

April 7, 1942.

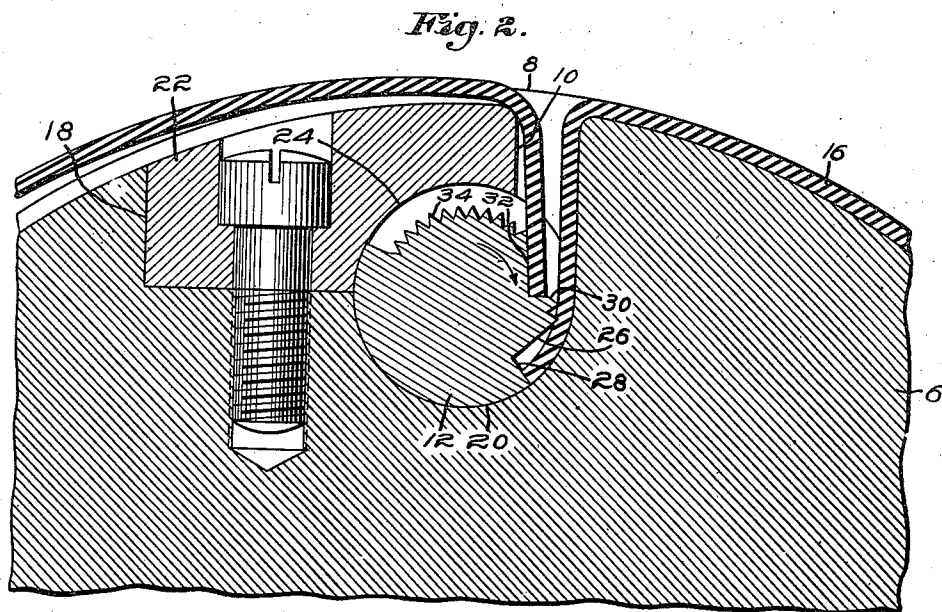
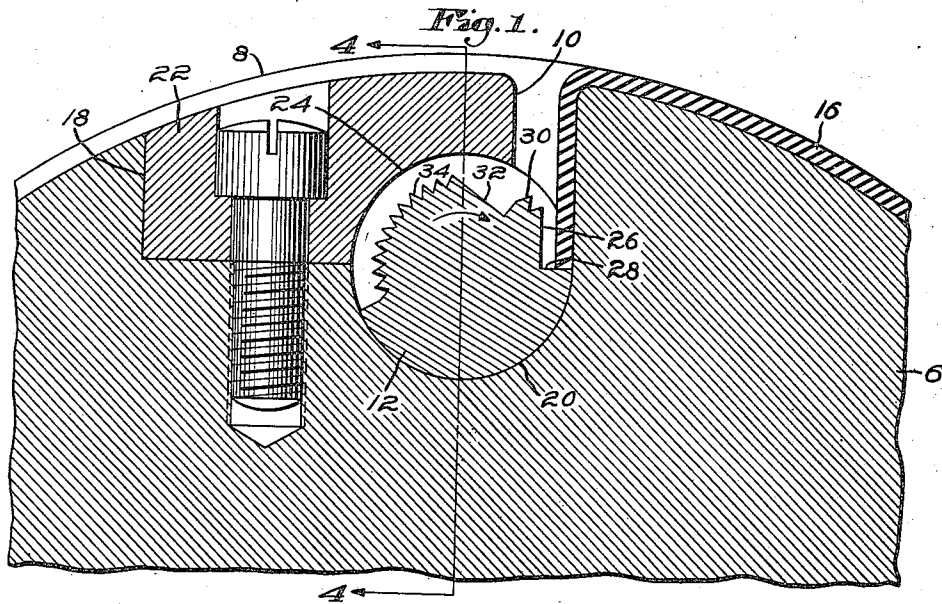
J. P. E. NEILSON

2,279,204

PRINTING CYLINDER

Filed Dec. 13, 1940

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 3.

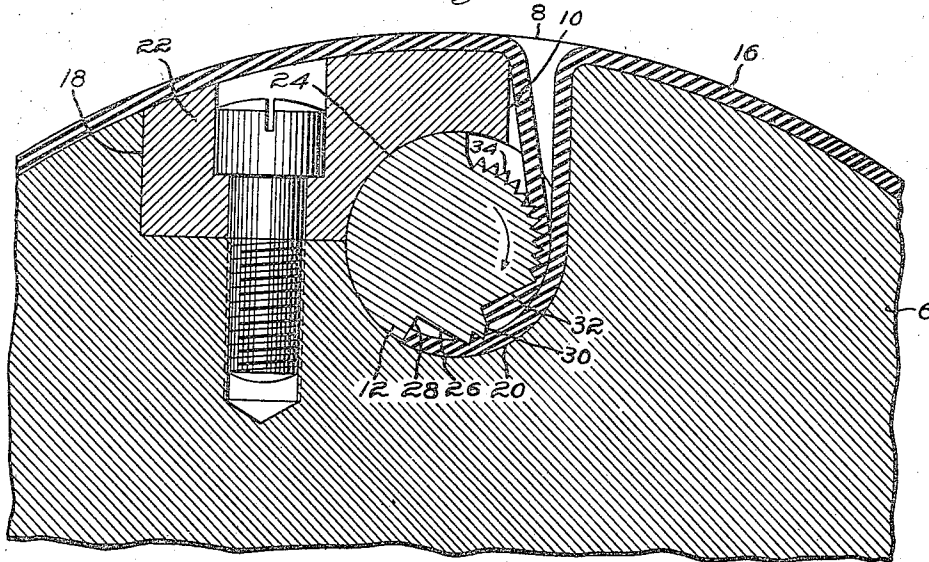
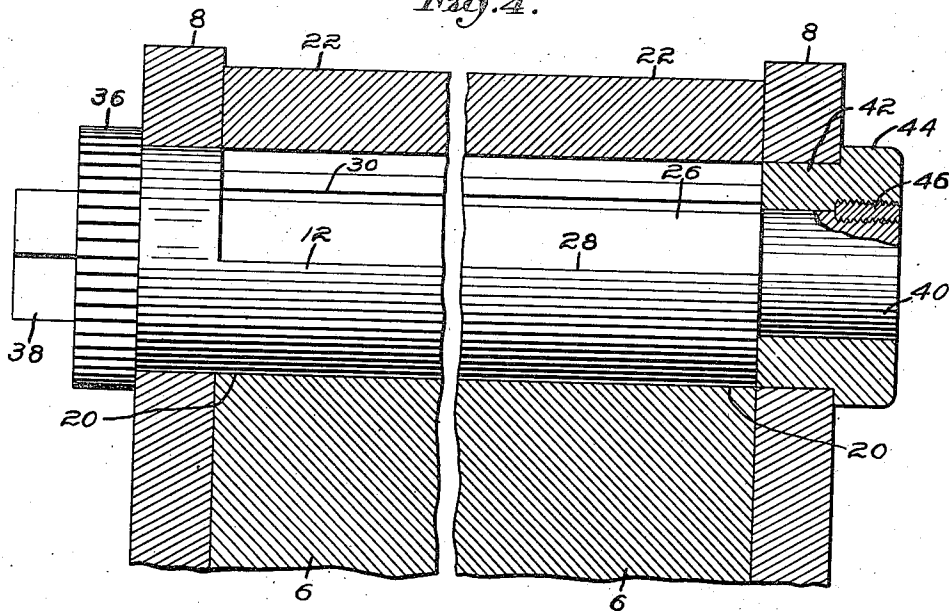


Fig. 4.



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UNITED STATES PATENT OFFICE

2,279,204

PRINTING CYLINDER

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9 Claims. (Cl. 101—415.1)

This invention relates to cylinders and the object is to provide an improved construction facilitating the tight application of a flexible member to the surface of the cylinder and ensuring its secure retention thereon.

My invention will be well understood by reference to the following description taken in connection with the accompanying drawings, wherein—

Figs. 1, 2 and 3 are partial transverse sections through the cylinder illustrating successive steps in securing ends of flexible members thereto; and

Fig. 4 is a broken section on the line 4—4 of Fig. 1, the flexible member being omitted.

Referring to the drawings, I there show a printing cylinder 6 organized between the usual terminal bearers 8 (Fig. 4). The body of the cylinder between the bearers is provided with a gap opening to the surface of the cylinder through a narrow longitudinal slot 10 and within which, inwardly of said slot, lies a reel rod 12 more fully hereinafter described. About the surface of the cylinder is wrapped a flexible member 16, such, for example, as a rubber blanket or a rubber printing plate and either the two ends of a single encircling member or the opposed ends of separate members, the opposite ends of which are secured to the cylinder in the same or some other manner elsewhere in the circumference, are adapted to enter the slot 10 and be secured by the reel rod 12 within the gap. For convenience I will refer in the following description to the flexible member as a "blanket" and in the claims to avoid awkwardness of expression will refer to the ends which are engaged as the ends of "a flexible member."

The preferred mechanical construction herein illustrated as forming the slot 10 and providing for the mounting of the reel rod 12 comprises a generally rectangular recess 18 formed in the body 6 of the cylinder, the bottom of the recess being provided with a groove 20 semi-circular in cross-section and tangent to the right-hand side of the recess viewing Figs. 1, 2 and 3. A filler block 22 is secured in the recess at the left-hand side thereof, this block having an outer surface continuing the contour of the cylinder and an overhanging portion provided with a segmental groove 24 which, when the parts are assembled, matches the groove 20. The member terminates a short distance from the right-hand wall of the recess, thus defining the narrow slot 10 which opens tangentially to a cylindrical seat formed by the cooperation of the two grooves and adapted to receive the reel rod 12 which is gen-

erally of the form of a cylinder corresponding in diameter to the seat referred to.

The single reel rod 12 herein is adapted to engage successively the ends of the blanket 16 to draw these ends down into the gap to secure the blanket in tight encircling relation to the cylinder and to clamp these ends against the wall of the gap in direct engagement one with the other. Referring to Fig. 1, the rod 12 may be cut away to provide a seat 26 for the right-hand end of the blanket 16. This seat preferably takes the form shown of a half a circular segment defining an abrupt shoulder 28 and an unobstructed portion above the same so that, with the rod in the position of rotative adjustment shown in Fig. 1, the right-hand end of the blanket 26 may be thrust in through the slot 10 by a mere movement of approach substantially radial to the cylinder as a whole until the edge of the end engages the shoulder 28. To the rear of the seat 26, considering the forward rotation of the reel rod to clamping position, or counterclockwise viewing the figures, there is provided a clamping shoulder 30 which as a matter of mechanical construction is formed by a slight reduction or cutting away of the cylindrical rod at this point in an amount somewhat smaller than the normal thickness of the blanket 16. To permit this portion 30 not only to press against the end of the blanket but to grip the same to effect downward traction thereon, it is preferably toothed, herein with long rib-like teeth extending along the length of the cylinder.

One end of the blanket being engaged in the seat 26, as shown in Fig. 1, the reel rod 12 is rotated clockwise and the toothed portion 30 engages the end of the blanket and, the teeth gripping the same, the end is carried down to the position shown in Fig. 2, tensioning the blanket over the right-hand margin of the slot 10 at the cylinder surface and pressing the end against the opposed wall of the gap as defined by the groove 20. To the rear of the portion 30 there is provided a seat 32 similar to the seat 26 which is then brought into position beneath the slot 10, as illustrated in Fig. 2. To the rear of the seat 32 the rod is again cut away to provide a toothed clamping portion 34 similar to the portion 30 but preferably of somewhat lesser radial depth measured from the center of the rod and of substantially greater circumferential extent for reasons which will appear. The right-hand end of the blanket is inserted through the slot 10 and placed in the seat 32, as shown in Fig. 2. Continued clockwise motion of the reel rod will

then bring the parts to substantially the position of Fig. 3 in which it will be seen that the movement of the left-hand end of the blanket under the gripping action of the portion 30 has continued while the portion 34 grips the right-hand end of the blanket, draws it down through slot 10, presses it directly against the right-hand end and clamps both of them firmly against the wall of groove 20. The relatively reduced height of shoulder 34 accommodates the double thickness and its circumferential length provides for a wide range of rotative adjustment. Thus a further movement beyond the position of Fig. 3 and continued take-up of the blanket is clearly possible.

Reverse rotation of the reel rod, that is, in a counterclockwise direction, viewing Fig. 3, will free the ends of the blanket, and it is to be noted that, since the ends of the blanket engage the abrupt shoulder 28 of seat 26 and the corresponding shoulder of seat 32, these shoulders will feed backwardly the end portions of the blanket and positively eject them free of the reel rod.

In the mechanical construction shown in the drawing the reel rod has a considerable cylindrical surface which finds a bearing throughout its length on the seat provided by the grooves 20 and 24. In Fig. 4 I have shown the left-hand end of the rod extending through the left-hand bearer 8 and as provided with an integral flange 36 to overlie the face of that bearer and a squared portion 38 by which it may be turned. The flange 36 is herein shown as a ratchet wheel to engage a retaining pawl, not shown, for holding the rod in position after the blanket has been tightened up. The other end of the rod may be provided with a reduced end 40 on which fits a sleeve 42 providing a bearing in the right-hand bearer 8 and having the flange 44 overlying the outer face of the same, this sleeve being secured in position by the key screw 46. Obviously the reel rod may be assembled in its seat by being introduced therinto from the left-hand side, viewing Fig. 4, and secured by the application of the sleeve 42, either before or after the block 22 is secured in place.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I 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.

I claim:

1. A printing cylinder having a gap into which the ends of a flexible member leading from either side thereof may extend, a reel rod rotatably mounted within the gap, the rod being of generally cylindrical form, the wall of the gap having a corresponding cylindrical surface opposing the rod, the rod having seats at circumferentially spaced points to receive the ends of such a member and having portions following the seats to provide for pressing the ends against said wall on rotation of the rod.

2. A printing cylinder having a gap into which the ends of a flexible member leading from either side thereof may extend, a reel rod rotatably mounted within the gap, the rod being of generally cylindrical form, the wall of the gap having a corresponding cylindrical surface opposing the rod, the rod having unobstructed seats at circumferentially spaced points into which the ends of such a member may be introduced by a simple movement of approach in a direction

substantially radial to the cylinder when the seats are faced outwardly to the gap and also having portions following the seats to provide for pressing the ends against the wall on rotation of the rod, said portions having teeth to grip the portions of the end engaged thereby.

3. A printing cylinder having a gap into which the ends of a flexible member leading from either side thereof may extend, a reel rod rotatably mounted within the gap, the rod being of generally cylindrical form, the wall of the gap having a corresponding cylindrical surface opposing the rod, the rod having at circumferentially spaced points seats substantially of the form of a half segment to receive the ends of such a member and having portions following the seats to provide for pressing the ends against said wall as the rod is rotating to carry the seats away from a position facing outwardly in the gap.

4. A printing cylinder having a gap into which the ends of a flexible member leading from either side thereof may extend, a reel rod rotatably mounted within the gap, the rod being of generally cylindrical form, the wall of the gap having a corresponding cylindrical surface opposing the rod, the rod having at circumferentially spaced points seats substantially of the form of a half segment to receive the ends of such a member and having portions provided with gripping teeth, which portions follow the seats to provide for pressing the ends against said wall as the rod is rotating to carry the seats away from a position facing outwardly in the gap.

5. A printing cylinder having a gap into which the ends of a flexible member leading from either side thereof may extend, a reel rod rotatably mounted within the gap, the rod being of generally cylindrical form, the wall of the gap having a corresponding cylindrical surface opposing the rod, the rod having at circumferentially spaced points seats for the ends of such a member, one at least of the seats having an abrupt, rearwardly facing shoulder and being unobstructed rearwardly of the shoulder, whereby when said seat is faced outwardly the end of a member may be freely introduced by a simple movement of approach radial to the cylinder to oppose the edge of the end to said shoulder, the rod having a toothed portion following the seat which on rotation of the rod grips the end and presses it against the wall.

6. A printing cylinder having a generally rectangular recess, the bottom of the recess having a semi-circular groove substantially tangent to one of the sides, a member fitted into the recess at the other side thereof, said member having an outer surface continuing the contour of the cylinder and a segmentally grooved inner surface matching with said semi-circular groove and being terminally spaced from the first side to provide a slot opening to said grooves, and a reel rod rotatably mounted in the seat formed by said grooves having means for engaging the end of a covering member for the cylinder, which end is entered into said slot.

7. A printing cylinder having a longitudinal opening therein beneath the surface thereof intersected by a relatively narrow slot opening to the exterior of the cylinder, said opening being completely cylindrical except where it is joined substantially tangentially by said slot, a reel rod fitting said opening and cut away at spaced locations to provide seats to receive end portions of a flexible member and clamping shoulders at the rear of said seats.

8. A printing cylinder having a longitudinal opening therein beneath the surface thereof intersected by a relatively narrow slot opening to the exterior of the cylinder, said opening being completely cylindrical except where it is joined 5 substantially tangentially by said slot, a reel rod fitting said opening and cut away at spaced locations to provide seats to receive end portions of a flexible member, said seats having closed forward ends against which the end surfaces of 10 the member may abut.

9. A printing cylinder having a gap into which

the end portions of a flexible member leading from either side thereof may extend, a reel rod rotatably mounted within the gap having seats to receive such end portions and constructed and arranged on rotation of the rod in one direction to grip said end portions and draw them inwardly, said rod also presenting shoulders to the end surfaces of said portions whereby on reverse rotation the latter are positively ejected free of the reel rod.

JOHN P. E. NEILSON.