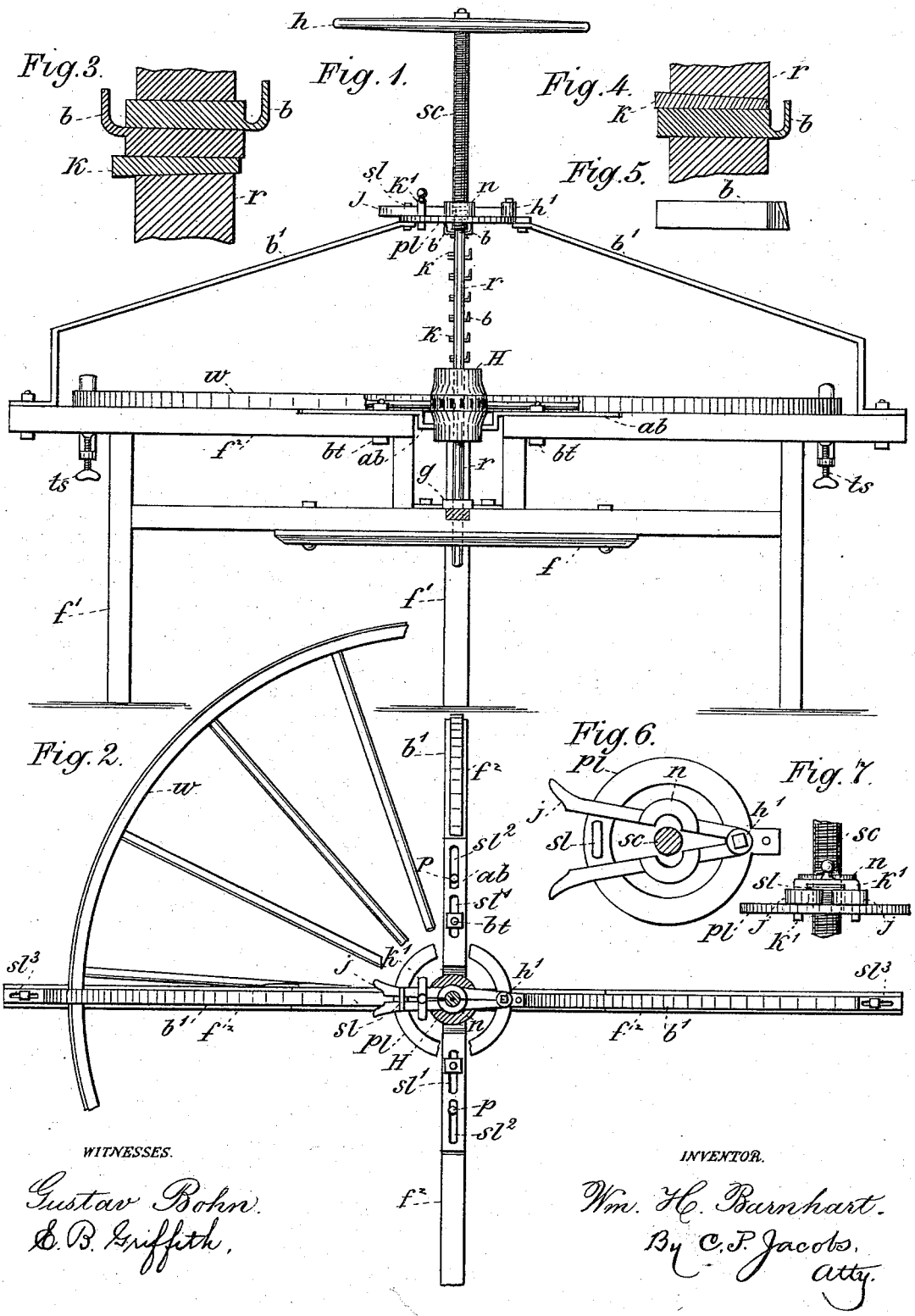
(No Model.)

W. H. BARNHART.

HUB BORING MACHINE.

No. 383,848. Patented June 5, 1888.



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WILLIAM H. BARNHART, OF INDIANAPOLIS, INDIANA.

HUB-BORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 383,848, dated June 5, 1888.

Application filed January 25, 1888. Serial No. 261,884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BARNHART, of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Hub-Boring Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

My invention relates to the construction of devices for boring holes in hubs to receive iron boxings, and will be understood from the following description:

In the drawings, Figure 1 represents a side view of my device, one arm of the frame being cut off, so as not to obscure the view. Fig. 2 is a top view of the same. Fig. 3 is a vertical section of the upper part of the rod carrying the bits, showing the double bit at the top and the key securing the same in place. Fig. 4 is a similar section of one of the lower bits and a part of the rod. Fig. 5 is a top view of one of the bits. Fig. 6 is a top view of the clasp-nut in which the screw-rod connected with the hand-wheel works. Fig. 7 is a side view of the same, showing the jaws of the nut locked in place.

In detail *f* is a frame-work composed of uprights f', connected by arms f^2, which are adjustable as to length by means of bars *ab*, having slots sl' sl^2, in the latter of which pins *p* move as guides, and the former has a bolt, *bt*, having a nut on the top for locking the parts together at the right point. These side arms of the frame are for the purpose of centering the hub. The other arms of the frame have slots sl^3 at their extreme ends and bolts passing through the same for fastening the braces b' thereto, as shown in Fig. 1. These braces carry and support near their upper ends a circular plate, *pl*, to which the jaws *j* of the clasp-nut *n* are hinged at h', as shown in Fig. 6. This plate also has a slot, *sl*, and when the jaws of the nut are brought together a lock-staple, k', is set astride these jaws, the points of this staple entering the slot *sl* on each side, locking them together, as shown in Fig. 7. When the nut is in this position, the closed jaws held together by the key, as shown in Fig. 7, the threaded central portion or nut proper, *n*, is ready to receive the screw-rod *sc*, which works therein. The lower end of this screw-rod is formed into a vertical rod, *r*, which has openings to receive bits *b*, these bits having a straight shank and turning up into a cutting-edge, as shown in Fig. 5. At the upper end of this rod two of these bits are set one above the other, and, as will be seen by reference to Fig. 3, the cutting portion of the upper one is connected at the base of the shank, while in the lower one of the pair the cutting part is fixed near the top of the shank, and their cutting-edges are opposite each other, and are thus brought nearer together (vertically) than if they were connected to the shank in the same way, instead of one being connected at the bottom of the shank and the other at or near the top. The object of this is to bring the cutting-edges of these upper knives close together, so that one will directly follow the other in cutting out the enlargement at the top of the bore, which is intended to receive the shoulder formed on the inner and larger end of the boxing. Below these are single bits, and all are secured in the rod *r* by keys *k* in the manner shown in Figs. 3 and 4. They are set tapering in the rod, so that as the bits are turned into the hub the hole is enlarged as the auger descends, thus making a tapering hole in the hub largest at the upper end and corresponding in diameter with the boxing generally used. In practice they are set a little more tapering than shown in Fig. 1 of the drawings. The upper bits are set out a little farther from the center of the rod than those below, the distance being gradually diminished from top to bottom.

The hub (represented at H) is centered between the side arms of the frame *f*, as shown in Fig. 2, and is supported and held directly between adjustable braces *ab*, bolted to the arms f^2, as shown in Fig. 1.

Beneath the table portion of the frame is a cross-bar, and upon this is bolted a metal guide-plate, *g*, through which the lower end of the rod passes, its object being to secure a vertical movement of the rod as the auger enters the hub, the upper end of the screw-rod being held in place in the clasp-nut *n* and the lower end by the guide-plate *g*, thus insuring the movement in a vertical plane throughout all parts of the tool.

h is a hand-wheel secured to the top of the screw-rod *sc*, for turning the same in the nut *n*, and as the operator turns down the screw by this hand-wheel the rod *r* is carried down with the bits *b*, boring an opening in the center of the hub.

When the operation is finished and the hub is bored far enough, by taking out the key *k'* and opening the jaws *j* of the clasp-nut the screw-rod and the rod *r*, with its bits, may be withdrawn from the hub by a pull of the hand without the necessity of turning the screw-rod back, so as to operate the withdrawal of the rod *r* by means of the threads in the nut *n*, thus saving a great deal of time in withdrawing the tool from the hub.

The wheel *w* is supported upon the cross-arms of the frame work and held in place by thumb-screws *ts*.

I am aware that clasp-nuts are not new, and that wheel-boring machines having tapering bits have been heretofore used, and do not broadly claim the same as my invention.

What I claim as my invention, and desire to secure by Letters Patent, is the following:

1. The hub-boring machine herein described, comprising the frame work *f f'*, having adjustable arms f^2 for centering the hub, the braces *b'*, bolted to the ends of the arms f^2, supporting the plate *pl*, the clasp-nut *n*, having jaws *j*, hinged to the plate at *h'*, the key *k'*, for holding the jaws of the nut together, the screw *sc*, working in such nut, carrying the rod *r*, having adjustable bits *b*, secured by keys therein, all combined substantially as shown and described.

2. In a hub-boring machine, an auger composed of a rod mortised to receive bits held in place by keys and set so as to bore a tapering hole in the hub, the upper pair of bits set one upon the other, the cutter of the upper one connected near the base of its shank and the cutter of the lower one connected to its shank at or near the top, their cutting-edges formed on opposite sides, substantially as and for the purpose described.

3. In a hub-boring machine, a frame-work for supporting the wheel, its side arms adjustable as to length for centering the hub, an auger-rod carrying removable and adjustable boring-bits, the upper pair of these set one upon the other, the upper one having its cutter connected at or near the base of its shank, the lower one having its cutter connected at or near the top of its shank, the cutting-edges of the pair formed on opposite sides for forming an enlarged bore to receive the shoulder of the boxing, the series of bits graduated so as to bore a tapering hole in the hub, all combined substantially as shown and described.

4. In a hub-boring machine, an auger-rod, *r*, carrying detachably-secured bits thereon, the upper pair set one upon the other, the cutter of the upper one connected to its shank at or near its base, the cutter of the lower one connected to its shank at or near its top, the cutters of the pair formed on opposite sides for forming an enlargement in the bore to receive the shoulder of the boxing, such auger connected with operating screw mechanism above and its lower end moving in a guide-plate secured beneath the table to the frame-work, all combined substantially as shown and described.

5. In a hub-boring machine, a frame-work for supporting the wheel having adjustable side arms for centering the hub, a boring-auger composed of a rod carrying adjustable boring-bits, such auger operated by a screw-rod working in a clasp-nut, its lower end having bearings in a guide-plate secured beneath to the frame-work, the upper pair of bits upon the rod set one upon the other, the cutter of the upper bit secured at or near the base of its shank, the cutter of the lower of the pair secured at or near the top of its shank, the cutting-edges of the pair formed on opposite sides for enlarging the bore to receive the shoulder of the boxing, substantially as shown and described.

In witness whereof I have hereunto set my hand this 23d day of January, 1888.

WILLIAM H. BARNHART.

Witnesses:

C. P. JACOBS,

E. B. GRIFFITH.