March 13, 1934. D. G. BERNARD 1,950,538

DEVICE FOR HANDLING ROLLS OF PAPER

Filed June 29, 1931 2 Sheets-Sheet 1

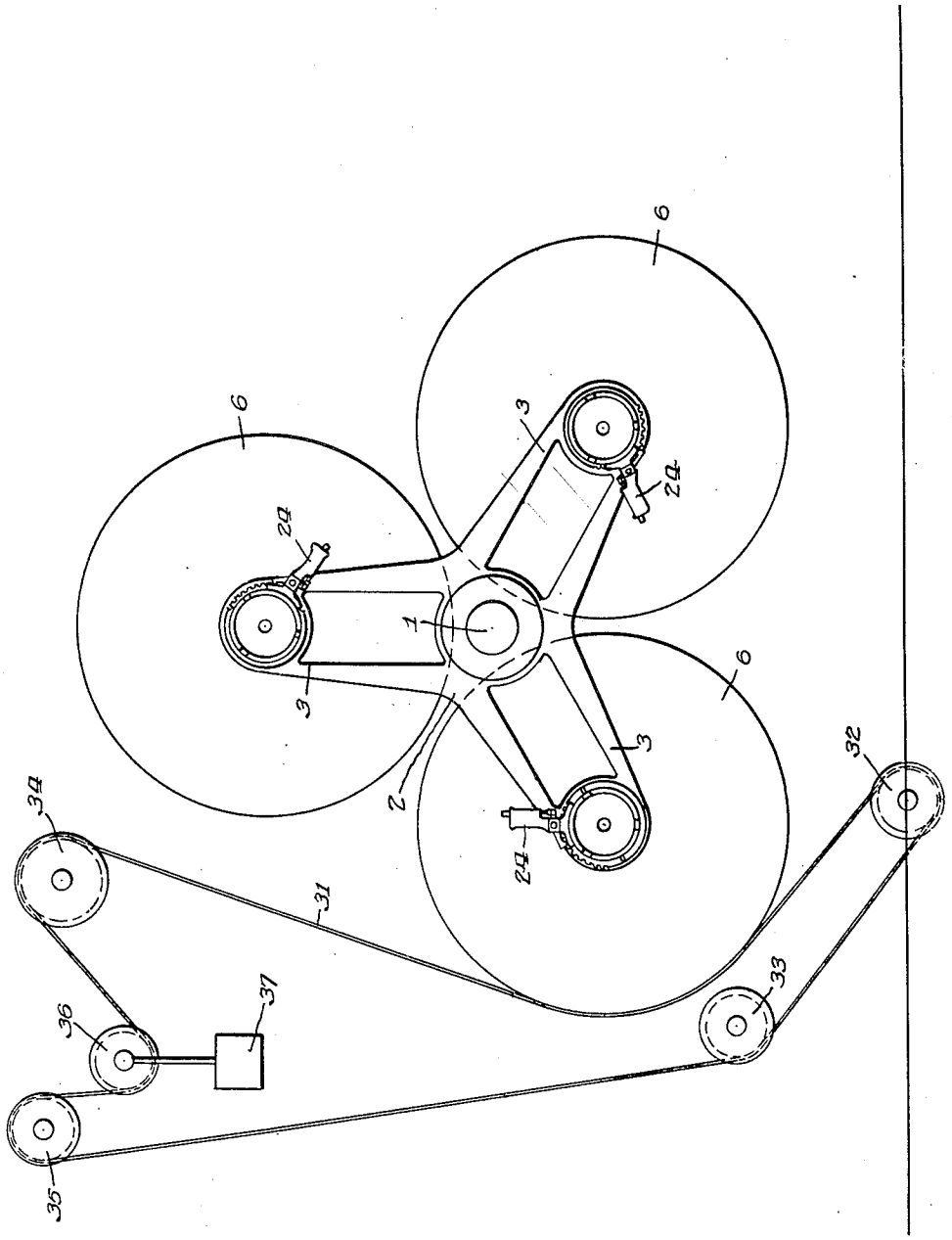


Fig. 1

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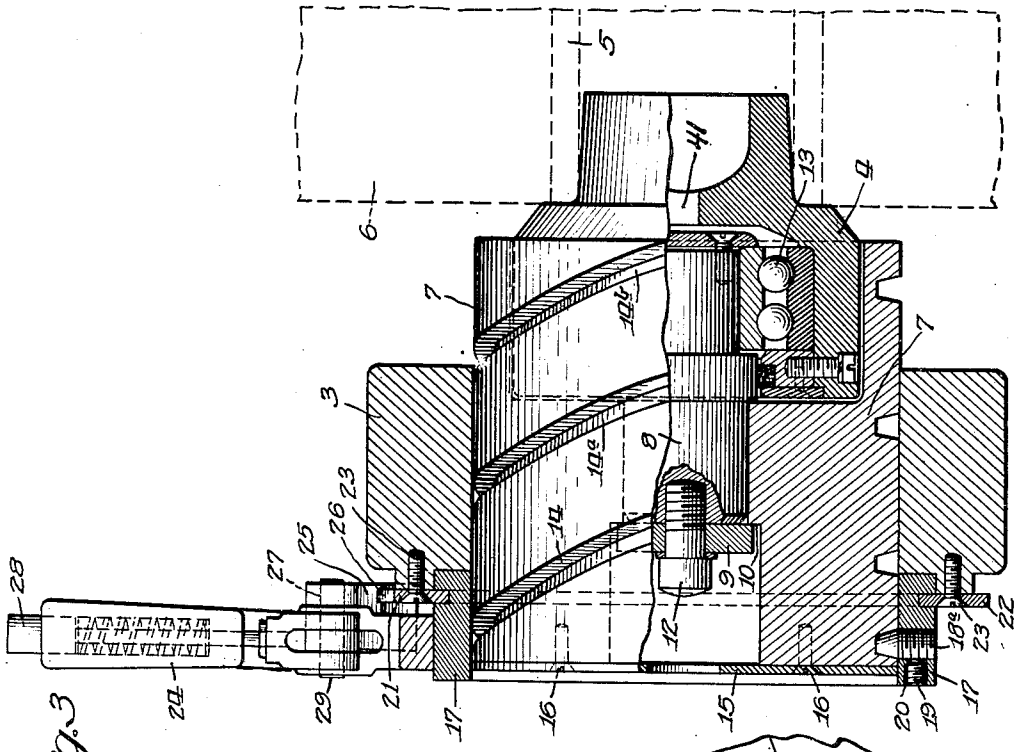


Fig. 3

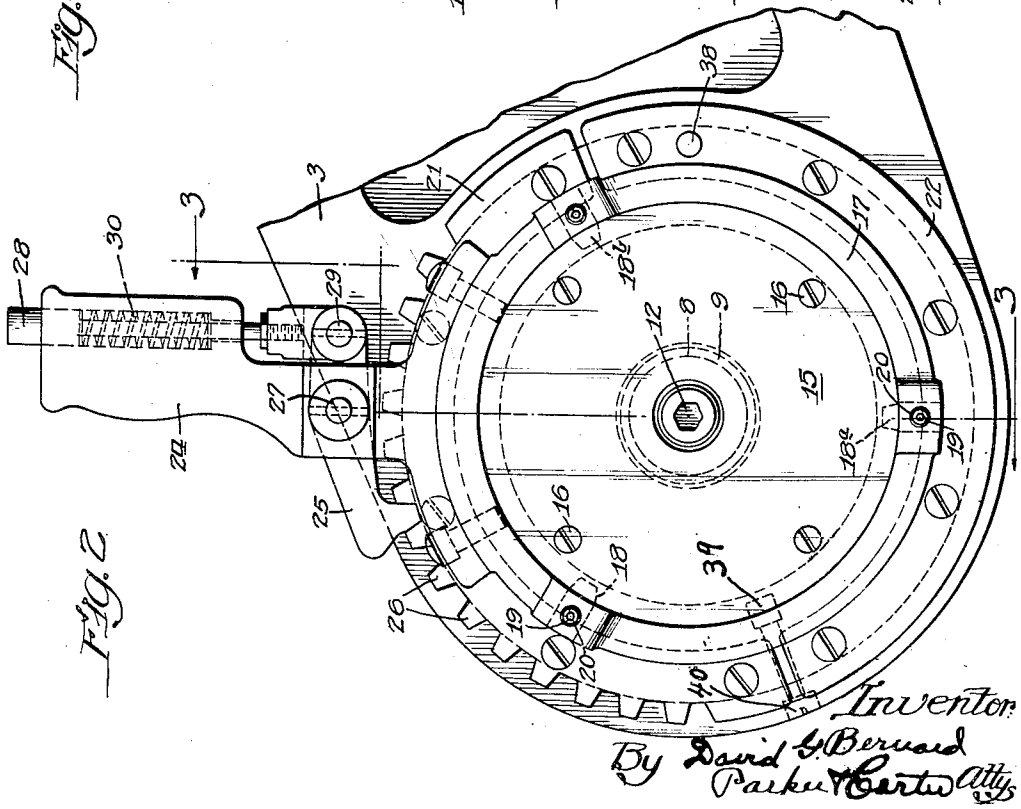


Fig. 2

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UNITED STATES PATENT OFFICE

1,950,538

DEVICE FOR HANDLING ROLLS OF PAPER

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Application June 29, 1931, Serial No. 547,568

4 Claims. (Cl. 242—68)

This invention relates to devices for handling rolls of paper and has for its object to provide a new and improved device of this description. The invention has as a further object to provide a device for handling rolls of paper, particularly adapted to be utilized in spaces which have been too small for the devices heretofore used for this purpose. The invention has as a further object to provide a device for handling rolls of paper which shall be very compact and have a very short axial length so that it may be operated in a much more limited space than has heretofore been possible. The invention has as a further object to provide a device for handling rolls of paper with a compact and efficient spindle controlling mechanism. The invention has other objects which are more particularly pointed out in the accompanying description.

Referring now to the drawings, Fig. 1 is a view showing one form of device embodying the invention;

Fig. 2 is an enlarged end view of one of the roll holding arms showing the latching device;

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

Like numerals refer to like parts throughout the several figures.

Referring now to the drawings, I have shown one form of device embodying the invention. In this construction there is a roll supporting device upon which the rolls of paper are supported. These devices may be used in connection with printing presses, or in the manufacture of paper, or wherever it is necessary to wind the paper onto a roll or unwind it from the roll.

In the construction illustrated the roll supporting device consists of a reel having a shaft 1. Mounted on said shaft, at opposite ends thereof, are the spiders 2, each having a plurality of arms 3. The rolls of paper are supported between the arms at the opposite ends of the shaft 1. These arms are rotatable so as to bring the rolls of paper into different positions, depending upon the manner in which the device is used. At the end of each arm on one of the spiders there is provided a spindle head 4. The free end of this spindle head is inserted in the core 5 of the roll of paper 6. The other end is inserted in a recess in the sleeve 7, movably mounted in the end of the arm 3, see Fig. 3. The spindle head 4 is connected with the spindle 8 which projects into the sleeve 7 and which is held in place by means of the washer 9 which engages a shoulder 10 on the sleeve 7, and which is held in place by the fastening device 12. The sleeve 7, spindle and spindle head are movable with relation to the arm 3, so that the spindle head may be moved into the core 5 of the roll after the core has been placed in position. When the device is in operation the spindle head preferably rotates with the core 5 and upon the ball bearings 13.

Some means is provided for quickly and easily moving the spindle head and the sleeve to their operative and inoperative positions. In the construction herein shown the sleeve 7 is provided on its outer surface with triple threads 14, 14*a* and 14*b*. The end of the sleeve 7 is closed by means of a cover 15 held in place by the fastening devices 16. Rotatably mounted upon the sleeve 7 is a ring 17, which preferably has a close rotating fit thereon. A plurality of thread engaging members 18, 18*a* and 18*b* are connected with the ring 17 and engage the threads 14, 14*a* and 14*b* on the sleeve 7. These thread engaging devices are herein shown as taper point screws, and they are preferably locked in their operative positions. These taper point screws are preferably locked in their operative position by means of lock screws 19 working in the plugs 20. The screw 18 works in the thread 14, the screw 18*a* works in the thread 14*a* and the screw 18*b* works in the thread 14*b*.

Attached to the arm 3 is the split ring, consisting of the two segments 21 and 22 which are fastened to the arm by the fastening devices 23 and work in a groove in the ring 17, as shown. The ring 17 is rotatably mounted and is held against lateral displacement by the segments 21 and 22. Connected with the ring 17 is a handle 24 to which is connected a pawl 25 engaging teeth 26 on the segment 21. This pawl is pivoted at 27 to the handle 24. The pawl is operated by a push rod 28 which is pivotally connected to the pawl at 29. There is a retracting spring 30 for the pawl and push rod. When it is desired to rotate the sleeve 7, the push rod is pushed downwardly so as to lift the pawl from the teeth 27, and the handle 24 is then moved. This rotates the ring 17 and this ring, by means of the engaging devices 18, 18*a* and 18*b*, working in the threads 14, 14*a* and 14*b*, cause the sleeve 7 to be moved so that the spindle head may be brought back flush with the face of the arm 3. The roll of paper is then placed in position and the handle 24 rotated in the opposite direction, and this causes the spindle head to be moved outwardly so as to project into the core 5, as shown in Fig. 3.

It will be seen that by this construction the spindle can be easily and quickly controlled, that

the arm may be made very narrow, requiring very little space, and that the three beveled screws in connection with the triple threads prevent binding of the parts and insure the proper and accurate operation thereof.

In Fig. 1 I have shown more or less diagrammatically the device showing one form of use, wherein the rolls are used in connection with belts 31 which engage the rolls of paper and which pass over the direction changing devices 32, 33, 34 and 35. The belt is kept taut by the movable direction changing devices 36 and the weights 37. There are a plurality of these belts, each having similar direction changing devices.

If desired, a stop 38 may be provided for limiting the movement of the ring 17. The sleeve or movable support 7 is provided with means for preventing its rotation. As herein shown it is provided with a keyway in which is placed a key 39, see Fig. 2. This key also projects in a key way in the arm 3 and is held in place by a screw 40. This screw works in a threaded hole in the key 39 and when tightened draws the key tight up in the key way in the arm 3. When the ring 17 is rotated the engaging devices for the threads cause the sleeve or supporting device 7 to be moved longitudinally without being rotated. The spindle head 4 is provided with an opening 41 and in practice this opening will be provided with a removable plug.

I claim:

1. A device for handling rolls of paper comprising opposed parts between which the roll is rotatably mounted, a movable support connected with one of said parts and on which one end of the roll is supported, a triple thread on said movable support, a separate engaging device for each of said threads, and a rotatable part mounted on said movable support and with which said separate engaging devices are connected, a handle connected with said rotatable part for rotating it so as to move said engaging devices through an arc of a circle so as to impart a longitudinal movement to said support to move it into and out of its roll supporting position.

2. A device for handling rolls of paper comprising opposed parts between which the roll is rotatably mounted, a movable support connected with one of said parts and on which one end of the roll is supported, a triple thread on said movable support, a rotatable part on the exterior of said movable support, three engaging members spaced about said movable support and connected with said rotatable part, each engaging a different one of said threads, and means for moving said rotatable part through an arc of a circle so as to cause said movable support to be moved longitudinally to and from said roll.

3. A device for handling rolls of paper comprising opposed parts between which the roll is rotatably mounted, a movable support connected with one of said parts and on which one end of the roll is supported, a triple thread on said movable support, a rotatable part associated with said movable support, three engaging members spaced about said rotatable part, each engaging a different one of said threads, a handle connected with said rotatable part, a pawl connected with said handle, teeth connected with the part carrying the movable support, means for moving said pawl into and out of engagement with said teeth, said arm when moved rocking said rotatable part, the pawl holding the movable support in its operative roll engaging position.

4. A device for handling rolls of paper comprising opposed parts between which the roll is rotatably mounted, a movable support connected with one of said parts and on which one end of the roll is supported, a longitudinally extending fixed guide along which said support moves, a triple thread on said movable support, a separate engaging device for each of said threads, and a rotatable part on the exterior of said movable support and to which said thread engaging parts are connected, means for preventing longitudinal movement of said rotatable part, and a handle connected with said rotatable part to rotate it to simultaneously move said engaging devices through an arc of a circle so as to impart a longitudinal movement to said support to move it into and out of its roll supporting position.

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