(No Model.)

H. C. & J. N. TOWER.

BOOT AND SHOE HEEL FILING MACHINE.

No. 310,096. Patented Dec. 30, 1884.

Fig. 1.

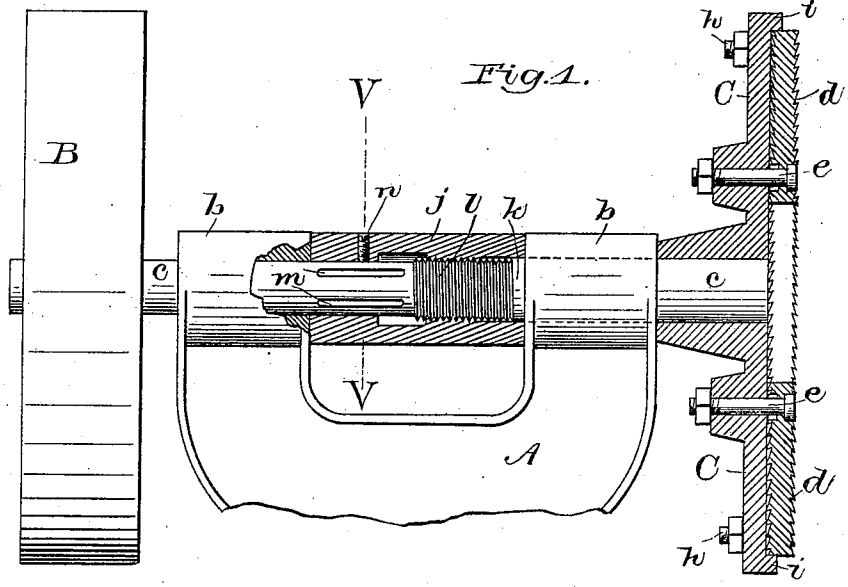


Fig. 4.

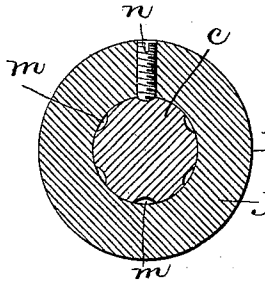


Fig. 3.

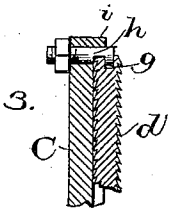
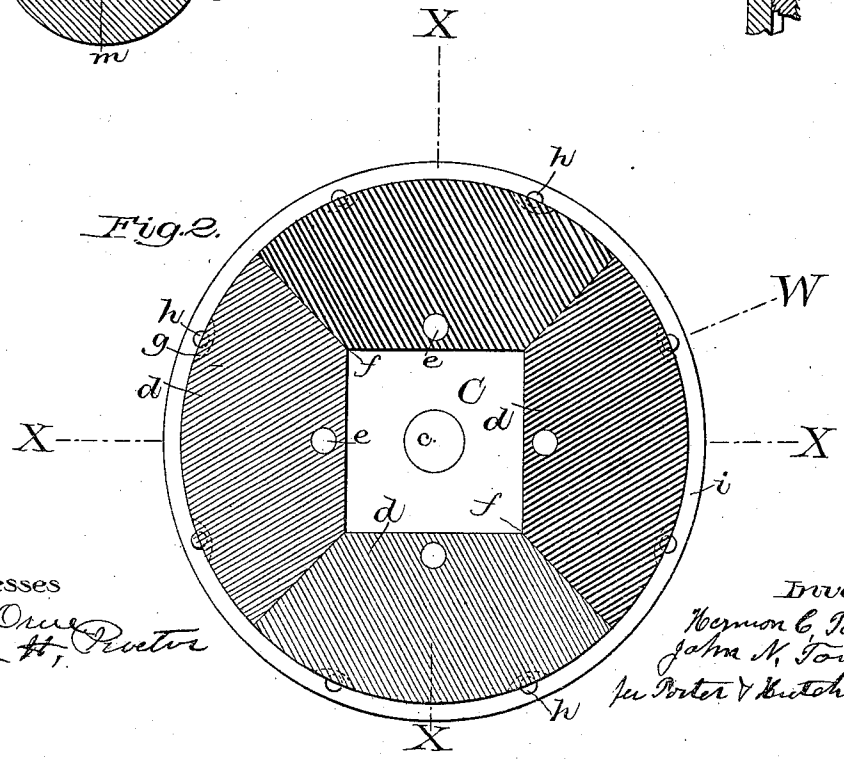


Fig. 2.



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UNITED STATES PATENT OFFICE.

HERMON C. TOWER AND JOHN N. TOWER, OF HUDSON, MASSACHUSETTS.

BOOT AND SHOE HEEL FILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 310,096, dated December 30, 1884.

Application filed August 28, 1884. (No model.)

To all whom it may concern:

Be it known that we, HERMON C. TOWER and JOHN N. TOWER, of Hudson, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Boot and Shoe Heel Filing Machines, which will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

This invention has for its object certain improvements in rotary machines adapted to smooth, by filing, the heels of boots and shoes, and it will, in connection with the accompanying drawings, be hereinafter more particularly described and claimed.

In said drawings, Figure 1 is a sectional elevation, the elevation being as viewed at the side of the machine, while the head is shown in central section as taken on either of lines *x x*, Fig. 2, the collar being also shown in longitudinal section. Fig. 2 is a front elevation of the head, the same being taken as at the right in Fig. 1. Fig. 3 is a detached section taken as on line W, Fig. 2, through the head and cutting-sections, and showing our improved method of securing the sections in place. Fig. 4 is a transverse section taken through the arbor and collar, as on line V V, Fig. 1.

In said views, A represents the upper part of a supporting-frame of any suitable construction. An arbor, *c*, is arranged to be revolved in the journal-boxes *b* of said frame, as shown in Fig. 1. At one end of said arbor is arranged a pulley, B, by which, through the action of a belt, power is imparted to said arbor. At the opposite end of said arbor a disk-like head, C, is rigidly secured thereon, and upon the outer or front face of said disk the duly-toothed and hardened-steel file-sections *d* are mounted, they being arranged within the peripheral lip *i*, which resists centrifugal movement of the disks. These sections are secured against the face of the disk by bolts *e*, and the hook-headed bolts *h*, whose heads engage in the peripheral slots *g*, two of which are formed in each section, as shown by dotted lines in Fig. 2 and by solid lines in Fig. 3. By arranging bolts *e* nearer the axial center of arbor *c* than is the angle *f*, where the line of the inner edges of sections *d* meet, and within which the sections cannot be utilized, and also securing the outer edges of said sections by bolts *h*, which engage in the peripheral slots, the entire working face of the sections is unbroken, whereas by the usual method of securing said sections by three bolts, which passed directly through them, their efficiency, as also the uniformity of their work, was much impaired thereby.

It will be observed that the holes in sections *d* for the reception of bolts *e* are, in the usual manner in such sections, counterbored from each side, in order that said sections, which are toothed alike on both sides, may, after being worn dull upon one side, be turned and used till dull upon the other side before "drawing their temper" and resharpening them. The slots *g*, being in the center of said disks—that is, midway between their planes—allow such changing from side to side.

For the purpose of advancing disk C and its sections *d* toward the shoe-heel rest as said sections are by such wear and resharpening reduced in thickness, we arrange a collar, *j*, on arbor *c*, between boxes or bearings *b*, said arbor and collar being correspondingly screw-threaded, as shown at *l*, and the collar being chambered to receive the portion *k* of the arbor which is not threaded, in order that as the arbor is advanced to the front it will still present a smooth surface in the adjacent bearing *b*.

Adjacent to the opposite end of collar *j* we form in the arbor a series of equidistant longitudinal shallow grooves, *m*, in which the set-screw *n* may engage; and by means, say, of six grooves, as shown, and the collar and arbor threaded with a sixteen-to-the-inch pitch, an adjustment of the ninety-sixth of an inch is obtained by rotating said collar to the extent of changing set-screw *n* from one groove to that next adjacent; hence the outer plane of sections *d* may be readily and accurately adjusted relatively to the heel-support of the shoe.

If preferred, a slot, *g*, may be formed in the inner edge of sections *d*, and a hook-headed bolt, *h*, employed instead of a bolt, *e*, as shown; but, for the reasons stated, no benefit would result therefrom.

We claim as our invention—

1. In a heel-filing machine, the combination of the arbor, threaded as shown, and a col-

lar coincidently threaded, and provided with means, substantially as described, to lock it upon the arbor, whereby the arbor may be lineally adjusted and secured in position, substantially as specified.

2. The combination of arbor C, threaded as specified, and having a series of longitudinal grooves, *m*, formed therein, and collar *j*, threaded coincidently with said arbor, and provided with a set-screw to engage in said grooves to lock the collar and arbor together, substantially as specified.

3. In combination with the rotary supporting-disk and file-sections of a heel-filing machine, a slot or recess formed in the outer edge of said sections, and a bolt secured in said disk and formed with a head adapted to engage in such slot, substantially as specified.

4. In a heel-filing machine, the combination of disks C, file-sections *d*, having slots formed in their peripheral edge, and bolts *h*, formed with a head to engage therein, substantially as specified.

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