

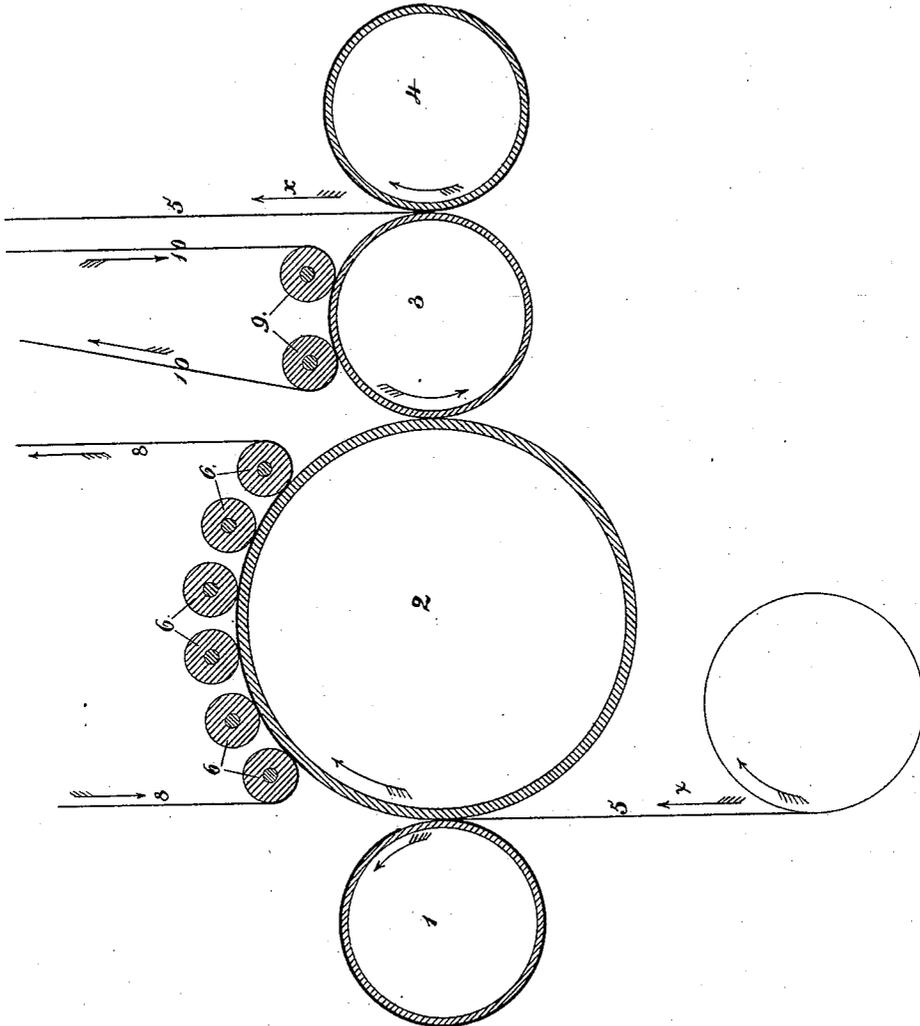
(No Model.)

J. T. HAWKINS.

MEANS FOR PREVENTING OFFSET IN PERFECTING PRINTING MACHINES.

No. 427,318.

Patented May 6, 1890.



Witnesses.

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MEANS FOR PREVENTING OFFSET IN PERFECTING PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 427,318, dated May 6, 1890.

Application filed March 28, 1889. Serial No. 305,189. (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, which invention is fully set forth and illustrated in the following specification and accompanying drawing.

The object of this invention is to avoid in a perfecting printing-machine the offsetting of the ink from the first-printed side of the sheets or web to the second impression cylinder or surface in printing the second side, and its consequent reoffsetting from said second impression-surface to the succeeding sheets or web, by removing the superfluous ink from the first-printed side of the sheets or web before reaching the second impression-cylinder, and in certain cases to combine with the means for the removal of the superfluous ink from the first-printed side of the sheets or web additional means for the removal from the tympan-surface of the second impression-cylinder of any slight residue of superfluous ink that may not be removed from the sheets or web by the first-named means, but become deposited upon said second impression-cylinder.

In perfecting printing-machines printing from relief forms two impression-cylinders or impression-surfaces must be used, and in printing the second side the newly-printed first side comes in contact with the second impression cylinder or surface. This surface is provided with an outer covering, generally known in the art as the "tympan," and in the continuous or repeated contact of the freshly-printed first side of the web or sheets with this tympan the latter soon becomes soiled by the offsetting of the ink from the sheets or web, so much so that it finally arrives at such a soiled condition as to reoffset back upon the sheets or web, and thus mar the work. For these reasons it has been hitherto found difficult or impracticable to do very fine printing by the perfecting method, although many plans have been suggested for overcoming the above-mentioned difficulty.

My invention consists in the application of an absorbent web or webs, such as hereinafter described, running and pressed into con-

tact with the first-printed side of the sheet or web being printed, which will sufficiently remove the superfluous ink from the first-printed side of the paper to prevent offset upon the second impression-cylinder before entering upon the second impression-cylinder, or for some kinds of work the same means in combination with additional means for removing any slight residue which may accumulate upon the second impression-cylinder by applying a similar absorbent web to the tympan or impression surface of the second impression-cylinder also, without running said absorbent web through the second impression with the web or sheets to be printed.

The means employed to remove the superfluous ink from the first-printed side of the sheets or web, or any residue which may be deposited upon the tympan-surface of the second impression-cylinder, consist of a web or webs of absorbent material, preferably paper, and said web or webs may each be led off to any convenient point, so as to be fed from one and be received upon another roll, or they may be led over leading-rollers and used as endless webs.

It is to be understood that, except for a very small proportion of peculiar grades of printing, where the disparity of the amount of ink necessary to deposit on certain fractions of the area of sheets to be printed is very great, and for certain qualities of paper, the application of the apparatus herein described to the freshly-printed first side of the sheets or web will sufficiently prevent offset upon the second impression-cylinder, and that any amount of pressure may be given to the rollers in contact with the first-printed side of the sheets or web to cause the ink to be offset from them to the offset-web in the same manner and to the same extent that it would otherwise be offset upon the second impression-cylinder.

The accompanying drawing is a diagrammatic sectional elevation of a well-known arrangement of cylinders in a web-perfecting machine, in which the number 1 indicates the first form-cylinder; 2, the first impression-cylinder; 3, the second impression-cylinder, and 4 the second form-cylinder, 5 being the web to be printed, passing in the direction of the

arrows α . In this arrangement of cylinders, as one means of preventing the offset from the second impression-cylinder to the sheets of the web, it is customary to make impression-cylinder 3 several times larger than impression-cylinder 2 to furnish a more extended surface to blacken, and thus require less frequent renewal of the tympan on the second impression-cylinder.

In my method I preferably make impression-cylinder 2 the larger, so as to expose the sheet or web printed side out as it passes from receiving its first impression, and to the surface so exposed to apply the absorbent web for removing the superfluous ink from the first-printed side. In the application of the absorbent web to the tympan-surface of the second impression-cylinder this cylinder may also be made larger than the form-cylinders, if necessary; but generally a second impression-cylinder of the same size as the form-cylinder will suffice for the application of this absorbent web for the removal of the small residue of ink that would accumulate thereon, in special cases, after the application of the similar absorbent web to the first-printed side.

In the drawing, numbers 6 and 9 indicate elastic rollers, such as may be covered with felt or rubber, and 8 indicates a continuous sheet of absorbent material running under roller 6 in contact with the printed side of the sheet. The rollers 9 with the web 10 constitute a similar apparatus applied in a similar manner to the uncovered tympan-surface of the second impression-cylinder 3. The continuous web or webs of absorbent material are to be renewed when soiled beyond further use, and may be used on both sides by reversal. When two absorbent webs are used, each is led to and from rolls at any convenient place, as their lines of direction clearly show in the drawing.

The application of the absorbent web or webs and their pressure-rollers herein described may be made in a perfecting-machine at any convenient place that will permit of sufficient contact with the first-printed sides of the sheets or web before reaching the point of the second impression, or with the tympan-surface of the second impression-cylinder, or both, and said means are applicable to flat bed or other forms of perfecting-machines, whether printing from continuous webs or separate sheets.

I do not claim the use of an offset-web, broadly, nor the same as used to pass with a web or sheets to be printed through the impression for the second side between the first-printed side of the sheet and the impression-cylinder to prevent contact of the first-printed

side with the tympan of the second impression-cylinder, as the same is well known; but As of my invention, I claim—

1. In a perfecting printing-machine, an absorbent web and one or more rollers or cylinders running thereon, the said absorbent web placed in the machine so as to run upon and be pressed into contact with the first-printed side of the web or sheets by said rollers or cylinders before being printed on their second sides, whereby superfluous ink will be offset upon said absorbent web and offset of ink upon the tympan-surface of the second impression-cylinder be prevented, substantially as set forth.

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

3. In a perfecting printing-machine, an absorbent web and one or more rollers or cylinders running thereon, the said absorbent web being placed in the machine so as to run on and be pressed into contact with the first-printed side of the web or sheets by the said rollers or cylinders before being printed on their second sides, in combination with a similar absorbent web and rollers placed so that said web shall run upon and be pressed into contact by said rollers or cylinders with that part of the tympan-surface of the second impression-cylinder upon which the sheets or web to be printed does not pass, whereby superfluous ink will be offset from the first-printed side upon the first absorbent web, and any residue deposited upon the tympan-surface of the second impression-cylinder in printing the second side will be removed by the other absorbent web before said tympan-surface comes again in contact with the sheets or web to be printed, and reoffset of ink from the tympan of the second impression-cylinder thus prevented, substantially as set forth.

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Witnesses:

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