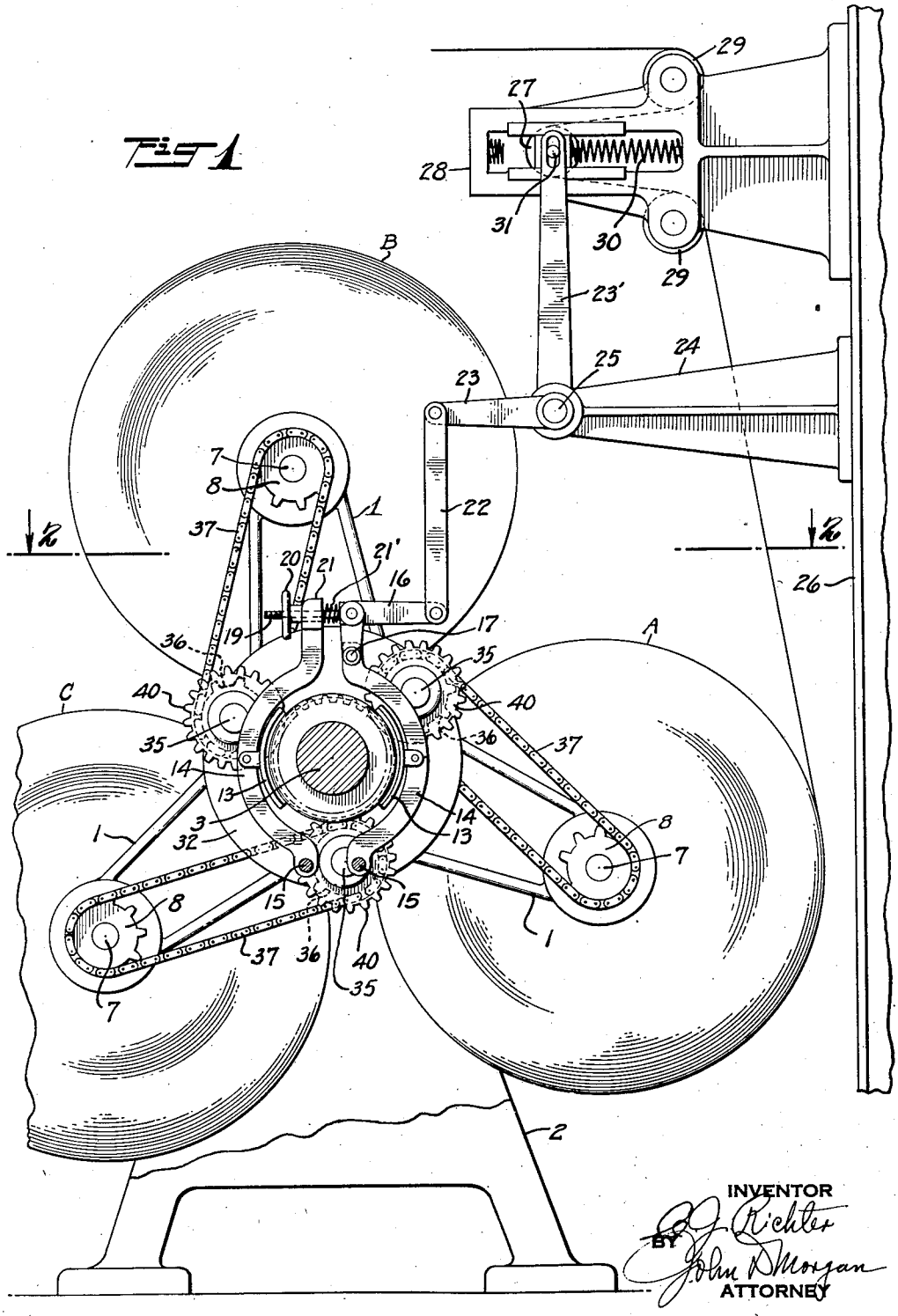
June 12, 1934. C. J. RICHTER 1,962,938

WEB CONTROLLING MECHANISM

Filed Sept. 23, 1931 4 Sheets-Sheet 1

Fig 1



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WEB CONTROLLING MECHANISM

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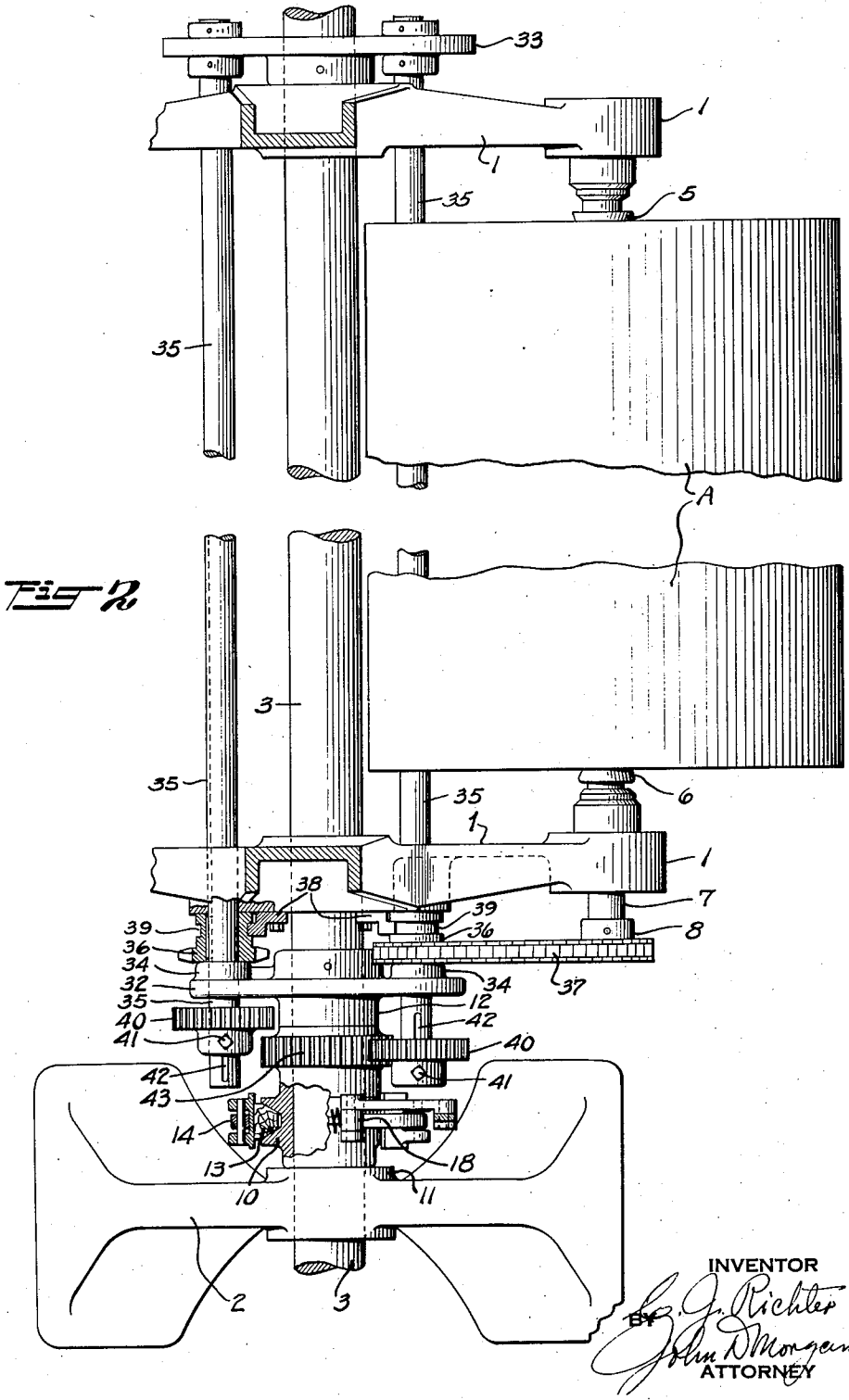


Fig 2

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WEB CONTROLLING MECHANISM

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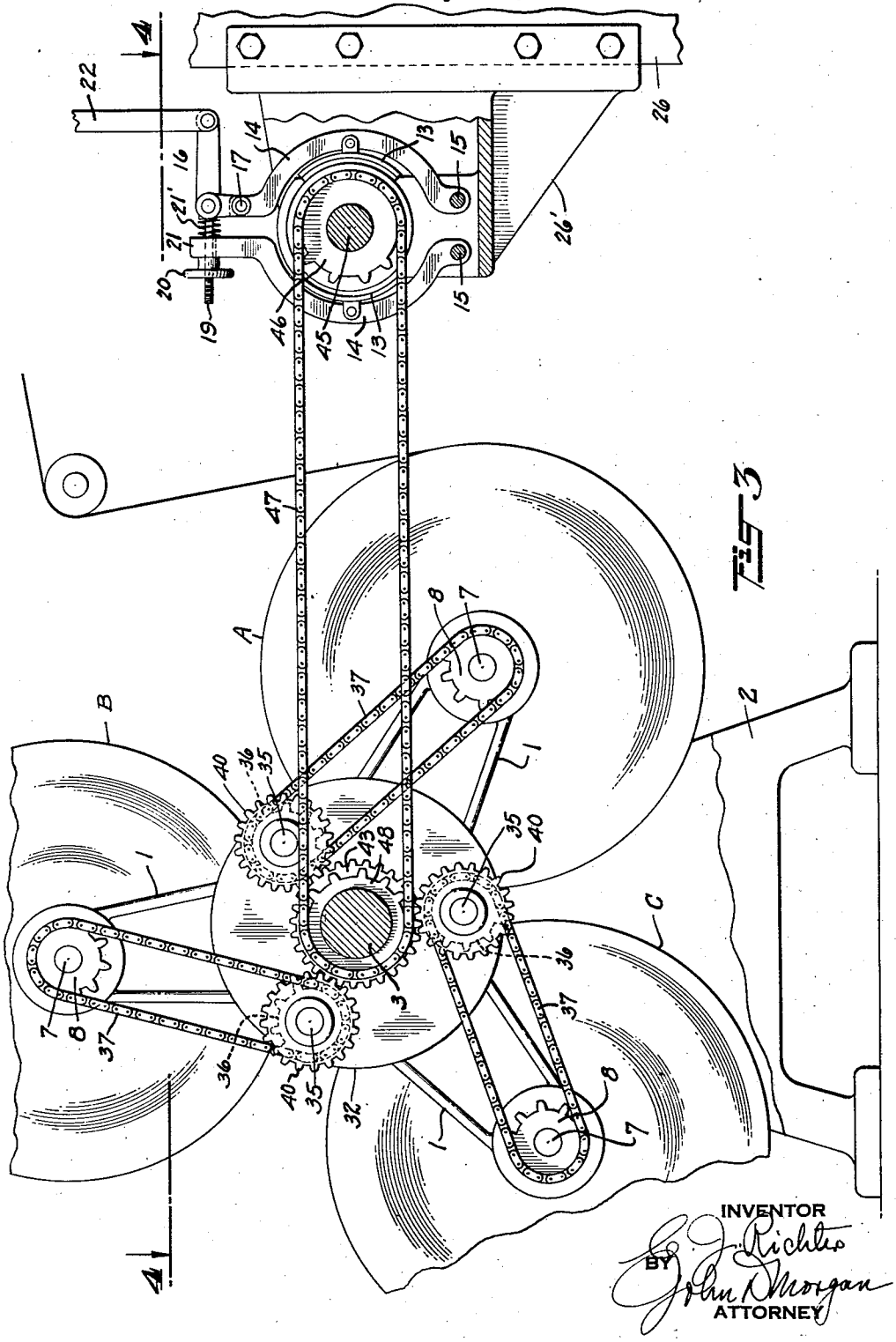


Fig. 3

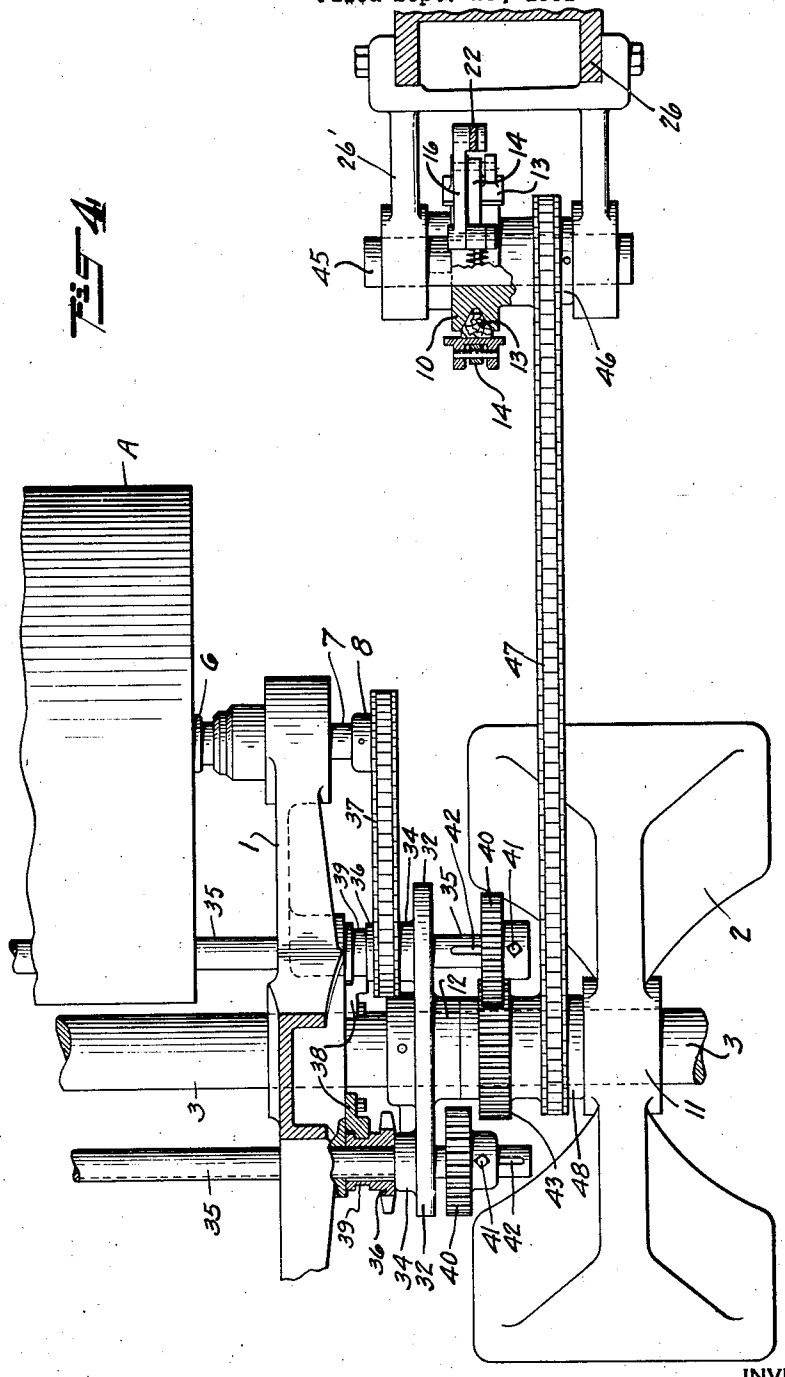
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Filed Sept. 23, 1931 4 Sheets-Sheet 4

Fig 4



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UNITED STATES PATENT OFFICE

1,962,938

WEB CONTROLLING MECHANISM

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Application September 23, 1931, Serial No. 564,610

17 Claims. (Cl. 242—75)

The present invention relates to web controlling mechanism and more particularly to web controlling mechanism for use with fast rotary newspaper printing presses.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate two embodiments of the invention, and together with the description, serve to explain the principles of the invention.

Of the drawings:—

Figure 1 is a side elevation of the present preferred and illustrative embodiment of the invention, certain of the parts being shown in section;

Figure 2 is a fragmentary sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a side elevation of a modified embodiment of the present invention, with certain parts shown in section; and

Figure 4 is a fragmentary sectional view taken on the line 4—4 of Figure 3.

The present invention has for its object the provision of a novel and improved web roll controlling mechanism. A further object is the provision of brake mechanism for controlling the rotation of web rolls which permits the brake and web rolls to be independently mounted at a distance from each other. Still another object is the provision of a web roll controlling mechanism in which a single brake mechanism alternatively controls the rotation of any one of a plurality of web rolls. Another object is the provision of a brake mechanism which can be fixedly mounted and used for the control of rotatable web rolls mounted on a movable support. A further object is the provision of a web roll controlling mechanism in which a brake mechanism is connected to a pilot roller and controls the rotation of a plurality of web rolls in succession. Another object is the provision of a simple and effective pilot roller controlled brake mechanism particularly adapted for use with magazine reels.

In accordance with the present invention the web rolls from which a web is fed to the rotary newspaper printing machine or other web-consuming mechanism are rotatably supported in a movable support, and braking mechanism, preferably controlled by a pilot roller moved in accordance with changes in tension of the web, is mounted on a relatively fixed support and connected to the operating web roll by means of gearing or the like. The mechanism is particularly useful in connection with magazine reels in which a plurality of web rolls are rotatably supported between a pair of rotatable arms, and the braking mechanism is preferably mounted coaxially with the arms or at one side of the web rolls, so that the web roll supporting means may be moved independently of the braking mechanism.

It will be understood that the foregoing general description and the following detailed description as well are exemplary and explanatory of the invention but are not restricted thereon.

Referring now in detail to the present preferred and illustrative embodiment of the invention as shown in the accompanying drawings (Figures 1 and 2), the web roll supporting means comprises a conventional form of magazine reel in which the running web roll and reserve web roll or rolls are rotatably supported between movable or rotatable arms, whereby successive web rolls may be brought into running position by movement of the supporting arms. As embodied, the multi-armed web roll supporting members 1 are spaced apart to receive rotatable web rolls A, B and C between them, and the supporting members 1 are rotatably mounted upon the stationary side frames 2 by means of a shaft 3. The details of this mechanism, including the web tensioning devices, side registering devices and reel arm locating mechanism are not shown as they form no details of the present invention.

At their ends, web roll supporting arms 1 are provided with means for engaging the ends of the axial orifice of the web roll, such as the rotatable chucks 5 and 6 which project inwardly and extend into the axial orifice of the web roll. One of these chucks may be axially movable so that it can be moved inwardly to cause both of the chucks to engage the web roll.

The shafts 7 of each chuck 6 on one side of the web rolls extend outwardly of the supporting arms and have mounted thereon individual sprocket wheel 8 by which the web rolls are connected to the braking mechanism.

As embodied, the braking mechanism comprises a brake pulley 10 which is freely rotatable upon the reel shaft 3, and is held against axial movement thereon by the hub 11 of side frame 2 and by collar 12 pinned to shaft 3. Coacting with the

brake pulley 3 are a pair of brake shoes 13 pivotally mounted on brake arms 14 which encircle the brake pulley, and arms 14 are pivotally mounted on stub shafts 15 projecting inwardly from and fastened to the side frame 2.

Means are also provided for continuously controlling the brake mechanism to maintain the tension of the web drawn from the active web roll substantially constant, and for this purpose the brake mechanism is connected to a pilot roller moved by changes in the tension of the web.

At its upper end, one of the brake arms 14 is connected to the other arm 14 by means of a toggle comprising a bell crank 16 pivotally mounted in a sleeve 18 which is connected to said other brake arm 14 by means of a screw 19 and threaded hand wheel 20 by which the brake tension may be manually varied. Screw 19 passes through the forked end portions 21 of the second arm 14 and arms 14 are held apart by spring 21'. The lower end of bell crank 16 is pivoted to the first brake arm 14 by means of pivot pin 17, while its outer end is connected to the pilot roller by means of a link 22 and levers 23 and 23'. Shaft 25 is pivotally mounted in frame 24 and levers 23 and 23' are fixed to said shaft. Frame 24 may be conveniently mounted on any stationary part of the press, such as the side frame 26.

The pilot roller may be of any convenient or desired construction and comprises a freely-rotatable roller 27 bodily movable in guide frames 28 at its ends. Frames 28 are also mounted on the side press frames 26 and a pair of freely rotatable guide rollers 29 form guiding means over which and the pilot roller 27 the web is passed in being fed to the press. A spring 30 is provided at either end of the pilot roller 27 and presses the roller outwardly against the tension of the web. The upper end of levers 23' is slotted to receive the projecting end of the pilot roller shaft 31, for moving link 22 and levers 23 and 23' in accordance with bodily movements of the pilot roller.

Means are provided for alternatively connecting the brake mechanism with any of the web rolls so that the brake may be operatively coupled to the active web roll alone, leaving the remaining web rolls freely rotatable. As embodied, collar 12 is formed with a disc-like plate 32, mounted on shaft 3 between the web roll supporting arms 1 and the brake pulley 10, and a simliar plate 33 is provided near the other end of reel shaft 3. Plates 32 and 33 are provided with a plurality of journals 34, in which are rotatably supported the shafts 35 extending from one plate to the other. Shafts 35 are positioned in the space between the individual arms of the web roll supporting the journals 34 in one plate being alined with those in the other.

Between the plate 32 and the web roll supporting arms 1, the shafts 35 are provided with sprocket wheels 36, connected with their corresponding sprocket wheels 8 on the chuck spindles 7 by means of chains 37. The sprocket wheels 36 are held against axial movement relative to arms 1 by means of brackets 38 engaging grooves 39 formed on the inner ends of the sprocket wheels 36, and shafts 35 are held by plates 32 and 33. Between the plate 32 and brake pulley 10 each shaft 35 is provided with a pinion 40, slidably mounted on the shaft but held against rotation thereon by means of set screw 41 projecting into the axial slot 42. Pinions 40 in their outer position mesh with a gear 43 formed integrally with brake pulley 10 and at the inner end thereof, while in their inner position, pinions 40 are out of mesh with said gear. Only that web roll corresponding to the pinion in mesh with gear 12 is coupled to the brake mechanism.

In accordance with the modified embodiment of the invention, illustratively shown in Figures 3 and 4 of the drawings, the pilot roller controlled brake is mounted at a distance from the web rolls on a portion of the press frame 26 by means of bracket 26', and is geared to the active web roll. Many of the details of this embodiment are identical with those of the embodiment previously described, and a description of them need not be repeated. Brake mechanism, comprising the brake pulley 10, brake shoes 13, brake arms 14 and toggle actuating mechanism is connected with the pilot roller (not shown) by means of link 22, and brake pulley 10 is rotatably mounted by means of a shaft 45 journalled in the bracket 26' on the press frame. Brake pulley 10 is formed with an integral sprocket wheel 46, over which passes chain 47 to connect it with sprocket wheel 48. Sprocket wheel 48 is formed integrally with gear 43 which is rotatably journalled on reel shaft 3.

As in the embodiment previously described, gear 43 meshes with one of the pinions 40 slidably mounted on a shaft 35, but held against rotation thereon by a set screw 41. The operative shaft 35 is driven from the corresponding web roll by means of chain 37 running over sprocket wheels 36 and 8 whereby rotational movement of the active web roll drives brake pulley 10 and effects the control of the web tension. It will be understood that during the operation of the web controlling mechanism, only one of the pinions 40 is allowed to remain in mesh with gear 43, the remaining pinions being moved inwardly on their respective shafts to place them out of mesh.

In the operation of either of the above-described mechanisms, the active web roll A is connected to the braking mechanism by means of chains 37 and, in Figures 3 and 4, chain 47. The corresponding pinion 40 is placed in mesh with the gear 43 to drive the brake pulley 10 by rotation of the web roll. As the web is fed from the web roll to the printing press, it passes over pilot roller 27, and the changes in tension of the web cause a bodily movement of the pilot roller 27 in turn causing a variation in the braking force and maintaining the web tension constant during the running off of the web. After web roll A has been exhausted, its pinion 40 is moved inwardly, out of mesh with gear 43. New web roll B is moved into running position by rotational movement of the web roll supporting arms 1, and the pinion 40 corresponding to web roll B is slid outwardly on shaft 35 into mesh with gear 43.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What I claim is:—

1. Web controlling mechanism including in combination means for rotatably supporting a plurality of web rolls, a single brake between said web rolls, a pilot roller moved by changes in the tension of the web fed from one of said web rolls for controlling said brake and means for coupling said brake to the web roll in use.

2. Web controlling mechanism including in combination means for rotatably supporting a plurality of web rolls, a single brake spaced from said web rolls, a pilot roller moved by changes in the tension of the web fed from one of said web rolls for controlling said brake and gearing for coupling said brake to the web roll in use.

3. Web controlling mechanism including in combination a movable support for a web roll rotatably mounted by its shaft, a brake operating on the roll shaft mounted on a stationary support, and means for connecting said web roll to said brake to control the rotation of the roll.

4. Web controlling mechanism including in combination a movable support for a rotatable web roll, a brake spaced from said web roll and mounted on a stationary support, gearing connecting said web roll and brake and a pilot roller moved by changes in the tension of the web fed from the web roll for controlling the brake.

5. Web controlling mechanism including in combination a movable support for a plurality of web rolls rotatably mounted by their shafts whereby web rolls may be successively brought into active or feeding position, a brake operating on any of the roll shafts mounted in a fixed position and connections between said brake and web rolls whereby the brake controls the rotation of the active web roll.

6. Web controlling mechanism including in combination a movable support for a plurality of web rolls, a pilot roller moved by changes in the tension of the web fed from the active one of the web rolls, a brake mounted independently of said support and controlled by the pilot roller and means for coupling the brake and active web roll together.

7. Web controlling mechanism including in combination a movable support for a plurality of web rolls, a pilot roller moved by changes in the tension of the web fed from the active one of the web rolls, a brake mounted between said web rolls and controlled by the pilot roller and gearing for connecting said brake to the active web roll.

8. Web controlling mechanism including in combination a rotatable support for rotatably supporting a plurality of web rolls, a brake for said web rolls mounted on the axis of rotation of said support and means for connecting said brake to any of the web rolls.

9. Web controlling mechanism including in combination a rotatable support for rotatably supporting a plurality of web rolls, a brake for said web rolls mounted centrally of said web rolls, and gearing connecting said brake with any one of said web rolls.

10. Web controlling mechanism including in combination a pair of rotatable arms between which are rotatably mounted a plurality of web rolls to be successively moved into web feeding position, a brake mounted coaxially with said arms and chains driven by said rolls and connecting said brake with any of the web rolls.

11. Web controlling mechanism including in combination a pair of rotatable arms between which are rotatably mounted a plurality of web rolls to be successively moved into web feeding position, a brake mounted coaxially with said arms, a pilot roller controlling said brake and means for connecting said brake with any of the web rolls.

12. Web controlling mechanism including in combination a pair of rotatable arms between which are rotatably mounted a plurality of web rolls to be successively moved into web feeding position, a brake mounted coaxially with said arms, a pilot roller controlling said brake, a gear for each roll to drive said brake and chains driven by the web rolls for individually driving said gears and brake.

13. Web controlling mechanism including in combination a pair of rotatable arms between which are rotatably mounted a plurality of web rolls to be successively moved into web feeding position, a brake mounted coaxially with said arms, a pilot roller controlling said brake, a gear for each roll for driving said brake, said gears being selectively coupled to said brake and means for driving said gears by their respective web rolls.

14. Web controlling mechanism including in combination a pair of rotatable arms between which are rotatably mounted a plurality of web rolls to be successively moved into web feeding position, a brake mounted coaxially with said arms, a gear for each roll selectively engageable to drive said brake and chains individually driven by said rolls and connecting said gears to their respective web rolls.

15. Web controlling mechanism including in combination a pair of rotatable arms between which are rotatably mounted a plurality of web rolls to be successively moved into web feeding position, brake mechanism, a stationary support at a distance from said rotatable arms and on which said brake mechanism is mounted and means for operatively connecting said brake mechanism with any one of said web rolls.

16. Web controlling mechanism including in combination a pair of rotatable arms between which are rotatably mounted a plurality of web rolls to be successively moved into web feeding position, brake mechanism, a stationary support at one side of the web rolls and on which the brake mechanism is mounted, a sprocket coaxial with said arms, a chain connecting said sprocket and brake and other chains individually driven by said web rolls and connecting said sprocket and web rolls.

17. Web controlling mechanism including in combination a pair of rotatable arms between which are rotatably mounted a plurality of web rolls to be successively moved into web feeding position, brake mechanism, a stationary support at one side of the web rolls and on which the brake mechanism is mounted, a pilot roller moved by changes in tension of the web fed from a web roll and controlling said brake and means for operatively connecting said brake and any one of the web rolls.

CHARLES J. RICHTER.

DISCLAIMER

1,962,938.—*Charles J. Richter*, Berwyn, Ill. WEB-CONTROLLING MECHANISM. Patent dated June 12, 1934. Disclaimer filed October 18, 1935, by the assignee, *The Goss Printing Press Company*.

Hereby enters this disclaimer to that part of the claims in said specification which are in the following words, to wit:

"3. Web controlling mechanism including in combination a movable support for a web roll rotatably mounted by its shaft, a brake operating on the roll shaft mounted on a stationary support, and means for connecting said web roll to said brake to control the rotation of the roll."

"5. Web controlling mechanism including in combination a movable support for a plurality of web rolls rotatably mounted by their shafts whereby web rolls may be successively brought into active or feeding position, a brake operating on any of the roll shafts mounted in a fixed position and connections between said brake and web rolls whereby the brake controls the rotation of the active web roll."

"8. Web controlling mechanism including in combination a rotatable support for rotatably supporting a plurality of web rolls, a brake for said web rolls mounted on the axis of rotation of said support and means for connecting said brake to any of the web rolls.

"9. Web controlling mechanism including in combination a rotatable support for rotatably supporting a plurality of web rolls, a brake for said web rolls mounted centrally of said web rolls, and gearing connecting said brake with any one of said web rolls.

"10. Web controlling mechanism including in combination a pair of rotatable arms between which are rotatably mounted a plurality of web rolls to be successively moved into web feeding position, a brake mounted coaxially with said arms and chains driven by said rolls and connecting said brake with any of the web rolls."

"15. Web controlling mechanism including in combination a pair of rotatable arms between which are rotatably mounted a plurality of web rolls to be successively moved into web feeding position, brake mechanism, a stationary support at a distance from said rotatable arms and on which said brake mechanism is mounted and means for operatively connecting said brake mechanism with any one of said web rolls.

"16. Web controlling mechanism including in combination a pair of rotatable arms between which are rotatably mounted a plurality of web rolls to be successively moved into web feeding position, brake mechanism, a stationary support at one side of the web rolls and on which the brake mechanism is mounted, a sprocket coaxial with said arms, a chain connecting said sprocket and brake and other chains individually driven by said web rolls and connecting said sprocket and web rolls."

[*Official Gazette November 12, 1935.*]