S. INMAN.

Feed-Rolls for Planing-Machines.

No. 135,224. Patented Jan. 28, 1873.

Fig. 1.

Fig. 2.

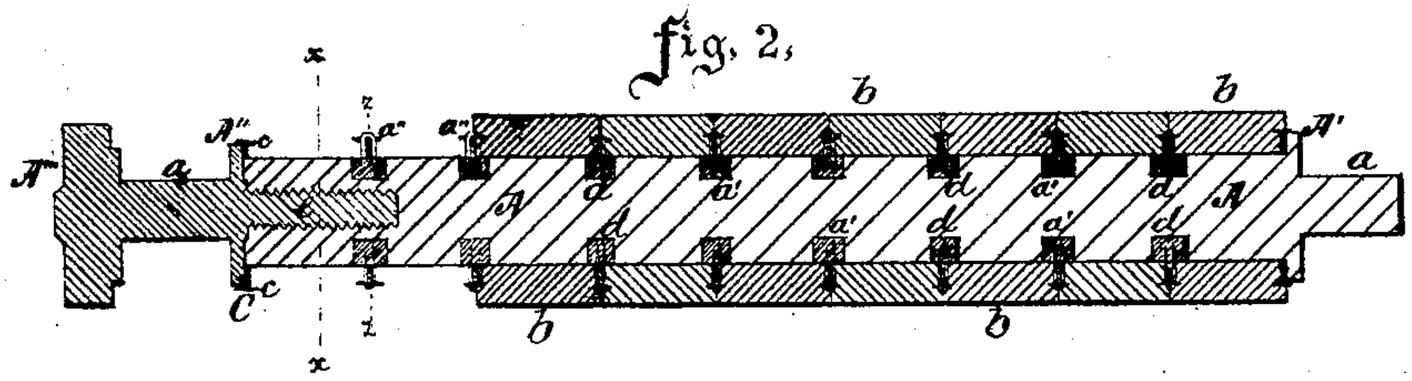

Fig. 3.

Fig. 4.

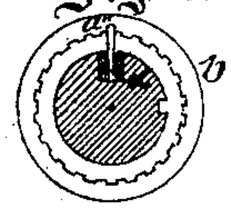

Fig. 5.

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UNITED STATES PATENT OFFICE.

STEPHEN INMAN, OF ROCKFORD, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO HENRY P. STOCKTON, OF SAME PLACE.

IMPROVEMENT IN FEED-ROLLS FOR PLANING-MACHINES.

Specification forming part of Letters Patent No. **135,224**, dated January 28, 1873.

To all whom it may concern:

Be it known that I, STEPHEN INMAN, of Rockford, in the county of Winnebago, in the State of Illinois, have made certain Improvements in the Construction of Feed-Rolls for Planing and other Machines, of which the following is a specification:

In the planing of lumber by a machine, and particularly that from soft wood, hard-faced feed-rollers cannot be used without indenting the wood wherever a chip or other substance gets between the lumber and the roller; and particularly is this injurious where such rollers act upon the planed surface of such soft lumber or other material.

India rubber has been used for the contact-surface of such rollers, but has generally failed in usefulness, because the rubber would get loose from the shaft or spindle of the roller and either feed the lumber badly or not at all, by reason of its becoming loose on its shaft; and in order to overcome this difficulty, and make a rubber roller, and not have the rubber slip or become loose on the shaft, is the object of this invention; and it consists in the construction and arrangement of the parts that produce the result, as will hereinafter be more fully described.

In the drawing, Figure 1 represents a side view of a roller particularly complete in a portion of its length, and shows the means by which the facing of rubber is held upon the shaft; Fig. 2 is a longitudinal sectional view of the same; Fig. 3, a cross-section on line *x x;* Fig. 4, a cross-section on line *z z;* and Fig. 5, a side view of the rubber-holding devices.

A represents the body of the center shaft or spindle; *a a*, the journals; A′, a fast collar on one end of the shaft, of greater diameter than the body of the shaft; A″, a collar at the opposite end of the shaft A, of the same diameter, but removable by the screw-pin *e* being screw-tapped into the end of the shaft. A‴ is a projecting head at the outer end of shaft A. Shaft A has a longitudinal groove, *c″*, the whole length of its body, between the collars A′ and A″. *a′ a′* are holes bored into the opposite sides of the body of shaft A, and of such distance apart as will conform to the width of the sections or rings of rubber that compose the face of the roller. These holes are filled with wood plugs, *d*. Holes *a′* may be bored entirely through the shaft A and filled with wood plugs, if desired. *b b* are the sections or rings of rubber that make the face of the roller. C C are washers, the inner bore of which fits upon the body of the shaft, and are provided with a tongue, *c′*, that projects inwardly from the inside bore, and will fit into the groove *c″* in the shaft A. The outer edges of these washers C are slit or cut into points *c*, and every alternate point is bent in opposite directions, so that points *c* project at either side of the washer. These washers are less in diameter than the finished roll when the rubber rings are put upon the shaft A, as seen in Figs. 1, 2, and 4.

In building up a roller upon shaft A the head A‴, with one journal, *a*, and shoulder or collar A″, is unscrewed from shaft A; washer C, with its tongue *c′* in groove *c″*, is then slid upon the shaft A down to collar A′; then a section or ring of rubber, *b*, followed by a second washer, which is forced down on the shaft until the second washer is centrally over the wood plugs *d*, when metal staples *a″*, with a leg on either side of the washer, are driven into the wood plugs *d* until the bend in the outer end of the staple bears upon the periphery of the toothed washer, which will hold the ring of rubber *b* in its place when another section or ring of rubber is pushed on, followed by another washer, which is fastened in the same manner as before described, thus continuing with alternate rings of rubber and a toothed washer until the body of the shaft A is filled or covered, when the screw-pin *e* is screwed into the end of the body of the shaft A, and the collar A″ bears on the last washer and compresses the last ring of rubber to its position, when the roller is ready to have the rubber turned off smooth and to its proper size.

A roller thus constructed has its pressing or bearing surface entirely of rubber, which is rigidly held from turning on the shaft by the washers, the teeth of which indent themselves into the ends of each section or ring of rubber; therefore the washers cannot turn on the shaft by reason of the tongue on the washer projecting into the groove in the shaft, and the teeth on the washers hold the rings of rubber and prevent them from turning, as every ring of rubber is held fast at each end.

I am aware of the patent No. 39,201, dated

July 7, 1863, for rolls in clothes-wringers, and lay no claim to the construction therein described and shown; nor to the construction shown in patent No. 44,110, dated September 6, 1864, which I disclaim.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A flexible-faced feed-roller composed of a longitudinally-grooved shaft, A, toothed washers C, and sections or rings of rubber *b*, constructed, arranged, and secured together in the manner substantially as described.

2. The toothed washer C having the teeth *c* projecting on opposite sides as means of holding two adjacent rings of rubber together in the manner substantially as described.

3. The combination of the washers having tongues *c'*, staples *a''*, and wood plugs *d* with the shaft A of a feed-roller having groove *c''*, in the manner and for the purpose described.

4. The removable journal *a* having the collar A'' and screw-pin *e*, in combination with the tooth-washer C, rubber rings *b*, and shaft A, constructed and operating substantially as and for the purposes described.

STEPHEN INMAN.

Witnesses:

J. G. MANLOVE,

J. A. GOSS.