No. 888,361. PATENTED MAY 19, 1908.

J. SOPP.

DRILL STEEL SHARPENER.

APPLICATION FILED APR. 5, 1907.

2 SHEETS—SHEET 1.

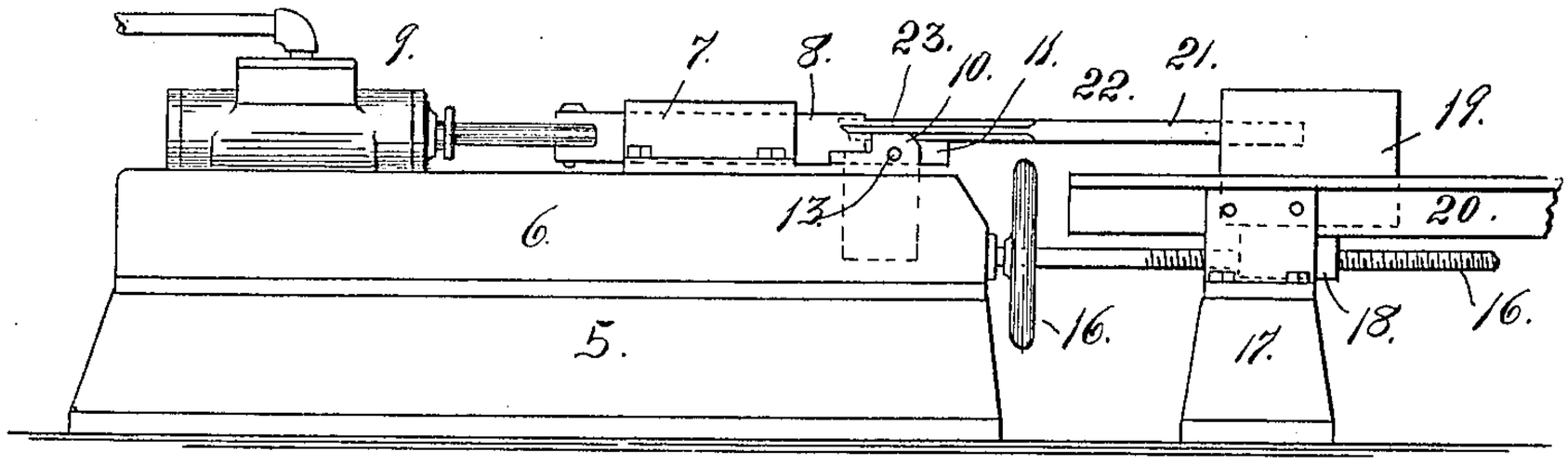

Fig. 1.

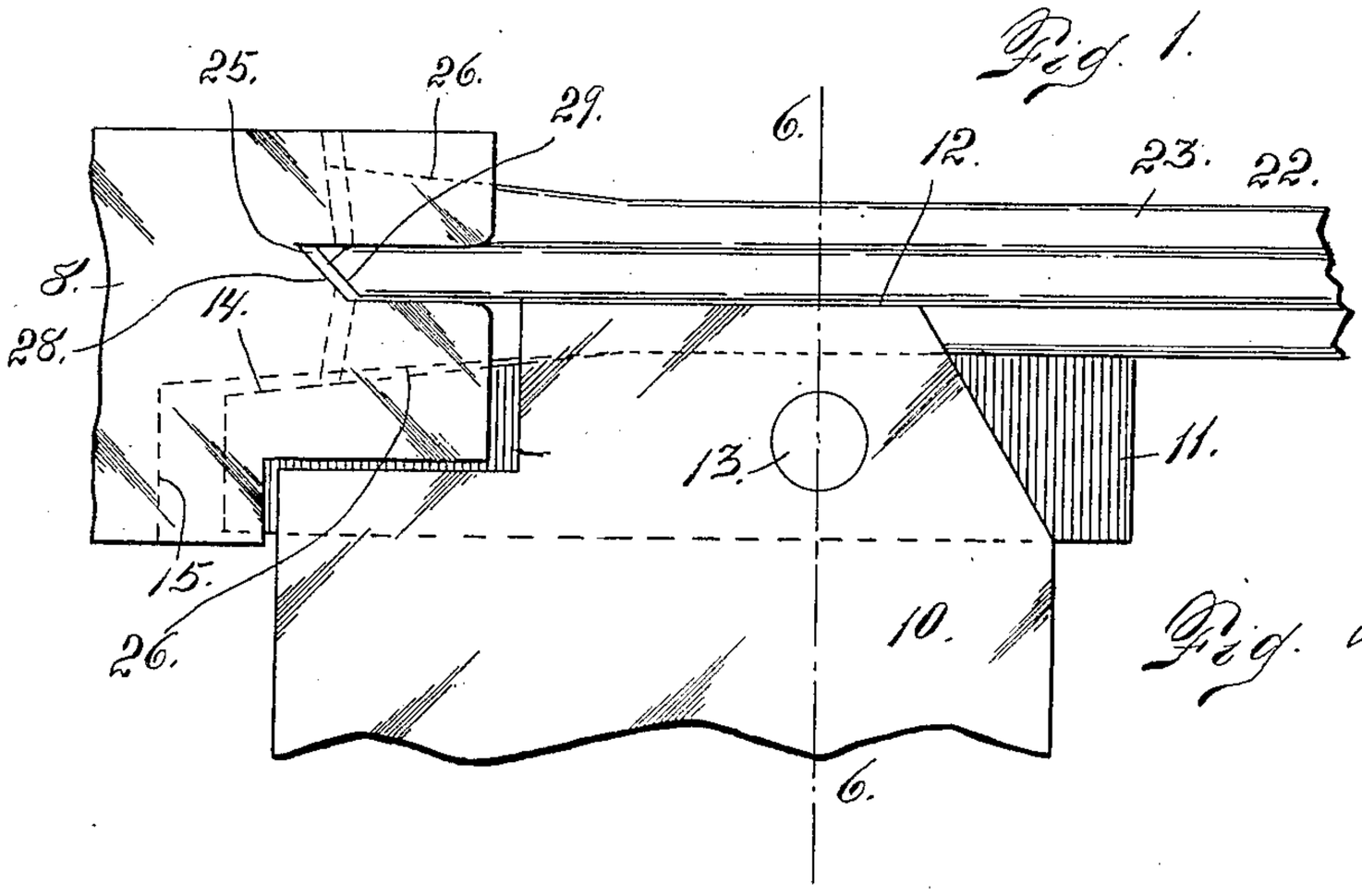

Fig. 2.

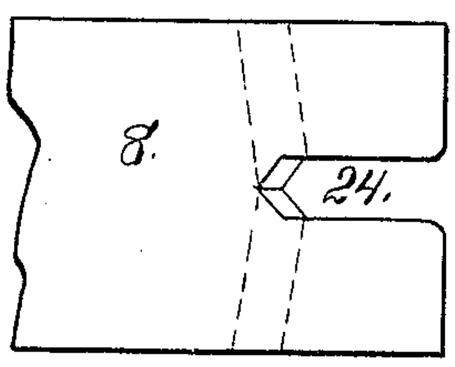

Fig. 3.

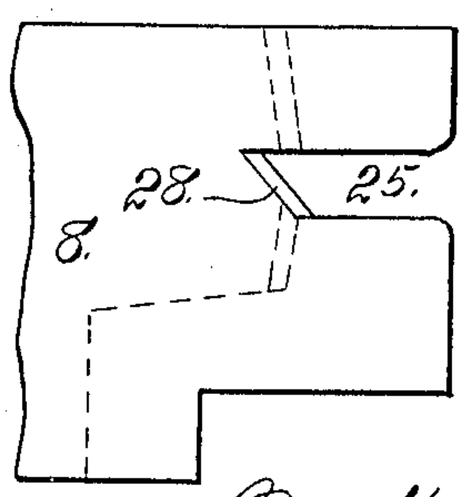

Fig. 4.

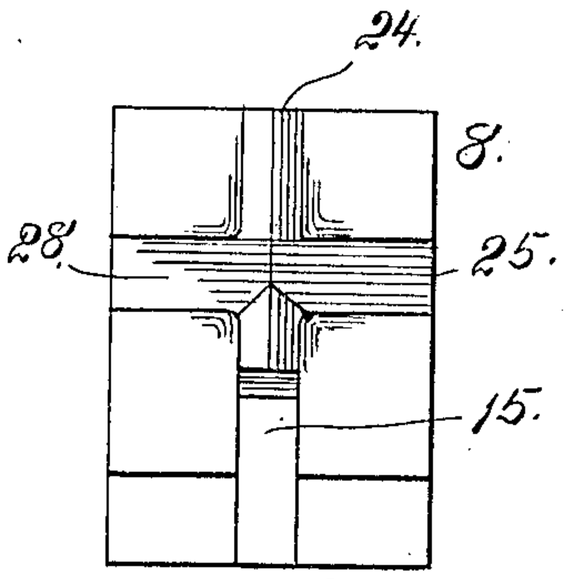

Fig. 5.

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2 SHEETS—SHEET 2.

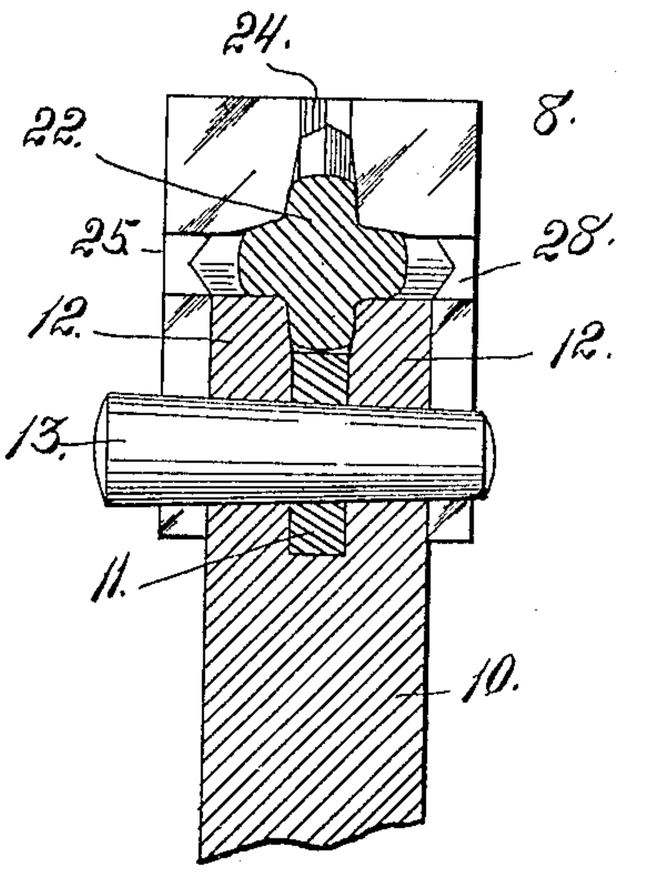

Fig. 6.

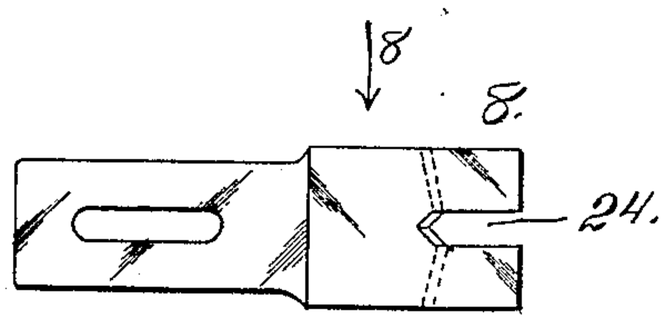

Fig. 7.

Fig. 8.

Fig. 9.

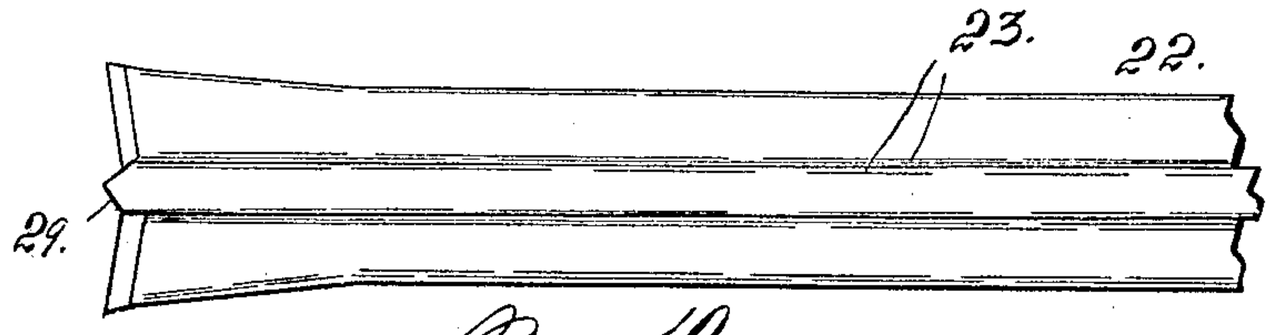

Fig. 10.

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UNITED STATES PATENT OFFICE.

JOSEPH SOPP, OF GEORGETOWN, COLORADO, ASSIGNOR OF ONE-FOURTH TO ROY RUSSELL WHEELER, OF SILVER PLUME, COLORADO.

DRILL-STEEL SHARPENER.

No. 888,361. Specification of Letters Patent. Patented May 19, 1908.

Application filed April 5, 1907. Serial No. 366,572.

To all whom it may concern:

Be it known that I, JOSEPH SOPP, a citizen of the United States, residing at Georgetown, in the county of Clear Creek and State of Colorado, have invented certain new and useful Improvements in Drill-Steel Sharpeners; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in drill steel sharpeners, and relates more particularly to the peculiar kind of dolly I employ.

As shown in the drawings and hereinafter described, my improved dolly is provided with intersecting slots. The bottom of the one slot is V-shaped, while the bottom of the other slot is inclined in one direction only forming a sharpening face for the drill steel. The upper extremity of this sharpening face in the bottom of one slot, is located slightly above the upper extremities of the walls of the V-shaped groove in the bottom of the other intersecting slot. The depth of the two intersecting slots is such, that the cutting edges of the wings of the drill steel, never reach the lowest portions of the bottoms of the slots. The only function of the slot having the V-shaped bottom, is to make room for two of the wings of the drill steel during the operation of sharpening, since it is necessary to impart to the steel a complete rotation, by giving it a quarter turn at a time.

By virtue of my improved construction, only one side of the cutting edge of one pair of wings is sharpened at a time, but by the time the steel is given a complete half turn. the other sides of the cutting edges of the same two wings are sharpened. During the sharpening operation the cutting edges of the wings of the drill bit which occupy the slot having the V-shaped bottom, do not touch the bottom of the slot and consequently there is no upsetting action. By having a single sharpening bevel as heretofore explained, the drill steel sharpening function, may be accomplished by imparting light blows only to the dolly; while by preventing the cutting edges of the steel from engaging the bottoms of the grooves, these edges can never be upset.

My improved dolly is the only device of its class, capable of sharpening a drill steel having a hole in the center, for the introduction of air or water, without closing or partially closing this hole. Attention is called to the fact that in my improved construction, the bottom walls of both intersecting grooves, are highest at the center of the dolly and slope downwardly as they extend outwardly. In my improved dolly, the slots are of considerable depth before the sharpening face of the dolly at the bottom of one slot and the V-shaped groove at the bottom of the other slot, is reached. By virtue of this construction the sides of the wings of the drill bit are properly shaped during the operation of sharpening the drill steel, and are prevented from changing their shape since they are confined between the walls of the intersecting slots.

Heretofore so far as I am aware, the sharpening faces of dollies are equal in number to the entire number of cutting edges of the drill steel making it very hard to sharpen the drill, and almost impossible to get good sharp cutting edges, while with my invention one edge or face at a time of two wings of the drill steel is sharpened, and a good clean cutting tool is obtained. Experience has proven that my improved dolly is extremely advantageous for drill steel sharpening purposes.

Having briefly outlined my improved device, I will proceed to describe the same in detail reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing, Figure 1. is a side elevation showing the application of my device. Fig. 2. is a detail view showing the drill steel and dolly in operative position. Figs. 3, 4 and 5, are top, side and front views respectively of the dolly. Fig. 6. is a section taken through line 6—6 of Fig. 2. Figs. 7 and 8. are side views showing a hand operating dolly. Figs. 9 and 10. are end and longitudinal views of the drill steel.

Let the numeral 5 designate a frame supporting a bed 6 upon which is mounted a hollow head piece 7 having slidably mounted therein a dolly 8. Suitably connected to one extremity of the dolly is any source of power designated as 9, and at the other extremity thereof but mounted in the bed 6 is a remov-

able guide block 10, which carries the key 11 locked between its walls 12 by means of the pin 13. The beveled extremity 14 of the key 11 is adapted to fit in a groove 15 of the dolly to keep the parts in alinement as the machine is operated.

At the extremity of the bed 6 remote from the source of power is a feed screw 16 having one extremity connected to the bed and the other extremity supported by the frame 17. In connection with the screw and operated thereby through means of the screw sleeve or follower 18 is a recessed block 19 slidably mounted on the shell table 20. The said block is adapted to receive and carry the shank 21 of the drill 22 while the redhot flange or blade portion 23 of the drill rests upon the key 11 and walls 12 of the guide block 10 which holds the same in alinement with the dolly.

The dolly has formed in its working extremity intersecting slots 24 and 25, the slot 24 being adapted to receive the blades 26 of the drill which are not being sharpened while the slot 25 receives the blades 27 which are being sharpened by pneumatically hammering the angle sharpening face 28 of the dolly against the cutting edge 29 of the drill. There is only the one sharpening face to the dolly and this is on the same angle and plane as the cutting edge 29 of the drill. Each of the cutting edges in turn receive the sharpening position of the edge 29 by quarter revolutions, and not until the drill has received a complete revolution have each of the edges been placed in this sharpening position.

From the foregoing description the use and operation of my improved sharpening means will be readily understood. When the dolly and drill are placed in their relative positions the power is applied to operate said dolly, and the heated drill is then gradually fed by means of the feed wheel until its cutting edges 29 meet the sharpening face 28 of the operating dolly. The dolly being so much harder than the heated drill a sharp cutting edge is soon obtained. After this edge 29 is properly sharpened the drill receives a quarter turn and the edge 30 occupies the position of the edge 29 and is sharpened. These quarter revolutions are continued as the edges are sharpened until the drill receives a complete revolution and all of the edges have been sharpened. The drill is then removed from the machine and ready for use.

Attention is called to the fact that the outer edges of the walls of the slots 24 and 25 of the dolly are slightly rounded or beveled so as to allow the heated drill to enter said slots freely, and without meeting any obstructions.

It must be understood that the special construction of the dolly as herein described may be varied without departing from the spirit of my invention, and that I claim any dolly which requires partial revolutions of the drill during its sharpening process.

Having thus described my invention, what I claim is:

A drill steel sharpening die provided with intersecting slots adapted to receive the wings of the drill steel, the bottom of one slot having a single inclined sharpening face adapted to act simultaneously on one side of the cutting edge of the two opposite wings of the drill steel.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH SOPP.

Witnesses:

THOS. F. HOWARD,

JOHN E. NASH.