

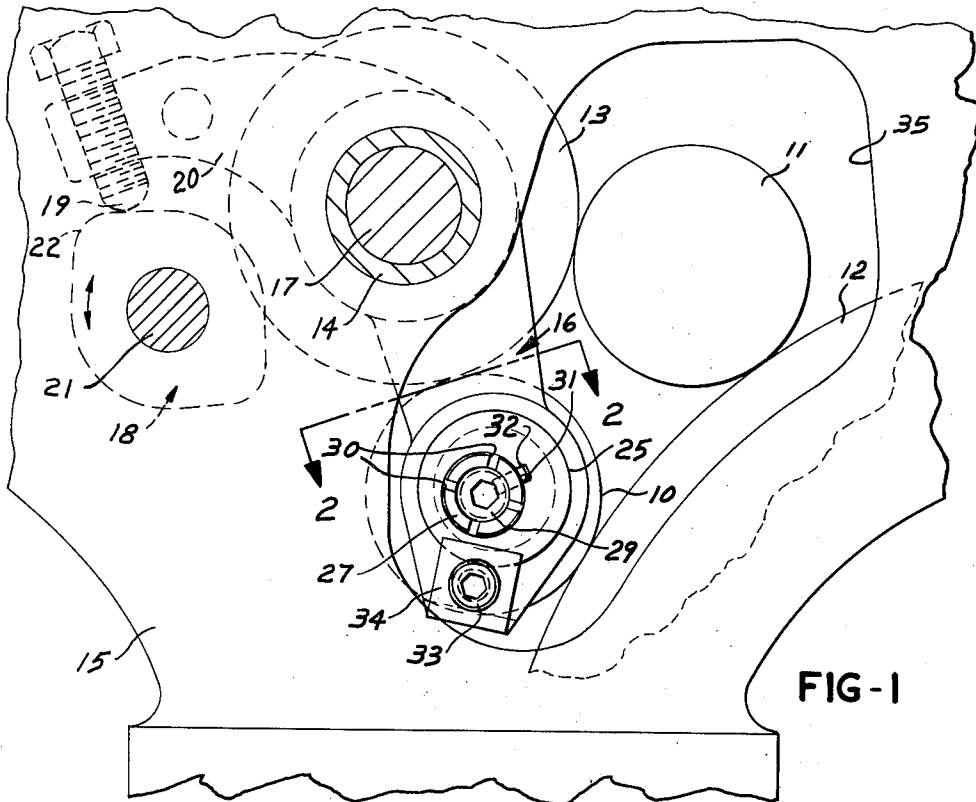
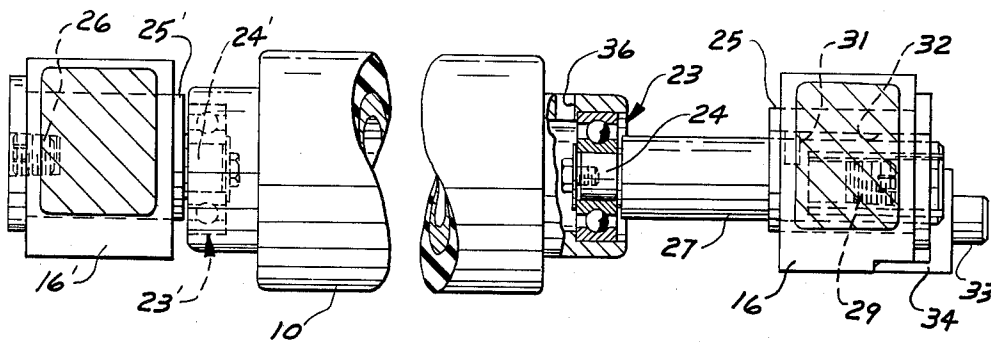
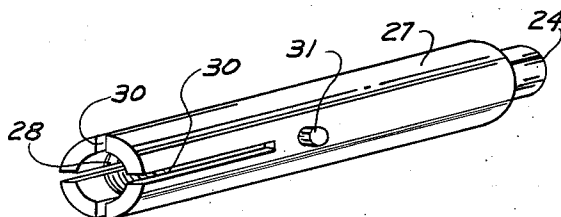
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N. K. HENKEL

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ROLLER SUPPORT

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INVENTOR.
NORMAN K. HENKEL
BY
William Weigl
ATTORNEY

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ROLLER SUPPORT

Norman K. Henkel, Dayton, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio, a corporation of Delaware

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This invention relates to a support for a roller of the type journaled at its ends on pintles.

Pintle-type journals for rollers such as inking form rollers of a printing press are quite commonly known. Such pintles are normally provided with means enabling the axis of the roller to be shifted laterally, for example, for adjusting the pressure relationship of the rubber or composition surface of the roller with respect to a printing plate or another roller. Since such rollers must occasionally be replaced, it is also necessary to be able to remove the rollers from the pintles. This has been provided for in a variety of ways, most of which are complicated sufficiently so that their adjustment is also made somewhat difficult.

Ordinarily, form rollers of an inker are suspended from hangers journaled about the axis of another roller, and these hangers are located on the inside of frame members for the inker. The frames are customarily provided with tool access holes so that roller adjustments or removal of the pintles may be made from outside the press.

It is therefore an object of the present invention to provide an easily adjustable pintle support for a roller, with means for readily maintaining the adjustment.

Another object of the invention is to provide a simplified pintle support for a roller which is easily operated by a simple, conventional tool for unlocking, adjusting, and again locking the pintle in position.

Other objects and advantages will be apparent from the following description in which reference is made to the accompanying drawings.

In the drawings:

FIG. 1 is a fragmentary side elevational view, partly in cross-section, illustrating the preferred embodiment of my invention.

FIG. 2 is a view taken along line 2—2 of FIG. 1 showing a form roller of a printing press incorporating the present invention.

FIG. 3 is an oblique view of the pintle shown at the right-hand side of FIG. 2.

In FIG. 1, I have illustrated a portion of an inker of a printing press including a pair of form rollers 10 and 11 which run in contact with a printing plate (not shown) mounted on a plate cylinder 12 of a printing press. The rollers 10 and 11 also run in pressure contact with a storage roller 13 journaled in bearings 14 mounted in frames 15 of the inker. Only a single bearing 14 and frame 15 are shown, it being understood that the roller 13 is supported at both ends in similar fashion.

While the supports for rollers 10 and 11 are alike for all practical purposes, I have described the invention only in relation to roller 10, it being understood that roller 11 may likewise be, and usually is, mounted in the same manner as roller 10. Form rollers 10 and 11 are ordinarily provided with a resilient surface of composition or rubber and are pressed into contact with the plate on the cylinder 12 and also against the storage roller 13. The pressure relationship of the roller 10 with the plate on

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cylinder 12 is accomplished by spring means (not shown). This spring means urges the hangers 16 and 16' in a counter-clockwise direction as viewed in FIG. 1, around the shaft 17 of the storage roller 13. The extent to which the form roller 10 may be urged in the counter-clockwise direction is controlled by a cam 18 and a setscrew 19 carried in an arm 20 of the hanger 16. It will be seen that the setscrew 19 may be adjusted in the arm 20 to move the form roller 10 generally away from the cylinder 12 in a clockwise direction, or may be backed off to enable the spring means to urge the form roller 10 into greater pressure relationship with the cylinder 12. The cam 18 is mounted on a shaft 21 journaled in the frames 15. Shaft 21 is controlled from conventional throw-off mechanism so that a lobe 22 on the cam 18 will be presented to the setscrew 19 when any conventional signal is received to stop inking the cylinder 12. With lobe 22 having its high spot against the tip of the setscrew 19, it will be seen that the roller 10 will be lifted out of contact from the plate on the cylinder 12 by rotating the hangers 16, 16' in a clockwise direction about the shaft 17 of the storage roller 13. During this period, however, the pressure relationship of roller 10 with storage roller 13 will be maintained. When printing is to be resumed, the shaft 21 will be rotated counterclockwise sufficiently to enable the setscrew 19 to rest on the low part of the cam 18, and the spring means previously referred to will return the form roller 10 to the proper pressure contact with the plate on the cylinder 12.

The form roller 10, as shown in FIG. 2, is preferably provided with a tubular shaft having coaxial counterbores in each end thereof. An anti-friction bearing 23 is provided for each counterbore. The outer race of each bearing 23 is adapted to closely fit the counterbores. The inner races of the bearings 23 are adapted to be mounted on pintles 24 and 24'. The pintles 24 and 24' are in turn mounted in pintle supports which take the form of eccentrics 25 and 25', respectively. It will be noted that the bearings 23 are adapted to be maintained on their respective pintles by means of washers and cap screws which fit within the hollow shaft for roller 10.

From FIGS. 1 and 2, it can be seen that the pintle supports 25 and 25' are journaled within their respective form roll hangers 16 and 16', with the pintles 24 and 24' being eccentric with respect to the pintle supports. In this fashion, it can be seen that rotation of the pintle supports will alter the axis of the pintles 24 and 24' to the extent that the form roller 10 may be adjusted laterally. The purpose for such adjustment is to enable the pressure contact between the form roller 10 and the storage roller 13 to be adjusted, and this is easily accomplished by rotation of the pintle supports or eccentrics 25 and 25'.

It will also be noted from the left end of FIG. 2 that pintle 24' and eccentric 25' are preferably integral. Eccentric 25' may have a tapered screw 26 tapped into the left end thereof. This screw may be provided with a socket for receiving a tool. By fastening the tapered socket head screw 26 tightly into the eccentric 25', it will be seen that rotation of screw 26 will also enable rotation of the eccentric 25', thereby enabling lateral shifting of the axis of the pintle 24' at that end of the roller. Locking means (not shown) is provided for holding the eccentric 25' in adjusted position. This locking means is preferably of the type to be described shortly in relation to the mechanism at the right hand side of FIG. 2.

Pintle 24 is supported on a collet shaft 27 which closely slidably fits into a bore in the pintle support 25. As shown in FIG. 3, the shaft 27 is provided with an internal tapered thread 28. Surrounding the threaded portion, the shaft 27 is split into several sections along lines parallel to the axis of the shaft 27 to provide an expansible portion at one end of the shaft 27. By inwardly screwing a tapered screw of the socket-head type such as 29, it will be seen that the split end of the collet shaft 27 will expand slightly. By so expanding, it will be seen that the outer surface between various slits 30 will form an external gripping surface snugly fastening against the internal bore in the pintle support 25. In order to enable the plug or screw 29 to be tightened sufficiently to expand the end of the shaft 27, I provide a pin 31 extending radially from the shaft 27 and engaging in a keyway slot 32 extending the length of the bore through the pintle support 25. So long as the support 25 is maintained against rotation, I can tighten or loosen the tapered screw 29 with the tool. By loosening the screw 29, the previously expanded portions of the shaft 27 between the slits 30 will return to their original shape and become free of the tightly gripping contact with the core in the eccentric 25.

In order to adjust the pressure between rollers 10 and 13, I simply loosen a socket head screw 33 for each pintle support 25 and 25'. This releases a clamp 34 which was tightly holding each pintle support against its hanger. Then, by inserting a hex head tool through an access hole 35 in the frames 15, I may turn the screws 29 and 26 clockwise or counterclockwise as found necessary, such turning performing a lateral shifting of the pintles 24 and 24' and thus a change in the pressure relationship between the form roller 10 and the storage roller 13. Ordinarily, the storage roller 13 is hard-surfaced and the entire pressure contact will be accomplished by the giving of the resilient surface of the form roller 10 pressing against the roller 13. When once adjusted, the clamps 34 are again fastened against their respective pintle supports by tightening the screws 33. It will be seen that this clamping action provides a force directed parallel to the roller axis and thus prevents the tightening from effecting any force in the direction of rotation of the pintle supports. This enables slight adjustments to be easily maintained during tightening of the clamps 34.

Let us assume that the form roller 10 must be removed for any of several reasons well understood in the printing art. This may be accomplished in my preferred form of the invention by first loosening the screw 29. This releases the clamping action of the collet shaft 27 against the inside of the bore in the pintle support 25. I then place a pin, which may be the hex head tool for operating screw 29, into an opening 36 in the shaft for the roller 10 and pry onto the screw and washer threaded into the pintle 24. I will perform this prying action while supporting the roller 10 with one hand until the collet shaft 27 moves rightwardly and withdraws the anti-friction bearing 23 from supporting position for the roller 10. Ordinarily, just a slight prying action would be needed, after which the shaft 27 may be easily slid rightwardly as viewed in FIG. 2. Also, a rightward movement of the roller 10 will often tend to push the collet shaft 27 through the bore in the pintle support 25, since the shaft will have been previously placed in released condition. The roller 10 may now be removed. Assuming that the same roller is placed back into the press, it will be shown that the adjustment of the form roller 10 with respect to the storage roller 13 and also with respect to the plate on the cylinder 12 will have been maintained, since the adjustments have not been touched during removal of the roller. The roller 10 may be restored to its proper position by slipping one end of the roller 10 over the anti-friction bearing 23' and then slipping the collet shaft 27 and its bearing 23 leftwardly as shown in FIG. 2 until the bearing engages in the bore in the shaft of the roller 10. After the shaft 27 has been partially located in

proper supporting position, the operator can go outside the frame 15, reach in with the tool for operating the threaded screw 29, push firmly until he is sure the bearing 23 is properly seated in the counterbore in the shaft of roller 10, and then turn the threaded screw 29 to move it inwardly and expand the shaft 27 at the area surrounding the slits 30. This expansion will, as mentioned previously, cause the collet shaft 27 to tightly grip the bore in the pintle support or eccentric 25. During the aforementioned operations, I have maintained the pintle supports 25 and 25', and consequently the pintles 24 and 24', in their proper relationship with respect to the other rotative members of the inker and press.

Various changes may be made in the details of my invention without departing from the spirit and scope of the claims.

Having described my invention, I claim:

1. In a journal for rotatively mounting one end of a roller journaled at both ends,
 - a pintle,
 - a member having an eccentrically positioned bore there-through for receiving said pintle,
 - means supporting said member for rotative adjustment on an axis generally parallel to the roller axis,
 - means for locking said member in adjusted position against rotation relative to said supporting means,
 - means maintaining said pintle in said bore against rotation relative to said member but enabling movement of the pintle in an axial direction in the bore,
 - said pintle having a tapered threaded opening directed inwardly thereof from that end of the pintle remote from the roller, and the portion of the pintle surrounding said threaded opening being split parallel to the axis of the pintle to provide an expansible area at the outer surface of the pintle,
 - and a tapered screw threaded into said opening to expand the pintle to cause its outer surface to grip the bore internally and lock it in roller-supporting position in the member.
2. The invention set forth in claim 1 wherein said tapered screw is provided with tool-engageable means facing outwardly from the roller, and wherein the locking means comprises screw means having a tool-engageable portion facing in the same direction as the tool-engageable portion of the tapered screw.
3. The invention set forth in claim 2 wherein the tool-engageable portions of both screws are identical in size and shape.
4. In a journal for rotatively mounting the ends of a roller,
 - a pintle for each end of the roller, said roller ends being adapted to receive said pintles,
 - a pair of hangers adjacent each end of the roller,
 - a cylindrical pintle support journaled in each hanger for mounting said pintles in roller-supporting position, said pintles being eccentric with respect to their supports,
 - means for locking each pintle support against rotation relative to its hanger,
 - at least one of said pintle supports having a bore there-through in which its pintle is mounted,
 - means maintaining said one pintle in said bore against rotation relative to said support but enabling movement of the pintle in an axial direction in the bore,
 - said one pintle having a tapered threaded opening directed inwardly thereof from that end of the pintle remote from the roller, and the portion of the pintle surrounding said threaded opening being split parallel to the axis of the pintle to provide an expansible area at the outer surface of the pintle,
 - and a tapered screw threaded into said opening to expand the pintle to cause its outer surface to grip the bore externally and lock it in roller-supporting position in its support.

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5. The invention set forth in claim 4 wherein means is provided for rotating each of said pintle supports, said tapered screw comprising the means for rotating the pintle-support carrying the axially movable pintle.

6. The invention set forth in claim 5 wherein said locking means comprises a screw and wherein said screw and said tapered screw are each provided with tool-engageable portions facing in the same direction, and of the same size and shape.

7. The invention set forth in claim 6 including frame means closely adjacent said tapered screws, said frame means having an access hole in line with the axis of

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said roller, and both said screw and said tapered screw being closely adjacent and accessible by tool operation through said access hole.

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ROBERT E. PULFREY, *Primary Examiner.*