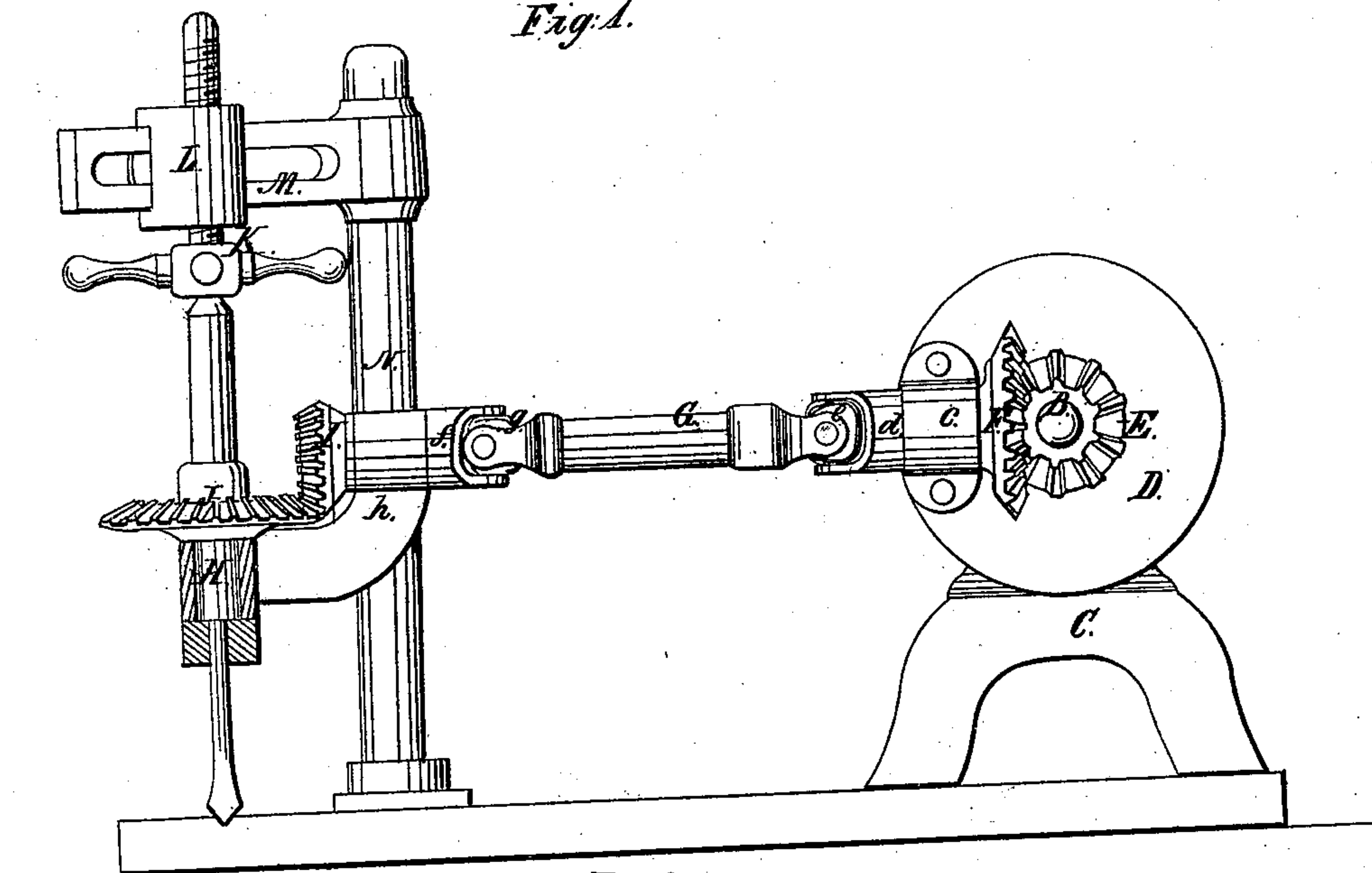


*J. Meyer,*  
*Metal Drill,*

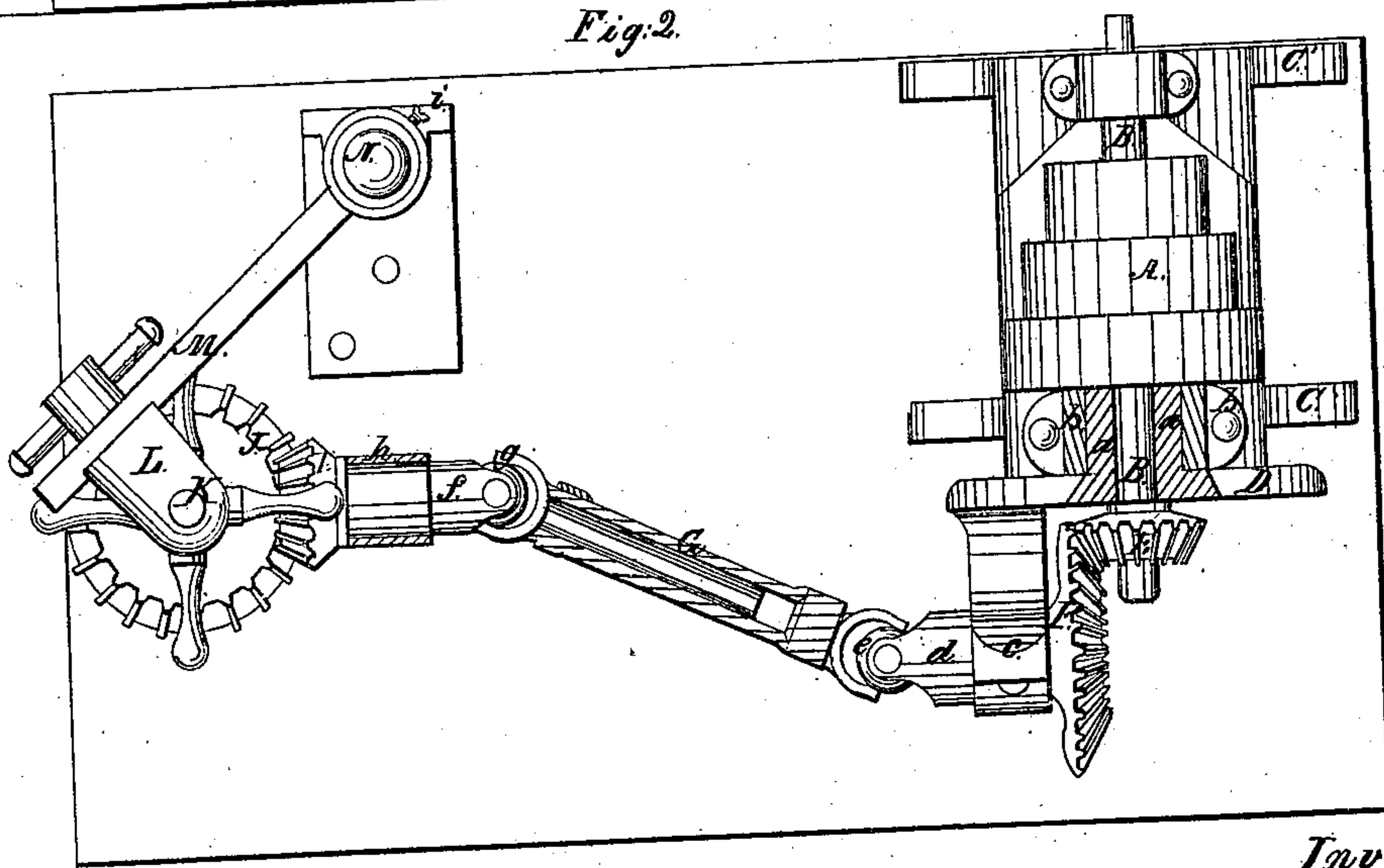
*Patented June 16, 1863.*

*N<sup>o</sup> 38,908-*

*Fig. 1.*



*Fig. 2.*



*Witnesses:*

*J. W. Coombs*

*E. R. Riva*

*Inventor:*

*John Meyer*



# UNITED STATES PATENT OFFICE.

JOHN MEYER, OF BROOKLYN, NEW YORK.

## IMPROVED BORING-MACHINE.

Specification forming part of Letters Patent No. 38,908, dated June 16, 1863.

*To all whom it may concern:*

Be it known that I, JOHN MEYER, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Boring-Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a side elevation of my invention, partly in section. Fig. 2 is a sectional plan or top view of the same.

Similar letters of reference in both views denote like parts.

The object of this invention is to produce a boring-machine capable of being shifted from one place to another, and adjusted in any desired direction, preserving at the same time the connection between its driving-gear and the line-shaft or main driving-power.

The invention consists in the application to the spindle or shaft, which carries the driving-cone of a boring-machine, of a disk that is adjustable round the center of said shaft, in combination with an extension-shaft, through the action of which motion is transmitted to the bore-spindle in such a manner that the drill can be carried in any direction round the center of the driving-shaft, and to any desired distance from the same, and that holes can be drilled at any desired distance from the driving-cone and in any desired direction.

To enable others skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings.

A represents a cone-pulley, with three or more speeds, which is secured to the shaft B, and which is driven by a belt from the line-shaft, or from any desired source of power. The shaft B has its bearings in standards C C', which are firmly secured to a post or other fixed part in the building. Said shaft extends through one of the standards C C', and through a disk, D, and it carries on its outer end a bevel-wheel, E. The disk D is provided with a hub, *a*, which fits into the journal-box *b* on the standard C, so that said disk can be rotated independent of the shaft B. The screws which fasten the cap of the journal-box *b* serve to fasten the disk in the desired position. The disk D carries a journal-box, *c*, which is secured to its face by screws, or in any other desirable manner, and which forms the bearing for a short arbor, *d*, one end of which carries a bevel-wheel, F, gearing into the bevel-wheel E on the end of the shaft B, and the

other end of which connects by a universal joint, *e*, with the extension-shaft G. This shaft is constructed in the manner of a telescope, so that it can be lengthened or shortened at pleasure, and it is adjusted at the desired length by set-screws or other suitable means. It transmits the motion from the arbor *d* to a similar arbor, *f*, with which it connects by a universal joint, *g*. The arbor *f* has its bearings in one end of a curved arm, *h*, which fits with the other end on the bore-spindle H, being arranged so that it rotates freely on said spindle without being permitted to move in a longitudinal direction. The arbor *f* carries a bevel-wheel, I, which gears into bevel-wheel J on the bore spindle, so that the rotary motion of the extension-shaft is transmitted to the bore-spindle and to the drill inserted into a socket in one end of the same. The pointed end of the bore-spindle turns in a center in the end of a hand-screw, K, which screws into a head, L, that is adjustable in the slotted arm M. This arm is secured to a standard, N, being adjustable on the same by a set-screw, *i*, and the standard N is screwed or otherwise fastened to the desired spot on the work to be drilled. By means of the disk D the extension-shaft G can be carried all round the shaft B and set in any desired direction. The extension shaft can be lengthened or shortened to carry the drill to the spot where a hole is to be drilled, and the drill can be turned up or down or in any other direction which may be desirable.

This machine is particularly adapted to drill holes into heavy pieces—such as armor-plates for vessels, or into steam-boilers or other heavy pieces of machinery—and it is intended to supersede the tedious operation of the ratchet-brace, the only device now used for drilling holes in such pieces that cannot conveniently be moved under the ordinary boring-machine.

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

The arrangement of the adjustable disk D on the shaft B, in combination with the bevel-gear E F, extension-shaft G, bevel-gear I J, curved rotary arm *h*, and bore-spindle H, all constructed and operating substantially as and for the purpose herein shown and described.

JOHN MEYER.

Witnesses:

W. HAUFF,  
J. F. BUCKLEY.