Sept. 2, 1924. 1,506,859

M. OWEN

PRINTING CYLINDER

Filed Feb. 12, 1924

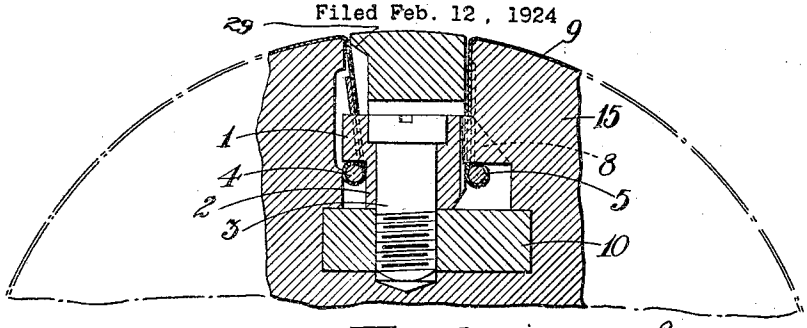


Fig. 2.

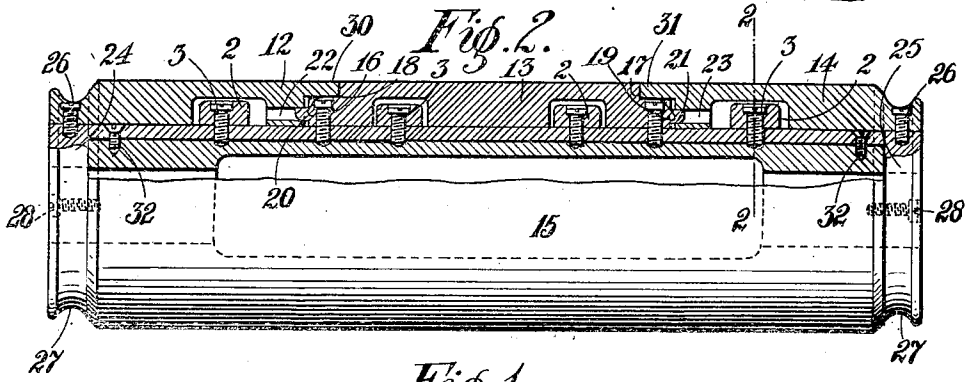


Fig. 1.

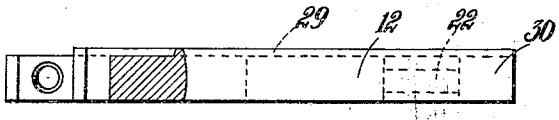


Fig. 4.

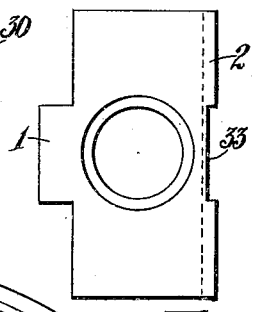


Fig. 5.

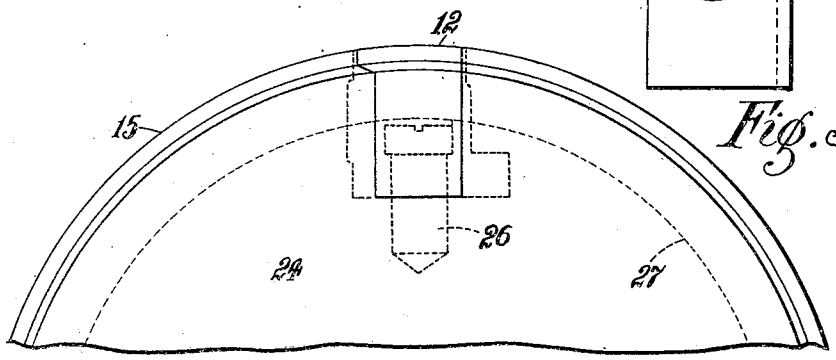


Fig. 3.

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UNITED STATES PATENT OFFICE.

MALCOLM OWEN, OF LONDON, ENGLAND.

PRINTING CYLINDER.

Application filed February 12, 1924. Serial No. 692,408.

To all whom it may concern:

Be it known that I, MALCOLM OWEN, a subject of the King of Great Britain, residing at London, England, have invented certain new and useful Improvements in Printing Cylinders, of which the following is a specification.

This invention relates to printing cylinders of the kind having a gap in which the ends of the printing sheet are fastened.

In fitting sheets to such cylinders one end of the sheet (hereafter referred to as the "leading end") is anchored in the gap; the sheet is then wrapped around the cylinder and then the other end of the sheet (hereafter referred to as the "free end") is secured within the gap.

A main object of the present invention is to provide an improved construction for securing the free end of the sheet, a further object to provide an easily removable covering for the securing means, such covering substantially filling the gap so that a practically continuous surface for the cylinder is obtained, and another object is to construct a cylinder with my improved means for securing the free end of the sheet and a removable capping piece which fills the gap, the capping piece being made up in interlocking sections so that assembling can be effected from each end of the cylinder. A further object is to construct the hook members for use in a cylinder having anchoring lugs for the leading end of the sheet formed on the wall of the gap, so that the hook members assure the retention of the sheet on the lugs.

Another object is to construct such a cylinder with removable ends to facilitate positioning a bed plate in the gap, the ends being in the form of discs and slotted to permit the sections of the capping piece being slid into position, the slots being, finally, fitted by the ends of the outer sections, the discs being recessed annularly when ink wells are required at the ends of the cylinder.

A preferred construction of the present invention is illustrated by way of example in the accompanying drawings, in which:—

Fig. 1 is a longitudinal elevation of the cylinder partly in section;

Fig. 2 is a vertical section on the line 2—2 of Fig. 1, only so much of the cylinder being shown as is necessary;

Fig. 3 is an end elevation of the cylinder; and

Fig. 4 shows in plan an outer section of the capping piece, the cross hatched portion indicating the shape of the section; while

Fig. 5 is a plan of one of the hook members.

Referring first to Figs. 1 and 2 the leading end of the sheet 9 is attached to the cylinder 15 by reason of its reinforced end 5 being hitched over the lugs 8 on one wall of the cylinder gap. The sheet is then wrapped around the cylinder and the free end 4 folded over the edge of the gap and turned down thereinto. Then the sheet is engaged by lugs 1 of a plurality of hook members 2, which are adjustably secured on the bed of the gap and are preferably entirely separate and independent.

The fixing of each hook member may be carried out by boring it radially to the cylinder to receive a fixing screw 3 which enters a threaded hole in either the bed plate 10 in the gap or in the cylinder, that is, the bottom of the gap, and either construction is intended to come within the term "fixed to the bed of the gap."

It will be observed that with this construction a screw driver can be utilized to rotate the fixing screws from the top of the gap in order to assure a final tightening of the sheet on the cylinder, it being understood that the sheet will be perforated or slotted so that the lugs 1 can pass through the body of the sheet as indicated in Fig. 2, the sheet being of course also perforated at the leading end in order to engage over the lugs 8.

The sheet having been secured in the gap the latter may then be filled in by a capping piece which, according to the present invention, comprises three interlocking sections, indicated by the references 12, 13 and 14, the aligned convex faces of which are such as to complete the circle of the cylindrical surface of the cylinder. The central section is secured in place by screws 16, 17 passing through reduced ends 18 and 19, which are obtained by rabbeting the top of each end of the central section. Beyond each rabbet is formed a pin, the pins being indicated in Fig. 1 by the numerals 20 and 21. The outer sections are then slid into the gap from each end until sockets 22 and 23 have passed over the pins 20 and 21 respec-

tively, thereby forming a joint between the outer and inner sections. Then in order to prevent radial movement of the outer ends of the outer sections they are fixed by means of screws 26 to the cylinder.

In order to assure that there is no axial movement of the outer sections relatively to the cylinder and further also to completely fill the gap, that is, to cover the fixing screws of the central section, each outer section is formed beyond its socket with a tongue which, when the outer sections are in position, fits into the rabbet covering the fixing screw, that is, fits tightly against the shoulder formed by rabbeting the end of the central section. The tongues of the sections 12 and 14 are respectively indicated by the references 30 and 31 in the drawings.

It will be noticed that each of the sections 12, 13 and 14 is recessed on its underside so as to bridge the hooked members 2 in order to be independent of them, that is, so that the sections can rest on the bed of the gap, which as shown may be constituted by the bed plate 10 disposed within the gap.

Each end of the cylinder is formed with an annular well 27 for collecting ink escaping from the cylindrical surface when overrunning the edges of the sheet, the ink being easily removable from its wells.

When a bed plate 10 is used as illustrated in the drawings, the cylinder gap is first formed and the bed plate set, and fixed by screws 32 to the cylinder; then the cylinder ends which are constituted by separate discs 24 and 25 are fixed by screws 28 concentrically with the cylinder, the said discs including the annular well. These discs are slotted from the periphery towards the centre so as to extend the bed of the gap, that is, the bottom of the slot will be level with the top of the bed plate 10, and consequently the slot in each disc will be completely filled by the outer end of the respective section 12 or 14, the outer end of the section being also recessed on the top in order to register with the contour of the well formed in the discs.

In such a construction the screws 26 are utilized to fix the outer ends of the outer sections to the said discs.

Referring to Figs. 2, 3 and 4, it will be noticed that the convex surface of the sections of the capping piece are undercut, as indicated at 29, so far as they are within the width of the printing sheet. The reason of this is that the folded over end of the sheet is inclined towards the centre of the gap and therefore clearance has to be provided. This overlapping extends beyond the sheet on each side but as regards the outer ends of the outer sections, these are only of a width to fit the slots and the discs and have not an undercut portion as will be realized on consideration of Figs. 3 and 4.

Although in the constructions shown I have indicated a cylinder with lugs 8 this is not an essential to the invention as any means can be utilized for securing the leading end of the sheet, but where lugs 8 are provided in the cylinder as in the construction shown the backs of the hook members 2 will be recessed, as indicated at 33 in Fig. 5 so as to partly straddle the lugs and assure the retention of the leading end of the sheet over them.

I claim:—

1. A printing cylinder having a gap, a plurality of hook members spaced apart in the gap, and means for securing said members to the bed of the gap, whereby the free end of a sheet, wrapped around the cylinder with its leading end secured in the gap, may be engaged and held down towards the bed of the gap to finally secure the sheet on the cylinder.

2. A printing cylinder having a gap, a plurality of independent hook members spaced apart in the gap, and means for securing said members to the bed of the gap, whereby the free end of a sheet, wrapped around the cylinder with its leading end secured in the gap, may be engaged and held down towards the bed of the gap to finally secure the sheet on the cylinder.

3. A printing cylinder having a gap, a plurality of independent hook members spaced apart in the gap, and bored through from the top radially to the cylinder, and a fixing screw for each hook member passing through the said bore and taking into a threaded hole in the bed of the gap, whereby the hook members may each be fixed to the bed of the gap by driving the screws from the top of the gap to engage the free end of a sheet, wrapped around the cylinder with its leading end secured in the gap, to finally secure the sheet on the cylinder.

4. A printing cylinder having a gap, a plurality of hook members spaced apart in the gap, means for securing said members to the bed of the gap, whereby the free end of a sheet, wrapped around the cylinder with its leading end secured in the gap, may be engaged and held down towards the bed of the gap to finally secure the sheet on the cylinder, and a capping piece disposed over the hook members to substantially fill the gap, said capping piece including three interlocking sections, means for securing the central section in the cylinder gap, and means for securing the outer ends of the two outer sections against radial and axial movement relatively to the cylinder.

5. A printing cylinder having a gap, a plurality of hook members spaced apart in the gap, means for securing said members to the bed of the gap, whereby the free end of a sheet, wrapped around the cylinder with its leading end secured in the gap, may

be engaged and held down towards the bed of the gap to finally secure the sheet on the cylinder, a capping piece disposed over the hook members to substantially fill the gap, said capping piece including three interlocking sections, means for securing the central section to the cylinder, means for securing the outer ends of the two outer sections against radial movement relatively to the cylinder, a pin at each end of the central section, and a socket at the bottom of each inner end of the outer sections formed to engage with the pins of the central section.

6. A printing cylinder having a gap, a plurality of hook members spaced apart in the gap, means for securing said members to the bed of the gap, whereby the free end of a sheet, wrapped around the cylinder with its leading end secured in the gap, may be engaged and held down towards the bed of the gap to finally secure the sheet on the cylinder, a capping piece disposed over the hook members to substantially fill the gap, said capping piece including three interlocking sections, the top of each end of the central section being rabbeted, fixing means for the central section passing through the reduced ends formed by rabbeting to the bed of the gap, a pin on said central section beyond each rabbet, a socket at the bottom of each inner end of the outer section formed to pass over said pins of the central section, a tongue at the top of each outer section beyond each socket formed to fit the respective rabbet and cover the fixing means of the central section, and means for securing the outer ends of the outer section against radial movement relatively to the cylinder.

7. A printing cylinder having a gap, a plurality of hook members spaced apart in the gap, means for securing said members to the bed of the gap, whereby the free end of a sheet, wrapped around the cylinder with its leading end secured in the gap, may be engaged and held down towards the bed of the gap to finally secure the sheet on the cylinder, and a capping piece disposed over the hook members to substantially fill the gap, said capping piece including three interlocking sections, each recessed on the underside to bridge the hook members, means for securing the central section in the cylinder gap, and means for securing the outer ends of the two outer sections against radial and axial movement relatively to the cylinder.

8. A printing cylinder having a gap, a plurality of independent hook members spaced apart in the gap, means for securing said members to the bed of the gap, whereby the free end of a sheet, wrapped around the cylinder with its leading end secured in the gap, may be engaged and held down towards the bed of the gap to finally secure the sheet on the cylinder, and a capping piece resting on the bed of the gap and disposed over the hook members to substantially fill the gap, said capping piece including three interlocking sections, each recessed on the underside to bridge the hook members on the bed of the gap, means for securing the central section on the bed of the gap, and means for securing the outer end of the two outer sections against axial movement or movement away from the bed of the gap.

9. A printing cylinder having a gap, a plurality of independent hook members spaced apart in the gap, means for securing said members to the bed of the gap for the purpose set forth, a capping piece resting on the bed of the gap and disposed over the hook members to substantially fill the gap, said capping piece including three interlocking sections, each recessed on the underside to bridge the hook members, the top of each end of the central section being rabbeted, fixing means for the central section passing through the reduced ends formed by rabbeting to the bed of the gap, a pin on said central section beyond each rabbet, a socket at the bottom of each inner end of the outer section formed to pass over said pins of the central section, a tongue at the top of each outer section beyond each socket formed to fit the respective rabbet and cover the fixing means of the central section, and means for securing the outer ends of the outer sections against radial movement relatively to the cylinder.

10. A printing cylinder having a gap, a plurality of independent hook members spaced apart in the gap, means for securing said members to the bed of the gap for the purpose set forth a capping piece resting on the bed of the gap and disposed over the hook members to substantially fill the gap, said capping piece including three interlocking sections, each recessed on the underside to bridge the hook members, the top of each end of the central section being rabbeted, fixing screws for the central section passing through the reduced ends formed by rabbeting to the bed of the gap, a pin on said central section beyond each rabbet, a socket at the bottom of each inner end of the outer sections formed to pass over said pins, a tongue at the top of each outer section beyond each socket formed to fit the respective rabbet and cover the fixing screws of the central section, and fixing screws passing through the outer ends of the outer sections taking into the bed of the gap to secure said outer ends against radial movement relatively to the cylinder.

11. A printing cylinder having a gap, a disc concentric with the cylinder removably fitted at each end thereof, slotted in exten-

sion of the gap, an annular well on each disc, a plurality of hook members spaced apart in the gap, means for securing said members to the bed of the gap for the purpose set forth, and a capping piece disposed over the hook members to substantially fill the gap, said capping piece including three interlocking sections means for securing the central section in the cylinder gap, and means for securing the outer ends of the two outer sections against radial and axial movement relatively to the cylinder, the outer ends of the outer sections fitting the slots of the discs and being recessed on the top to register with the respective annular well.

12. A printing cylinder having a gap, a bed plate in the gap, means for securing the bed plate to said cylinder, a disc concentric with the cylinder removably fitted at each end thereof and slotted from the periphery towards its centre to extend the bed of the gap, a plurality of hook members spaced apart on said bed plate, means for securing said members on the bed plate for the purpose set forth, and a capping piece including three interlocking sections, means for securing the central section on the bed plate, and means for securing the outer ends of the two outer sections in the slots of the disc, the said outer ends filling the slots and being recessed on the top to register with the respective annular well.

13. A printing cylinder having a gap, a bed plate in the gap, means for securing the bed plate to said cylinder, a disc concentric with the cylinder removably fitted at each end thereof and slotted from the periphery towards its centre to extend the bed of the gap, a plurality of independent hook members spaced apart on said bed plate, means for securing said members on the bed plate for the purpose set forth, a capping piece resting on the bed plate and disposed over the hook members to substantially fill the gap, said capping piece including three interlocking sections, each recessed on the underside to bridge the hook members, the top of each end of the central section being rabbeted, fixing screws for the central section passing through the reduced ends formed by rabbeting to the bed of the gap, a pin on said central section beyond each rabbet, a socket at the bottom of each inner end of the outer sections formed to pass over said pins, a tongue at the top of each outer section beyond each socket formed to fit the respective rabbet and cover the fixing screws of the central section, and fixing screws for securing the outer ends of the two outer sections in the respective slots of the discs, the said outer ends filling the slots and being recessed on the top to register with the respective annular well.

14. A printing cylinder having a gap, a bed plate in the gap, means for securing the bed plate to said cylinder, a disc concentric with the cylinder removably fitted at each end thereof and slotted from the periphery towards its centre to extend the bed of the gap, a plurality of independent hook members spaced apart on the bed plate, and bored through from the top radially to the cylinder, a fixing screw for each hook member passing through said bore and taking into the bed plate for the purpose set forth, a capping piece resting on the bed plate and disposed over the hook members to substantially fill the gap, said capping piece including three interlocking sections, each recessed on the underside to bridge the hook members, the top of each end of the central section being rabbeted, fixing screws for the central section passing through the reduced ends formed by rabbeting to the bed of the gap, a pin on said central section beyond each rabbet, a socket at the bottom of each inner end of the outer sections formed to pass over said pins, a tongue at the top of each outer section beyond each socket formed to fit the respective rabbet and cover the fixing screws of the central section, and fixing screws for securing the outer ends of the two outer sections in the respective slots of the discs, the said outer ends filling the slots and being recessed on the top to register with the respective annular well.

15. The combination with independent hook members, each bored for the reception of a fixing screw and a capping piece comprising three sections interlocked by pin and socket joints and each recessed to bridge a hook member substantially as set forth for fitting to a printing cylinder having a gap.

In testimony whereof I affix my signature.

MALCOLM OWEN.