(No Model.)

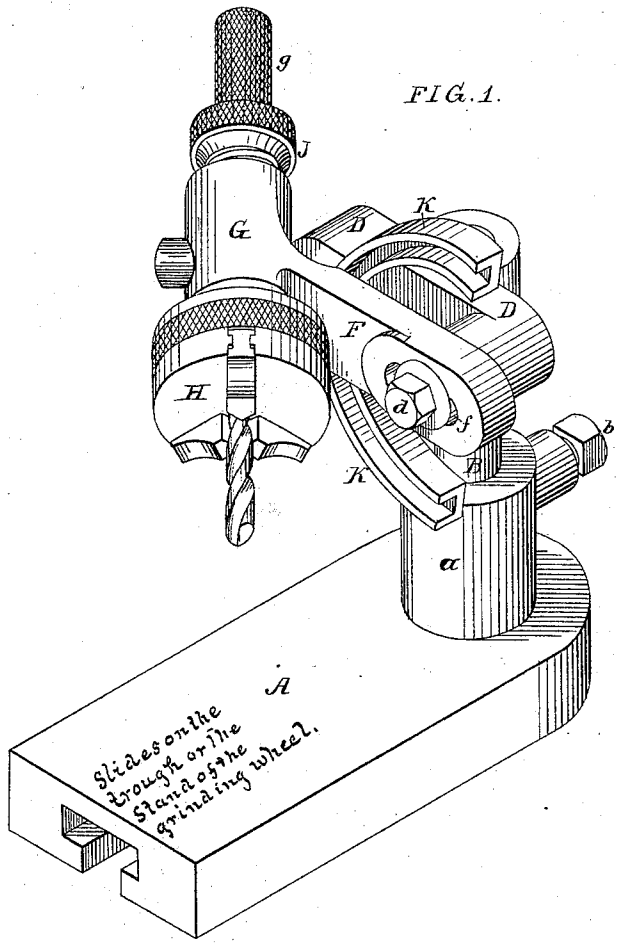
2 Sheets—Sheet 1.

S. A. HAND.

TWIST DRILL GRINDER.

No. 302,726. Patented July 29, 1884.

FIG. 1.



Witnesses:-
James F. Johns
John M. Clayton

Inventor
S. Ashton Hand.
by his Attys
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N. PETERS. Photo-Lithographer. Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

S. A. HAND.

TWIST DRILL GRINDER.

No. 302,726. Patented July 29, 1884.

FIG. 2.

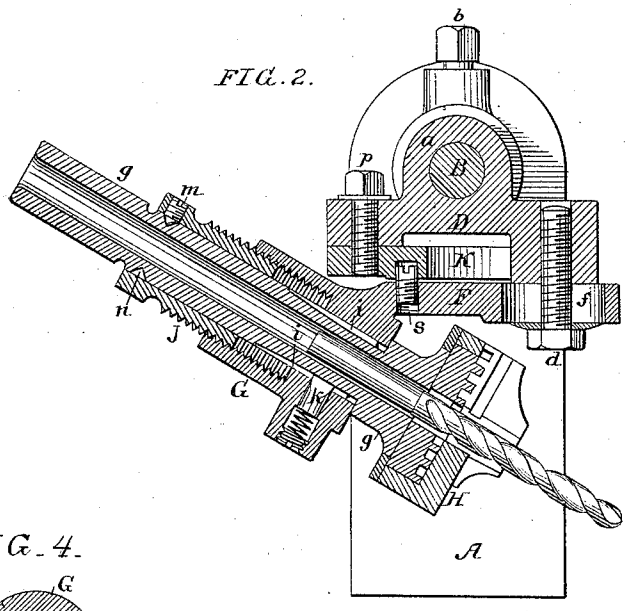


FIG. 4.

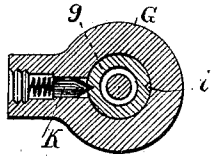
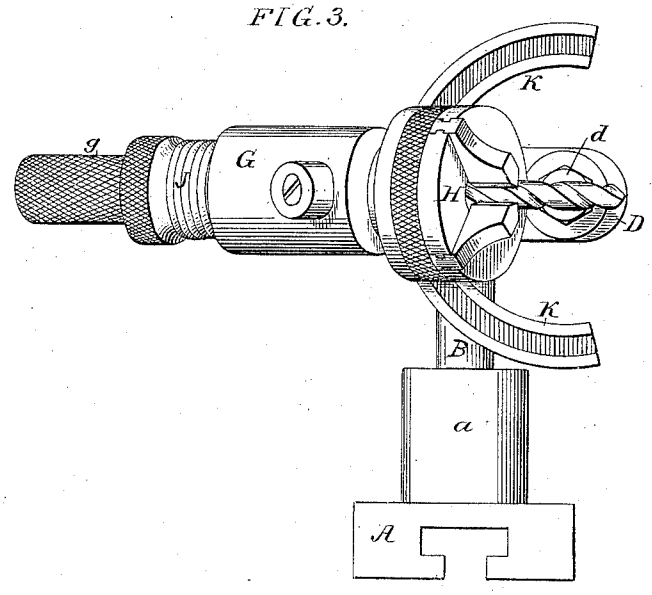


FIG. 3.



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UNITED STATES PATENT OFFICE.

S. ASHTON HAND, OF TOUGHKENAMON, PENNSYLVANIA.

TWIST-DRILL GRINDER.

SPECIFICATION forming part of Letters Patent No. 302,726, dated July 29, 1884.

Application filed April 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, S. ASHTON HAND, a citizen of the United States, and a resident of Toughkenamon, Chester county, Pennsylvania, have invented certain Improvements in Twist-Drill Grinders, of which the following is a specification.

The object of my invention is to construct a simple and compact device for holding twist-drills and presenting their cutting ends to an emery or other grinding wheel in such a manner that they will be properly and uniformly ground, and this object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1, Sheet 1, is a perspective view of my improved twist-drill holder; Fig. 2, Sheet 2, a sectional plan view of the same; Fig. 3, a front view, and Fig. 4 a transverse section, through the chuck-stem and its holder.

A is the base of the device, which is constructed for being attached to the trough or stand of the grinding-wheel, and has at one end a projection, *a*, to which is adapted a stem, B, a set-screw, *b*, serving to secure this stem in any position to which it may be adjusted. The stem B has at the upper end a bar, D, into a threaded opening in one end of which is screwed a bolt, *d*, the outer end of the latter being adapted to a slot, *f*, in one end of an arm, F, the other end of which has an inclined tubular projection, G, and to the latter is fitted the stem *g* of a chuck, H, for clamping the drill. This chuck may be of any desired character having expanding and contracting clamping-jaws, the chuck shown being one in which sliding jaws are acted upon by a scroll on a rotating ring. The stem *g* has opposite grooves *i*, for the reception of the end of a spring-pin, *k*, so that while the stem is prevented from being accidentally moved its reversal can be readily effected by manipulating the outer end of the stem, which is milled in order to facilitate this operation and enable either of the cutting-faces of the drill to be presented to the grinding-wheel.

It will be observed on reference to Fig. 4 that the pin *k* has a beveled inner end for adaptation to the grooves *i* of the stem *g*, the bevel being such that while the pin will prevent accidental release of the stem the application of a moderate degree of force, tending to turn the latter, will drive the end of the pin *k* back clear of the groove. The projection G is threaded internally, and to this threaded portion of the projection is adapted a nut, J, a set-screw, *m*, in which projects into a groove, *n*, in the stem *g*, so that while the latter is free to turn in the nut, or the nut on the stem, the longitudinal adjustment of the stem in the projection G can be readily effected.

To the bar D is pivoted, by means of a bolt, *p*, a grooved segment, K, and to the groove of this segment is adapted the head of a screw-pin, *s*, projecting from the arm F, so that the segment governs the character of the arc described by the end of the drill which is clamped in the chuck H. The segment may be set eccentrically in respect to the pivot-pin *d* of the arm F, and thus cause any desired amount of clearance to be given to the cutting end of the drill, the slot *f* in the arm permitting it to yield longitudinally to accommodate the eccentricity of its movement. It will be understood that after adjustment the segment K is secured in position by tightening the pivot-bolt *p*. The adjustable stem B provides for the vertical and angular adjustment of the drill-carrying arm F, the nut J for the longitudinal adjustment of the chuck-stem, and the adjustable segment K for the swing or clearance of the drill, while the base A is adjustable laterally upon its support, so that the end of the drill may be applied to any desired point on the face of the grinding-wheel and in the manner best calculated to effect proper grinding.

I claim as my invention—

1. The combination of the base A, having a projection, *a*, the stem B, free to turn and vertically adjustable in said projection, the head D, and an arm, F, pivoted to said head, and having a tubular projection, G, to which is fitted the spindle of a drill-clamping chuck, H, as set forth.

2. The combination of the stem B, the arm F, pivoted to the head of the same, and having a threaded projection, G, the chuck H, having a stem, *g*, fitted to but free to turn in said projection, and the nut J, adapted to the threaded

opening of the projection and confined longitudinally to the stem *g*, as set forth.

3. The combination of the stem B, the arm F, pivoted to the head of the stem, and having a threaded projection, G, the chuck H, having a stem, *g*, fitted to said projection, and having grooves *i*, the spring-pin *k*, and the nut J, adapted to the threaded projection and confined longitudinally to the stem *g*, as set forth.

4. The combination of the stem B, the arm F, pivoted to the head of the same, and having a projection, G, the adjustable segment K, controlling the swing of the arm, and the chuck H, having a stem, *g*, fitted to the projection and extending rearwardly beyond the same, as specified.

5. The combination of the arm F, the chuck H, carried thereby, the governing-segment K, and the stem B, having a head, D, to one end of which is pivoted the arm F and to the other end the segment K, as set forth.

6. The combination of the chuck, the arm F, carrying the same, and having a slot, *f*, the adjustable segment K, constructed to govern the swing of the arm F, and the stem B, having a head, D, with pivot-bolt *d*, adapted to the slot of said arm F, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

S. ASHTON HAND.

Witnesses:
JOHN M. CLAYTON,
HARRY SMITH.