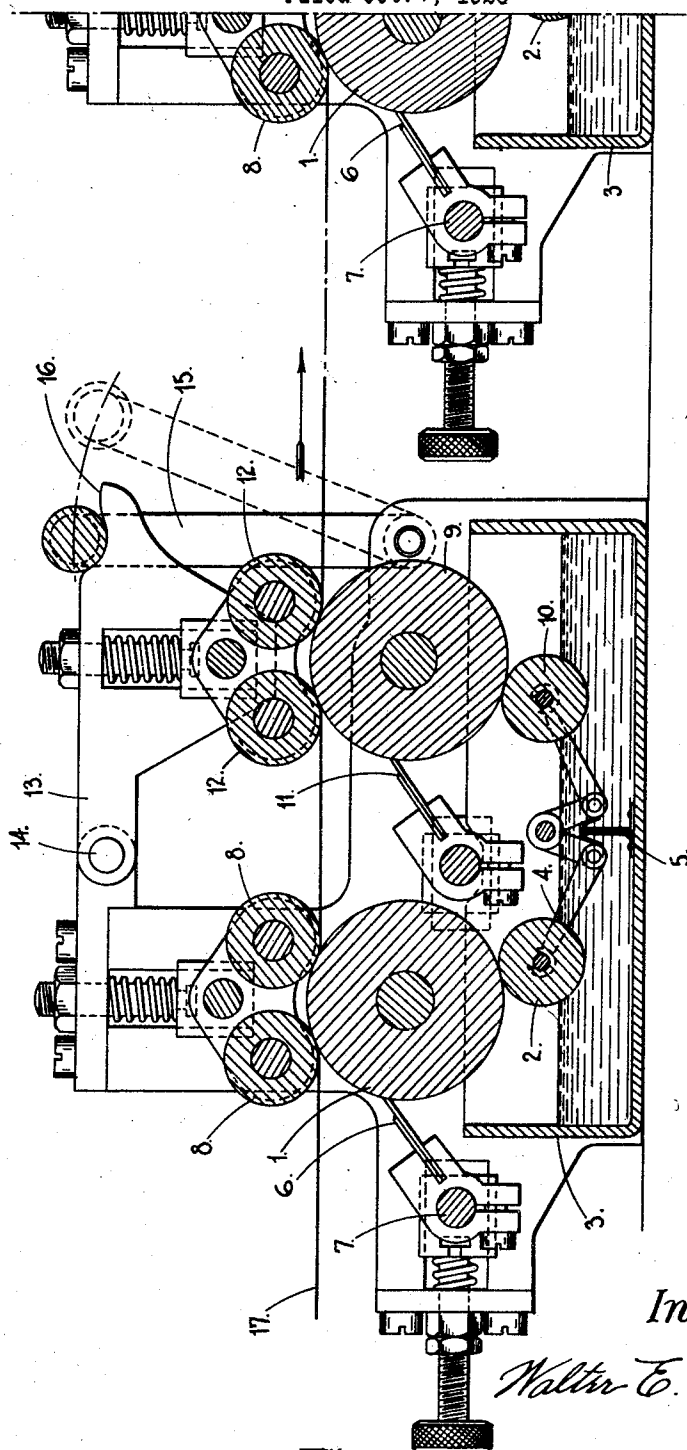
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DEVICE FOR INTAGLIO PRINTING

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UNITED STATES PATENT OFFICE.

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DEVICE FOR INTAGLIO PRINTING.

Application filed October 7, 1926, Serial No. 140,161, and in Great Britain October 17, 1925.

This invention is for improvements in or relating to a device for intaglio printing, and more particularly to a process of or a device for imprinting by intaglio, multi-coloured impressions upon a travelling web of material.

It is found in practice, where a coloured design is periodically reproduced upon a travelling web of material by a series of engraved rollers each adapted to apply a different coloured impression to the web, that the coloured design imprinted upon the web by any one roller, is not sufficiently dry before it reaches the next succeeding roller to prevent a certain amount of ink from the impression being deposited upon the surface of the next printing roller, and being thereafter carried into the ink bath of that roller, causing the ink to become gradually contaminated with the colour of the preceding unit.

Further, as the amount of set off ink which is deposited by one impression upon the surface of a printing roller is very small, its immediate effect upon the ink of the succeeding printing unit is not noticeable and it is only the accumulative effect of the set off ink of several impressions which produces any visible alteration in the quality of the ink of a printing unit. Due to this fact considerable difficulty has been experienced in finding effective means for dealing with these small quantities of set off ink. Thus if an additional doctor blade is employed upon each printing roller for the express purpose of removing any set off ink which may be deposited upon the surface thereof, it is found that the set off ink is liable to cake upon the edge of the blade and so scratch the surface of the roller besides eventually rendering the doctor blade ineffective.

It is an object of the present invention to provide means which will ensure that the set off ink of one impression is removed from the web prior to the next succeeding coloured impression being applied thereto.

Further the present invention consists of an intaglio printing machine for use in printing multi-coloured impressions upon a travelling web of material, wherein means disposed between two successive printing units are arranged to remove from the web any set off ink of one impression prior to the web receiving the next successive coloured impression.

The invention is hereinafter more particularly described with reference to the accompanying drawing, which illustrates a portion of an intaglio printing machine.

Referring to the drawing, an engraved roller 1, carried in bearings supported by the frame of a printing machine, is adapted to receive ink from a transfer roller 2 arranged to rotate in an ink duct 3 by frictional contact with the roller 1. The transfer roller 2 is carried upon a bell crank lever 4, one limb of which is adapted to engage with a spring 5 which presses the roller 2 into engagement with the surface of the engraved roller 1.

A doctor blade 6, adapted to engage with the surface of the engraved roller 1, is carried upon a spindle 7 which is arranged to be reciprocated in the direction of the longitudinal axis of the roller 1.

Adapted to bear upon the engraved roller 1 are a pair of pressure rollers 8, preferably constructed according to specification No. 243,909. Mounted between the engraved roller 1 of one printing unit and the engraved roller of a second printing unit is a set off roller 9 adapted to engage with a transfer roller 10 which is arranged to rotate in the ink duct 3 in a manner similar to the transfer roller 2. A doctor blade 11, which may, if necessary, be reciprocated in the direction of the axis of the roller 9 is arranged to engage with the surface of the set off roller 9 so as to remove any ink from the surface thereof. A pair of pressure rollers 12, preferably constructed according to specification No. 243,909, are carried upon a bracket 13 pivoted upon a pin 14 so as to be easily swung out of engagement with the roller 9 into a position above the pressure rollers 8. The pressure rollers 12 are held in engagement with the set off roller 9, by means of an arm 15 adapted to be snapped into engagement with a cam surface 16, formed on the end of the bracket 13.

A travelling web 17 of paper is adapted to be fed between a series of engraved rollers 1 and the pressure rollers 8 to receive a series of coloured impressions. After the web 17 leaves the roller 1 of each colour impression it passes between the set off roller 9 and the pressure rollers 12.

The operation of the machine is as follows:—The web 17 receives a coloured impression from the engraved roller 1 of one coloured impression and any set off ink of

that impression which may exist upon the surface of the web is transferred to the surface of the set off roller 9. The roller 9 receives a coating of ink from the transfer roller 10, which mixes with the set off ink on the surface of the roller 9 and maintains the same in a liquid condition.

The ink spread upon the surface of the set off roller 9, is removed by the doctor blade 11 and transferred to the ink duct 3 which provides ink to both the engraved roller 1 and the set off roller 9.

Thus it will be seen that the set off ink which is transferred from the web to the set off roller 9 is conveyed back into the ink duct from whence it came, and the web 17 passes on to receive a further coloured impression, free from any set off ink which might otherwise contaminate the ink of a second printing unit.

It will be appreciated that the web may be embossed upon the same machine upon which it is printed, in which case a set off roller or rollers would be disposed between the printing roller and the embossing roller in order to prevent any contamination of the surface of the embossing roller.

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

30 1. An intaglio printing machine for use in printing multi-color impressions upon a travelling web of material which comprises

in combination at least one set-off roller disposed between two successive printing units and arranged to engage with the printed surface of the web prior to the same engaging with the next successive printing unit, means for applying a liquid deposit upon the surface of the set-off roller after the same has engaged with the printed surface of the web, and means for removing said liquid deposit from the surface of the set-off roller, prior to the same engaging with the surface of the web.

2. An intaglio printing machine for use in printing multi-color impressions upon a travelling web of material wherein at least one set-off roller is disposed between two successive printing units and arranged to engage with the printed surface of the web prior to the same engaging with next successive printing unit, a transfer roller mounted in the ink duct of the first printing unit and arranged to apply a deposit of ink upon the surface of the set-off roller after the same has engaged with the printing surface of the web and means for removing said deposit of ink from the surface of the set-off roller and depositing the same in the ink duct of the first printing unit.

In testimony whereof I hereunto affix my signature.

WALTER EVERETT MOLINS.