May 18, 1926. 1,584,868

H. L. KUTTER

PAPER SLITTER

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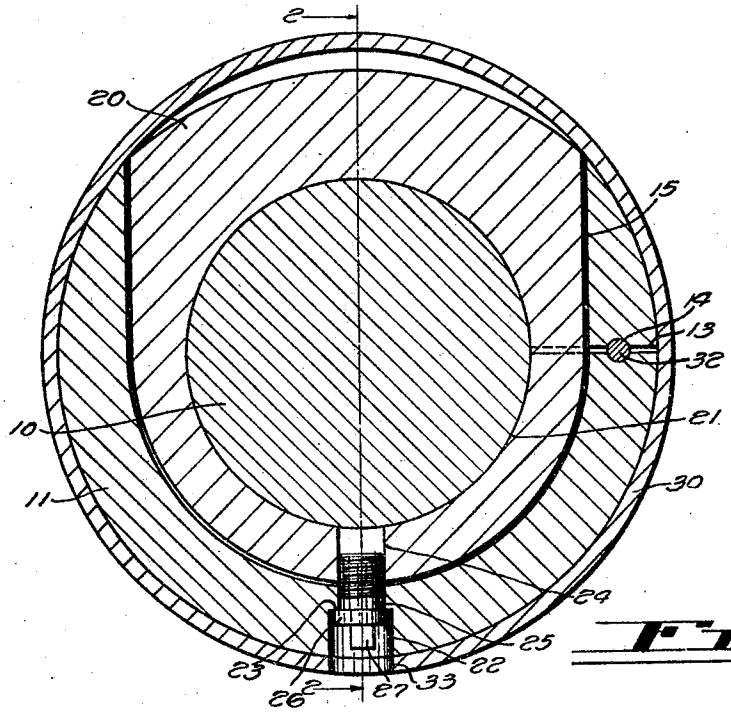



Fig. 1.

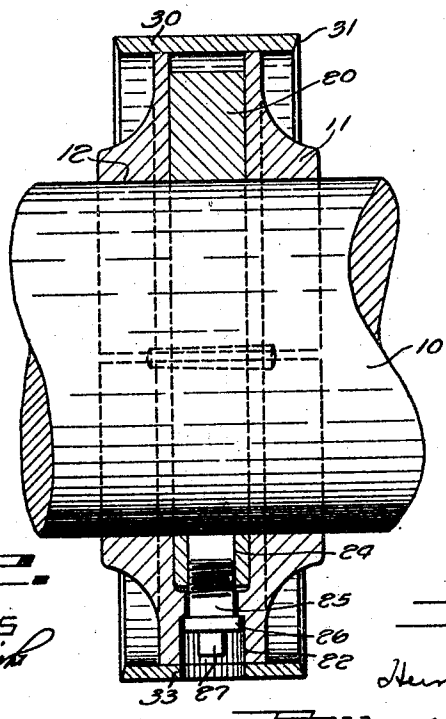



Fig. 2.

Witnesses

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# UNITED STATES PATENT OFFICE.

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## PAPER SLITTER.

Application filed October 13, 1923. Serial No. 668,350.

This invention relates to apparatus for cutting paper, and more particularly to apparatus of that character which is known in the art as a paper slitter.

Devices of this general character are widely used in the paper making art; and they consist generally of two opposed rotary knives, or slitters, between which the paper is passed to be cut.

One of the principal objects of the invention is to provide apparatus of this character which is simple in construction, which is easily assembled and disassembled, which clamps the slitter mechanism tightly upon the shaft by which it is carried, and which is so constructed that the device will be in balance during operation.

Other objects and advantages of the invention will be apparent in the description thereof set out below, when taken in connection with the accompanying drawings.

In the drawings, in which like characters of reference designate like parts throughout the several views thereof,

Fig. 1 is a transverse sectional view through a slitter constructed in accordance with this invention; and

Fig. 2 is a longitudinal sectional view along the line 2—2 of Fig. 1.

The slitter which forms the subject matter of this invention, and of which a preferred embodiment is shown in the drawing, is constructed for cooperation with a revolving knife, which is not shown, this arrangement of slitter and knife being quite generally used.

The slitter is mounted upon a shaft 10, which is driven in any suitable manner, and comprises a hub portion 11, which has a passage 12 therein, adapted to receive the shaft. This hub portion, as clearly shown in Fig. 1 is slit entirely across, as at 13, the opposed ends resulting from this slitting of the hub being provided with cooperating tapered grooves 14.

The hub is also provided with a pocket or recess 15, which opens through the periphery of the hub and is adapted to receive a tightening sleeve 20. This sleeve is provided with a passage 21 which is adapted to receive the shaft 10 and to be, when the device is assembled, in substantial alignment with the passage 12 in the hub. As will be evident from Fig. 1 the tightening sleeve 20 is so shaped that when in position it will substantially fill the pocket 15, of the hub, so that during rotation of the device, upon the shaft 10, the apparatus will be in balance.

The hub is also provided with a passage 22, which extends from the periphery of the hub and opens into the bottom of the pocket 15. This passage is of two diameters to provide a shoulder 23. The tightening sleeve 20 is also provided with a passage 24, which is so positioned therein that when the device is assembled the passages 22 and 24 are in register with each other. Passage 24 is threaded, and is adapted to receive the threaded end of the tightening screw 25, which is introduced through the passage 22. This tightening screw intermediate its length is provided with a flange or shoulder 26 adapted to cooperate with the shoulder 23, and at its outer end is provided with a wrench receiving portion 27. By manipulating the tightening screw 25, the hub 11 and the tightening ring 20 will be moved in opposite directions to clamp each of these members tightly against the shaft, the construction being such that the hub and tightening ring will clamp the shaft about substantially its entire circumference. The tightening screw 25, therefore, serves the double purpose of connecting the hub and tightening ring together and clamping the hub and tightening ring upon the shaft.

The periphery of the hub 11 is constructed to receive a slitter band 30, the end of which is beveled to provide a knife edge as shown by the numeral 31, which knife edge cooperates with the revolving knife referred to above. This slitter band is made separate from the hub both to facilitate manufacture and to permit of replacement or repair. This band is made of such internal diameter that it may be readily slid into position upon the hub. When the band has been properly positioned a tapered wedge pin 32 is driven into the tapered grooves 14 to spread the slit ends of the hub apart and thus clamp it tightly within the slitter band, to hold that band in proper position. Obviously the band may be removed for repairs, or resharpening, or replacement by driving out the tapered pin which will permit sufficient contraction of the hub to allow of removal of the band.

As shown the slitter band is provided with an opening 33, through which the

tightening screw may be inserted in place and a suitable wrench may be inserted for proper manipulation of the tightening screw to effect adjustment of the device.

While the form of apparatus illustrated herein constitutes a preferred embodiment of the invention, it is to be understood that the invention is not limited to this precise form, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. In a paper slitter of the character described, a hub having a passage therethrough adapted to receive a shaft to which the slitter is to be attached, and also having a pocket therein; a tightening ring, having a passage therethrough, for positioning within the said pocket, the passage through said ring being adapted to register with the passage in the said hub to receive the shaft; and means for connecting the said hub and tightening ring to the said shaft.

2. In a paper slitter of the character described, the combination with a shaft; of a hub member adapted for positioning upon said shaft, said hub member having a pocket therein and a passage through said hub member opening into the said pocket; a tightening ring positioned within the said pocket having a threaded passage therein constructed for registering with the passage within the said hub, and a tightening screw positioned within these two said passages to urge the hub and ring in opposite directions to connect the hub and ring together and fasten them on to the shaft.

3. In a paper slitter of the character described, the combination with a shaft; of a slitted hub member mounted upon said shaft, having a pocket therein and a passage through said hub opening into said pocket, a shoulder within said passage; a tightening ring within said pocket and surrounding said shaft, said ring having a threaded passage therein adapted to register with the passage in said hub; a shouldered tightening screw mounted within the said two registering passages to connect the hub and tightening ring together and to urge them in opposite directions to fasten them on the shaft; a slitter band surrounding said hub, and a wedge member positioned within the slit in said hub to expand said hub and clamp the slitter band in place.

4. In a paper slitter of the character described, the combination with a shaft; of a hub member adapted for positioning upon said shaft, said hub member having a passage therethrough adapted to receive the shaft, and having a pocket therein opening through the periphery of the hub; a tightening ring positioned within the said pocket, having a passage therethrough for receiving the shaft, the shaft receiving passages in the hub member and in the tightening ring being substantially coextensive when the device is assembled upon the shaft; and means for urging the hub member and tightening ring in opposite directions to fasten them on to the shaft.

5. In a paper slitter of the character described, an expansible hub having a passage therethrough adapted to receive a shaft to which the slitter is to be attached; a slitter band surrounding said hub of such dimensions that it will slip freely over the said hub when the hub is not expanded; and means for expanding the said hub to clamp the slitter tightly in place thereon.

6. In a paper slitter of the character described, a slitted expansible hub having a passage therethrough adapted to receive a shaft to which the slitter is to be attached, and means for fastening the said hub upon the shaft, a slitter band surrounding the periphery of said hub said band being of such dimensions as to slip freely over the hub when the said hub is not expanded; and means cooperating with the slitted portion of said hub for expanding it to clamp the slitter band tightly thereon.

7. In a paper slitter of the character described, the combination with a shaft; of a hub member having a passage therein adapted to receive the said shaft, and a pocket therein opening through the periphery of said hub member, and of greater extent than the shaft receiving passage; a tightening ring within said pocket, said ring having a passage therein for receiving the shaft, the shaft receiving passages in the hub and in the ring being substantially in alignment when the device is assembled upon the shaft; and means engaging the said hub and tightening ring for causing movement of the hub and tightening ring relative to the shaft to clamp both said members to the shaft.

In testimony whereof I hereto affix my signature.

HERMAN L. KUTTER.

## Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,584,868, granted May 18, 1926, upon the application of Herman L. Kutter, of Hamilton, Ohio, for an improvement in "Paper Slitters," an error appears in the printed specification requiring correction as follows: Page 2, line 33, claim 2, strike out the words "having a threaded passage therein" and insert the same to follow after the word "ring" in line 32 of the same claim; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22d day of June, A. D. 1926.

[SEAL.]

M. J. MOORE,
*Acting Commissioner of Patents.*