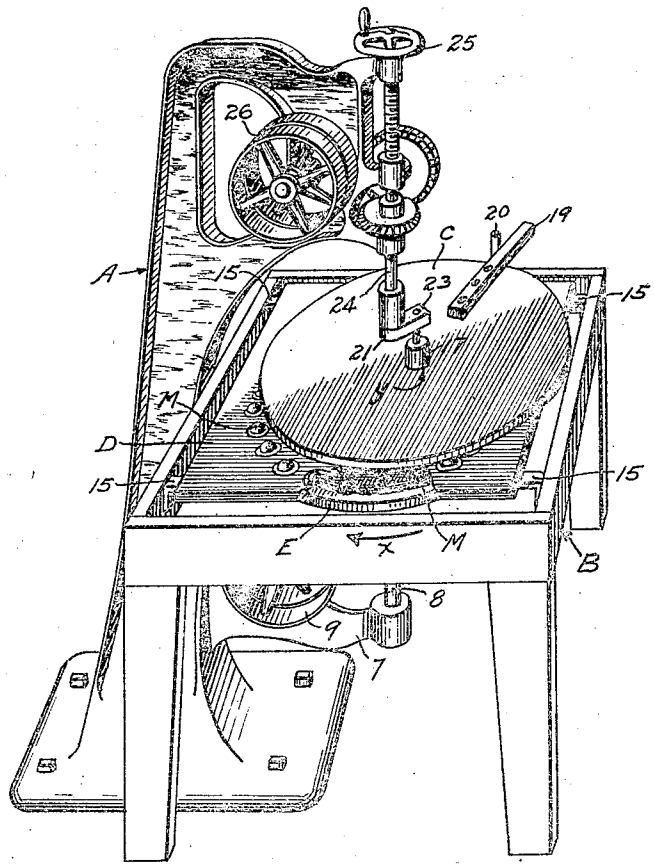
Nov. 25, 1924. 1,516,749

M. J. MOORE ET AL

POLISHING MACHINE

Filed April 15, 1922 2 Sheets-Sheet 1

Fig. 1.



INVENTOR.
Monta J. Moore
Mathew T. Meagher
BY Westall and Wallace
ATTORNEYS.

Nov. 25, 1924. 1,516,749

M. J. MOORE ET AL

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Fig. 2.

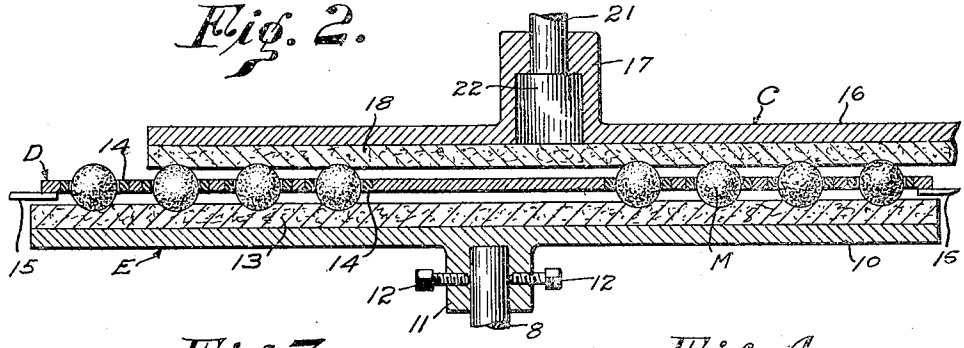


Fig. 3.

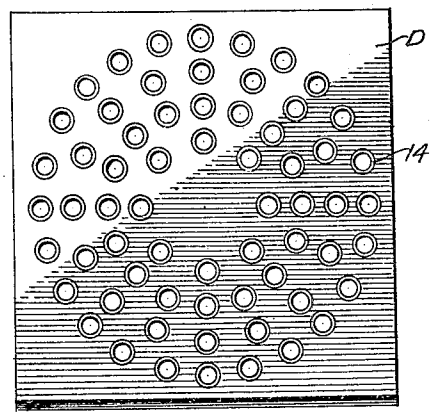


Fig. 4.

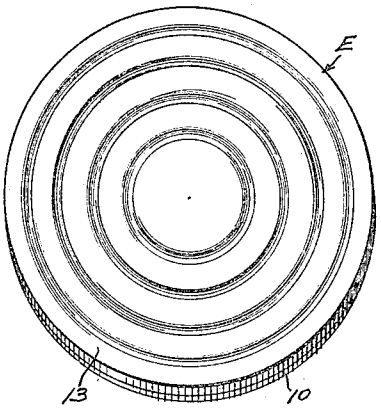


Fig. 6.

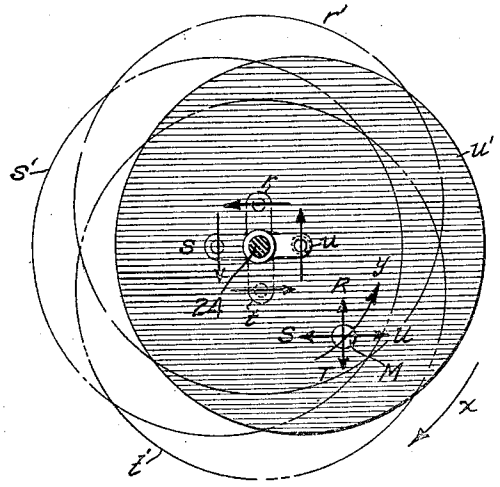
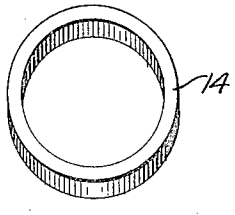


Fig. 5.



INVENTOR.
Monta J. Moore
Mathew T. Meagher
BY Mustall and Waller
ATTORNEYS.

Patented Nov. 25, 1924. 1,516,749

UNITED STATES PATENT OFFICE.

MONTA J. MOORE AND MATHEW T. MEAGHER, OF LOS ANGELES, CALIFORNIA.

POLISHING MACHINE.

Application filed April 15, 1922. Serial No. 553,164.

To all whom it may concern:

Be it known that we, MONTA J. MOORE and MATHEW T. MEAGHER, both citizens of the United States, and residents of Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in a Polishing Machine, of which the following is a specification.

This invention relates to a machine for polishing spherical bodies, and the embodiment shown herein is especially adapted for polishing marbles.

In polishing spherical bodies by revolving or rotating polishing disks against which the bodies are held, it is necessary to turn the bodies about various axes or diameters to bring every portion of the surfaces of the bodies in contact with the polishing disks. The primary object of this invention is to provide a device equipped with coacting plates, which will roll the bodies about various axes and will rub the surfaces of the bodies so as to polish them. It is another object of this invention to provide a machine of the character described, which is simple in structure, economical in operation and is durable.

These objects together with other objects and corresponding accomplishments are obtained by means of the embodiment of our invention illustrated in the accompanying drawing, in which:

Fig. 1 is a perspective view of a machine embodying our invention; Fig. 2 is an enlarged vertical section through the polishing disks; Fig. 3 is a perspective view of the marble carrier; Fig. 4 is a perspective view of the rotary polishing disk grooves formed therein after usage; Fig. 5 is an enlarged perspective view of a bushing used in the carrier; and Fig. 6 is a diagrammatic view to illustrate approximately the kinematics of the machine.

Referring more particularly to Fig. 1, a frame for the machine is indicated generally by A. A table for supporting the disks and marbles is indicated by B. The upper or wiping disk is indicated by C, the carrier plate by D and the rotary disk by E. The marbles are indicated by M.

Extending laterally from the frame A is a bearing bracket 7, in which is mounted a vertical shaft 8. Shaft 8 is rotated through a train of gears driven from a pulley 9.

The rotary disk E consists of a circular plate 10 having a hub socket 11 to receive the upper end of the shaft 8. Set screws 12 provide for fixing the plate to the shaft so that it will rotate therewith. Cemented to the upper face of plate 10 is a felt pad 13.

Disposed above the rotary disk is carrier plate D, it being preferably rectangular in shape. The carrier plate is bored with holes arranged in a series of concentric circles. These holes are for the purpose of receiving the marbles and have bushings 14. The body of the carrier plate is preferably of metal, whereas, the bushings are of a composition which will withstand the action of a polishing abrasive. The carrier is supported on the table B by resting on bracket 15.

The wiping disk C consists of a circular plate 16 having a hub 17. The hub is bored with a portion of enlarged diameter adjacent the lower face of the disk. Cemented or otherwise secured to the plate 16 is a felt pad 18. Secured to the wiping plate is an arm 19, see Fig. 1 for engaging a post 20 which is fixed to the table B. A crank pin 21 has an enlarged head 22 which is disposed in the enlarged portion of the bore of the hub. A crank arm 23 is mounted upon a shaft 24. Shaft 24 is mounted in bearings on a frame. Shaft 24 may be raised and lowered by means of the hand wheel 25 and is rotated through a train of gears from the pulley wheel 26.

The rotary disk E is geared to rotate in the direction of the arrow x, and the wiping disk C is geared to be revolved in the direction indicated by the arrow y. The arm 19 and post 20 prevent the wiping disk from being rotated about its own axis, but the disk is revolved about the axis of the shaft 24. To operate the device, the wiping disk C may be raised to permit marbles M to be placed in the holes in the carrier D. The wiping disk is then lowered into position and the shafts 8 and 24 are started rotating. Polishing material, depending upon the character of the material of which the marbles are made is supplied to the disks. The lower disk tends to rotate the marbles about axes which are radii having shaft 8 as their center and lying in the center plane of the carrier plate.

In Fig. 6 the direction of rotation of

the rotary disk is indicated by the arrow and the direction of revolution of the wiping disk is indicated by the arrow y. A marble is indicated by M. Four positions of the wiper disk crank pin are indicated by r, s, t, u, and the corresponding positions of the wiper disk by r', s', t', u'. The arrows about the marble point in the directions the wiper disk is moving at each of the positions r', s', t', u'. These arrows are correspondingly marked R, S, T, U. The indications are only approximate as they assume that the diameter in which the arm 19 lies always moves parallel to itself. It will be noted that the diameter of rotation of the marble as affected by the wiping disk rotates about a vertical axis. There is a force acting to continuously change the diameter about which the marble rotates. The rotary disk tends to rotate the marble about a diameter which differs from the diameter aforementioned. The result is a slippage or sliding of the disks over the surface of the marble. This is a progressive slippage which in effect travels over the entire surface of the marble, effecting a uniform polishing of the marble's surface.

What we claim is:

1. A machine of the character described comprising a rotary polishing disk, a non-rotatable but revoluble wiping plate spaced from said rotary disk, said disk and said plate being spaced apart by and bearing upon spherical bodies to be polished, and a stationary carrier plate having separate circular body retaining apertures to maintain each of said bodies out of contact with one another and to permit universal rotation thereof.

2. A machine of the character described comprising a rotary polishing disk, a revoluble wiping plate, said disk and said plate being spaced apart by and bearing upon spherical bodies to be polished, a stationary carrier plate having independent body retaining apertures with rubber rings to maintain said bodies against linear movement and to permit universal rotation thereof, and means to revolve and rotate respectively said plate and said disk in opposite directions.

In witness that we claim the foregoing we have hereunto subscribed our names this 31st day of March, 1922.

MONTA J. MOORE.
MATHEW T. MEAGHER.