(No Model.) 2 Sheets—Sheet 1.

S. J. SHIMER.

CUTTER HEAD.

No. 540,075. Patented May 28, 1895.

Fig. 1.

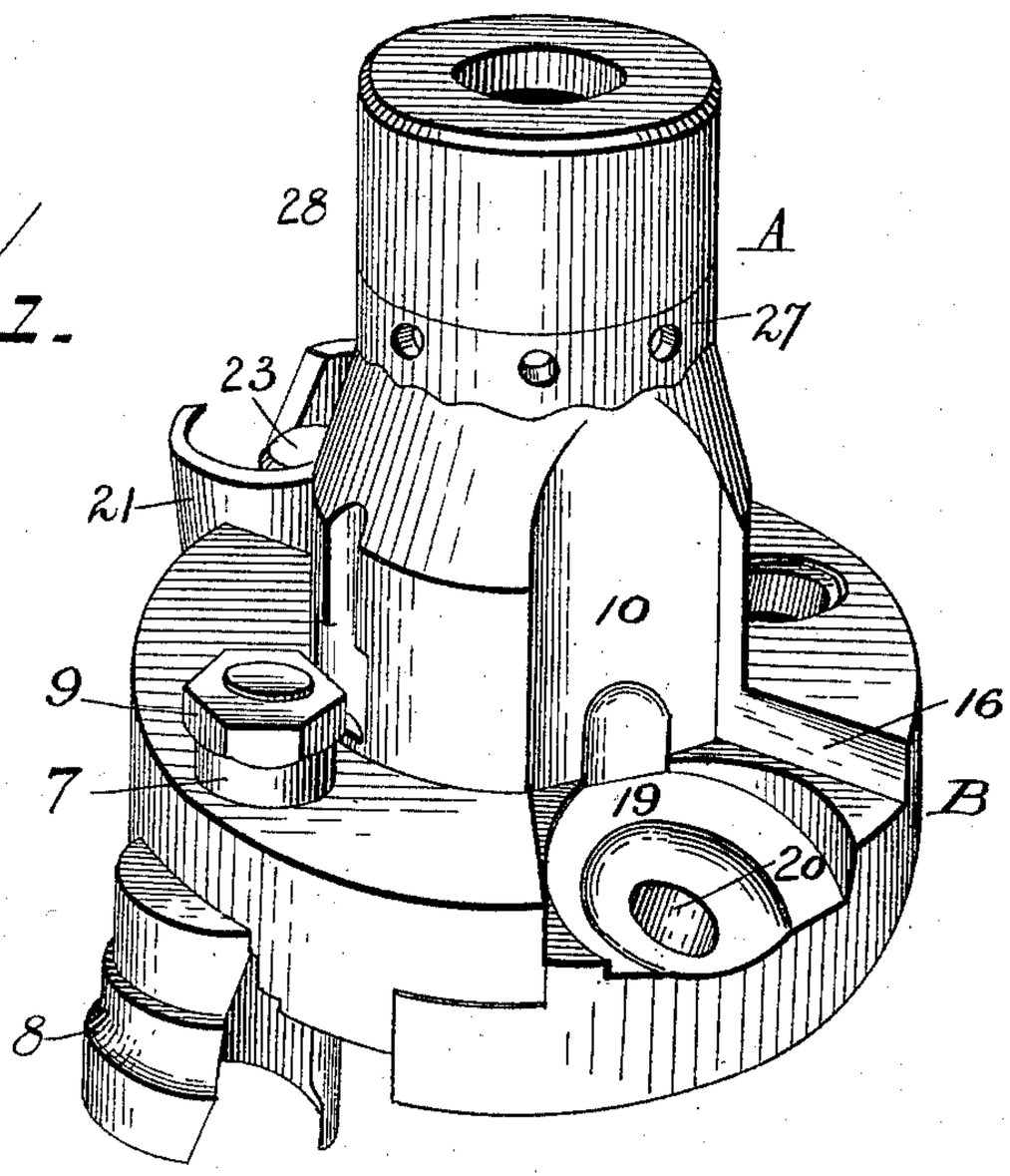
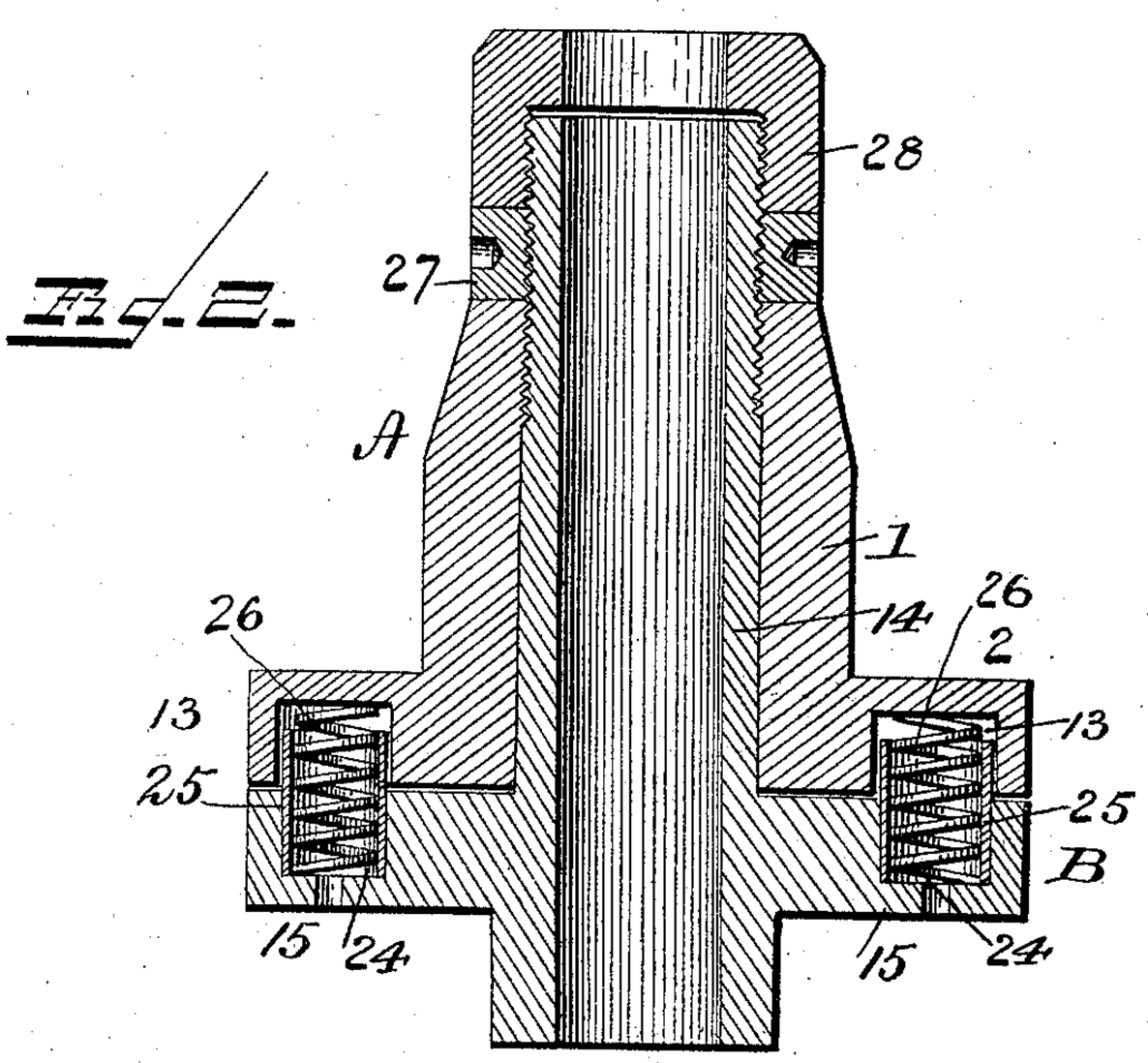


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

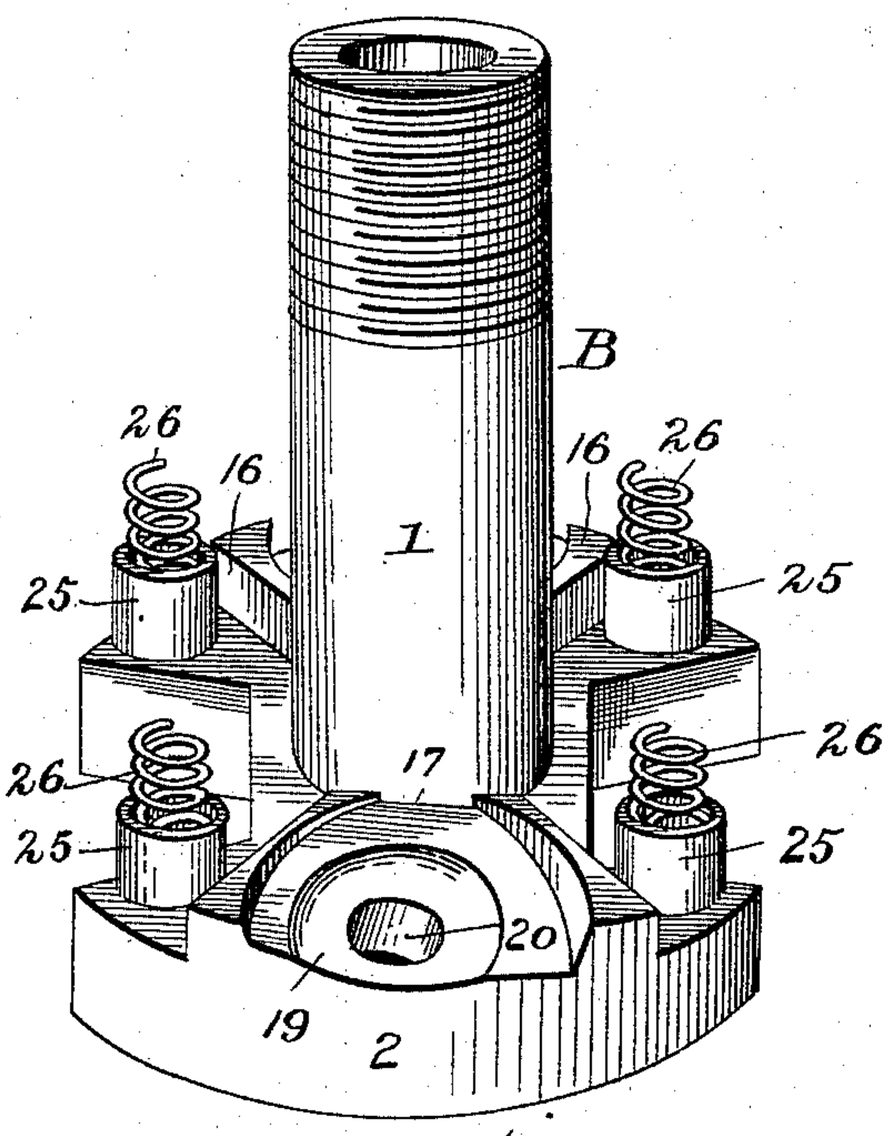
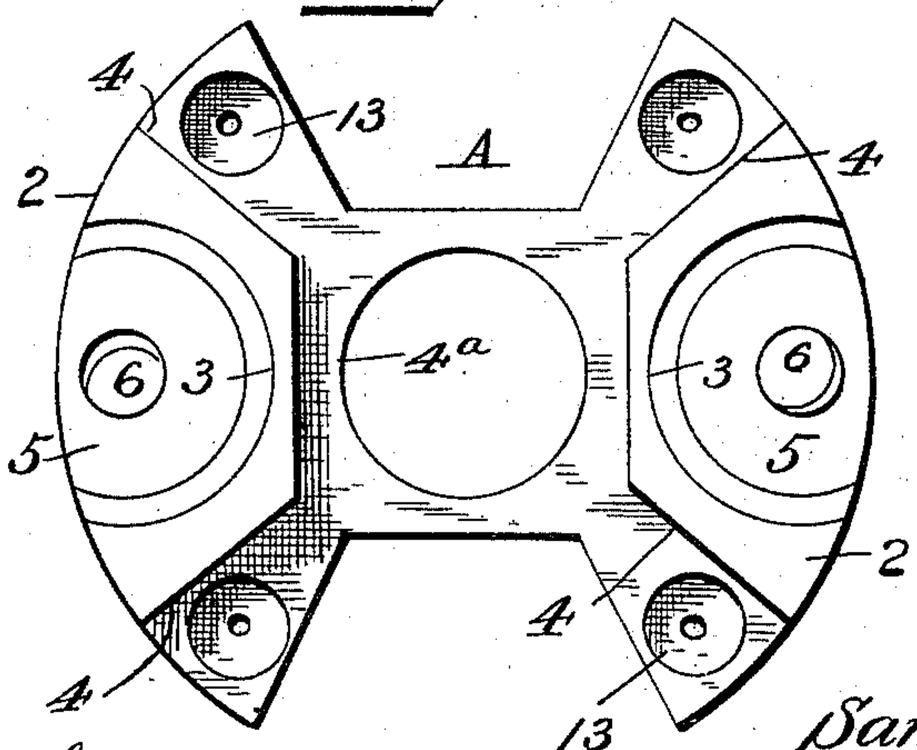


Fig. 4.



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UNITED STATES PATENT OFFICE.

SAMUEL J. SHIMER, OF MILTON, PENNSYLVANIA.

CUTTER-HEAD.

SPECIFICATION forming part of Letters Patent No. 540,075, dated May 28, 1895.

Application filed March 21, 1895. Serial No. 542,666. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. SHIMER, a citizen of the United States, and a resident of Milton, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Cutter-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 a part of this specification.

My invention relates to improvements in cutter heads for matching and grooving the edges of lumber, of that class or description in which the cutter head is mounted upon a vertical rotatable arbor or spindle, and is composed of upper and lower flanged sections carrying circular cutters and provided with hubs and expansion springs. As usually constructed the expansion spring is seated in a recess or recesses formed in the hubs of the flanged sections, and located between the said hubs, which necessarily weakens the cutter head.

The object of my invention is to provide an improved cutter head which shall possess superior advantages with respect to efficiency in use, and it consists essentially in locating the expansion springs in the flanges of the sections and outside of the hubs in such a manner that there shall be a space left between the hub of the inner section and the cutter seats to receive the lower end of the upper section, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a cutter-head constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view. Fig. 3 is a perspective view of the lower cutter-section. Fig. 4 is a bottom view of the upper section.

In the said drawings the reference letters A and B designate the upper and lower sections, respectively. The upper section comprises the hub 1, formed at its lower end with a series of radial flanges 2, (two being shown in the present instance) provided on its under side with cutter seats 3, formed by cutting away the ends forming shoulders 4, and also cutting away at the junction of the flanges with the hub forming a space 4^a. By this means there is formed a downwardly extending seat which is formed with an inclined concave recess 5, and with an inclined aperture 6, for the passage of a bolt 7. The numeral 8 designates a circular cutter which is formed to correspond with said concave seat and is held in place by the bolt 7, and nut 9. The upper edge of this hub is formed with V-shaped projections or serrations, as shown in the Letters Patent granted to me February 12, 1884, No. 293,529, with which engage correspondingly formed serrations on an adjusting ring hereinafter described. On opposite sides and in a vertical plane intermediate the ends of the flanges the hub is cut away forming flat sides 10. At each end the said flanges are formed with circular recesses 13, to receive the ferrules and expansion springs hereinafter described.

The lower section B, comprises a hub 14, formed at its lower end with radial flanges 15. These flanges are cut away at the ends and rear, similar to the flanges of the upper section forming shoulders 16, and spaces 17, and also forming an upwardly extending cutter seat 18, formed with an inclined concave recess 19 and aperture 20, similar to that above described to receive the circular cutter 21 and bolt 23, by which the cutters are held in place. At each end the said flanges are formed with circular recesses 24, located outside the hub, and in which are seated cylindrical sleeves for ferrules 25, provided with coiled springs 26. The upper end of the ring is screw threaded to receive a correspondingly threaded adjusting ring 27, having V-shaped projections or serrations on its lower side which engage with the correspondingly formed projections or serrations on the upper edge of the hub of the upper section, and also to receive a clamping cap 28.

In assembling the cutter head the ferrules are seated in the recesses in the flanges of the lower section and the coiled expansion springs inserted therein. The upper section is now placed over the lower section, the hub of the former embracing that of the latter, and forced down into place so that the shoulders at the ends of the hubs of one section will engage with those of the other making a close joint and preventing the entrance of dust or dirt.

The flattened or cut away sides of the outer section will also engage in the space behind the cutter seats, making a tight joint. As the two sections come together the upper ends of the ferrules will project into the recesses on the flanges of the upper section and the expansion springs engaging with the inner ends of said recesses will be compressed. The bolts carrying the cutters are then passed through the apertures in the flanges, seating the cutters in the concave recesses in the seats. The nuts hold the bolts and cutters in place in the flanges. The cutter head is now ready to be secured to the rotatable arbor or shaft, not shown, of a wood working machine.

By the above construction the expansion springs are located outside of or eccentric to the hubs instead of concentric or between them leaving a greater space between the outer hub and the bolts which secure the cutters in place, so as to allow larger cutters to be employed.

While I have shown two radial flanges, it is obvious that more may be employed if found convenient or necessary, and also that instead of four expansions spring, as shown, more or less may be used without departing from the spirit of my invention.

Having thus fully described my invention, what I claim is—

1. In a two part cutter head, the combination with the upper section formed with radial flanges, cutter seats and apertures and a recess or recesses at the ends of the flanges and located outside the hub thereof, of the lower section formed with similar cutter seats, recesses and apertures and with a recess at the ends of said flanges, and the ferrules and expansion springs seated in said end recesses, substantially as described.

2. In a two part cutter head the combination with the upper section comprising a hub cut away or flattened on opposite sides, the radial flanges cut away at the ends and rear forming cutter seats, and shoulders and spaces and forming overlapping joints, of the lower section having a hub formed with similar cutter seats, shoulders and spaces and expansion springs located outside of said hubs between the overlapping portions, substantially as described.

3. In a cutter head the combination with the lower section comprising a hub cut away or flattened on opposite sides, and formed with radial flanges, cut away at the ends and rear forming cutter seats, shoulders and spaces and formed at the end with a recess, of the upper section having a hub formed with corresponding flanges, cutter seats, shoulder spaces, and recesses, the ferrules seated in said recesses and the coiled expansion springs inserted in said recesses and confined between the said flanges, substantially as described.

4. A cutter head made in two sections each comprising the concentric hubs and flanges, the latter having cut away portions and overlapped portions and the expansion springs, eccentric to the hubs, between the overlapped portions, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

SAMUEL J. SHIMER.

Witnesses:

AUGUST PETERSON,

BENNETT S. JONES.