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M. BERG
SHEET SECURING MEANS WITH SHEET INSERTED AND
REMOVED AXIALLY OF CYLINDER

3,384,014

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2 Sheets-Sheet 1

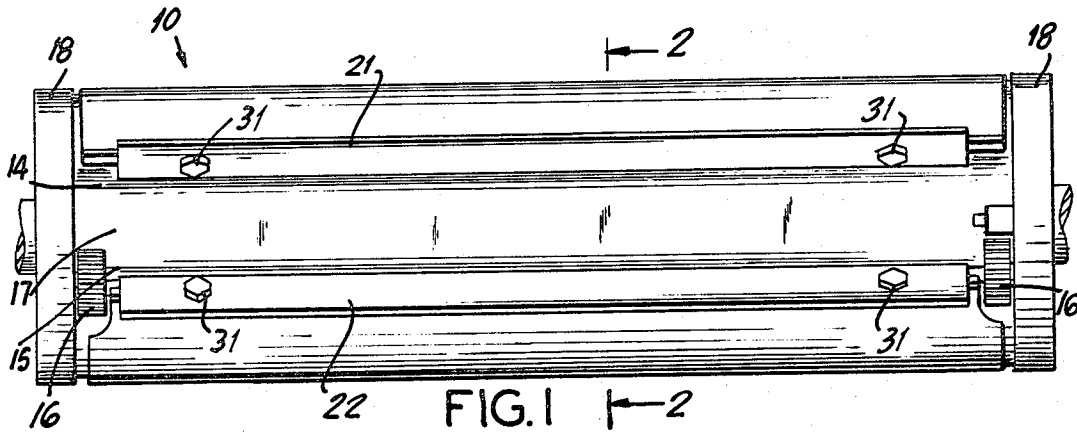


FIG. 1

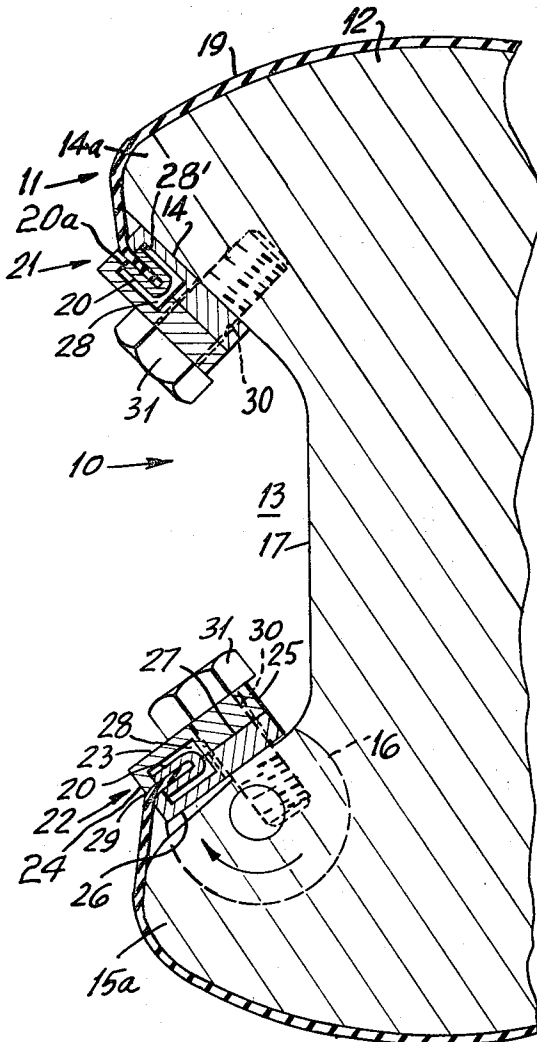


FIG. 2

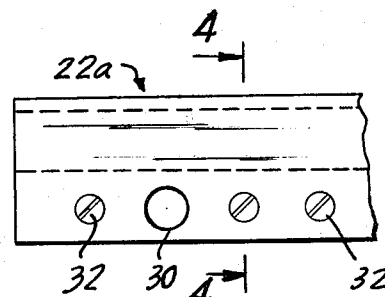


FIG. 3

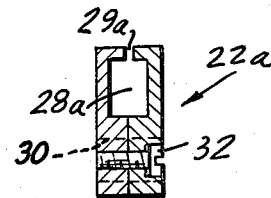


FIG. 4

INVENTOR.
MILTON BERG

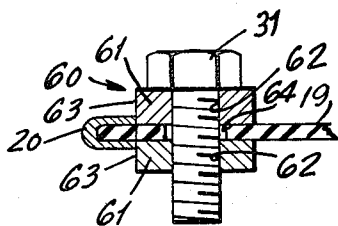
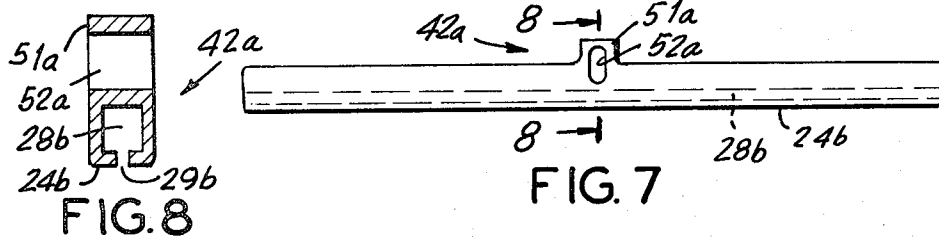
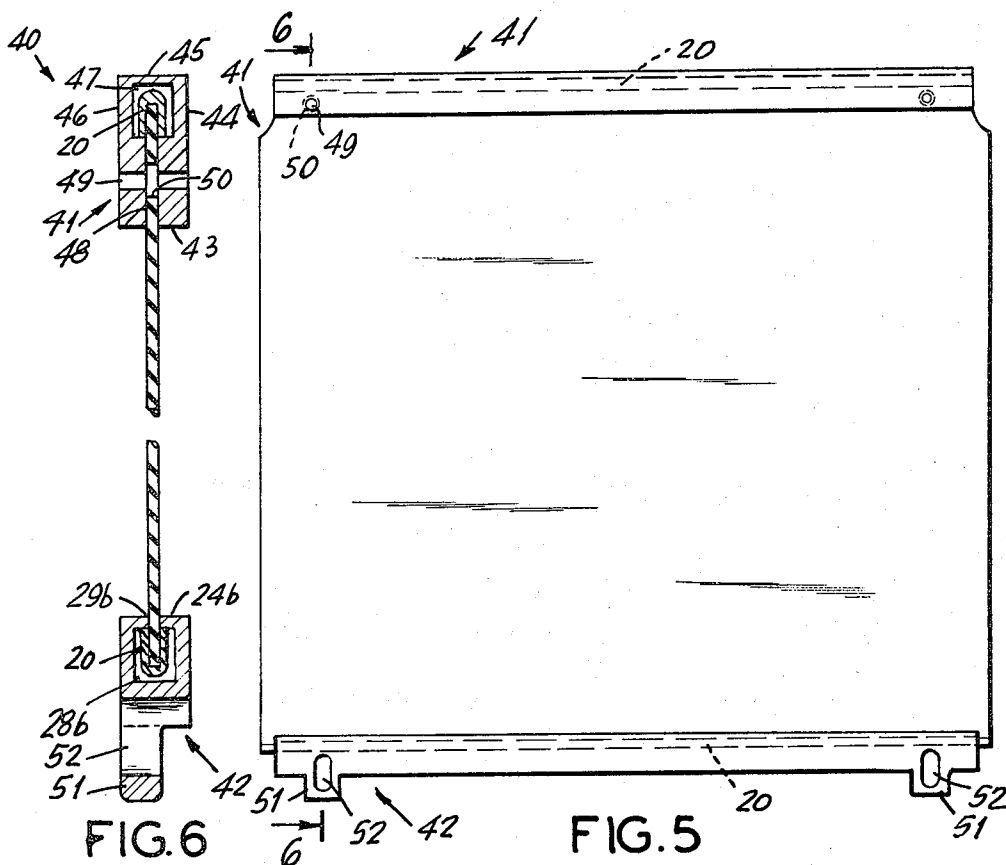
BY

J. B. Felechin
ATTORNEY.

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2 Sheets-Sheet 2



BY

J.B. Felsheim
ATTORNEY.

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3,384,014

SHEET SECURING MEANS WITH SHEET INSERTED AND REMOVED AXIALLY OF CYLINDER

Milton Berg, 105 W. 72nd St.,
New York, N.Y. 10023

Continuation of application Ser. No. 467,485, June 28,
1965. This application Dec. 9, 1966, Ser. No. 600,655
5 Claims. (Cl. 101-415.1)

ABSTRACT OF THE DISCLOSURE

A usual rotary offset printing press roller comprises a cylindrical roller body having a longitudinal grooved cut-out at its outer cylindrical surface. Said cut-out is usually formed with a pair of inner flat surfaces forming an acute angle therebetween and extend to the outer cylindrical surface of the roller body. Rotatably mounted within the cylinder is a tightening device having a flat surface which, in one position of said tightening device, is substantially in the plane of one of said pair of flat surfaces. The other of said pair of flat surfaces is formed with a plurality of closely spaced threaded holes at right angles thereto. The tightening device is also formed with a plurality of closely spaced threaded holes at right angles to the flat surface of said tightening devices.

In accordance with prior practice, the blanket was wrapped about the cylinder and attached to the other flat surface of said pair of surfaces and to the flat surface of the tightening device, by a number of studs passing through holes in the blanket, and through the holes in said other flat surface of said pair of surfaces and in said flat surface of said tightening device. Such construction required considerable time to remove all the studs when it was necessary to change a blanket, and also the holes for the studs in the blanket often weakened the blanket. In the present device the other flat surface in the groove and the flat surface in the tightening device need only have one or two threaded holes. A bar is provided for each end of the blanket. At the ends of the blanket are thickened members which slide into grooves formed in the bars. The grooves have narrow throats to retain the thickened portions in the grooves. These bars are attached to said other flat surface and to the flat surface of the tightening device by one or two screws. Then when the tightening device is rotated, it tightens the blanket which is wrapped around the cylindrical roller body. The blanket can now be easily removed by sliding the blanket relative to the bars after removing only a few studs, and the bars are easily attached by said few screws.

This application is a continuation of applicant's application Ser. No. 467,485 filed June 28, 1965, for Wrap Around Sheets for Rotary Offset Printing Presses, now abandoned.

This invention relates to wrap around sheets for rotary offset printing presses.

It is an object of the invention to provide improved means whereby a flexible sheet such as a blanket or printing plate may be mounted on the blanket or plate cylinder of a rotary offset printing press.

Another object of the invention is to provide a flexible sheet assembly of the character described wherein the sheet comprises a pair of thickened end edges, and a pair of end mounting bars having means cooperable with said thickened end edges to hold the sheet between said bars.

A further object of the invention is to provide a flexible sheet assembly of the character described wherein the mounting bars are formed with composite slots to receive said thickened end edges of said sheet and unthickened portions of said sheet adjacent said thickened end edges.

Still another object of the invention is to provide a flexible sheet assembly of the character described wherein at least one of said bars is provided with an elongated ear extending rearwardly from said bar, said ear being formed with an elongated mounting slot to receive a bolt or the like to slidably mount said bar on said cylinder.

A still further object of the invention is to provide a flexible sheet assembly of the character described wherein said bars are formed with openings transverse to the directions of both said bars and said sheet, said sheet being formed with openings registering with said bar openings, and mounting means passing through said registering openings to mount said assembly on a cylinder.

Another object of the invention is to provide a flexible sheet assembly of the character described wherein said mounting openings in said bar are spaced rearwardly of said composite slots in said bar.

Still another object of the invention is to provide a flexible sheet assembly of the character described wherein each mounting bar comprises a pair of separate bar plates superimposed one upon the other with said sheet clamped between said pair of bar plates and said thickened edge portions positioned outwardly of said bar plates.

A still further object of the invention is to provide a flexible sheet assembly of the character described wherein the mounting holes in the bar are positioned rearwardly of said composite slots whereby said thickened edge portions of said sheet may readily slip in or out of said slots endwise.

Another object of the invention is to provide a flexible sheet assembly of the character described wherein said bar comprises a pair of bar plates fixed together as by welding or by screws other than said mounting means.

Still another object of the invention is to provide a flexible sheet assembly of the character described which will be simple and economical to manufacture, which will facilitate changing the flexible sheets, which will be sure and positive in operation and yet practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawing, in which is shown various illustrative embodiments of this invention,

FIG. 1 is a front elevational view of a cylinder of an offset printing press having a flexible sheet assembly embodying the invention mounted thereon;

FIG. 2 is a cross-sectional view taken on line 2-2 of FIG. 1;

FIG. 3 is a partial plan view of a mounting bar only showing a modified construction;

FIG. 4 is a cross-sectional view taken on line 4-4 of FIG. 3;

FIG. 5 is a plan view of an offset printing blanket assembly, off the press, showing another modified construction;

FIG. 6 is a cross-sectional view taken on line 6-6 of FIG. 5;

FIG. 7 is a plan view of a mounting bar only showing still another modified construction;

FIG. 8 is a cross-sectional view taken on line 8-8 of FIG. 7; and

FIG. 9 is a partial cross-sectional view of one end of the assembly including the cylinder mounting bolts showing yet another modified construction.

Referring now to the drawings in detail, 10 designates a rotary offset printing press roller having a printing sheet assembly 11 mounted thereon.

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Roller 10 comprises a cylindrical body 12 having a cut-out 13 on one side. Cut-out 13 is defined by a pair of substantially radially extending surfaces 14 and 15 positioned on opposite side of a diameter of cylinder 12. Surfaces 14 and 15 join the outer cylindrical surface of roller body 12 at the curved corner portions 14a and 15a respectively. Mounted in body 12 at surface 15 is a conventional ratchet type blanket tightening device 16. Connecting the radially inner ends of surfaces 14 and 15 is a segmental chordal surface 17 which defines the bottom of cut-out 13. Roller 10 also comprises a pair of disc-like end members 18.

The invention is adaptable for use with rotary offset printing blankets made of any other suitable material, and with flexible, rotary offset impression plates, which may be made of any suitable material such as plastic or magnesium, as will be apparent to those skilled in the art. The description hereinafter will refer to blankets, but it is to be understood that the invention is not limited to blankets.

Assembly 11 comprises a fabric backed rubber offset printing blanket or sheet 19, which may be notched as at 19a to clear ratchet device 16. Fixed to a pair of opposite edges of blanket or sheet 19 are a pair of U shaped metal beads 20. These beads may also be made of plastic or any other suitable material, and are fixed to the blanket edges by clamping or any other suitable means. Instead of separate beads as shown, the blanket may be formed with integral enlarged edges made of the material of the blanket itself.

Blanket assembly 11 comprises a pair of end bar members 21 and 22 which cooperate with the edges of the blankets having the beads 20, which are removably mounted on the cylinder at surfaces 14 and 15 respectively, and are wholly inside the cylindrical outer surface roller body 12, in cut-out 13.

The bars 21 and 22 may be identical, and are of rectangular shape and cross-section, and comprises a top surface 23, a front surface 24, a rear surface 25, a bottom surface 26, and a pair of end surfaces. Each bar may be of one piece construction, or may be made of a pair of bar halves joined together by any suitable means, such as by weld 27. Between top and bottom surfaces 23 and 26, at the front half of the bar, adjacent front surface 24, each bar is formed with an inner bead receiving slot 28 which runs the full end of the bar and communicates with the end surfaces. Interconnecting slot 28 and front surface 24 is a throat slot 29 which also runs the full length of the bar. Slot 28 is of sufficient size to receive bead 20, and slot 29 is only slightly larger than the thickness of blanket 19. Running between surfaces 23 and 26, at the rear half of the bar, toward surface 25, is one or more bolt holes or mounting openings 30. Bolts 31 pass through openings 30 and are received in suitably threaded openings formed in roller body 12.

To remove the blanket or other flexible rotary offset printing sheet from the roller, the bolts 31 are taken out of one bar, that end of the sheet with its bar moved away from the roller, and the bar slid endwise off the sheet. The old sheet is unrolled from the cylinder and the other end bar moved from the cylinder and then from the old sheet. One end of a new sheet is then slipped into one bar. That bar is mounted on the cylinder. The new sheet is wrapped around the cylinder. The other bar is then slipped onto the other end of the sheet and mounted on the cylinder. The tension is adjusted via device 16, and the change is complete.

In FIGS. 3 and 4 is shown a modified bar 22a which comprises a pair of identical bar halves 22b which are fixed together by screws 32 which serve the purpose of weld 27. Bar halves 22b are grooved so that when assembled they form slots 28a and 29a which are the equivalent of slots 28 and 29. Thus, bar 22a may be taken apart if that should be desired for any reason.

In FIGS. 5 and 6 is shown a blanket or other flexible rotary offset printing sheet assembly 40, which comprises the sheet 19 with beads 20 as described above, and a pair

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of end bars 41 and 42. Bar 41 is of rectangular shape and cross-section and comprises a front surface 43, top surface 44, rear surface 45, bottom surface 46, and a pair of end surfaces. Between top and bottom surfaces 44 and 46, at the rear half of the bar, adjacent rear surface 45, bar 41 is formed with an inner bead receiving slot 47, which runs the full length of the bar and communicates with the end surfaces. Interconnecting slot 47 and front surface 43, is an elongated throat slot 48 which also runs the full length of the bar. Except for the length of slot 48 and their positions in the bar, slots 47 and 48 are the same in configuration and function as slots 28 and 29 described above. Running between surfaces 44 and 46, towards the front of the bar 41, is one or more bolt receiving openings 49, which are perpendicular to elongated throat slots 48. Sheet 19 is formed with bolt clearance openings 50 which register with openings 49 when the bar is on the sheet.

Bar 42 is similar to bars 21 and 22, with the exception that bar 42 is provided with a pair of rearwardly extending ears 51, 51, each formed with an elongated mounting bolt receiving slot 52. Hence, bar 42 has a front surface 24b, a throat slot 29b, and a bead receiving slot 28b. The ears 51 may be of thinner cross-section (FIG. 6) than the body of bar 42 to facilitate manufacture and use, and to reduce weight. The length of slots 52 may be such that the mounting bolts need only be loosened and the bar slid forwardly until the mounting bolts bottom on the rear ends of slots 52, at which time the front surface 24b of bar 42 will extend radially outwardly beyond the cylindrical surface of the roller body in use, whereby a bead 20 of a sheet may be slid into slot 28b without actually removing bar 42 completely from the press.

Bar 42, in addition to being used in conjunction with bar 40 as shown in FIGS. 5 and 6, may also be used with bars 21, 22 or 22a described above, or with the bar of FIG. 9 to be described hereinafter.

In FIGS. 7 and 8 is shown a bar 42a similar to bar 42, with the exception that only one ear 51a having a slot 52a, located centrally on the bar, is used in place of the pair of slotted ears of FIGS. 5 and 6. Ear 51a is of the same thickness as the body of bar 42a, instead of thinner cross-section as in FIG. 6.

In FIG. 9 a composite bar 60 is shown, which comprises a pair of separate bar plates 61, 61, each formed with one or more registering bolt holes 62 to receive the mounting bolt 31. Each bar plate 61 has a longitudinal rear surface 63. The sheet 19 is formed with one or more registering bolt clearance openings 64. When assembled with the sheet 19 sandwiched between the bar plates 61 and with the openings 62 and 64 in registry, the ends of the bead 20 bear against the rear surfaces 63 and prevent the sheet from pulling out from between the bar plates. The clearance openings 64 in the sheet do not contact the mounting bolts, mounting of the sheet being accomplished solely by interaction of the ends of the legs of U-shaped bead 20 with rear surfaces 63.

It will thus be seen that there is provided an apparatus and article in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth and shown in the accompanying drawings, is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. In combination, a rotary offset printing press roller comprising a cylindrical roller body having a longitudinal grooved cut-out at its outer cylindrical surface, said cut-out being formed with a pair of flat surfaces forming an angle therebetween, and joining the outer cylindrical surface of the roller body, a longitudinal blanket tightening device rotatably mounted in said cylindrical body at one side of said cut-out, and having a flat face which in one position of said tightening device is substantially in the

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plane of one of said pair of flat surfaces, the other of said pair of flat surfaces being formed with one or more threaded holes at right angles thereto, said tightening device being formed with one or more threaded holes at right angles to said flat surface of said tightening device, a flexible blanket, having parallel opposite ends, longitudinal thickened means at said opposite ends of said blanket providing inwardly facing shoulders, a pair of separate, parallel end bar members substantially coextensive with said ends of said blanket, said bar members each comprising a web from which a pair of fixed flanges extend, said bar members having at their inner ends, spaced portions forming longitudinal throat slots between said flanges receiving therethrough portions of said blanket adjacent said thickened means, said bar members being further formed with inner, enlarged, longitudinal grooves between said fixed flanges, receiving said thickened means, and communicating with said throat slots, and said flanges being provided within said grooves, with outwardly facing shoulders engaging said inwardly facing shoulders of said thickened means, said bar members being slidable endwise relative to said blanket on and off said blanket with said flanges in fixed relation to each other and to said web, means to separately and removably attach said parallel bar members to said other flat surface of said pair of surfaces and to said flat surface of said tightening device, with said blanket wrapped about a portion of such cylinder, said means comprising a flat surface on one bar member lying on said other flat surface of said pair of flat surfaces, and said one bar member being formed with one or more through holes at right angles to said flat surface of said one bar member and registering with said one or more threaded holes in said other flat surface of said pair of flat surfaces, and one or more studs passing through said one or more through holes in said one bar member and screwed into said one or more threaded holes in said other flat surface of said pair of flat surfaces, said other bar member having a flat surface lying on said flat surface of said tightening device, and being formed with one or more through holes registering with said one

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or more through holes in said flat surface of said tightening device, and one or more studs passing through said one or more holes in said other bar member and screwed into said one or more threaded holes in said flat surface of said tightening device.

2. The combination of claim 1, said one or more openings in one of said bar members being disposed in spaced relation to said groove thereof.

3. The combination of claim 1, an opening in one of said bar members comprising a slot perpendicular to said bar member.

4. The combination of claim 1, said blanket comprising soft flexible resilient compressible material, said thickened means comprising U-shaped members of material which is rigid and hard relative to the material of which said blanket is made, and clampingly receiving end edge portions of said blanket and clamped thereto.

5. The combination of claim 1, said one or more openings in one of said bar members being located between the groove thereof and the outer end thereof.

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ROBERT E. PULFREY, *Primary Examiner.*

40 E. S. BURR, *Examiner.*