Aug. 28, 1928. 1,682,522

C. IVES

DOCTOR BAR

Filed Jan. 16, 1928

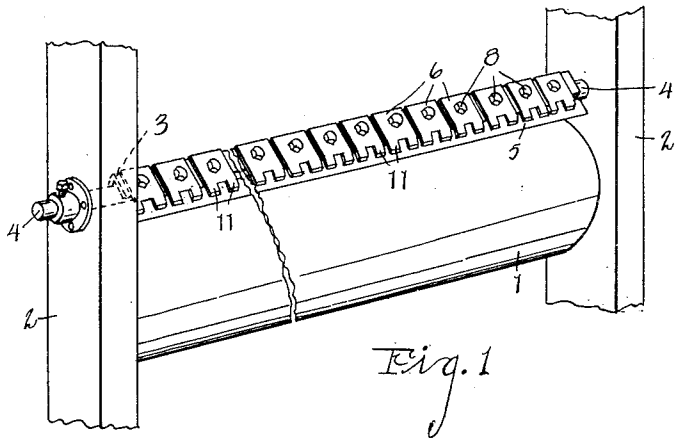


Fig. 1

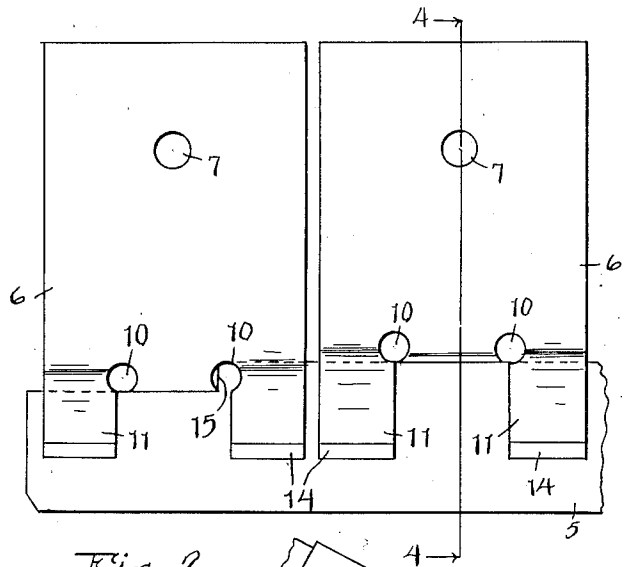


Fig. 2

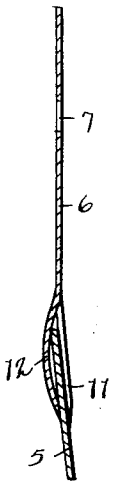


Fig. 4

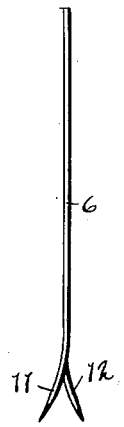


Fig. 5

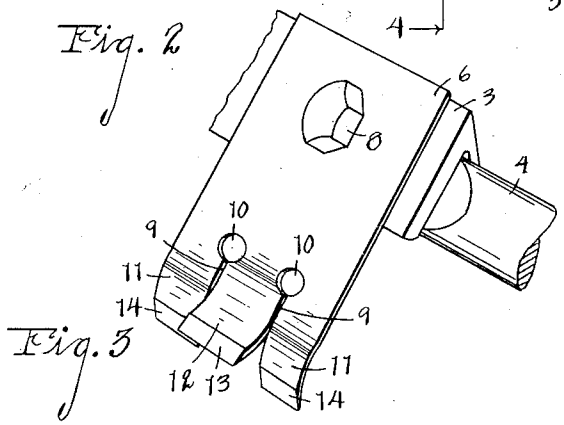


Fig. 3

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UNITED STATES PATENT OFFICE.

CLAUDE IVES, OF OTSEGO, MICHIGAN, ASSIGNOR OF ONE-HALF TO CHARLEY PIERCE, OF MARTIN, MICHIGAN.

DOCTOR BAR.

Application filed January 16, 1928. Serial No. 247,130.

The main objects of this invention are:

First, to provide an improved doctor bar for the rolls of paper making machines and the like which is highly efficient for the purpose and at the same time results in a minimum of wear on the roll or cylinder.

Second, to provide an improved doctor bar of the class described which conforms to the cylinder, resiliently engaging the same under a substantially uniform pressure.

Third, to provide an improved doctor bar in which the blade or cylinder engaging element can be quickly and easily renewed as occasion requires and is economical.

Objects pertaining to details and economies of my invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing in which:

Fig. 1 is a fragmentary view showing my improved doctor bar in operative relation to a roll or cylinder such as is employed in a paper making machine, the cylinder and its supports being shown conventionally.

Fig. 2 is a fragmentary plan view of the blade and a pair of its supporting plates.

Fig. 3 is a fragmentary perspective view of the supporting bar or rockshaft with one of the blade supporting plates thereon.

Fig. 4 is a detail section on line 4—4 of Fig. 2.

Fig. 5 is an edge view of one of the blade supporting plates.

Referring to the drawing, 1 represents a roll or cylinder and 2 parts of the supporting frame of a paper making machine.

My improved doctor bar comprises a supporting bar or rockshaft 3 having journals 4 at the ends thereof, one of these journals being commonly provided with pressure means or means for holding the doctor bar in its adjusted position. However, as suitable mechanism for this purpose is well known in the art and these details form no part of this invention, I have not illustrated the same herein.

The blade 5 is of relatively thin resilient steel of suitable length for the particular cylinder. On the supporting bar or rockshaft 3 I mount a plurality of spring steel plates 6 having holes 7 therein to receive the screws 8. The plates 6 have longitudinal slots 9 extending from their outer ends, the slots terminating in holes 10 punched in the plate. These holes are mainly provided to prevent tearing or splitting of the plates at the base of the slots, although the holes may be eliminated with quite satisfactory results. These slits provide fingers 11 and 12, each plate having three fingers in the embodiment illustrated. The adjacent fingers are oppositely and outwardly curved providing great resiliency and also to permit the ends of the fingers to lie against or engage the blade, see Fig. 4. The blade is engaged with the fingers with adjacent fingers engaging opposite sides of the blade as illustrated. In the embodiment illustrated the intermediate or central finger 12 engages the top of the blade.

The inner edges of the fingers 12 are beveled at 13 while the outer edges of the fingers 11 are beveled at 14. This provides a thin feather-edge for the top fingers or the fingers engaging the top of the blade so that the material scraped from the cylinder passes readily over the fingers and is not torn or piled up thereby. The beveling of the under fingers also provides a feather edge. This, however, is not so important as the beveling of the top fingers, although it is a desirable feature.

To support the blade against longitudinal movement I notch or shoulder the same at 15, this shoulder engaging the intermediate finger of the outer plate, thereby supporting the blade against longitudinal movement.

My improved doctor bar is highly efficient as the blade is not only resiliently supported but may be of resilient material so that it conforms to the roll. A further advantage is that in order to be effective it is not necessary that it be urged against the cylinder under heavy pressure which, when the blades are of rigid heavy material as is common practice, results in a large amount of wear and frequently an uneven wear, necessitating the truing of the rollers or cylinders. This is expensive, not only on account of the actual truing labor, but the removing of the cylinder from the machine and the consequent shutting down of the machine while the roll is being removed and trued or a new roll introduced.

I have illustrated and described my improvements in an embodiment which I have

found highly satisfactory. I have not attempted to illustrate or describe various embodiments which I contemplate as it is believed that this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a doctor bar, the combination of a supporting bar, a relatively thin blade, and a plurality of spring blade supporting plates secured to said supporting bar, said plates being longitudinally slit at their outer ends providing a plurality of spring blade engaging fingers, adjacent fingers being oppositely curved and engaging opposite sides of the blade, the fingers engaging the top side of the blade being beveled on their inner edges and the fingers engaging the underside of the blade being beveled on their outer edges, one end of said blade being notched providing a stop coacting with the edge of the top finger of one of the plates supporting the blade against longitudinal movement.

2. In a doctor bar, the combination of a supporting bar, a relatively thin blade, and a plurality of spring blade supporting plates secured to said supporting bar, said plates being longitudinally slit at their outer ends providing a plurality of spring blade engaging fingers, adjacent fingers being oppositely curved and engaging opposite sides of the blade, the fingers engaging the top side of the blade being beveled on their inner edges and the fingers engaging the under side of the blade being beveled on their outer edges.

3. In a doctor bar, the combination of a supporting bar, a relatively thin blade, and a plurality of spring blade supporting plates secured to said supporting bar, said plates being longitudinally slit at their outer ends providing a plurality of spring blade engaging fingers, adjacent fingers being oppositely curved and engaging opposite sides of the blade, one end of said blade being notched providing a stop coacting with the edge of the top finger of one of the plates supporting the blade against longitudinal movement.

4. In a doctor bar, the combination of a supporting bar, a relatively thin blade, and a plurality of spring blade supporting plates secured to said supporting bar, said plates being longitudinally slit at their outer ends providing a plurality of spring blade engaging fingers, adjacent fingers being oppositely curved and engaging opposite sides of the blade.

5. In a doctor bar, the combination of a supporting bar, a resilient blade, and a plurality of spring blade supporting plates carried by said supporting bar, said plates being slit at their outer ends providing a plurality of spring blade engaging fingers disposed with adjacent fingers engaging opposite sides of the blade, the fingers engaging the top side of the blade being beveled on their inner edges, said blade having a stop engaging one of the plates supporting the blade against longitudinal movement.

6. In a doctor bar, the combination of a supporting bar, a resilient blade, and a plurality of spring blade supporting plates carried by said supporting bar, said plates being slit at their outer ends providing a plurality of spring blade engaging fingers disposed with adjacent fingers engaging opposite sides of the blade, the fingers engaging the top side of the blade being beveled on their inner edges.

7. In a doctor bar, the combination of a supporting bar, a resilient blade, and a plurality of spring blade supporting plates carried by said supporting bar, said plates being slit at their outer ends providing a plurality of spring blade engaging fingers disposed with adjacent fingers engaging opposite sides of the blade, said blade having a stop engaging one of the plates supporting the blade against longitudinal movement.

8. In a doctor bar, the combination of a supporting bar, a resilient blade, and a plurality of spring blade supporting plates carried by said supporting bar, said plates being slit at their outer ends providing a plurality of spring blade engaging fingers disposed with adjacent fingers engaging opposite sides of the blade.

9. In a doctor bar, the combination of a supporting bar, a resilient blade, and a plurality of spring blade supporting members carried by said supporting bar and each provided with spring blade engaging fingers disposed with adjacent fingers engaging opposite sides of the blades, the ends of the fingers engaging the top of the blade being beveled on their inner edges and the ends of the fingers engaging the under side of the blade being beveled on their outer edges.

10. In a doctor bar, the combination of a supporting bar, a resilient blade, and a plurality of spring blade supporting members carried by said supporting bar and each provided with spring blade engaging fingers disposed with adjacent fingers engaging opposite sides of the blades.

11. In a doctor bar the combination of a resilient blade, and a plurality of spring blade supporting members each provided with opposite spring blade engaging fingers engaging opposed sides of the blade.

12. In a doctor bar the combination of a resilient blade, and a plurality of spring blade supporting members each provided with spring blade engaging fingers engaging opposite sides of the blade and whereby the blade is removably supported.

13. In a doctor bar, the combination of a

supporting bar, a resilient blade, and a plurality of spring blade supporting members carried by said supporting bar and each provided with coacting blade engaging fingers engaging the blade from opposite sides thereof.

14. In a doctor bar, the combination of a resilient blade, and a plurality of blade supporting members provided with spring fingers engaging opposite sides of the blade.

In witness whereof I have hereunto set my hand.

CLAUDE IVES.