

(No Model.)

F. SCHOFF.
DRILL SUPPORT.

No. 441,509.

Patented Nov. 25, 1890.

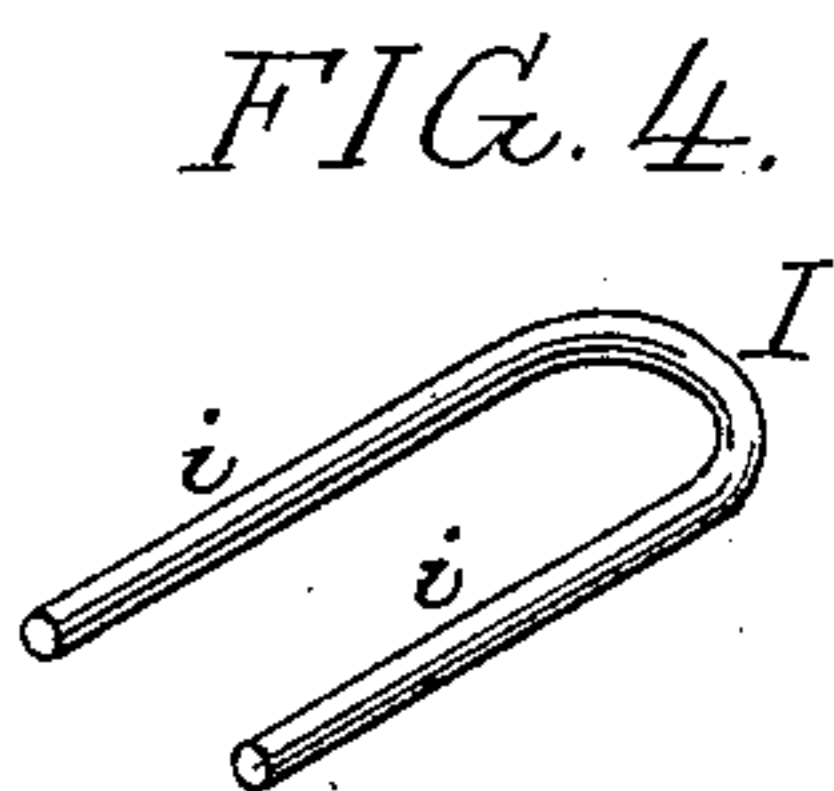
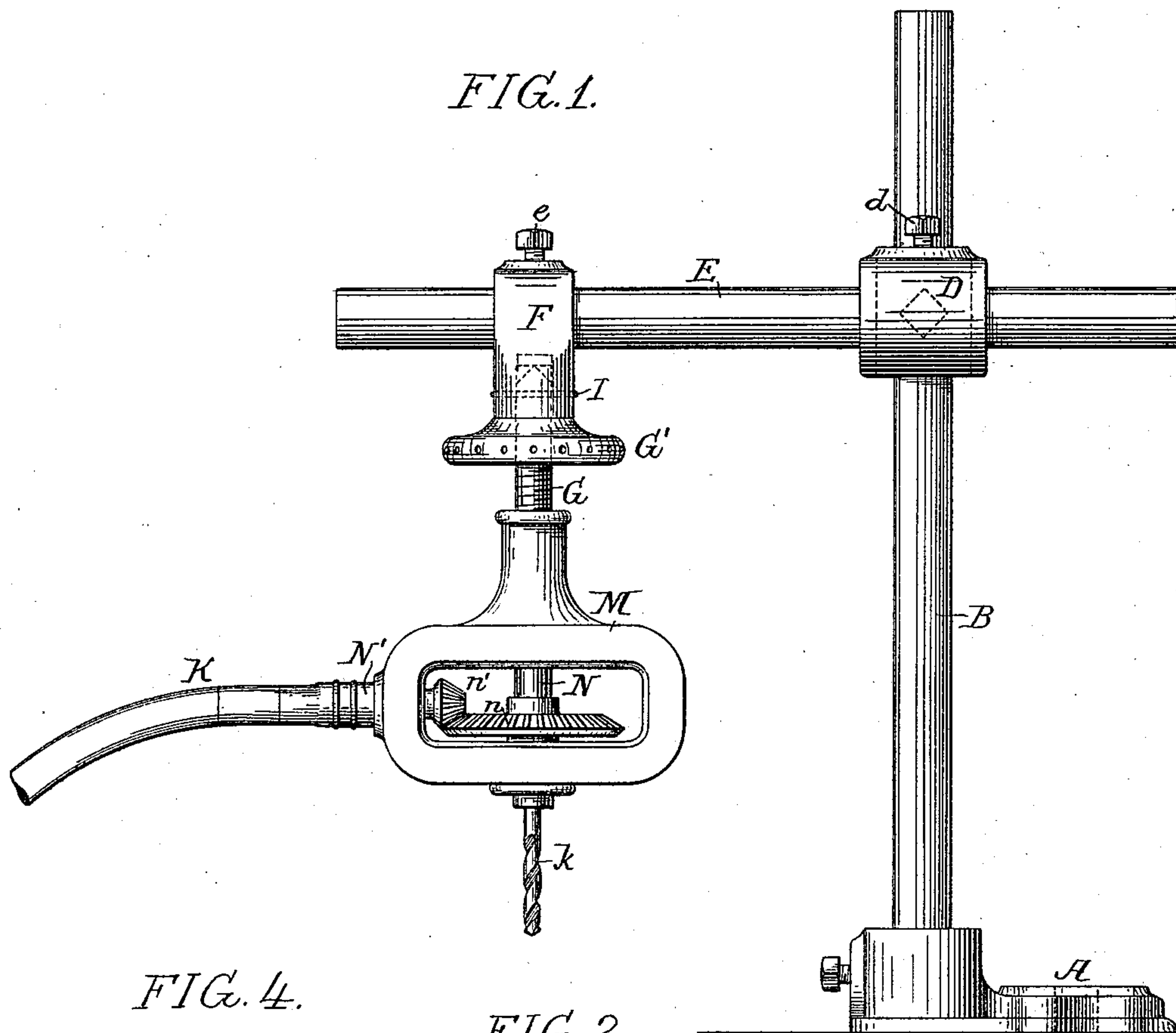


FIG. 5.

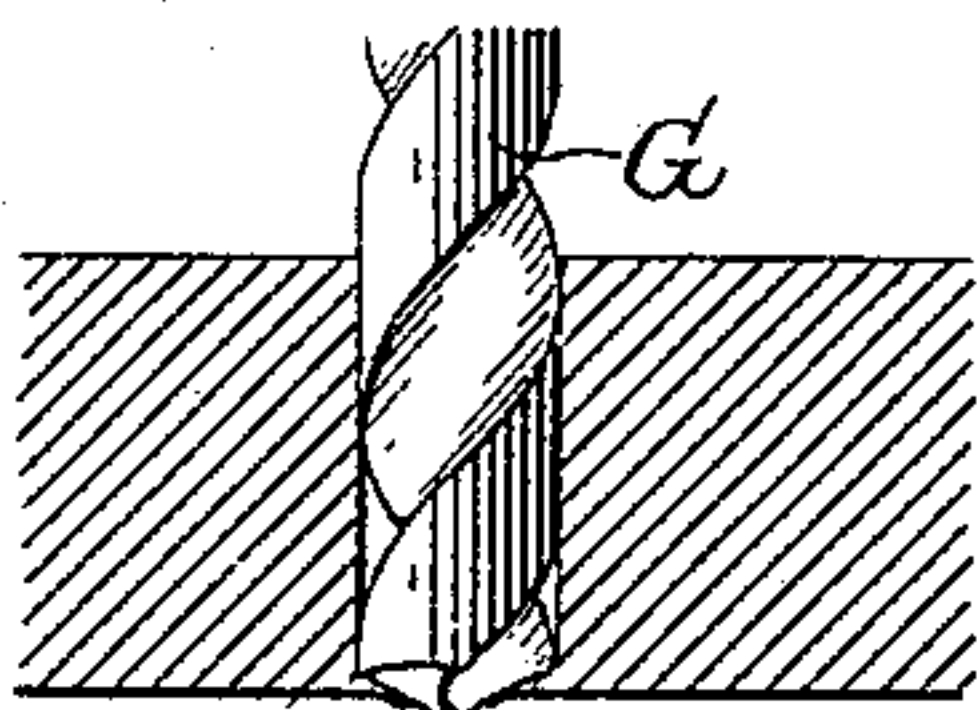


FIG. 2.

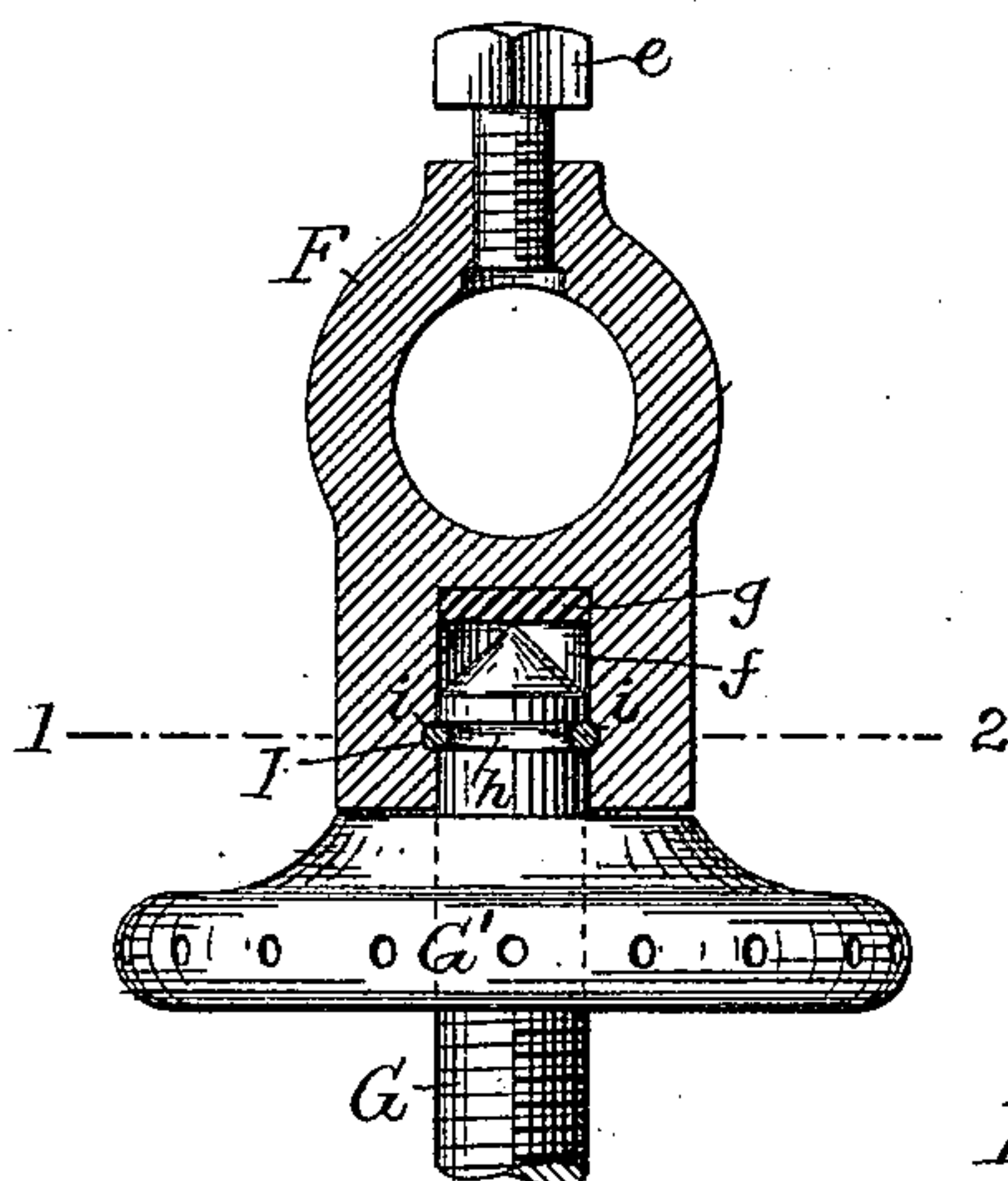
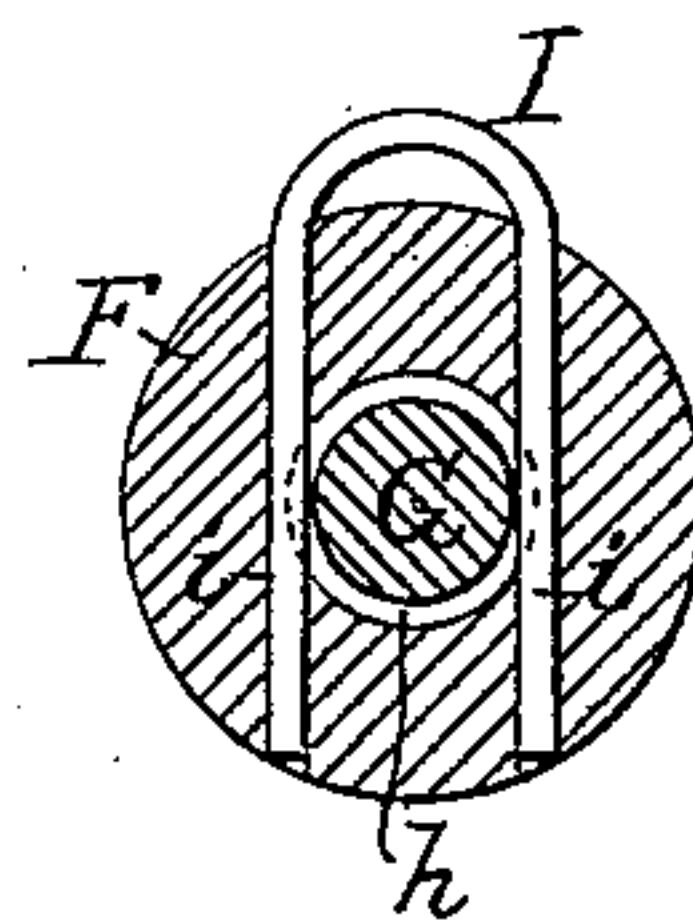


FIG. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

FREDERIC SCHOFF, OF PHILADELPHIA, PENNSYLVANIA.

DRILL-SUPPORT.

SPECIFICATION forming part of Letters Patent No. 441,509, dated November 25, 1890.

Application filed September 15, 1890. Serial No. 365,016. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC SCHOFF, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Drill-Supports, of which the following is a specification.

The object of my invention is to prevent the breaking of the drill of a portable drilling-machine, and to also prevent the falling of the portable drill when the drill has finished boring a hole.

In the accompanying drawings, Figure 1 is a side view of a drill-support and a drill-frame hung therefrom. Fig. 2 is an enlarged sectional portion of Fig. 1. Fig. 3 is a section on the line 1 2, Fig. 2. Fig. 4 is a perspective view of the securing-pin, and Fig. 5 is a diagram view illustrating the action of the drill.

My invention is especially applicable to portable drilling-machines driven from a flexible shaft, as shown in Fig. 1. It will be understood that it may be applied to drilling-machines driven by hand without departing from my invention.

A is the base or foot of a drill-support which is secured by bolts to a base-plate or other fixture, and B is a vertical standard, on which slides a head D, secured to the standard by a set-screw shown by dotted lines. Carried by the head D and sliding therein is a beam or rod E, which can also be secured to the head D by means of the set-screw *d*. Sliding on this beam E is a carrying-block F, which can be fastened in any position on the beam by a set-screw *e*. In the under side of the block F is an orifice *f*, Fig. 2, and at the upper end of said orifice is a thrust-bearing block *g*, made preferably of steel or other hardened material.

G is the feed-screw of the drill, and is provided with a hand-wheel or handle *G'*. The end of this feed-screw is pointed, as shown in Fig. 2, and rests against the thrust-bearing *g* in the orifice *f*. Cut in the feed-screw is an annular groove *h*, and in the block F are two orifices, which are exposed in the orifice *f* and are in line with the annular groove *h*. Adapted to the orifices in the present instance are the two arms *i i* of the bent securing-pin I. (Shown at Fig. 4.) This securing-pin is

passed through the orifices and into the groove *h* in the head of the feed-screw G, thus securely holding the feed-screw in position vertically in respect to the block, but allowing it to have free rotation therein. The feed-screw is adapted, in the present instance, to the drill-frame M, which carries the drill-spindle N, having a beveled gear-wheel *n*, meshing with a pinion *n'* on the driving-shaft N', coupled in the present instance to the flexible shaft K by the usual flexible-shaft coupling.

Adapted to the spindle N is the ordinary drill *k*. Usually the beam is used only as a thrust-bearing in feeding a drill to its work. As soon as the point of the drill passes through the material being drilled, as shown in Fig. 5, it will have a tendency to feed itself quickly, owing to its freedom and the weight of the drill-frame, and as the resistance is much less will either break in the hole or plunge through and injure the frame or the material being drilled; but by so arranging the block that it carries the drill-frame that the drill can only feed forward as dictated by the feed-screw, it will be seen that the feed will be the same when the drill reaches the position shown in Fig. 5 as when it is in the body of the metal being drilled. When the drill completely passes through the metal, the frame will still be suspended from the block, and the drill can be readily removed from the metal by simply reversing the feed-screw.

The adjustment of the drill and drill-frame to any position can be accomplished by simply sliding the block upon the beam, or the beam in its head D, vertically on the standard.

I claim as my invention—

1. The combination of the drill-support, block carried thereby, a drill-frame suspended from said block, substantially as described.

2. The combination of the drill-support, the block carried thereby, an orifice in said block, a drill-frame, a feed-screw in said block, said feed-screw having an annular recess, with a pin in the block adapted to said recess, substantially as described.

3. The combination of the drill-support, a block, an orifice therein, a drill-frame, a feed-

screw adapted to said orifice, an annular groove in said feed-screw, two transverse orifices in the block with a U-shaped pin I, adapted to the said orifices and to the groove
5 in the feed-screw, substantially as described.

4. The combination of the drill-support, a block adjustably secured thereto, an orifice in the said block, a drill-frame, a feed-screw therefor adapted to said orifice and suspended
10 from said block, substantially as described.

5. The combination of the drill-support, a block thereon, an orifice in said block with a hardened thrust-bearing in said orifice, a drill-frame and feed-screw adapted to said frame

and pointed at one end to bear against the 15
said thrust-bearing in said orifice, an annular groove in said feed-screw, and a pin in the block adapted to said groove, and by which the feed-screw and drill-frame are supported,
substantially as described. 20

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

FREDERIC SCHOFF.

Witnesses:

EUGENE ELTERICH,
HENRY HOWSON.