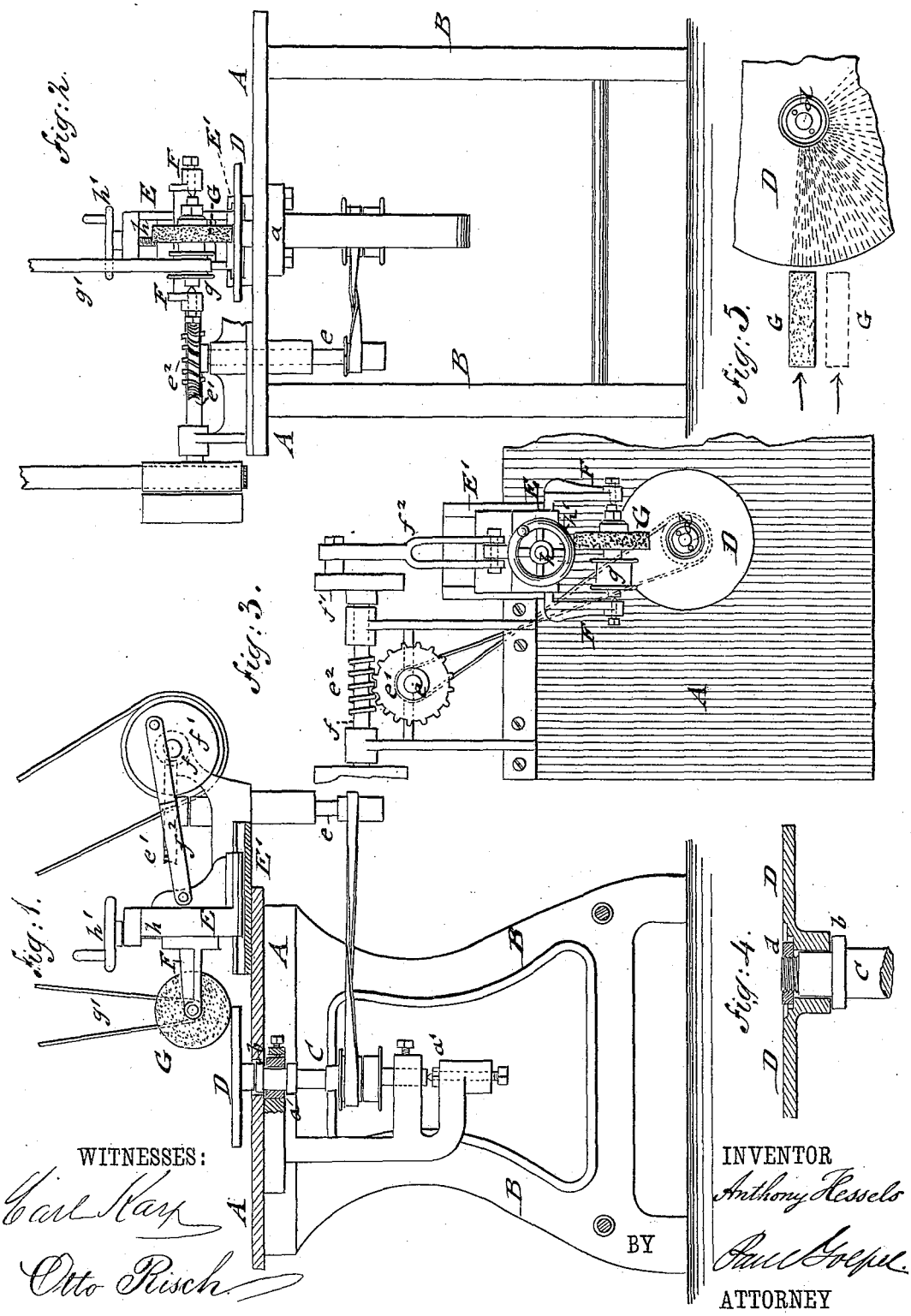
(No Model.)

A. HESSELS.

MACHINE FOR GRINDING THE LAPS OF POLISHING MACHINES.

No. 252,943. Patented Jan. 31, 1882.



UNITED STATES PATENT OFFICE.

ANTHONY HESSELS, OF NEW YORK, N. Y.

MACHINE FOR GRINDING THE LAPS OF POLISHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 252,943, dated January 31, 1882.

Application filed November 17, 1881. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY HESSELS, of the city, county, and State of New York, have invented certain new and useful Improvements in Machines for Grinding the Laps of Polishing-Machines, of which the following is a specification.

In the polishing of diamonds and other precious stones horizontally-revolving laps of iron or other metal are employed, by which the faces of the precious stones are polished off with the help of the dust of diamonds or other polishing-powder. The faces of these laps have to be frequently turned off on the lathe and then grained by hand, which requires considerable time and expense.

The object of this invention is to furnish for polishers of diamonds and other precious stones an improved machine by which the faces of the laps can be ground off and grained quickly and uniformly.

In the accompanying drawings, Figure 1 represents a side elevation, partly in vertical longitudinal section, of my improved machine for grinding the laps of polishing-machines. Fig. 2 is a front elevation of the same; Fig. 3, a plan view; Fig. 4, a detail vertical central section of the lap and its connection with the revolving spindle; and Fig. 5 is a top view of the lap, showing the position of the grinding-wheel at the beginning of its motion over the lap.

Similar letters of reference indicate corresponding parts.

In the drawings, A designates the table of my improved machine for grinding the laps of polishing-machines, which table is supported by standards B, of suitable strength, that are transversely connected by stay-rods.

At the center of the table A and below the same is supported in suitable step and neck bearings, *a a'*, a vertical spindle, C, the upper end of which is provided with a collar, *b*, upon which the lap D is placed, and secured thereto by means of a circular screw-nut, *d*, which is screwed to the upper threaded end of the spindle C. The spindle C receives rotary motion by pulley and cross-belt connection with an intermediate vertical shaft, *e*, which carries at its upper end a gear-wheel, *e'*, that meshes with a worm-wheel, e^2, of a horizontal shaft, *f*, to which motion is imparted by a belt-and-pulley connection from a counter-shaft overhead. By the revolutions of the horizontal shaft *f* the spindle is continuously but slowly moved around its axis.

To the end of the horizontal shaft *f* is applied a crank-disk, *f'*, which connects by a forked crank-rod, f^2, with a carriage, E, that is reciprocated by the shaft *f*, disk *f'*, and crank-rod f^2 in horizontal guideways E' of the table A. The carriage E supports in vertical guides the bracket-shaped supports F, which carry in conical bearing-pins at their outer ends the horizontal shaft of an emery grinding-wheel, G. The grinding-wheel G is rapidly revolved by means of a pulley, *g*, keyed to its shaft sidewise of the wheel G, and by a belt, *g'*, leading up to the counter-shaft overhead. The grinding-wheel G and its supporting-bracket are capable of vertical adjustment in upright ways of the carriage E by means of a vertical screw, *h*, having a hand-wheel, *h'*, at its upper end, as shown clearly in Figs. 1, 2, and 3.

By means of the hand-wheel the emery-wheel is adjusted accurately to the face of the lap, by which the same is ground off by the joint action of the rapidly-revolving grinding-wheel, the reciprocating motion of its carriage, and the axial motion of the lap.

The grinding-wheel G may be arranged either radially to the grinding-disk C, as shown in Fig. 5, or it may be arranged parallel to and sidewise of a line passing through its center, as shown in dotted lines in Fig. 5, in which latter case the grinding-wheel passes sidewise of the spindle when moving over the lap. This latter arrangement has to be used whenever the spindle passes through the lap. By the machine described the faces of the laps of polishing-machines may be rapidly ground off and properly grained, so as to do away with hand-labor for this purpose.

The machine is adapted for all establishments in which precious stones are polished, as the laps can thereby be ground off and grained more quickly and regularly than heretofore.

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

The combination of the vertical spindle C for carrying the lap to be ground off, the vertical

shaft e, means for connecting said shafts, gear e', worm e^2, shaft f, having crank-disk f', carriage E, crank-rod f^2, vertically-adjustable bracket-supports F, a shaft supported thereby, and the emery-wheel on said shaft, all substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ANTHONY HESSELS.

Witnesses:
PAUL GOEPEL,
CARL KARP.