

H. FLETCHER.  
Cutter-Heads.

No. 143,565.

Patented Oct. 14, 1873.

Fig 1.

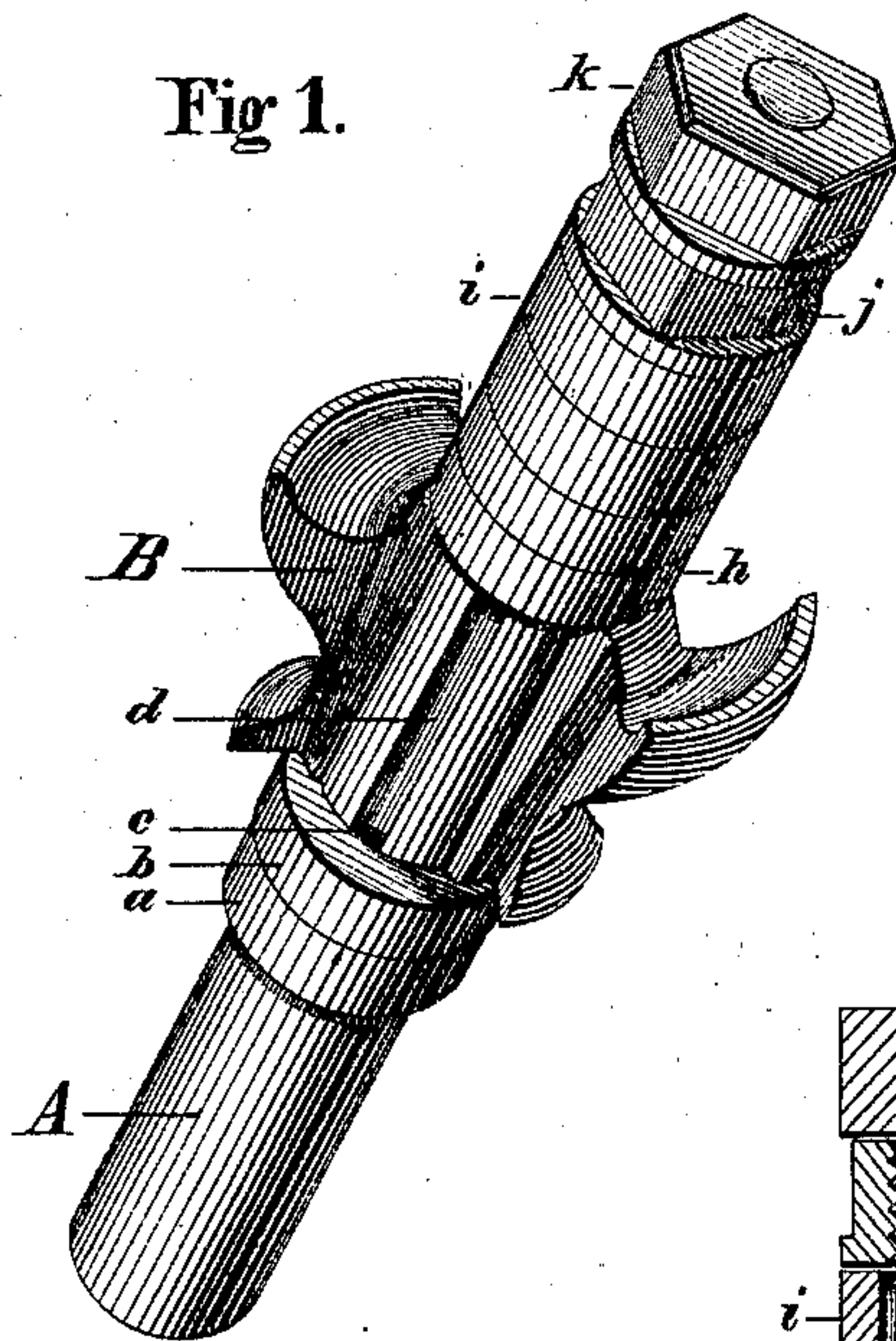


Fig 2.

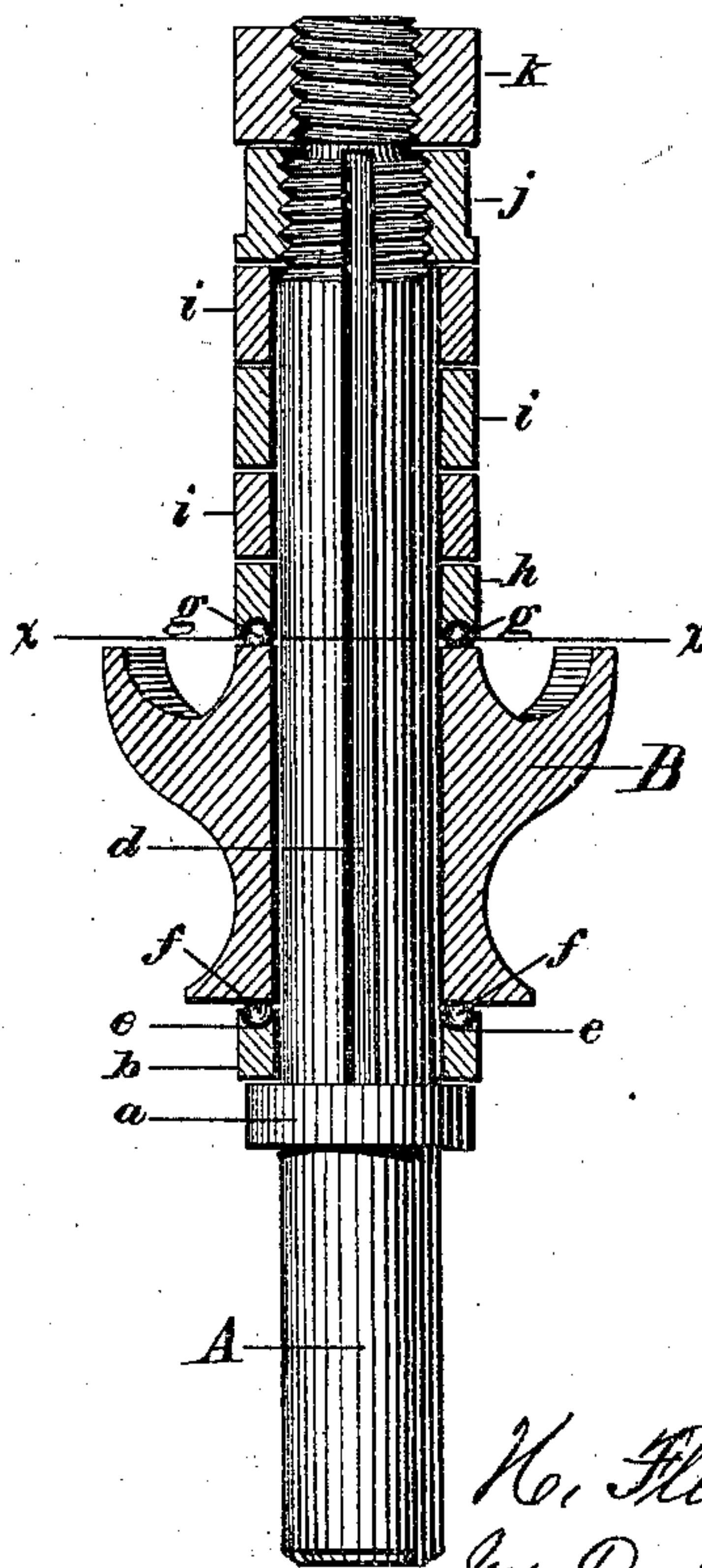
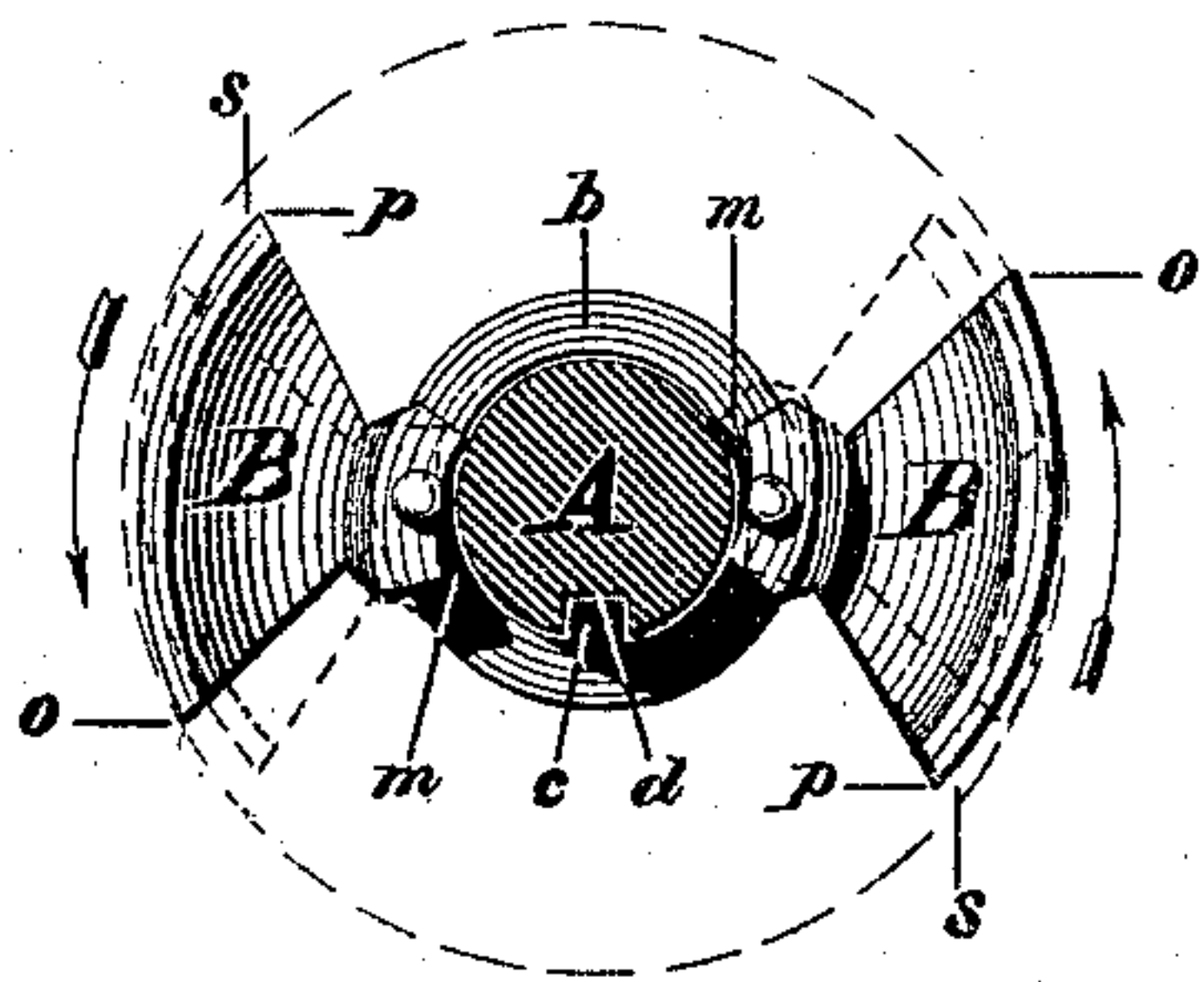


Fig 3.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN CUTTER-HEADS.

Specification forming part of Letters Patent No. 143,565, dated October 14, 1873; application filed February 23, 1872.

*To all whom it may concern:*

Be it known that I, HERMAN FLETCHER, of Louisville, in the county of Jefferson and State of Kentucky, have invented certain Improvements in Cutter-Heads for Molding-Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to the class of rotary cutters for molding-machines which are reversible in order to present a cutting-edge in either direction; and consists in a certain construction of the bits and peculiar connection of the same to the collars or rings of the shaft, by which the bits are made to turn upon trunnions in the direction of rotation, and stop in either direction when the bits are so adjusted as to present a clear cutting-edge in the front and clearing space in the rear.

Figure 1 represents a perspective view of my cutter-head; Fig. 2, a vertical section of same; and Fig. 3, a transverse section cut through line *x x* of Fig. 2.

A is a revolving shaft, around which is formed flange *a*. *b* is a ring or collar, which is slipped over and down the shaft A, resting upon flange *a*, as shown in Figs. 1 and 2, and is provided with a lip or lug, *c*, constructed upon its inner periphery, fitting into the groove *d* in the shaft A, as shown in Figs. 1 and 3. This collar *b*, in conjunction with ring or collar *h*, which has also a projecting lip fitting into the groove *d*, forms bearings for the bits. The lips *c* and groove *d* assist in securing the said collars, forming bearings for the bits, in their places.

It is obvious that as many lips and corresponding grooves can be formed as are found requisite to give the required security to the bearing-collars.

B B are the bits or cutters, which are first turned out of one piece of steel to the required form, and cut radially, so as to form four bits, sufficient to supply two cutter-heads. The bits are then provided with pins or trunnions *f* and *g*, rigidly fitting into them. These trunnions bear in recesses *e* in the rings or collars *b* and *h*, as shown in Fig. 2. A sufficient number of rings *i* are provided, with or without the inner lips, to fill up the intervening space between the upper collar *h* and lower nut *j*, thus allowing the use of cutters of va-

rious sizes, as may be required. Right and left screw-threads are employed, as shown in Fig. 2, in order to prevent the parts being shaken loose, the upper nut *k* forming a lock for the lower nut *j*. The knives B B are so placed as to leave a space, *m*, between their rear edges or backs and the revolving shaft, as shown in Fig. 3. These spaces allow the bits or knives to swing to and fro on their trunnions. When revolving in the direction shown by the arrows the edge *o* of the knife is engaged in cutting the wood, while the edge *p* is thrown backward and inward, thus leaving the clearing-space *s* in the rear of the cutting-edge, as shown in Fig. 3.

By using the jam-nuts *k* and *j* they can be locked fast at such point on the spindle that, while holding the collars *b* and *h* in place, the cutters B can be left sufficiently loose to permit them to turn easily on their journals *e* and *g*, so that one or the other of the cutting-edges will be thrown out by centrifugal force, according as the spindle is made to revolve in one or the other direction, the distance to which the cutting-edge will project being limited by the inner shoulder on either side of the journals coming in contact with the spindle. By thus mounting the cutters B, so as to turn freely on their journals, they are caused to reverse themselves automatically by simply reversing the motion of the spindle A, which may be done by a shifting-belt, or other reversing device, and thus the necessity of loosening the nuts or collars in order to reverse the cutters is obviated; or, when desired not to have them reverse automatically, the nuts may be screwed down so as to hold the cutters rigidly in position.

Having thus described my invention, what I claim is—

1. The combination of the spindle A and collars *e h* with the pivoted cutters B, all constructed and arranged to operate substantially as described.

2. The spindle A, provided with the grooves *d*, in combination with the rings *e h* provided with tongues *c*, and the pivoted cutters B, substantially as set forth.

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Witnesses:

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