

(No Model.)

W. N. BROWN.  
BORING MACHINE.

No. 257,919.

Patented May 16, 1882.

Fig. 1.

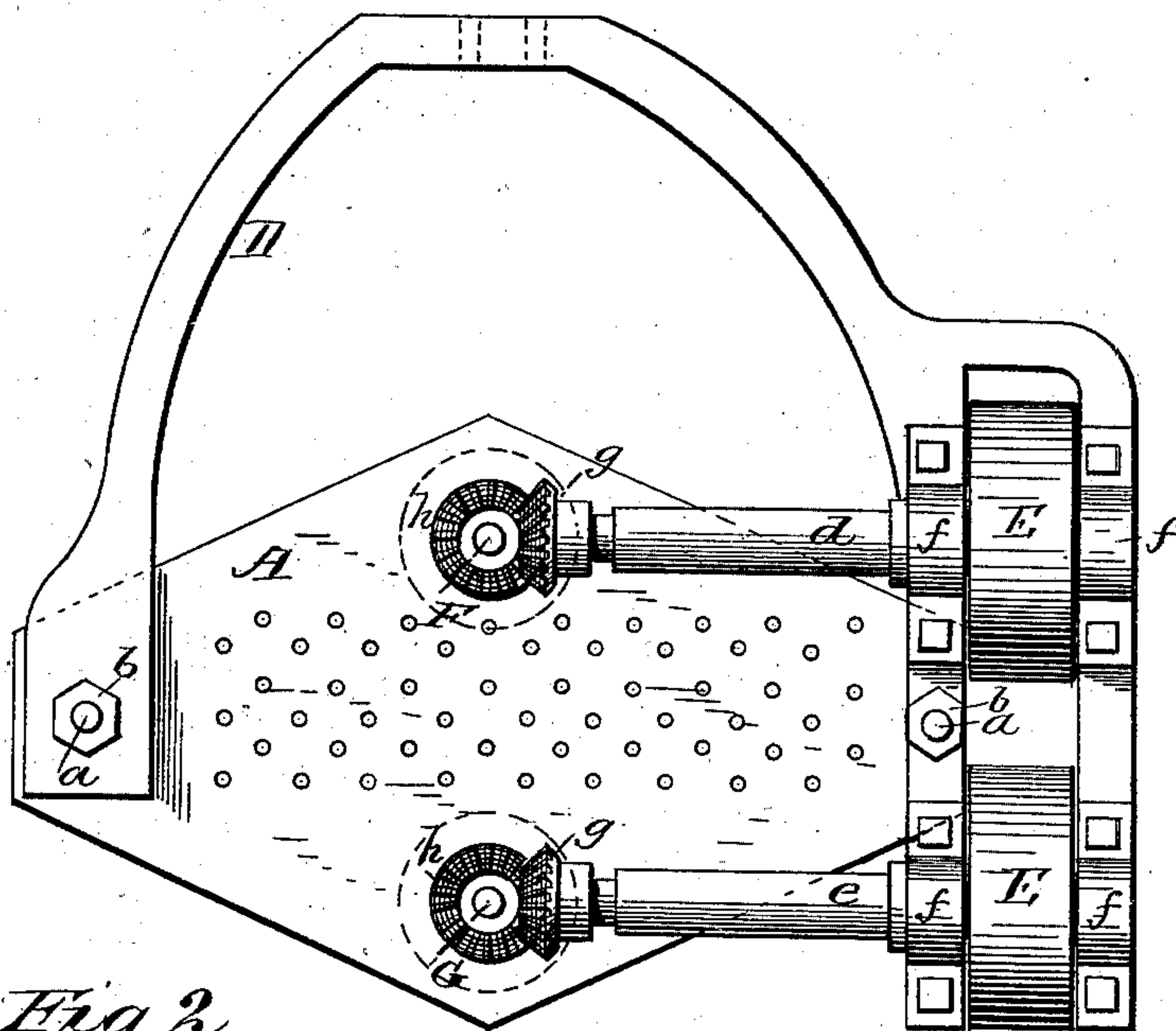


Fig. 2.

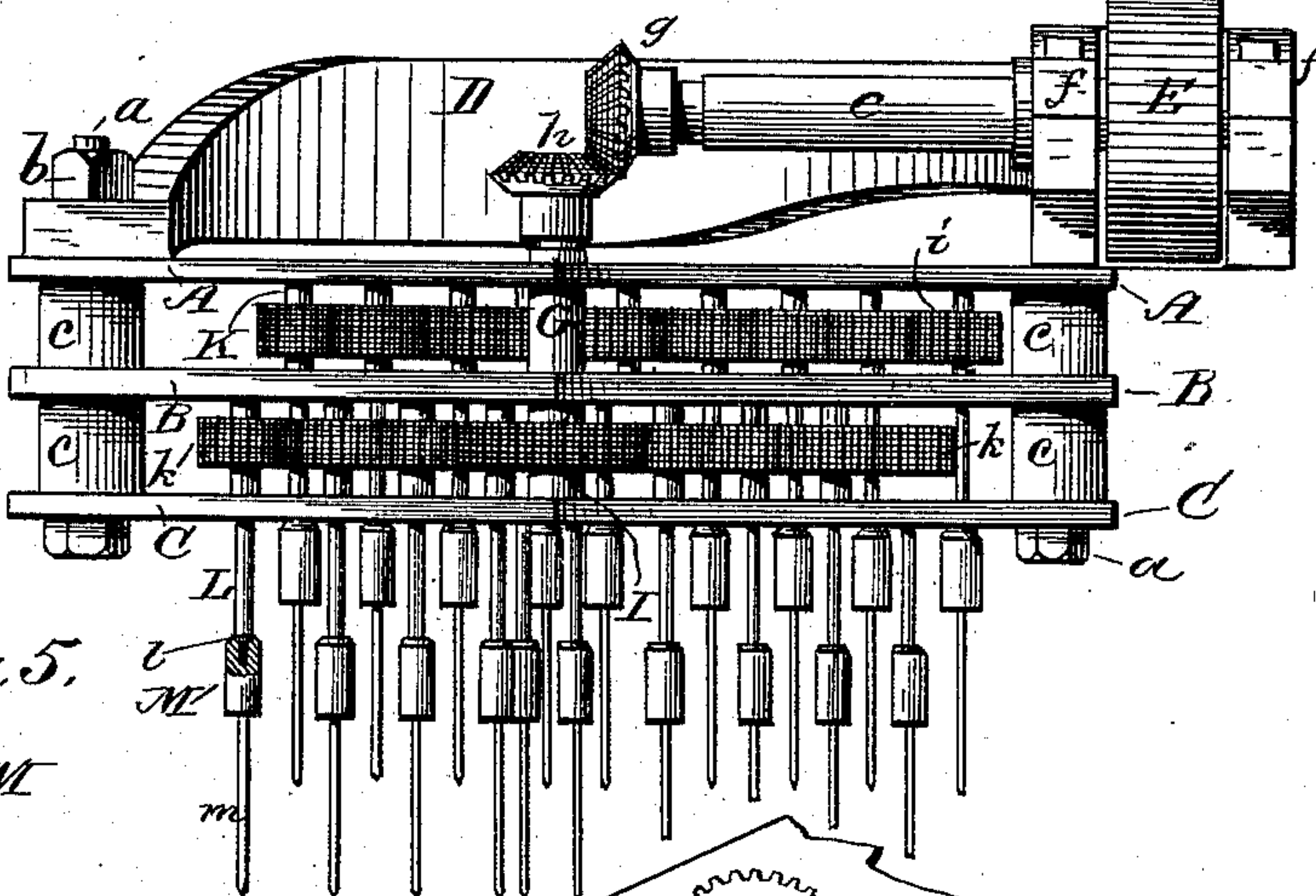


Fig. 4.

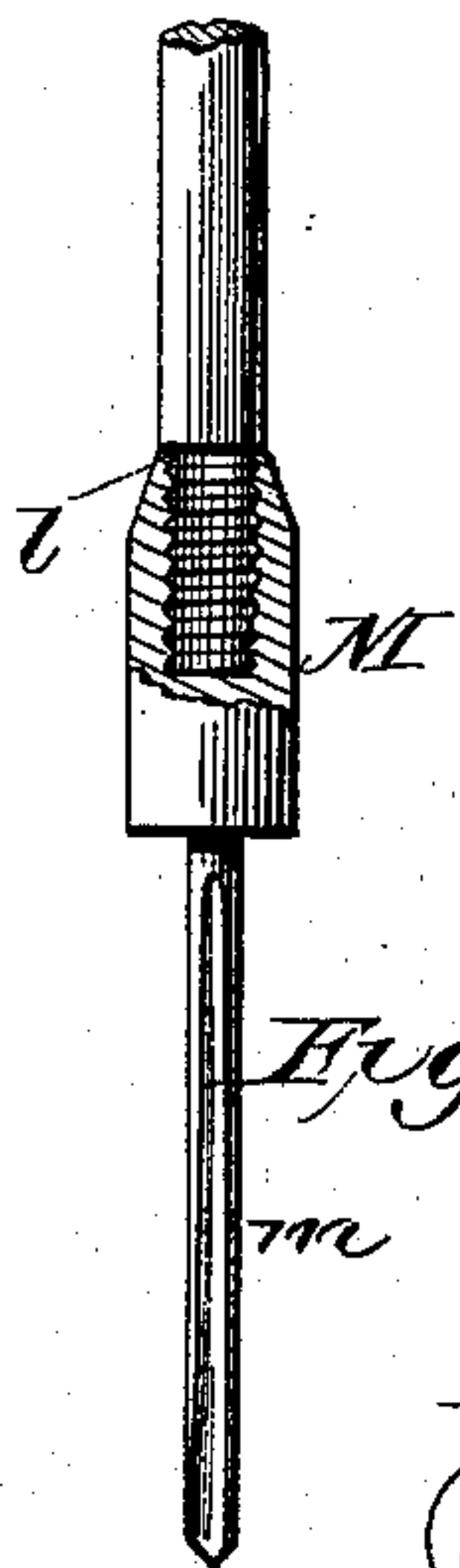
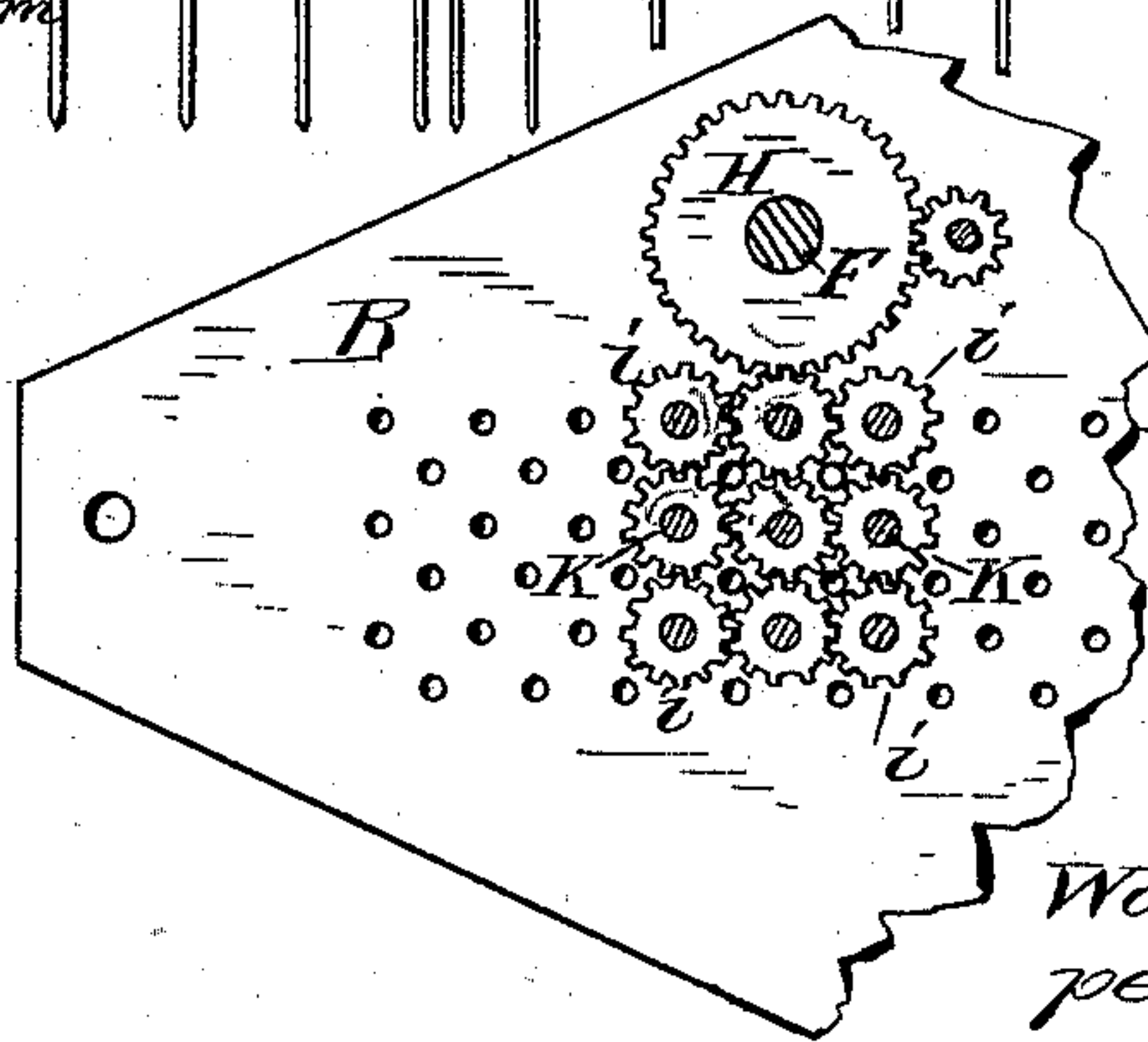


Fig. 5.



Fig. 3.



WITNESSES  
Frank L. Oviand  
L. L. Miller.

INVENTOR  
Watson N. Brown  
per Cha. H. Fowler,  
Attorney



# UNITED STATES PATENT OFFICE.

WATSON N. BROWN, OF MADISON, INDIANA.

## BORING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 257,919, dated May 16, 1882.

Application filed February 20, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WATSON N. BROWN, a citizen of the United States, residing at Madison, in the county of Jefferson and State of Indiana, have invented certain new and useful Improvements in Boring-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a top plan view of my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view in detail, showing the cog-gearing of the upper gang of drills. Fig. 4 is a detail view, partly in section, of the drill and screw-socket, and Fig. 5 is an under plan view of the same.

The present invention has relation to certain new and useful improvements in machines for boring brush-backs; and it consists in the details of construction substantially as shown in the drawings and hereinafter described.

In the accompanying drawings, A B C represent respectively the upper, middle, and lower plates of the machine, which divide it into an upper and lower deck of a gang of drills. These plates are held together and a suitable distance apart by bolts *a*, nuts *b*, and sleeves *c*, said bolts also connecting to the plate a hanger, D, of any suitable shape, form, or construction. This hanger D has bearings for the driving-shafts *d e*, which are held thereon by suitable boxes, *f*, said shafts, upon their outer ends, having pulleys E for imparting motion to the shafts; or any other desirable means may be employed other than belts and pulleys for giving to the shafts a rapid rotary motion.

The shafts *d e* are each provided at their inner end with a bevel cog-wheel, *g*, which meshes respectively with teeth upon similar cog-wheels, *h*. These cog-wheels *h* are each affixed or rigidly secured to the upper end of their respective shafts F. G.

The shaft F, which is driven by the cog-wheel upon the end of shaft *d*, has connected to it a large gear-wheel, H, located between the plates A B, which communicates motion to a train of small cog-wheels, *i*, each of which is secured to a spindle, K. The shaft F passes

through and has its bearings in the plates A B, as do also the spindles K, the latter, in addition, passing through the lower plate, C.

The shaft G passes through the plates A B C, in which it has its bearings, and has connected to it between the plates B C a large gear-wheel, I, similar to that of the shaft F. The wheel I drives the lower gang or train of small cog-wheels, *k*, which are secured to spindles L, said spindles passing through and having their bearings in the plates B C. Both the spindles K L are screw-threaded on their lower ends, the screw-threaded portion being of less diameter than the spindle above it, so as to form an annular shoulder at the upper termination of the screw-threads.

The drills *m* have each a screw-socket, M, as shown in Fig. 4, to attach it to the screw-threaded end of the spindles, the socket being screwed up against the annular shoulder of the spindle, said sockets having taper-holes for drills or bits, as found desirable. The drills may be made to cut either way—right or left hand—having straight lips for the purpose.

It is intended that the machine, so far as practicable, shall be inclosed in a metal casing to exclude the dust and dirt from the gearing.

As will be noticed, there are two separate and independent sets of drills operated by separate and independent driving mechanism; and each of the series of drills is readily and conveniently detached and removed from its spindle and replaced with equal facility. It will therefore be seen that a greater or less number of drills can be used to bore a single row of holes, a double row, or a series of rows, as required, either on a straight line, a curve, circle, or any shape desired.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a boring-machine, the combination, with the plates A B C, arranged as shown, of the two sets of shafts K L, having detachably connected thereto suitable drills, and the cog-wheels *i k*, secured to said shafts as a means of imparting motion thereto, substantially as and for the purpose set forth.

2. In a boring-machine, the plates A B C

and hanger D, in combination with the shafts  
*d e*, provided with gear-wheels *g*, shafts F G,  
with gear-wheels *h* H I, and the two sets of  
spindles K L, having connected to them the  
5 cog-wheels and drills, substantially as and for  
the purpose specified.

In testimony that I claim the above I have

hereunto subscribed my name in the presence  
of two witnesses.

WATSON N. BROWN.

Witnesses:

LEONARD J. WERVER,  
WILLIAM DOOLITTLE.