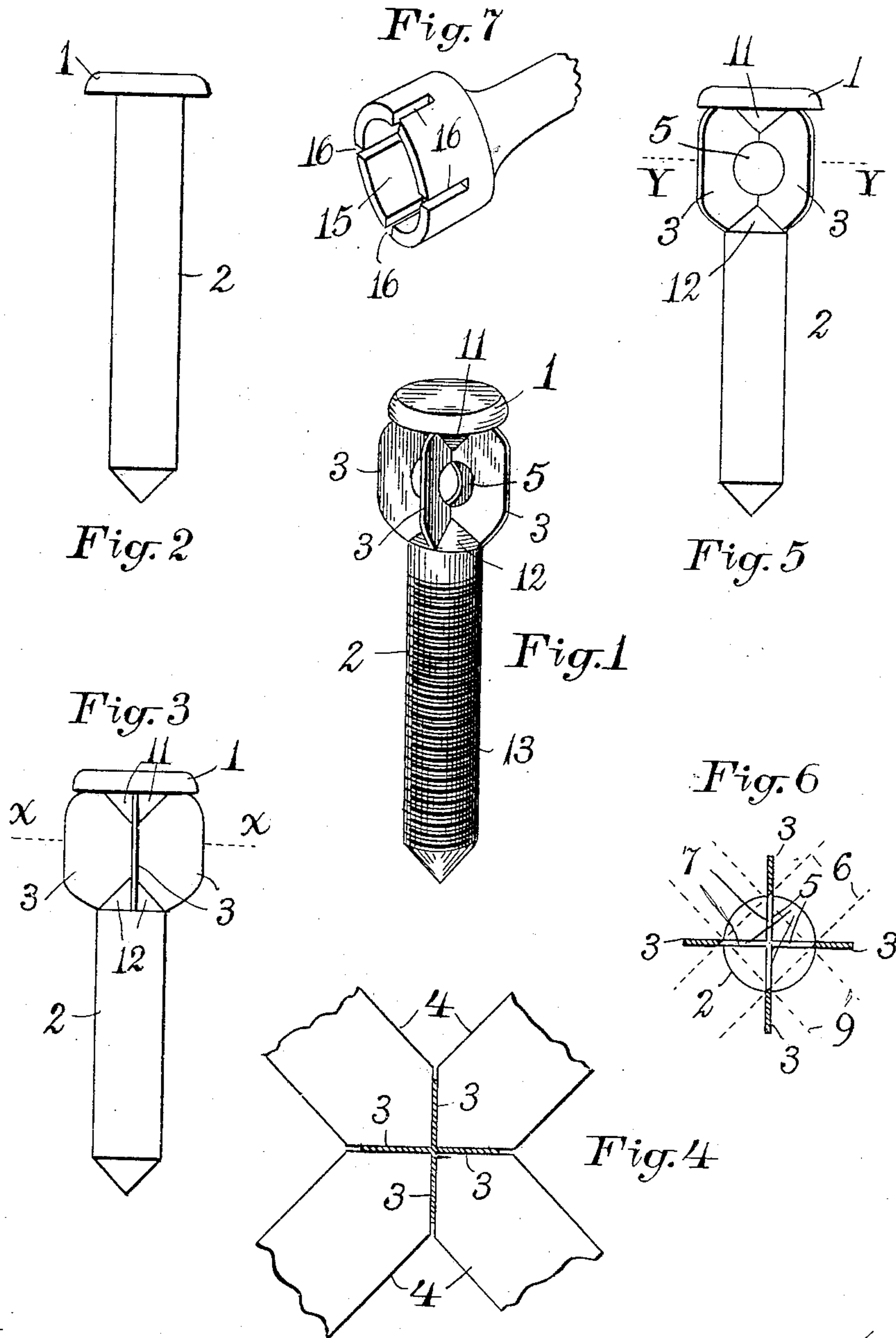


968,783.

Patented Aug. 30, 1910.



Witnesses;
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UNITED STATES PATENT OFFICE.

GEORGE A. MOORE, OF MEDFORD, MASSACHUSETTS.

CAPSTAN-SCREW.

968,783.

Specification of Letters Patent.

Patented Aug. 30, 1910.

Application filed May 18, 1910. Serial No. 562,053.

To all whom it may concern:

Be it known that I, GEORGE A. MOORE, a citizen of the United States, residing at Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Capstan-Screws, of which the following is a specification.

It is customary to provide each of the keys of a piano with a small screw termed a capstan screw for meeting the lower end of each sticker of the hammer action, four holes being drilled radially through the head of such screw for enabling the same to receive the end of a pin or other tool by which the screws are turned and their height adjusted. This is the purpose for which the capstan screw forming the subject matter of this application is especially designed.

The object of my invention is the construction of a capstan screw of this character which shall be of the lowest possible cost. In the manufacture of screws of this kind previous to my invention, it has been the custom to drill radially into the large head thereof four holes meeting at a common center; it being found better to drill such four holes instead of two diametrical ones, because of the bur which would be thereby formed at the points where the drills came through the head. This requires four actions in thus making the capstan holes, but in the screw devised by me, two actions are sufficient for producing the capstan holes; a clear saving in labor which, where large quantities of the screws are involved, signifies a considerable sum of money. In addition to this, I am enabled to save in metal, and, moreover, to make a much more convenient device for the purpose.

Referring to the drawings forming part of this specification, Figure 1 is a perspective view of the capstan screw forming the subject matter of this specification, but drawn upon a scale of several times true size. Fig. 2 is a side view of the blank from which said capstan screw is made. Fig. 3 is a side view of the same after four radial wings have been pressed or stamped or otherwise struck out thereon. Fig. 4 is a cross section of said wings on the line X—X in Fig. 3, showing the stamps or other devices by which said wings are struck out. Fig. 5 is a side view of the blank after said wings have had the capstan holes formed therein. Fig. 6 is a cross section on the line

Y—Y in Fig. 5. Fig. 7 is a perspective view of the tool by means of which said capstan screws are screwed down into the rear ends of the keys.

These screws are manufactured from wire, preferably of brass, and the first steps are to throw up the head 1 and point the end of the body 2, producing the blank illustrated by Fig. 2. Then, by means of suitable stamps or swages, the part of said body adjacent said head is pressed or swaged into four thin wings 3 standing out at right angles to each other, as shown in Figs. 3 and 4; in the latter figure, the reference numerals 4 designating said stamps or swages. Following this, a hole 5 is drilled or punched through the intersection of said wings at an angle of forty-five degrees with respect to the planes thereof, as shown in Figs. 1, 5 and 6, the dotted lines 6 in Fig. 6 representing the path of the drill or punch. After this hole has been formed, it will be found that a second hole, as 7, is the result, and one at right angles to the first one, as indicated by the dotted lines 9, although it will be one very slightly smaller in diameter than the other.

From the above it will be seen that but two operations are required for thus forming the four capstan holes;—the swaging of the wings and the drilling or punching of a single hole. This contrasts most favorably with the old method, in which the four separate drillings were needed, which number was essential not only because of the bur which would otherwise be occasioned, but in order to countersink each hole for the purpose of permitting more ready reception of the operating tool or pin. This countersunk arrangement is provided for, and to a far greater degree, by means of said wings; the latter being in effect a funnel to guide the operating pin to the holes so that even a blind man could perform the work. This is still further aided by filling in more or less the corners above and below each hole, as at 11 and 12; the same being done at the same operation which swaged out the wings.

The screw threads 13 on the body 1 may be cut or rolled thereon either before or after the formation of the wings, but I prefer to do the same afterward.

By having the wings, comparatively little metal is cut out for the holes 5 and 7 in comparison with what would be removed

were the same size of holes drilled through the body 1; for in the latter case there would hardly be enough metal left to hold the head and body together. It is impracticable to
5 strike up a head large enough for such holes from wire, where the threads are rolled, which is a far quicker and less expensive operation than cutting the threads.

10 It will, therefore, be evident that my method of producing capstan screws will be more economical not alone in the item of labor, but in the line of waste of materials.

As shown in Figs. 1 and 3, the outer edges of the wings extend beyond the periphery
15 of the head 2. This serves the purpose of enabling the screws to be conveniently held and operated in the task of screwing them into the keys in the first place. The holder therefor is provided with a socket 15 of a
20 diameter easily fitting the heads 2 (see Fig. 7), and having slots 16 into which the wings 3 can enter. By this means, the tool or holder 16 can not only press the screws down into place, but turn the same in the wood.

25 What I claim as my invention and for which I desire Letters Patent is as follows, to wit;—

1. A capstan screw consisting of a body and a plurality of thin radially arranged
30 wings having holes formed through their intersections.

2. A capstan screw consisting of a threaded body, a head and a plurality of thin radially arranged wings connecting said head and body, having holes at their intersec- 35 tions.

3. A capstan screw consisting of a threaded body, a head, and four thin radially arranged wings connecting said head and body, holes being formed through the inter- 40 sections of said wings at angles of forty-five degrees with respect to the planes of said wings.

4. A capstan screw consisting of a threaded body, a head, and four thin radially arranged wings connecting said head and body, said wings extending beyond the head and having holes formed through their inter- 45 sections.

5. A capstan screw consisting of a threaded 50 body, a head, and a plurality of thin radially arranged wings joining said head and body, holes being formed through the intersection of said wings, and the corners between said holes and the head and body being filled in. 55

In testimony that I claim the foregoing invention, I have hereunto set my hand this 16 day of May, 1910.

GEORGE A. MOORE.

Witnesses:

A. B. UPHAM,

H. L. WHITTLESEY.