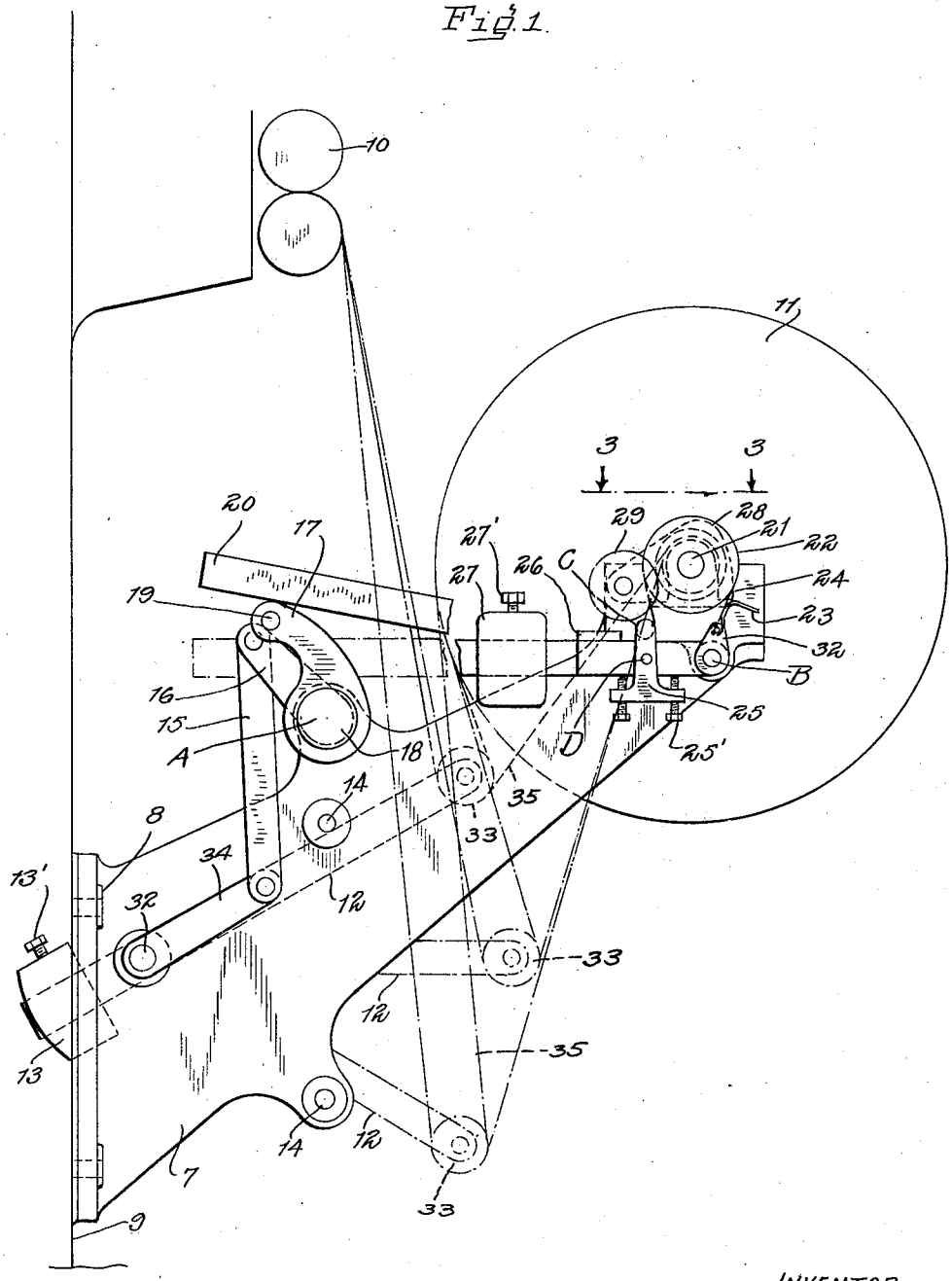
May 24, 1932. R. ARMBRECHT 1,859,577

ATTACHMENT FOR PRINTING PRESSES

Original Filed April 5, 1928 3 Sheets-Sheet 1

Fig. 1.



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Original Filed April 5, 1928 3 Sheets-Sheet 2

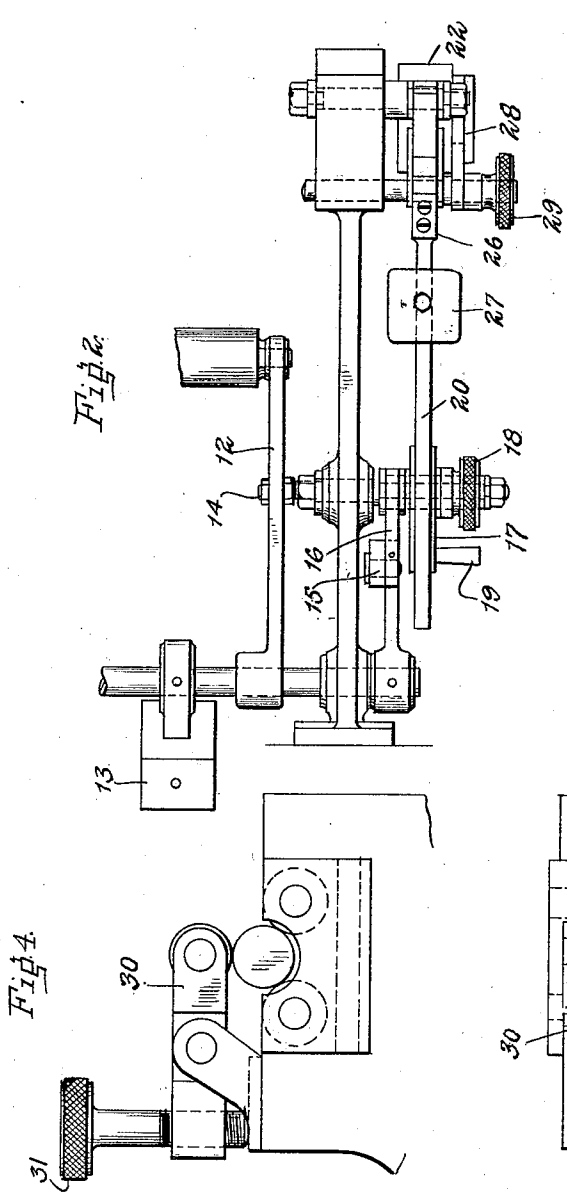


Fig. 2.

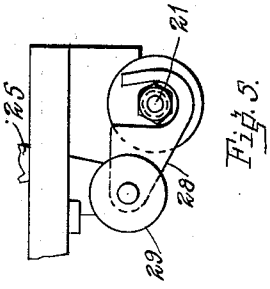


Fig. 5.

Fig. 4.

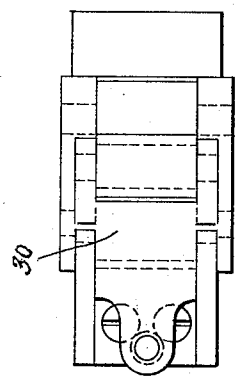


Fig. 3.

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Fig. 6.

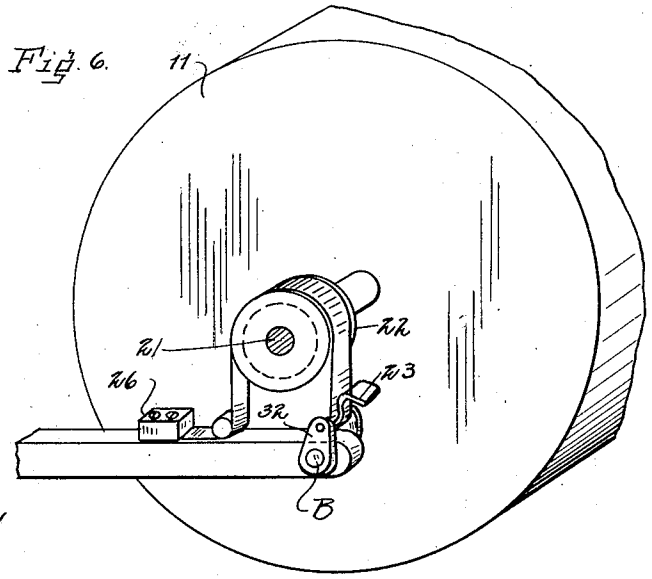
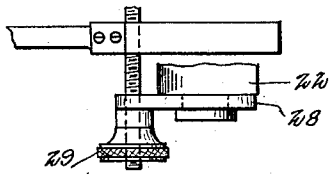


Fig. 7.a



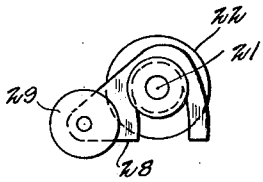
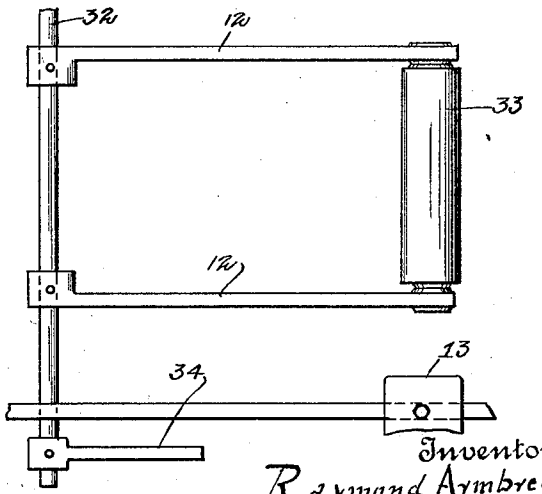


Fig. 7.

Fig. 8.



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1,859,577

UNITED STATES PATENT OFFICE

RAIMUND ARMBRECHT, OF STAPLETON, NEW YORK

ATTACHMENT FOR PRINTING PRESSES

Application filed April 5, 1928, Serial No. 267,630. Renewed October 14, 1931.

This invention relates to improvements in printing presses, particularly to an attachment thereto and it is the principal object of my invention to provide a material unwinding and tensioning device positively preventing a tearing and displacement of the material by allowing the material to be unwound from its roll without jerks and shocks, but with an always equal tension.

Another object of my invention is the provision of a braking device for the material of rotary printing as well as platen printing presses which co-operates with the material feed in such a manner that the material is unwound from its roll at a time when the same is not braked so that no tensioning of the material or stretching of the same takes place during its unwinding process.

A further object of my invention is the provision of an attachment for printing presses for paper as well as for printing on other materials, such as calico, cellophane or the like, which will effectively hold the material taut so that the formation of bulges and running out of register will effectively be avoided.

A still further object of my invention is the provision of an attachment for printing presses of this character which allows a regulation and adjustment of the feed tension of the material as for instance to a minimum of tension for light material and to a maximum with stronger and stiffer material.

Further objects of my invention are the provision of a printing press attachment working at all times uniformly during changes in the material feed, and one which allows an intermittent working from the roll while the unwinding of the material from the roll is continuously effected.

This continuous working from the roll can be effected without the necessity of feeding from a braked roll, while however, at a stopping of the machine no bulging of the material will take place as the same is always kept taut because the material brake will come fully to action after the stop of the machine only, while a pendulum device of the attachment will operate the brake and simultaneously take up all the material unwound from the roll at this time.

My attachment furthermore allows a most convenient and quickest exchange of the material roll under always constant working conditions and without the necessity of new brake adjustments.

It will be clear that this attachment can just as well be used for the tension regulation and braking of material unwound from a roll, as for the tension regulation and braking of material to be wound upon a roll after the function of the printing process for instance.

These and other objects and advantages of my invention will become more fully apparent as the description thereof proceeds and will then be specifically defined in the appended claims.

In the accompanying drawings forming a material part of this disclosure:—

Fig. 1 is a side elevation of a material tensioning and braking device for printing presses, constructed according to my invention.

Fig. 2 is a top view thereof.

Fig. 3 is a top plan view along line 3—3 of Figure 1, with the material roll omitted.

Fig. 4 is an end view thereof.

Fig. 5 is a fragmentary side elevation showing the brake drum engaging hook.

Fig. 6 shows the brake mechanism at the brake drum on an enlarged scale, certain parts of the brake adjusting means shown in Figure 1, being omitted.

Fig. 7 is a detail side elevation illustrating the mechanism allowing a lateral adjustment of the material roll.

Fig. 7[a] is a top plan view thereof.

Fig. 8 is a top elevation of the pendulum arrangement.

As shown, the attachment is arranged upon or carried by a beam 7 or the like attached by means of bolts 8 or similar fastening means to a suitable part of the press or machine frame 9.

This frame carries also above the beam 7 the feed attachment 10 which feeds the material, as for instance the paper on roll 11 by the intermediary of a pendulum device, or

arm generally designated 12, to the printing plate or cylinders or in other words, which feeds the material not directly from the roll 11, so that at the start of the feeding action the material is not pulled suddenly, or jerked off from the roll 11 and a tearing and stretching of the material, as well as shocks during the feeding operation are avoided, a danger which is ever present in the presses equipped with the material feeding devices of the present day in which the uniformity of the feed is always endangered by the necessary acceleration of the heavy mass of the material.

In order to accommodate the device to the tension required by various materials and to allow a change in tension, the pendulum device including a lever on arm 12 is equipped with a counter-weight 13 adjustable along the lever by means of a set screw 13′ or the like, while rubber cushioned stops 14 on suitably selected points of the beam 7 limit the movements of the pendulum. The amplitude of the path of the pendulum is so selected or predetermined that a plurality of material feed actions may take place before it is necessary to unroll a new supply of material from the roll.

Intermediate its ends the pendulum arm 12 has pivotally attached thereto one end of a link 15, the opposite end of which is pivotally secured to a lever arm 16 freely turning on a bushing or bearing A on beam 7. The same bearing carries also freely movable thereon a cam lever 17, and by means of a nut 18 on the stub shaft on which the bearing A is mounted, a firm engagement between arm 16 and cam lever 17 in any of their relative adjusted positions is effected, so that the cam lever 17 is compelled to participate in the movements of arm 16 and pendulum arm 12, as will be evident.

A handle 19 on the cam lever 17 (Fig. 2) allows a regulation of the relative positions of arm 16, and lever 17 upon the release of nut 18.

A band brake lever arm 20 engages cam lever 17 in a substantially U-shaped groove therein, and the shaft 21 for the roll of material 11 carries the drum 22 for a steel brake band 24.

This band 24 is disconnectibly secured on the one hand by means of a hook 23 at the pivot point B of the brake lever 20, and on the other hand also firmly secured by means of a tensioning lever 25 for the brake band and a clamp 26 to the brake lever 20. A sliding weight 27 on said lever 20, adapted to be locked in its adjusted position by means of the set screw 27′, allows a regulation of the breaking ratio.

The tensioning lever 25 which is rotatable about D controls the tension of the brake band 24 by means of the two adjusting screws 25′, and thus allows an adjustment of the brake lever 20 to any desired position under exertion of its full braking force.

The brake drum 22 has a shoulder formed therewith which is adapted to be engaged by a hook 28 so that the shaft 21 and also the material roll 11 is fixed in its relative position with respect to the direction of shaft 21.

The hook 28 is held in position by means of a manually operatable adjusting screw 29 by the proper operation of which a lateral adjustment or displacement of the material roll 11 is effected. The hook is freely suspended and free to swing about the screw 29. The shaft 21 for the material roll 11 is mounted in roller bearings and carries at one end the band brake, while at its other end the shaft is secured in place by means of a roller lever 30. This lever 30 is adjustable by means of a hand screw 31, so that the shaft can be released after the release of the hand screw 31.

The device operates as follows:

In its lowermost position the pendulum lever or arm 12 carries the cam lever 17 into a position in which the band brake lever 20 rests upon the circular part of the same in which it is not lifted by the curved face of the cam. In this position of the parts the band brake will be fully tensioned upon the proper adjustment by the tensioning lever 25. The material roll 11 is now firmly braked. Now as soon as the feed attachment 10 starts to feed the material, it will lift the pendulum arms 12 suspended at their upper ends from a shaft 32 (Fig. 8) and connected at their lower ends by means of a roller 33. This shaft 32 carries also a link 34, the other end of which is connected to link 15, pivotally secured at its other end to lever arm 16 operating the cam lever 17. The material 35 is fed by means of the feed attachment 10 over roller 33, and during the feeding operation the lifting action of the pendulum arms 12 will successively carry the roller 33 and material into the positions indicated in Figure 1 in broken lines thereby lifting through link 24, lever 15 and arm 16 and the cam lever 17, which will thus lift brake lever 20 so that the material roll 11 can now freely rotate as its shaft rests in roller bearings. As the roller 33 of the pendulum operated arms 12 rests on the material, it will exert a certain downwardly directed pull on the same, and the material will be rolled off the roll 11.

During this operation the pendulum arm or lever 12 will again reach its lower position and will return the cam lever into its above stated normal position, and the band brake will again start its braking operation and brake the material roll. This play is always and continuously repeated during the feeding operation, or in accordance with the feed adjustment, if for instance changes in the feed adjustment are made, to a finer feed and the roll of material is continuously un-

winding while the brake through the medium of the pendulum arm 12 regulates the speed of the unwinding action.

The tension of the material can be regulated by means of the proper adjustment of the counter-weight 13 corresponding and according to the texture and stiffness of the material used.

The duration of the intervals during which the material roll is freely rotatable and the duration of the brake action thereon can be regulated by changing the position of the cam lever 17 relatively to the lever arm 16, by the proper manipulation of the hand screw 18, at a ratio limited by the continued braking of the material roll 11 on the one hand and the continued release of the same on the other hand.

In the former case of limitation, the band brake lever 20 will rest upon the circular part of the cam lever 17 during the entire duration of the pendulum or cam oscillation, while in the latter instance the cam lever 17 will be lifted at the lowermost position of the pendulum arm 12, in which the band brake lever 20 already engages the cam part of the cam lever 17 and during the lifting of the pendulum arm 12 the brake will be lifted to a still greater degree.

This regulation by the cam lever allows the right adjustment of the attachment for a slow unwinding as well as for the highest speed feed.

According to its adjustment of the brake weight 27 will allow a regulation of the braking force.

The tensioning lever 25 allows a simple adjustment of the brake lever 20 to a position in which it exerts a full braking action on the band and the brake drum 22, while it simultaneously rests upon the circular end of the cam lever 17 with apparently no braking action.

A lateral adjustment of the material roll 11 is effected by means of the proper manipulation of the hand screw 29 and its hook 28 engaging a guide shoulder on the brake drum. In order to allow such a lateral adjustment, the width of the brake drum 22 is so selected that it can carry the brake band fully also during its lateral displacement.

At one end the shaft 21 of the roll 11 is held in its bearing through the brake while at its opposite end it is held down by means of the roller lever 30.

If it is desired to place a new roll of material into the machine, the handle 19 of the cam lever 17 is gripped with the left hand and the brake lever 20 is lifted, while the hook 23 of the brake band is gripped by the right hand and the brake band 24 is lifted from the brake joint 32. In this manner the shaft 21 is freed from the brake mechanism. Then the lateral adjusting hook 28 is released and the shaft 21 will come free of the lateral adjustment mechanism.

Thereafter the hand screw 31 of the roll lever 30 is loosened and the entire shaft can be removed, while the brake drum 22 remains on a shaft 21 during the exchange of the rollers.

It will be clear that in this manner no loosening of bearing screws, and no change in the brake adjustment will be necessary, and it will be necessary only to replace the shaft 21 with the new roll of material thereon by the same steps as described above only naturally in their reversed order.

If lateral adjustment becomes necessary, it is effected by means of the hand screw 29, and the roll of new material will be placed under the identical brake and tensioning conditions as the old roll.

Having thus described my invention what I claim as new, and desire to secure by Letters Patent is:

1. In a device of the class described, the combination of a material feed including a roll, with a pendulum arm adapted to feed the material gradually and uniformly from said roll, an adjustable weight for allowing a variation in the material tension, rubber cushioned stops for limiting the movements of said pendulum arm, and a cam lever, a link connecting said cam lever to said pendulum to participate in the movements thereof, a handle for allowing a regulation of the relative position of said link to said lever, and a braking means engaging said cam lever and controlled by said pendulum arm for braking the material roll after a stop in the machine operation, said pendulum arm adapted to take up all material unwound from said roll.

2. An attachment for printing presses, including a material roll and feed comprising a pendulum feed for said material including an arm for holding the material unwound from said roll taut, a cam lever, controlled thereby, and a braking device for normally braking said roll controlled from said pendulum arm, said braking device comprising a pivoted brake lever engaging said cam lever, a drum on the shaft of said material roll, a band brake on said drum, a hook connecting said beam with the pivot point of said brake lever, a tensioning lever for the brake band, and a clamp on said brake lever for forming a second connection between brake band and brake lever, and a sliding weight on said brake lever adapted to be locked in any of its adjusted positions thereon for allowing a regulation of the brake ratio.

3. In a printing press attachment of the class described including a paper roll and its shaft, a brake lever, a brake-drum, a brake band on said drum carried by the shaft of said paper roll having a shoulder formed therewith, a tensioning lever for controlling

the tension of said brake band, a link pivotally attached at one end to said lever arm intermediate the ends thereof, a beam attached to the press, a bushing on said beam, an arm freely turning on said bushing to which the other end of said link is secured, a cam lever on said bushing, a nut and handle allowing a locking of said arm and cam lever in any of their relative adjusted positions for compelling said cam lever to participate in the movements of said arm and pendulum lever arm, braking means controlled from said pendulum lever arm, for braking the material roll upon the stopping of the press, the unwound part of the material at this time held taut by said pendulum lever arm, two adjusting screws co-operating with said lever in tensioning said brake-bar, a hook disconnectedly securing said brake band to said brake lever and adapted to engage the shoulder of said drum, a sliding weight on said brake lever adapted to be locked in its adjusted position for allowing a regulation of the braking ratio and a manually operated screw for holding said hook in position and allowing a lateral adjustment of the paper-roll.

4. In a printing press attachment of the class described a material roll, a shaft therefore, a brake, a bearing for one end of said shaft, said brake holding said shaft in its bearing, a bearing for the other end of said shaft, and a roller lever for holding the last named end in its bearing, and a hand screw on said lever for allowing a removal and exchange of the material roll avoiding a change in the brake adjustment.

5. An attachment for printing presses of the character described including a material roll and its shaft comprising a means for allowing an exchange of the material roll and its shaft, said means comprising a cam lever, and a brake lever resting thereon at one end, a handle on said cam lever allowing a lifting of said brake lever, a drum on the shaft of said material roll, a steel brake band on said drum, a hook disconnectedly securing said link to said lever adapted to allow a lifting of said band to give one end of the shaft of the material roll free, a roller lever holding the other end of said material roll shaft in its bearing, and a hand screw allowing the adjustment of said roller lever and a removal of the other end of said material roll shaft, leaving said brake drum on said shaft to avoid changes in the brake adjustment during the exchange of the material roll.

Signed at New York, in the county of New York and State of New York this 3rd day of April A. D. 1928.

RAIMUND ARMBRECHT.