

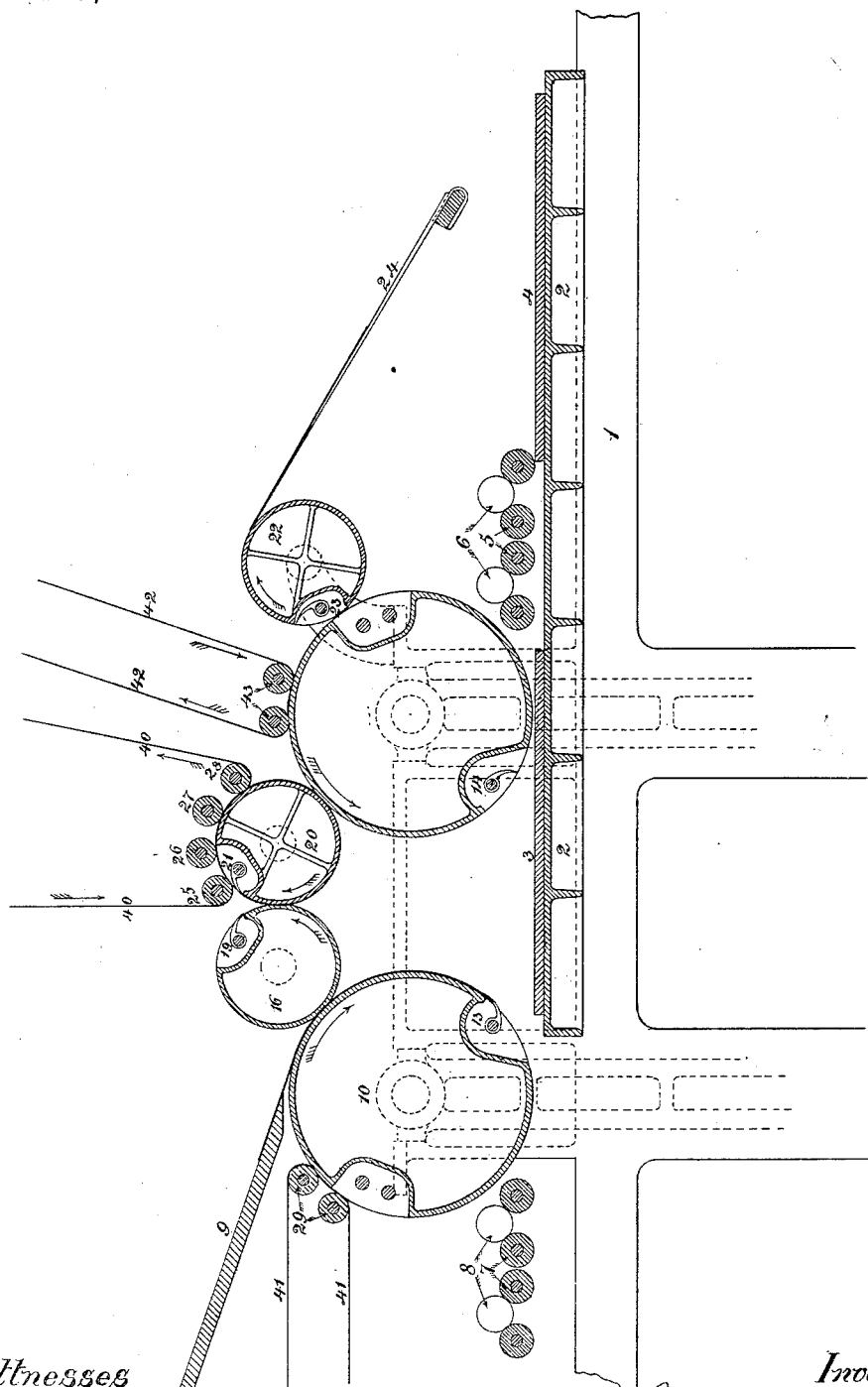
(No Model.)

J. T. HAWKINS.

MEANS FOR PREVENTING OFF-SET IN PERFECTING PRINTING MACHINES.

No. 419,017.

Patented Jan. 7, 1890.



Witnesses

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JOHN T. HAWKINS, OF TAUNTON, MASSACHUSETTS.

MEANS FOR PREVENTING OFFSET IN PERFECTING PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 419,017, dated January 7, 1890.

Application filed March 28, 1889. Serial No. 305,193. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. HAWKINS, of Taunton, in the county of Bristol and State of Massachusetts, have invented new and useful Means for Preventing Offset in Perfecting Printing-Machines Printing from Flat Forms, which invention is fully set forth and illustrated in the following specification and accompanying drawing.

The object of this invention is to provide a perfecting printing-machine printing from two flat forms, with, or to adapt the same to receive, an apparatus for preventing offset of the ink from the freshly first-printed sides of the sheets upon the second impression-cylinder by the means shown in my pending application, Serial No. 305,189, herewith filed.

The invention will first be described in detail, and then particularly set forth in the claims.

The accompanying drawing shows in vertical section so much of a flat-bed perfecting printing-machine as is necessary to fully illustrate this invention.

In said drawing the several parts are indicated by reference-numbers, as follows:

1 indicates one of the main frames of the machine; 2, the type-bed carrying two forms 3 and 4, 3 printing the first and 4 the second side of the sheet.

5 indicate ink-rollers and 6 the distributing-rollers for form 4, and 7 the ink-rollers and 8 the distributing-rollers for form 3. By suitable mechanism in any of the well-known ways the rollers 7 and 8 are raised at the proper time to clear the form 4, as shown, and, similarly, rollers 5 and 6 are raised to clear form 3.

9 indicates the feed-board, 10 the first impression-cylinder, and 11 the second impression-cylinder, each cylinder geared in any of the well-known ways to the bed-reciprocating mechanism, so as to make two revolutions for each impression, and also by any of the well-known methods arranged to rise and lower alternately to escape the forms on the non-printing revolution and to be held in contact therewith on the printing revolution.

13 and 14 indicate the grippers, respectively, of cylinders 10 and 11.

The transfer-cylinder 16, carrying grippers 19, takes the sheets from the grippers of im-

pression-cylinder 10 and transfers them to the similar transfer-cylinder 20.

The transfer-cylinder 20, carrying grippers 21, is half the diameter of the impression-cylinders 10 and 11 and makes four revolutions to each sheet printed, receiving the sheets from the transfer-cylinder 16 and transferring them to the impression-cylinder 11, carrying each sheet four times around it after receiving the sheet from the transfer-cylinder 16 and before transferring it to the impression-cylinder 11.

The transfer or delivery cylinder 22, carrying grippers 23, receives the sheets from the impression-cylinder 11. A well-known oscillating fly 24 receives the sheets from the transfer or delivery cylinder 22 and delivers them upon a receiving-table. (Not shown.)

The impression-cylinders 10 and 11, the transfer-cylinder 16, and transfer-cylinders 20 and 22 are all geared together by proper spur-gears on their respective axes, meshing together at the lines of contact of the several cylinders, these gears being omitted as being unnecessary to illustrate this invention, and as well understood in the art in such constructions. Each of the two impression-cylinders 10 and 11 makes two, and the transfer-cylinders 16, 20, and 22 each makes four revolutions to each sheet printed.

A continuous web 40, of absorbent material, preferably paper, runs in contact with the transfer-cylinder 20 and the second impression-cylinder 11. A series of elastic-surfaced rollers or cylinders 25 26 27 28 is arranged to run on and press the web 40 into close contact with the freshly first-printed side of each sheet. Similar rollers 43 are arranged to press a similar absorbent web 42 into contact with the tympan-surface of the second impression-cylinder. An absorbent web 41, similar to web 40, runs in contact with the first impression-cylinder 10 or the sheets upon it. The webs 40, 41, and 42 are led off to any convenient place, so as to be fed each from one and be received upon another roll in any of the well-known ways, or they may be led over leading-rollers as endless webs.

Flat-form perfecting-presses may be required to perfect a common order of printing—such as almanac-printing, advertising-pamphlets, &c.—in which case the applica-

tion of the web 41 to the first-printed sides of the sheets as they pass on the first impression-cylinder, after being printed on their first sides, will be sufficient. For a higher class of work—such as illustrated newspapers—the web 40, running over the sheets on transfer-cylinder 20, alone may be added, and for the highest grades of illustrated book-work the web 42 may also be used to pass in contact with the tympan-surface of the second impression-cylinder.

The operation of the machine is as follows: The sheet is fed to the grippers 13 of the impression-cylinder 10 from the feed-board 9 in the usual way, is thence carried around cylinder 10, printed on its first side, run under and in contact with the absorbent web 41, thence transferred to cylinder 16, thence to cylinder 20, is then carried four times around cylinder 20, each time in contact with the absorbent web 40, is then transferred to impression-cylinder 11 and printed on its second side. Thence it is transferred to cylinder 22 and thence upon the fly 24, or to any other suitable delivery apparatus, the web 41 having first run in contact with the printed sides of the sheets on the first impression-cylinder. Then the web 40 is in contact four times with the printed sides of the sheets on the transfer-cylinder 20, and, lastly, the web 42 runs in contact with the tympan-surface of the second impression-cylinder when arranged to use all three absorbent webs.

The mechanism for operating the several sets of grippers has been omitted, as these constructions, being well known in the art, are unnecessary to illustrate this invention.

Having thus fully described my said improvements as of my invention, I claim—

1. In a perfecting printing-machine printing from flat forms, in combination with a transfer-cylinder, as 20, an absorbent web and one or more rollers or cylinders running thereon, placed in the machine so that said absorbent web will be pressed into contact with the first-printed sides of the sheets by said rollers or cylinders while remaining upon the said transfer-cylinder, whereby offset of ink upon the tympan-surface of the second impression-cylinder is reduced or prevented, substantially as set forth.

2. In a perfecting printing-machine printing from flat forms, in combination with an impression-cylinder for printing the first sides of the sheets, and a transfer-cylinder, as 20, an absorbent web and one or more rollers or cylinders running thereon, placed in the machine so that said absorbent web will be pressed into contact with the first-printed sides of the sheets while remaining on the said first impression-cylinder, and an absorb-

ent web and one or more rollers or cylinders running thereon, placed in the machine so that said absorbent web will be pressed into contact with the sheets upon said transfer-cylinder, whereby offset of ink from the first-printed sides of the sheets is received upon said absorbent webs and offset of ink upon the tympan-surface of the second impression-cylinder reduced or prevented, substantially as set forth.

3. In a perfecting printing-machine printing from flat forms, in combination with a second impression-cylinder, an absorbent web and one or more rollers or cylinders running thereon, placed in the machine so that said absorbent web will run upon and be pressed into contact by said rollers or cylinders with that part of the tympan-surface of said second impression-cylinder upon which the sheets to be printed do not pass, whereby any deposit of ink-offset thereon from the first-printed sides of the sheets is removed before said tympan-surface again comes into contact with the sheets to be printed and reoffset of ink from said tympan-surface upon the sheets prevented, substantially as set forth.

4. In a perfecting printing-machine printing from flat forms, in combination with the first impression-cylinder, a transfer-cylinder, a second impression-cylinder, an absorbent web and one or more rollers or cylinders running thereon, placed in the machine so that said absorbent web will run upon and be pressed into contact with the sheets upon said first impression-cylinder after being printed on their first sides, and an absorbent web and two or more rollers or cylinders running thereon, placed in the machine so that said absorbent web will run upon and be pressed into contact with the sheets passing upon said transfer-cylinder, and an absorbent web and one or more rollers placed in the machine so as to run upon and be pressed into contact with that part of the tympan-surface of said second impression-cylinder upon which the sheets to be printed do not pass, whereby superfluous ink is offset from the first-printed sides of the sheets upon said two first absorbent webs, any residue of ink deposited upon the tympan-surface of said second impression-cylinder removed by the third absorbent web from the tympan-surface of the second impression-cylinder before said tympan-surface again comes into contact with the sheets to be printed and reoffset of ink from said tympan-surface upon the sheets prevented, substantially as set forth.

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