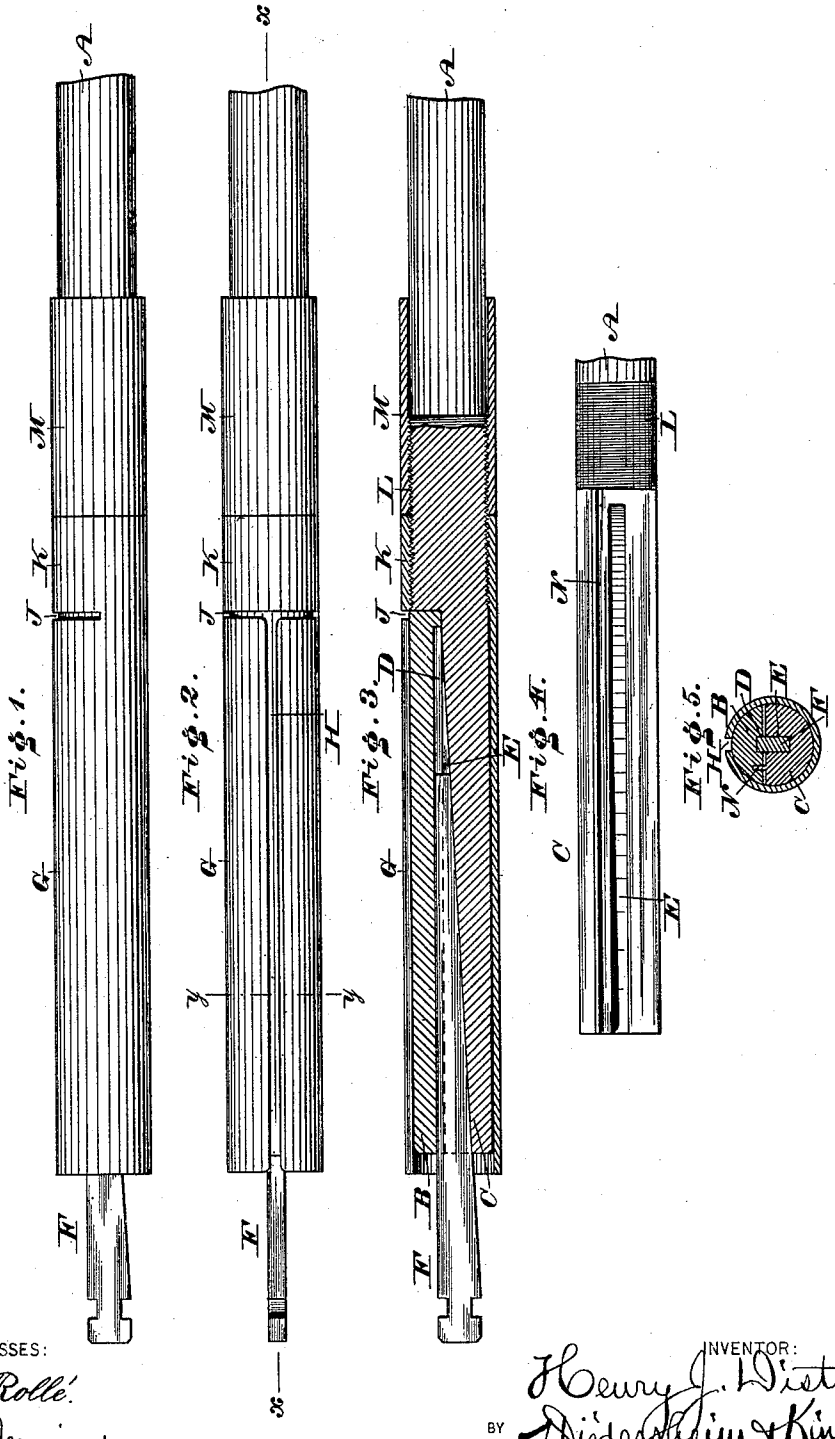
(No Model.)

H. J. DISTIN.

GRINDING TOOL.

No. 408,876. Patented Aug. 13, 1889.



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HENRY J. DISTIN, OF PHILADELPHIA, PENNSYLVANIA.

GRINDING-TOOL.

SPECIFICATION forming part of Letters Patent No. 408,876, dated August 13, 1889.

Application filed June 6, 1888. Serial No. 276,219. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. DISTIN, a subject of the Queen of Great Britain, having resided in the United States one year last past and declared my intention of becoming a citizen thereof, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Grinding-Tools, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a tool adapted for grinding the interior of tubes, pipes, flues, &c., the same being expansible and possessing other advantages, the features thereof being hereinafter fully set forth and definitely claimed.

Figures 1 and 2 represent side elevations of a grinding-tool embodying my invention. Fig. 3 represents a longitudinal section thereof in line *x x*, Fig. 2. Fig. 4 represents a view of a detached portion thereof. Fig. 5 represents a section in line *v v*, Fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A represents a mandrel, which may be connected with a lathe, and is divided for a portion of its length, forming segments or sections B C, constituting together when in contact a cylinder, as seen in Fig. 5, the segment B being entirely disconnected from the other segment, which latter, it will be seen, is intact with the body of the mandrel. The inner faces of the segments are longitudinally grooved, as at D E, the groove E being oblique in the direction of the length of the tool, and the groove D right angular with the transverse axis of the tool or parallel with the periphery of the mandrel, the two grooves receiving a key F, which is of the form of a right-angle triangle.

Encircling the segments B C is a sleeve G, which is split or slotted for a portion of its length, as at H, and transversely slotted, as at J, forming a T-shaped slot, leaving the inner end of said sleeve unslotted, forming a collar K, which is interiorly screw-threaded to engage with the screw-threaded portion L of the mandrel.

A jam-nut M is fitted over the mandrel and engages with the portion L thereof, and adapted to abut against the collar K for holding the same in position.

The inner faces of the segments B C are tongued and grooved, as at N, for preventing lateral displacement of the loose segment B from the segment C.

It will be seen that when the tool is inserted in a tube, &c., the key is forced into the grooves D E, whereby the segment B is forced from the segment C parallel therewith from end to end, thus uniformly expanding the sleeve G and causing it to assume an oval shape, the tube, &c., to be ground being turned over the tool, so that the wall of the bore thereof is uniformly worked by the tool, the slot of said sleeve receiving emery or other grinding material and supplying it to the surface of the tool as the operation progresses.

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

1. A mandrel having detached and fixed segments, a split sleeve encircling said segments, and a key which is movable between said segments, whereby the sleeve may be uniformly expanded, said parts being combined and operating substantially as described.

2. In a grinding-tool, substantially as described, the segments B C, having the parallel and oblique grooves D E, the latter receiving the key F, whereby the encircling sleeve G may be uniformly expanded, as stated.

3. In a grinding-tool, the segments B C, having the longitudinal grooves D E, respectively, the key F in said grooves, and the split sleeve G, embracing said segments, said parts being combined substantially as and for the purpose set forth.

4. In a grinding-tool, the segments B C, having the grooves D E, respectively, with key F therein, the split sleeve G, with collar K integral therewith, the said collar being interiorly screw-threaded and adapted to en-

gage with a screw-threaded portion of one of the segments, said parts being combined substantially as described.

5. In a grinding-tool, the segments B C, with grooves D E, and tongue and groove N, respectively, the key F in said grooves D E, the sleeve G, with slots H and J, as described, and having the collar portion K interiorly screw-threaded and adapted to engage a threaded portion of the segment C, said parts being combined substantially as described.

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