

Nov. 26, 1935.

H. C. SHAUGHENCY

2,021,900

PICK

Filed June 5, 1933

Fig. 1.

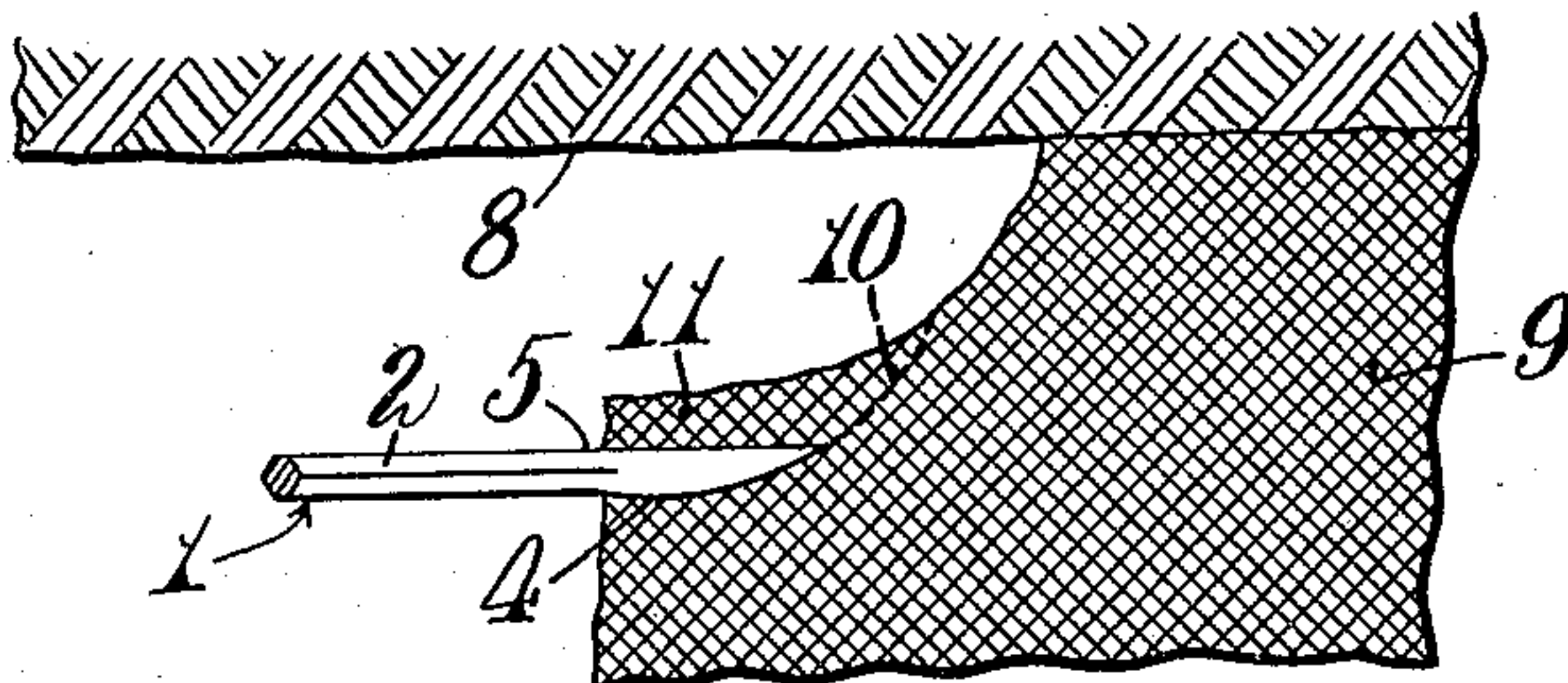


Fig. 2.

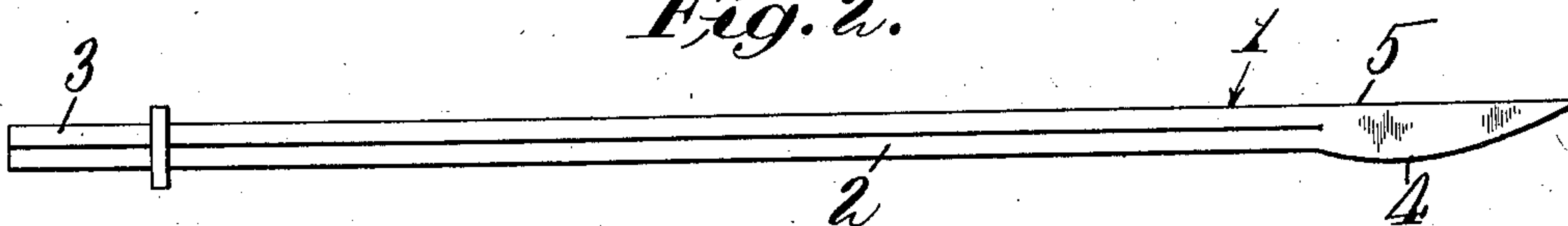


Fig. 3.

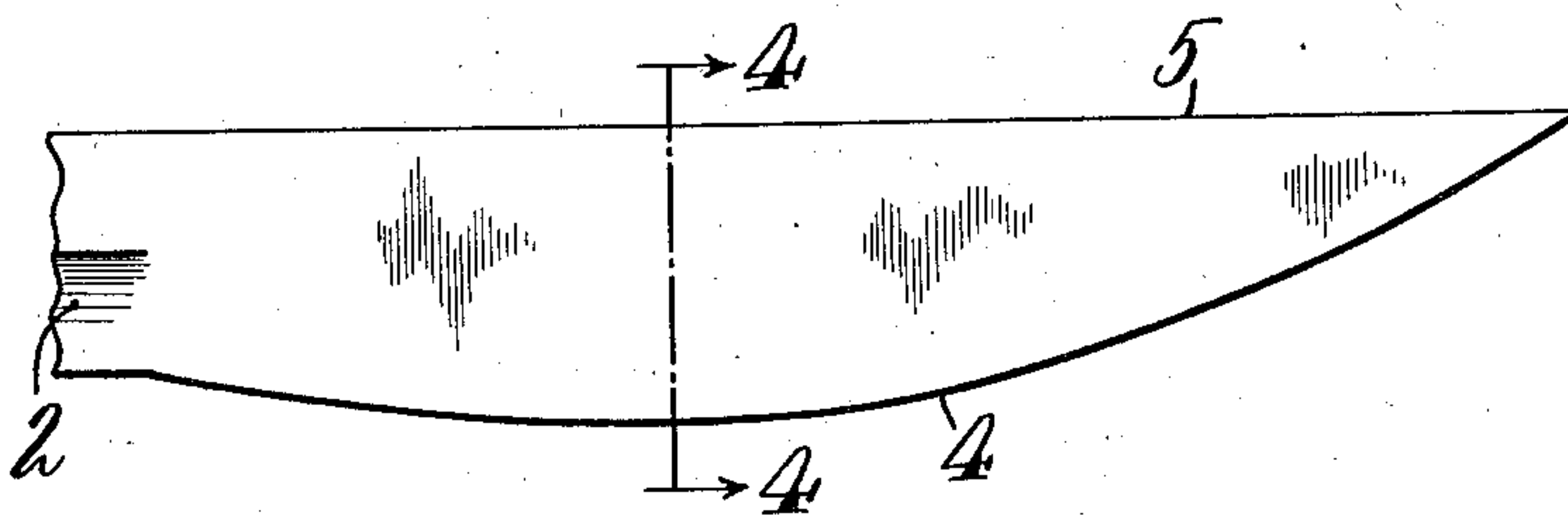


Fig. 4.

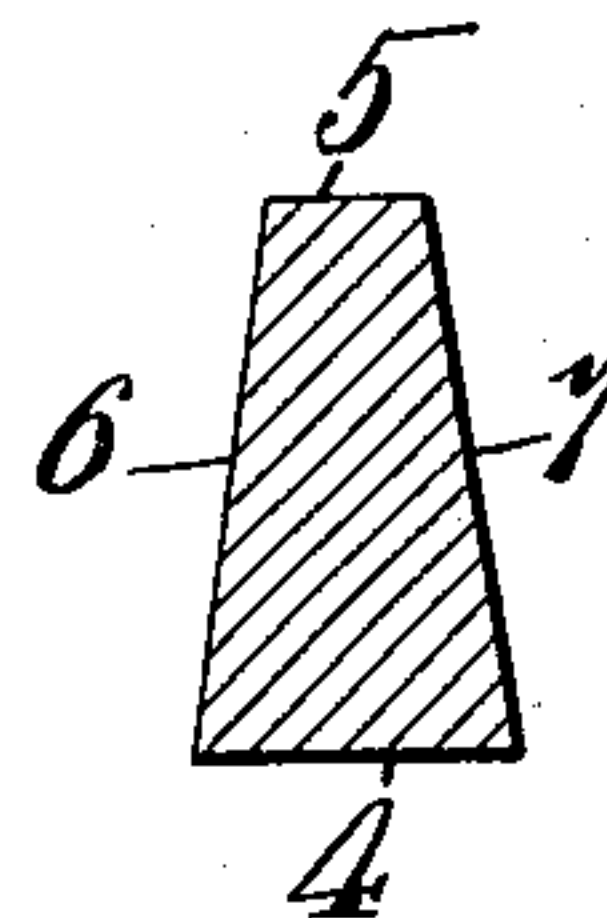
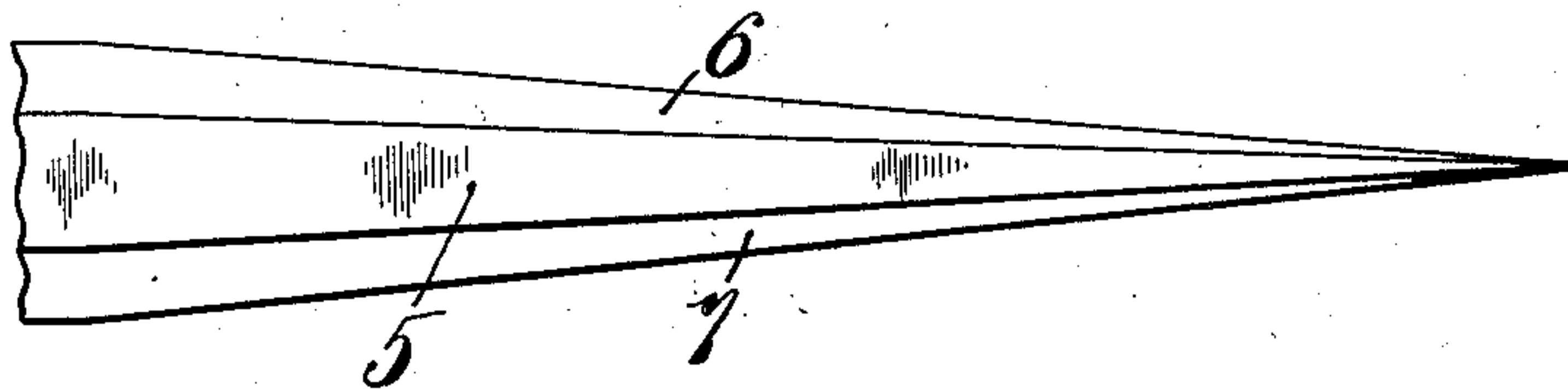


Fig. 5.



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Arty.

UNITED STATES PATENT OFFICE

2,021,900

PICK

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Application June 5, 1933, Serial No. 674,387

6 Claims. (Cl. 262—33)

This invention relates to picks, and more particularly, but not exclusively, to picks especially designed for use with pneumatic hammer tools.

An object of this invention is to provide an improved picking tool. Another object is to provide an improved picking tool having a pick point of improved shape, whereby the material acted on by the tool is broken down in an improved manner. A further object is to provide an improved picking tool particularly adapted to use for mining purposes, and more particularly for use in the mining of coal or similar cleavable materials. These and other objects will, however, hereinafter more fully appear.

In the accompanying drawing there is shown for purposes of illustration one form which the invention may assume in practice.

In this drawing,—

Fig. 1 is a diagrammatic view showing the picking tool in operative position with respect to the work.

Fig. 2 is a side elevational view of the illustrative form of the improved picking tool.

Fig. 3 is an enlarged side elevational view of the improved pick point.

Fig. 4 is a cross sectional view taken on line 4—4 of Fig. 3.

Fig. 5 is a plan view of the pick point shown in Fig. 3.

In this illustrative form of the invention the improved picking tool, generally designated 1, is preferably operated by a pneumatic hammer tool such as a pick hammer or a pneumatic rock drill, although if desired the tool shank may be percussively actuated by other power means or by manually operated hammer devices, it not being desired to limit the use of the pick to employment with any particular hammer tool.

In the development of the improved pick disclosed herein, several different shapes of pick points have been experimented with; and after a number of tests the form shown was found most efficient under most conditions. The improved pick comprises a relatively long body or shank 2 which, throughout a major portion of its length, is polygonal in cross section, preferably hexagonal, but in certain types of picks the body may be round, or other shapes in cross section. Formed on the rear end portion of the pick body, when actuation by a pneumatic hammer motor is to be effected, is a usual collared shank 3 designed for reception in the chuck of the pick actuating tool. The improved pick point, in side elevation, as viewed in Fig. 3, has, in a preferred form, an arcuate or convex bottom surface 4 ex-

tending from the pick body to the pick point and terminating at the latter in the plane of the top surface of the pick body, as shown in Fig. 2. The convex surface 4 is desirably formed on a curve which causes the maximum top to bottom dimension of the working part to exceed the thickness of the shank or body 2. The pick point in plan, as viewed in Fig. 5, is wedge shaped. The side surfaces 6 and 7 extending from the pick body or shank to the pick point converge both upwardly and towards the pick point. These side surfaces are plane surfaces and, as just indicated, incline downwardly and outwardly with respect to each other, in the manner shown in cross section in Fig. 4, and terminate in the top surface 5 and the curved lower surface 4. As shown in Fig. 4, the pick point is polygonal in cross section and the lower surface 4 is somewhat greater in width than the top surface 5, due to the divergence of the plane side surfaces 6 and 7 of the point. The surfaces 4, 5, 6 and 7 all come to a point at the cutting end of the pick, at the pick point.

It will be evident that it is not essential that the surfaces 5, 6 and 7 be plane, and that surface 5 may be slightly concave, for example, and surfaces 6 and 7 may be either slightly concave or slightly convex, though the construction illustrated is very satisfactory.

It will thus be seen that as the picking tool is percussively actuated, the sharp point of the pick penetrates the coal, and due to its peculiar wedge shape cleaves or shears the coal, thereby tending to break loose the coal. By the provision of the curved lower surface 4 the picking tool tends to move upwardly in an arcuate path, when operated in the position shown in Fig. 1, thereby facilitating the penetrating movement of the pick point and the breaking down of the coal. As shown diagrammatically in Fig. 1, the mine roof is shown at 8 and the layer of coal at 9. As the pick penetrates the coal in the manner shown in Fig. 1, the coal tends to break along the curved line 10, due to the upward arcuate movement of the pick, thereby breaking the portion 11 from the mine wall, this operation being repeated by successive penetrating thrusts of the pick point within the coal, and, as a result, the coal or other material attacked is broken down in large lumps. Due to the greater width of the surface 4, it serves to skid the bit upwardly very effectually. The convergence upwardly of the surfaces 6 and 7 also facilitates a wedging or splitting action, so that cleavage is very effectively accomplished. The proportions of the top surface give a sufficient upward wedging ac-

tion, without preventing the splitting effect just mentioned. The forward taper also provides a lateral splitting action, so that the tool as it penetrates has a transverse ripping effect, which
 5 supplements the vertical splitting action of the surfaces 6, 7 on upward skidding due to the curvature of surface 4, and the upward bodily wedging action of surface 5. From these facts the suitability of this tool for its purpose and its
 10 advantages will be clearly apparent to those skilled in the art.

While there is in this application specifically described one form which the invention may assume in practice, it will be understood that this
 15 form of the same is shown for purposes of illustration and that the invention may be modified and embodied in various other forms without departing from its spirit or the scope of the appended claims.

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

1. A picking tool comprising a substantially straight body having a shank at one end, and a pick point formed on the body at the working end
 25 of the pick and formed rigid and integral with the main body, said pick point being formed with a plane top surface, a convex lower surface and relatively inclined plane side surfaces extending for the length of the point and converging up-
 30 wardly towards said plane top surface and also forwardly into a pointed end at the working end of the pick, said point being polygonal in cross section.

2. A picking tool comprising a substantially straight body having a shank at one end, and a pick point formed on the body at the working
 35 end of the pick and formed rigid and integral with the main body, said pick point being formed with a plane top surface, a convex lower surface and relatively inclined side surfaces converging forwardly into a pointed end at the working
 40 end of the pick and said side surfaces slanting outwardly and downwardly toward said convex surface, the latter being of an area greater than the area of the sum of the areas of the top sur-
 45 face and the projections on a surface parallel to said top surface of the side surfaces.

3. A picking tool comprising a substantially straight body having a shank at one end, and a
 50 pick point formed on the body at the working end of the pick and formed rigid and integral with the main body, said pick point being formed with a plane top surface, a convex lower surface

and relatively inclined side surfaces converging forwardly into a pointed end at the working end of the pick and said side surfaces slanting out-
 wardly and downwardly toward said convex sur-
 face, said pick point being formed trapezoidal in
 5 cross section.

4. A picking tool adapted for coal mining and comprising a shank composed of a substantially straight bar extending throughout the major por-
 10 tion of the length of the tool and a relatively short working end terminating in a point and having a plane surface lying in a plane with a surface element of said bar, lateral plane sur-
 faces diverging longitudinally from the point rearwardly and transversely of the tool from said
 15 first mentioned surface, and a fourth surface extending from said point rearwardly to said bar and having curved lines of junction with said lateral surfaces, said working end of maximum
 dimension perpendicular to said first mentioned
 20 surface at a point between its junction with the bar and its point.

5. In a tool of the character which comprises an elongated rectilinear shank and a relatively short working end and which is percussively ac-
 25 tuated rectilinearly in a direction axially of its shank, a shank, and a working end terminating in a point, said end having a convex surface extending from said point rearwardly and a nar-
 30 rower, plane, forwardly tapering surface opposite said convex surface and parallel to the axis of the shank and extending to said point, and lateral surfaces extending to said point and di-
 verging both rearwardly from said point and from said plane surface towards said convex sur-
 35 face.

6. In a tool of the character which comprises an elongated rectilinear shank and a relatively short working end and which is percussively ac-
 40 tuated rectilinearly in a direction axially of its shank, a shank, and a working end terminating in a point substantially in a common plane with an element of the surface of the shank, said end having a convex surface extending from said point rearwardly and a narrower, plane, forwardly ta-
 45 pering surface opposite said convex surface and parallel to the axis of the shank and extending to said point, and lateral plane surfaces extending to said point and diverging both rearwardly from said point and from said plane surface to-
 50 wards said convex surface.

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