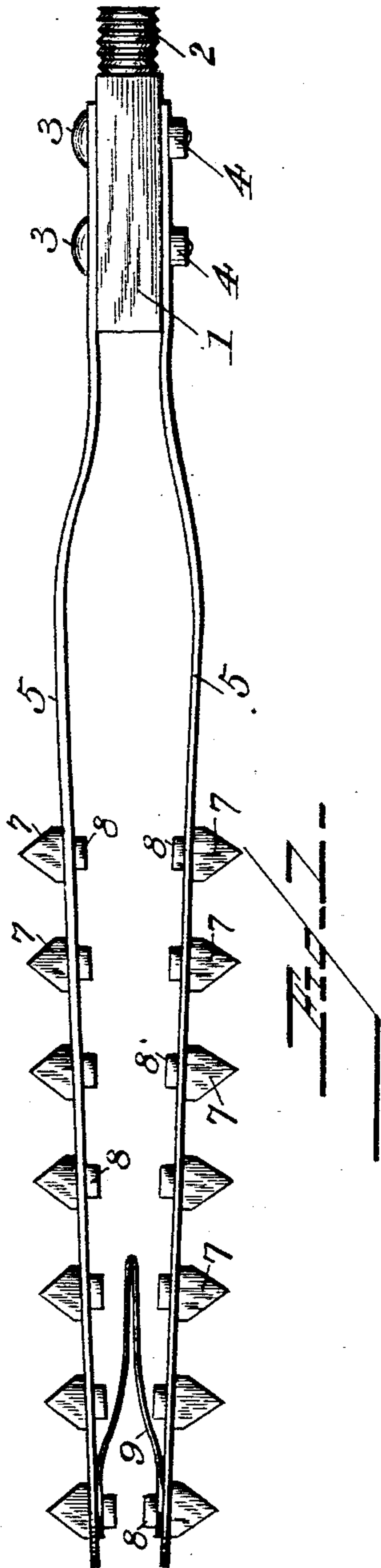


(No Model.)

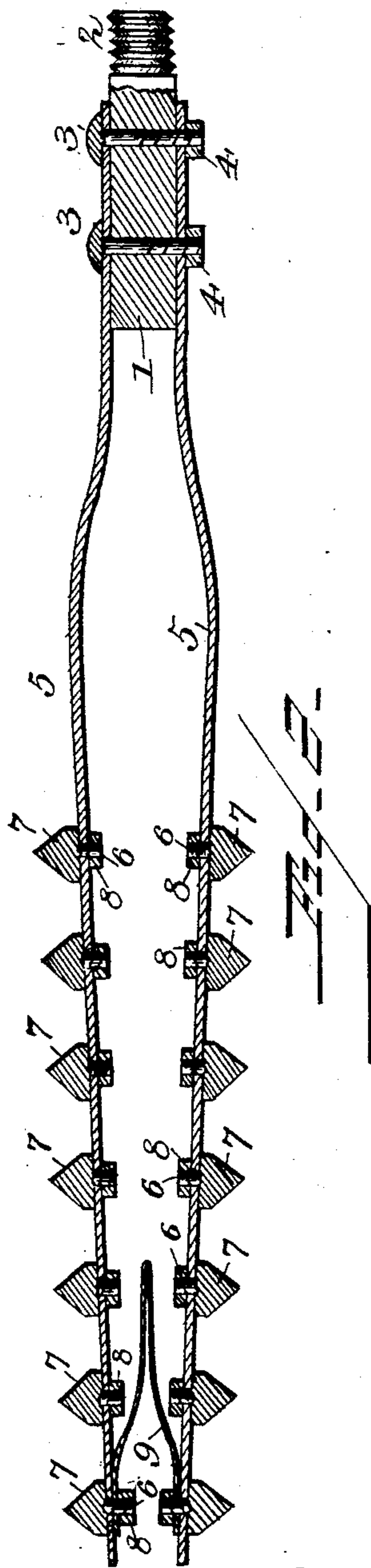
J. DUDLEY & W. McCASKEY.
STONE GROOVING TOOL.

No. 541,321.

Patented June 18, 1895.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JAMES DUDLEY AND WILLIAM McCASKEY, OF KILLBUCK, OHIO.

STONE-GROOVING TOOL.

SPECIFICATION forming part of Letters Patent No. 541,321, dated June 18, 1895.

Application filed March 13, 1895. Serial No. 541,619. (No model.)

To all whom it may concern:

Be it known that we, JAMES DUDLEY and WILLIAM McCASKEY, citizens of the United States, and residents of Killbuck, in the 5 county of Holmes and State of Ohio, have invented certain new and useful Improvements in Stone-Grooving Tools; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will 10 enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to improvements in 15 tools for use in quarrying or working stone, and its object is to provide a device for grooving or forming leaders in the blast holes for the purpose of directing the line of break when the blast is fired.

20 The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is an elevation of a tool constructed in accordance with our invention. Fig. 2 is a central 25 longitudinal section of the same.

In the said drawings, the reference numeral 1 designates a metal head, having its upper end screw-threaded, as seen at 2. Secured to 30 this head by screw-bolts 3 and nuts 4, are two spring steel arms 5, which bend outwardly, and then converge inwardly at their lower ends. These arms are formed with a number of apertures, through which pass the screw-threaded shanks 6, of the pyramidal cutters or 35 groovers 7, made of hardened steel. These cutters are removable and are secured to the arms by means of nuts 8. Located between the said arms, near their lower ends, is a spring 40 9, consisting of a strip of sheet metal bent over on itself at the center and having its ends bent outward and formed with apertures, through which the shanks of the outermost cutters at the ends of the arms pass, and by 45 which the spring is held in place. The tendency of this spring is to force the arms outward or away from each other.

The tool is operated as follows: A hole being drilled in the stone, the ends of the arms are inserted therein, and the latter then forced 50 inwardly into the hole. The cutters will groove or channel the hole, and owing to the convergency of the arms, each succeeding cutter will cut the groove or leader a little deeper, the resiliency of the arms, and of the 55 spring 9 allowing the arms to readily enter the hole, yet, forcing the cutters against the sides of the hole with the proper degree of pressure to cut the groove or leader.

By this construction one person can readily 60 groove a hole and there will be no liability of the tool turning during the operation, thus insuring that the groove shall take the proper direction.

By making the cutters removable, in case 65 of breakage or dullness, they can be removed and replaced by others. This is a great improvement over the ordinary forms of tools for the purpose designed, as it effects a great saving in time, labor, and money. 70

The object of the screw threads at the upper end of the head is to allow a bar or pipe to be connected therewith to lengthen the tool, so that it can groove deep holes.

Having thus fully described our invention, 75 what we claim is—

In a stone grooving tool, the combination with the block, the spring metal arms bolted thereto, and the removable pyramidal shaped cutters, having screw-threaded shanks passing 80 through apertures in the arms and the securing nuts, of the spring bent over upon itself at the center and formed with apertures at the ends through which the shanks of said cutters pass, substantially as described. 85

In testimony that we claim the foregoing as our own we have hereunto affixed our signatures in presence of two witnesses.

JAMES DUDLEY.
WILLIAM McCASKEY.

Witnesses:

WILLIAM WILSON,
CHARLES C. THOMPSON.