

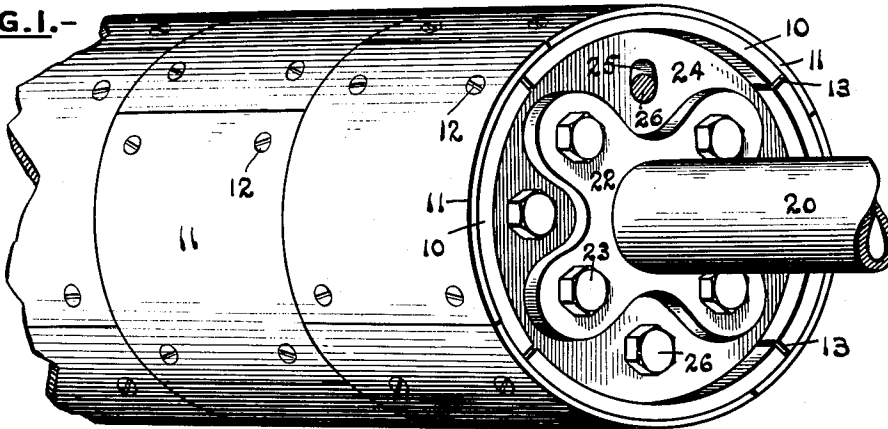
R. HOE.
 WEB CONTROLLING DEVICE FOR PRINTING MACHINES.
 APPLICATION FILED MAR. 30, 1912.

1,085,908.

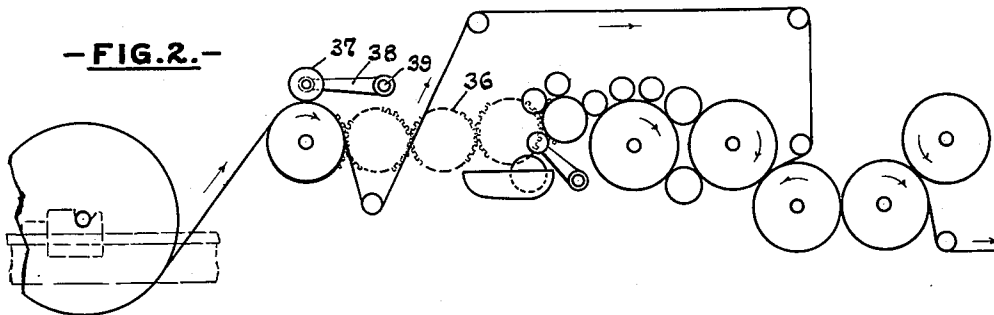
Patented Feb. 3, 1914.

2 SHEETS—SHEET 1.

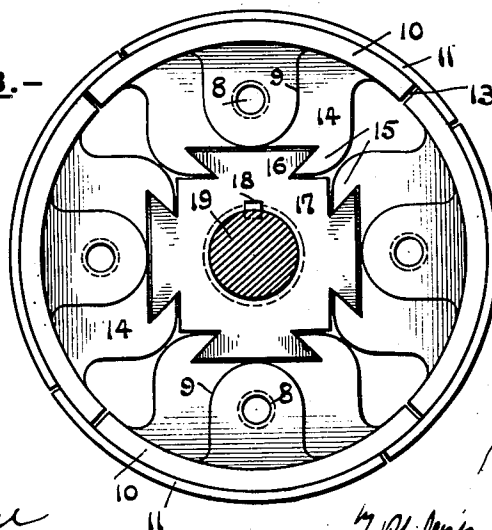
-FIG. 1.-



-FIG. 2.-



-FIG. 3.-



WITNESSES.

R. White
 S. E. Brown

INVENTOR.

Robert Hoe

by Philip P. Sawyer, Rice & Kennedy

ATT'YS.

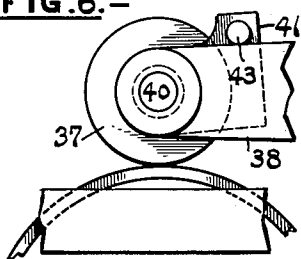
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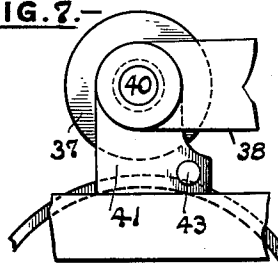
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2 SHEETS—SHEET 2.

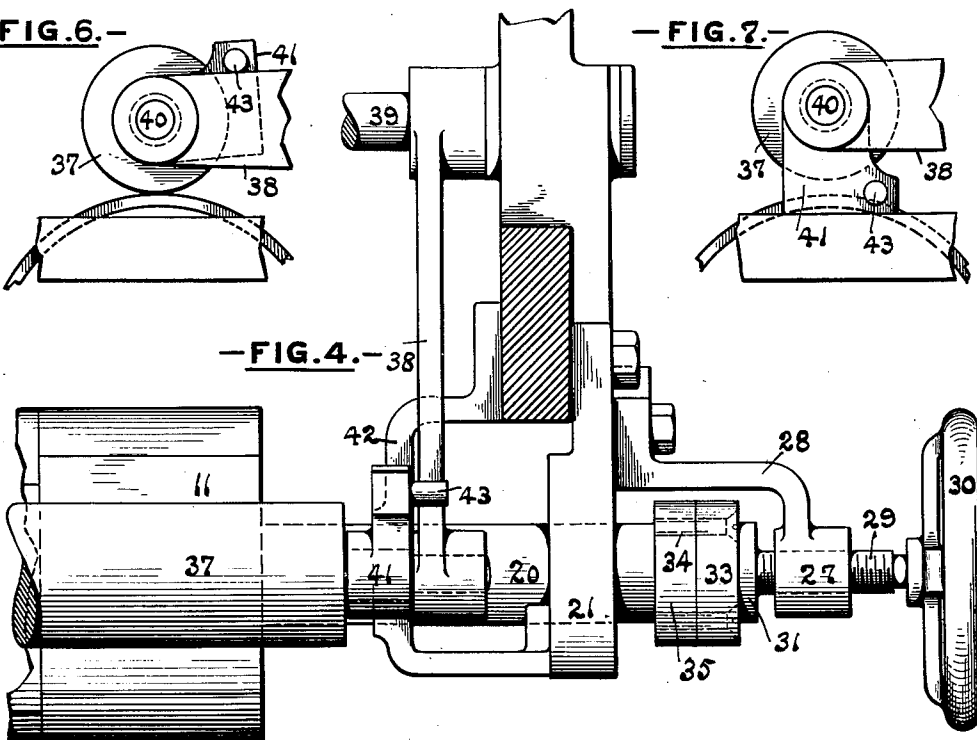
—FIG. 6.—



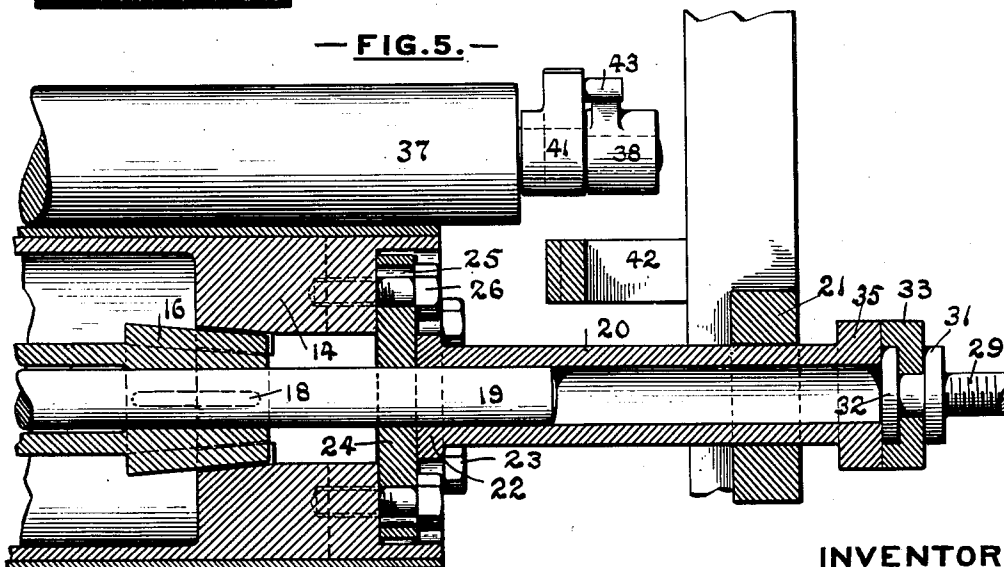
—FIG. 7.—



—FIG. 4.—



—FIG. 5.—



WITNESSES.

G. White
 J. E. Brown.

INVENTOR.

Robert Hoe
 by Philipp Langm. Richter
 ATTYS.

UNITED STATES PATENT OFFICE.

ROBERT HOE, OF NEW YORK, N. Y.

WEB-CONTROLLING DEVICE FOR PRINTING-MACHINES.

1,085,908.

Specification of Letters Patent.

Patented Feb. 3, 1914.

Application filed March 30, 1912. Serial No. 687,377.

To all whom it may concern:

Be it known that I, ROBERT HOE, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Web-Controlling Devices for Printing-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to web controlling devices for printing machines.

In operating modern high speed printing machines, it is very desirable that the web be controlled so as to move into and through the machine at the surface speed of the printing cylinders. While the surface speed of the cylinders is theoretically determined by the gearing which drives them, and is, therefore, theoretically constant, in actual practice the surface speed varies for various reasons. For instance, when the blanket on the impression cylinder is new the surface speed of the cylinders is greater than when the blanket becomes packed down from wear, the speed varying, of course, with the diminishing size of the blanket.

The present invention has for its object to produce an improved web controlling device by which the movement of the web through the machine may be controlled, so as to correspond with the actual surface speed of the printing cylinders.

With this and other objects not specifically referred to in view, the invention consists in certain constructions and in certain parts, improvements and combinations as will be hereinafter fully described and then specifically pointed out.

Referring to the accompanying drawings—Figure 1 is an end view in perspective of an improved web controlling roll forming part of the invention. Fig. 2 is a diagrammatic view of a web printing machine embodying the invention. Fig. 3 is an end view of the construction shown in Fig. 1 with certain parts removed. Fig. 4 is a plan view illustrating the construction for manipulating the roll, the view also showing a co-operating roll which will usually be employed in connection with the roll illustrated in Fig. 1. Fig. 5 is a front elevation of the construction shown in Fig. 4 but with the controlling roll and part of its operating mechanism illustrated in section. Figs. 6 and 7 are detail views.

Constructions embodying the invention will include a controlling roll over and in contact with the surface of which the web is led, the roll being capacitated to have its diameter increased or diminished, and being so constructed that its variation in diameter may be effected without presenting open joints or seams extending longitudinally across the roll, this being accomplished by constructing the surface of the roll of sections, the surface of each section extending into the field of an adjacent section. While the construction may be varied to cause the surface of each roll section to extend into the field of an adjacent section, in the particular construction illustrated, the roll comprises curved sections 10 each of these sections being provided with curved surface plates 11, the plates being secured to the sections by screws 12 or in any other suitable manner. The sections 10, in the construction illustrated, are co-extensive in length with the roll, and each section carries a plurality of the plates 11. Alternate plates 11 carried by each section are arranged so that their ends lap by the ends of adjacent plates carried by the next succeeding section, the overlapping ends of the plates crossing the joints 13 between successive sections 10, the surface of the roll being thus made up of what may be termed staggered plates.

The construction for varying the position of the sections with respect to the center of the roll and thus increasing or diminishing the diameter of the roll may be varied within wide limits. In the particular construction illustrated, each section 10 is provided with a plurality of inwardly extending blocks 14 provided with undercut lugs 15. These undercut lugs 15 engage undercut projections 16 on blocks 17 which are secured by keys 18, or in any other suitable manner, to the shaft 19 on which the roll is mounted. The engaging surfaces of the lugs 14 and the projections 16 are wedge shaped or tapered, as clearly indicated in Fig. 5, so that if a relative movement be produced between the blocks and projections, the sections of the roll will be moved inward or outward as the case may be.

The relative movement referred to may be accomplished by constructions which vary widely. In the particular construction illustrated, this relative movement is effected by moving the sections, the shaft 19 referred to

and the blocks 17 thereon being held against endwise movement. As illustrated, there is provided a sleeve 20 which surrounds one end of the shaft 19, the other end of the shaft, not shown, being suitably supported in the machine. This sleeve 20 extends through an opening or bearing formed in a bracket 21 secured to the machine frame, and is provided at its inner end with a flange or plate 22, this flange or plate 22 being secured by bolts 23, or in any other suitable manner, to a circular head or plate 24. This plate 24 is provided with slots 25 through which extend screws or bolts 26, these screws being tapped into threaded openings 8 in the blocks 14. The blocks 14 are provided with faced-off projections 9 which form a seat for the plate 24 when the same is in position. A threaded collar 27 is provided, this collar being formed on the end of a bracket 28 secured to the machine frame, and through this collar extends a screw 29 provided with suitable means for turning the same, such as a hand wheel 30. As shown, the screw is provided with two flanged projections 31, 32 engaged by the parts of a split block 33, the parts of this block being secured by screws 34, or in any other suitable manner, to a circular projection 35 on the end of the sleeve before referred to. It is apparent that as the hand wheel is turned, the sections 10 will be moved longitudinally in one direction or the other, and owing to the engagement of the wedge shaped surfaces of the block 14 and projections 16, will be forced toward or away from the shaft 19, so that the diameter of the roll will be increased or diminished. This adjustment of the diameter of the roll obviously may be made while the roll is in motion.

To obtain the best results the expansible roll should be driven and at the theoretical surface speed of the printing cylinders. This may be accomplished in any suitable way, as through any suitable train of gearing. A train of gearing 36 is diagrammatically illustrated in Fig. 3, extending from the inking mechanism to the expansible roll, it being understood that this train in practice will be so proportioned as to give the expansible roll a surface speed corresponding to the theoretical surface speed of the printing cylinders, that is, the speed which the gearing is designed to give the cylinders.

In the best constructions embodying the invention, means will be provided for holding the web against the expansible roll. While these means may be varied, in the construction shown it consists of a roll loosely mounted, so that it may move as the diameter of the expansible roll varies. To obtain the best results the roll should have a soft or yielding surface. In practice, excellent results have been obtained by the use of a roll the surface of which is formed of substan-

tially the composition of which inking rolls are usually made. The loosely mounted roll 37 may be supported in any desired manner. In the particular construction illustrated, it is carried in arms 38 supported on a bar 39 extending across the machine. When the loosely mounted roll described is employed, means should be provided for locking it out of operative position when desired, as, for instance, when the machine is being threaded up. While this may be accomplished in any desired way, as illustrated, it is effected by providing the spindle 40 of the roll with a swinging latch block 41 which coöperates with a bracket 42 carried on the machine frame. The block, in the construction illustrated, is provided with a pin 43 which when the block is swung into inoperative position rests on one of the arms 38 before referred to.

Changes and variations may be made in the construction by which the invention is carried into effect. The invention claimed, therefore, is not to be confined to the particular construction herein described and illustrated in the accompanying drawings.

What is claimed is:—

1. In a rotary web printing machine a web controlling roll made up of sections the surface of each section being divided longitudinally of the roll to form on adjacent sections a plurality of surfaces overlapping transversely to the roll, and means for varying the position of the sections to increase or diminish the diameter of the roll.

2. In a rotary web printing machine and in combination with the cylinders thereof a web controlling roll made up of sections the surface of each section being divided longitudinally of the roll to form on adjacent sections a plurality of surfaces overlapping transversely to the roll, means for driving the roll at a surface speed corresponding with the theoretical surface speed of the cylinders, and means for moving the sections to vary the diameter of the roll in accordance with the variations in surface speed of the cylinders.

3. In a rotary web printing machine and in combination with the cylinders thereof a web controlling roll made up of sections the surface of each section being divided longitudinally of the roll to form on adjacent sections a plurality of surfaces overlapping transversely to the roll, means for driving the roll at a surface speed corresponding with the theoretical surface speed of the cylinders, means for moving the sections to vary the diameter of the roll in accordance with the variations in surface speed of the cylinders, and means for holding the web against the surface of the controlling roll.

4. In a rotary web printing machine and in combination with the cylinders thereof, a web controlling roll made up of sections

the surface of each section extending into the field of an adjacent section, means for driving the roll at the theoretical surface speed of the cylinders, means for varying the diameter of the roll in accordance with the variations in the surface speed of the cylinders, and a loosely mounted roll resting upon the controlling roll and serving to hold the web thereagainst.

5. In a rotary web printing machine and in combination with the cylinders thereof, a web controlling roll made up of sections the surface of each section extending into the field of an adjacent section, means for driving the roll at the theoretical surface speed of the cylinders, means for varying the diameter of the roll in accordance with the variations in the surface speed of the cylinders, and a loosely mounted roll having a yielding surface resting upon the controlling roll and serving to hold the web thereagainst.

6. A web controlling roll for rotary web printing machines comprising a plurality of sections each section carrying a plurality of curved surface plates, plates of one section lapping plates of an adjacent section, and means for moving the sections and plates toward and away from the center of the roll.

7. In a rotary web printing machine, and in combination with the cylinders thereof, a web controlling roll made up of sections each section carrying a plurality of curved surface plates, plates of one section lapping by plates of an adjacent section, a loosely mounted yielding surfaced roll cooperating with the controlling roll, means for driving the controlling roll at the theoretical surface speed of the cylinders, and means for moving the

sections toward and away from the center of the roll.

8. In a rotary web printing machine a web controlling roll made up of sections the surface of each section extending into the field of an adjacent section, means for moving the sections toward and away from the center of the roll, a loosely mounted roll having a yielding surface for holding the web against the controlling roll, and means for locking the loosely mounted roll in inoperative position.

9. In a rotary web printing machine a web controlling roll made up of sections the surface of each section being made up of curved plates, plates of one section lapping by plates of an adjacent section, a yielding surfaced roll cooperating with the controlling roll, a pair of arms in which the yielding surfaced roll is mounted, and a latch block for locking the arms with the roll in inoperative position.

10. In a rotary web printing machine a web controlling roll made up of sections the surface of each section being divided longitudinally of the roll to form on adjacent sections a plurality of surfaces overlapping transversely to the roll, means for driving the controlling roll, a cooperating roll for holding the web against the controlling roll, and means for moving the sections of the controlling roll toward and away from the center of the roll, said means being operable while the roll is in motion.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

ROBERT HOE.

Witnesses:

WM. D. BLACK,
JOHN GRIFFITHS.