Dec. 27, 1927. 1,654,250

A. B. EVANS

INKING MECHANISM OF PLANOGRAPHIC ROTARY PRINTING MACHINES

Filed Feb. 17, 1927

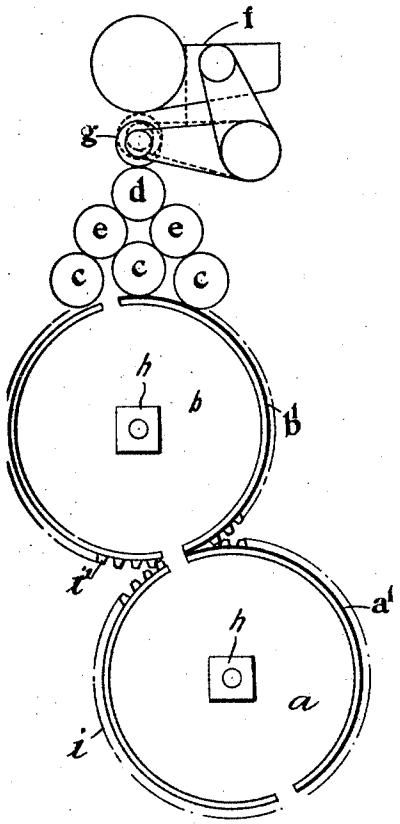


Fig. 1.

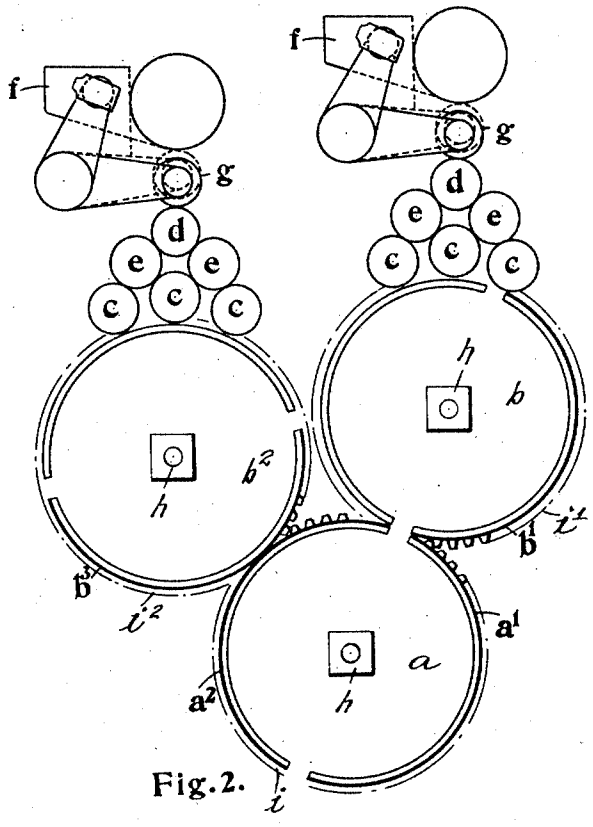


Fig. 2.

Inventor
A. B. Evans:
by
W. E Evans:
Attorney.

Patented Dec. 27, 1927. 1,654,250

UNITED STATES PATENT OFFICE.

ARTHUR BURROUGHES EVANS, OF LEEDS, ENGLAND.

INKING MECHANISM OF PLANOGRAPHIC ROTARY PRINTING MACHINES.

Application filed February 17, 1927, Serial No. 169,070, and in Great Britain December 17, 1925.

In planographic rotary printing machines as ordinarily constructed, it is usual to provide a number of inking rollers covered with leather, rubber, composition, or the like, which are kept in continuous rotation for the portion of a cycle of the machine during which they are not in contact with the planographic design surface, by means of geared rider rollers or the like contacting with them and which revolve at the same circumferential speed as the planographic design surface. Such rider rollers are also given a longitudinal reciprocating movement for the purpose of levelling and freshening the ink upon the inking rollers. By a different method in the case of machines printing from raised surfaces, the inking rollers themselves are made to reciprocate longitudinally, but this method is not applicable to planographic printing because of the scrubbing effect which would be caused upon the design by the reciprocation of these rollers.

It has before been proposed in an offset printing press to convey the ink or colour from the inking rollers to the printing plate by means of a rubber or equivalent inking blanket disposed upon the offset cylinder in a position diametrically opposite to the offset blanket, so that the offset blanket receives the ink or colour previously deposited on the printing plate by the inking blanket and transfers it to the sheet to be printed. Such mechanism has the disadvantage that there is the possibility of contact of the inking blanket with torn paper which frequently becomes attached to the offset cylinder.

This disadvantage is removed in the mechanism according to the present invention and furthermore accidental contact of the inking blanket with any sheet carrying surface is avoided.

According to this invention I substitute for inking rollers in a planographic printing machine, an additional drum or cylinder carrying a rubber blanket or the like, which drum or cylinder and blanket are respectively in direct gearing and in impression contact with the planographic design surface, the additional drum or cylinder serving solely to effect the transfer of ink from the ink distributing roller to the planographic surface and being disposed away from any other part of the printing mechanism.

According to this invention moreover, I provide a method of feeding ink to the rubber blanket or the like, and distributing rollers of steel or the like which contact with the rubber blanket and have a longitudinal reciprocating movement.

According to this invention moreover, I provide more than one effective set of inking apparatus for the purpose of inking different coloured planographic plates grouped upon the periphery of a single planographic cylinder.

According to this invention moreover, I provide the necessary means of reciprocation, to be operated direct from the drum or cylinder, upon the distributing rollers whose surfaces are in direct contact with the inked blanket or the like upon such drum or cylinder, and I avoid the scrub or the like effect which is a consequence of such direct operation upon inking rollers in the case of planographic printing.

The invention is hereinafter described by way of example with reference to the accompanying diagrammatic drawings, in which

Figure 1 is a diagram illustrating an arrangement of rollers according to the invention in which a drum or cylinder carrying a rubber blanket or the like is employed as an inking device, and

Figure 2 is a diagram illustrating an arrangement of rollers similar to Figure 1 in which, however, two sets of inking mechanism are employed in conjunction with a single plate cylinder carrying two planographic printing surfaces.

In carrying the invention into effect according to one construction and with reference to Figure 1 of the accompanying diagrammatic drawings, the plate cylinder a carries a planographic printing surface a^1 which extends over a part only of the periphery of the cylinder a. A drum or cylinder b carrying a rubber blanket b^1 is directly or indirectly geared with the plate cylinder a and the rubber blanket b^1 is adapted to make contact with the planographic surface a^1. The rubber blanket b^1 may be attached to the drum or cylinder b by any suitable means, but the blanket b^1 advantageously extends over only a part of the periphery of the drum or cylinder b in order that the devices for the attachment of the blanket b^1 to the drum or cylinder b may be kept below the periphery thereof, the circumferential length of the blanket b^1 being at least as great as the planographic surface a^1 and the blanket b^1 being disposed

beyond the remainder of the circumference of the drum or cylinder b. The cylinders a and b, and a and b^2 are journaled in suitable supports h and are directly or indirectly geared as indicated by gearing i and i^1 in Figure 1, and i, i^1 and i^2 in Figure 2, whereby the cylinders a, b and b^2 are caused to rotate at the same peripheral speed.

The group of distributing rollers, of which the rollers c and d may be of steel or like metal, and the rollers e covered with leather, composition, or other suitable substance, are arranged so that the rollers c contact during printing with the blanket b^1 and they are directly or indirectly geared so as to run in unison with the cylinder b. In order to effect lateral distribution the rollers c may be reciprocated laterally by any suitable means and preferably by the method described in the specification of the prior British Patent No. 116,533.

The ink is fed in known manner to the rollers c, d, e from an ink duct f through a feed roller g which contacts alternatively with the ink duct f and one of the ink rollers c, d, e.

Thus the rubber blanket b^1 receives ink properly distributed from the ink duct f by way of the feed roller g and the distributing rollers c, d, e and by reason of the rolling contact between the blanket b^1 and the planographic surface a^1, the latter is inked at each revolution.

According to a further modification illustrated in Figure 2 of the accompanying diagrammatic drawings, the plate cylinder a is provided with two planographic surfaces a^1, a^2, and two drums or cylinders b, b^2 carrying respectively two rubber blankets b^1, b^3 are provided to co-operate with the plate cylinder a. The drums or cylinders b, b^2 are inked by separate sets of mechanism such as described with reference to Figure 1. It will be observed that during rotation of the machine each planographic surface a^1, a^2 receives a separate inking from the respective blanket b^1, b^3, and thus the plate cylinder a carries two planographic surfaces inked with the same or different colours and may be utilized for various purposes in known manner.

I claim:

1. A planographic rotary printing machine, comprising a cylinder, a planographic surface upon the said cylinder, a cylinder serving solely as an inking cylinder, an inking blanket upon the said inking cylinder, means supporting the two cylinders so that the inking blanket may contact with the planographic surface, and means for rotating the two cylinders at the same peripheral speed, substantially as hereinbefore described.

2. A planographic rotary printing machine, comprising a cylinder, a planographic surface upon the said cylinder, a cylinder serving solely as an inking cylinder, an inking blanket upon the said inking cylinder, means supporting the two cylinders so that the inking blanket may contact with the planographic surface, means for rotating the two cylinders at the same peripheral speed, ink distributing rollers to contact with the inking blanket upon the inking cylinder, an inking fountain, and an ink feeding roller disposed between the fountain and the distributing rollers, substantially as hereinbefore described.

3. A planographic rotary printing machine, comprising a cylinder, a planographic surface upon the said cylinder, a cylinder serving solely as an inking cylinder, an inking blanket upon the said inking cylinder, means supporting the two cylinders so that the inking blanket may contact with the planographic surface, means for rotating the two cylinders at the same peripheral speed, laterally reciprocating ink distributing rollers grouped around the inking cylinder and contacting with the inking blanket thereon, an inking fountain, and an ink feeding roller disposed between the fountain and the distributing rollers, substantially as hereinbefore described.

4. A planographic rotary printing machine comprising a cylinder, a plurality of planographic surfaces upon the said cylinder, a plurality of cylinders serving solely as inking cylinders, inking blankets respectively provided upon the said inking cylinders, means for supporting the inking cylinders relatively to the cylinder bearing the planographic surfaces so that the respective inking blankets may contact with the respective planographic surfaces, ink distributing mechanism grouped around and feeding ink to each of the inking cylinders, and means for effecting the rotation of the inking cylinders and the cylinder bearing the planographic surfaces at the same peripheral speed, substantially as hereinbefore described.

5. A planographic rotary printing machine, comprising a cylinder, a planographic surface upon the said cylinder, a cylinder serving solely as an inking cylinder, a rubber inking blanket upon the said inking cylinder, means supporting the two cylinders so that the rubber inking blanket may contact with the planographic surface, and means for rotating the two cylinders at the same peripheral speed, substantially as hereinbefore described.

6. A planographic rotary printing machine comprising a cylinder, a plurality of planographic surfaces upon the said cylinder, a plurality of cylinders serving solely as inking cylinders, rubber inking blankets respectively provided upon the said inking cylinders, means for supporting the inking

cylinders relatively to the cylinder bearing the planographic surfaces so that the respective rubber inking blankets may contact with the respective planographic surfaces, ink distributing mechanism grouped around and feeding ink to each of the inking cylinders, and means for effecting the rotation of the inking cylinders and the cylinder bearing the planographic surfaces at the same peripheral speed, substantially as hereinbefore described.

7. A planographic rotary printing machine comprising a cylinder, a plurality of planographic surfaces upon the said cylinder, a plurality of cylinders serving solely as inking cylinders, inking blankets respectively provided upon the said inking cylinders, means for supporting the inking cylinders relatively to the cylinder bearing the planographic surfaces so that the respective inking blankets may contact with the respective planographic surfaces, a set of laterally reciprocating ink distributing rollers grouped around and corresponding to each inking cylinder, an inking fountain for each set of ink distributing rollers and an ink feeding roller for each inking fountain disposed between the fountain and the distributing rollers, substantially as hereinbefore described.

8. A planographic rotary printing machine, comprising a cylinder, a planographic surface upon the said cylinder, a cylinder serving solely as an inking cylinder, an inking blanket upon the said inking cylinder, means supporting the two cylinders so that the inking blanket may contact with the planographic surface, and gearing between the two cylinders for rotating them at the same peripheral speed, substantially as hereinbefore described.

9. A planographic rotary printing machine, comprising a cylinder, a plurality of planographic surfaces upon the said cylinder, a plurality of cylinders serving solely as inking cylinders, inking blankets respectively provided upon the said inking cylinders, means for supporting the inking cylinders relatively to the cylinder bearing the planographic surfaces so that the respective inking blankets may contact with the respective planographic surfaces, ink distributing mechanism grouped around and feeding ink to each of the inking cylinders, and gearing between the inking cylinders and the cylinder bearing the planographic surfaces for rotating the said cylinders at the same peripheral speed, substantially as hereinbefore described.

10. A planographic rotary printing machine, comprising a cylinder, a planographic surface upon the said cylinder, a cylinder serving solely as an inking cylinder, an inking blanket mounted upon and projecting beyond the peripheral surface of the inking cylinder, and means for rotating the two cylinders so that the planographic surface and the inking blanket have the same surface speed, substantially as hereinbefore described.

11. A planographic rotary printing machine, comprising a cylinder, a plurality of planographic surfaces upon the said cylinder, a plurality of cylinders serving solely as inking cylinders, inking blankets respectively provided upon the said inking cylinders so as to project beyond the peripheral surface of the said cylinders, means for supporting the inking cylinders relatively to the cylinder bearing the planographic surfaces so that the respective inking blankets may contact with the respective planographic surfaces, ink distributing mechanism grouped around and feeding ink to each of the inking cylinders, and means for effecting the rotation of the inking cylinders and the cylinder bearing the planographic surfaces so that the planographic surfaces and the inking blankets have the same surface speed, substantially as hereinbefore described.

ARTHUR BURROUGHES EVANS.