Jan. 1, 1935. H. A. W. WOOD 1,986,457

CUTTING CUSHION FOR FOLDING CYLINDERS

Original Filed Jan. 10, 1931

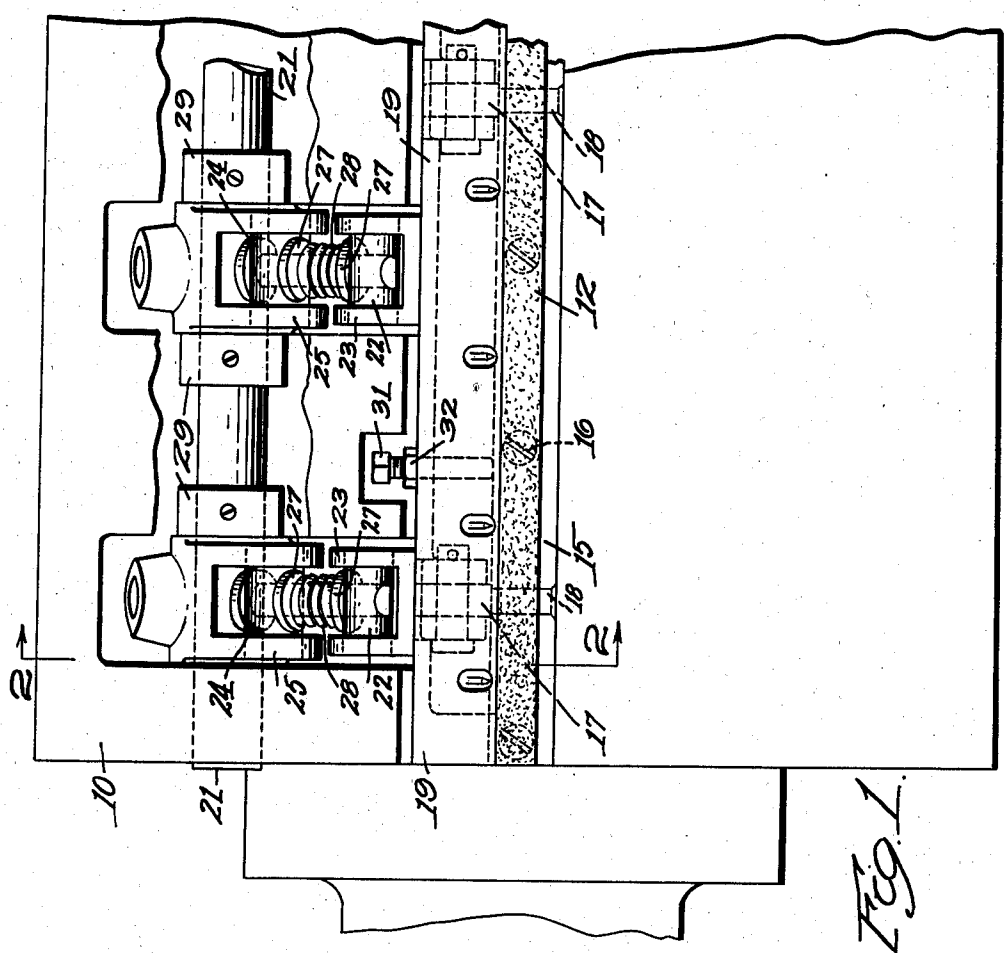


Fig. 1.

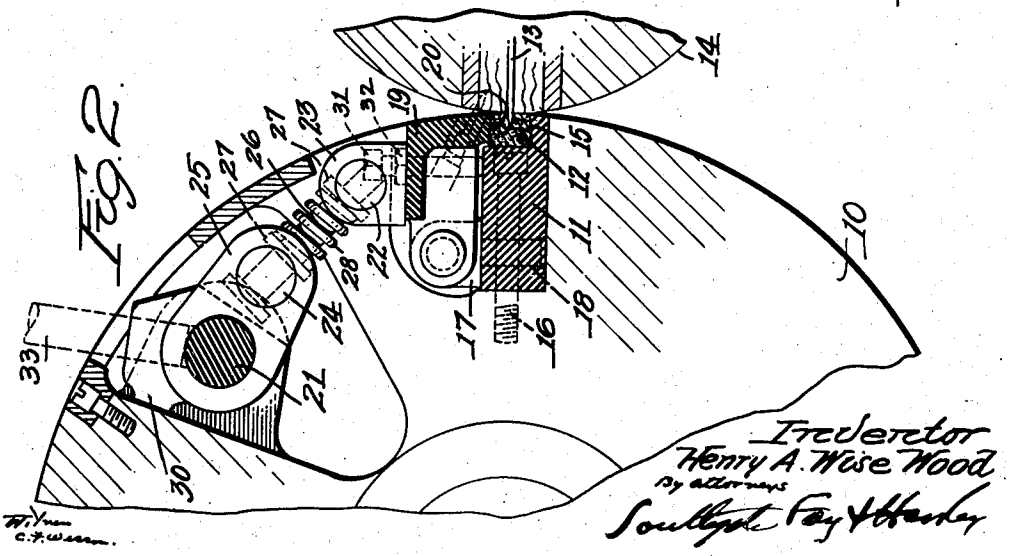


Fig. 2.

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Patented Jan. 1, 1935 1,986,457

UNITED STATES PATENT OFFICE

1,986,457

CUTTING CUSHION FOR FOLDING CYLINDERS

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Application January 10, 1931, Serial No. 507,834
Renewed January 5, 1934

6 Claims. (Cl. 164—66)

This invention relates to the type of cutting cushions set forth in my Reissue Patent No. 17,892, reissued December 2, 1930.

The principal object of this invention is to provide means for easily removing and inserting the cutting cushions. The invention also involves means by which the centrifugal force of the rotating folding cylinder will tend to keep the cushions pressed together tightly and the use of a toggle which normally is held in a position to keep the cushion holding device in closed or cushion pressing position.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing, in which

Fig. 1 is a plan of a folding cylinder showing a part of the cushion holding device constructed in accordance with this invention, and

Fig. 2 is a cross section on the line 2—2 of Fig. 1.

The folding cylinder 10 has mounted therein a cutting cushion box 11 for carrying a cutting cushion or rubber 12 for cooperating with the cutting knife 13 carried by the cutting cylinder 14 in the usual way. This cutting cushion box 11 is provided with a wall 15 on one side only which is solid and against which the rubber cushion 12 is adapted to be pressed. This box 11 is held in position on the cylinder by means of screws 16.

A poppet 17 is carried by the box 11 by means of a projection 18 riveted to the box 11. Pivoted on this poppet is a lever 19 which has a slanting surface 20 adapted to engage the rubber cushion 12 and press it against the wall 15 for the same purpose as in my above mentioned reissue patent. The lever is held in its closed position against the cushion by a toggle lever construction comprising a shaft 21 carried by the cylinder, a stud 22 carried by a projection 23 which is secured to the lever 19 and an intermediate stud 24. This intermediate stud is mounted on an arm 25 which is fixed to the shaft 21. Connecting the studs 22 and 24 is a rod 26. This rod is provided with a head at one end and passes through the stud 24 and screws into the stud 22. The rod 26 carries a flat surface on each side of its head which fits in the bifurcated projection of the lever 25 to prevent the rod working out of the threaded hole in the shaft 22.

Two collars 27 are slidably mounted on this rod 26 and between them on the rod is located a spring 28 normally pressed against these collars and forcing them apart. The collars rest against the two studs and normally tend to force the two studs apart.

This construction, it will be seen, constitutes a toggle joint which, in the normal position shown in Fig. 2, is slightly out of center so that it will hold the lever 19 against the cushion by spring-pressure. The shaft 21 is kept in position longitudinally by collars 29 fixed to it and it carries an abutment 30 which is adapted to contact with the straight side of the opening in the folding cylinder in which these parts are located. This contact limits the motion of the lever in a counter clockwise direction. Thus the locking toggle lever passes its center and prevents lessening of the pressure exerted by the spring against the cutting rubber, on account of any vibration of the parts. Any centrifugal force caused by the rotation of the folding cylinder will hold the projection 30 against the straight wall and tend to keep the toggle in the position shown.

An adjusting screw 31 threaded in the lever 19 and held secure by a jam nut 32 permits regulation of the extent to which the lever 19 may press against the cutting rubber or cushions 12. It is an adjustable limit stop.

When it is desired to remove the spring pressure for removal or insertion of a cushion, a bar 33 is inserted in a hole in the lever 25 and the whole lever is rotated by hand in a clockwise direction. The first effect of this is the compression of the spring 28 and then, as the toggle passes over the dead center, this spring will be allowed to expand until the head on the rod 26 contacts with the flattened portion on the shaft 24. When these toggles are all unlocked in this way the lever 19 is brought back and the cushion is freed so that it can be released and renewed. Two such toggles are shown. Three of them are first unlocked as described and then when the fourth is unlocked the lever 19 is entirely released so that the cutting rubber can be removed or inserted easily.

This constitutes an effective means for holding the cutting rubber in position and for releasing it readily when desired.

Although I have illustrated and described only one form of the invention I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited in this respect but what I do claim is:—

1. The combination with a cutting blade, of a cushion, a box or support for the cushion having a solid backing wall behind the cushion, and a

spring toggle for pressing one side of the cushion toward said wall and thus closing the cut formed in the cushion.

2. The combination with a cutting blade, of a cushion for receiving the edge of the blade, a box or support for the cushion having a solid wall against which the cushion is held in fixed position on one side, a pivoted lever engaging the opposite surface of the cushion, a toggle and means for actuating said toggle to force said lever toward the cushion to tend to close up the cut formed therein.

3. The combination with a cutting blade, of a cushion for receiving the edge of the blade, a box support for the cushion, the cushion being held in fixed position on one side by the box, a pivoted lever on the opposite side engaging the opposite surface of the cushion, a spring-pressed toggle pivoted to the back of said lever for forcing the lever toward the cushion to tend to close up the cut formed in it, and means whereby the toggle is normally held in broken condition and that position is limited to maintain spring pressure on the cushion in spite of vibrations.

4. The combination with a folding cylinder, of a knife cushion carried thereby, a solid wall against which the cushion bears on one side, a lever bearing on the opposite side of the cushion, a shaft oscillatably mounted in the cylinder, an arm on the shaft having a stop thereon, a stud on the arm, a stud on the lever, and a spring for forcing said studs apart to turn the shaft into a position for the stop to limit its motion and to force the lever against the cushion.

5. The combination with a folding cylinder, of a knife cushion having a solid wall at one side of it, a lever engaging the opposite side of the cushion, a stud carried by the lever, an oscillatable shaft having an arm, a stud on the arm, a rod passing through one stud and screw-threaded to engage the other stud, and a spring on the rod pressing the studs apart to force the lever against the cushion.

6. The combination with a folding cylinder, of a knife cushion having a solid wall at one side of it, a lever engaging the opposite side of the cushion, means for limiting the extent of compressive movement which the lever may exert against the cushion, and yielding means for forcing the lever toward the cushion.

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