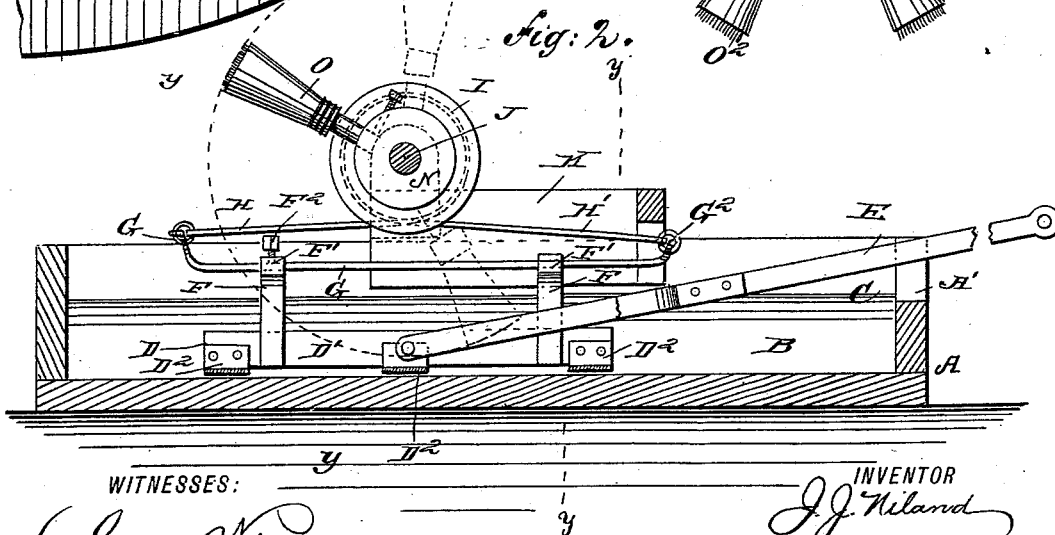
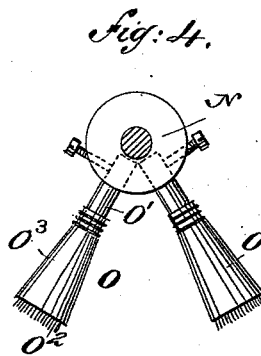
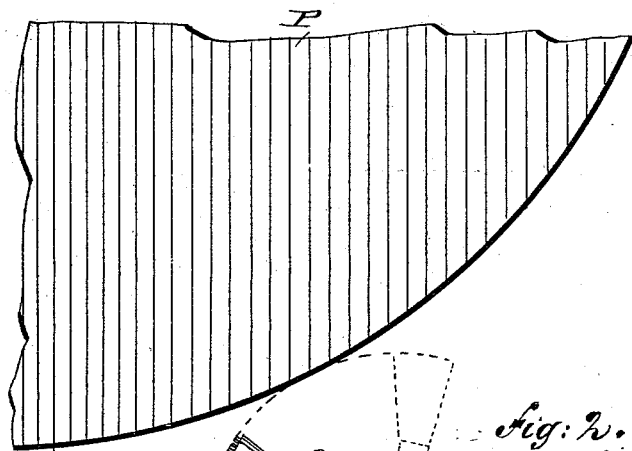
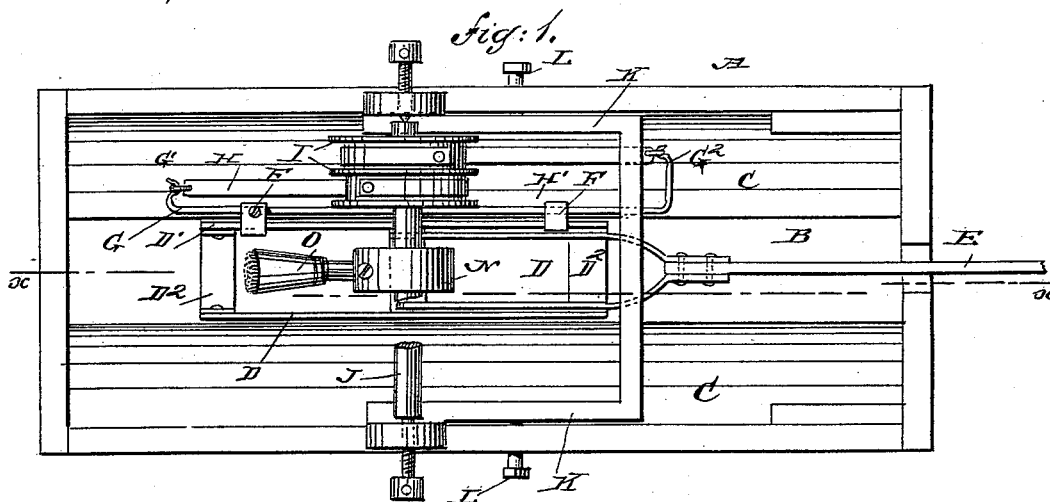


(No Model.)

2 Sheets—Sheet 1.

J. J. NILAND.
APPARATUS FOR AGITATING ABRADING AND POLISHING MATERIAL, &c.
No. 420,243.

Patented Jan. 28, 1890.



WITNESSES:

Chas. Vida
C. Sedgwick

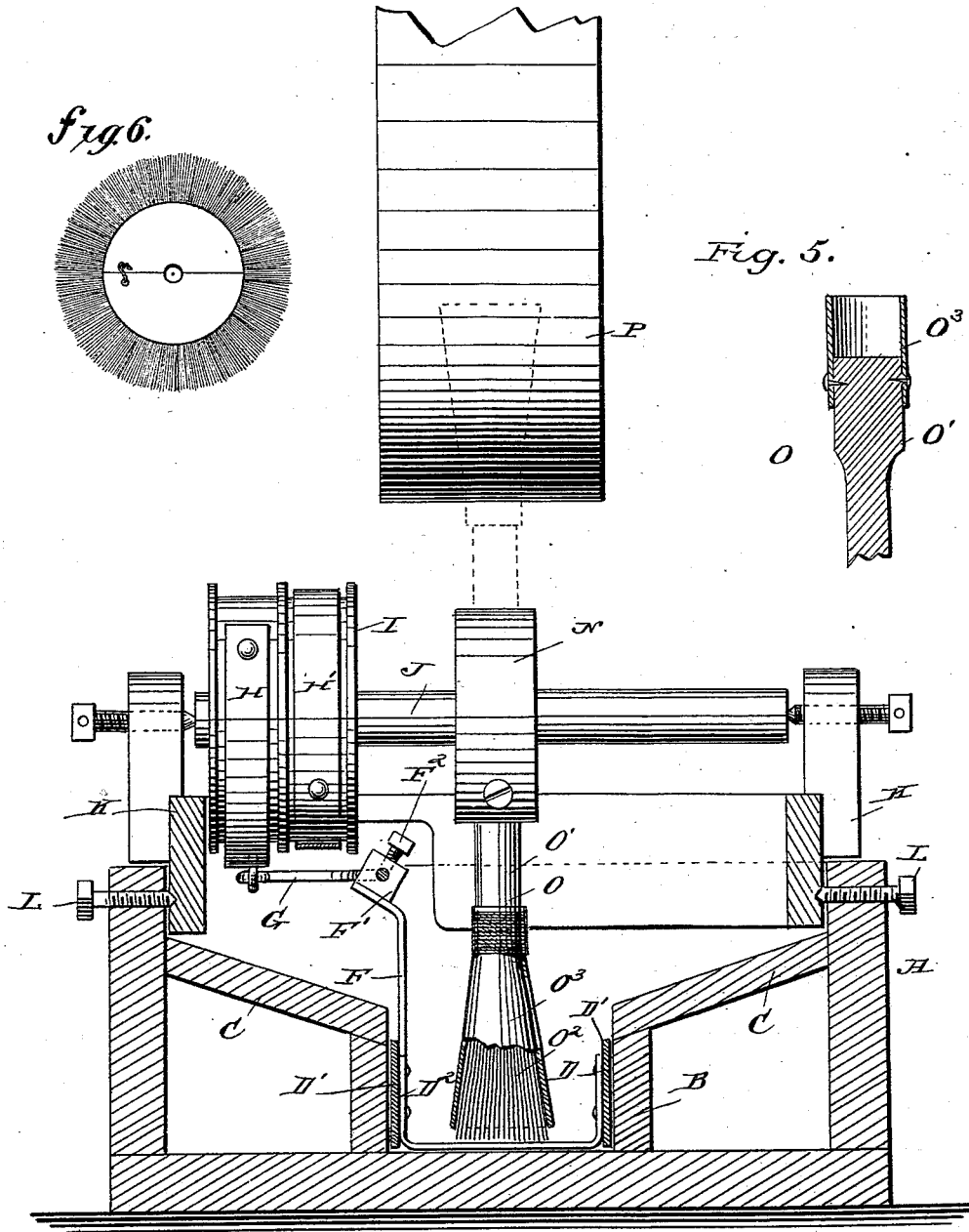
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Fig. 3.

Fig. 6.

Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES J. NILAND, OF PORT JERVIS, NEW YORK.

APPARATUS FOR AGITATING ABRADING AND POLISHING MATERIAL, &c.

SPECIFICATION forming part of Letters Patent No. 420,243, dated January 28, 1890.

Application filed February 7, 1889. Serial No. 298,951. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. NILAND, of Port Jervis, in the county of Orange and State of New York, have invented a new and Improved Apparatus for Agitating Abrading and Polishing Material and Supplying the Same to Cutting and Polishing Tools, of which the following is a full, clear, and exact description.

The invention relates to machines for cutting and polishing glassware by a revolving wheel run at a very high rate of speed and in contact with which the glass article is held by the operator.

The object of the invention is to provide a new and improved apparatus for agitating the abrading and polishing material to prevent the latter from settling in the reservoir, and for applying the abrading and polishing material evenly and frequently to the cutting and polishing tool.

The invention consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement. Fig. 2 is a sectional side elevation of the same on the line *x x* of Fig. 1, a portion of a polishing-wheel being shown. Fig. 3 is an enlarged transverse section of the improvement on the line *y y* of Fig. 2. Fig. 4 is a side elevation of an applier with two brushes. Fig. 5 is a sectional side elevation of a modified form of the applier, and Fig. 6 is another modified form of applier.

In machines as heretofore constructed for supplying abrading and polishing material to the cutting and polishing tool the brush is caused to revolve, passing through the polishing material held in the reservoir, and then to the tool and back again through the material, and so on. The brush at every revolution thus comes but once in contact with the cutting and polishing wheel, and consequently supplies only a limited quantity of the polishing material. The polishing material or paste held in the reservoir on account of its

nature quickly settles, as the only agitation it receives comes from the brush passing through the material, which occurs only once for every revolution of the brush. The consequence is that the brush dips into only a weak solution of the polishing material and supplies this weak solution to the revolving wheel. To overcome these objectionable features is the object of the invention presently to be described.

The improved apparatus is provided with a box A, in the middle of which is formed a trough B, to the sides of which are secured the outwardly-flaring boards C, resting at their outer ends against the sides of the box A. The abrading and polishing material is placed in the trough B. In the trough B is held to slide forward and backward an agitator D, comprising the two longitudinally-extending sides D', connected with each other at suitable intervals by cross-pieces D², resting on the bottom of the trough B. In the middle of the agitator D are pivoted the ends of a forked arm E, extending through a slot A' in one end of the box A, and connected with a suitable mechanism for imparting a forward and backward motion to the said arm, whereby the agitator D slides forward and backward in the trough B.

To one of the sides D' of the agitator D are secured the upwardly-extending arms F, each provided at its upper end with a bearing F', through which passes a rod G, adapted to be moved forward and backward to any desired position, and then fastened in place by a set-screw F², screwing in one of the bearings F'. The ends G' and G² of the rod G are bent outward, and are connected with the ends of the belts H and H', respectively, extending toward each other and passing onto the rim of a flanged drum I, to which the extreme ends of the said belts or bands H and H' are secured. As the bands H and H' are passed in opposite directions onto the said drum I, the latter when rotated causes one of the belts to wind upon the drum, while the other unwinds correspondingly from the same.

The drum I is secured on a transversely-extending shaft J, mounted to turn in suitable bearings formed on a frame K, held on the top of a box A, and secured in any de-

sired place on the same by set-screws L, screwing in the sides of the box A against the sides of the frame K. In the middle of the shaft J is secured a hub N, on which is held one or more applicers O, serving to carry the abrading and polishing material from the trough B to the cutting and polishing wheel P, mounted to rotate above the box A, as shown. The applicer O may be constructed as illustrated in Figs. 1, 2, 3, and 4, or as illustrated in Fig. 5.

The applicer, as illustrated in the first four figures, is provided with one or two arms O', secured in and extending radially from the hub N. On the outer end of each rod O' are secured the bristles O², which are covered on the outside by a cloth O³, so as to prevent the outer ends of the bristles from spreading. The outer edge of the cloth extends to within a short distance of the outer ends of the bristles, as shown. In the modification shown in Fig. 5 the bristles O² are entirely dispensed with, and the cloth O³ is fastened around the cylindrical end of the rod O' so as to project beyond it, thereby forming a cup. I may also use a circular brush secured on the shaft J, so that the bristles of this brush are in continuous contact with the periphery of the cutting and polishing wheel P. This brush I prefer to make as shown in Fig. 6, wherein it is made in two parts hinged together, so that it can be readily attached and detached from the shaft.

The operation is as follows: A forward and backward motion is imparted to the agitator D from the arm E, so that the abrading and polishing material contained in the trough B is constantly agitated by the said agitator. The forward and backward motion of the agitator causes a forward and backward motion of the rod G, whereby the belts H and H' cause the drum I to turn alternately forward and backward, so that a like motion is imparted to the shaft J and an up and down swinging motion to the applicer O. The outer end of the latter is thus passed down into the agitated abrading and polishing material, part of which will adhere to the applicer and be carried up by the same and placed on the periphery of the cutting and abrading wheel P. When moving upward, the applicer comes in contact with the periphery of the cutting and polishing wheel at one side, and when swinging downward the other side of the applicer O comes in contact with the periphery of the cutting and polishing wheel P, whereby the entire quantity of abrading and polishing material taken up by the applicer in the trough B is delivered to the wheel P.

If two brushes are used, as illustrated in Fig. 4, a double quantity of abrading and polishing material is delivered to the cutting

and polishing wheel P during every full stroke of the arm E.

The frame K is held longitudinally on the box A, so as to compensate for the wear on the outer ends of the applicers O.

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

1. The combination, with a cutting and polishing tool, of a trough for containing polishing material, an agitator mounted to slide forward and backward in the said trough, and an applicer mounted on the trough and operated from said agitator, substantially as shown and described.

2. The combination, with a trough for containing the polishing material to be supplied to the cutting-tool, of an agitator mounted to slide forward and backward in the said trough, and an applicer mounted to swing and operated from the said agitator, substantially as shown and described.

3. The combination, with a trough and an agitator mounted to slide in the said trough, of a rod supported on the said agitator, belts extending toward each other and connected at their ends with the said rod, a drum to which the other ends of the said belts are secured, a shaft carrying the said drum, and an applicer held on the said shaft, substantially as shown and described.

4. The combination, with a trough and an agitator mounted to slide in the said trough, of a rod supported on the said agitator, belts extending toward each other and connected at their ends with the said rod, a drum to which the other ends of the said belts are secured, a shaft carrying the said drum, an applicer held on the said shaft, and a frame carrying the said shaft, substantially as shown and described.

5. The combination, with a trough and an agitator mounted to slide in the said trough, of a rod supported on the said agitator, belts extending toward each other and connected at their ends with the said rod, a drum to which the other ends of the said belts are secured, a shaft carrying the said drum, an applicer held on the said shaft, and an adjustable frame carrying the said shaft, as set forth.

6. In an apparatus for applying abrading and polishing material to cutting and polishing tools, the combination, with a rock-shaft, of an applicer consisting of a rod secured to the shaft and having a flexible cup on its outer end, substantially as herein shown and described.

JAMES J. NILAND.

Witnesses:

JOHN J. RYAN,

MICHAEL J. LATHAM.