

[54] **BLANKET CYLINDER SLOT
ARRANGEMENT**

[75] Inventors: **Ralph L. Fusco**, Commack, N.Y.;
Burton D. Polglase, Plainfield, N.J.

[73] Assignee: **Wood Industries, Inc.**, Middlesex,
N.J.

[22] Filed: **Mar. 28, 1973**

[21] Appl. No.: **345,508**

[52] U.S. Cl. **101/415.1; 101/378**

[51] Int. Cl. **B41f 27/12**

[58] Field of Search **101/378, 415.1**

[56] **References Cited**

UNITED STATES PATENTS

2,033,205	3/1936	Poppe	101/415.1
2,046,122	6/1936	Hunt	101/415.1 X
2,627,230	2/1953	Huck et al.	101/415.1
2,764,936	10/1956	Johnson et al.	101/415.1
2,793,588	5/1957	Stempel	101/415.1

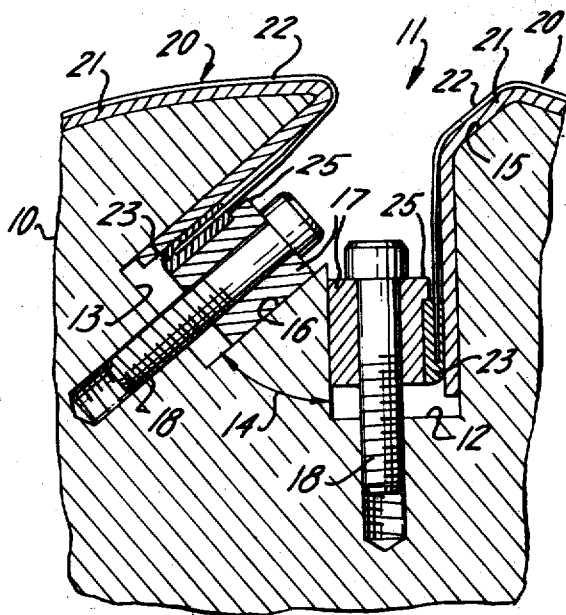
3,296,673	1/1967	Kirkpatrick	101/415.1 X
3,384,014	5/1968	Berg	101/415.1
3,495,531	2/1970	Thatcher	101/415.1

Primary Examiner—Edgar S. Burr
Assistant Examiner—Paul J. Hirsch
Attorney, Agent, or Firm—David S. Woronoff

[57] **ABSTRACT**

A blanket cylinder of a printing machine has two blanket grooves, one groove being milled in the cylinder axially thereof diametrically opposite the other, each groove consisting of a radially extending substantially narrow first slot and of a second slot of the same width as the first one, extending at an angle from the first one, each slot accommodating a blanket clamping bar and extending from the same narrow opening of the groove in the periphery of the cylinder whereby one edge of the opening of the groove is slanted in line with one wall of the second slot.

5 Claims, 4 Drawing Figures



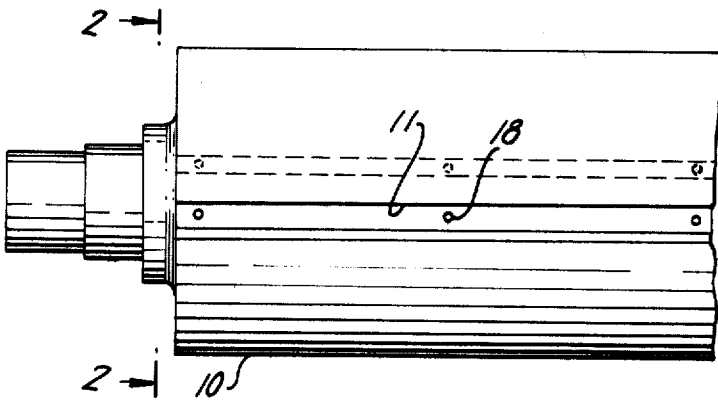


FIG. 1

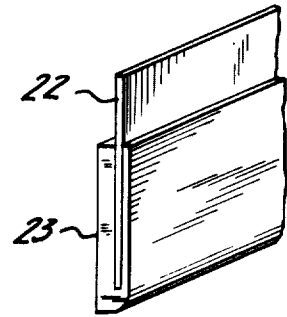


FIG. 4

FIG. 2

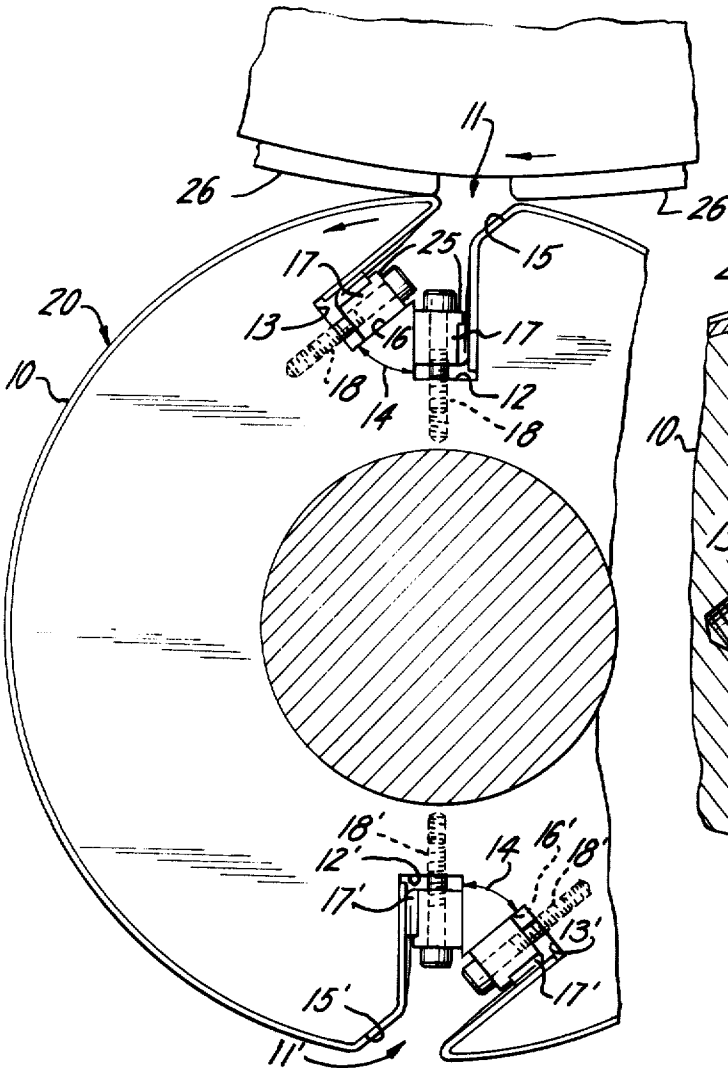
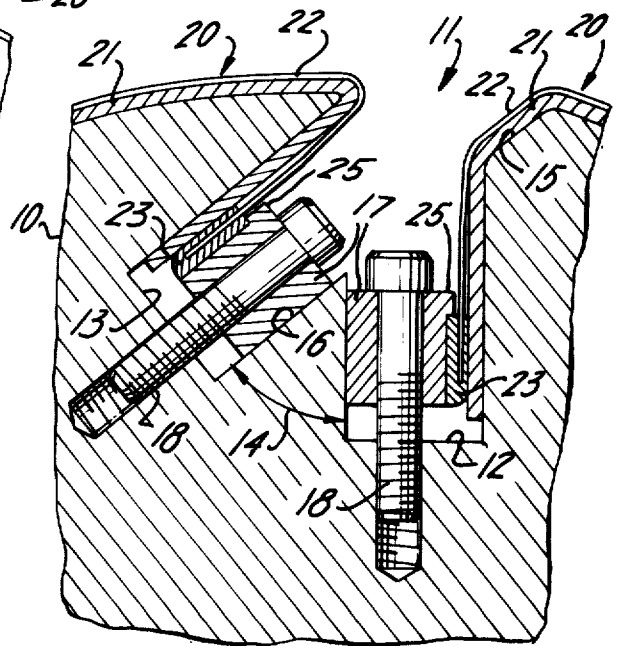


FIG. 3



BLANKET CYLINDER SLOT ARRANGEMENT**BACKGROUND OF THE INVENTION****1. Field of the Invention**

The invention relates to blanket cylinders of rotary printing machines and particularly to devices and arrangements for clamping and holding printing blankets and packing under the blankets tightly and firmly on the surface of the cylinder.

2. Description of the Prior Art

Arrangements and devices for clamping and holding printing blankets and the packing under the blankets tightly and firmly on the periphery of the cylinder are generally known, but their construction varies widely, comprising one or two rotatable shafts with means for attaching the longitudinal edges of the blankets and with means for rotating the shafts and for locking the latter in the tightened position. These constructions require fairly large grooves in the cylinder and more or less elaborate mechanisms. Other variations comprise wedging means and bars in slots for clamping and tightening both longitudinal edges of a blanket simultaneously after it had been wrapped around the cylinder. However, the latter constructions, although of simple design, are not adapted to accommodate separate blankets for semi-cylindrical applications and do not have separate clamping means for holding and locating one longitudinal edge of the blanket and for tightening uniformly and tightly the blanket by the other edge thereof, holding the packing under the blanket firmly in place, preventing it from creeping and bulging at the edge of the groove where the first impact the printing plate occurs. The problem which is intended to be solved by the invention, is to build a blanket clamping arrangement without rotatable blanket shafts and large cut-outs in the blanket cylinder and with small, easily machinable grooves and with a minimum of movable parts of very simple structure, yet to present all the advantages of separately holding and clamping the edges of semi-cylindrical blankets.

SUMMARY

The invention consists in the novel parts, construction arrangements, combinations and improvements herein shown and described. The blanket cylinder of this invention has two grooves for the clamping and tightening of the printing blankets, diametrically opposed to one another, so that two independent semi-cylindrical blankets can be attached to the cylinder. Each one of the grooves consists basically of two substantially narrow slots milled axially in the periphery of the cylinder, whereby one of the slots is milled radially in the cylinder, and the other one is milled at an angle of the first one, both slots ending in the same groove opening of the cylinder. The edges of the groove (in the sense of the rotation of the cylinder) is slanted in line with one wall of the other slot. In each one of the slots, a clamping bar of a substantially rectangular section is tightened by screws threaded in the bottom of the slot. This structure has various advantages. It accommodates semi-cylindrical blankets which can be easily and conveniently exchanged; each blanket can be individually underpacked and the edges of each blanket can be correctly clamped without distortion or warping. The packing under the blankets is firmly held in place and is prevented from creeping and from bulging and buckling at the slanted edge of the groove. The slanted edge

also facilitates the tightening of the blanket together with the packing.

Objects and advantages of the invention will be set forth in part hereafter and, in part, will be obvious herefrom or may be learned by practicing the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

It is an object of the invention to provide a novel groove arrangement in a blanket cylinder of a printing machine, comprising a combination of two substantially narrow slots for blanket clamping bars.

Another object of the invention is to provide the groove in the blanket cylinder with a slanted trailing edge.

A further object of the invention is to provide means for individually clamping and tightening, respectively, the edges of semi-circular blankets of a blanket cylinder.

Yet another object of the invention is to provide means for securing and clamping the packing under the blankets together with the latter and to avoid creeping, bulging and buckling of the latter at the trailing edge of the groove.

Furthermore, it is an object of the invention to provide a novel groove arrangement in a blanket cylinder of a printing machine, which is of simple design, can be economically produced with precision and which can be easily and conveniently operated.

Various further and more specific purposes, features and advantages will clearly appear from the detailed description given below taken in connection with the accompanying drawing which forms part of this specification and illustrates merely by way of example one embodiment of the device of the invention.

BRIEF DESCRIPTION OF THE DRAWING

In the following description and in the claims, parts will be identified by specific names for convenience, but such names are intended to be as generic in their application to similar parts as the art will permit. Like reference characters denote like parts in the several figures of the drawing, in which

FIG. 1 shows a blanket cylinder, partly broken away;

FIG. 2 shows the end view of the blanket cylinder shown in FIG. 1, viewed in the direction of the arrows 2--2 in FIG. 1;

FIG. 3 shows the blanket bar slots of the cylinder shown in FIG. 2 in an enlarged partial section of the cylinder, partly broken away;

FIG. 4 shows, in perspective, the blanket edge holding bar shown in FIG. 3, in an enlarged view.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now in more detail to the drawing illustrating a preferred embodiment by which the invention may be realized, there is in FIG. 1 a blanket cylinder 10 of a rotary printing machine with one axially extending groove 11 for the attachment of the longitudinal edges of printing blankets. Cylinder 10 has actually two grooves 11 and 11', as shown in FIG. 2. Each one of grooves 11, 11' comprises two blanket slots 12, 12' and 13, 13'. Slots 12, 12' are axially milled in the periphery of cylinder 10, while slots 13, 13' are milled at the angle 14 of slots 12, 12'. Both slots 12, 12' and 13, 13' have the same opening of groove 11, 11' in the periph-

ery of cylinder 10. The edge 15, 15' of groove 11, 11' is slanted in line with the wall 16, 16' of slot 13, 13'; in other words, at the same angle 14 with respect to the radially extending groove 12, 12'. Edge 15, 15' as shown in FIGS. 2 and 3 has first and second curved surfaces connected by a straight surface. The straight surface forms a contacting ramp for the inking rollers and other surfaces which strike the printing plate so that contact forces are applied more gradually. A clamping bar 17, 17' is slidably located in grooves 12, 12' and 13, 13' respectively and is fastened therein by screws 18, 18' which are anchored in threaded holes in the bottom of grooves 12, 12' and 13, 13'. Screws 18, 18' are substantially identical and mutually interchangeable as shown in FIG. 2. Inspection of FIG. 2 shows that the fastening members 18, 18' in slots 13, 13' when advanced for fastening have a component of motion in the direction of rotation of the cylinder as shown by the "arrow" in FIG. 2. Further these fastening members are substantially paralleled to surface 15, 15' as shown in FIGS. 2 and 3.

Blanket cylinder 11 is packed on the periphery with two semi-cylindrical packings 20, 20', each one of the packings comprising an underpacking 21 and a printing blanket 22, called also a "drawsheet." The longitudinal edges of blanket 22 are reinforced by strips 23 consisting of metal. Conventional packings are composed of two or three layers, i.e., of one printing blanket and of one or two layers of underpacking. The thickness of the blanket is usually 0.062 inch, while a conventional underpacking consists either of a sheet of cork of 0.083 inch or of a printing blanket of 0.025 inch and of a sheet of cork of 0.060 inch and of a harder sheet of 0.060 inch. In both cases the total thickness of the packing is 0.145 inch. The printing blanket is tightly wrapped over the underpacking and has to hold it in place. Slots 12, 12' and 13, 13' are disposed to accommodate the inserting of the underpacking so that it is safely held therein while blanket 22 is tightly pulled over it and is firmly held in the final condition by bars 17, 17'. In order to enable the tightening and clamping, a ledge 25 is provided along the upper face of bars 17, 17' which have a substantially rectangular section. Bars 17, 17' are slidably fitted in slots 12, 12' and 13, 13' together with reinforcing strips 23 and underpacking 21. Ledges 25 extend over the upper edge of strips 23, and hold one longitudinal edge of blanket 22 in place in grooves 12, 12' while the trailing edge of blanket 22 is tightened over the periphery of cylinder 10 by tightening screws 18'. This structure of the slot and bar arrangement provides an even, undistorted and unwarped application of blanket 22 and prevents it from getting loose while slanted edges 15, 15' permit an easier and more uniform pulling of blanket 22 and prevent underpacking 21 from bulging or buckling at this point of grooves 11, 11' where the first impact of the printing plate 26 occurs after the gap between the plates has passed. Slanted edges 15, 15' also protect underpacking 21 and blanket 22 better against cracking than a sharp edge.

While the invention has been described and illustrated with respect to a certain preferred example which gives satisfactory results, it will be understood by those skilled in the art after understanding the principle of the invention, that various other changes and modifications may be made without departing from the spirit and scope of the invention.

We claim:

1. In a clamping and tightening arrangement for a flexible packing in a printing machine, said packing comprising a printing blanket having reinforced clamping edges and an underpacking, the improvement of said arrangement comprising in combination a rotatable blanket cylinder having at least two grooves each of said grooves having an opening in the periphery of said cylinder, said grooves axially extending the entire length of said cylinder, said grooves comprising two narrow slots of substantially rectangular section in the bottom thereof, the first one of said slots radially extending in said opening in the periphery of said cylinder, the second one of said slots disposed at an angle to said first slot and extending from said opening of said first slot in said periphery of said cylinder, said cylinder having a slanted edge on one side of said opening of said groove, said slanted edge having first and second rounded edges connected by a straight surface to form a contacting ramp, said slanted edge straight surface being substantially in line with the inside wall of said second slot such that said angle between said first and second slots is substantially equal to the angle formed between said slanted edge straight surface and said first radial slots, and a blanket clamping bar having a substantially rectangular section fitted together with said reinforced clamping edge of said blanket and with said underpacking in each one of said slots and means fastening said bar in said slot, said fastening means for each of said slots being substantially identical and interchangeable.

2. In a clamping and tightening arrangement according to claim 1 for a flexible packing in a printing machine, said packing comprising a printing blanket having reinforced edges and an underpacking said blanket cylinder having two substantially diametrically opposed grooves extending axially the length thereof, each of said grooves comprising two narrow slots; each of said slots adapted to receive a fastening means, each of said fastening means being mutually interchangeable, one pair of said fastening means being substantially parallel to said slanted edge straight surface.

3. In a clamping and tightening arrangement according to claim 1 for a flexible packing on a blanket cylinder in a printing machine a printing blanket having reinforced clamping edges and an underpacking, and said blanket clamping bar having a protruding ledge on one side thereof for engaging one of said reinforced clamping edges of said blanket, said fastening means having a plurality of members which advance in fastening with a component of motion in the direction in which said cylinder rotates.

4. In a clamping and tightening arrangement according to claim 3 for a flexible packing on a blanket cylinder in a printing machine, said packing comprising a printing blanket having reinforced clamping edges and an underpacking, and said blanket clamping bar disposed for fitting closely in said slot together with one of said reinforced clamping edges of said blanket and with said underpacking and for holding both said blanket and said underpacking tightly in place.

5. In a clamping and tightening arrangement according to claim 4 for a flexible packing on a blanket cylinder in a printing machine said packing comprising a printing blanket having reinforced edges and an underpacking, said means fastening said bar at the bottom of said slot and means consisting of a plurality of screws spaced apart at intervals longitudinally of said clamping bar, said screws threaded in the bottom of said slot and disposed for evenly tightening said blanket by way of said bar and for holding said bar in the tightened position in said slot.

* * * * *