Dec. 13, 1927.

1,652,756

F. E. BRUCE

FEED ROLLER

Filed Feb. 8, 1927

2 Sheets-Sheet 1

Fig. 1.

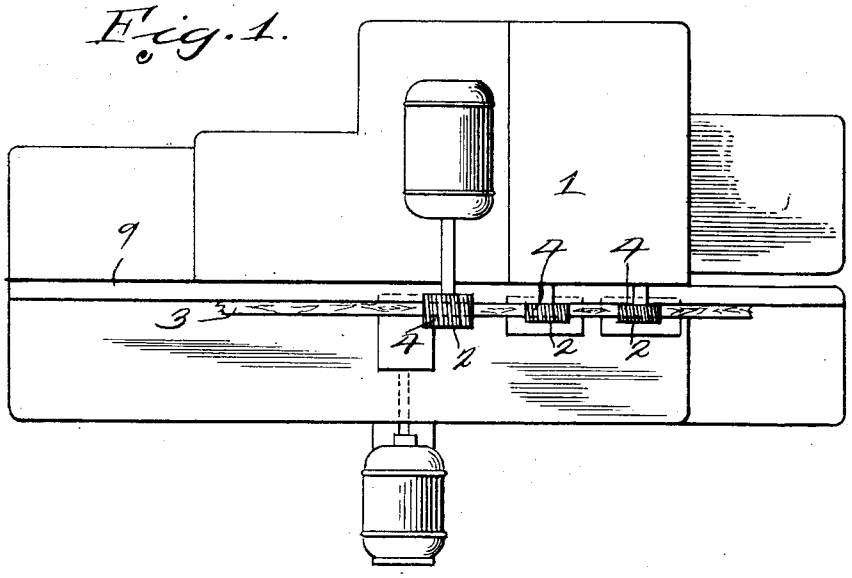
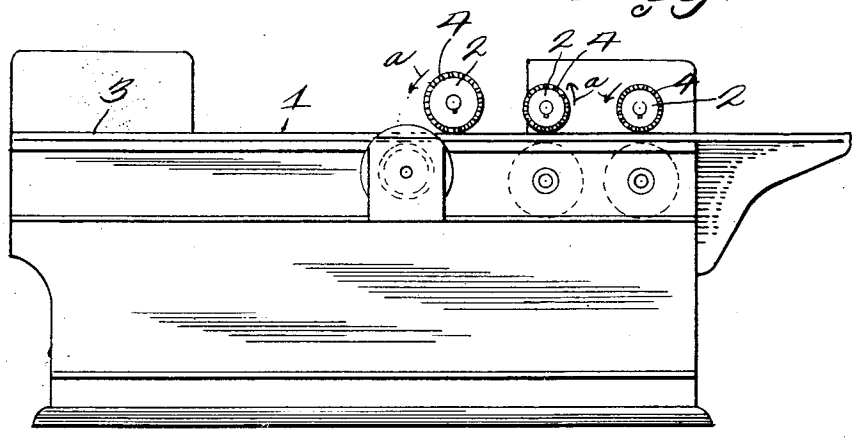


Fig. 2.



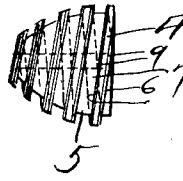


Fig. 7.

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Fig. 3.

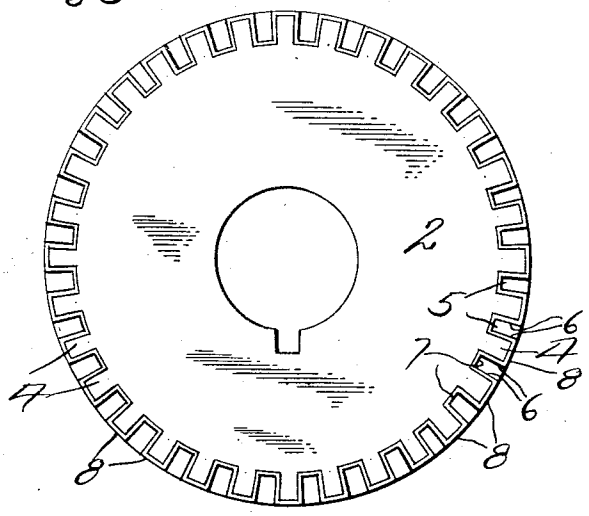


Fig. 6.

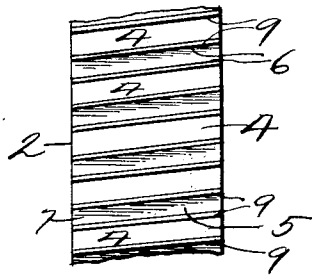
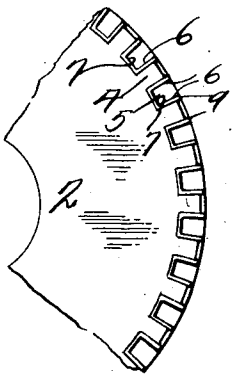


Fig. 5.



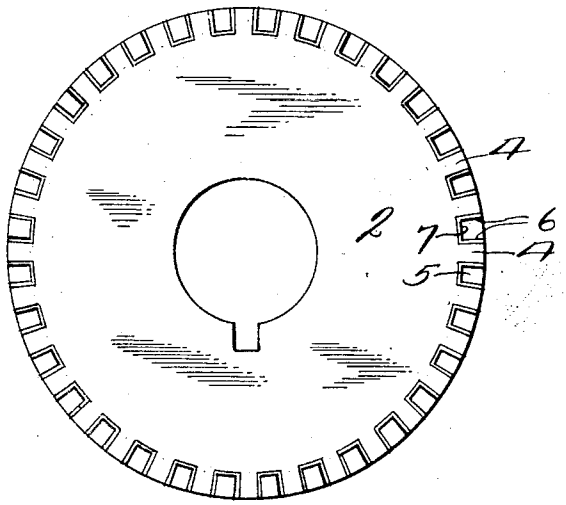


Fig 4.

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Patented Dec. 13, 1927. 1,652,756

UNITED STATES PATENT OFFICE.

FRANK E. BRUCE, OF BARTLETT, TENNESSEE, ASSIGNOR TO E. L. BRUCE COMPANY, OF MEMPHIS, TENNESSEE, A CORPORATION OF DELAWARE.

FEED ROLLER.

Application filed February 8, 1927. Serial No. 166,706.

The invention relates to feed rollers, particularly adapted for use in connection with wood working machines, for instance matching machines, and has for its object to provide a feed roller wherein the minimum of wear is obtained and which roller comprises a plurality of transversely extending ribs having their opposite sides carbonized whereby the carbonized edges will resist wear incident to feeding boards, and at the same time leaving relatively soft metal exposed at the outer sides of the ribs, for gripping purposes and which soft surfaces, when wear takes place thereon, exposes the carbonized edges, which edges will grip the board and resist wear.

A further object is to incline the ribs whereby during the feeding operation they will have a tendency to force the board during their longitudinal movement into close sliding engagement with the guide bar of the machine.

A further object is to form the feed roller slightly over size and to carbonize opposite sides of the ribs and the outer faces and then remove by a grinding process the outer carbonized faces of the ribs whereby a soft material between the carbonized sides of the ribs will be exposed.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:

Figure 1 is a top plan view of a conventional form of matching machine, showing the feed rollers applied thereto.

Figure 2 is a side elevation of the matching machine.

Figure 3 is a view in elevation of the feed roller before grinding the periphery thereof.

Figure 4 is a side elevation of the feed roller after the grinding operation.

Figure 5 is a side elevation of a portion of the feed roller showing how the metal wears from between the carbonized edges of the ribs.

Figure 6 is a side elevation of a portion of the feed roller.

Figure 7 is a perspective view of another form of feed roller of the spiral type.

Referring to the drawing the numeral 1 designates a conventional form of surface and matching machine, which machine is provided with feed rolls 2, which rotate in the direction of the arrow *a*, Figure 2, for feeding a strip of material, such for instance as flooring longitudinally, said strip being designated by the numeral 3. Feed rollers as at present constructed have to be replaced about every two weeks incident to wear, and the rollers hereinafter set forth have been found to last indefinitely.

The rollers 2 may be of any number desired, and applicant does not limit himself in this respect, and as said feed rollers are of substantially the same construction, only one will be described in detail. The feed roller 2, referring to Figures 3 to 6 inclusive, are provided with transversely disposed ribs 4 formed by transverse channels 5, and as the rollers 2 are of soft metal they wear rapidly, and to obviate this difficulty the opposite sides of the ribs 4 are provided with carbonized surfaces 6 for rendering said surfaces relatively hard in relation to the body of the rib as the bottoms of said recesses 5 are provided with carbonized surfaces 7. The carbonizing or hardening of the rib surfaces may be accomplished in any suitable manner. The outer surfaces 8 of the ribs are preferably carbonized during the same operation, and the roller is made slightly oversize whereby after the carbonizing of the ribs said outer surfaces 8 may be ground from the roller as shown in Figure 4 for exposing the outer soft portion of the ribs as clearly shown in Figure 4, therefore it will be seen as the wear takes place, it will be substantially on the soft outer face of the ribs 4 between the carbonized portions 6, and said carbonized portion will not wear except under extreme hard and long service, and the outer edges 9 of the hardened surfaces 6 will grip a piece of material being fed and will positively feed the same, thereby obviating slipping of the roller, and insuring a positive feeding of material. The ribs 4 extend angularly across the face of a roller at an angle other than a right angle whereby during the feeding operation boards will be forced inwardly towards the guide bar 10 for insuring an accurate

feeding of the material. By referring to Figure 5, it will be noted how the softer material wears before the carbonized edges 9, and the more it wears the better the gripping action between the carbonized edges 9 and the material fed.

Referring to Figure 7 wherein a conically shaped feeding roll is shown, the carbonized edges thereof act in substantially the same manner as the form of roller shown in Figures 3 and 4, and it is to be understood that the particular kind or shape of roller may be varied as desired.

From the above it will be seen that a feed roller is provided particularly adapted for use in connection with wood working machinery and which roller is carbonized on the opposite sides of the ribs whereby as the soft outer surface of the ribs wears the carbonized edges will grip the material, and feed the material, and that said carbonized edges will materially lengthen the life of the feed rollers.

The invention having been set forth what is claimed as new and useful is:—

1. The combination with a wood working machine having a feed roller, ribs carried by said feed roller and adapted to engage material, said ribs being formed from metal, the opposite sides of said ribs being relatively hard whereby the soft material of the ribs will wear before the relatively hard opposite sides.

2. The combination with a feed roller, ribs carried by said rib roller and formed from metal, said ribs having their opposite longitudinal sides carbonized and forming means whereby the ribs will wear between the carbonized opposite longitudinal sides before said sides.

3. The combination with a feed roller, ribs carried by said feed roller and formed from metal, the opposite sides of said ribs being carbonized and forming means whereby upon wearing of the outer faces of the ribs said carbonized sides will extend beyond the outer faces of the ribs.

4. The combination with a feed roller, ribs carried by said feed roller and formed from metal, of a carbonized side carried by said ribs and adapted to extend beyond the periphery of the roller as wear takes place on the ribs.

5. A feed roller comprising a body member having a plurality of ribs, opposite sides of said ribs being carbonized.

6. A feed roller comprising a body member having a plurality of ribs formed from metal, opposite longitudinal sides of said ribs being carbonized.

7. A feed roller having a plurality of ribs formed from steel, the opposite sides of said ribs being carbonized and the bottoms of the recesses between the ribs being carbonized.

8. The method of making a ribbed feed roll, said method comprising carbonizing the surfaces of the ribs of the roll and finally removing the outer carbonized surfaces of the ribs.

Signed at Memphis in the county of Shelby and State of Tennessee this 1st day of February A. D. 1927.

FRANK E. BRUCE.