

J. R. GRUNDY.
METHOD OF MAKING SET SCREWS.
APPLICATION FILED JAN. 25, 1912.

1,042,219.

Patented Oct. 22, 1912.

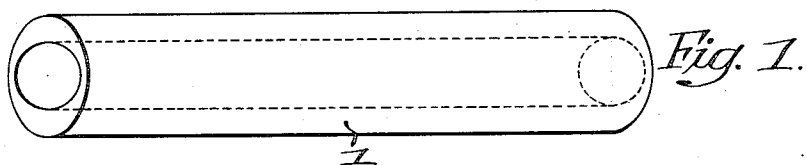


Fig. 2.

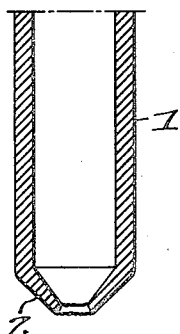


Fig. 3.

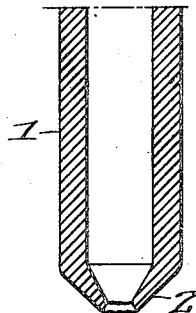


Fig. 4.

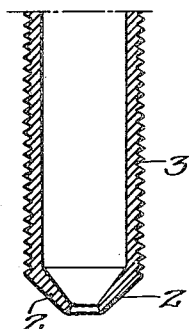


Fig. 5.

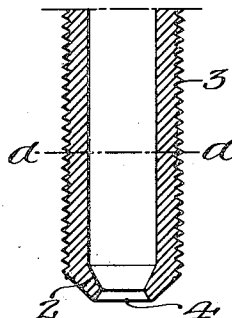


Fig. 8.

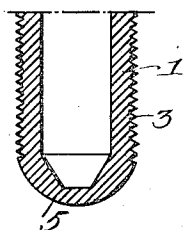


Fig. 6.

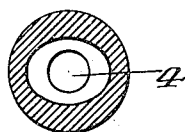
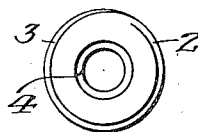


Fig. 7.



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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING SET-SCREWS.

1,042,219.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN R. GRUNDY, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented a certain Improved Method of Making Set-Screws, of which the following is a specification.

One object of my invention is to provide a novel method or process of making set screws having a recess or hole of irregular form for the reception of a suitable tool whereby the screw may be turned; it being especially desired to provide a method for making set screws of the type noted at a relatively low cost and in a convenient manner.

A further object of the invention is to provide an easily worked method of making hollow set screws of any desired length, from tubes of suitable material; such screws being, if desired, perforated for their entire length and so made as to be capable of being turned by means of a suitable tool inserted within the irregular recess or passage extending through them.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which:—

Figure 1, is a perspective view of a blank tube from which set screws may be made according to my novel method; Figs. 2 and 3, are vertical sections taken at right angles to each other illustrating the form given the raw material as a result of the first step of my method; Fig. 4, is a vertical section of the tube after the second step of my process has been performed; Fig. 5, is a vertical section of the finished set screw; Fig. 6, is a horizontal section on the line *a—*a**, Fig. 5, Fig. 7, is an inverted plan of the pointed end of the finished set screw, and Fig. 8 is a vertical section of a rounded end set screw.

In carrying out my method of making set screws, I provide a tube 1 of suitable material and length, the hole through which is of some section other than circular:—In the case illustrated being of elliptical section, although square, hexagonal or other sections

of passage or hole may be employed without departing from my invention. Such a tube is mounted in a lathe or other machine or device and by means of a suitably formed tool one of its ends is bent or turned in, as indicated at 2, so that it is given a substantially conical form and is nearly or wholly closed, as may be desired. The tube is then externally threaded, as indicated at 3, by means of a die or chasing tool, and finally its tapered end is finished:—in the case shown in Fig. 5, being so operated on as to provide an inwardly tapering and centrally placed hole the outer part of whose surface is intersected by the surface of the point or tapered end 2 thereby forming the sharp cutting edge for cupped set screws.

It is of course, obvious that, if desired, the tapered end of the screw may have its end opening completely closed and may thereafter be pointed or rounded as desired, so as to have the form shown in Fig. 8 at 5. The finished screw may then be cut off from the main length of tube and another screw may be made by repeating the above noted steps.

From the above description, it will be seen that according to my invention, hollow set screws may be very inexpensively and rapidly made from previously formed hollow tubing; it being, of course, understood that the tubing is of such a nature as to permit of its being crushed or bent inwardly to form the tapering point of the screw without materially impairing the strength thereof, and after the screw has been given its finished form, it may be hardened in the well known manner.

It will be noted that set screws may be made by my method of practically any desired length with but little increase of expense other than that incident upon the increased amount of material used. Moreover, such set screws, having their irregular perforation or hole, of a depth practically equal to their length, may be turned by means of various forms of wrenches or turning devices without regard to the length of such

devices, where hitherto special wrenches of limited length were required owing to the limited depth of the hole in the screw.

I claim:

- 5 1. The method of making set screws, which consists in bending the material of a tube, having its perforation of other than circular section, to form a point; threading the tube; and finally finishing the point.
- 10 2. The method of making a set screw, which consists in bending the material of one end of a tube, having its hole of a sec-

tion other than circular, to give said end a substantially conical form; threading the tube; and thereafter forming a circular hole 15 in the conically formed end.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN R. GRUNDY.

Witnesses:

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JOS. H. KLEIN.