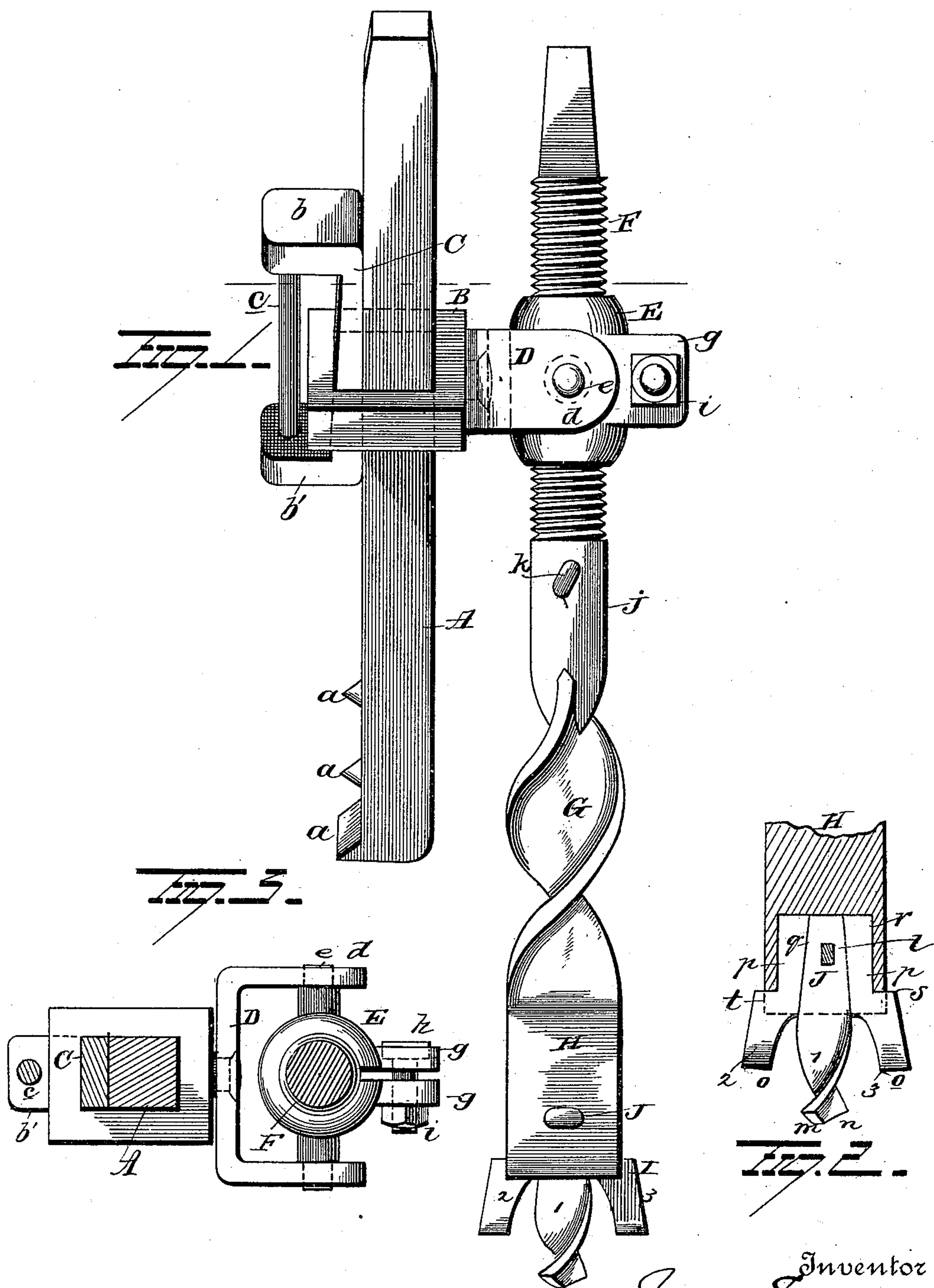


(No Model.)

J. EAGEN.  
DRILL.

No. 464,497.

Patented Dec. 8, 1891.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JAMES EAGEN, OF WYOMING, PENNSYLVANIA.

## DRILL.

SPECIFICATION forming part of Letters Patent No. 464,497, dated December 8, 1891.

Application filed October 17, 1890. Serial No. 368,412. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES EAGEN, a citizen of Wyoming, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Drills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in drills, and more particularly to such as are adapted for use in drilling rock, &c., the object of the invention being to provide a drill with a sectional bit, which may be easily and quickly removed, and which, when in place, will answer all the purposes of a bit made in one piece.

A further object is to provide an improved bit for a drill which shall be of simple construction and effective in the performance of its functions.

A further object is to provide devices for holding the drill at any angle or height desired.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in elevation of my improved drill. Fig. 2 is a view in section taken through the socket end of the drill. Fig. 3 is a transverse section through the drill.

A represents a post or stay preferably made of metal and provided at one end with projections *a*, said post or stay being adapted to be inserted in a socket made in a rock or driven in the ground, as occasion demands, and adapted to carry and support the entire mechanism of the drill. Placed on the post or stay A and adapted to have a sliding movement thereon is a collar or slide B. The opening in the collar or slide B is somewhat larger than the post or stay A, and inserted in said opening and adapted to lie parallel with the post A is a wedge-shaped plate C, having lateral flanges *b b'* at its end, preferably connected together by means of a rod or bar *c*. By this construction the slide or collar B may be wedged or secured to the post A at

any desired adjustment. Swiveled to the slide or collar B, at the opposite side thereof from the wedge C, is a yoke D, having perforations *d* in its arms. In these perforations *d* the trunnions *e* of the sleeve E have their bearing, said sleeve being preferably split, as shown in Fig. 3, and provided with ears or lugs *g*, through which a threaded bolt *h* passes, the head of said bolt being preferably located in a recess or countersunk portion in one of the ears or lugs *g*, and the screw-threaded end of said bolt is provided with a nut *i*. The sleeve E is provided internally with screw-threads for the accommodation of a similarly-threaded shank F. One end of the shank F is made square for the reception of the driving mechanism, (not shown,) and the other end of said shank is made square for the reception of the socketed upper end *j* of the drill G, which latter is provided in its socketed portion with aligned perforations adapted to align with a perforation in the shank F for the reception of a key *k*, by which said parts are secured together. At the lower end of the body or twisted portion of the drill is a preferably rectangular socketed piece H, having aligned perforations *l* in its walls. In this socketed piece H the bit I is located and secured. The bit I is composed of three pieces 1 2 3, the central piece 1 being twisted, as shown in Fig. 2, and provided on its lower end with oppositely-disposed cutting-edges *m n*. The shank of the central cutter 1 is made tapering or wedge-shaped and is provided in proximity to its end with a perforation adapted to align with the perforations *l* in the socketed-piece H. The cutters 2 3 are provided at their free ends with cutting-edges *o*, said free ends being slightly curved, and the cutting edge *o* of one projecting in the opposite direction from the cutting-edge of the other. The shank *p* of each cutter 2 3 is provided with a straight edge *q*, adapted to lie parallel with the edges of the wedge-shaped shank of the central cutter 1, and undercut inclined edges *r*, adapted to lie against the side walls of the socket-piece H. Thus it will be seen that when the bit is in position in the socket-piece the shank of the central cutter 1 will force the shanks of the cutters 2 3 against the side walls of the socket-piece H, and the shoul-



ders *s* of the end cutters 2 3 will rest in recesses *t* in the end of the socket-piece H and have their bearing against said socket-piece. The parts of the bit being thus assembled, a  
5 wedge or key J is passed through the perforations *l* in the socket-piece H and the perforations in the shank of the central cutter 1, and the parts are thus securely locked in place in said socket-piece. By thus unit-  
10 ing the bit with the body of the drill the use of a set-screw is avoided, and the parts are thus not injuriously affected by the action of water, as would be the case were set-screws employed. If desired, a bit made of a single  
15 piece of metal—such as shown in Fig. 4—may be inserted in the socket-piece H.

A rock-drill constructed as above set forth is very simple and durable in construction, effective in operation, and by the employ-  
20 ment of which choking of the drill may be easily and quickly remedied.

It is evident that slight changes might be made in the details of construction of my invention without departing from the spirit  
25 thereof or limiting its scope. Hence I do not wish to limit myself to the precise details of construction herein set forth; but,

Having fully described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a drill, the combination, with a threaded shank and drill connected therewith, of a post provided with lateral projections thereon, a collar thereon, a wedge having flanges at its ends connected by a rod or bar, a yoke swiv-  
35 eled to the collar, and a sleeve open on one side and provided with lugs on each end, adapted to receive a device by which the sleeve is loosened or tightened around the shank, said sleeve having integral trunnions  
40 at opposite points, which bear in the yoke, substantially as set forth.

2. The combination, with a drill-body having a socketed lower end, of a bit in said socketed end, said bit comprising three cutters,  
45 each having a wedge-shaped shank, and a key for securing one of said cutters in the socketed end of the drill, substantially as set forth.

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

JAMES EAGEN.

Witnesses:

THOMAS GREGGS,  
GEO. SCUREMAN.