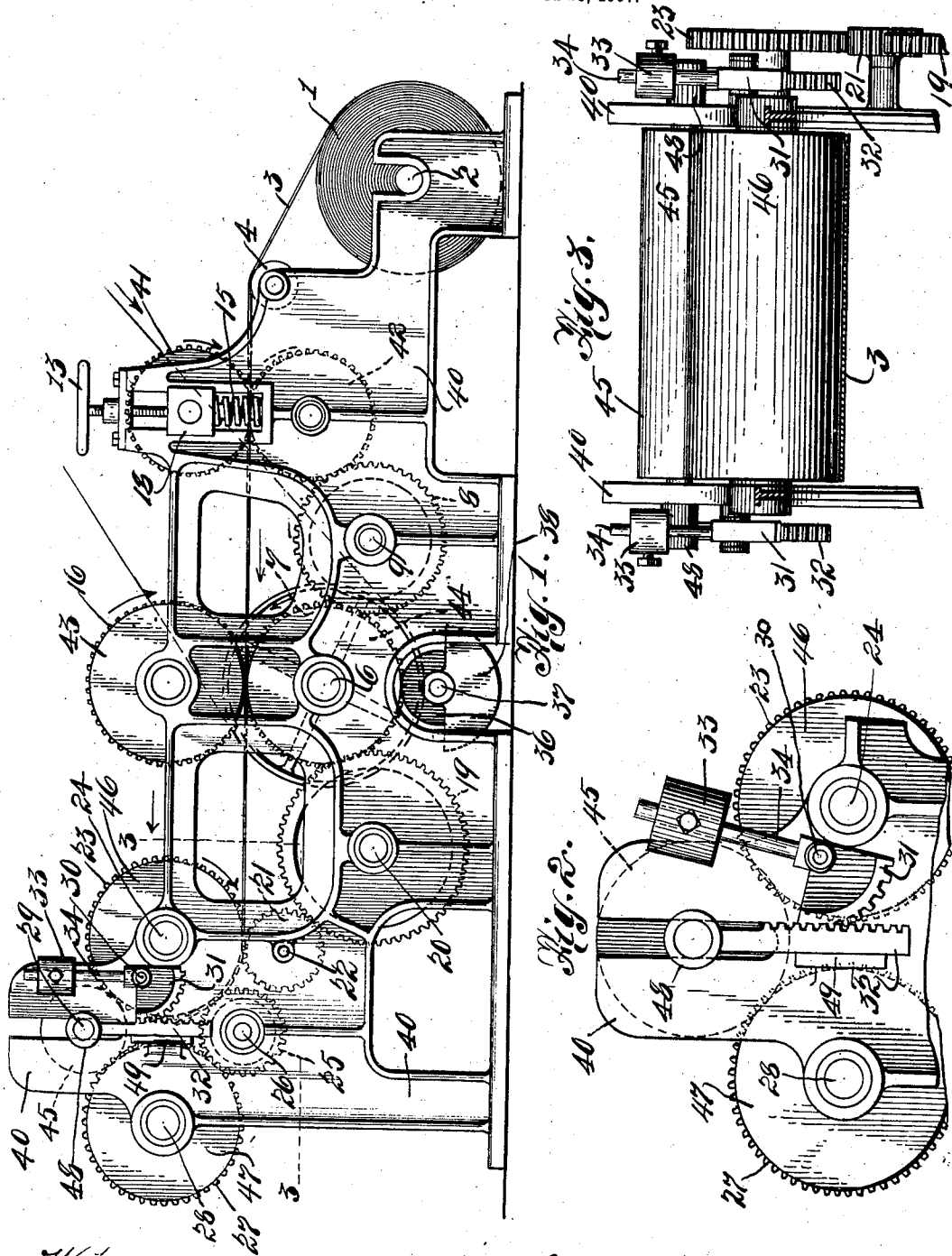


No. 888,974.

PATENTED MAY 26, 1908.

C. E. DULIN.
BAG PRINTING MACHINE.
APPLICATION FILED MAY 28, 1907.



Witnesses:
C. A. Jarvis
A. W. Wright.

Inventor:
Charles E. Dulin
By Emmet R. Maxwell
his Attorney.

UNITED STATES PATENT OFFICE.

CHARLES E. DULIN, OF SANDY HILL, NEW YORK, ASSIGNOR TO THE UNION BAG & PAPER COMPANY, A CORPORATION OF NEW JERSEY.

BAG-PRINTING MACHINE.

No. 888,974.

Specification of Letters Patent.

Patented May 26, 1908.

Application filed May 28, 1907. Serial No. 376,086.

To all whom it may concern:

Be it known that I, CHARLES E. DULIN, a citizen of the United States, residing at Sandy Hill, New York, have invented certain new and useful Improvements in Bag-Printing Machines, of which the following is a clear, full, and exact description.

The object of this invention is to improve the registration of the printing mechanism of web printing bag machines.

In carrying out the invention I provide means for drawing the paper from the web and forcing it to and towards the printing cylinder from a positive feeding mechanism, generally a pair of rolls running at the same speed as the printing rolls. I do not allow the web to receive any material tension at any other point in its transit through the machine, and thus I secure uniformity of feed to the printing rollers for there is no pull of the paper through them. In order to secure this result I may make use of a frictionally driven winding roll provided with means tending to compensate for increased friction as the load increases. I prefer to accomplish this purpose by supplying a counter-weight for the winding roll which will have its moment increased with the increase of the diameter and weight of the winding roll.

The scope of my invention will be pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improvements as applied to a rotary bag printing machine; Fig. 2 is a side elevation of the winding up mechanism; and Fig. 3 is a view on line 3—3 Fig. 1.

As shown on the drawings, the roll 1 of paper to be printed has its shaft 2 mounted in open bearings on the frame 40 and the web 3 travels therefrom over an idler roll 4 mounted in the frame 40 between the feed rolls 41 and 42 from whence it passes to the printing rolls 43 and 44 and thence to the winding up roll 45.

The main drive shaft 6 carries the printing cylinder 44 and a gear 7. The cylinder 44 contacts with the impression surface of the cylinder 43 or rather with the web between the two, and carries the type or printing plate. The cylinder 44 or its plate also contacts with the inking roller 36 mounted on a shaft 37 in a trough 38. This inking mechanism is only shown in a general

way herein. It will be obvious that any form of inking mechanism may be used. The gear 7 meshes with gear 16 to rotate the cylinder 43 with gear 8 on shaft 9, which gear 8 operates the feeding cylinders, and with gear 19 on shaft 20 which operates the winding up mechanism.

The feeding rolls 41 and 42 are shown with 42 mounted in the frame 40 and 41 mounted in journal boxes 18 sliding in the frame and resting against springs 15. A regulable hand wheel 13 is supplied for the journal boxes 18.

The gear 19 on its shaft 20 meshes with pinion 21 on shaft 22, which pinion in turn drives gear 23 of the friction drum 46 in the direction of the arrow Fig. 1. The gear 23 meshes with a pinion 25 on shaft 26, and turns a second friction drum 47 on shaft 28 by engaging its gear 27.

In the angle between the drums 46 and 47 the winding roll 45 lies. It is provided with means for allowing its shaft to move vertically, the shaft 29 being mounted in open bearings in the frame 40. The bearing bushings 48 for the shaft 29 have depending toothed racks 32. The back of the racks 32 rest against a guide block 49. On the frame of the machine to the right of the rack I pivot at 30 a segmental gear 31. Attached to the gear 31 is a lever 34 carrying a counter-weight 33. When there has been little paper wound on the roll 45 the lever 34 is in vertical position and so is inoperative to lift the roll or tend to lift it, but as the wound roll increases in diameter it moves upward, its rack will move the segment gear and the counter-weight will, as the angle of the lever to the vertical increases, tend to turn the segment more and more putting a vertical strain upon the rack in an upward direction and tending to relieve some of the weight of the roll from the drums.

As explained in the forepart of this specification, practically all the tensioning of the web to feed it forward is between the feeding rolls and the roll 1. The paper as it passes through the printing rolls is printed in perfect registration, and as it passes from the printing rolls it is wound without material tension. All that is necessary is, that it shall be wound with such a tension that it will not be drawn through the printing rolls at all by the winding up operation, nor stretched thereby.

What I claim is:—

1. In a machine of the character described,
a main frame, a paper roll mounted at the
rear end of the same, a printing cylinder, a
5 pair of feed rolls located at one side of said
printing cylinder between the same and the
paper roll for feeding a web of paper to said
cylinder, a winding roll mounted at the oppo-
site side of said printing cylinder for receiving
10 the web of paper therefrom, friction drums
in contact with and supporting the weight of
said winding roll, means to drive the same at
a surface speed equal to that of the feed rolls,
and a compensating device for said winding
15 roll to prevent additional friction between
the same and the drums as the paper is
wound on said roll.
2. In a machine of the character described,
a main frame, a paper roll mounted at the
20 rear end of the same, a printing cylinder, a
pair of feed rolls located at one side of said
printing cylinder between the same and the
paper roll for feeding a web of paper to said
cylinder, a winding roll mounted at the oppo-
site side of said printing cylinder for receiving
25 the web of paper therefrom, friction drums
in contact with and supporting the weight of
said winding roll, means to drive the same at
a surface speed equal to that of the feed rolls,
and a compensating device for said winding
30 roll to prevent additional friction between
the same and the drums as the paper is
wound on said roll, comprising a tooth rack
carried by said winding roll, a tooth sector
35 pivoted on said main frame in engagement
therewith, and a weighted arm carried by
said sector.

Signed at Sandy Hill, N. Y., this 25th day
of May 1907.

CHARLES E. DULIN.

Witnesses:

A. A. GATES,

HENRY A. WHITE.