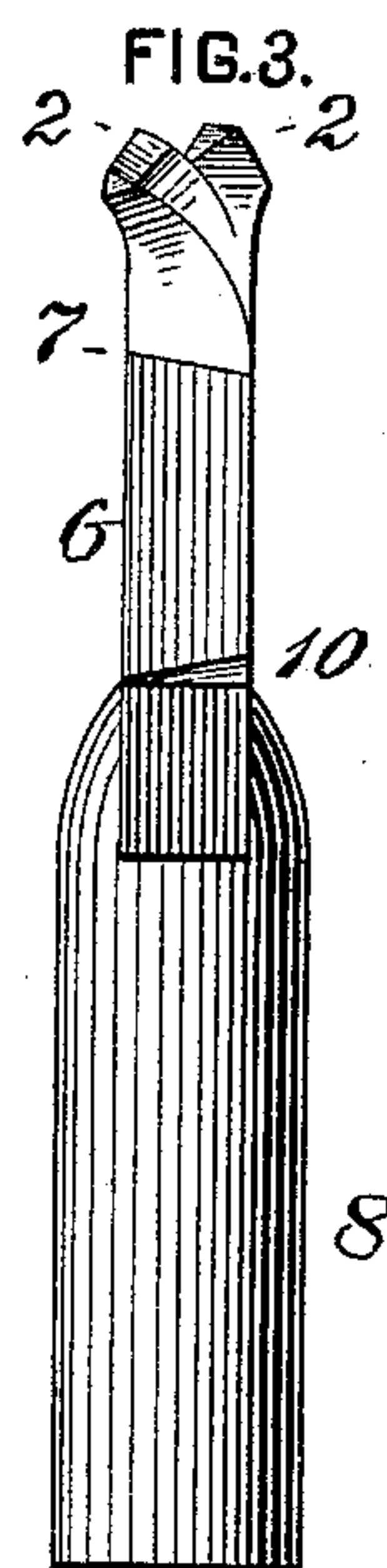
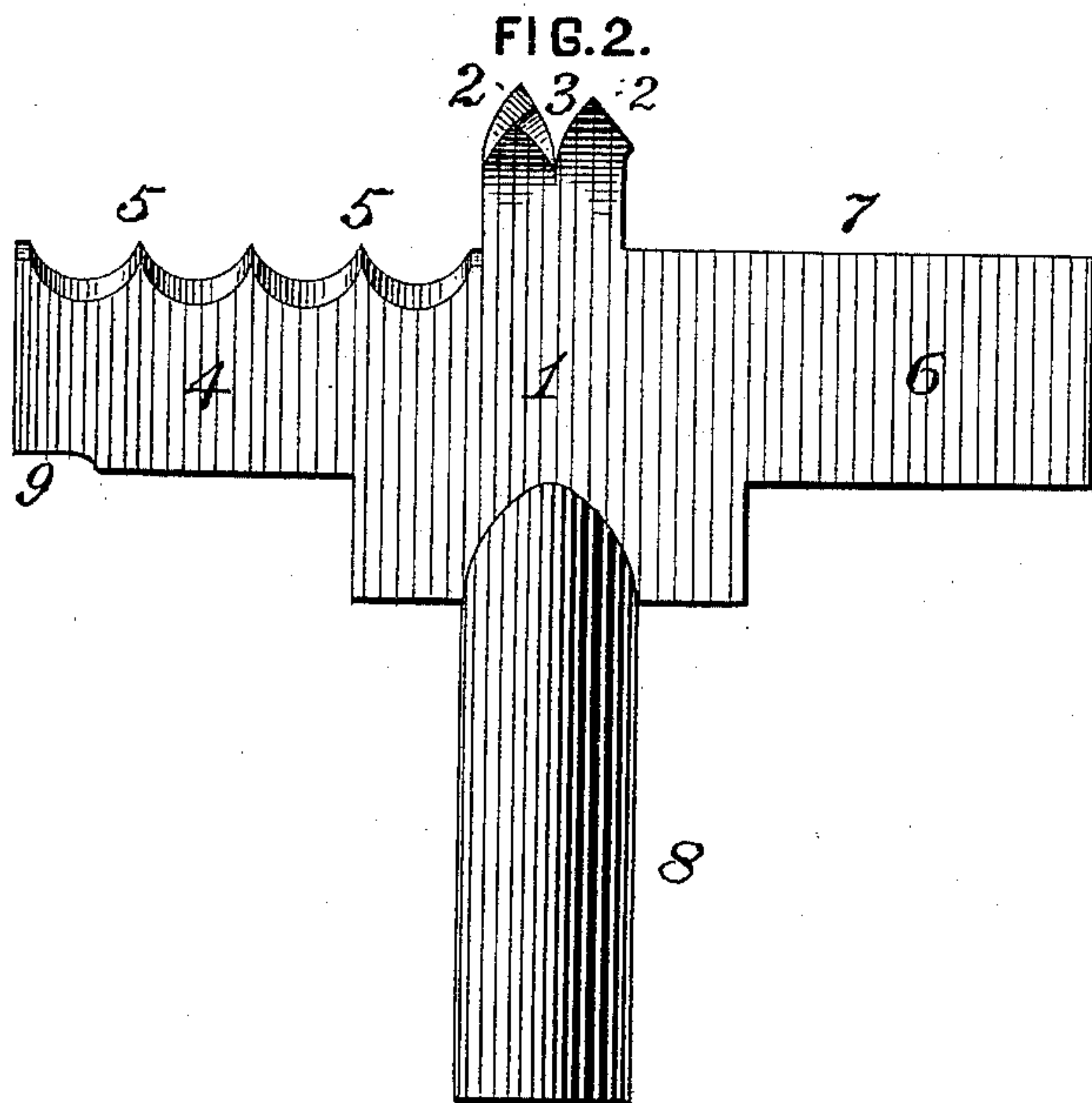
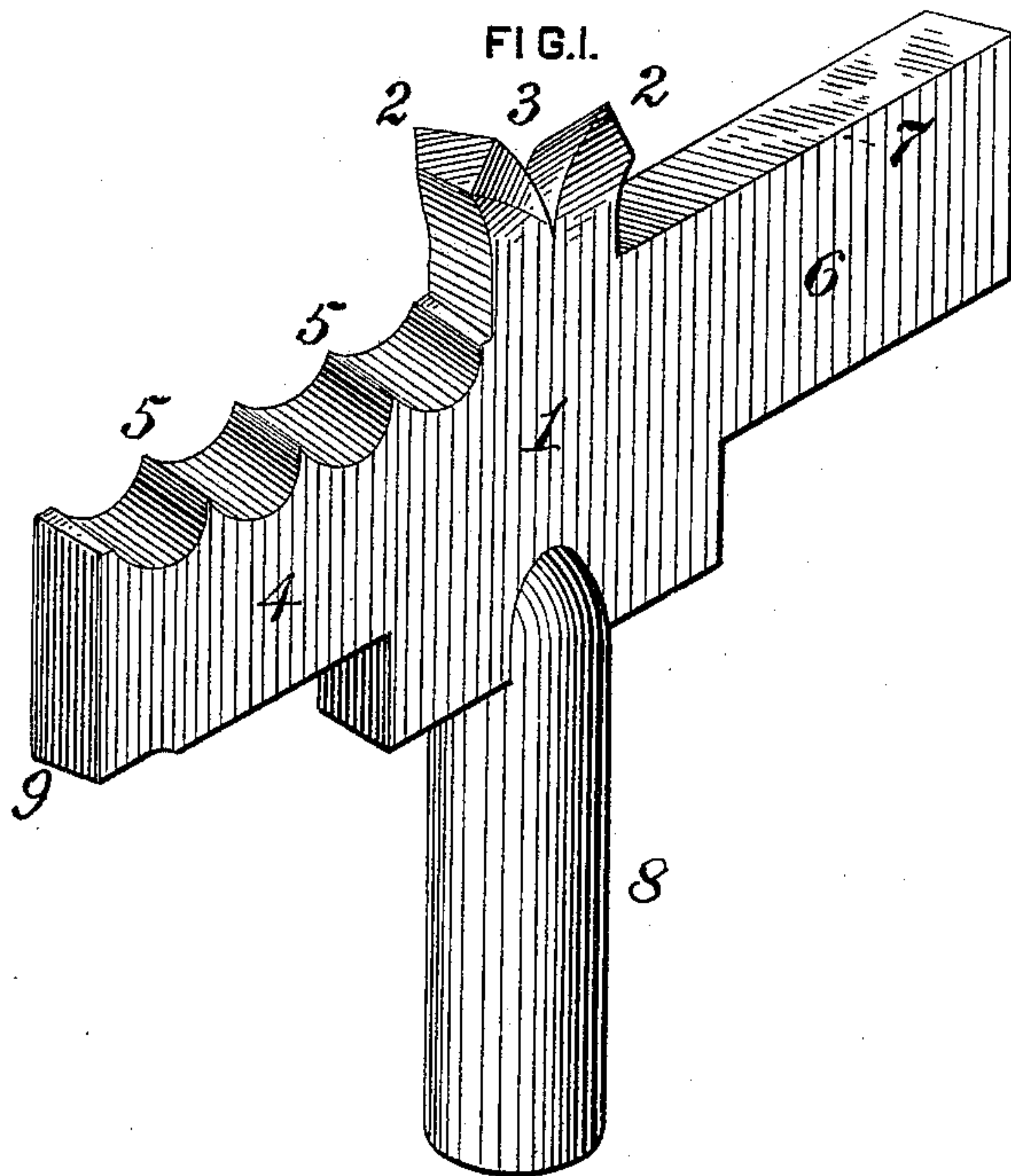


(No Model.)

E. E. CARTER.  
CUTTER FOR MINING MACHINES.

No. 387,050.

Patented July 31, 1888.



WITNESSES:

*R. H. Whittlesey.*  
*F. E. Gaither.*

INVENTOR,

*Edwin E. Carter.*  
*By J. Thorden Bell,* Att'y.

# UNITED STATES PATENT OFFICE.

EDWIN E. CARTER, OF KNOXVILLE, ALLEGHENY COUNTY, ASSIGNOR TO  
JOHN S. SCULLY, OF PITTSBURG, PENNSYLVANIA.

## CUTTER FOR MINING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 387,050, dated July 31, 1888.

Application filed April 24, 1888. Serial No. 271,663. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN E. CARTER, a citizen of the United States, residing at Knoxville, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Cutters for Mining-Machines, of which improvement the following is a specification.

My invention relates to rotary cutters for drilling or boring into coal and other minerals; and its object is to provide a cutter of such type which shall be rapid and effective in operation, free from undue friction, and adapted to cut in either direction, so as to be withdrawn in the event of the settling of the material in which it acts.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a view in perspective of a cutter embodying my invention, and Figs. 2 and 3 views in elevation, at right angles one to the other, of the same.

In the practice of my invention I form a cutter, 1, having a central cutting-point, or preferably, as shown, two cutting-points, 2 2, located on opposite sides of an intermediate recess, 3, concentric with the spindle to which the cutter is secured and by which it is rotated. Lateral wings 4 and 6 project from the central portion of the cutter below the cutting-points 2 2, one of said wings, 4, being provided with a series of transverse scoring-edges, 5, separated by intermediate clearing recesses, and the other, 6, with a longitudinal cutting-edge, 7, in or substantially in line with the leading ends of the scoring-edges 5. A stem, 8, formed centrally upon the cutter serves for the attachment of the same to a suitable head or socket fixed upon the spindle by which it is driven.

To enable the cutter to operate in either di-

rection, so as to cut out of the bore if held therein by the settling of the material, the rear sides of the wings 4 and 6 are relieved at their ends, forming cutting-edges 9 and 10, which act upon material within and adjoining the circle of the bore when the cutter is fed in reverse direction to its normal movement in advancing into its work.

In operation the opening which is formed by the preliminary action of the cutting-points 2 2 is rapidly and freely enlarged to the full diameter of the bore by the cutting edges of the wings 4 and 6, the scoring-edges 5 forming concentric ridges, which are broken into coarse fragments and detached by the cutting-edge 7 of the opposite wing. The cutter may be readily withdrawn if the material settles by rotating it in the opposite direction and cutting away the material in its rear by the cutting-edges 9 and 10.

I claim as my invention and desire to secure by Letters Patent—

1. A cutter having a cutting point or points for removing material at and adjoining its center and two lateral wings in a plane below said cutting-points, one of said wings being provided with transverse scoring-edges and the other with a longitudinal cutting-edge, substantially as set forth.

2. A cutter having a cutting point or points at or adjacent to its center and two lateral wings provided with cutting and scoring edges, respectively, each of said wings having a cutting-edge on its rear side, substantially as set forth.

In testimony whereof I have hereunto set my hand.

EDWIN E. CARTER.

Witnesses:

J. SNOWDEN BELL,  
R. H. WHITTLESEY.