May 17, 1932. C. A. MEISEL ET AL 1,858,305

PRESS CYLINDER

Filed June 14, 1928

Fig. 1.

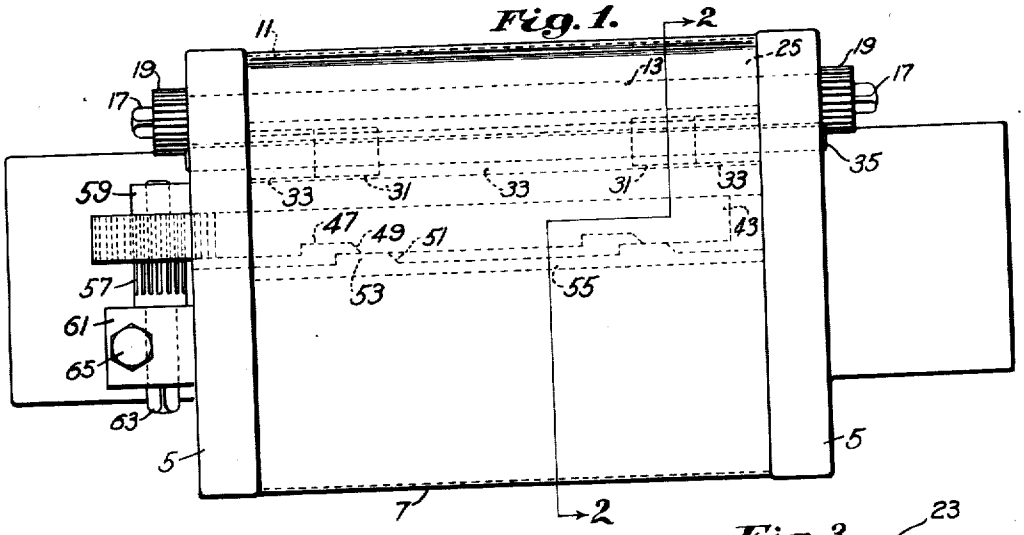


Fig. 2.

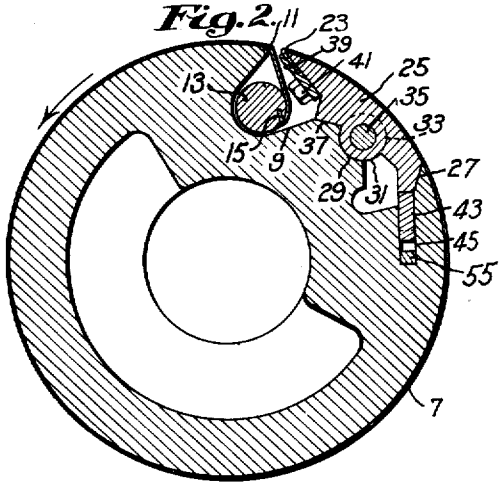


Fig. 3.

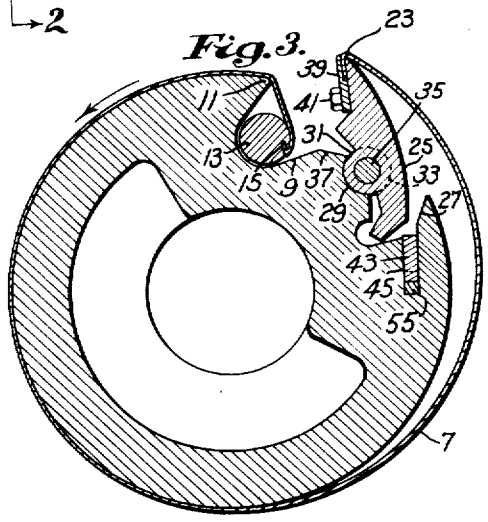
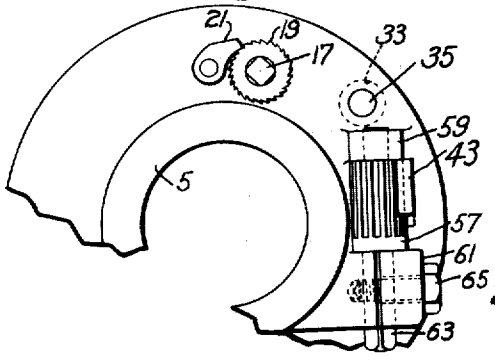


Fig. 4.



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UNITED STATES PATENT OFFICE

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PRESS CYLINDER

Application filed June 14, 1928. Serial No. 285,319.

This invention relates to printing press cylinders and in particular to the construction of such a cylinder wherein means are provided for securing a covering thereon. While not limited thereto, the construction finds a particular application to the securing of zinc plates for use in offset presses, and by way of specific example there will be described herein a construction, adapted for such purpose as illustrated in the accompanying drawings, wherein:

Fig. 1 is a side elevation of the cylinder;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a similar section showing the parts in another position; and

Fig. 4 is a partial end elevation of the cylinder as seen from the left of Fig. 1.

In these drawings there is shown a cylinder having at its ends bearers 5 of customary construction and about which is applied the zinc plate 7. The body of the cylinder may be provided with a recess 9 (see Fig. 2) defining at one side thereof the edge 11 over which one end of the zinc plate or other covering may be secured. Herein a reel rod 13 is received in the recess under this edge and is provided with a diagonally disposed slot to receive the hooked edge 15 of the plate 11. The reel rod 13 may be turned to tension the plate by means of the squared ends 17 thereof to which a wrench may be applied, and the tension is maintained by means of the ratchets 19 on the ends of the rod cooperating (see Fig. 4) with pawls 21.

In opposition to the edge 11 and closely adjacent thereto lies the end or edge 23 of a peripheral segment 25, the surface of which segment in one position of the parts, that of Figs. 1 and 2, forms a continuation of the main cylindrical surface of the cylinder. In this position the segment 25, as shown in Fig. 2, substantially fills the top of the recess 9 with the opposite end thereof presented to the opposite wall of such recess. Such wall is herein shown as diagonally undercut at 27 and the end of the segment 25 shaped to fit thereagainst from below, the surface of the cylinder extending substantially unbroken from the main portion thereof across the joint at 27 to the surface of segment 25.

The segment 25 is mounted in such manner that it may be readily moved to permit an end of the covering to be applied over the end 23 thereof and to bring it definitely into a position wherein its surface aligns with the rest of the cylinder and said edge 23 is fixedly located. For this purpose pivotal bearings 29 may be provided in the recess adapted to receive similar bearings on the segment and herein the segment is provided with hinge knuckles 31 received between similar knuckles 33 in the bottom of the recess, but preferably and in contrast with the knuckles in an ordinary hinge these are accurately formed, as indicated in Figs. 2 and 3, to provide pivotal bearings, and the removable pintle rod 35, which extends through the knuckles, may serve primarily to hold the segment in position rather than to form the bearing as in an ordinary hinge. In the embodiment of the invention shown the overhanging wall 27 of the recess forms a stop for the tail of the segment, and a stop 37 may be provided on the opposite side of the center, the segment when in position against these stops as shown in Fig. 2 aligning with its surface a continuation of the cylindrical surface of the cylinder.

The segment may swing clockwise away from these stops to the position of Fig. 3, the tail portion thereof entering the recess 9 and the edge 23 moving outwardly and clockwise to expose the under surface thereof in the manner shown in Fig. 3. In this position the hooked end of plate 7 may be engaged over the same and secured as by means of the clamping bar 39 and screws 41, or conversely a covering already secured about the cylinder may be removed. Definitely to position the segment as in Fig. 2 suitable means may be provided underlying the tail portion thereof and forcing the same outwardly to a definite position, herein against the stops provided at 27 and 37, and for this purpose there is herein utilized a longitudinally shiftable bar 43 received in a slot 45 opening to the recess 9. The bar 43 has a retracted position in which it is received in the slot, as shown in Fig. 3, permitting the tail of the segment to swing in the manner there illustrated, and it

may be forced outwardly into the recess to make contact with the tail of the segment to support it in the manner shown in Fig. 2. For forcing the bar laterally it may be provided (see Fig. 1) with suitable notches 47 having diagonal faces 49 adapted to cooperate with diagonal faces 51 of teeth 53 which are herein shown as formed on a separate bar 55 housed in the bottom of slot 45.

With the parts in the position of Figs. 1 and 2, if the bar 43 is shifted longitudinally of the cylinder, to the right in Fig. 1, the notches 47 receive the teeth 51 permitting the bar to drop inwardly to the position of Fig. 3. On return movement the diagonal surfaces 49 and 51 press the bar outwardly a definite amount to the position of Figs. 1 and 2 and it moves the segment 25 with which it engages to a fixed and definite position. The teeth 53 are preferably provided on a separate bar 55 as shown, as this readily permits such bar to be shimmed up to compensate the wear of the parts.

Suitable means are provided at the end of the cylinder for longitudinally shifting the bar 43 and herein the projecting end of the latter is shown as provided with rack teeth adapted to run on a pinion 57 turning in bearings 59 and 61 at one end face of the cylinder. The shaft of pinion 57 may be provided with a square portion 63 (Fig. 4) by which it may be turned and to clamp the bar in adjusted position one of the bearings, as 61, may be split and provided with a clamping screw 65 by means of which the shaft of the pinion may be secured against rotation.

To apply a covering to the cylinder as described, the segment may be brought to the position of Fig. 3 by shifting the bar 43 to the right from the position of Fig. 1. One end of the plate 7 is hooked into the slot in the reel rod 13. The opposite end may be easily engaged over the outwardly projecting edge 23 of the segment and clamped in position by the clamping bar 39. The segment is then swung down by hand to its approximate position and the bar 43 forced out thereagainst to the position of Fig. 2 and by such action not only is the surface of the segment brought accurately into alignment with the main cylindrical surface but the edge 23 is brought to a perfectly definite position. Thus in the case of the zinc plate the head of the typographical matter is accurately and definitely positioned. Any slackness such as might be caused by a stretching of the plate may be taken up by adjustment of the reel rod 13. It will be noted from Figs. 2 and 3 that the plate extends from the edge 11 to the reel rod at an obtuse angle without such a sharp crimp as would be formed if it were drawn directly inwardly or hooked rearwardly over the overhanging edge, which crimp would prevent regaining or prohibit such tensioning as described while, in the closed position of the parts, the reel rod is overhung by the projecting portion of the segment defining edge 23. The surface of the cylinder is substantially unbroken except for the gap between the edges 11 and 23 and this may be made very small.

While there has herein been described and illustrated a cylinder wherein the covering extends about the entire circumference thereof, obviously the construction is applicable to cylinders wherein two or more segmental coverings are utilized.

We are aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and we therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive; reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

We claim:

1. A cylinder of the class described having a recess defining an edge, said cylinder including a peripheral segment pivotally mounted between its ends and having at one end an edge over which a covering may be secured presented in close opposition to said edge of the recess and at its other end formed to cooperate with the adjacent surface of the cylinder to provide a substantially continuous cylindrical support for such covering, and releasable means underlying said other end and acting directly thereon for forcing it outwardly into position with the surface of said segment lying at the surface of the cylinder.

2. A cylinder of the class described having a recess defining an edge, said cylinder including a pivotally mounted peripheral segment having at one end an edge over which a covering may be secured presented in close opposition to said edge and at its other end formed to cooperate with the adjacent surface of the cylinder to provide a substantially continuous cylindrical support for such covering, and releasable means underlying said other end for forcing it outwardly into position with the surface of said segment lying at the surface of the cylinder, said means comprising a longitudinal shiftable bar opposing said end and cam means cooperating with said bar to effect lateral displacement on longitudinal movement thereof.

3. A cylinder of the class described having a recess defining an edge, said cylinder including a peripheral segment pivotally mounted between its ends and having at one end an edge over which a covering may be secured presented in close opposition to said edge of the recess and at its other end formed to cooperate with the adjacent surface of the cylinder to provide a substantially continuous cylindrical support for such covering, and releasable means underlying said other end

and acting directly thereon having a fixed throw effective to force said other end outward into such position that the surface of said segment lies at the surface of the cylinder.

4. A cylinder having a portion of its periphery formed as a rockingly mounted segment, said cylinder having a slot opposing an end of the segment, a bar received in said slot having an end exposed at the end of the cylinder provided with rack teeth, a pinion cooperating with said teeth, and means for effecting lateral movement of said bar on longitudinal shifting thereof to bring it into and out of engagement with said segment.

5. A cylinder having a portion of its periphery formed as a rockingly mounted segment, said cylinder having a slot opening an end of the segment, a bar received in said slot, a member received in the slot and underlying the bar, said member and bar having cooperating surfaces to effect lateral movement of said bar on longitudinal shifting thereof to bring it into and out of engagement with said segment.

6. A cylinder of the class described having a portion of its periphery formed as a segment, a rocking bearing for the segment between the ends thereof, said cylinder having a recess to receive the tail of said segment to permit the leading edge thereof to be swung outwardly beyond the surface of the cylinder, a member adapted to be projected into said recess to engage the tail of said segment, said member in retracted position permitting said tail to move into the recess and in projected position supporting said segment in aligning position in the cylindrical surface.

7. A cylinder of the class described having a portion of its periphery formed as a segment, a rocking bearing for the segment between the ends thereof, said cylinder having a recess to receive the tail of said segment to permit the leading edge thereof to be swung outwardly beyond the surface of the cylinder, a slot intersecting said recess, a bar reciprocable in the slot, and means cooperating with the bar to project it into the recess on longitudinal movement thereof and into engagement with the tail of said segment to support the segment in aligning position in the cylindrical surface.

8. A cylinder having a recess defining at one side an edge over which a covering may extend, extend, a reel rod in the recess to engage the covering, a bearing in the recess, a segment pivoting on the bearing, having one end presented in one position of the segment in close opposition to said edge and having means for securing a covering over said end, the other end of said segment when in said position being presented to the opposite wall of the recess in such manner that the surface of the segment is a continuation of the surface of the cylinder, and a releasable means adjacent said latter edge of the cylinder for swinging it to said position.

9. A cylinder having a recess defining at one side an edge over which a covering may extend, a reel rod in the recess to engage the covering, a bearing in the recess, a segment pivoting on the bearing, having one end presented in one position of the segment in close opposition to said edge and having means for securing a covering over said end, the other end of said segment when in said position being presented to the opposite wall of the recess in such manner that the surface of the segment is a continuation of the surface of the cylinder, and a releasable means adjacent said latter edge of the cylinder for swinging it to said position comprising a member extending longitudinally of the cylinder and operable from an end of the cylinder by longitudinal movement of such member.

10. A printing cylinder having a longitudinal recess, bearings within said recess, a segment adapted to occupy said recess and having an edge fitting one edge of the recess and presenting an edge in close opposition to the other edge of the recess, said segment having circular bearings resting on the bearings of the cylinder whereby it may swing as a lever of the first class, means to retain said segment in position, and releasable means underlying the first said edge of the segment to force it outwardly, said cylinder and segment having cooperating stop surfaces.

11. A printing cylinder having a longitudinal recess, bearings within said recess, a segment adapted to occupy said recess and having an edge fitting beneath one edge of the recess to provide a continuous cylindrical surface and presenting an edge in close opposition to the other edge of the recess, said segment having circular bearings resting on the bearings of the cylinder whereby it may swing as a lever of the first class, means to retain said segment in position, and releasable means underlying the first said edge of the segment to force it outwardly, the engagement of the first edge of the segment with the adjacent edge of the recess providing a stop surface.

12. A printing cylinder having a longitudinal recess, means in the recess for securing the end of a plate to extend therefrom over an edge of the recess at an obtuse angle, a segment pivoted between its ends in said recess and having an end overhanging said securing means and presenting its edge in close opposition to the edge of the recess above mentioned, the other end of the segment mating with the other edge of the recess, means for securing the end of a plate over the said edge of the segment, a stop on the cylinder for the segment and releasable

means for forcing said segment against the stop.

13. A printing cylinder having a longitudinal recess, means in the recess for securing the end of a plate to extend therefrom over an edge of the recess at an obtuse angle, bearings in said recess, a segment having cooperating bearings to provide a pivot about which said segment may swing and having an end overhanging said securing means and presenting its edge in close opposition to the edge of the recess above mentioned, the other said end of the segment mating with the other edge of the recess to provide a continuation of the cylindrical surface, means for securing the end of a plate over the said edge of the segment and means for operating the segment about its bearing to force it into alignment with the cylinder.

In testimony whereof, we have signed our names to this specification.

CHARLES A. MEISEL.
JOHN P. E. NEILSON.

CERTIFICATE OF CORRECTION.

Patent No. 1,858,305. **May 17, 1932.**

CHARLES A. MEISEL ET AL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 18, claim 5, for "opening" read opposing; same page, line 56, claim 8, strike out the words and comma "extend,"; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of July, A. D. 1932.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.

means for forcing said segment against the stop.

13. A printing cylinder having a longitudinal recess, means in the recess for securing the end of a plate to extend therefrom over an edge of the recess at an obtuse angle, bearings in said recess, a segment having cooperating bearings to provide a pivot about which said segment may swing and having an end overhanging said securing means and presenting its edge in close opposition to the edge of the recess above mentioned, the other said end of the segment mating with the other edge of the recess to provide a continuation of the cylindrical surface, means for securing the end of a plate over the said edge of the segment and means for operating the segment about its bearing to force it into alignment with the cylinder.

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