(No Model.)

L. GARRIGUES.

FEED ROLL.

No. 360,677. Patented Apr. 5, 1887.

Fig 1

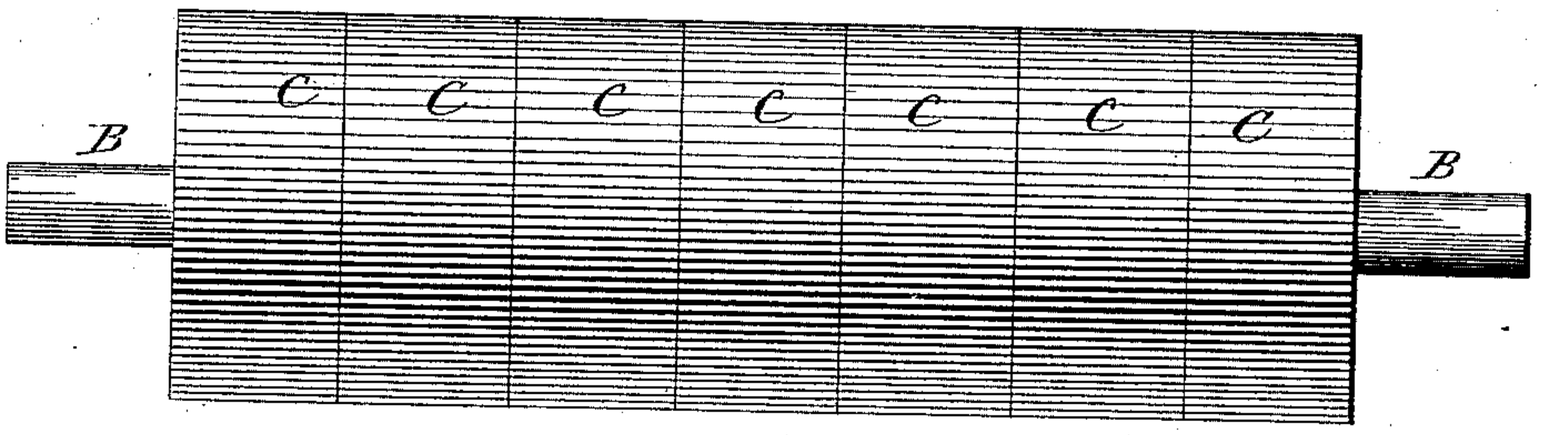


Fig. 2

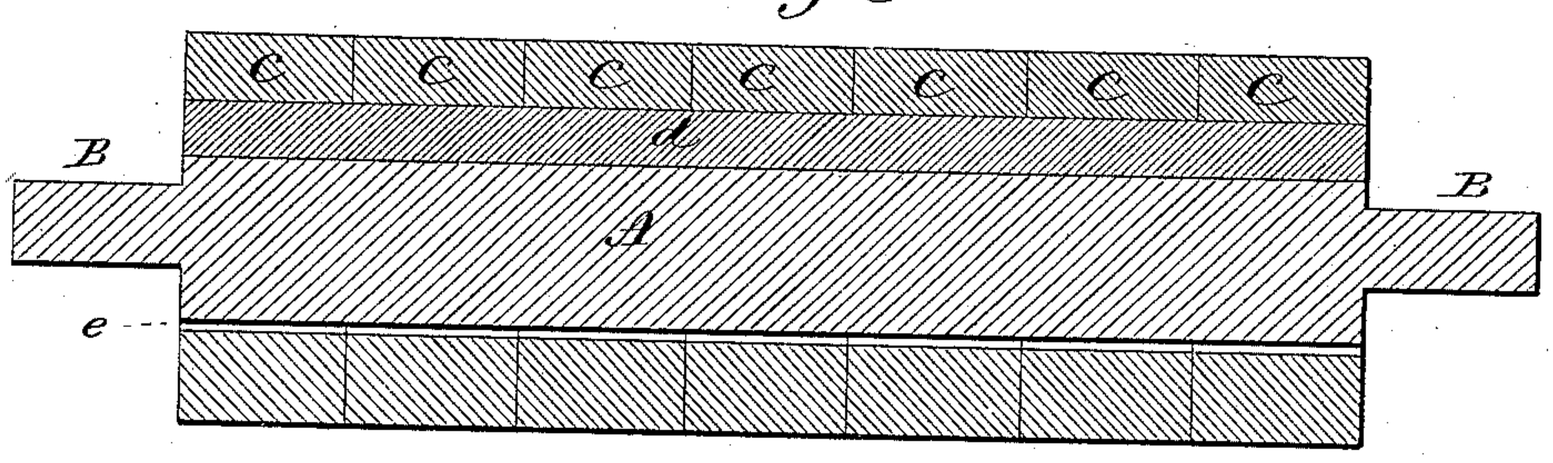


Fig. 3

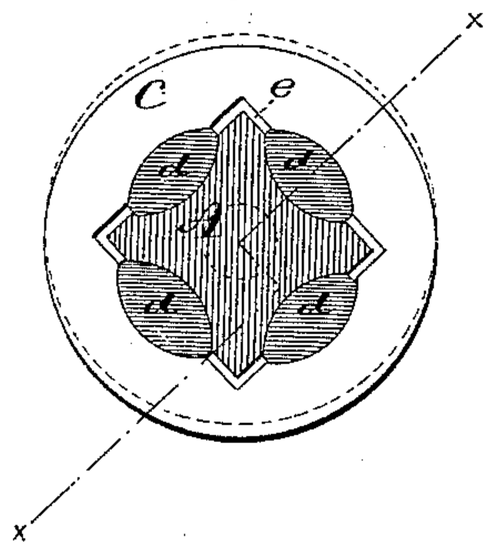


Fig. 4

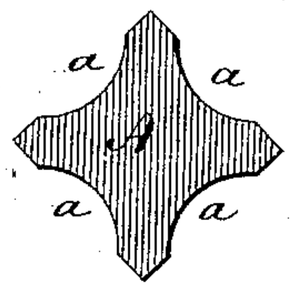
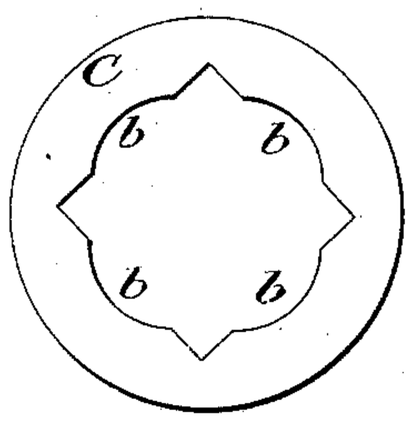


Fig. 5



Witnesses,
H. Shumway
Fred C. Earle

Lewis Garrigues,
Inventor.
By Atty,
John E. Earle

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

LEWIS GARRIGUES, OF WATERVILLE, CONNECTICUT.

FEED-ROLL.

SPECIFICATION forming part of Letters Patent No. 360,677, dated April 5, 1887.

Application filed January 6, 1887. Serial No. 223,607. (No model.)

To all whom it may concern:

Be it known that I, LEWIS GARRIGUES, of Waterville, in the county of New Haven and State of Connecticut, have invented a new Improvement in Feed-Rolls; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of the roll complete; Fig. 2, a longitudinal central section on line *x x* of Fig. 3; Fig. 3, a transverse section cutting between the sections of the roll; Fig. 4, a transverse section of the arbor; Fig. 5, a side view of one of the disks or sections.

This invention relates to an improvement in that class of feed-rolls which are employed in various machines to draw or force the thing to be wrought through the machine, with special reference to wood-planing machines. In the more general construction of such mechanism the feed-rolls are complete cylinders; there being rolls above and rolls below the work, the bearings of the rolls, either above or below the work, are made adjustable vertically, so that the rolls may impinge with force upon the boards.

In planing narrow boards or strips, several such strips or narrow boards are run through the machine side by side, so as to be simultaneously planed; but, owing to the fact that boards are unavoidably of various thicknesses, if there be more than two strips running through the machine, the rolls will impinge only upon the two thickest boards, and because of this fact the thinner boards will not be fed. Sectional or jointed rolls have been employed, having a tendency to overcome this difficulty; but these have been only a partial success.

The object of my invention is the construction of rolls which will overcome the difficulty and permit various thicknesses of strips to be fed or acted upon by the rolls.

A represents the shaft or arbor of the rolls, which is square or polygonal shape, and is constructed at each end with a gudgeon, B, which is usually employed with this class of rolls. The square of the arbor A is considerably less than the described square of the circle of the rolls. In each of the sides of the arbor a longitudinal cavity, *a*, is formed, as seen in Fig. 4.

The body of the rolls proper is made up of series of disks C C, more or less in number, and of the required diameter for the complete roll. These disks, rings, or tubes are upon their inside of a shape corresponding to that of the arbor; but the opening through the sections is greater than the transverse section of the arbor, as seen in Fig. 3, so that when the sections are placed upon the arbor there will be considerable play between the sections and the arbor. In each of the sides in the opening in the sections a longitudinal cavity, *b*, is formed, corresponding to the cavity *a* on the arbor. The number of cavities in the arbor and sections should be at least three; but I prefer four, as shown.

Into each of the cavities *a* in the arbor an elastic material, *d*, is introduced, preferably in the form of a strip of india-rubber, as seen in Fig. 2. Then over these elastic strips or pieces the disks are successively placed, the elastic material being compressed in so doing to a considerable extent—that is to say, the normal area of elastic material in transverse section is greater than the transverse area of the space in the cavity between the sections and the arbor. This elastic material or spring supports the section substantially concentric with the arbor, but so as to leave a free space, *e*, between the sections and the arbor, so as to give a considerable extent of yield between each section and the arbor and each section independent of the others.

The sections are, because of the elastic material, adapted to yield radially, and so that unequal pressure upon different sections will produce a corresponding unequal yielding of the sections. The arbor being driven, it will communicate force through the elastic material to the sections, while the resistance to the revolution of the sections is greater than the circumferential force of the elastic material. Then the arbor itself, because of its non-cylindrical shape, will engage the corresponding inner surface of the section, and consequently force the revolution of that section. Force applied radially, as in rolling upon the surface

of the material passing the roll, will cause the springs to yield radially, as indicated by broken lines, Fig. 3.

Owing to the independence of the several sections and the capacity of the several sections to yield radially, it follows that the thickness of strips or material passing the rolls may vary considerably, and yet the various thicknesses receive positive action of the roll through its particular section.

In some cases the rolls employed are simply employed as pressure-rolls, and in that case the same independent yielding of the roll at different points in its length is equally desirable; but such pressure-rolls are included in the general term "feed-rolls," and I wish to be understood by the term "feed-rolls" to include rolls for any purpose where such sectional yielding is desired.

I claim—

The herein-described feed-roll, consisting of the arbor A, of polygonal or non-cylindrical shape, combined with two or more concentric sections, C, the interior of said sections corresponding in shape to the shape of the arbor, but the opening through the sections of greater transverse area than the transverse area of the arbor, with elastic material between the inner surfaces of the sections and the corresponding surfaces of the arbor, substantially as described.

LEWIS GARRIGUES.

Witnesses:
FRED C. EARLE,
J. H. SHUMWAY.