

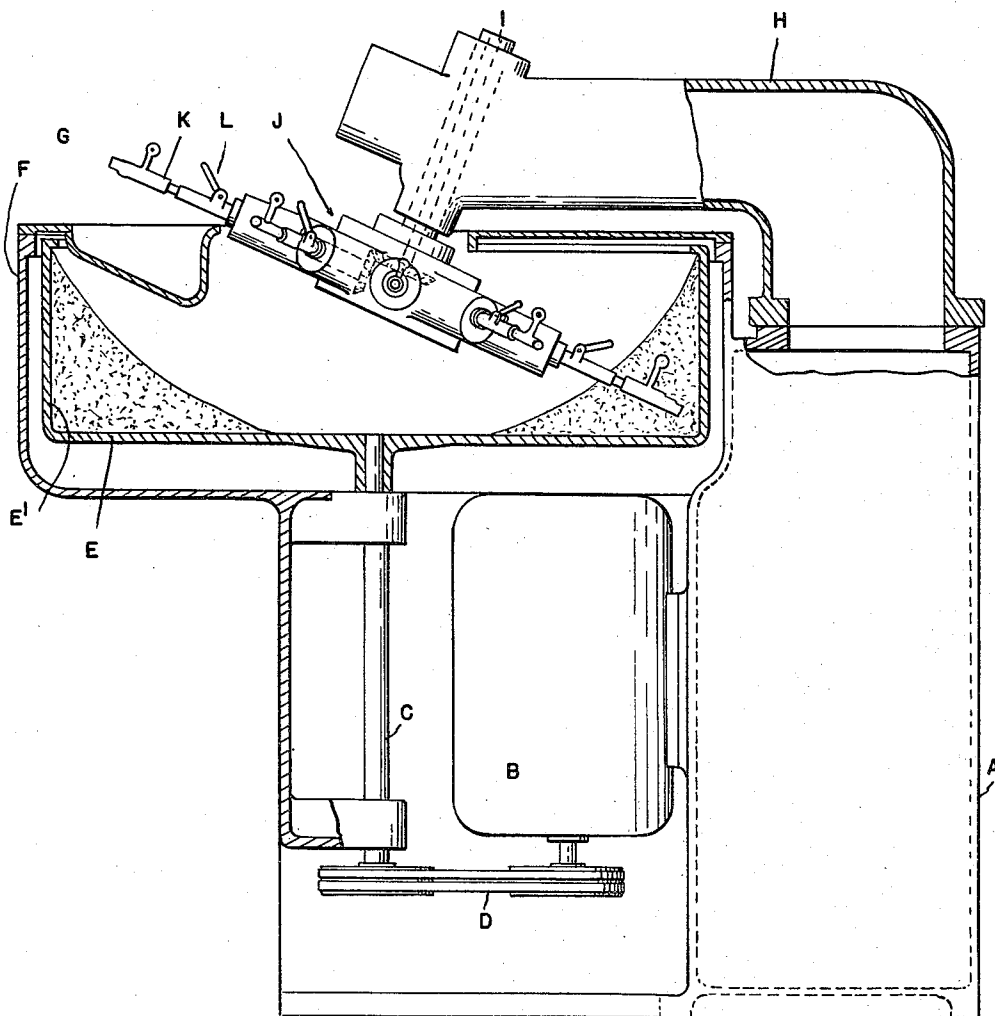
Oct. 15, 1940.

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2,218,353

METHOD AND MACHINE FOR POLISHING ARTICLES

Filed May 22, 1939



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UNITED STATES PATENT OFFICE

2,218,353

METHOD AND MACHINE FOR POLISHING ARTICLES

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Application May 22, 1939, Serial No. 275,108

5 Claims. (Cl. 51—7)

The invention relates to methods and apparatus for surface polishing, and has more particular reference to means for polishing small articles of more or less irregular surface contour. It is one of the objects of the invention to provide means for polishing with equal facility articles of various surface contours. It is a further object to effectively polish all portions of the surface and further to expedite the performance of the work. With these and various other objects in view, the invention consists first in the method, and second in the apparatus, as hereinafter set forth.

The drawing represents in vertical central section one form of apparatus for carrying out my improved method.

As illustrated, A is a frame on which is mounted a motor B for imparting rotary motion to a vertical shaft C through the medium of a pulley and belt transmission D. The shaft C has mounted thereon at its upper end a container E, which has peripheral walls E' concentric with the axis of the shaft. This container is open at the top and is preferably housed within an outer casing F provided with a top closure G. H is an arm extending laterally from the frame over the top of the housing F and having mounted on its outer end an inclined rotary shaft I, which extends downward through an opening in the closure G into the container E. On this shaft I is mounted a rotary work holder J, preferably having a series of radially extending rotary arms K, each of which has at its outer end clamping means L for attaching the work thereto. Because of the inclination of the shaft I the arms K rotate in an inclined plane, a portion of which lies within the container E while another portion is outside thereof. The closure G is suitably cut away to avoid interference with the work holder during the rotary movement thereof. Any suitable means, such as indicated in dotted lines, is provided for rotating the shaft I and simultaneously imparting rotary motion to each of the arms K.

With the construction as described in operation, granular abrasive material or other polishing material is placed within the container E, and when rotary motion is imparted to said container this material will be compacted against the peripheral wall by centrifugal action. The articles to be polished are successively engaged with the arms K when extending outside of the container and by the rotation of the work holder these articles will be carried down into the container and through a path intersecting the abrasive material therein. Because of the high

speed of rotation of the container the abrasive material is carried over the surface of the article, while the revolution of the arm will expose all portions of the surface equally to the abrasive action. Thus, the articles will be successively passed through the abrasive material and then outward to a position where they may be removed and replaced by other articles to be polished.

While I have illustrated only one specific form of apparatus, it will be obvious that various modifications may be made, all of which will fall within the scope of my invention. The essential features are the rotation of the polishing material and compacting of the same by centrifugal action, and the placing of the articles to be polished in the path of the rotating material, so as to expose all portions of the surface of each article to the polishing action. This action differs from that produced by the carrying of the abrasive materials in an air blast, for in this each abrasive particle is separate from the others and produces by its impact a pitting action. With my method, on the contrary, the abrasive particles or other particles of polishing material being held in a mass, will only produce a rubbing or burnishing action similar to that of a buffing wheel.

What I claim as my invention is:

1. A machine for polishing articles comprising a rotary container for granular abrasive material having a peripheral wall concentric with the axis of rotation, means for revolving said container at high velocity to compact said granular abrasive material against said peripheral wall by centrifugal force, a work carrier revoluble about an axis oblique to the axis of said container and passing through a path partly without and partly within the container, and means for successively mounting articles to be ground on the portion of said carrier without said container, whereby they will be carried through a path intersecting the path of the abrasive material within the container.

2. A machine for polishing articles comprising a rotary container for granular abrasive material having a peripheral wall concentric with the axis of rotation, means for revolving said container at high velocity to compact said granular abrasive material against said peripheral wall by centrifugal force, a work carrier revoluble about an axis oblique to the axis of said container and passing through a path partly without and partly within the container, means for successively mounting articles to be ground on the portion

of said carrier without said container, whereby they will be carried through a path intersecting the path of the abrasive material within the container, and means for rotating each article while passing through the abrasive material to expose all portions of the surface thereof to abrasive action.

3. A machine for polishing articles comprising a container for granular abrasive material rotatable at high velocity about a vertical axis and having a peripheral wall concentric therewith against which said granular material is compacted by centrifugal force, and a work carrier rotatable about an axis oblique to the axis of said container to travel through a path partly without and partly within the container, said carrier being provided with a series of radially extending rotary work holders for the mounting of articles to be polished and for carrying the same through a path intersecting the path of the abrasive material in said container.

4. A machine for polishing articles comprising a container for granular abrasive material mounted to revolve at high velocity about a vertical axis being provided with a peripheral wall

concentric with said axis and being open at the top, means for rotating said container to compact the abrasive material against said peripheral wall by centrifugal force, a rotary work carrier revoluble about an axis oblique to the axis of said container, a series of work holders extending radially from said carrier, means for rotating said work holders about their own axis during the rotation of said carrier whereby the articles to be polished may be successively engaged with said work holders in the portion of their orbit outside said container and then carried through a path intersecting the path of said abrasive material within the container.

5. The method of polishing articles comprising revolving at high velocity a mass of loose polishing material in and with a container to compact said material against the peripheral wall of the container by centrifugal force, and moving an article to be polished radially into the path of said revolving material and in revolving the article while so positioned about a substantially radially extending axis to expose all portions of the surface thereof to the polishing action.

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