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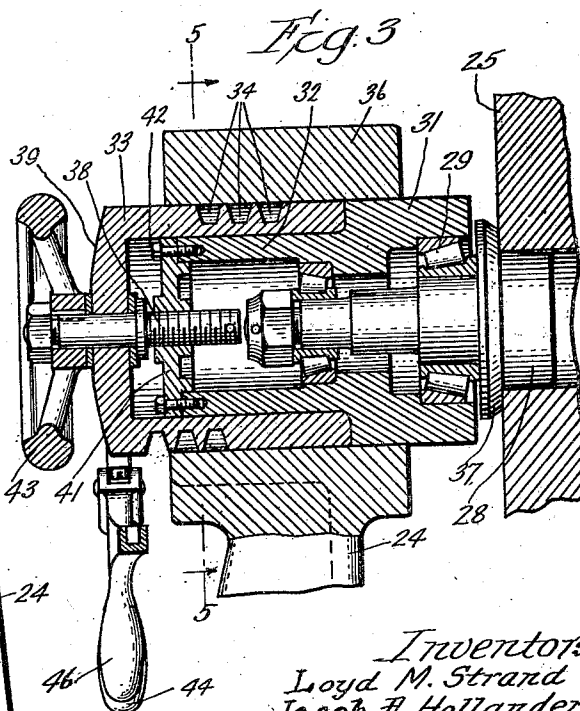
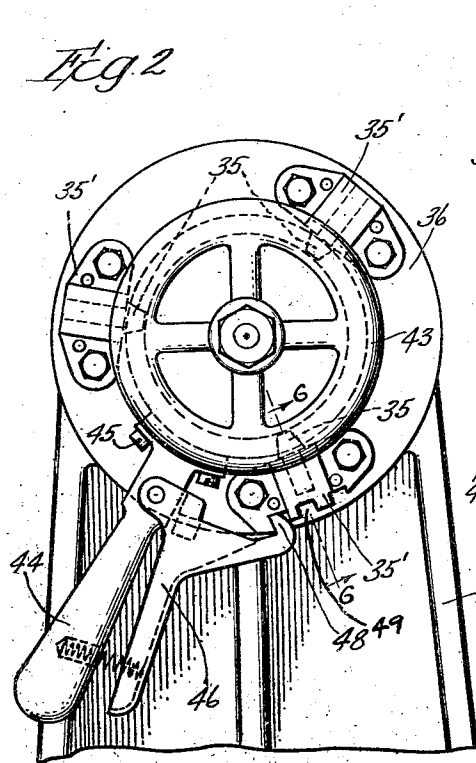
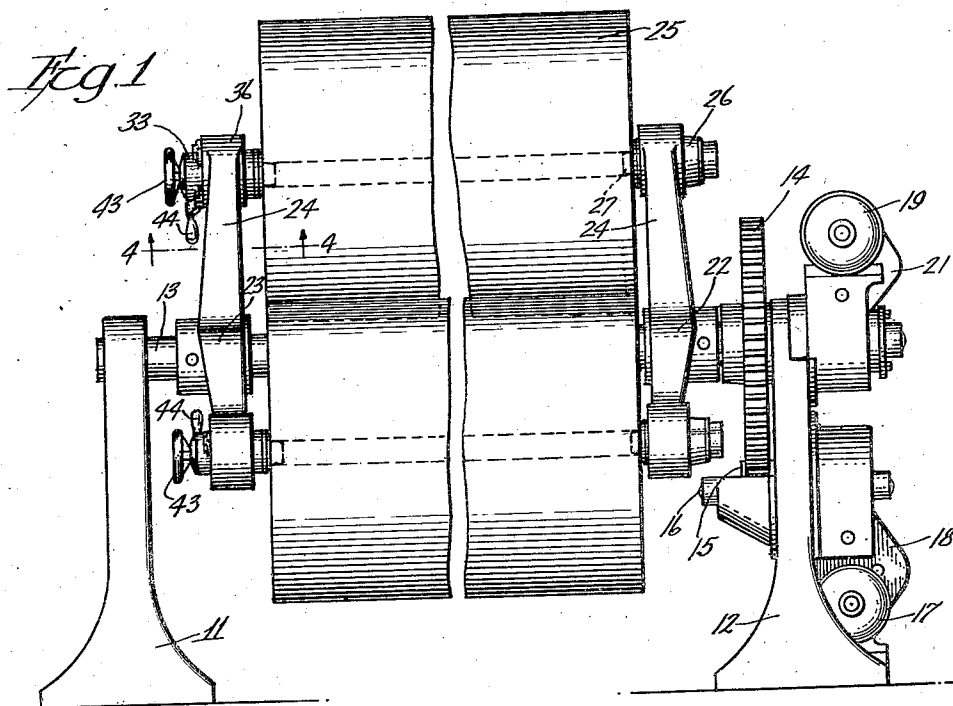
L. M. STRAND ET AL

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PAPER ROLL CHUCK

Filed Aug. 25, 1926

2 Sheets-Sheet 1



Inventors
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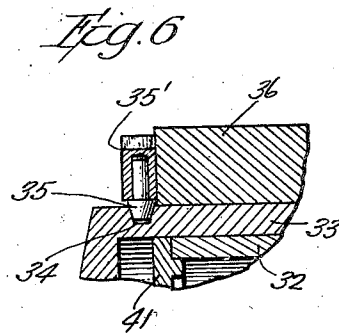
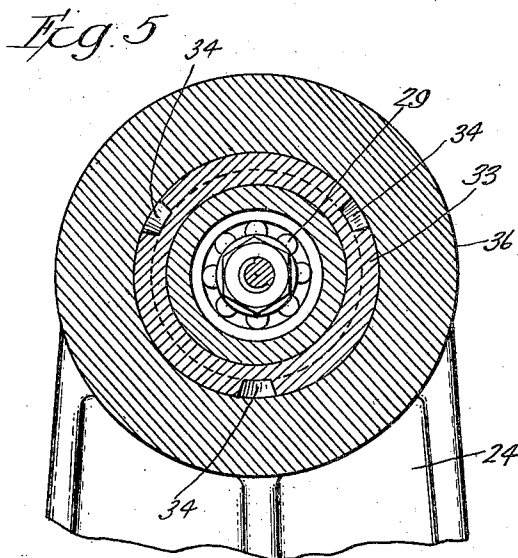
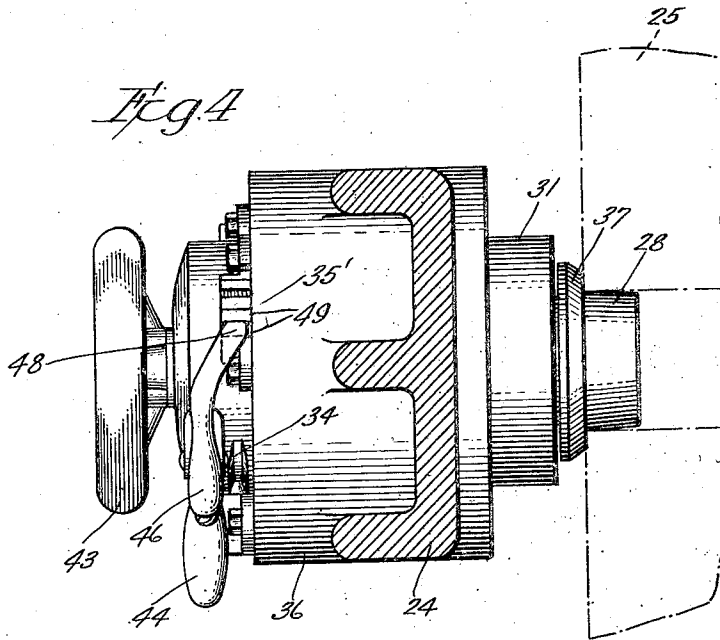
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PAPER ROLL CHUCK

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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PAPER-ROLL CHUCK

Application filed August 25, 1926. Serial No. 131,351.

Our invention relates to roll supports primarily adapted for supporting rolls of newspaper in such manner as to permit the web to be unwound therefrom as it is drawn into the press, though the mechanism is also suitable for supporting rolls of other material and may be used in association with other machinery than printing presses where similar conditions prevail.

The device of the present invention is an improvement upon that shown in Patent No. 1,491,200, granted April 22, 1924, to Allen J. Cline. It will be observed, by reference to said patent and to the following description and accompanying drawings, that the rolls, which, as shown, are of news print, are adapted to be supported by means of rotating spindles carried by spaced arms, which are in turn supported upon a shaft journaled in suitable pedestals or standards, the arms being preferably formed upon brackets or spiders constructed to provide a plurality of such arms spaced circumferentially about the shaft and adapted to be successively brought into position to support the roll carried thereby at a proper point for the feeding of the web from said roll to the press. Inasmuch as it is necessary for said spindles to be mounted in such manner that at least one thereof may be moved toward or from the other in order to engage or release the roll, it has heretofore been the practice to construct said brackets, or spiders, with double arms arranged parallel to each other and providing spaced supports for the spindle or the mechanism by which the spindle is carried. This necessitates an apparatus of considerable length and, since economy of space is a highly important factor in newspaper and like establishments, and since economy in the apparatus is always to be desired, it is an object of the present invention to provide a roll chuck mechanism in which the double arm arrangement hereinbefore referred to may be eliminated, with consequent reduction in the size of the apparatus, thus effecting important savings both in space and materials.

An important feature of the invention is the provision for operation of the chuck mechanism to move the same into or out of

supporting engagement with the roll of a cam construction whereby rotation of said chuck mechanism within a fixed arm of the roll support moves said chuck mechanism in or out, according to the direction of rotation.

Another object of the invention is the provision of means whereby the chuck mechanism may be moved inwardly to a greater or less extent, as may be required by different lengths of roll cores or mandrels.

A still further object of the invention is the provision of means for adjusting the roll supporting member with respect to the parts normally actuated in moving the chuck mechanism as a whole.

Other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings,

Figure 1 is an elevational view of a roll stand in which our invention is embodied;

Fig. 2 is an enlarged end elevation of the chuck mechanism and the arm in which the same is mounted;

Fig. 3 is a longitudinal sectional view thereof;

Fig. 4 is a bottom plan view, taken substantially on the plane 4—4 in Fig. 1;

Fig. 5 is a vertical sectional view, taken substantially on the line 5—5 in Fig. 3; and

Fig. 6 is a detail section taken substantially on the line 6—6 in Fig. 2.

Upon said drawings, illustrating the best manner in which we have thus far contemplated applying the principles of our invention, the reference characters 11 and 12 indicate spaced pedestals, or standards in the upper ends of which a shaft 13 is journaled, the latter carrying a large spur gear 14 adapted to be driven by means of a pinion 15 carried upon a short shaft 16 journaled in an intermediate part of the standard 12. The shaft 16 is adapted to be driven by means of a motor 17 and suitable gearing in a housing 18. A motor 19 is operatively connected by gearing in a housing 21 with a worm wheel (not shown) on the end of the shaft 13, which

worm wheel is internally threaded and mounted upon a threaded part of said shaft, whereby the latter may be shifted endwise for a purpose which will hereinafter appear, the pinion 15 being adapted to float upon its shaft 16 so that it may remain in mesh with the gear 14 in the various adjusted positions thereof.

Brackets, or spiders, 22 and 23 are secured to the shaft 13 in suitably spaced relationship, and each thereof comprises in the present instance three arms 24, which, in accordance with the present invention, may be single, there being no necessity for the double arm construction shown in the prior patent hereinbefore mentioned. The web rolls 25 are adapted to be supported between aligned arms 24 on the spiders 22 and 23 by means of chuck mechanism carried in the ends of said arms. The present invention resides in the construction and means of operation of said chucks, whereby the same may be caused to rapidly and effectively engage or release the rolls and may be adjusted relative to each other, it being understood that speed in removal of the exhausted rolls and positioning of full ones is highly important in large scale newspaper production and that the variations in the length of the mandrels or cores of the rolls render it highly desirable that efficient means be provided for adjusting the chuck mechanism to quickly and effectively adapt the same to the particular roll which is to be supported. As will be readily appreciated, one of the chuck mechanisms may be stationary, so far as longitudinal movement with respect to the other is concerned, and I have therefore illustrated only in outline the chuck mechanism 26 carried by the arms 24 of the spider 22. A rotatable spindle 28 is carried by said chuck mechanism and preferably mounted in anti-friction bearings, which may be of any suitable or preferred type (one form being shown in the hereinafter described illustrations of the chuck mechanism carried by the opposite arm 24), which chuck mechanisms I shall now proceed to describe, it being understood that the mechanism carried by each of the three arms is the same and, therefore, will not require separate description.

Referring now particularly to Fig. 3, it will be observed that a spindle 28 is mounted in roller bearings 29 in a bearing member 31, which has a reduced rearwardly extending portion 32 disposed within a tubular cap member or support 33, which is formed with an exterior helical groove 34, in which are disposed respectively three rollers 35 carried in brackets 35' upon the outer side of a cylindrical part 36 of the arm 24. The spindle 28 is provided with a flange 37 and the part thereof in advance of said flange is adapted to enter in the end of the roll 25 and to engage the mandrel or core thereof in the well-known

manner. Inasmuch as said mandrels or cores, as hereinbefore explained, are of varying length, said spindle is adapted to be adjusted with respect to the opposite spindle and with respect to the member 33 by means of a screw 38 carried in the end 39 of said member 33 and having threaded engagement with a plate 41 secured by screws 42 to the rear of the reduced portion 32 of the bearing member 31, the outer end of said screw carrying a hand wheel 43, whereby said bearing member and the spindle carried thereby may be longitudinally adjusted, as occasion may require.

For the purpose of moving the chuck assembly into or out of engagement with the roll, I provide a lever 44, rigidly secured by screws 45 to the outer end of the member 33, said lever carrying a pivoted latch member 46, normally held by means of a spring 47 in position with a forward hooked portion 48 thereof disposed within any one of a plurality of notches 49 formed in one of the brackets 35' upon the fixed arm part 36, thus holding the member 33 against rotation, except when said latch is intentionally released by the operator, in manner which will be readily understood from inspection of the drawings. It will be evident that by means of the cam operation of the chuck mechanism the same may be supported in a single arm upon which the cam roller, or like element, may be carried and that said single arm will provide a sufficient support for the mechanism without the second arm required when the spindle assembly is moved by means of the lever construction shown in said prior Cline patent, or by other devices which have heretofore been employed. The roll stand, as a whole, may thus be considerably shorter than it otherwise would have to be and in this manner an important saving, both in space and material, is effected while at the same time the chuck mechanism employed is improved from the standpoint of ease and efficiency of operation.

The three rollers 35, being spaced circumferentially around the circular face of the arm part 36, are disposed in separate grooves 34, the outer parts of which may be arranged circumferentially, instead of spirally, upon the member 33, thus tending to hold the chuck mechanism in position with the spindle in engagement with the roll, as shown in Fig. 3 of the drawings. Said grooves obviously are so related that the rollers 35, which are in the same vertical plane, may each travel in its respective groove and assist in moving the member 33 in or out as it is rotated by the lever 44.

The provision of a plurality of notches 49 renders it possible to lock the chuck mechanism with the spindle in any one of several positions, depending on the number of notches employed, and thus to accommodate to a certain degree different lengths of cores or

mandrels. However, it may also be desirable to effect further adjustment, or a more nice adjustment by means of the screw 38, which is therefore employed in conjunction with the adjusting means just described.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention, or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

We claim:

1. A roll support comprising, a member adapted to rotatably support a roll of paper or the like, a movable support for said member, a frame part in which said support is mounted, said support being provided with a helical groove extending around the periphery thereof and said frame part carrying means engaging in said groove, and means comprising a hand lever mounted on and rotatable with said support for producing relative rotary movement between said support and frame part, whereby horizontal movement of the support is produced, moving said roll-supporting member into and out of engagement with the roll.

2. A roll support comprising, a member adapted to rotatably support a roll of paper or the like, a movable support for said member, a frame part in which said support is mounted, said support being provided with a helical groove extending around the periphery thereof and said frame part being provided with a cam roller engaging in said groove, and means comprising a hand lever mounted on and rotatable with said support for producing relative rotary movement between said support and frame part whereby said cam roller and groove produce horizontal movement of the support, moving said roll-supporting member into and out of engagement with the roll.

3. A roll support, comprising a member adapted to rotatably support a roll of paper or the like, a movable support for said member, a frame part in which said support is mounted, said support being formed with a helical groove and said frame part carrying means engaging in said groove, means comprising a hand lever mounted on and rotatable with said support for producing relative rotary movement between said support and frame part whereby horizontal movement of the support is produced, moving said roll supporting member into and out of engagement with the roll, and means for adjusting the position of said roll supporting member relative to said support.

4. A roll support, comprising a normally fixed element, a movable element including

a member adapted to rotatably support a roll of paper or the like, a cam connection between said elements whereby relative movement thereof causes said roll engaging member to move toward or from the roll, and means for adjusting said roll supporting member independently of said cam connection.

5. A roll support, comprising a normally fixed element, a movable element including a member adapted to rotatably support a roll of paper or the like, a cam connection between said elements whereby relative movement thereof causes said roll engaging member to move toward or from the roll, a hand lever for turning said movable element means comprising a hand-grip and latching device associated with said lever for locking said movable element in predetermined position, and means for adjusting the position of said movable element relative to said roll-supporting member.

6. A roll support, comprising spaced frame parts, and roll engaging devices carried respectively thereby, one thereof comprising a rotatable spindle, a bearing member having anti-friction devices engaging said spindle, a member connected with said bearing member for moving the same longitudinally, means including a cam connection between said member and the frame part by which it is carried whereby rotary movement of said member produces endwise movement thereof and of said bearing member and spindle, and a screw connection between said members for effecting relative adjustment thereof.

7. A roll support, comprising a fixed upright, a chuck assembly slidably carried thereby, and composed of relatively movable sections, a screw connection between said sections for effecting relative adjustment thereof, a rotatable roll supporting element carried by one of said parts, and means for moving the chuck assembly as a whole in said upright toward or from the roll.

8. A roll support, comprising a member adapted to rotatably support a roll of paper or the like, a movable support for said member, a frame part in which said support is mounted, said support being formed with a plurality of helical grooves and said frame part carrying separate means engaging in each of said grooves, means for producing relative rotary movement between said support and frame part whereby said horizontal movement of the support is produced, moving said roll supporting member into and out of engagement with the roll, and means for adjusting the position of said movable support relative to said roll-supporting member.

9. A roll support, comprising an upright and a chuck assembly movably mounted therein and including a member adapted to rotatably support a roll of paper or the like, a bear-

ing in which said member is journaled, a support for said bearing, and independently operable means adapted respectively to move said support and said bearing toward or from the roll, the means for adjusting said bearing being mounted upon said support.

10. A roll support, comprising an upright and a chuck assembly movably mounted therein and including a member adapted to rotatably support a roll of paper or the like, a bearing in which said member is journaled, a support for said bearing, and independently operable means adapted respectively to move said support and said bearing toward or from the roll, the means for moving said support being adapted to be locked to hold the support in any selected one of a plurality of predetermined positions.

11. A roll support comprising, a member adapted to rotatably support a roll of paper or the like, a movable support for said member, a frame part in which said support is mounted, said support being provided with a helical groove extending around the periphery thereof and said frame part carrying means engaging in said groove, means comprising a hand lever mounted on and rotatable with said support for producing relative rotary movement between said support and frame part, whereby horizontal movement of the support is produced, moving said roll-supporting member into and out of engagement with the roll, and means for adjusting the position of said roll-supporting member relative to said support.

12. A roll support comprising, a member adapted to rotatably support a roll of paper or the like, a movable support for said member, a frame part in which said support is mounted, said support being provided with a helical groove extending around the periphery thereof and said frame part being provided with a cam roller engaging in said groove, means comprising a hand lever mounted on and rotatable with said support for producing relative rotary movement between said support and frame part whereby said cam roller and groove produce horizontal movement of the support, moving said roll-supporting member into and out of engagement with the roll, and means for adjusting the position of said roll-supporting member relative to said support.

13. A roll support comprising, a member adapted to rotatably support a roll of paper or the like, a movable support for said member, a frame part in which said support is mounted, said support being provided with a helical groove extending around the periphery thereof and said frame part carrying means engaging in said groove, means comprising a hand lever mounted on and rotatable with said support for producing relative rotary movement between said support and frame part, whereby horizontal move-

ment of the support is produced, moving said roll-supporting member into and out of engagement with the roll, and means comprising a hand grip and latching device associated with said lever for locking said support in any selected one of a plurality of predetermined positions.

14. A roll support, comprising a rotatable spindle adapted to support a roll of paper or the like, a bearing member having anti-friction devices engaging said spindle, a support for said bearing member, a frame part in which said support is mounted, said frame part and support being provided respectively with a pin and helical groove, means for producing relative rotary movement between said support and frame part whereby said pin and groove produce horizontal movement of the support, moving said spindle into and out of engagement with the roll, and a screw connection between said bearing member and said support for effecting relative adjustment thereof.

In witness whereof we hereunto subscribe our names to this specification.

JACOB A. HOLLANDER.
LOYD M. STRAND.