

H. H. JACOBUS.
WEB FEEDING DEVICE.

(Application filed Sept. 8, 1899.)

(No Model.)

2 Sheets—Sheet 1.

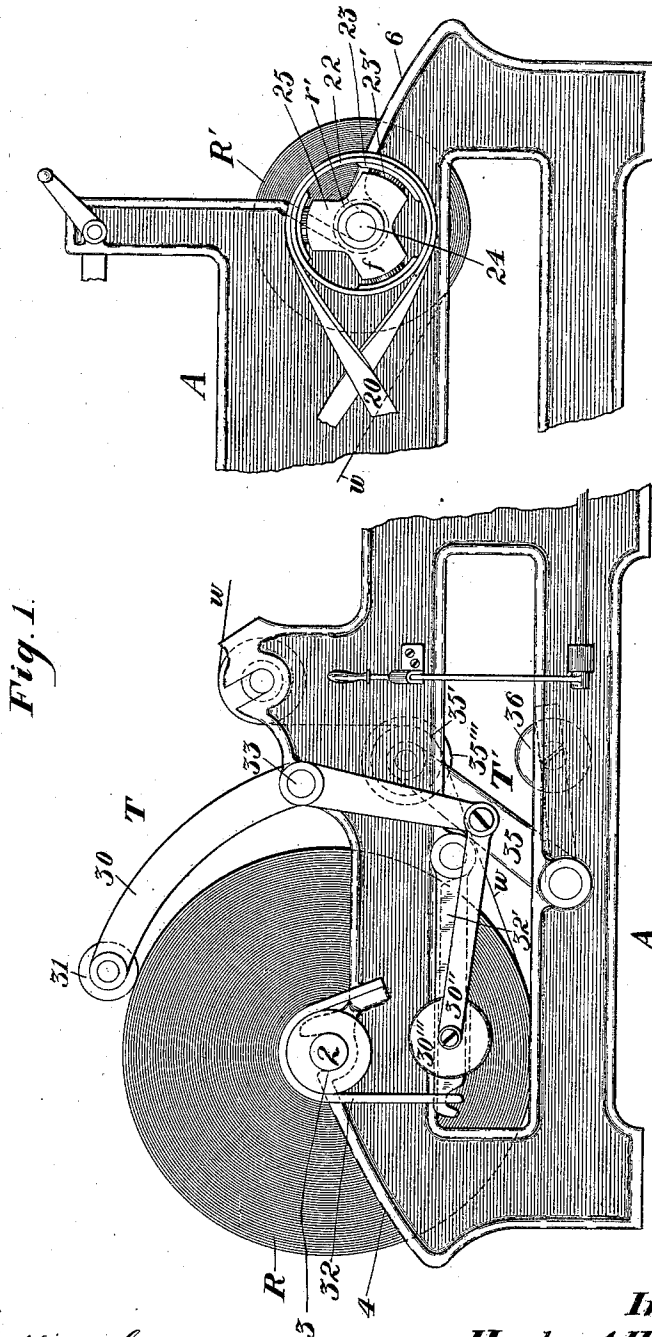


Fig. 1.

Witnesses.

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By his Attorney

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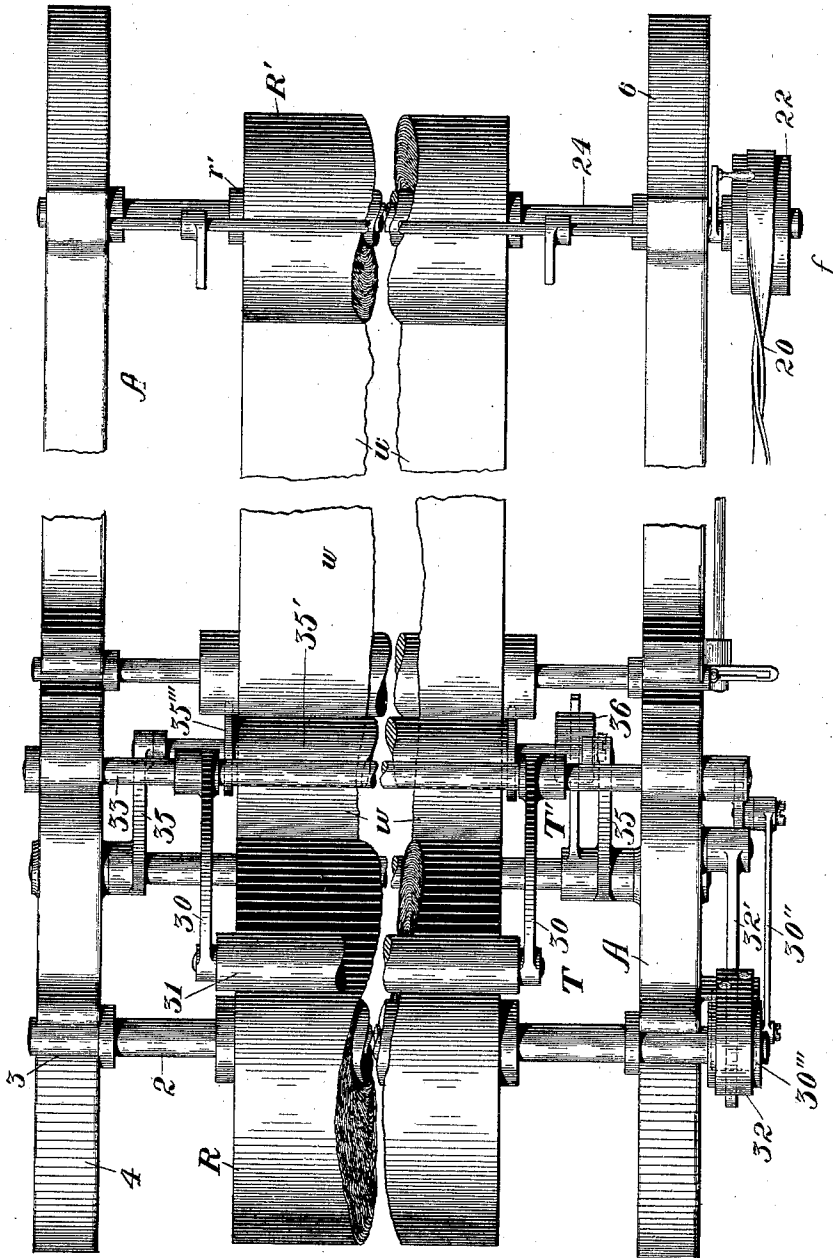
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2 Sheets—Sheet 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

HERBERT H. JACOBUS, OF CEDAR GROVE, NEW JERSEY.

WEB-FEEDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 652,114, dated June 19, 1900.

Original application filed October 5, 1898, Serial No. 692,711. Divided and this application filed September 8, 1899. Serial No. 729,799. (No model.)

To all whom it may concern:

Be it known that I, HERBERT H. JACOBUS, a citizen of the United States, residing in Cedar Grove, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Web-Feeding Devices, of which the following is a specification, this application being a division of the original application filed October 5, 1898, Serial No. 692,711.

This invention relates to improvements in web-feeding devices for printing-presses and analogous machines; and it has for its main object the provision of means for controlling with greater certainty than heretofore the unwinding of the web from the usual paper-roll in general use in this art. For the purpose of accomplishing this result I make use of a device by means of which a variable resistance may be opposed to the roll during the unwinding of the paper therefrom in order to prevent any slacking up of the web during the feeding thereof. This retarding action is intended to be controlled directly by and from the paper-roll and will be governed by the decrease in the diameter of the roll as the latter is unwound. Now it will be obvious that the web is unwound from such a paper-roll gradually and with a substantially-uniform movement, and hence the diameter of the roll will decrease gradually and uniformly, and this gradual and uniform reduction in the size of the roll permits the retarding force applied to the roll to be gradually and uniformly varied or decreased as the roll decreases in size. By employing a retarding device that is responsive to every minute decrease in the diameter of the paper-roll, due to the unwinding of one or more layers of paper therefrom, a very sensitive controlling action results, and the retarding force will at all times remain at a substantially-constant ratio with the force of the moving paper-roll, the retarding force thus automatically adjusting itself to the requirements of the work to be done by it.

In the drawings accompanying and forming part of this specification, Figure 1 is a side elevation, broken in the center, of a portion of a printing-press, illustrating my improved web-feeding devices applied thereto.

Fig. 2 is a plan of the same, broken in the center, both longitudinally and transversely.

Similar characters of reference designate like parts in both figures of the drawings.

Any suitable framework may be employed for supporting the several operative parts, that illustrated herein embodying two heavy side frames or castings, such as A A, suitably connected.

At the left-hand end of the machine the material to be printed will usually be carried in the form of a large roll, such as R, suitably supported for rotation, as by a shaft 2. This shaft may be mounted adjustably in a half-bearing, such as 3, open at the upper side and intersected by inclined ways, such as 4, at opposite sides of the framework. The initial ends of these inclined guideways are substantially of the same height from the floor on which the machine is supported as the shaft 2 of the roll, and hence the shaft at its opposite ends may be brought against these inclined guides and the roll easily forced up the incline until the shaft 2 drops into the bearings 3.

Suitable web-feeding means will be employed for advancing the continuous web (indicated herein by *w*) through the machine, and this web-feeding mechanism will generally be driven from the extreme opposite or right-hand end of the machine, at which I will ordinarily locate on a shaft, such as 24, which may be supported in half-bearings similar to those just described and intersected by corresponding inclined guides 6, a rewinding-roller, such as *r'*, on which the printed web may be rewound. In the construction illustrated this rewinding-roller is driven by a belt 20, which runs to the outer member or ring 22 of a driving device, (indicated herein in a general way by *f*.) This ring will encircle in this case a plurality of shoes 23, having their working faces defined by arcs of the same circle, the body portions of these shoes being indicated herein by 23' and being preferably tubular members or arms disposed radially to the axis of the shaft 24, by which they are carried. These members may be supported in radial sockets in a shoe-carrier, such as 25, fixed on the shaft 24. These radial arms 23' of the respective shoes will

work snugly but freely in the sockets, and the shoes should be pressed outward normally by strong springs (not shown) in order to maintain the shoes in driving engagement with the ring 22, except when there is an abnormal pull upon the web due to the increase in size of the roll R' as the printed web is re-wound.

As the roll R is liable to be turned too rapidly unless some means is provided for checking its rotation, I prefer to employ a retarding device, such as that indicated in a general way by T, for exerting on the surface of the roll of webbing a constant pressure. As the web is unwound and the roll decreases in size this pressure should decrease, and hence the retarding device indicated herein is constructed to exert upon the roll R such a gradually-decreasing pressure. In this case I prefer to employ a retarding device embodying a counterweighted lever or lever-frame the upper arms of which, as 30, carry a roll 31, while to a lower arm is pivoted a link, such as 30'', which in turn is pivoted to a weight 30''', carried by a lever 32', connected at its free end to a strap 32, passing around the shaft 2, carrying the roll R, this weight being shiftable along the lever 32', so as to exert a decreasing leverage as the web unwinds the roll R, to thereby exert a decreasing pressure upon the roll of webbing through the roller 31. This retarding device may be suitably mounted, as on a rod or shaft 33 carried by the framework.

It will be apparent that as the paper-roll R decreases in diameter the roll 31 will fall gradually, its movement being proportional to the decrease in the diameter of said paper-roll, and as said roll 31 falls the sliding weight 30'' will move along the lever 32', and this

sliding movement of said weight will also be proportional to that of the roll 31 and of the paper-roll R. Hence not only will the retarding action of this device be gradually decreased, but it will be decreased with great precision, and the force exerted will at all times be only as great as and never more than is required to assure the delivery of the web from the roll at a predetermined and substantially-uniform rate of speed and under an accurately-gaged tension, which is kept uniform by means of the sensitive retarding device shown herein.

In connection with the retarding device just described I may also employ a tension device for drawing the web out of a straight line as it is unwound, and for this purpose I have indicated at T' a counterweighted frame, in the supporting-arms 35 of which a guide-roller, such as 35', may be loosely mounted for rotation, this guide-roller preferably having at opposite ends thereof stop-flanges, such as 35'', for positively positioning the web. This tension device or frame may be weighted, as indicated at 36.

Having described my invention, I claim—

The combination, with a rotary roll containing a web, and with means for supporting the roll and rotating the same to feed the web therefrom, of an angle-lever in contact at one of its ends with said web and adapted to press against the same and connected at its other end to a weight shiftable to exert a decreasing leverage as the web unrolls, to thereby exert a gradually-decreasing pressure upon the roll.

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Witnesses:

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