No. 648,498. Patented May 1, 1900.

J. KOENIG.

GRINDING, POLISHING, OR BUFFING MACHINE.

(Application filed Aug. 28, 1899.)

(No Model.) 3 Sheets—Sheet 1.

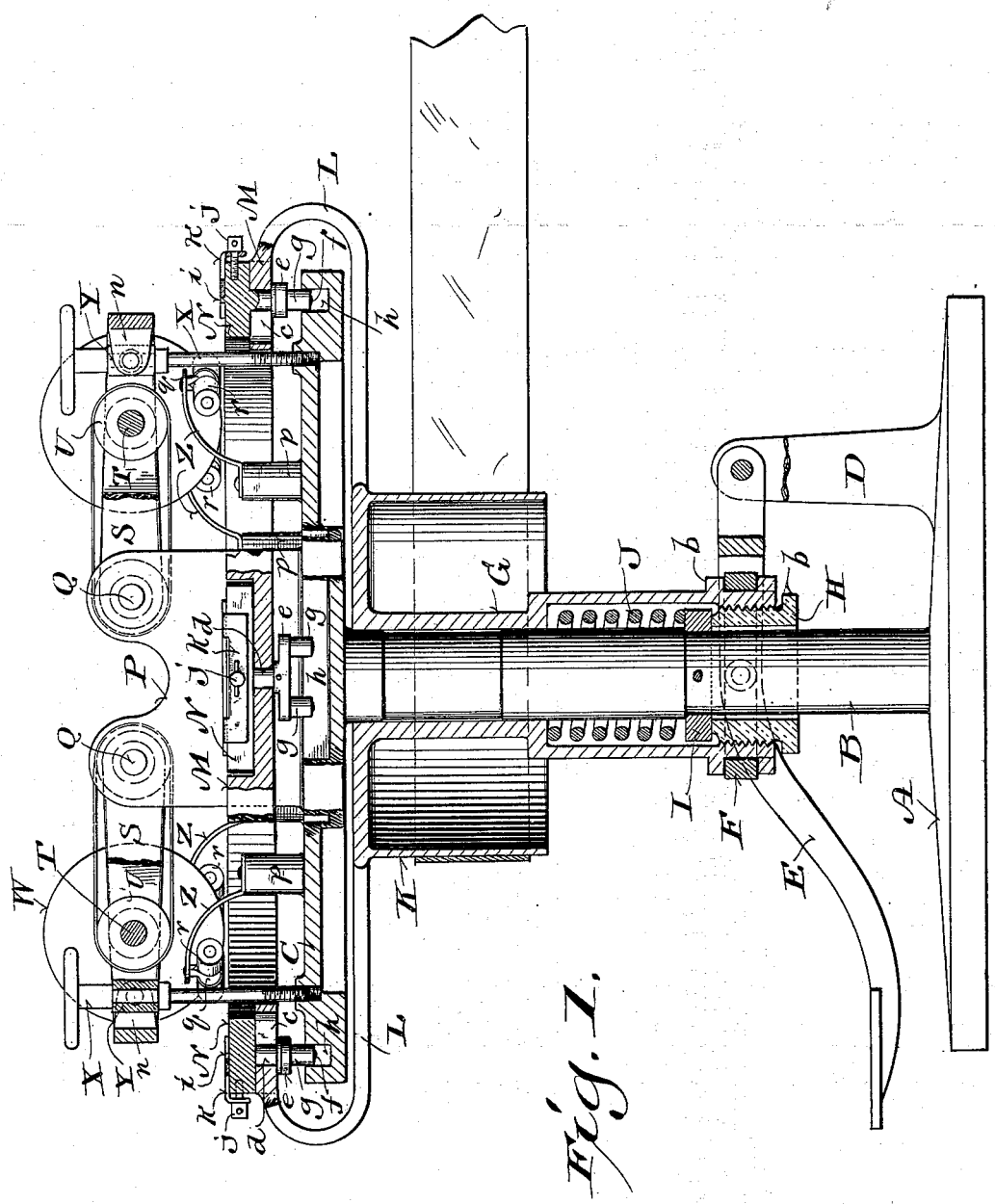

Fig. 1.

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Fig. 2.

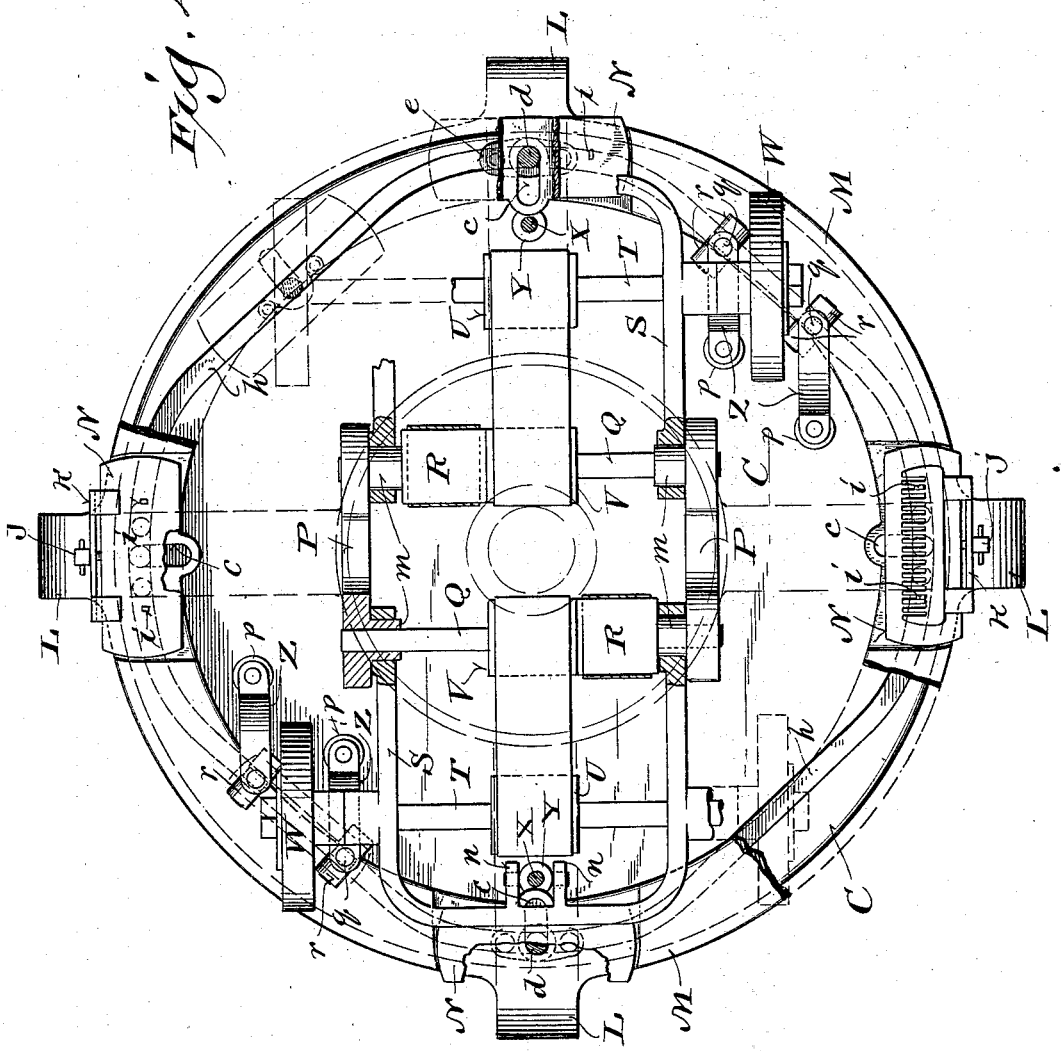

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Fig. 5.

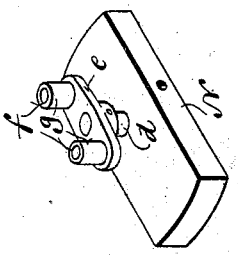


Fig. 4.

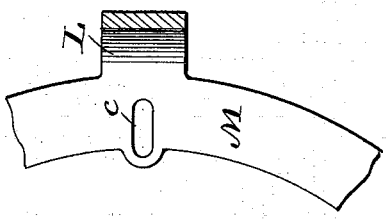
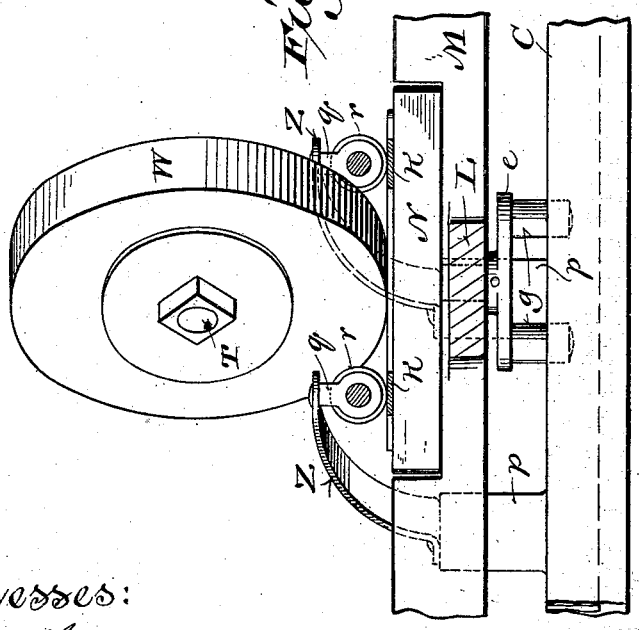


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH KOENIG, OF TWO RIVERS, WISCONSIN, ASSIGNOR TO THE ALUMINUM MANUFACTURING COMPANY, OF SAME PLACE.

GRINDING, POLISHING, OR BUFFING MACHINE.

SPECIFICATION forming part of Letters Patent No. 648,498, dated May 1, 1900.

Application filed August 28, 1899. Serial No. 728,672. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH KOENIG, a citizen of the United States, and a resident of Two Rivers, in the county of Manitowoc and State of Wisconsin, have invented certain new and useful Improvements in Grinding, Polishing, or Buffing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide simple economical rotary-feed machines for grinding, polishing, and buffing flat articles, especially metal toilet-combs; and it consists in certain peculiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings represents a machine constructed according to my invention as it would appear in vertical transverse section with broken parts; Fig 2, a plan view of the machine, having parts there of broken and in horizontal section; Fig. 3, a partly-sectional elevation of a portion of said machine; Fig. 4, a plan view of a portion of the carrier element of the aforesaid machine inverted, and Fig. 5 a perspective view of a detached work-holder inverted.

Referring by letter to the drawings, A indicates a base provided with a center post B, surmounted by a table C, and in pivotal connection with a standard D on the base is a treadle E, that is also in pivotal connection with a spanner-ring F between a pair of annular flanges *b* on an enlargement of a sleeve G, that fits loose on the center post. Engaging the lower end of sleeve G is a nut H, and fitting the center post B, under a shoulder of same, is a collar I, that rests on the nut. Supported on the collar, within the enlargement of the sleeve G, is a spiral spring J under tension. Adjustment of nut H serves to regulate tension of the spring J and the elevation of the sleeve G, for which said spring constitutes a yielding support.

In one piece with sleeve G or otherwise made to turn therewith is a pulley K for a driving-belt, and radiating from the upper end of the pulley are curved arms L, supporting a horizontal annular carrier M above the aforesaid table. The carrier is provided at intervals with recesses for work-holders N, and radial slots *c* in said carrier central of its recesses are engaged by stems *d*, depending from the work-holders.

Fast on each work-holder stem is a plate *e*, and depending from the plate in opposite directions from said stem are studs *f*, upon which antifriction-rollers *g* are arranged. The rollers *g* engage an endless alternately straight and curved guide-groove *h* in the upper side of the table C, this groove being deep enough to permit lowering of the carrier M when the treadle E is depressed.

Each work-holder herein shown is an angular block, provided at intervals longitudinally thereof with upwardly-projecting lugs *i*, that fit interstices between teeth of a comb supported on said block, and loose on an adjusting-screw *j*, engaging the aforesaid block, is an angle-plate *k*, that bears against the back of the comb to clamp the same against said lugs.

From the foregoing it will be understood that the work-holders N have intermittent radial shift on their carrier M when the latter is rotating and that said work-holders are at times parallel to the straight portions of the guide-groove *h* in the stationary table.

Rising from table C are parallel standards P, provided with inwardly-extending studs *m*, and mounted in the standards central of the studs are spindles Q, provided with pulleys R for driving-belts. Loose on the standard-studs *m* are yokes S, provided with bearings for arbors T, and fast on the arbors are pulleys U, driven at high speed by belts that are also trained on pulleys V, fast to the spindles aforesaid. Fast on arbors T, outside the yokes S, are wheels W, suitable for grinding, polishing, or buffing operations, it being practical to organize the machine for any one or more of these operations, said wheels being positioned to operate in a direction crosswise of the combs or other material on the work-holders when the latter are parallel with straight portions of the endless guide-groove in the table of the machine.

Set-screws X, engaging tapped openings in table C, are loose in blocks Y, having swivel connection with branches *n*, extending inward from the outer ends of yokes S, these blocks being intermediate of stops on said screws. By operating the screws the yokes

are adjusted to bring wheels W in position to work upon the material to be ground, polished, or buffed.

Extending upward from table C in opposite directions from each of the wheels W are studs *p*, and a bow-spring Z is made fast at one end to each stud. Suspended from the free end of each bow-spring is a hanger *q* for pressure-rollers *r*, that bear upon material fed under the aforesaid wheels. The pressure-rollers operate to check lifting tendency of the work-holders and material thereon, and by depressing treadle E the carrier M, with all of said work-holders, will be lowered to prevent contact of wheels W with said material.

In matters of mechanical detail the machine herein set forth may be more or less varied without departure from the scope of my invention.

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

1. In a grinding, polishing or buffing machine, a rotatory carrier adjustable in the direction of its axis, work-holders supported by the carrier, grinding, polishing or buffing wheels facing said carrier at intervals thereof; and means for causing the work-holders to move on straight lines opposite said wheels.

2. In a grinding, polishing and buffing machine, a rotatory carrier, work-holders supported by the carrier, grinding, polishing or buffing wheels facing the carrier at intervals thereof; means for causing the work-holders to move on straight lines opposite said wheels, and other means under control of the machine operator for instant discontinuance of contact of all the work and wheels.

3. In a grinding, polishing or buffing machine, a stationary table, a superimposed rotatory carrier having treadle-controlled connection with the table axially thereof, work-holders supported by the carrier, grinding, polishing or buffing wheels facing the carrier at intervals of the same; and means for causing the work-holders to move on straight lines opposite said wheels.

4. In a grinding, polishing or buffing machine, a rotatory carrier, work-holders supported by the carrier, grinding, polishing or buffing wheels facing said carrier at intervals thereof, means for causing the work-holders to move on straight lines opposite said wheels, and pressure-rollers arranged adjacent to the sides of said wheels to bear upon the material on said work-holders.

5. In a grinding, polishing or buffing machine, a rotatory carrier, work-holders in the form of blocks supported by the carrier and provided with outer lugs arranged at intervals longitudinally thereof to fit interstices between teeth of block-supported combs, clamp-plates in adjustable connection with the blocks to hold the combs against said lugs, grinding, polishing or buffing wheels facing said carrier at intervals thereof; and means for causing the work-holder blocks to move on straight lines opposite said wheels.

6. In a grinding, polishing or buffing machine, a stationary table, provided with upper standards, yokes in pivotal connection with the standards, table-engaging adjusting-screws in loose swivel connection with the yokes, drive-spindles supported by said standards, arbors carried by said yokes, means for communicating motion from the spindle to the arbors, grinding, polishing or buffing wheels fast on said arbors, an endless alternately straight and curved guide pertaining to the table, a superimposed rotatory radially-slotted carrier in vertically-adjustable sleeve connection with a center post of the table, work-holders supported by the carrier at intervals thereof, and means in conjunction with the guide, carrier and work-holders for effecting intermittent radial shift of said holders and travel of the same at times parallel to the straight portions of said guide opposite said wheels.

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

JOSEPH KOENIG.

Witnesses:
J. F. MAGEE,
W. J. WRIETH.