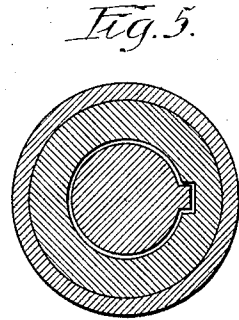
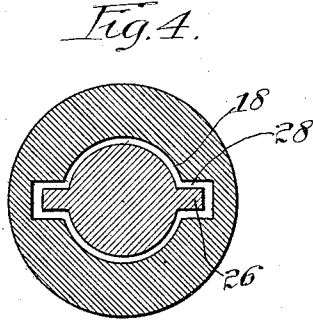
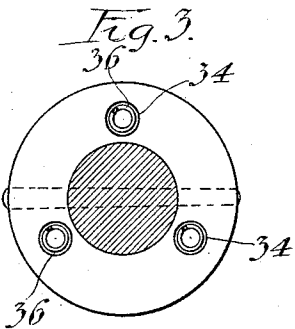
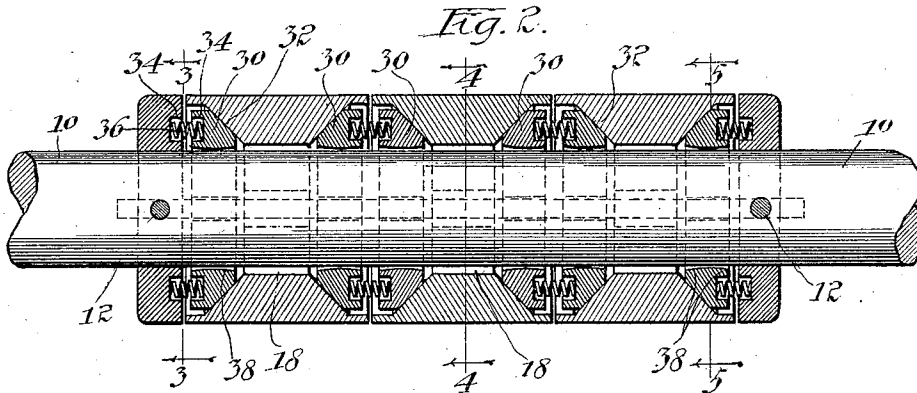
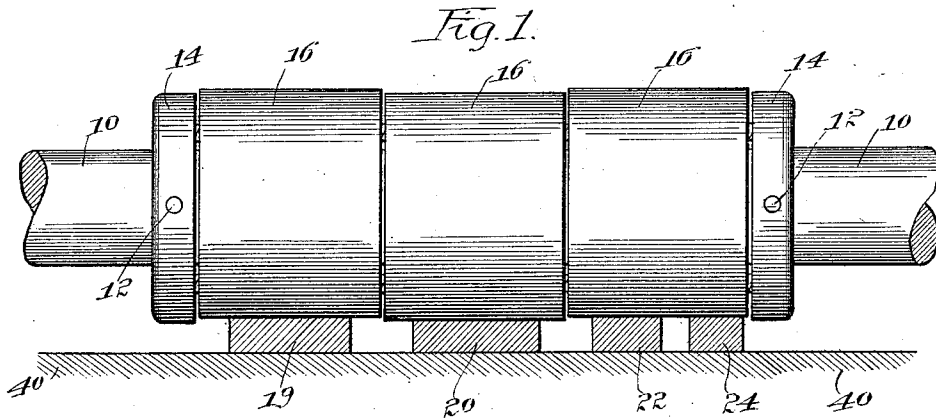


C. H. BECKER, JR.  
SECTIONAL FEED ROLL FOR SANDERS AND OTHER MACHINES.  
APPLICATION FILED SEPT. 30, 1912.

1,052,403.

Patented Feb. 4, 1913.



Witnesses:  
*Robert H. Weir*  
*Arthur B. Framke.*

Inventor:  
*Christian H. Becker, Jr.*  
by *Cheever & Cox*  
*Attys.*

# UNITED STATES PATENT OFFICE.

CHRISTIAN H. BECKER, JR., OF GREEN BAY, WISCONSIN.

SECTIONAL FEED-ROLL FOR SANDERS AND OTHER MACHINES.

1,052,403.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed September 30, 1912. Serial No. 723,138.

*To all whom it may concern:*

Be it known that I, CHRISTIAN H. BECKER, JR., a citizen of the United States, residing at Green Bay, in the county of Brown and State of Wisconsin, have invented a certain new and useful Improvement in Sectional Feed-Rolls for Sanders and other Machines, of which the following is a specification.

This invention relates to feed rolls for use in sanding, planing, and other machines for finishing and dressing lumber.

The object of the invention is to provide such a small, neat, compact, efficient, and otherwise satisfactory feed roll which will take care of pieces of lumber of varying thicknesses, or a single piece of lumber varying in thickness throughout its length.

The invention consists in a roll capable of carrying out the foregoing objects, and also preferably having special features and advantages hereafter pointed out in the specification and claims.

In the drawings, Figure 1 is a side view of a device illustrating this invention in its preferred form. Fig. 2 is a vertical sectional detail view of the device shown in Fig. 1. Fig. 3 is a transverse view taken on the line 3—3 of Fig. 2. Fig. 4 is a sectional detail view on the line 4—4 of Fig. 2. Fig. 5 is a sectional detail view on the line 5—5 of Fig. 2.

As is necessary in all devices of this class, a main or drive shaft 10 is provided adapted to be rotated by a suitable source of power, not shown. Spaced somewhat apart and rigidly secured to this shaft by any suitable means, such as the pins 12, are two end flanges or collars 14. Between them are any convenient number of rolls 16 placed end to end, as shown, so as to occupy substantially the entire space between the flanges or collars 14. The holes 18 in the centers of these rolls through which the shaft 10 passes are, as clearly appears in Fig. 4, somewhat larger in diameter than the shaft 10 so that each roll may move independently radially of the shaft and thus permit the passage under different rolls of pieces of wood 19, 20, 22, and 24, of varying thickness without distorting or springing the shaft 10. The problem solved by this invention is to give these different rolls 16 the power, under above conditions, to force the pieces of wood just enumerated under them over the ma-

chine table 40. This is solved in the manner 55 which will now be described.

The shaft 10 is provided with a longitudinal key 26 running lengthwise of the shaft, and entering key ways 28 in the rolls, made with sufficient clearance so that the rolls 16 may readily move radially of the shaft, as heretofore described. At the same time, each roll 16 is recessed at its end so as to receive the truncated conical rings or collars 30. As shown in Fig. 2, the conical faces of the rings or collars contact with the rolls in the angular surfaces 32, making preferably an angle of about forty-five degrees with the axis of the shaft. The inner faces of the collar 14 and the base faces of the rings 30 are each provided with a plurality of corresponding pits or recesses 34 in which are inserted coiled compression springs 36, as clearly shown in Fig. 2. These springs act between each end flange 14 and its adjacent collar 30 or between two adjacent rings 30, as shown near the center of Fig. 2, in lines parallel to the axis of the shaft to force the rings 30 into the rolls 16, and thus create a strong pressure on the surfaces 32, heretofore described. In practice of making the device, the surface 32 on both the rolls and the rings is left unfinished so that a great deal of friction takes place along these surfaces.

Each one of the rings or collars 30 is, as shown and heretofore described, mounted upon the shaft 10 and the holes through their center through which the shaft 10 passes are slightly larger in diameter than the shaft 10 and are rounded off in the curved lines 38, so that the rings may rock slightly with reference to the axis of the shaft, and may follow the rolls 16 in radial movement with reference to the shaft. The result of this construction is that the springs 36 always hold the rings 30 in frictional contact with the rolls 16 along the surfaces 32 in all positions of radial movement of the rolls within the limits permitted by the diameter of the holes 18 in each roll with sufficient force so that the circumferential surface of each roll 16 will frictionally grip the pieces of wood which are to be carried through the sander or planer, and over the table 40 thereof. In other words, as the shaft 10 rotates, the various rolls through the key, the horizontally exerted force of the springs is di-

vided into two components, one of which acts radially to hold the rolls in contact with the wood to be driven by the roll.

By locating the springs 36 parallel to the axis of the shaft 10 and providing the rings 30 engaging the rolls 16 in the angular surfaces 32, a very much smaller and more compact roll is made, capable of doing the amount of work than has heretofore been possible.

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

1. In a device of the class described, a shaft, a roll carried thereby non-rotatable but radially movable with reference thereto, and spring devices moving in a direction substantially parallel to the axis of the shaft adapted to hold the roll in contact with the material to be fed by it, as described.

2. In a device of the class described, in combination with a shaft, a roll mounted thereon so as to be rotated thereby and yet be movable radially of the shaft, coiled spring devices acting parallel with the axis of the shaft adapted to force the roll into frictional contact with the material to be fed by the roll in all radial positions of the roll with reference to the shaft, for the purposes set forth.

3. In a device of the class described, in combination with a shaft, a roll loosely keyed to the shaft so as to permit radial movement of the roll with reference to the shaft while it is rotated by the shaft, and spring devices moving parallel to the axis of the shaft engaging opposite sides of the roll to force it into contact with the material which it is to feed in all of its radial positions with reference to the shaft.

4. In a device of the class described, in combination with a shaft, a roll loosely keyed to the shaft so as to permit radial movement of the roll with reference to the shaft while it is rotated by the shaft, rings on the shaft on opposite sides of the roll contacting the roll in surfaces at an angle to the axis of the shaft, and spring devices forcing said rings into contact with the roll

in all radial positions of the roll, for the purposes set forth.

5. In a device of the class described, in combination with a shaft, a roll loosely keyed to the shaft so as to permit radial movement of the roll with reference to the shaft while it is rotated by the shaft, rings on the shaft on opposite sides of the roll contacting the roll in surfaces at an angle to the axis of the shaft, and spring devices acting parallel to the axis of the shaft to force said rings into contact with the roll in all radial positions of the roll, for the purposes set forth.

6. In a device of the class described, a shaft, a pair of collars rigidly attached to the shaft, a plurality of rolls loosely mounted on the shaft between said collars and loosely keyed thereto so as to permit radial movement with reference to the shaft, a plurality of rings one contacting the opposite end of each roll in a surface at an angle to the axis of the roll, and springs between each collar and its adjacent ring, and between adjacent pairs of rings acting parallel with the axis of the shaft to force said rings into contact with the rolls along said angular surfaces, for the purposes set forth.

7. In a device of the class described, a shaft, a pair of collars rigidly attached to the shaft, a plurality of rolls loosely mounted on the shaft between said collars and loosely keyed thereto so as to permit radial movement with reference to the shaft, a plurality of rings one contacting the opposite end of each roll in a surface at an angle to the axis of the roll, and springs between each collar and its adjacent ring, and between adjacent pairs of rings acting to force said rings into contact with the rolls along said angular surfaces, for the purposes set forth.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

CHRISTIAN H. BECKER, JR.

Witnesses:

J. J. CANNARD,  
FRED C. BECKER.