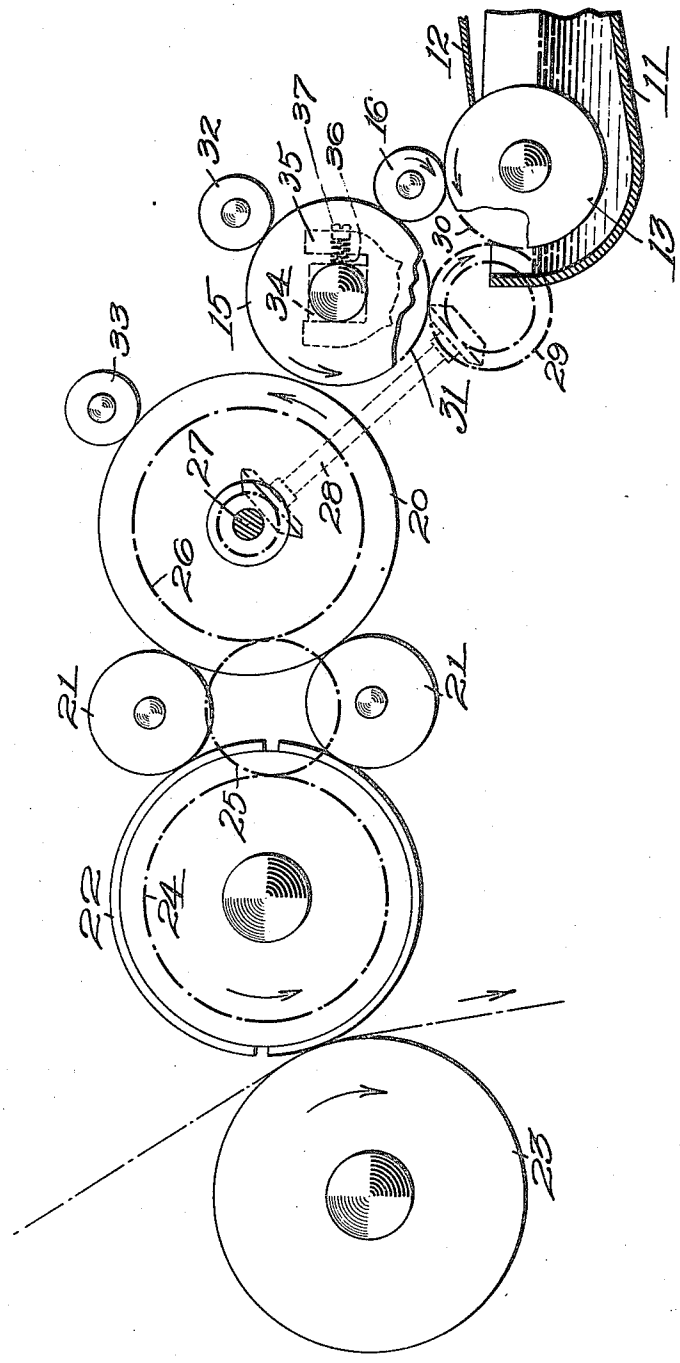
H. A. W. WOOD.

CONTINUOUS INK DISTRIBUTING MECHANISM.

APPLICATION FILED OCT. 9, 1918. RENEWED NOV. 25, 1921.

1,419,189. Patented June 13, 1922.



Witness.
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UNITED STATES PATENT OFFICE.

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CONTINUOUS INK-DISTRIBUTING MECHANISM.

1,419,189. Specification of Letters Patent. Patented June 13, 1922.

Application filed October 9, 1918, Serial No. 257,507. Renewed November 25, 1921. Serial No. 517,810.

To all whom it may concern:

Be it known that I, HENRY A. WISE WOOD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Continuous Ink-Distributing Mechanism, of which the following is a specification.

This invention relates to an inking mechanism capable of general use, but designed especially for high speed rotary web presses suitable for newspaper work.

The principal objects of the invention are to provide simple means for supplying ink from a fountain roll running at low speed to a printing cylinder running at high speeds that will permit a great increase in the speed of the press; to reduce the number of composition rolls employed; to avoid the employment of a ductor roller, and to improve the distribution of ink by spreading it more thoroughly than is done in the present practice even with lower speed presses.

These objects are accomplished according to this invention by means which permits the ink to be delivered continuously and uninterruptedly from the fountain all the way to the printing cylinder by eliminating entirely the ordinary reciprocating ductor motion and the unevenness due to the distribution of a daub of ink thereby which has to be smoothed out by a series of rolling operations. By this mechanism the distribution of the ink is rendered more uniform than is the case with the ordinary oscillating ductor motion and the durability of the most delicate part of the inking mechanism is greatly increased. One other important result is that there is virtually no difference in the color of a series of impressions, that is, there is not a surplus of ink at first and a deficiency later.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing which is a side view of an inking mechanism constructed in accordance with this invention.

It is understood, of course, that the speed of the fountain roll is necessarily slow. The press speed is much greater and in order to transfer ink from one to the other, vibratory ductor rolls have usually been employed contacting first with a slowly moving surface and then with a rapidly moving one. The recent great increase in web press speed has accentuated some of the disadvantages of this system. According to this invention I overcome the difficulties with this type of ink distribution by building the machine in two complete units, one operating at the surface speed of the fountain roll, and the other at web speed, each acting to receive and deliver constantly a uniform film of ink and to work it over and refine it.

The invention is shown as applied to a rotary web printing press having a frame on which is supported an ink fountain 11. This fountain contains the usual blade 12 for the adjustment of the ink supply, and the fountain roll 13 running continuously at a surface speed which is comparatively slow.

According to this invention, I have provided a distributing cylinder 15 which, as will be explained later, runs at the same surface speed as the fountain roll and in the same direction circumferentially, that is their adjacent surfaces run in opposite directions. They do not touch, however, but between them is located a composition roller 16 which constitutes a transfer roller to transfer the ink from the fountain roll 13 to the distributing cylinder 15. It is mounted in stationary bearings and rotates freely therein by its surface contact with 13 and 15. This part of the mechanism constitutes a complete ink working and transferring unit.

The ink is picked up from the cylinder 15 by the distributing and pick-up cylinder 20, which is mounted in such position as to contact with the ink on the distributing cylinder 15 but not necessarily with the cylinder 15 itself. It is shown as rotating in the same direction circumferentially as the cylinder 15, that is in the opposite direction at their adjacent surfaces. It is provided with two form rolls 21 as usual which ink the plate cylinder 22, the usual impression cylinder 23 being indicated.

The plate cylinder 22 is driven positively as usual and it is provided with a gear 24 which meshes with a gear 25 in turn driving a gear 26 on the shaft of the cylinder 20 so as to drive that cylinder at the same surface speed as the plate cylinder, the form rollers rotating freely as is common. A gear 29 may be driven conveniently from a shaft 27 on which the cylinder 20 and gear 26 are fixed by means of a shaft 28 and appropriate

gearing. The rolls or cylinders 13 and 15 are geared together by two gears 30 and 31 fixed on their respective shafts, and the intermediate gear 29 meshing with both of said gears.

It will be seen therefore that this mechanism constitutes two separate units, the plate cylinder, form rolls and distributing cylinder 20 rotating at web speed, and the latter cylinder taking ink from the distributing cylinder 15 which with the composition roller 16 rotates at the same surface speed as the fountain roll 13.

The roll 16 is of a soft composition and need be the only soft roll employed between the fountain roll and the form rolls unless additional composition rolls are located about the two cylinders 15 or 20 to increase the fineness with which the ink is spread out on their surfaces. Two such composition rolls are indicated at 32 and 33, but it will be understood that any desired number can be employed.

I have provided an emergency release between the cylinders 15 and 20 by mounting one of them as 15 in bearings 34 set in open jaws 35 wide enough so that in case of a choke of paper between the two cylinders this cylinder will be capable of giving a little without damage. Springs 36 are provided to return it into position automatically after the obstruction passes through or is removed. Adjustment is secured by screws 37 co-operating with this spring release to regulate the distance through which the springs 36 can force the cylinder 15 toward the cylinder 20 so as to control the thickness of the film of ink removed.

In this way it will be seen that means is provided by which without unduly speeding up the fountain roll, a printing press running at very high velocity can be supplied with a constant and uniform film of ink, avoiding the usual changes in color due to the ordinary reciprocating ductor rolls, and constituting a practical construction for operation at high speeds.

Although I have illustrated and described only a single form of the invention, I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to all the details of construction herein shown and described, but what I do claim is:—

1. In an inking mechanism, the combination with a fountain roll and an ink distributing cylinder for taking ink therefrom geared together to run at the same surface speed, of a pick-up and distributing cylinder rotatable at a materially higher surface velocity than said distributing cylinder, located near enough to its surface to take ink directly therfrom, and running in the opposite direction at their contiguous surfaces, one of said cylinders having a yielding emergency release.

2. In an inking mechanism, the combination with a fountain roll, an ink distributing cylinder for taking ink therefrom geared together to run at the same surface speed but not in contact, and a roller contacting with both and free to turn with them, of a pick-up and distributing cylinder rotatable at a materially higher surface velocity than said distributing cylinder and located near enough to its surface to take ink directly therefrom, and form rollers contacting with said pick-up cylinder.

3. In an inking mechanism, the combination of two units running at different surface speeds, one unit comprising a slow running fountain roll and rolls cooperating therewith and all running constantly at the same surface speed for taking the ink therefrom and spreading it out into a uniform condition, and the second unit comprising a pick-up roll running at a high surface speed in position to take ink directly and constantly from one of the cooperating rolls of the first unit and in the opposite direction at its contiguous surface, form rolls, and a plate cylinder, all the elements of the second unit running at web speed at their surfaces.

4. In an inking mechanism for a rotary web press, the combination with an inking unit for applying ink to the form cylinder consisting of rotary ink conveying members running in surface contact and at web speed and comprising a pick-up cylinder, of a unit for supplying ink thereto comprising a fountain, a fountain roll therein, a composition roll in direct contact with said fountain roll, a distributing cylinder in direct contact with the composition roller, and means for positively driving the fountain roll and distributing cylinder at the same slow surface speed and thereby driving the composition roller at the same speed, the pick-up cylinder being located in position to take ink from, but not actually to touch the surface of, the distributing cylinder.

In testimony whereof I have hereunto affixed my signature.

HENRY A. WISE WOOD.