

(No Model.)

C. BOWMAN.
SHAPER HEAD.

No. 510,887.

Patented Dec. 19, 1893.

Fig. 1.

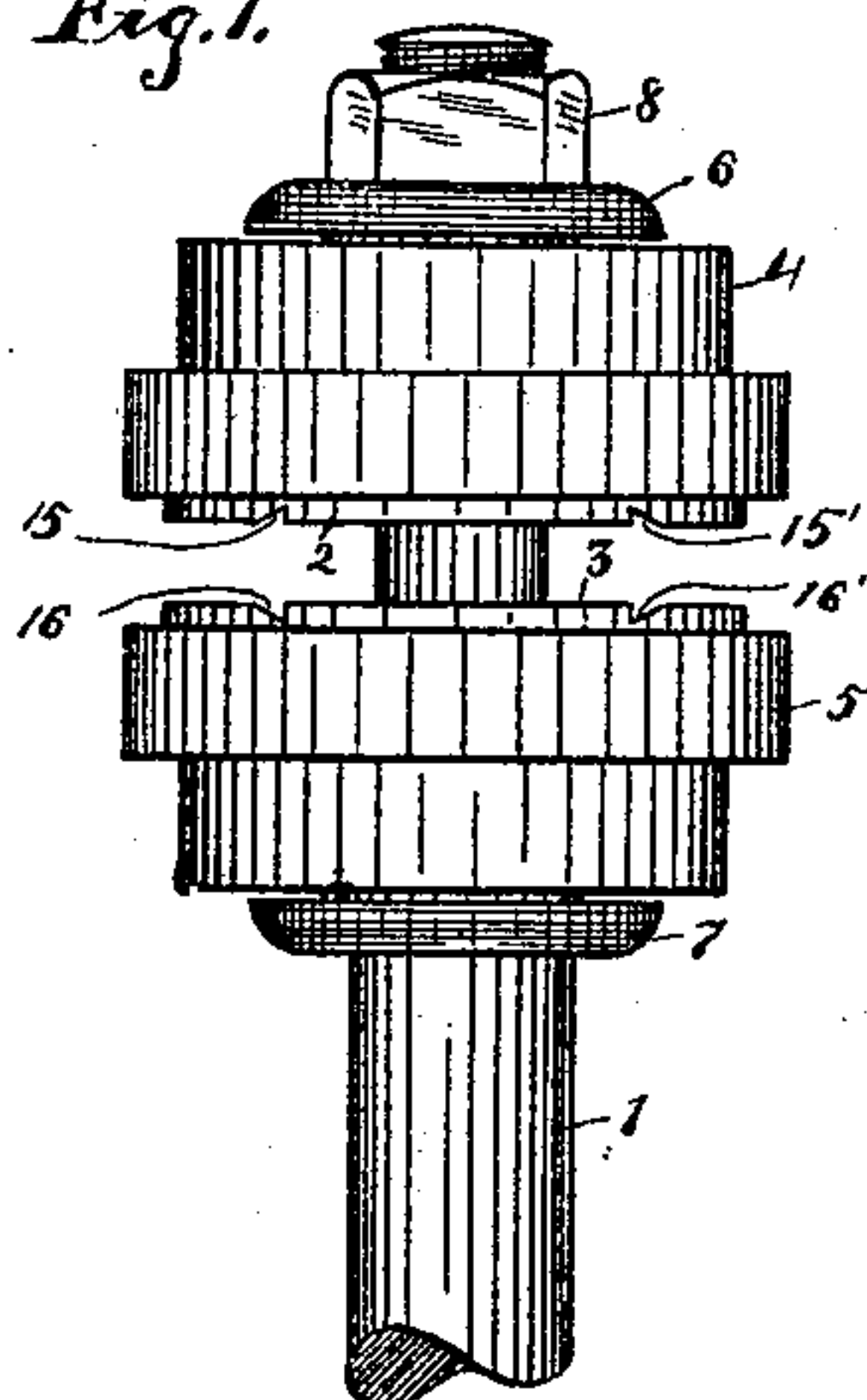


Fig. 2.

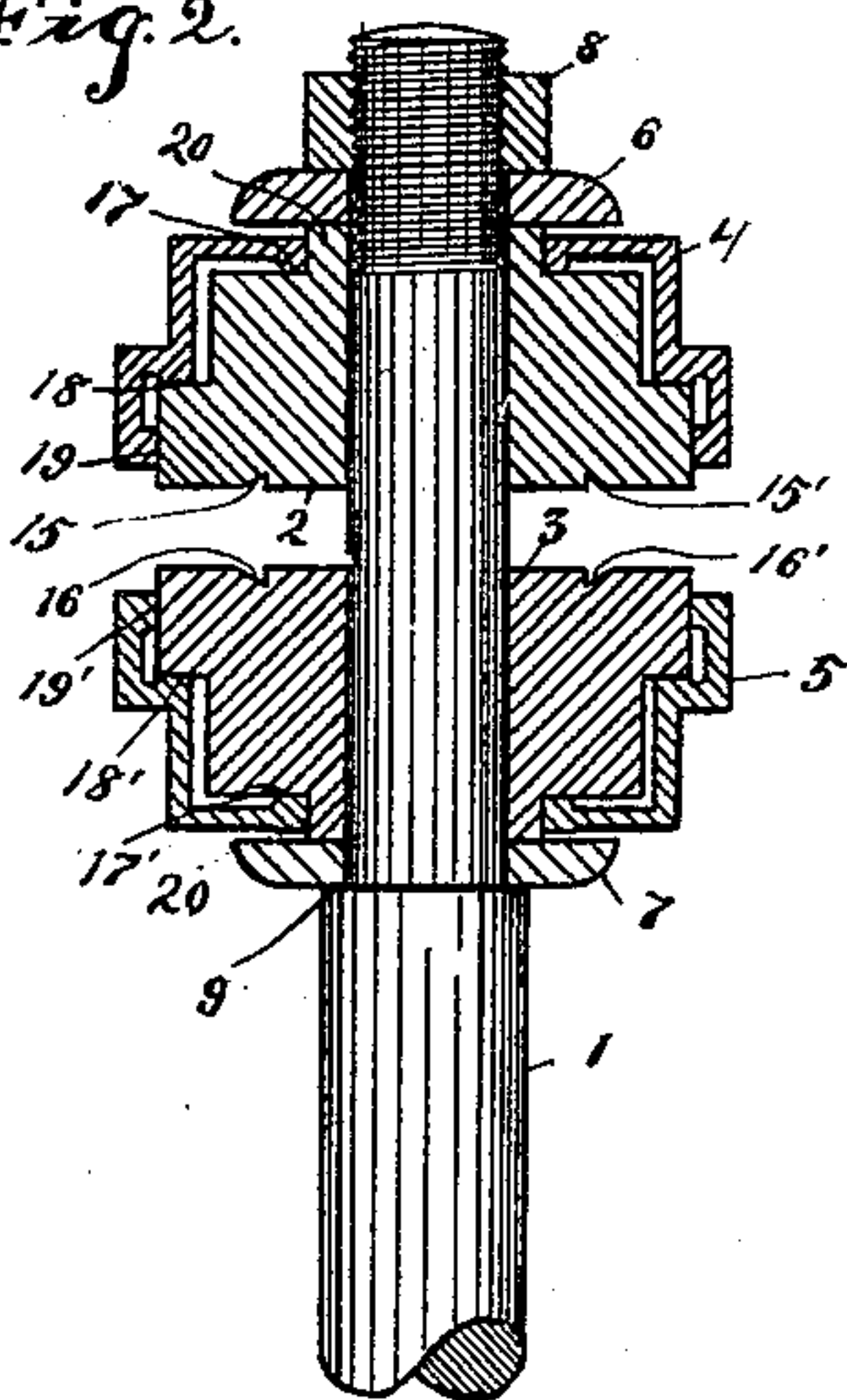
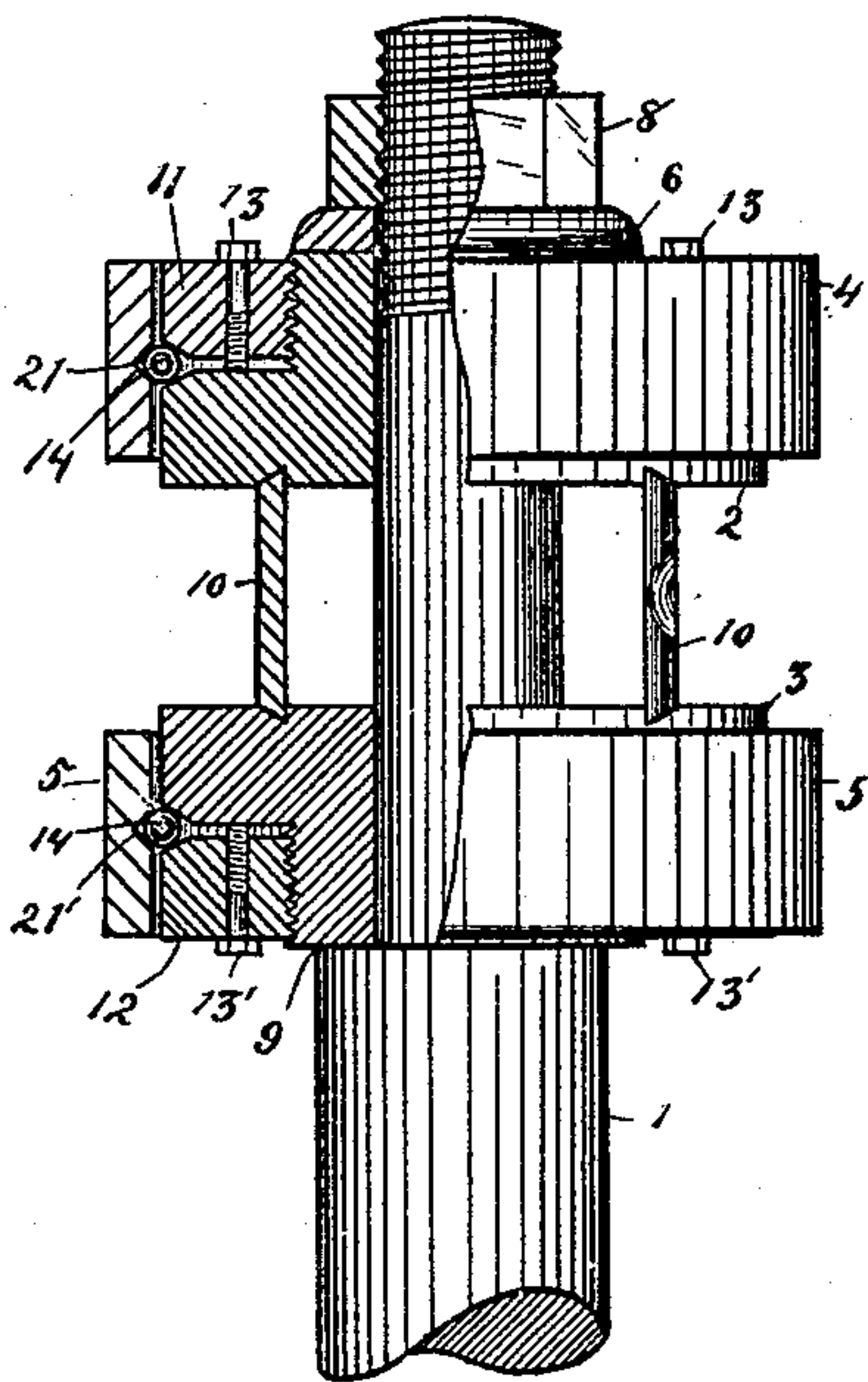


Fig. 3.



WITNESSES:

Walt. G. Burns
Emmett V. Harris

Charles Bowman INVENTOR:

BY *Chapin & Denny*

his ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES BOWMAN, OF FORT WAYNE, INDIANA.

SHAPER-HEAD.

SPECIFICATION forming part of Letters Patent No. 510,887, dated December 19, 1893.

Application filed October 11, 1893. Serial No. 487,805. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BOWMAN, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Shaper-Heads; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in shaper-heads.

In the shaper-heads now in use all parts thereof are adapted to rotate with the spindle or shaft on which the shaper-head is mounted, causing a constant wearing friction upon the surface of the pattern.

The object, therefore, of my invention is to obviate the objection by providing a shaper-head having loosely mounted annular caps or shells so arranged as to form the bearing surface for the pattern and adapted to remain stationary when in operation, thus avoiding all wearing friction by contact with the material on which the machine is operating.

The novel feature of my invention consists in the construction and arrangement of the loosely mounted annular caps or shells against which the pattern bears or rests, and in their adaptation to the intended purpose.

The accompanying drawings illustrate modified forms of my improvement, in which similar figures of reference indicate corresponding parts throughout the several views.

Referring now to the drawings, Figure 1 is a view in elevation of the preferable form of my invention showing the loosely mounted annular caps or shells against which the pattern rests in position above and below the cutting knives. Fig. 2 is a vertical central section of Fig. 1, excepting the spindle, showing the arrangement of the inner bearing surfaces of said caps or shells and the manner of securing the same. Fig. 3 is a modified form, in section, of my improvement showing the said annular caps mounted upon anti-friction ball or rollers, instead of bearing surfaces.

The spindle or shaft 1 having a proper an-

nular shoulder 9 and a screw threaded extremity for the threaded retaining nut 8, and adapted to carry the shaper-head, is constructed in the usual and well known manner.

In the preferable form of my invention shown in Figs. 1 and 2, the upper and lower portions of the shaper-head are loosely mounted upon the spindle 1 between the loosely mounted annular washers 6 and 7, and when the cutting knives 10, of any proper form and construction are in position, the said portions are secured by the threaded retaining nut 8 adapted to fit the upper end of the said spindle in a well known manner. The said cutting knives are mounted in the usual manner in the transverse grooves 15, 15' 16 and 16' and rigidly secured therein by the retaining nut 8, and they are transversely adjustable therein in the usual manner. The upper section 2 of the shaper-head is preferably fashioned into steps or other bearing surfaces for the annular cap or shell 4, and has an upper annular vertical flange adapted to support the washer 6. The said cap or shell 4 is loosely mounted upon said portion 2 of the shaper-head, and forms a bearing thereon at 17, 18 and 19, Fig. 2, and is so arranged thereon as not to touch or bear upon the lower surface of the said washer 6 when in its normal position. The construction and arrangement of the lower portion 3 of said shaper-head and the annular cap 5 mounted thereon, are in all respects identical with the construction and arrangement of the said portion 2, and the annular cap 4 above described, the annular cap 5 having bearing surfaces at 17', 18' and 19', and the said lower portion 3 with its said cap 5 is loosely mounted upon the said shaft in an inverse position and is adapted to rest upon the annular washer 7. It is obvious that the mere form of the said shaper-head sections 2 and 3 of the annular shells 4 and 5 is immaterial as they can be indefinitely varied to suit the fancy of the constructor without departing from the spirit of my invention.

Another form of my improvement, seen in Fig. 3, has the annular caps 4 and 5 constructed in the form of a band ring, having an annular groove 21 and 21' respectively, upon the inner surface thereof, and adapted to form a bearing upon a series of antifriction

balls or rollers 14 arranged in said grooves and held in place by the threaded annular adjustable rings 11 and 12, rotary motion of said rings being prevented by the set screws 13. In the said sections 2 and 3 of said shaper-head and also in the said rings 11 and 12, the annular edges adjacent to said annular grooves 21 and 21' are fashioned into suitable shoulders to accommodate the said balls or rollers 14, as seen in Fig. 3. It is evident that the adjustment of the said antifriction balls or rollers in the said grooves is readily secured by means of the threaded rings 11 and 12, and it is also obvious that when the said shells 4 and 5 are thus adjusted in position on said rollers, the said shells will be securely held in position thereby.

In that form of my improvement shown in Fig. 3, no lower washer is necessary as the annular cap or shell 5 is retained in position by the said balls or rollers.

My improved shaper-head, thus described, by having its annular shells which bear against the pattern when in operation adapted to remain stationary by the lateral pressure of the said pattern, is adapted to cause far less wearing friction and greatly contribute to the safety and convenience of its use.

Having thus described my invention and the best manner in which the same is to be applied, what I claim as new, and desire to secure by Letters Patent, is—

1. A shaper-head consisting of the upper and lower sections or portions 2 and 3 properly mounted and secured upon a suitable spindle 1, and provided with caps or shells adapted to form a suitable lateral bearing

surface for the pattern and to remain stationary when the said portions 2 and 3 are in rapid rotation, the said portions being also adapted to carry proper cutting knives, all substantially as set forth and described.

2. In a shaper-head, the combination of the portions 2 and 3, properly mounted upon a shaft or spindle 1 having suitable steps or bearing surfaces and annular vertical lugs 20, and the annular caps or shells 4 and 5 mounted upon said shaper-head portions as described, with the washers 6 and 7 adapted respectively to retain the said caps in position, and the cutting knives 10 properly mounted in said portions and secured by the retaining nut 8, all substantially as set forth and described.

3. The combination, in a shaper-head, of the upper and lower portions 2 and 3, properly mounted on the spindle 1, adapted to secure the cutting knives therein in the usual manner by a suitable washer and retaining nut, and provided with the threaded adjustable rings 11 and 12 respectively, secured against rotary motion by the set screws 13 13' and adapted to hold in place the balls or rollers 14, with the caps or shells 4 and 5, having an annular groove upon the inner surface thereof, adapted to retain and form a bearing for the antifriction balls or rollers 14, and the cutting knives 10, all substantially as described.

Signed by me at Fort Wayne, Indiana, this 7th day of October, 1893.

CHARLES BOWMAN.

Witnesses:

IRA RUPERT,

ALLAN H. DOUGALL.