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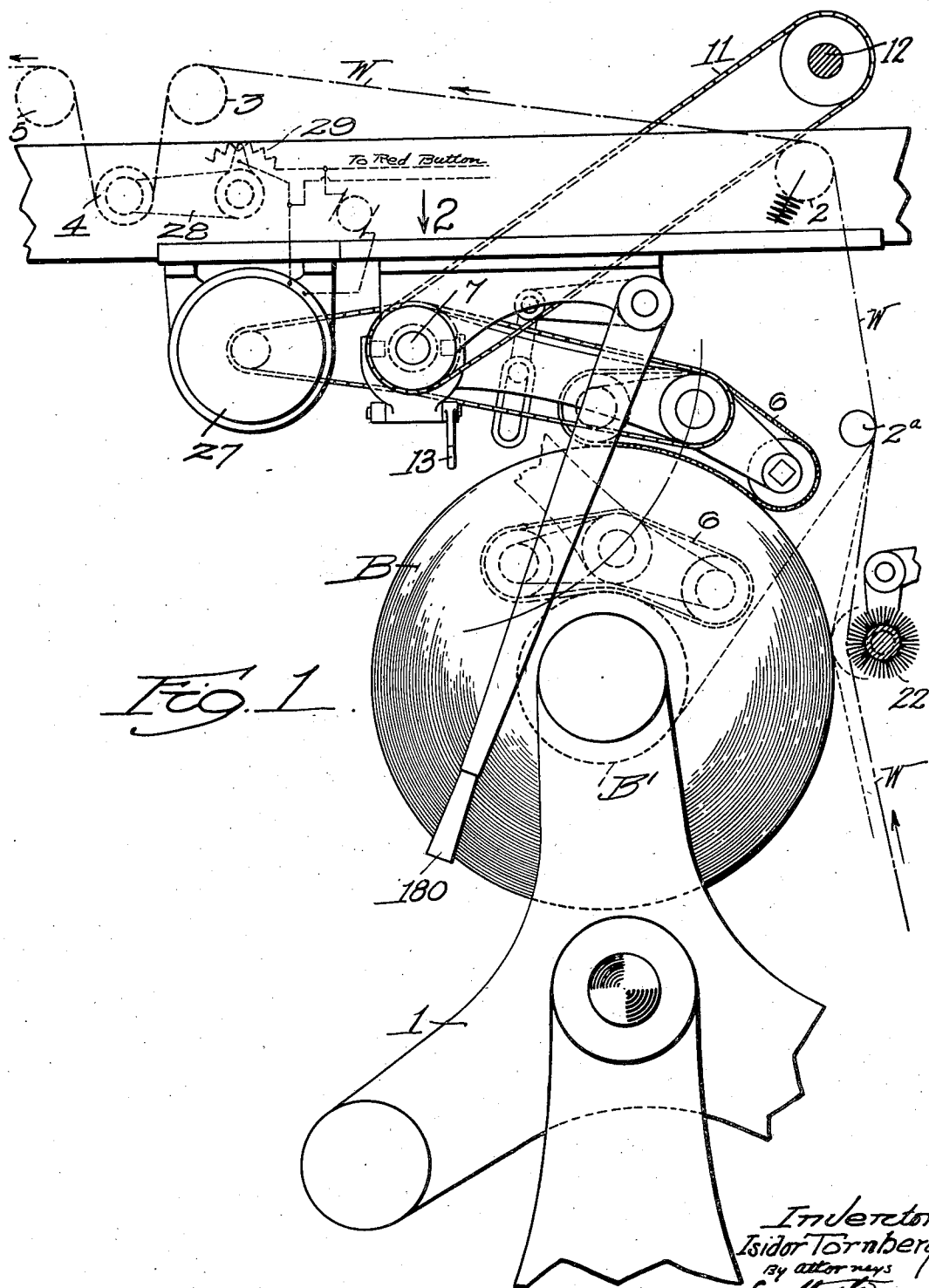
I. TORNBERG

2,037,353

WEB CONTROL FOR PRINTING PRESSES

Filed Nov. 18, 1932

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

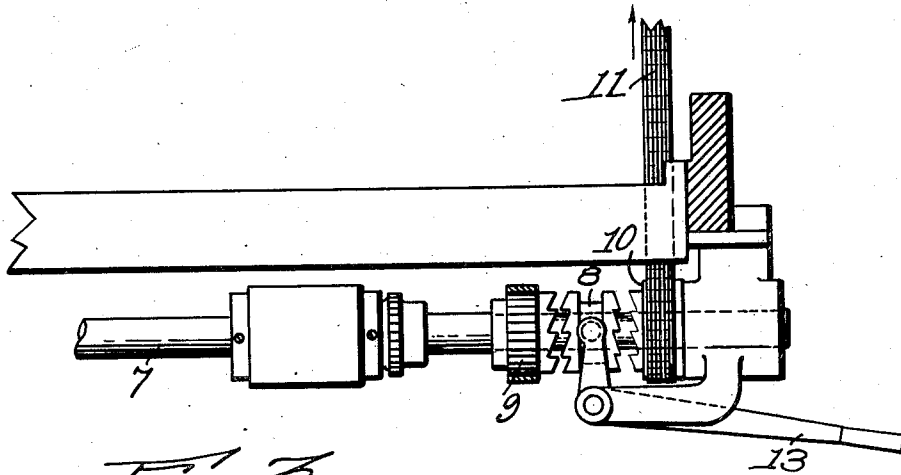
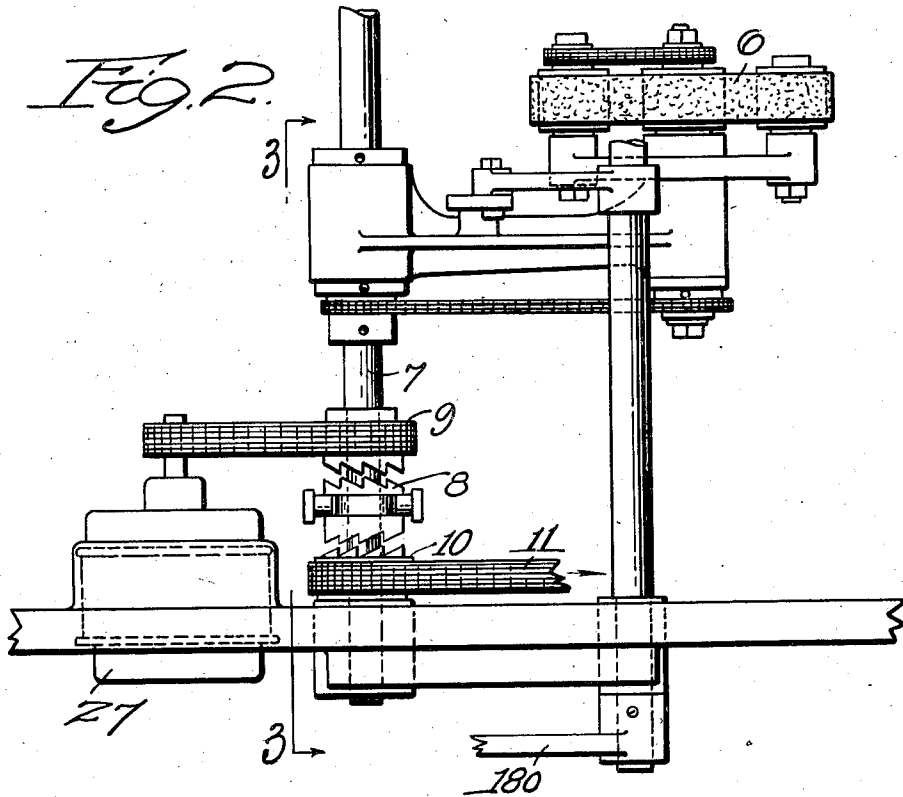


Fig. 3.

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UNITED STATES PATENT OFFICE

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WEB CONTROL FOR PRINTING PRESSES

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Application November 18, 1932, Serial No. 643,194

4 Claims. (Cl. 242—58)

This is an improvement on my prior application for patent, Serial No. 264,248, filed March 23, 1928.

The principal objects of this invention are to provide a combination of a variable speed device for regulating the tension of a running web with means for clutching the tensioning device to the press to run at web speed for bringing the web roll up to web speed preparatory to splicing; and to provide means for varying the speed of the control device and the tension of the web, either by hand or automatically, by the slackness or tautness of the web.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is an end view of a reel for carrying the web rolls, showing the roll controlling belt in two positions;

Fig. 2 is a plan of the same, and

Fig. 3 is a sectional view on the line 3—3 of Fig. 2.

Heretofore tension on the web of a printing press has been supplied either by belts running in the same direction as the paper or by stationary straps. In the case of the former the only available tension is the slight difference in speed which is generally provided for between the belts and the paper, requiring extremely heavy belt arms and at least two or three belts of considerable width to produce the proper amount of tension.

The invention is shown as applied to a well known type of reel 1 having a fresh roll B, about to be pasted and bearings for a third roll, in the usual way, although it is capable of being used with other types of reels. This reel is adapted to be operated by a motor.

The web passes from the running roll over a guiding roller 2^a and thence over a tension roll 2, guiding roller 3, floating roller 4 and guiding roller 5 into the press. The tension roll 2 is spring-pressed in any desired way.

It will be understood that the leading end of the web on the fresh roll B has been temporarily fastened to the surface of the roll by means of grease, while the outer surface of the edge has the usual splicing points, not shown. These are properly placed thereon in a manner now well known preparatory to attaching it to the web W coming from the expiring roll.

It is necessary to control the rotation of the roll B on its axis. For this purpose I provide a friction device, preferably in the form of one

or more belts 6 arranged in a caterpillar tread form. The details of this belt are not shown or described here in detail as the details of it are not a feature of this invention but have been claimed in my prior application, Serial No. 131,524, filed August 24, 1926. It is raised and lowered by a handle 180.

The belt 6 is driven by suitable chains from a driving shaft 7 which is provided with a double faced clutch 8 on the opposite sides of which are freely mounted two chain sprockets 9 and 10. The part that is called the clutch is slidably keyed on the shaft 7 and operated by a lever 13, part of which constitutes a yoke for operating this clutch.

The sprocket wheel or pulley 10 is connected by means of a suitable chain 11 to a driving shaft 12, which it will be understood, is so geared to the press as to drive the roll B in the same direction as that of the web and at the same surface speed so that the splice may be made. It will be obvious that the pulling of the handle 13 down as indicated in Fig. 3 throws the clutch 8 into contact with the clutch on the sprocket 10. This connects the belt 6 with the press and runs the belt in a forward direction. After the splice, however, by throwing the handle 13 upwardly, clutch 8 is thereby connected with the sprocket or pulley 9, which in turn is connected with the motor 27. The motor 27 may then be run so that the belts 6 travel in the same direction at a slower speed and thereby give the desired tension.

Current is supplied to the motor 27 through suitable adjustable resistances 29 which may be controlled either manually or by the position of the tension roller 4 which is carried in arms 28 to which the controlling resistance 29 is attached. Thus the speed of the motor 27, and therefore the tension on the web, may be varied either at will or automatically by the slackness or tautness of the web as determined by the position of the roller 4.

The rotation of the reel in the position shown in Fig. 1 is controlled by push buttons not shown. A splicing member, as a brush 22, is forced into the dotted position shown in Fig. 1 carrying the web W with it and causing the pasted points of the roll to adhere thereto, thereby attaching the new roll to the expiring web.

Although I have illustrated and described only one form of the invention I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the

claims. Therefore, I do not wish to be limited in these respects but what I do claim is:—

5 1. In a printing press, the combination with a support for a web roll, of a shaft constituting a part of the press and operated thereby, a second
10 shaft, a pulley free on the second shaft driven from the first named shaft, said pulley having a clutch section, and a clutch on the second shaft adapted to connect the pulley therewith to run
15 the second shaft, friction means adapted to engage the surface of the running roll supplying the running web to the press, means for running said friction means from the second shaft to drive the roll at web speed for splicing, said clutch having
20 teeth on both sides, a second pulley on the shaft having teeth adapted to be engaged by the opposite teeth on the clutch to connect that pulley with the shaft, and a motor for operating the second pulley and turning the shaft to run the friction means more slowly than the web roll to
25 apply tension.

2. In a printing press, the combination with means for rotatably supporting a web supply roll, a shaft, means for running the shaft from
25 the press, a friction device for engaging the sur-

face of the roll, means for connecting said shaft with the friction device to run the latter forward, a motor, and means for connecting the motor with the shaft for running the friction device slowly to apply tension to the running web.

3. In a printing press, the combination with
5 means for effecting a splice, of press-driven means comprising a power transmitting member for bringing the fresh roll up to web speed, a motor for controlling web tension, and means for
10 disconnecting the press-driven means from said power transmitting member and connecting the motor with the power transmitting member for the purpose described.

4. In a web-splicing device, the combination
15 of press-driven means comprising a belt for bringing the fresh roll up substantially to web speed, means for effecting the splice, a motor adapted to be connected with the belt for controlling web tension, and means for disconnecting the press-driven means from the belt after the splice is
20 made and connecting the motor with the belt for controlling tension of the web from the new running roll.

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