

No. 620,202.

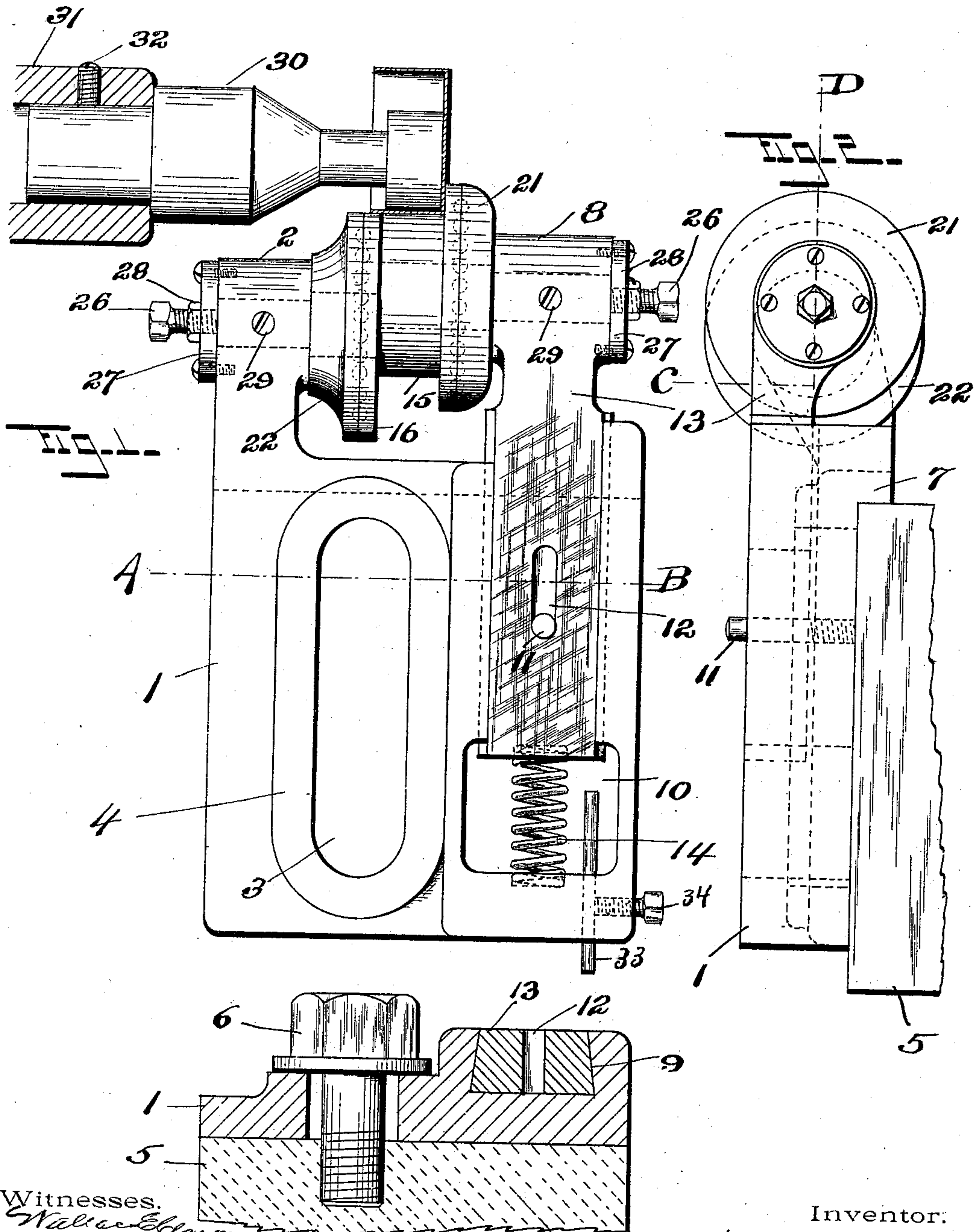
Patented Feb. 28, 1899.

F. L. WHITE.
SPINNING DEVICE.

(Application filed Mar. 14, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.
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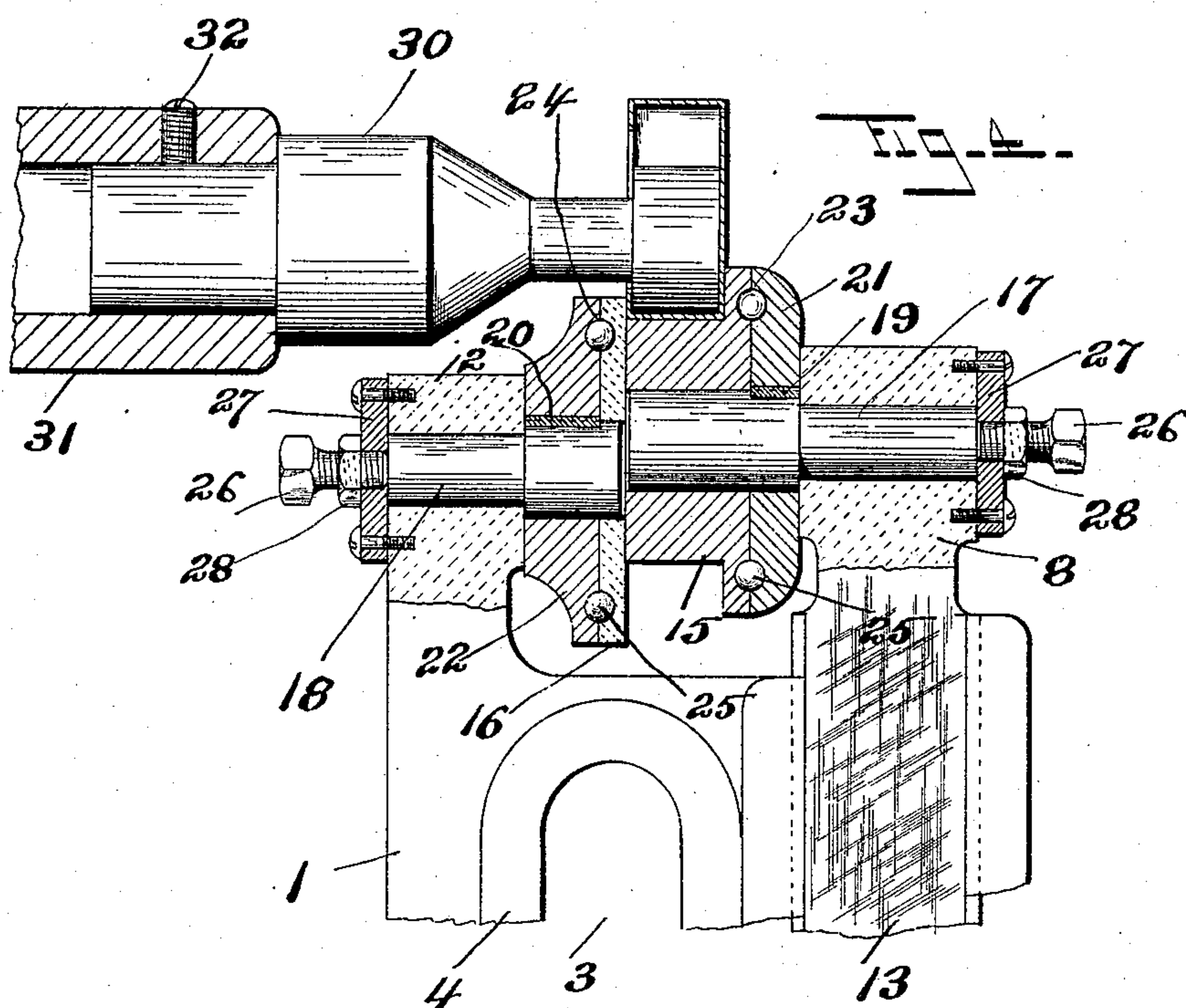
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

FREDERICK L. WHITE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO
GEORGE H. CLOWES, OF SAME PLACE.

SPINNING DEVICE.

SPECIFICATION forming part of Letters Patent No. 620,202, dated February 28, 1899.

Application filed March 14, 1898. Serial No. 673,789. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK L. WHITE, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Spinning Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to spinning devices; and its object is to provide a rotary antifriction spinning-machine that will turn over the outer shell of cups, rings, &c., to form an inwardly-projecting lip.

With these ends in view my invention consists in the spinning device having certain details of construction and combinations of parts, as will be hereinafter described, and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals designate like parts in the several views, Figure 1 is a plan view. Fig. 2 is a side elevation. Fig. 3 is a transverse section on line A B of Fig. 1. Fig. 4 is a section upon line C D of Fig. 2.

It has been necessary heretofore to use hand-tools in turning over the edge of shells, cups, rings, &c., a process that has been slow and expensive, aside from the fact that it has been impossible to turn over the lip of a shell, &c., at a sharp angle without having the same buckle and wrinkle during the operation. A shell or ring having a lip that is either buckled or wrinkled is imperfect, and its uses are therefore limited. In my device these manifold objections are overcome, and a lip can be spun upon a shell that is perfectly flat and even when finished. An inexperienced person can operate the machine, which will turn out more work, of a better quality, and at a less cost than by the old methods heretofore used.

The numeral 1 designates the base or frame, having the overhanging bearing 2 formed integral therewith and through the center of which is the elongated slot 3, surrounded by the boss 4.

In Figs. 2 and 3 I have designated by the numeral 5 a fragmentary portion of the slide of an ordinary spinning-lathe, which may be of any construction common to that class of

machinery. The base 1 is fastened to the slide 5 by means of the bolt 6 and held against any backward movement by the depending lip 7, which abuts against the end of the said slide.

A spinning-slide 13, terminating at its outer end in the bearing 8, operates within the dovetail groove 9 in the base 1, the said groove opening into the rectangular hole 10, passing through the base. In its normal position the spinning-slide 13 is held by the pressure of the coil-spring 14 against the fixed stud 11, which abuts against one end of the slot 12 in the said slide.

The spinning-rolls 15 16 are loosely mounted upon the free ends of the shafts 17 18 and fixed by the keys 19 20. Upon the same shafts, adjoining the bearings, are the bearing-collars 21 22. In the abutting faces of the rolls and the bearing-collars are the annular grooves 23 24, in which are laid loosely the metal balls 25, as shown in the drawings.

It is obvious that the particular shape of the spinning-rolls may be varied at will to best adapt them for the required work and that the roll 15 may be made of two parts, practically forming an additional roll, and I do not confine myself, therefore, to rolls of the exact form shown.

Wear in the ball-bearings can be taken up by the screws 26, which bear against the ends of the shafts 17 18 and are threaded through the circular disks 27 and held by the check-nuts 28. The shafts 17 18 are fastened rigidly to the bearings 2 8 by the screws 29.

The numeral 30 designates a spinning-mandrel, 31 the spindle of the spinning-lathe, and 32 the screw by which the mandrel is held rigid.

It will be noticed that in the normal position (see Figs. 1 and 2) of the spinning-rolls 15 16 the axis of roll 15 is in advance of the axis of roll 16, so that the face of the smaller or reduced portion of roll 15 is flush with the periphery of the roll 16.

The operation of my improved spinning device is as follows: The mandrel 30 of course is rotating through its connection with the lathe-spindle, and the cup or shell to be operated on is placed upon the head of the mandrel and the slide of the lathe advanced so that the device occupies the position in rela-

tion to the mandrel and shell as shown in Fig. 1. In this position the shell is held against the mandrel by the pressure of the roll 15. The shell shown in the drawings has one solid and one open end, the solid end resting against the face of the shoulder on the roll 15; but it is apparent that any form or shape of shell, cup, or ring can be operated upon equally as well as the one herein illustrated. At this point the operator begins to advance the slide of the lathe by means of the levers common to spinning-lathes, and as the spinning-rolls 15 and 16 come in contact with the shell, which is rotating upon the mandrel 30, they also begin to rotate and to acquire the same speed as the shell. As the operator continues to advance the spinning device the roll 15, which is supported by the spinning-slide 13, begins to yield and to recede against the pressure of the spring 14, and as it does so the axes of the spinning-rolls 15 16 begin to draw closer together and the face of the spinning-roll 16 is presented to the edge of the shell as a rotating spinning-tool. The spinning-roll 16 turns back the edge of the shell as the spinning-roll 15 recedes and continues to do so as long as the operator advances the lathe-slide and until the lip is turned squarely over. The operator now withdraws the lathe-slide and the spinning mechanism, removes the finished shell from the mandrel, and thus completes the operation. As the operator withdraws the lathe-slide the coil-spring 14 forces the spinning-slide out to its normal position again, ready for the next operation.

To determine the limit of the yielding motion of the spinning-slide 13, I have provided the adjustable stop 33, which is held in the base 1 by the set-screw 34 and against the end of which abuts the said slide when in its extreme backward position.

Actual practice has demonstrated that by my device a lip can be turned upon a shell that will be absolutely free from wrinkles and upon shells that could not be spun by any known tools. By rotating the spinning-rolls and mounting the same in ball-bearings less power is required and the work when finished is much more even and the operation is completed in a much less space of time. It will also be noticed that all of the parts are secured to the base of the machine in such a manner as to readily admit of the device being attached to any lathe indiscriminately.

It is obvious there are many changes that can be made in the details of my device, and I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a revolving mandrel, a movable bed carrying two spinning-rolls, one of which rolls is capable of a yield-

ing motion transversely to the axis of the other roll, substantially as set forth.

2. In combination with a revolving mandrel and a spinning-roll the opposing faces of which lie in adjacent planes, means for imparting movement to one of said parts to cause their peripheries to overlap and a third roll adapted to press the work against the periphery of the said mandrel, said roll being journaled upon a yielding support, substantially as and for the purpose described.

3. In combination with a revolving mandrel, of a spinning-roll adapted to press against the said mandrel, of a second spinning-roll, the periphery of which is adapted to pass the periphery of the said mandrel, the adjoining faces of the said rolls abutting against each other, substantially as set forth.

4. In combination with a revolving mandrel, of a movable frame which is movable toward and away from said mandrel, said frame carrying a spinning-roll, a support adapted for a yielding movement on said frame in a plane parallel with the path of the latter, of a spinning-roll journaled on said support, said roll having a flanged periphery, one face of which is normally flush with the periphery of the roll on said frame, substantially as set forth.

5. In combination with a revolving mandrel, of a frame movable toward and away from the said mandrel, a spinning-roll mounted upon said frame, a support adapted for a yielding movement on said frame, and carrying a spinning-roll, of a spring to retain the said support in its normal position and an adjustable stop to limit the yielding movement of the said support, substantially as set forth.

6. In combination with a revolving mandrel, of a spinning-roll device comprising a base or frame, a roll-support having a yielding movement within the said base and a spinning-roll rotatably secured to the said base and support respectively, substantially as set forth.

7. In a spinning device the combination of spinning-rolls rotatably mounted upon fixed shafts and abutting against fixed collars upon said shafts, the adjoining faces of the said rolls and said collars being provided with annular grooves and encircling antifriction-balls, substantially as set forth.

8. In a spinning device, the combination of a base or frame, of a slide adapted to have a limited longitudinal movement within the said base, of spinning-rolls mounted upon shafts rigidly secured to the said base and said slide, of fixed collars upon the said shafts, and a mandrel for pressing the work against the said rolls, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK L. WHITE.

Witnesses:

GEORGE E. HALL,
EDWARD R. LEZOTT.