Oct. 4, 1966 K. LANGER 3,276,364

CLAMPING DEVICE FOR AN OFFSET PRINTING PRESS

Filed Oct. 29, 1964

Fig. 1

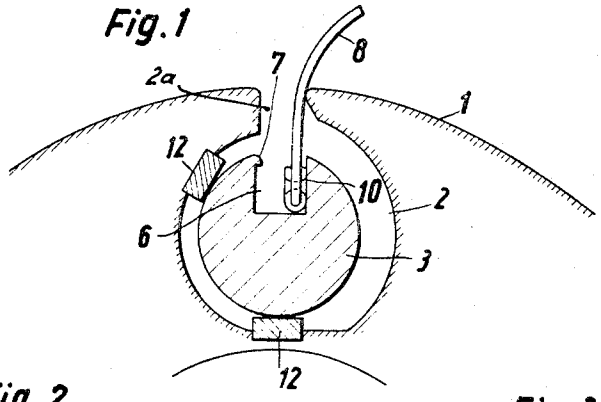


Fig. 2

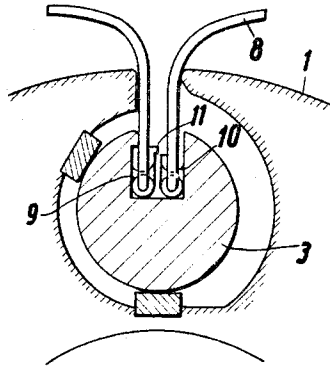


Fig. 3

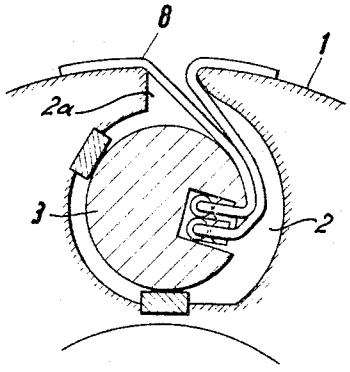
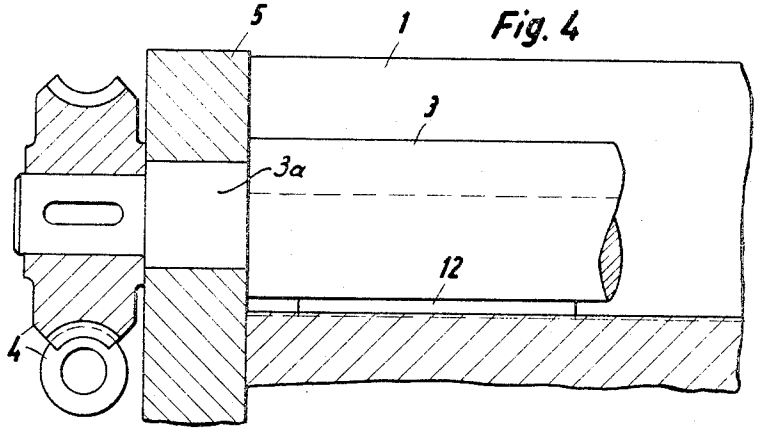


Fig. 4



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CLAMPING DEVICE FOR AN OFFSET PRINTING PRESS

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4 Claims. (Cl. 101—415.1)

The invention relates to a device for tautly clamping a blanket upon the blanket cylinder of an offset printing press and, more particularly, to a blanket clamping device for use with a cylinder having a lengthwise peripheral slot in which a clamping shaft or spindle is rotatably mounted, the ends of the blanket being held within the slot by the shaft.

There are known devices of this kind which clamp the blanket between two opposite corners of a shaft of rectangular cross-section and the adjacent slot walls. Clamping devices of this kind are difficult to operate and the clamping operation is time-consuming. Furthermore, such clamping devices are not suitable for use with web-fed rotary offset printing presses due to the narrow clamping slots of such presses.

It is a broad object of the invention to provide a novel and improved clamping device of the general kind above referred to with which a rapid, safe and convenient clamping and stretching of the blanket may be effected and which is suitable for most types of printing presses, including web-fed rotary offset printing presses.

A more specific object of the invention is to provide a novel and improved clamping device of the general kind above referred to with which a blanket can be tautly clamped to the cylinder by simply inserting the two respective ends of the blanket into the device and turning the shaft thereof.

Another more specific object of the invention is to provide a novel and improved clamping device of the general kind above referred to which supports the shaft along its entire length, thereby preventing deformation of the shaft by its own weight or the pull of the taut blanket and also access of dust and abrasive particles to the bearings for the shaft in the cylinder slot.

The aforementioned objects, features and advantages and other objects, features and advantages which will be pointed out hereinafter are attained by rotatably mounting in the cylinder a clamping shaft or spindle having a lengthwise peripheral slot of preferably substantially rectangular cross-section. One of the edges of the shaft slot terminates in an inwardly turned flange which is engageable with a shoulder along one end of the blanket upon insertion of said end into the shaft slot. The other side of said blanket end is formed with a laterally protruding flange engageable with a shoulder along one side of the opposite blanket end upon insertion of the latter end into the shaft slot also. The two inserted blanket ends are locked to each other and in the shaft slot and are partly wrapped around the shaft when the same is turned in the direction in which the flanged edge of the shaft slot constitutes the trailing edge of the slot. Due to such partial wrapping of the blanket ends about the shaft, the blanket can be conveniently stretched to any desired extent.

To prevent deformation of the shaft and the access of dust or abrasive particles to the shaft bearings, the invention also provides that the shaft is supported along its entire length or at least along the length of the slot therein by one or preferably several support bars which are fitted in the cylinder slot between the wall portions

of the cylinder defining the slot and the peripheral wall of the shaft.

In the accompanying drawing a preferred embodiment of the invention is shown by way of illustration and not by way of limitation.

In the drawing:

FIG. 1 is a cross-sectional view of a blanket cylinder provided with a clamping device according to the invention, the figure showing an initial step of the clamping of a blanket,

FIG. 2 is a cross-section similar to FIG. 1 but showing a more advanced stage of the clamping operation,

FIG. 3 is a cross-sectional view similar to FIG. 2 and showing the completed clamping and stretching operation, and

FIG. 4 is a fragmentary longitudinal view of the blanket cylinder and its support.

Referring now to the figures in detail, the figures show a blanket cylinder **1** including a lengthwise slot **2** of preferably generally circular cross-section and joined to the peripheral wall of the cylinder by a constricted portion **2***a*. The slot **2** may extend throughout the entire length of the cylinder but should have at least a length equal to the width of the blanket **8** to be clamped to the cylinder.

A clamping shaft or spindle **3** is mounted within the slot **2** and extends along the length thereof. The shaft is supported by means of trunnions **3***a* in wall **5** which may constitute part of the frame structure of the press and is rotatable by means of a worm drive diagrammatically indicated at **4**. Shaft **3** is provided with a lengthwise slot or groove **6** of preferably generally rectangular cross-section. One of the side walls of the slot has at its upper rim an inwardly extending lengthwise flange or shoulder **7**.

The blanket **8** has along its respective opposite edges reinforcing strips **9** and **10** respectively of generally U-shaped cross-section suitably secured thereto. Strip **9** has along the edge of one of its branches a shoulder or flange **11** outwardly facing in reference to the respective blanket end.

To clamp the blanket to cylinder **1** and, more specifically, with slot **6** of shaft **3**, the blanket end mounting strip **10** is first inserted into slot **6**, as it is shown in FIG. 1. The second blanket end is then inserted into slot **6**. As can best be seen in FIG. 2, the straight branch of strip **9** now abuts against flange or shoulder **7** of shaft **3**. Flange or shoulder **11** on the other branch of strip **10** is close to overlying the respective branch of strip **10** but still clear of the same. As FIG. 2 also shows, the crosswise width of slot **6** is such that the two blanket ends can be conveniently brought into the afore-described positions shown in the figure.

To lock the blanket ends in slot **6** and to tension the blanket, shaft **3** is turned in the direction in which flange **7** constitutes the trailing edge of the slot or, in other words, shaft **3** is turned in clockwise direction as shown in the figures. As a result the two inserted blanket ends are forced into the slightly slanted position shown in FIG. 3 in which flange **11** overlies the respective edge of the strip **10**. Accordingly, the two blanket ends now interlock each other in the slot and are retained therein by flange **7**. As is shown in FIG. 3, the blanket is partly wrapped around shaft **3** thereby tensioning the blanket on cylinder **1**. Any desired tensioning of the blanket may be readily obtained by selecting the appropriate angular position of shaft **3** in reference to the constricted slot portion **2***a*.

To release the blanket, shaft **3** is returned into the position of FIG. 2 by turning the shaft in the opposite direction. The blanket ends can now be manipulated into the positions in which strip **10** is clear of flange **11** on strip **9**. The blanket end mounting strip **10** can then

be withdrawn from slot **6** and thereafter the other blanket end can also be withdrawn.

The U-shaped cross-sectional configuration of strips **9** and **10** has an inherent flexibility so that it is generally possible to insert and withdraw the reinforced blanket ends even if the crosswise width of slot **6** is not such as to permit a ready placement of the two strips in positions in which strip **9** is clear of strip **10**.

To prevent deformation of shaft **3** and the access of moisture or abrasive particles to the shaft bearings, support bars **12** are fitted in grooves in the walls of slot **2**. These bars extend parallel to the axis of shaft **3** and are preferably made of a low wear material which also shows good friction properties to prevent accidental rotation of the shaft within slot **2**. Bars made of bronze or hardened steel have been found to be suitable.

Tests have shown that a clamping device as disclosed constitutes a rugged construction requiring very little servicing.

While the invention has been described in detail with respect to a certain now preferred example and embodiment of the invention, it will be understood by those skilled in the art, after understanding the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention, and it is intended therefore to cover all such changes and modifications in the appended claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. A clamping device for tautly mounting a blanket on a blanket cylinder of a printing press, said clamping device comprising, in combination, a blanket cylinder having in its peripheral wall a slot extending across the length of the cylinder, a clamping shaft having a single lengthwise extending peripheral slot of substantially rectangular cross-section, bearing means rotatably supporting said shaft in said slot of the blanket cylinder, the peripheral edge of one side wall of the shaft slot terminating in an inwardly turned flange, and a blanket having along one of its ends on one side a shoulder positioned to underlie said flange of the shaft slot upon insertion of said blanket end into the shaft slot whereby said blanket end is locked in said shaft slot, and on the other side an outwardly protruding flange and having at its end opposite to said one end a shoulder positioned to underlie said blanket flange upon insertion of said opposite blanket end between said one blanket end and the other side wall of the shaft slot and turning of said shaft into the rotational direction in which said flanged side wall of the shaft slot is the trailing side wall of said slot whereby said opposite blanket end is also locked in the shaft slot and the blanket is partly wrapped about the shaft thus tensioning the blanket.

2. A clamping device according to claim **1** wherein a reinforcement strip of generally U-shaped cross-section is secured to each of said ends of the blanket extending across the width thereof, one of said strips having said outwardly turned flange along one lengthwise edge of one of its branches to form said blanket flange, the rims of the other branches of said strips constituting said other shoulders.

3. A clamping device according to claim **2** wherein the crosswise width of said shaft slot is in excess of the combined cross-sectional width of said reinforcement strips and the blanket ends mounting the strips.

4. A clamping device according to claim **1** and comprising at least one support bar lengthwise fitted into said cylinder slot parallel to said shaft between the respective wall portion of the cylinder and said shaft to support the latter along its length.

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