Sept. 28, 1926. 1,601,335

J. W. ADDISON

CUTTER BAR AND CLAMPING MEANS THEREFOR

Filed Sept. 19, 1925

Fig. 1.

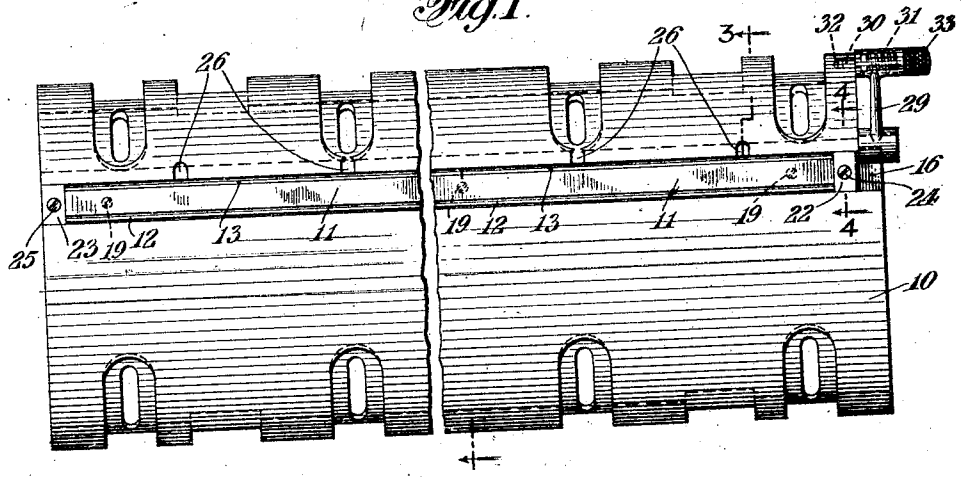


Fig. 2.

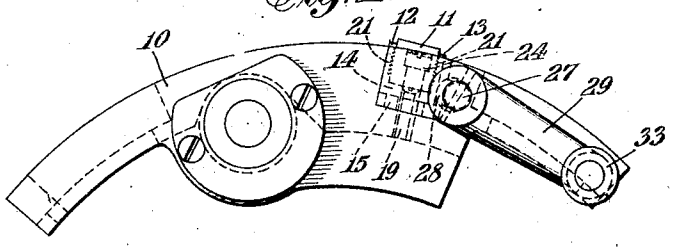


Fig. 3.

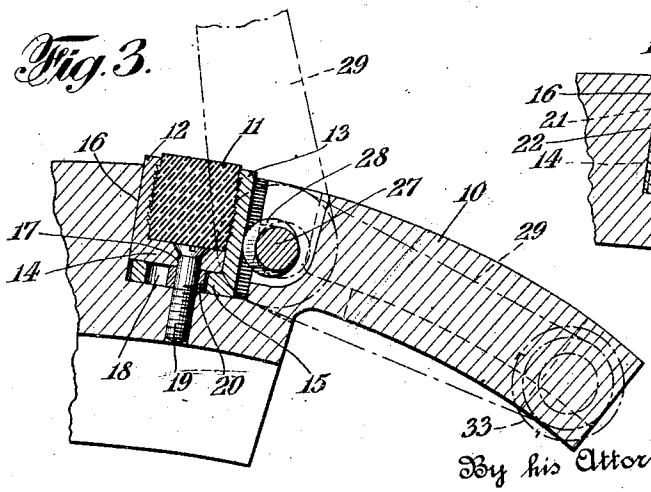
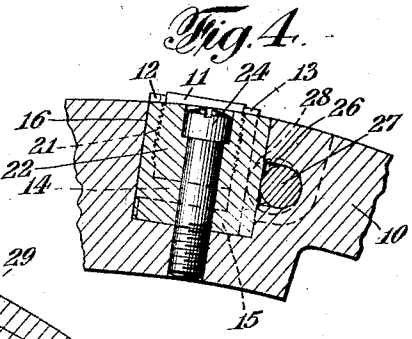


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CUTTER BAR AND CLAMPING MEANS THEREFOR.

Application filed September 19, 1925. Serial No. 57,288.

This invention relates to cutter bars and clamping means therefor and particularly to cutter bars formed of rubber or other flexible material of the type which are used in cooperation with the cutter knives in newspaper printing or folding machines and the like.

One of the objects of this invention is to provide a cutter bar of the type above indicated, which is provided with a plurality of alternative working faces which may be successively used as the bar becomes worn.

A further object of the invention is to provide means for uniformly and firmly clamping the cutter bar throughout its length in a manner whereby the rubber or other material of which it is made will not become injured.

Still another object of the invention is to provide such a clamping means which may be quickly released or restored to clamping condition in order to provide for rapid replacement of the cutter bar or to permit a different working face thereof to be turned into operative position.

A further aim of the invention is to provide means for uniformly restraining the end portions of the cutter bar against bulging or other distortion.

Other objects of this invention include the provision of a very simple, durable and inexpensive construction for the purposes desired, such construction embodying substantially the minimum number of parts and being dependable and certain in its operation.

Further and more specific objects, features and advantages will more clearly appear from the detailed description given below taken in connection with the accompanying drawings which illustrate one embodiment of the invention and in which—

Fig. 1 is a plan view of an embodiment of the invention as applied to a removable segment of a segmental folding cylinder on a newspaper printing press.

Fig. 2 is an end elevational view of the device shown in Fig. 1.

Fig. 3 is a cross-sectional view taken substantially on the line 3—3 of Fig. 1, and

Fig. 4 is a cross-sectional view taken substantially upon line 4—4 of Fig. 1.

Referring to the drawings in greater detail, a segment from a suitable form of newspaper folding cylinder is illustrated at 10. A cutter bar is shown at 11, which may be formed of rubber or other suitable flexible material preferably normally having a square or other symmetrical form of cross-section. The cutter bar or strip 11 is held in the working position shown, and extending longitudinally of the folding cylinder by a bar of L-shaped clamping jaws 12 and 13, having their respective base portions, 14 and 15, overlapping. The jaws are received within a recess, 16, provided in the segment 10 and the overlapping base portions of the jaws may be formed with suitable apertures as at 17 and 18, permitting the insertion of suitable attaching means, such as screws 19, extending into the supporting segment 10. The apertures 18 may comprise slots as illustrated, which permit of a limited transverse movement of the jaw 13 in respect to the cylinder segment and the other jaw 12. To insure free movement of the jaw 13 in respect to the screws 19, the screws may be embraced by suitable washer or bearing members as at 20, fitting within the slots 18.

The jaw 12 is fixed against movement by the screws 19, whereas the jaw 13 may be transversely moved by mechanism hereinafter described so as to come into clamping relation with the rubber strip 11. The opposing faces of the jaws 12 and 13 may be formed with suitable serrations 21 for insuring a firm grip upon the rubber strip.

The ends of the rubber strip 11 may be uniformly restrained against bulging or other forms of distortion by means of end blocks or stop members 22 and 23, for instance see Fig. 4, held in place within the recess 16 by screws 24 and 25 or other suitable means.

Adjacent to the recess 16 and communicating therewith, an extension recess 26 may be formed within the segment 10. Within this recess a cam shaft 27 may be lodged and retained therein against transverse movement by the end blocks 22 and 23 and by the clamping jaw 13. A plurality of cam portions as at 28 may be formed integral with the shaft 27 at spaced points along the shaft. These cam portions may be circular in form and of a diameter slightly larger than the shaft but eccentric in respect thereto. Upon rotating the shaft 27, the cam portions contact with the rear face of the jaw 13 and serve to force the jaw into clamping position. If the cutter bar or strip is to be released, the shaft 27 may be suitably turned to release the pressure of the cams against the jaw 13, whereupon the flexible

cutter strip is permitted to expand thus forcing apart the clamping jaws and releasing the strip.

In order to operate the cam shaft 27, a suitable handle lever 29 may be provided. Within the grip portion of the handle a spring pressed locking bolt 30 may be provided. A coil spring 31 surrounds the bolt 30 and normally urges the bolt in a direction to engage an aperture 32 formed in the segment 10 and to thus provide means for locking the handle and associated parts in clamping position. The bolt 30 may be provided with a suitable knurled operating knob as at 33. The position of the operating lever 29 for both the clamping and unclamping conditions is illustrated by dotted lines in Fig. 3.

The cutter bar as above described may be used in connection with various forms of cylinders including solid types as well as the segmental form indicated and when clamped in operative position it provides a flexible but firm and uniform abutment for the cutting knife which cooperates therewith.

It is not desired to limit the invention to the details or example herein described since it will be obvious to those skilled in the art, after understanding the invention, that various modifications and substitutions may be made without departing from the scope of the invention, and I aim therefore in the appended claims to cover all such modifications.

What is claimed as new and is desired to be secured by Letters Patent of the United States is:

1. In combination with a flexible cutter strip, clamping means therefor, supporting means therefor provided with a recessed portion for receiving said strip and clamping means, said clamping means comprising a pair or cooperating jaws of L shaped cross-section, the base portions of said jaws being overlapped and provided with communicating apertures for receiving attaching screws extending into said supporting means, the apertures in the lower jaw comprising slots to permit a limited relative movement of the jaws when the flexible strip is to be inserted or removed, means for fixing said lower jaw against such relative movement, and retaining pieces fixed to the support at the ends of said jaws for restraining the ends of the flexible strip within the jaws.

2. In combination on a newspaper folding and cutting cylinder, a cutter bar extending longitudinally of the cylinder for engagement with a cooperating knife blade, said bar comprising a strip of rubber of square cross-section providing four uniform alternative working faces, and quick-releasable means for clamping said rubber strip on the cylinder with any desired one of said faces in working position, said means comprising a pair of relatively movable jaws for embracing three sides of said strip, and a cam shaft provided with an operating and locking handle and a plurality of cams for engaging one of said jaws at various points along its length to control its clamping relation with the other jaw, said cylinder being provided with a longitudinal recessed portion for receiving said shaft and jaws.

3. A rubber cutter strip clamping mechanism for a newspaper folding and cutting cylinder comprising a pair of relatively movable jaws engaging the strip and extending longitudinally of the cylinder, a rotatable shaft extending along one of said jaws and provided with a plurality of cams for engaging the jaw, an operating handle at the end of said shaft and releasable means on said handle for locking the handle in respect to the cylinder in a position whereby said cams hold the jaws in clamping relation to the cutter strip, the cylinder being provided with a recessed portion for receiving said shaft and jaws, means serving to removably retain said shaft in operative position in its recess against transverse movement, and screw means for retaining said jaws in the recessed portion of the cylinder.

4. In combination on a folding cylinder of the type described, a cutter bar extending longitudinally of the cylinder for engagement with a cooperating knife blade, said bar comprising a strip of flexible material of symmetrical cross-section providing several uniform alternative working faces, quick-releasable means for clamping said rubber strip on the cylinder with any desired one of said faces in working position, said means comprising a pair of relatively movable jaws for embracing said strip, and a cam shaft provided with cam means for engaging one of said jaws to control its clamping relation with the other jaw.

5. In combination on a folding cylinder of the type described, a cutter bar extending longitudinally of the cylinder for engagement with a cooperating knife blade, said bar comprising a strip of rubber having several uniform alternative working faces, and quick-releasable means for clamping said rubber strip on the cylinder with any desired one of said faces in working position, said means comprising a pair of relatively movable jaws for embracing said strip, and a cam means operable by one movement of a single control handle to control the clamping relation of the jaws along their entire length.

6. A rubber cutter strip clamping mechanism for a newspaper folding and cutting cylinder comprising a pair of relatively movable jaws engaging the strip and extending longitudinally of the cylinder, a rotatable shaft extending along one of said jaws and

provided with cam means for engaging and operating the jaw, the cylinder being provided with a recessed portion for receiving said shaft and jaws, means serving to removably retain said shaft in operative position against transverse movement in its portion of the recess, and means for retaining said jaws in the recessed portion of the cylinder.

7. A rubber cutter strip clamping mechanism for a newspaper folding and cutting cylinder comprising a pair of relatively movable jaws engaging the strip and extending longitudinally of the cylinder, a rotatable shaft extending along one of said jaws and provided with cam means for engaging and operating the jaw, means for manually operating said shaft, and releasable means for locking the shaft in a position whereby said cam means holds the jaws in clamping relation to the cutter strip, the cylinder being provided with a recessed portion for receiving said shaft and jaws.

8. In combination with a flexible cutter strip, clamping means therefor, supporting means therefor provided with a recessed portion for receiving said strip and clamping means, said clamping means comprising a pair of cooperating jaws of L shaped cross-section, the base portions of said jaws being overlapped and provided with communicating apertures for receiving attaching means extending into said supporting means, and cam means for engaging one of said jaws to control its clamping relation with the other jaw.

9. In combination with a flexible cutter strip, clamping means therefor, supporting means therefor provided with a recessed portion for receiving said strip and clamping means, said clamping means comprising a pair of cooperating jaws of L shaped cross-section, the base portions of said jaws being overlapped and provided with communicating apertures for receiving attaching means, the apertures in one of the jaws comprising slots to permit a limited relative movement of the jaws when the flexible strip is to be inserted or removed and means to control the clamping relation of said jaws.

10. In combination with a flexible cutter strip, clamping means therefor, supporting means therefor provided with a recessed portion for receiving said strip and clamping means, said clamping means comprising a pair of cooperating jaws of L shaped cross-section, the base portions of said jaws being overlapped and provided with communicating apertures for receiving attaching means, and retaining pieces fixed to the support at the ends of said jaws for restraining the ends of the flexible strip within the jaws.

11. In combination on a newspaper folding cylinder of the type described, a cutter strip of rubber or the like, a quick releasable means for clamping the cutter strip in operative position, and a single operating handle for controlling the clamping action along the entire strip.

12. In combination on a newspaper folding cylinder of the type described, a cutter strip of rubber or the like extending longitudinally of the cylinder, and quick releasable means operable by one direct movement either to release the strip or to clamp the same in working position under uniform pressure along its entire length.

13. In combination on a newspaper folding cylinder of the type described, a cutter strip of rubber or the like extending longitudinally of the cylinder and having a plurality of working faces, quick releasable means for clamping the cutter strip with any desired one of said faces in working position and under uniform pressure along its entire length, and an operating handle at one end of the cylinder for controlling the clamping action along the entire length of the strip.

14. In combination on a newspaper folding cylinder or the like, a cutter strip of flexible material and of symmetrical cross-section having a plurality of alternative flat working faces for cooperation with a knife blade, clamping jaws therefor having opposed faces of substantial area formed with relatively shallow serrations running lengthwise of the strip and of the knife blade which cooperates therewith for securely engaging the sides of the strip but without rupturing the surfaces thereof, and means for operating said jaws to maintain the strip under pressure therebetween.

15. In combination on a newspaper folding cylinder or the like, a cutter strip of flexible material and of symmetrical cross-section having a plurality of alternative flat working faces for cooperation with a knife blade, clamping jaws therefor having opposed faces of substantial area formed with relatively shallow serrations running lengthwise of the strip and of the knife blade which cooperates therewith for securely engaging the sides of the strip but without rupturing the surfaces thereof, and means for controlling the jaws to permit the strip to be quickly inserted, removed or turned over.

16. In combination on a newspaper folding cylinder of the type described, a cutter strip of rubber or the like, clamping jaws for securing the strip in operative position, means for securing said jaws to the cylinder when in either clamped or unclamped relation, and quick releasable means for controlling the clamping action.

In testimony whereof I have signed my name to this specification.

JOSEPH W. ADDISON.