

W. W. HOWE.
TENSION REGULATING DEVICE FOR WEB PRESSES.
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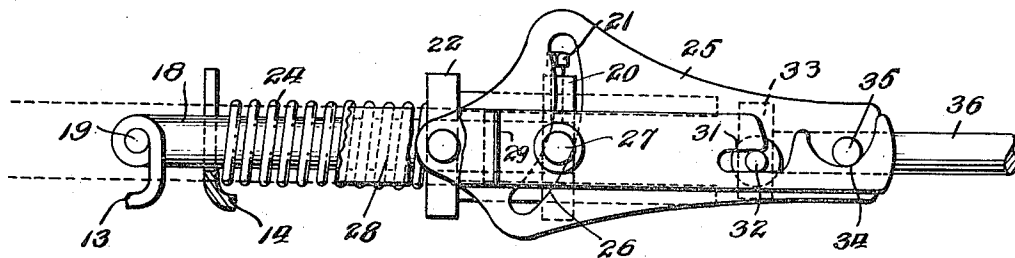
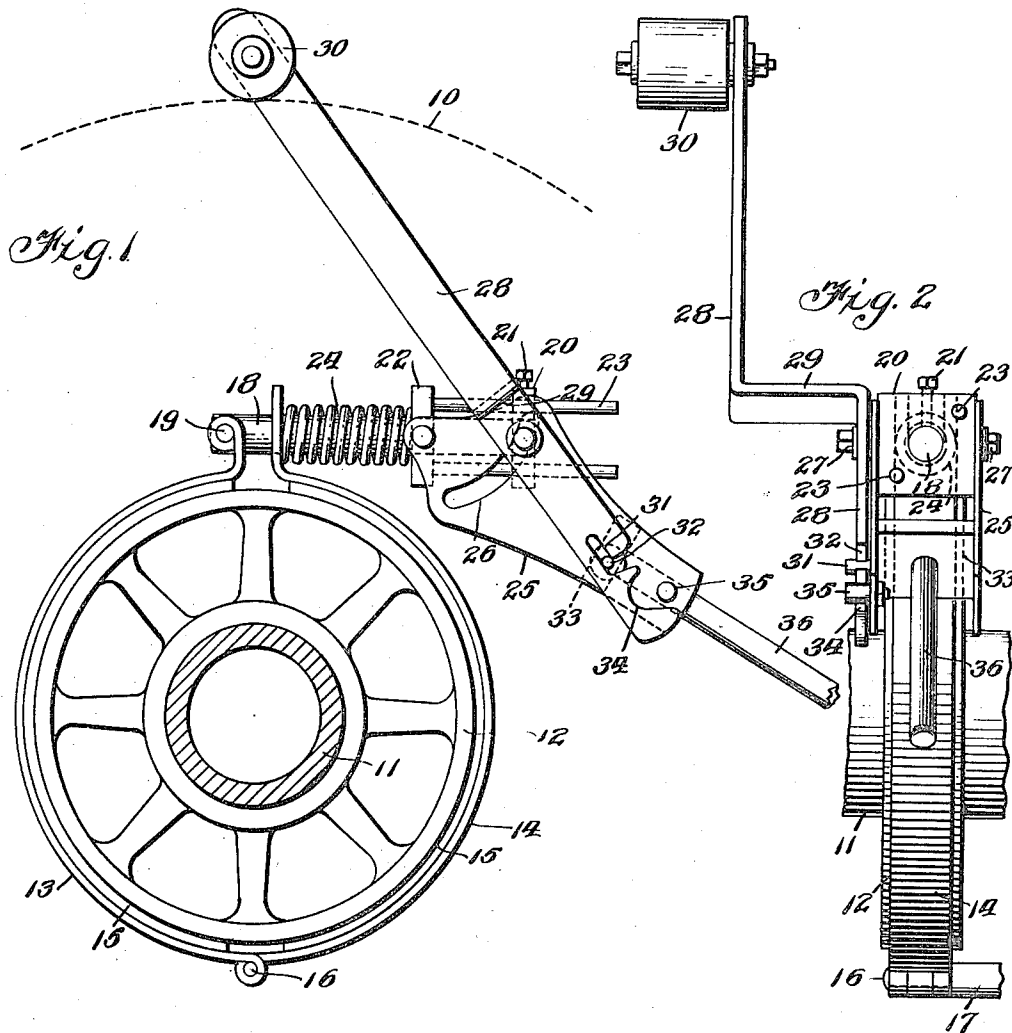


Fig. 3.

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TENSION-REGULATING DEVICE FOR WEB-PRESSES.

1,963,263.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTER W. HOWE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Tension-Regulating Devices for Web-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to tension devices for web printing presses and has for an object to provide a uniform tension controlled by the roll of paper.

An object of my invention is to provide a means whereby the tension on a web is the same with a small roll of paper as with a large.

A further object of my invention is to provide a device which when the diameter of the roll of paper decreases the resistance offered on the shaft of said roll of paper decreases so as to maintain a uniform tension of the web.

Further objects will be apparent from the following specification, appended claims and drawing, in which,

Figure 1 is a side elevation of my device in which the controlling roller is shown as engaging the periphery of a large roll of paper, Fig. 2 is an end elevation thereof, and, Fig. 3 is an enlarged side elevation of the device with the controlling roller swung toward the center of the roll of paper.

In printing presses in order to avoid repeated adjustment for the tension device of the web roller, it is necessary to make some provision whereby an automatic device can vary the frictional engagement of the shaft supporting the roll as the diameter of the roll decreases. To avoid the positive engagement of a brake-band on a brake-wheel a spring may be inserted in the binding elements which spring may be compressed to a greater degree when the diameter of the roll is greater and the compression of which spring may be decreased as the diameter of the roll decreases. It is further necessary that devices used to control the tension of a web must be easily removed for the placing of new rolls of paper and must be easily adjusted after the application of a new roll of paper.

Referring to the drawings the periphery

of a roll of paper is indicated by the dotted line 10 and the shaft or mandrel to receive the paper is indicated by the numeral 11; secured to the shaft 11 is a brake-wheel 12 which is frictionally engaged by the brake-bands 13 and 14 which are provided with the usual liners 15. The members 13 and 14 are hinged as at 16 and a pintle of the hinge extends as at 17 and is adapted to be secured to the frame of the press. The upper end of the band 13 is bifurcated to receive a bar 18 which carries a pin 19 supported by the ends of the bar 13 being bent about the pin 19. The band 14 is also bifurcated and receives the bar 18 as shown but the bar 18 is permitted to have freedom of movement through the bifurcated end and the bar may also be swung from the bifurcation to permit the bands 13 and 14 being swung upon the pintle to permit the removal of the shaft 11 and the brake-wheel 12. The bar 18 has a head 20 rigidly secured thereto as by the set screw 21 and a sliding head 22 which is provided with the guides 23 working through apertures in the head 20. A coil spring 24 about the bar 18 is adapted to be compressed between the sliding head 22 and the bifurcated end of the band 14 so that as the compression of the spring is varied the frictional engagement of the bands 13 and 14 on the brake-wheel 12 is also varied. Pivotaly secured to the opposite sides of the head 22 are the slotted plates 25 provided with eccentric slots which slots receive the pins 27 carried by the head 20. One of the pins 27 serves as a fulcrum for a lever 28 which is offset as at 29 and which carries a roller 30 at the end thereof which roller is adapted to bear on the periphery of a roll of paper. The opposite end of the lever 28 is notched as at 31 to receive a pin 32 carried by one of the side plates 25 which pin passes through the side plate and into a head 33 which head is secured between the plates 25. The lever 28 is further notched as at 34 to receive a pin 35 when in the position shown in Fig. 3 of the drawings. The head 33 is provided with a handle 36 to assist in manipulation of the device in its application and removal.

The operation of the device is obvious from the foregoing but briefly the operation may be described as follows: The handle 36 may be swung downwardly from the position shown in Fig 1 which will permit the pin 32 to disengage from the slot 31

whereby the roller 30 may be swung away from the roll of paper and when the lever 28 is swung in this position, the handle 36 may then be raised to the limit of the slot 26 which brings the heads 20 and 22 close together so as to relieve all compression from the spring 24 whereupon the bar 18 with the several parts carried thereby may be swung to release the bands 13 and 14 so that they in turn may be swung from engagement with the brake-wheel 12, the shaft 11 may then be removed and a new roll substituted for the old one. The rearrangement of the several parts is the reverse of the removal and after the roll of paper has been positioned and the several parts rearranged the roller 30 may bear on the periphery of the roll of paper and as the diameter of the roll decreases the distance between the roller 30 and the shaft 11 decreases which causes the lever 28 to swing about the fulcrum 27. As the lever swings about the fulcrum the slot 31 receiving the pin 32 raises the pin which causes the slots 26 in the plates 25 to vary the distance between the heads 20 and 22 which as heretofore stated varies the compression of the spring 24.

Modifications may be made within the scope of the appended claims and I do not restrict myself to the identical form shown which is for illustrative purposes only.

Having thus described my invention, I claim:

1. In a tension regulating device, in combination with a shaft and a roll of paper, shaft engaging means, a bar carried thereby, a slidable member on said bar, a spring between said sliding member and said shaft engaging member, a lever carried by said bar, a roller mounted at the end of said lever adapted to engage the periphery of a roll of paper and said lever moving said slidable member to control the action of the shaft engaging means.

2. In a tension regulating device, in combination with a shaft having a brake-wheel thereon, a roll of paper on said shaft, brake-bands adapted to frictionally engage said brake-wheel, a bar carried by one of said brake-bands, said bar receiving the free end of the other brake-band, a fixed head carried by said bar, a slidable head on said bar between the fixed head and brake-band, a spring between said slidable head and brake-band, a lever fulcrumed on the fixed head and engaging the periphery of a roll

of paper, said lever being swung as the diameter of the roll decreases and said lever operating means for moving said slidable head.

3. In a tension regulating device, in combination with a shaft having a roll of paper and brake-wheel thereon, brake-bands frictionally engaging said brake-wheel, a bar pivoted to one of said brake-bands and receiving the end of the other brake-band, a fixed head on said bar, a slidable head between said fixed head and brake-bands, a spring between said slidable head and brake-bands, plates carried by said slidable head having eccentric slots therein, pins carried by said fixed head passing through said eccentric slots, a lever carried by one of the pins in the fixed head, said lever extending from said pin, to engage the periphery of a roll of paper, a pin carried by one of the plates pivoted to one of said slidable heads and said lever extending from said pivoted pin to engage the said pin carried by one of the plates and means for limiting the movement of the lever in one direction.

4. In a tension regulating device, in combination with a shaft having a roll of paper and a brake-wheel thereon, brake-bands having one end thereof carried by a fixed point and surrounding said brake-wheel to frictionally engage the same, a bar pivoted to one of said brake bands, said bar receiving a bifurcated end of the other brake-band, a fixed head at the end of said bar, a slidable head between said fixed head and the brake-band, a spring between said sliding head and brake-bands, guides carried by said slidable head working through said fixed head, plates pivoted to said slidable head and having eccentric slots therein, pins extending from one of said plates, pins from a fixed head to engage said eccentric slots in the pivoted plates, a lever fulcrumed on one of the pins extending from the fixed head, said lever being adapted to engage the periphery of a roll of paper to one side of the fulcrum point and said lever being slotted and notched to receive the pins carried by one of the side plates, a head between the plates pivoted to said slidable member and a handle extending therefrom.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER W. HOWE.

Witnesses:

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