

No. 674,384.

Patented May 21, 1901.

J. M. NASH.
ABRADING MECHANISM.
(Application filed Aug. 13, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

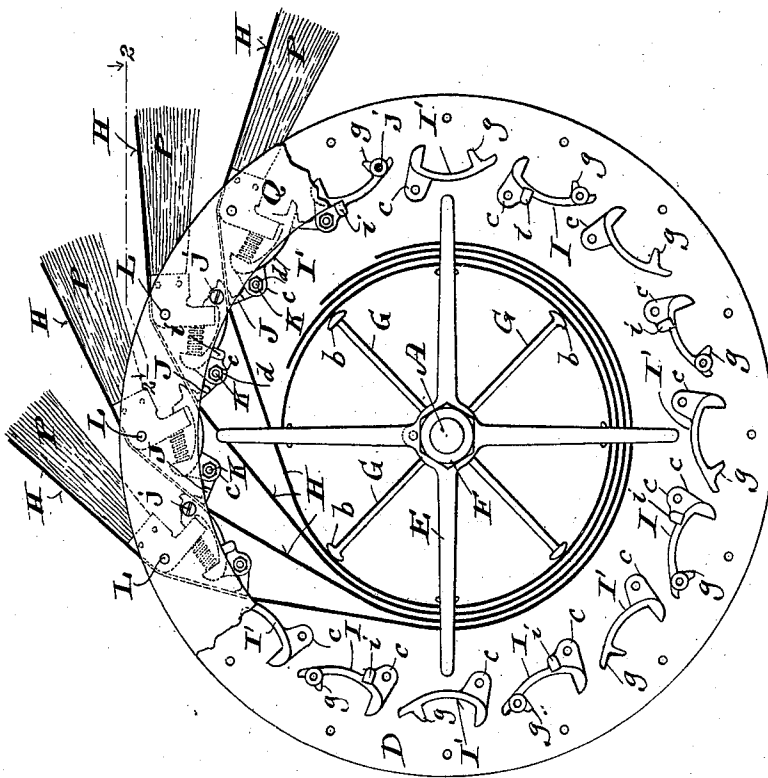


Fig. 2.



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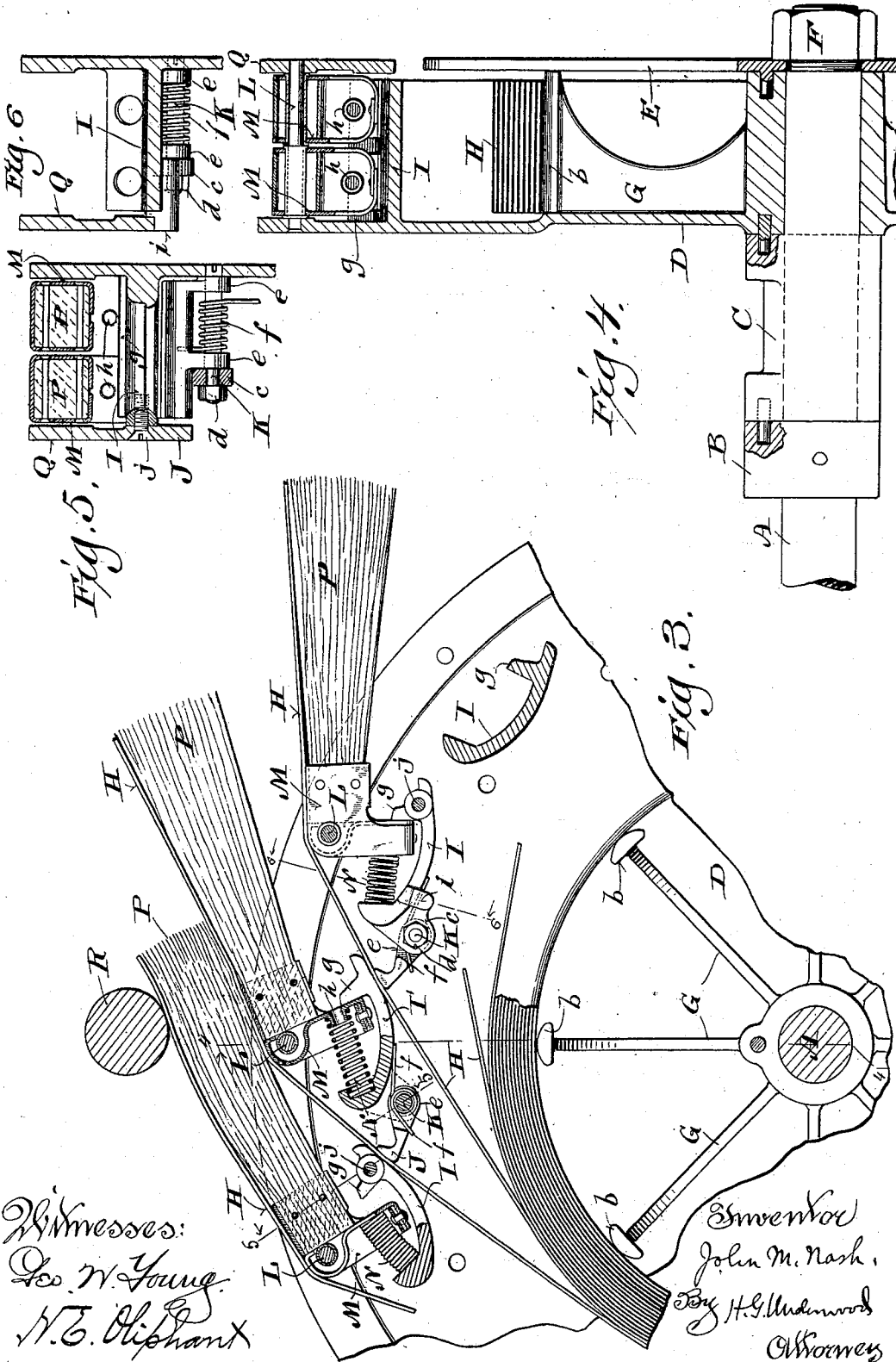
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UNITED STATES PATENT OFFICE.

JOHN M. NASH, OF MILWAUKEE, WISCONSIN.

ABRADING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 674,384, dated May 21, 1901.

Application filed August 13, 1900. Serial No. 26,745. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. NASH, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Abrading Mechanism; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention is especially designed for economical smoothing of round woodwork, particularly such as has irregularity of configuration, the object being to operate in depressions and upon elevations of the work with uniform pressure, so as not to mar its outline, said invention consisting in abrading mechanism such as is hereinafter set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings represents a partly-broken side elevation of an abrader-head in accordance with my invention, parts of the same being detached; Fig. 2, a detail plan view, partly in section, this view being indicated by line 2 2 in the preceding figure; Fig. 3, a side elevation of a portion of the head, partly in section; and Figs. 4, 5, and 6 detail sectional views of portions of said head, these views being respectively indicated by lines 4 4, 5 5, and 6 6 in the third figure of the series.

Referring by letter to the drawings, A indicates a power-shaft; B, a fixed collar on the shaft; C, a spacing-sleeve, having one end thereof in dowel-joint connection with the collar; D, a disk having a shaft-fitting hub in dowel-joint connection with the other end of the spacing-sleeve; E, a spider on the shaft, in dowel-joint connection with the disk-hub, and F a clamp-nut run on the outer end of said shaft against the spider, this construction and arrangement of parts being shown in Fig. 4. However, it is practical to connect the disk-hub with the shaft-collar and to arrange the spacing-sleeve between the spider and clamp-nut. It is also practical to omit the spacing-sleeve and substitute another disk and spider on the shaft, or more than two of the disks and spiders may be arranged on a single shaft to rotate therewith.

At regular intervals on the outer side of disk D are lateral ribs G, that radiate from the hub of said disk and have rounded outer

extremities *b*, these ribs constituting an axial core upon which to arrange a series of overlapping strips H of sandpaper or analogous abrading material, these strips being primarily arranged to have their ends equidistant (or approximately so) one from another in successive order.

The spider E constitutes a guard for the body of the abrading-strips that are extended beyond the periphery of disk D at tangents thereto after passing between brackets I I' and spring-controlled clamp-dogs J, carried by said disk. All the brackets are curved lateral projections upon the outer side of disk D at regular intervals of a circle. Bolts K are supported in the disk and ears *c* of the brackets, nuts *d* being run on the bolts against the bracket-ears. Loose on the bolts, between the disk and bracket-ears, are lugs *e* of the dogs J, and spiral springs *f* on said bolts have their ends in opposition to the brackets and said dogs.

At intervals of a circle, beyond that upon which the brackets are arranged, but concentric therewith, the disk D is provided with a series of rigid laterally-projecting pins L, and loose on each pin is one or more right-angled sockets M, one arm of each socket being opposed by a stop-lug *g*, constituting part of an adjacent bracket. A nipple *h* in the lug-opposing arm of each socket M is encircled by one end of a spiral spring N, and the other end of the spring engages a recess in an end of the corresponding bracket. Held in the other arm of each socket M, at a tangent to the periphery of disk D, is a mass P of broom-corn or other pliant material suitable as a flexible backing for the opposing outer end of the adjacent strip of abrading material; but instead of the pivotal spring-controlled brushes herein shown and described it is practical to substitute other forms of flexible backing for the working ends of the abrading-strips.

Certain of the brackets are provided with shoulders *i*, upon which an annular plate Q is fitted parallel to the disk D, and screws *j*, extending through the plate into tapped sockets constituting parts of some of said brackets, serve to detachably secure said plate in place as a shield for the adjacent mechanism and a stiffener for the abrading-head, of which it forms a part. By especial reference to Fig.

3 the operation of the abrading-head with respect to a piece R of round woodwork will be readily understood, it being apparent that there is a spring-controlled yield of the working ends of the abrading-strips and flexible backings for the same, these backings insuring contact of the abrading material with all portions of said woodwork, especially when the latter is of irregular configuration. When-
 5 ever necessary each spring-controlled dog J is held back clear of the adjacent abrading-strip H and the latter pulled out far enough to have its worn portion clear the flexible backing, after which a return of said dog to working position is permitted and said worn portion of the abrading-strip is cut off.

Mechanism similar to that herein set forth may be utilized to smooth flat woodwork, particularly such as has irregularity of configuration, and when utilized for smoothing round woodwork means are provided for imparting rotary movement to said work when in contact with the abrading material. By slitting the working ends of the abrading-strips the latter will more readily conform to irregular surface of the wood work in opposition thereto.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

30 1. An abrading-head comprising a rotary device, a series of overlapping abrading-strips in a body carried by the rotary device axially of the same, the outer ends of the strips being tangentially extended from said rotary device; means for clamping the tangent portions of the strips, and flexible backing for the exposed ends of said strips.

2. An abrading-head comprising a rotary device, a series of overlapping abrading-strips in a body carried by the rotary device axially of the same, the outer ends of the strips being tangentially extended from said rotary device; means for clamping the tangent portions of the strips, and spring-controlled flexible backing for the exposed ends of said strips.

3. A rotary abrading-head comprising a

disk, a core extended laterally from the disk concentric therewith, a series of overlapping abrading-strips on the core and tangentially extended therefrom, a guard for the body of the strips, means for clamping the tangent portions of the strips, and flexible backing for the exposed ends of said strips.

4. An abrading-head comprising a rotary device, a series of brackets on the rotary device at intervals of a circle, pivotal spring-controlled dogs in conjunction with the brackets, a series of overlapping abrading-strips in a body carried by said rotary device the outer ends of the strips being tangentially extended between the brackets and dogs, sockets in connection with the aforesaid rotary device, and pliant material fast in the sockets to serve as flexible backing for the exposed ends of the abrading-strips.

5. A rotary abrading-head comprising a disk, a core extending laterally from the disk concentric therewith, a series of brackets on said disk at intervals of a circle concentric with the core, pivotal spring-controlled dogs in conjunction with the brackets, a series of overlapping abrading-strips on said core but tangentially extended therefrom between the brackets and dogs, right-angled sockets in pivotal connection with the aforesaid disk to have an arm of each opposed by a lug of an adjacent bracket, a spring interposed between said socket-arm and an end of its companion bracket, pliant material fast in the other arm of each socket to serve as a flexible backing for the exposed end of one of the abrading-strips, and an annular plate that fits upon bracket-shoulders and is held in place by bracket-engaging screws.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

JOHN M. NASH.

Witnesses:

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 B. C. ROLOFF.