

(No Model.)

P. L. LORD.

COMBINED PENCIL SHARPENER AND ERASER CLEANER.

No. 575,964.

Patented Jan. 26, 1897.

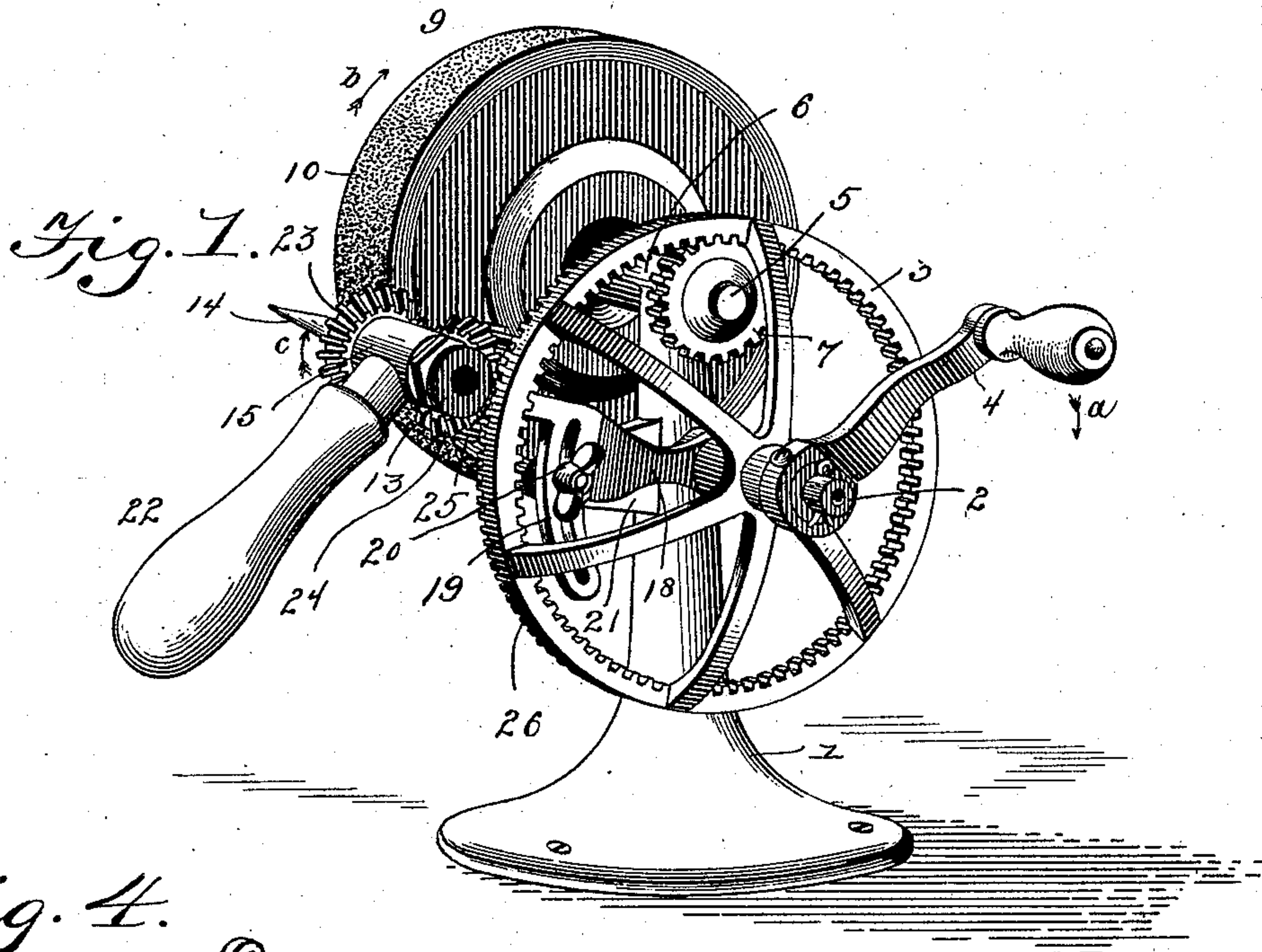


Fig. 4.

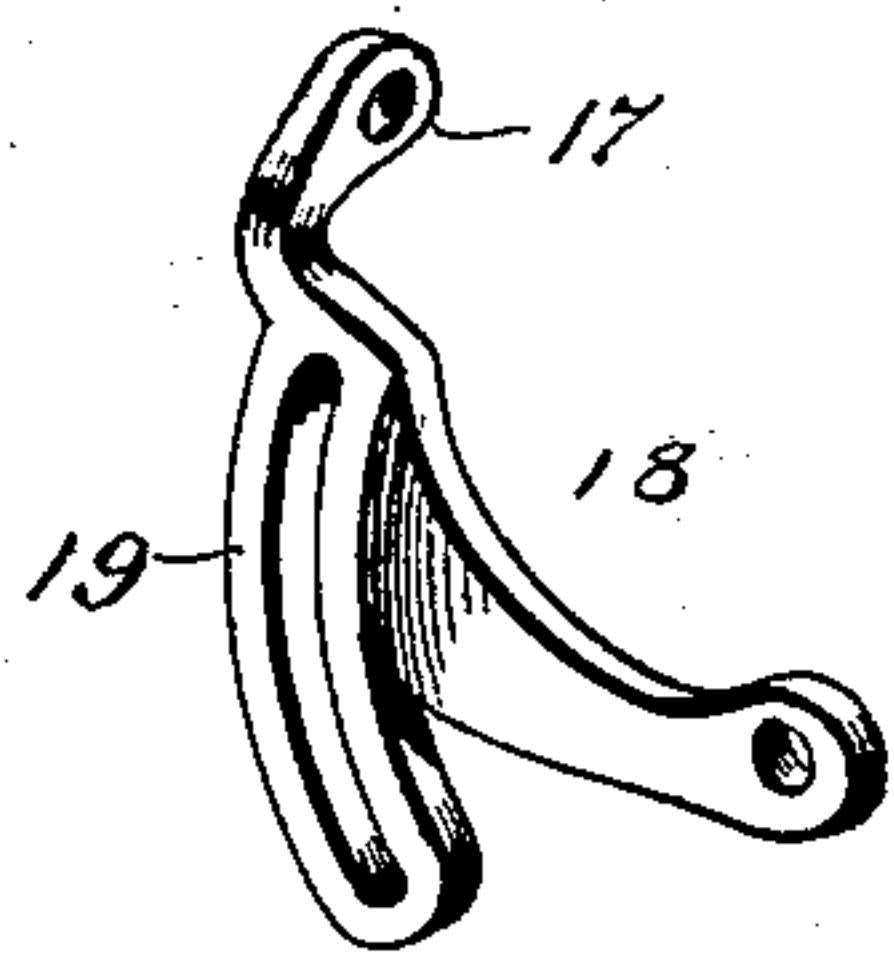


Fig. 3.

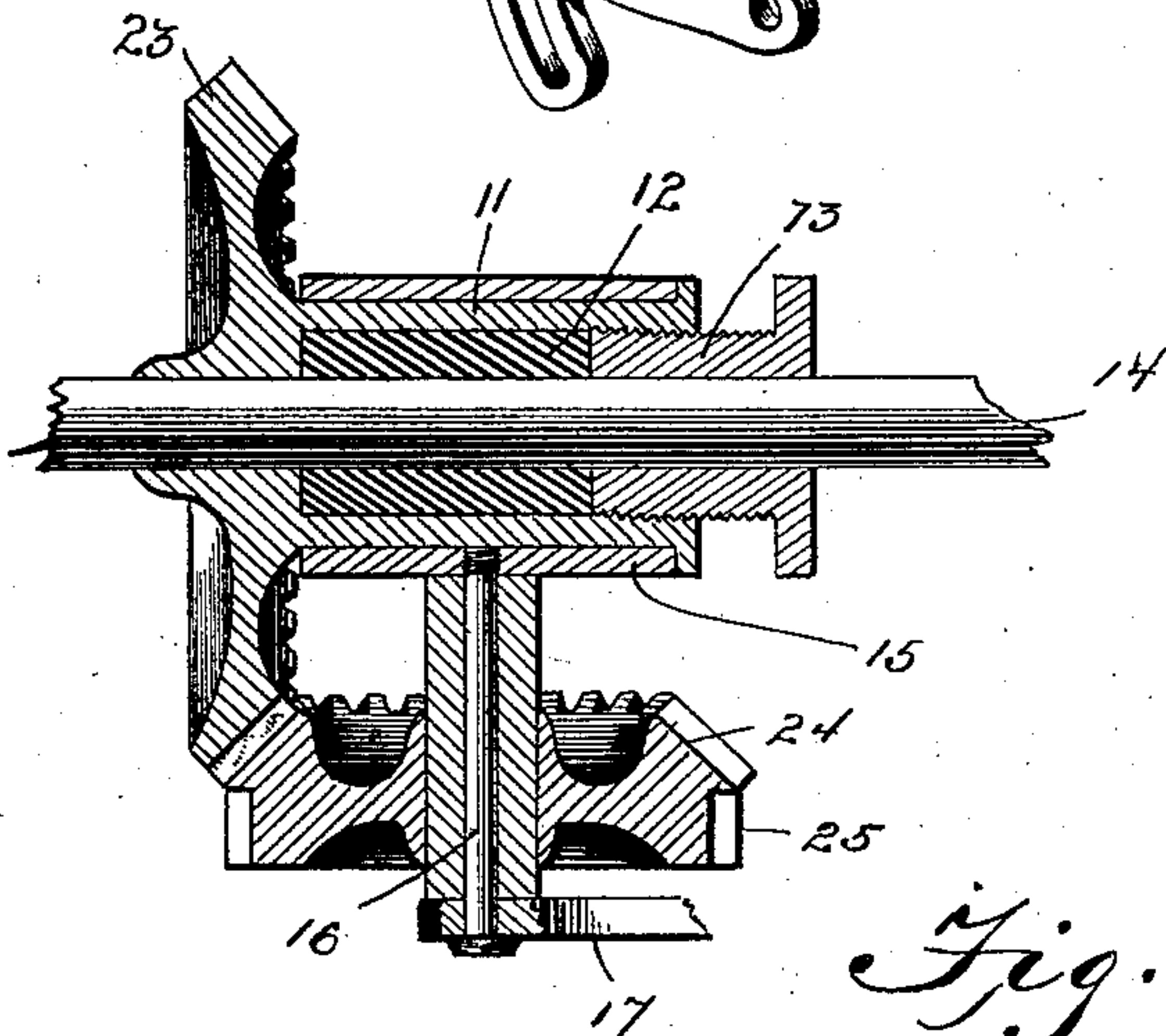
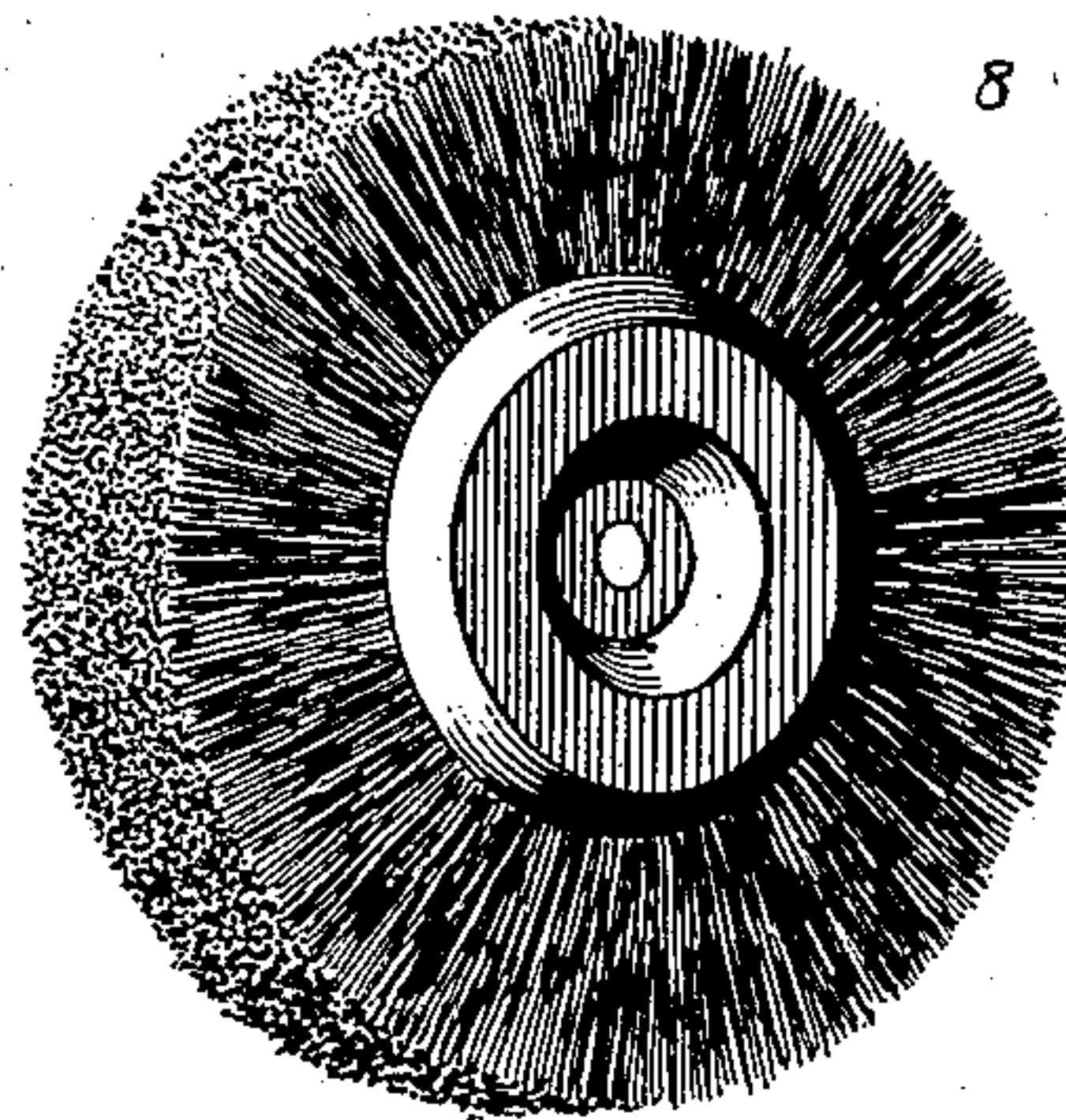


Fig. 2

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Witnesses

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UNITED STATES PATENT OFFICE.

PERCY L. LORD, OF RIVERSIDE, CALIFORNIA.

COMBINED PENCIL-SHARPENER AND ERASER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 575,964, dated January 26, 1897.

Application filed September 17, 1896. Serial No. 606,146. (No model.)

To all whom it may concern:

Be it known that I, PERCY L. LORD, a citizen of the United States, residing at Riverside, in the county of Riverside and State of California, have invented a new and useful Combined Pencil-Sharpener and Eraser-Cleaner, of which the following is a specification.

My invention relates to a combined pencil-sharpener and blackboard-eraser cleaner, and has for its object to provide efficient means for sharpening pencils mechanically and removing chalk-dust from blackboard-erasers without the inconvenience to the operator, as in the present practice, due to flying dust.

The usual method of cleaning blackboard-erasers, such as those employed in schools, is to strike the faces of two erasers together repeatedly; but it has been found that the flying dust occasioned by this operation is a menace to the health of the operator, from the fact that it is inspired and accumulates in the lungs and throat.

A further disadvantage of the above-mentioned method of cleaning erasers is that the operation is slow and becomes tedious when a great number of erasers are to be cleaned; and hence it is my object to provide such means for accomplishing the object named as will materially facilitate this operation and at the same time enable pencils to be sharpened by the same apparatus.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a machine embodying my invention with the parts arranged for sharpening pencils. Fig. 2 is a detail sectional view of the pencil-holder and the means for communicating motion thereto. Fig. 3 is a detail view in perspective of the rotary brush which forms one of the interchangeable abrading members. Fig. 4 is a detail view of the swinging bracket or arm by which the pencil-holder is supported.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The machine embodying my invention con-

sists, essentially, of a standard 1, having a stub-shaft 2, upon which is mounted a drive-wheel 3, having an operating crank or handle 4, said driving-gear being provided with internal gear-teeth, and a driven shaft or arbor 5, mounted in a suitable bearing 6 at the upper end of the standard and having a pinion 7 to mesh with the internal teeth of the driving-gear, said driven shaft or arbor being adapted to carry an abrading member for rotation in contact with the object upon which it is desired to operate. The pinion is arranged to mesh with internal teeth of the driving-gear in order to insure the rotation of the driven shaft or arbor, and hence of the abrading member, in the same direction as the driving-gear, whereby when the operating-handle is turned to the right, as indicated by the arrow *a* in Fig. 1, the abrading member will receive rotation in the direction of the arrow *b* of said figure, or "from" the operator who is actuating the driving-gear. The object of this is to cause dust or other products of the abrading operation to fly "from" rather than "toward" the operator, and thus, in case the eraser-cleaning brush 8 is attached to the driven shaft or arbor, cause the particles of chalk removed thereby from an eraser to be projected in a direction contrary to that necessary in order to reach the operator. This abrading-brush is provided with a continuous abrading-surface formed of bristles or the equivalent thereof, and which may consist of the ordinary brush-bristles or wood-fiber.

In connection with the machine embodying my invention I also employ an interchangeable abrading member 9, of which the abrading-surface 10 consists of emery or sand paper or the equivalent thereof, the same being preferably applied in concentric layers, as indicated, whereby they may be successively removed as they are worn to present new abrading-surfaces. The abrading member 9 is designed especially for use in sharpening pencils and the like, and in connection therewith I employ a pencil-holder to insure uniformity of operation, said holder consisting, essentially, of a tube 11, inclosing a friction ring or sleeve 12, held in place by a cross-sectionally annular adjusting nut or guide 13, of which the bore registers with that of the

friction ring or sleeve for the reception of a pencil 14. The pencil-holder is mounted in a sleeve-bearing 15, having a stem 16, which in turn is mounted upon an extension 17 of an arm or bracket 18. (Shown in detail in Fig. 4.) This arm or bracket is preferably fulcrumed upon or concentric with the stub-shaft 2, and hence eccentrically with the abrading member, and is capable of swinging movement or adjustment to vary the interval between the pencil-holder and the contiguous point of the abrading-surface.

By reason of the stem 16 the holder is capable of pivotal movement, whereby the extremity of a pencil arranged therein may be brought into contact with the surface of the abrading member in any position of the supporting arm or bracket, it being understood that the greater the distance between the holder and the contiguous point of the surface of the abrading member, due to the adjustment of the arm or bracket, the farther the holder must be turned in order to bring the extremity of the pencil in contact with said surface. Hence it will be understood that by adjusting the arm or bracket to vary the interval between the holder and the contiguous point of the surface of the abrading member a greater or less angular adjustment of said holder with relation to the surface of the abrading member will be necessary in order to bring the extremity of the pencil in contact with said surface, and accordingly the position of the axis of the pencil-holder will vary with relation to the plane of the contiguous portion of the surface of the abrading member in accordance with the adjustment of the supporting arm or bracket. Inasmuch as the length of bevel produced in the operation of sharpening upon the end of the pencil will vary according to the angular position of the axis of the holder with relation to the surface of the abrading member, it will be understood that a long or a short point may be formed upon the pencil by the adjustment of the swinging arm or bracket.

In order to secure the arm or bracket at a desired adjustment in order to secure uniformity of operation, I provide said arm with a segmental slot 19, through which extends a thumb-screw 20 to engage a lateral arm 21 on the standard, said slot being concentric with the fulcrum of the arm or bracket.

In order to facilitate the operation of the pencil-holder and turn it upon its axis, formed by the stem 16, with facility in order to bring the extremity of a pencil engaged thereby into contact with the abrading surface, I provide the sleeve-bearing 15 with a handle 22, as shown clearly in Fig. 1, it being understood that the pencil, after insertion into the holder, is held from longitudinal displacement by frictional contact with the interior surface of the ring or sleeve 12, which is preferably constructed of rubber or its equivalent and is adapted to be compressed more or less to vary the extent of frictional contact by means of

the adjusting-nut 13, which is provided with a milled head. I have found, also, that good results may be obtained by causing rotation of the pencil-holder simultaneously with the abrading member, and hence to the tubular portion 11, which is mounted for rotation in the sleeve-bearing 15, I affix a gear 23, which meshes with a pinion 24, mounted concentrically with the stem 16, said gear and pinion being of the beveled type, and the pinion being provided with an integral extension forming a spur-wheel 25, which meshes with side gear-teeth 26 on the driving-gear. Hence the rotation of the driving-gear imparts rotary motion to the abrading member in the direction indicated by the arrow *b* and to the pencil-holder in the direction indicated by the arrow *c*, whereby the contiguous sides of the abrading member and a pencil held in the holder are moved in opposite directions, thus expediting the operation of sharpening the pencil.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A machine of the class described having a rotary abrading member and means for communicating motion thereto, and a holder having a combined swinging and pivotal movement, the swinging movement being in a path eccentric with relation to said rotary member, and the pivotal movement being about an axis perpendicular to the axis of said swinging movement, substantially as specified.

2. A machine of the class described having a rotary abrading member and means for communicating motion thereto, a swinging arm or bracket mounted eccentrically with the abrading member, and a pencil-holder pivotally mounted upon said arm or bracket with its axis at right angles to the same, substantially as specified.

3. A machine of the class described having a rotary abrading member and means for communicating motion thereto, a swinging arm or bracket mounted eccentrically with the abrading member, and a pivotal pencil-holder mounted upon the arm or bracket with its axis at right angles to that of said arm or bracket, and means for securing the arm or bracket at the desired adjustment to vary the interval between the holder and the contiguous point of the surface of the abrading member to necessitate greater or less pivotal movement of said holder to bring an engaged pencil in contact with said surface, substantially as specified.

4. A machine of the class described having a rotary abrading member and means for communicating motion thereto, a swinging arm or bracket mounted eccentrically with the abrading member, a pencil-holder pivotally mounted upon the arm or bracket for

swinging movement in a plane at right angles to the same, said holder having a tubular rotary member, and means for operating the rotary member, substantially as specified.

5 5. A machine of the class described having a rotary abrading member and means for operating the same, and a pencil-holder mounted for a combined swinging and pivotal movement to vary the angular position of an engaged pencil with relation to the surface of
10 the abrading member, said holder having a friction-ring, and an adjusting device for varying the compression of said ring to regulate its frictional contact with an engaged
15 pencil, substantially as specified.

6. A machine of the class described having a rotary member and means for communicating motion thereto, a swinging arm or bracket and means for securing the same at

the desired adjustment, a pencil-holder comprising a bearing-sleeve pivotally mounted upon the extremity of said arm or bracket, and a tubular member mounted for rotation in the bearing-sleeve for the reception of a pencil, said tubular member having a compressible friction-ring and an axially-adjustable nut for varying the compression thereof, and means connected with the operating devices of the abrading member for communicating rotary motion to the tubular member of the holder, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

PERCY L. LORD.

Witnesses:

V. L. GEACH,

WM. A. CORRELL.