J. K. KACEROVSKY.

Expanding Boring-Tools.

No. 136,736. Patented March 11, 1873.

Fig: 1

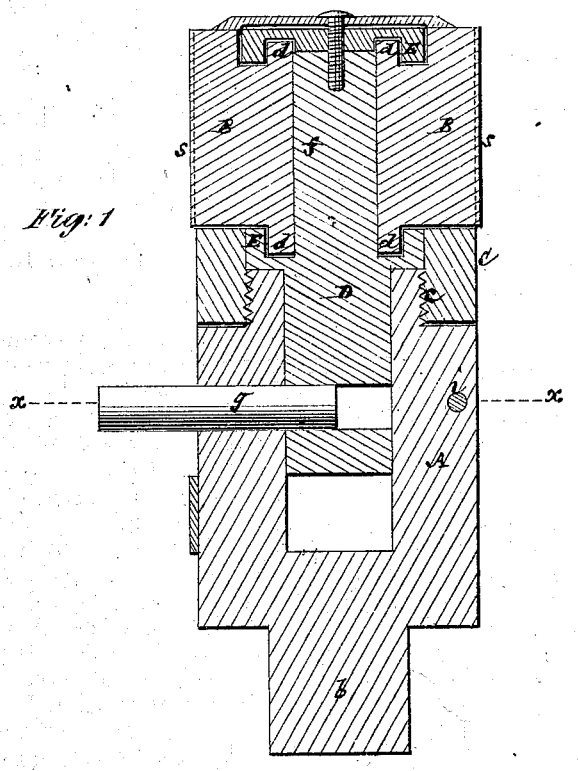


Fig: 2

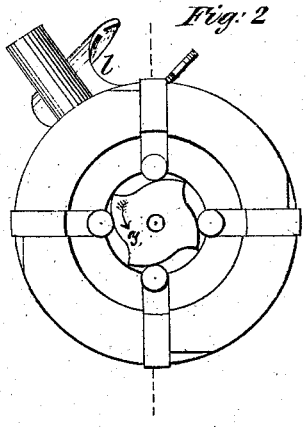


Fig: 3

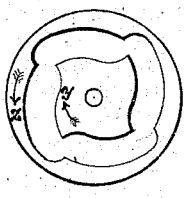
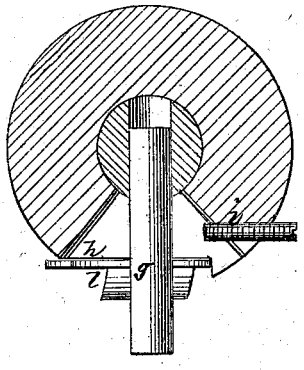


Fig: 4



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AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

JOSEPH K. KACEROVSKY, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN EXPANDING BORING-TOOLS.

Specification forming part of Letters Patent No. **136,736**, dated March 11, 1873.

To all whom it may concern:

Be it known that I, JOSEPH K. KACEROVSKY, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Expanding Tools, of which the following is a specification:

This invention consists in a novel construction of revolving expanding tool for turning, boring, drilling, or otherwise preparing or dressing interior surfaces, including the cutting of screw-threads, whereby great simplicity and efficiency are obtained as regards the in-and-out adjustment of the cutters, and support of the same when adjusted.

In the accompanying drawing, which forms part of this specification, Figure 1 represents a longitudinal section of an expanding tool constructed in accordance with my invention; Fig. 2, a front end or face view of the same, with a forward inner-grooved cam and cap-plate removed; Fig. 3, an inside face view of said cam; and Fig. 4, a transverse section on the line *x x*.

Similar letters of reference indicate corresponding parts.

A represents the main body of the tool, which may be carried by its shank *b*, in a lathe or other machine. B B are the cutters, fitted so as to slide or admit of radial expansion in or out of a cutter-carrier, C, and which may either be plain or chased on their cutting-edges *s s*, accordingly as the tool is required to cut plain or threaded surfaces. The tool may be fitted with any number of these cutters. The cutter-carrier C, which projects in front of the main body A, is connected with the latter by screw-thread *c*, or otherwise. D is a spindle or arbor, having its bearing concentrically within the body A and cutter-carrier C, and carrying or having attached to it a front and also a back inner-grooved cam, E, arranged to receive trunnions *d d* on the ends of the cutters B B within them. The intermediate portion *f* of this arbor, and central portions of the inner-grooved cams E, are constructed to form a male cam, which, when the arbor D is turned in direction indicated by the arrow *y*, acts against the backs of the cutters to force and keep them pressed outward awhile by turning the arbor D in the reverse direction, as indicated by the arrow 2. The female or inner-grooved cams E E, acting against the trunnions *d d*, effect an inward adjustment and hold the cutters. In this way a positive hold and adjustment of the cutters in both directions is insured.

The arbor D may be turned to effect the required adjustment by means of a handle or pin, *g*, inserted through a slot, *h*, in the body A, and entering a hole in the arbor, the extent of its motion being limited by an adjusting-screw *i*. The same handle or pin, in connection with a lever *l*, pivoted to the side of the body A, coming in contact with suitable stops, may be used to automatically adjust the cutters outward in a forward feed of the tool, and draw them inward when the tool is run back; but such contrivances form no part of this invention, and the turning of the arbor D to effect the required outward adjustment of the cutters and their retraction, as required, may be accomplished by any suitable means.

What is here claimed, and desired to be secured by Letters Patent, is—

The male or cam-body portion *f* of the arbor D, in combination with the female or inner-grooved cams E, the radial sliding cutters B B, the cutter-carrier C, and main body A, substantially as specified.

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Witnesses:

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