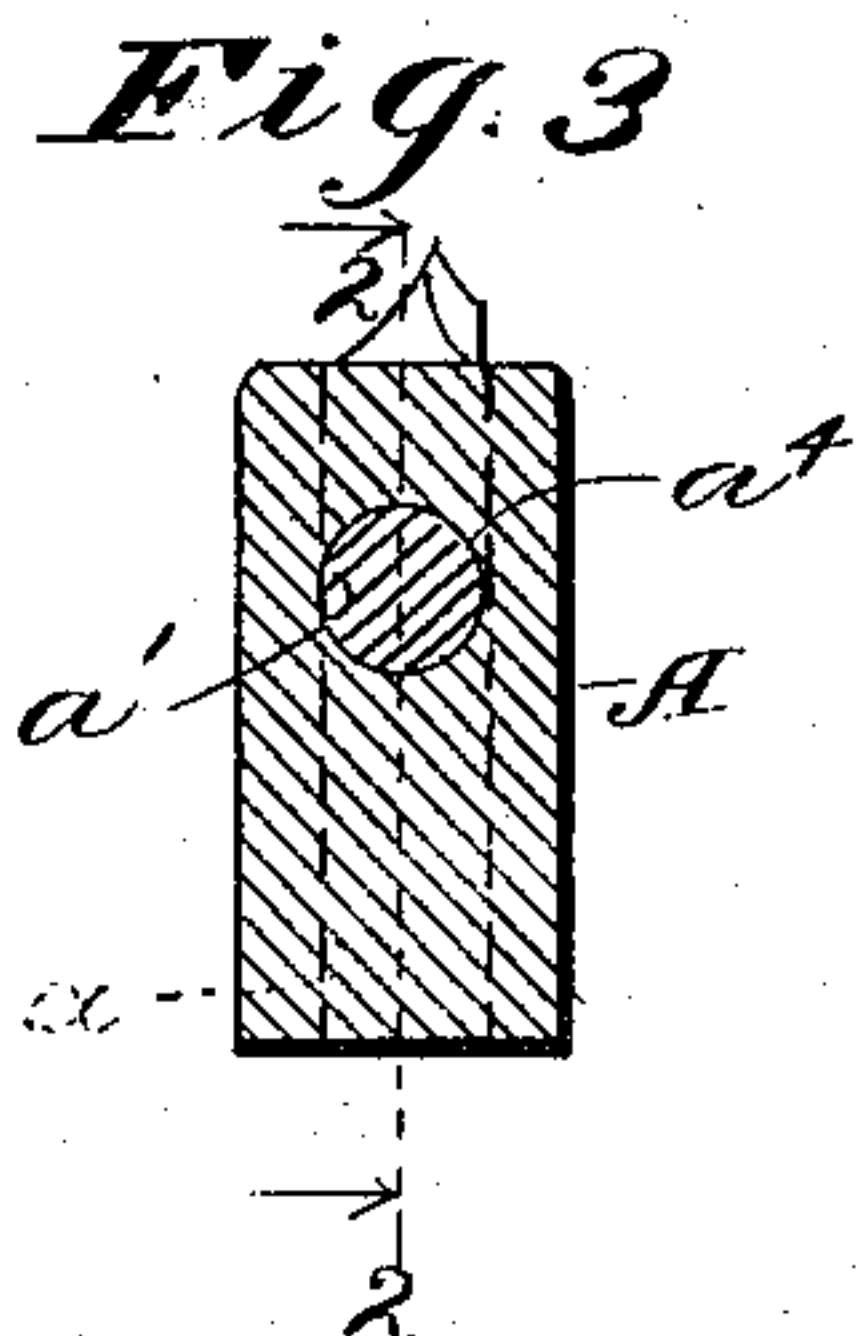
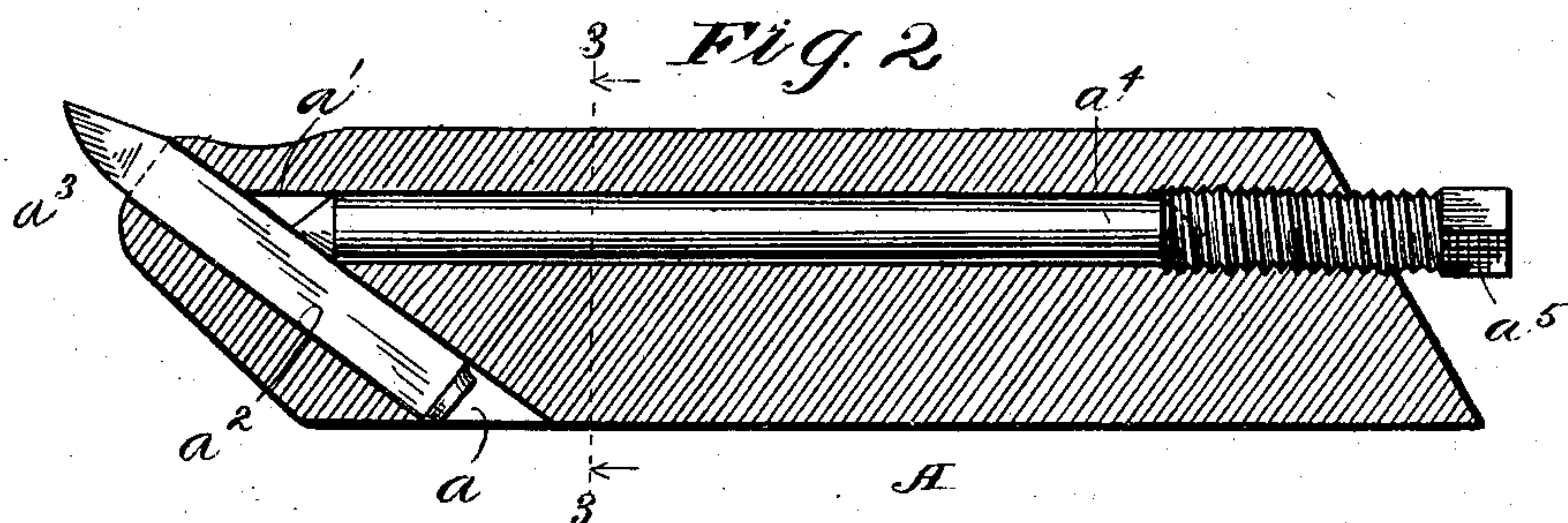
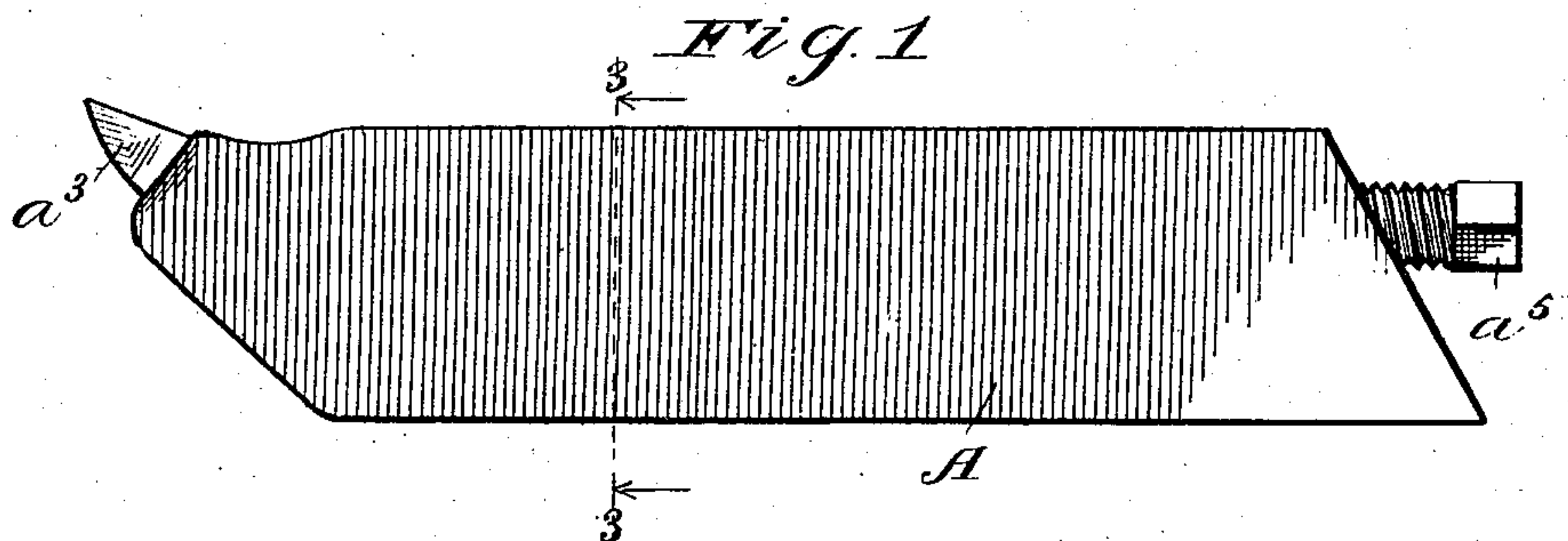


H. NIELSON.
 HOLDER FOR LATHE TOOLS.
 APPLICATION FILED OCT. 19, 1907.

966,585.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.



Witnesses:
J. C. Turner
Jno. F. Oberlin

Inventor:
Henry Nielson,
 by *J. B. Fay*
 Attorney.

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2 SHEETS—SHEET 2.

Fig. 4

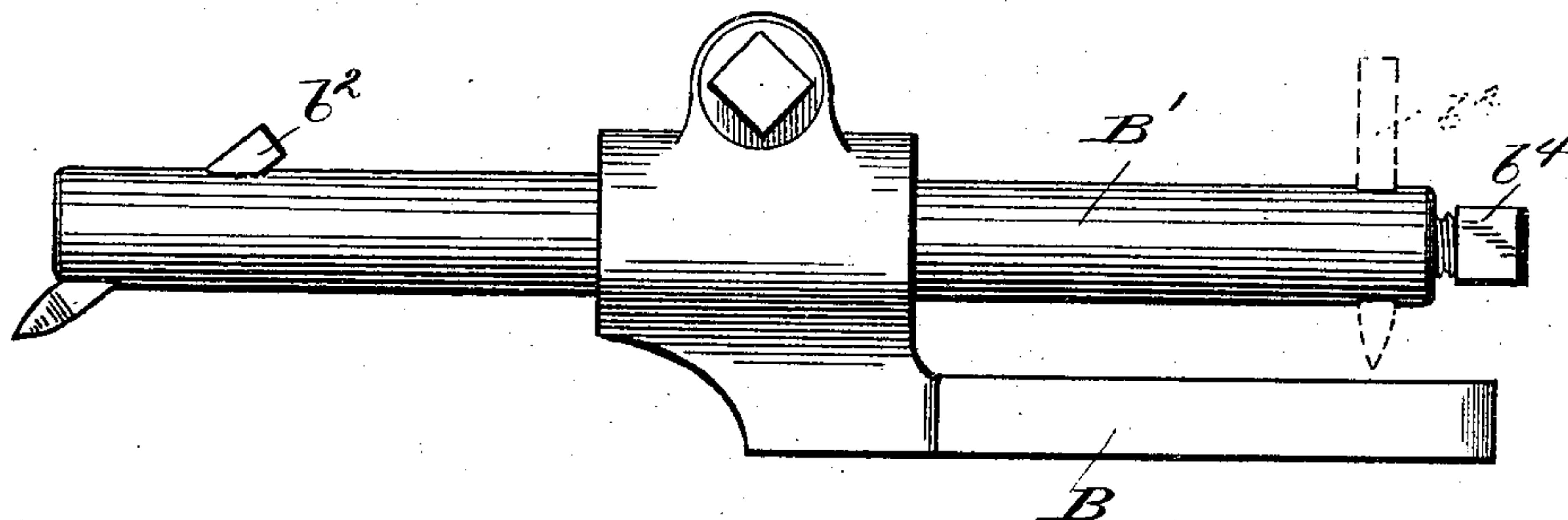
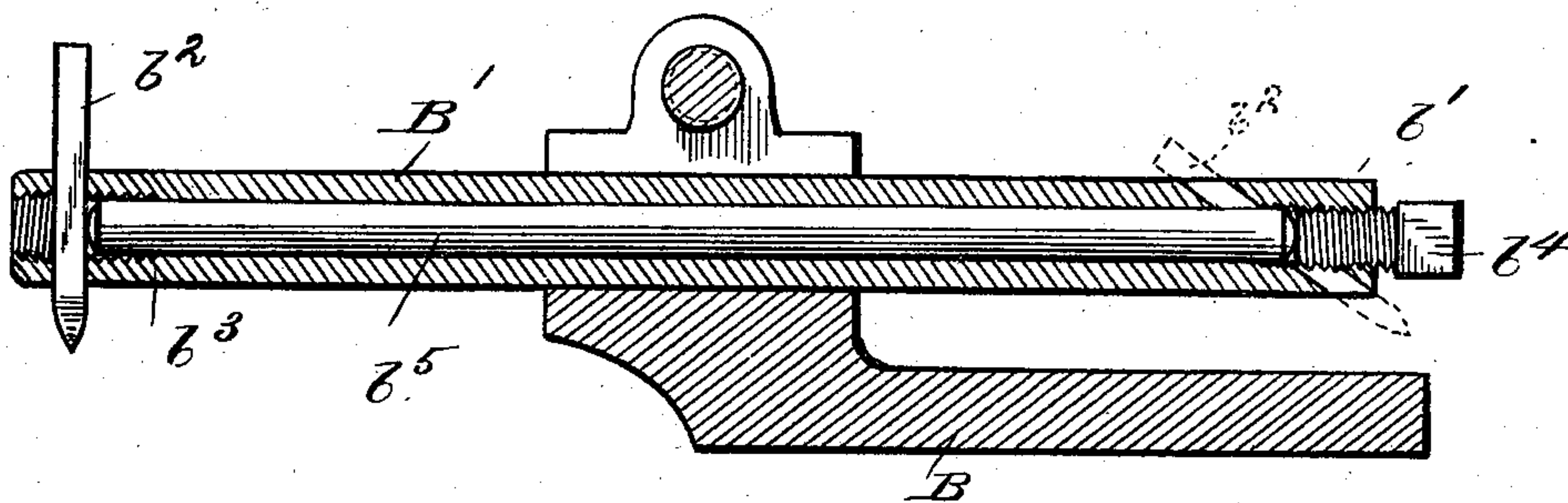


Fig. 5



Witnesses:
J. C. Turner
Jno. T. Obelin

Inventor:
Henry Nielson,
by *J. B. Fay*
Attorney.

UNITED STATES PATENT OFFICE.

HENRY NIELSON, OF CLEVELAND HEIGHTS, OHIO, ASSIGNOR TO THE OSBORN MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

HOLDER FOR LATHE-TOOLS.

966,585.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed October 19, 1907. Serial No. 398,211.

To all whom it may concern:

Be it known that I, HENRY NIELSON, a citizen of the United States, resident of Cleveland Heights, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Holders for Lathe-Tools, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present invention relates to holders for tools such as are now quite commonly employed in general lathe and planer work, as well as on modifications of the lathe and planer, such as the boring mill, slotter and shaper and in various other connections about machine shops.

The object of such invention is the provision of a tool of this character that will be readily adapted for mounting in the various kinds of machines just referred to, and that will be simple in construction and inexpensive in its manufacture.

To the accomplishment of these and related ends, said invention consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure 1 represents a side elevation of one form of tool holder embodying my improvement; Fig. 2 represents a central longitudinal cross-section through the same taken on the line 2—2 Fig. 3; and Fig. 3 is a transverse cross-section of such holder taken on the line 3—3 Figs. 1 and 2; while Figs. 4 and 5 are respectively an elevational and a sectional view of another form of tool embodying such invention.

Having reference first to the form of tool illustrated in Figs. 1, 2 and 3, above referred to, the holder will be seen to comprise primarily an oblong substantially rectangular body A that is preferably drop forged and case hardened. The bottom of such body is planed square with the sides, but the respective ends are cut at an incline to such sides. Near the one end of the body there is provided a transverse aperture a

substantially parallel, or preferably a trifle inclined, with reference to the corresponding end of the body. Such aperture a is made of angular cross section and is adapted to loosely receive the cutter a^2 which is normally designed to be entirely contained therein save for the cutting point a^3 that projects beyond the outermost corner of the body as shown. Longitudinally disposed with respect to the body, and lying closest to the side thereof corresponding with such outermost corner, is a second aperture a' that intersects such first aperture as also the other end of the body. In such second aperture is wholly contained a rod-section a^4 , both ends of which are made conical in form, the angle corresponding with the incline of the cutter a^2 in aperture a . Thus whichever end of the rod is disposed toward the front it will lie flat against the side of the cutter, as will be obvious. Such rod ends are furthermore tempered to prevent wear and upsetting. Threaded in the rear end of such longitudinally extending aperture a^4 is a set-screw a^5 alined with said rod and having a cup-point adapted to engage the rearwardly directed conical end of the latter to press the rod against the cutter and thus retain such cutter securely in place.

From the foregoing description it will be seen that in my construction of holder, there is no part projecting therefrom except the end of the cutter whereby the work is performed. The set-screw, by means of which such cutter, normally removable, is held in its place, is not only mounted in the other end of the holder but, by being alined with the body, it is possible to keep the same within the planes bounding the sides of said body and thus the freedom of adjustment of the latter in the machine head left absolutely unhampered. The difficulty of the shadow on the work is likewise obviously done away, the cutter point forming the extreme end of the tool. At the same time security of adjustment of the cutter in the holder is in no wise sacrificed since the pressure of the set-screw is even more effectively transmitted by the rod than if such set screw contacted directly with the cutter as in the more usual type of holder where the set-screw is mounted in a transverse direction and so projects laterally from the forward end of the body. This is for the reason that the rod does not have to turn and by virtue of

its position has furthermore a distinct wedging effect, while the set screw whereby the pressure is applied has an almost frictionless bearing on the rear end of the rod. A surprising small torque on the screw hence suffices to clamp the cutter against movement.

In Figs. 4 and 5, I show my invention as adapted to a boring tool such as is used in roughing out cored holes, in cutting and facing interior angles and ends, in interior thread cutting, and analogous operations. Such a tool includes a holder B of the usual type adapted to be secured in the tool head or post, and a bar B' adjustably mounted in such holder. In the only type of such tool of which I have knowledge, the cutter is secured to the end of the bar B' by means of a cap that screws thereon, and clamps the cutter against such bar end, a different cap being required to support the cutter in the straight and 45 degree positions that are requisite for the carrying on of the several operations named above. This form of cutter support has proven objectionable in a number of ways; to release or fix the cutter requires the use of a special wrench that engages the cap only at a risk of injury to the relatively brittle high-speed steel point of such cutter, the tool must be withdrawn entirely from the work to afford access for such adjustment, the adjustment is never certain owing to the tendency of the cap to turn slightly under the strain of working, and it is impossible to cut both right and left handed. In place of caps for holding the cutter b^2 , I provide properly inclined apertures b b' in the respective ends of the bar B' itself, such apertures being intersected by a central longitudinal aperture b^3 extending the entire length of the bar. The respective ends of such aperture b^3 are threaded to receive a set-screw b^4 as occasion arises. Contained within aperture b^3 , and of a length substantially equal to the distance between the two apertures b b' , is a rod b^5 . By means of such rod, set-screw b^4 is effective, when mounted in one end of the bar, to lock cutter b^2 in the other end thereof, just as in the case of the holder first described, the end in which the set-screw is thus mounted becoming for the time the rear end of the holder.

Obviously, by the means just described, all the advantages previously noted in connection with the first form of the device are retained, while at the same time I eliminate the numerous difficulties inherent in the prevailing type of boring tool construction to which incidental reference has been made. Thus the cutter is always held perfectly

rigid in the bar so far as lateral or turning strains are concerned, adjustment is had by turning the set-screw in the rear, thus avoiding the necessity of withdrawing the tool from the work, the exchange from straight to 45 degree mounting involves merely a reversal of the bar and an exchange, end for end, of cutter and set screw, while right or left hand work is equally feasible at all times.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:--

1. In a device of the character described, the combination of a holder body having an aperture extending therein and having two second apertures angularly disposed with respect to said first aperture, the respective ends of the first aperture being threaded for the reception of a set-screw, a tool interchangeably fitting said second apertures, a rod contained in said first aperture and extending substantially from one of said second apertures to the other, and a set-screw adapted to fit either of the threaded ends of said first aperture and to engage the rod therein to force the same against said tool when the latter is in the second aperture at the opposite end of the holder.

2. In a device of the character described, the combination of a holder body having a longitudinally disposed aperture extending from end to end and two transversely disposed apertures near its respective ends intersecting said longitudinally disposed aperture at different angles, the respective ends of said longitudinally disposed aperture being threaded for the reception of a set-screw, a cutter interchangeably fitting said transverse apertures, a rod contained in said longitudinally disposed aperture and extending substantially from one transverse aperture to the other, and a set-screw adapted to fit either of the threaded ends of said longitudinally disposed aperture and to engage the rod therein to force the same against said cutter when in the transversely disposed aperture at the opposite end of the holder.

Signed by me this 14th day of October, 1907.

HENRY NIELSON.

Attested by—

E. R. RODD,

JNO. F. OBERLIN.