

No. 761,501.

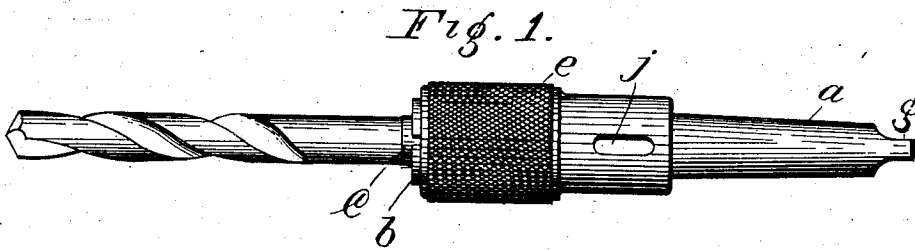
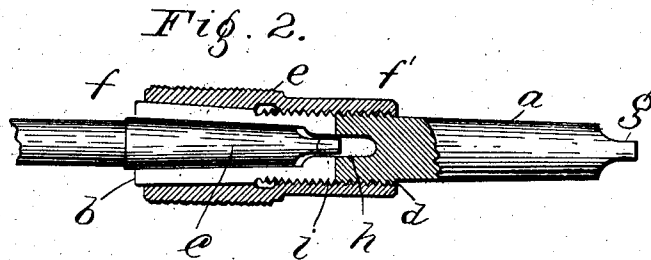
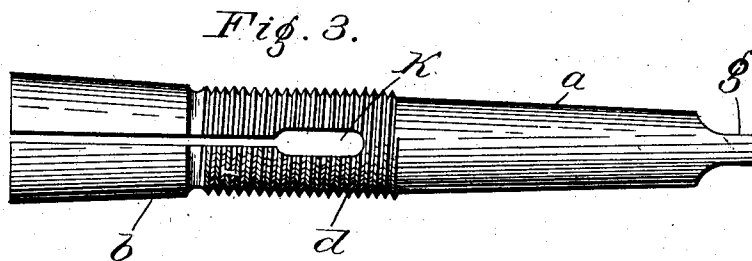
PATENTED MAY 31, 1904.

A. C. KIMBALL & C. BENSON.

DRILL HOLDER.

APPLICATION FILED JULY 30, 1903.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

ANDREW C. KIMBALL, OF KEARNEY, AND CHARLES BENSON, OF NEWARK,
NEW JERSEY; SAID KIMBALL ASSIGNOR TO SAID BENSON.

DRILL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 761,501, dated May 31, 1904.

Application filed July 30, 1903. Serial No. 167,542. (No model.)

To all whom it may concern:

Be it known that we, ANDREW C. KIMBALL, a resident of Kearney, county of Hudson, and CHARLES BENSON, a resident of Newark, county of Essex, State of New Jersey, citizens of the United States of America, have invented certain new and useful Improvements in Drill-Holders, of which the following is a specification.

Our invention relates to drill-holders used in lathe and drill arbors for applying drills of different sizes to the sockets of the arbors which of necessity are limited to one size for each arbor; and it consists of the improved construction hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a side view of our improved holder with a drill inserted. Fig. 2 is mainly a longitudinal section of the holder, also with a drill inserted. Fig. 3 is a side view of one of the parts of the holder on a larger scale.

The common holder is a taper socket for reception of the drill and a taper shank for inserting in the taper socket of the arbor, with a tip of angular cross-section on the upper end of the shank for engaging a correspondingly-angular upper termination of the socket of the arbor, made in solid integral construction in which there is no compensation for the slack that occurs by wear of the socket of the holder and the shank of the drill in use, which causes frequent breakages of the tips of the drills, which we seek to avoid by our improvements, which are as follows:

Our holder consists of two parts, one of which comprises a taper shank part *a*, same as the ordinary holder for inserting in the lathe or drill arbor socket, and a split taper socket *b* for receiving the shank *c* of the drill, the exterior contour of the split socket being tapered from the mouth upward a short distance, and between the upper end of this exterior taper and the base of the shank *a* is a screw-threaded section *d*. The other part of

the holder comprises a sleeve *e*, having a flaring socket *f* in one end and an internally-screw-threaded part *f'* in the other end, this latter part being fitted to work with the threaded section *d* of the holder for shifting the sleeve lengthwise along the split socket by rotating the sleeve to grip and release the split part *d* according as the sleeve is shifted along one way or the other. Shank *a* has the usual angular tip *g* for engaging in the corresponding angular upper terminal of the mandrel-socket for insuring rotation of the holder, and a like angular upper terminal *h* of the split socket is provided for like connection with the tip *i* of the drill. The threads of section *d* and of the sleeve are inclined in respect of their spiral pitch reversely to the direction of rotation of the holder, and thus whatever torsional stress there may be on the sleeve in action tends to maintain tightness of the holder.

It will be seen that tightness of the drill-shank in the socket of the holder will thus be insured against any slackness liable to occur by wear, and a common fault in the use of solid holders—viz., the dropping of the drill in an upright holder when a little worn and when not under feeding pressure—will be avoided, as a retaining-grip by the split socket can always be insured.

An essential advantage of the construction is that there is always a powerful frictional grip of the jaws of the split socket on the drill-shank, which largely reinforces the driving power applied to the drill by the tip *i*, and thus relieves the excessive stress on the drill-tips, especially when slack in the socket, and thereby prevents the frequent breaking of these tips above alluded to.

The sleeve and the socket part are each duly slotted transversely, as shown at *j* and *k*, respectively, for the application of a drift for starting the drills in case of being stuck fast.

What we claim as our invention is—

The combination in a drill-holder of the taper shank having the split socket of the lower end externally and internally upwardly tapered, and provided with the left-hand
5 screw-threaded section intermediate of the socket and the shank, and the sleeve having the upper internally left-hand screw-threaded socket and the lower flaring socket.

Signed at Newark, New Jersey, this 20th day of July, 1903.

ANDREW C. KIMBALL.
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Witnesses:

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