

April 20, 1937.

F. E. KOEBEL

2,078,201

DIAMOND TOOL

Filed Nov. 24, 1936

Fig. 1

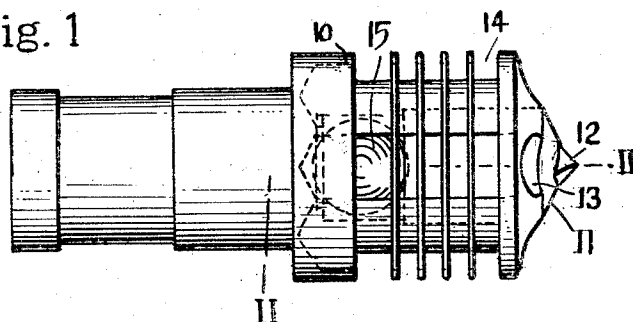


Fig. 2

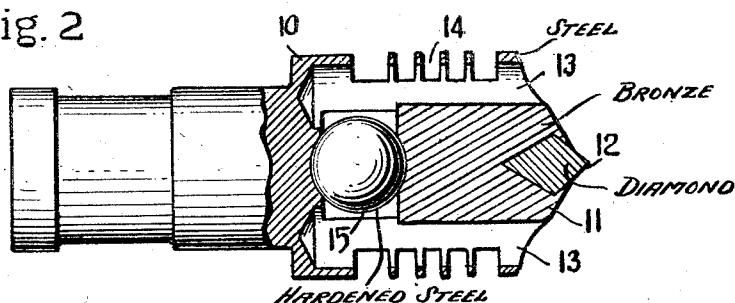
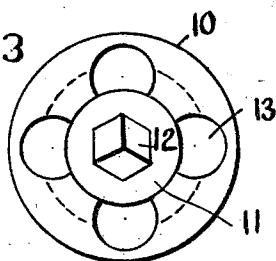


Fig. 3



Inventor,
Frank E. Koebel,

By *Samuel W. Balch*
Attorney.

UNITED STATES PATENT OFFICE

2,078,201

DIAMOND TOOL

Frank E. Koebel, Glen Ridge, N. J., assignor to
J. K. Smit & Sons, Inc., New York, N. Y., a corporation of New York

Application November 24, 1936, Serial No. 112,515

3 Claims. (Cl. 125—11)

This invention relates to a tool consisting of a head and diamond set in the end of the head to be used chiefly for dressing grinding-wheels in the manner set forth in my United States Patent No. 2,047,147, dated July 7, 1936. The object of the invention is to provide a free flow of cooling water supply immediately around the cutting point of the diamond and through passageways in the head in which the diamond is set, and the construction is such that the passageways are conveniently formed in the process of construction and additional radiating surface provided by means of fins exposed to the water for the dissipation of heat. A further object is to provide a construction by which the diamond is firmly held by the head. The tool also has advantages where dry dressing is necessary since the fins and passageways afford exposed surfaces for air cooling.

In the accompanying sheet of drawing which forms a part of this description the tool is drawn to an enlarged scale.

Figure 1 is a side elevation of the tool.

Fig. 2 is a partial longitudinal section on the line II—II of Fig. 1.

Fig. 3 is an end view.

A suitable size for the tool is usually between a half and two-thirds of an inch in diameter.

A head consisting of a steel socket piece 10 and a bronze plug 11 has a diamond 12 firmly set in the end of the plug. Holes 13 are drilled in the rim of the socket piece and parallel to the axis of the tool and the socket is bored out so that it will partially cut away the sides of the holes. Circumferential grooves 14 are turned in the periphery of the socket to such depth that they will communicate with the parallel holes. Fins will be left between the grooves and afford additional cooling surface. The plug is made two to three thousandths of an inch larger in diameter than the socket so that it will be a tight fit when driven in. In the bottom of the socket a hardened piece, suitably a steel ball 15, is set at the back of the plug. By reason of the limited area of contact with the ball the end of the plug will be indented when driven in, the metal upset and the plug expanded so as to more firmly bind in the socket.

The ball does not entirely fill the space between the back end of the plug and the bottom of the socket and this space serves as a passageway interconnecting the parallel holes.

In using the tool a stream of water is directed against the side of the tool, a portion of the stream directly striking and cooling the exposed point of the diamond and other portions entering the grooves between the fins and circulating through the holes and the space back of the plug.

I claim,

1. A diamond tool comprising a head and a diamond set in the end of the head and having parallel holes surrounding the diamond setting, a passageway interconnecting the holes at the back of the setting and circumferential grooves in the periphery of the head which communicate with the parallel holes to provide for circulation of water around the setting.

2. A diamond tool comprising a head and a diamond, the head consisting of a socket piece and a plug contained in the socket with the diamond set in the end of the plug, the rim of the socket piece having parallel holes with sides partially cut away so as to be in communication with the socket space and open to the surface of the plug and circumferential grooves in the periphery of the head which communicate with the parallel holes to provide for circulation of water around the plug.

3. A diamond tool comprising a head and a diamond, the head consisting of a socket piece and a plug contained in the socket with the diamond set in the end of the plug, the rim of the socket piece having parallel holes with sides partially cut away so as to be in communication with the socket space and open to the surface of the plug and circumferential grooves in the periphery which communicate with the parallel holes to provide for circulation of water around the plug, and a hardened ball between the rear end of the plug and the bottom of the socket with a limited area of contact against the plug, whereby when the plug is driven against the ball it will be indented and expanded so as to be more firmly bound in the socket.

FRANK E. KOEBEL.