(No Model.)

H. KINGMAN.

REAMER.

No. 375,361. Patented Dec. 27, 1887.

Fig. 1.

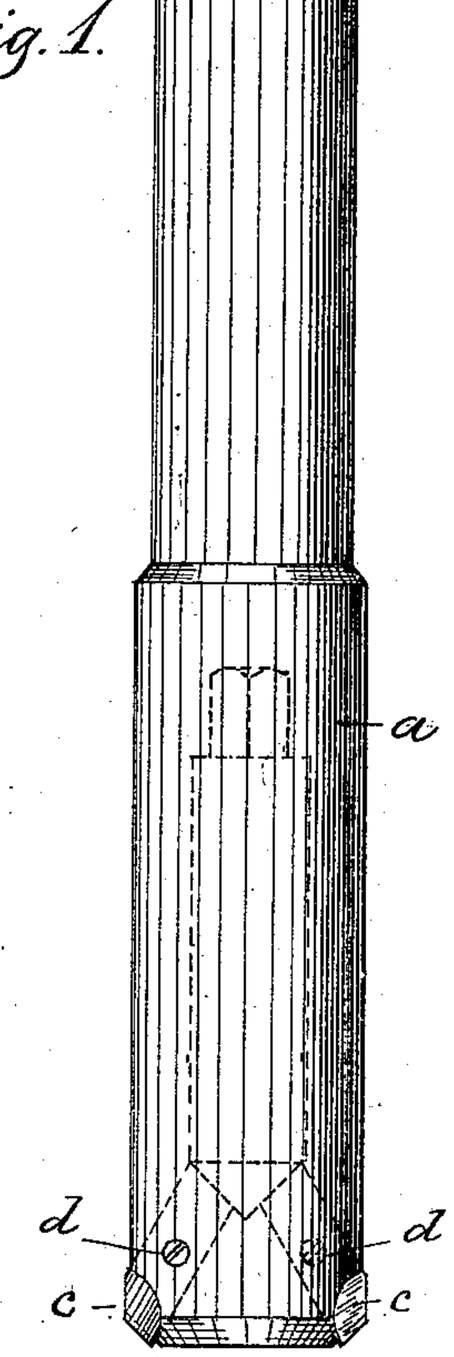


Fig. 3.

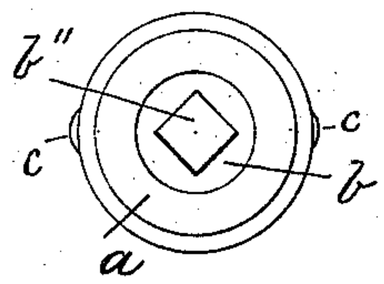


Fig. 4.

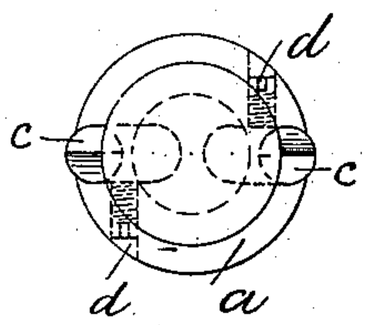
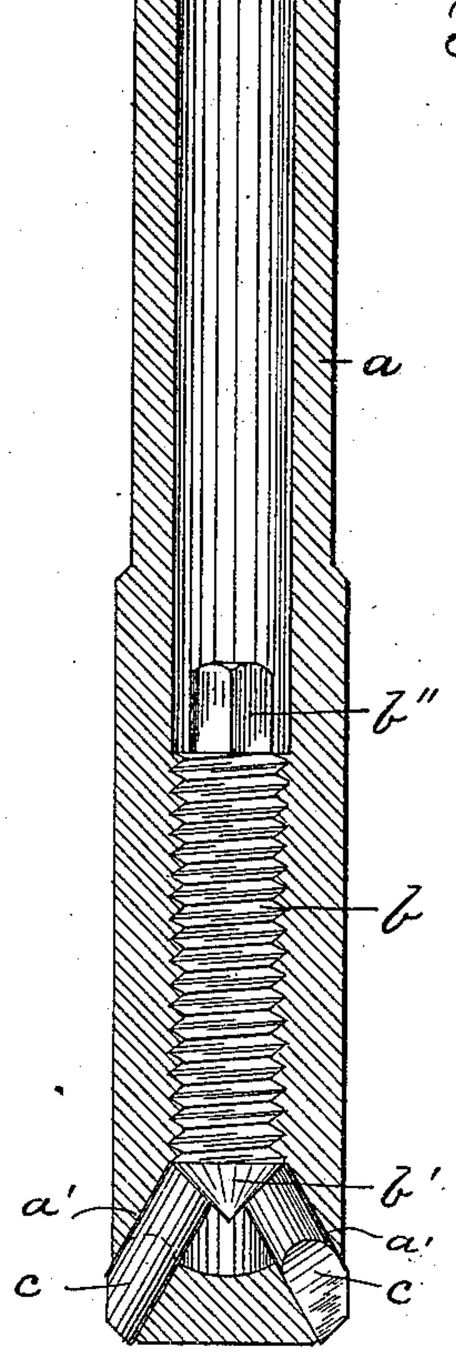


Fig. 2.



Witnesses.
Harry W. Robinson.
Henry Chadbourn.

Inventor.
Horace Kingman.
by Alban Andrén. his atty.

UNITED STATES PATENT OFFICE.

HORACE KINGMAN, OF BROCKTON, MASSACHUSETTS.

REAMER.

SPECIFICATION forming part of Letters Patent No. 375,361, dated December 27, 1887.

Application filed September 10, 1887. Serial No. 249,309. (No model.)

To all whom it may concern:

Be it known that I, HORACE KINGMAN, a citizen of the United States, and a resident of Brockton, in the county of Plymouth and State of Massachusetts, have invented new and useful Improvements in Reamers, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in reamers of the kind in which the cutters are adjustably arranged within a holder for the purpose of reaming holes in pulleys, castings, or other metal articles of cast or wrought metal; and it consists in the construction, arrangement, and combination of parts, as will hereinafter be more fully described, reference being had to the accompanying drawings, wherein—

Figure 1 represents a side elevation of the improved reamer, and Fig. 2 represents a central longitudinal section of the same. Fig. 3 represents a top view, and Fig. 4 represents a bottom view, of my improved reamer.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In the drawings, *a* is the cutter-holder, made in the form of a hollow cylinder, open in its upper end and closed at the bottom, as shown. The interior lower portion of the shell or cutter-holder *a* is screw-threaded, and in it is screwed the pressure-screw *b*, having a conical lower end, *b'*, as shown in Fig. 2, and a square or polygonal head, *b''*, in its upper end to enable said pressure-screw to be turned by means of a box-key or screw-driver inserted from above into the hollow cutter-holder *a*. The lower end of the cutter-holder *a* is provided with two or more inclined perforations, *a' a'*, in which are inserted the cutters *c c*, their upper ends being made to rest against the conical end *b'* of the pressure-screw *b*, as shown in Figs. 1 and 2. The lower sharpened cutting-edges of the adjustable cutters *c c* are made to project a little beyond the outer circumference of the lower end of the hollow sleeve *a*, as shown in the drawings. By means of the pressure-screw *b* acting direct on the upper ends of the cutters *c c*, the latter may be forced downward and outward sufficiently to properly ream and cut the desired sized hole in the pulley, casting, or other object.

To prevent the cutters *c c* from dropping out of the inclined perforations *a' a'* in which they are guided, I use set-screws *d d*, screwed through side perforations near the lower end of the shell or holder *a*, as shown in Figs. 1 and 4, such screws being short enough so as not to project outside of the periphery of the shell *a*, as shown in Fig. 4.

By the construction as above described I obtain an expansive reamer of great strength with very few parts. The pressure-screw *b*, pressing directly against the cutters *c c*, makes the structure very compact and rigid when in use, and by this simple device I am able to adjust the position of the cutters relative to the holder to the greatest nicety. When the cutters become dull, they may be easily detached from the holder *a*, reground or sharpened, and inserted in the inclined perforations in the lower end of the holder *a*, and their positions therein adjusted by the pressure-screw *b*, after which they are secured in place in the holder by means of the set-screws *d d*, as above described.

By having the cutters made adjustable in inclined perforations near the lower end of the holder *a*, I am able so to adjust said cutters relative to the holder as to cause them to project endwise, as well as sidewise at the junction of the bottom and curved sides of the holder, thus enabling the cutters to cut their way in the hole to be reamed, and thus causing the reamer to advance true and linear within the hole that is being reamed.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

The herein-described expansive reamer, consisting of the hollow cutter-holder *a* and the pressure-screw *b*, having conical end *b'*, made adjustable therein, in combination with two or more inclined cutters, *c c*, inserted in inclined perforations *a' a'* at the lower end of the holder *a*, and having their upper ends resting directly against the conical end *b'* of the pressure-screw, and the set-screws *d d*, for securing the cutters in place after being adjusted, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 7th day of September, A. D. 1887.

HORACE KINGMAN.

Witnesses:

WALDO V. HOWARD,

LOYED E. CHAMBERLAIN.