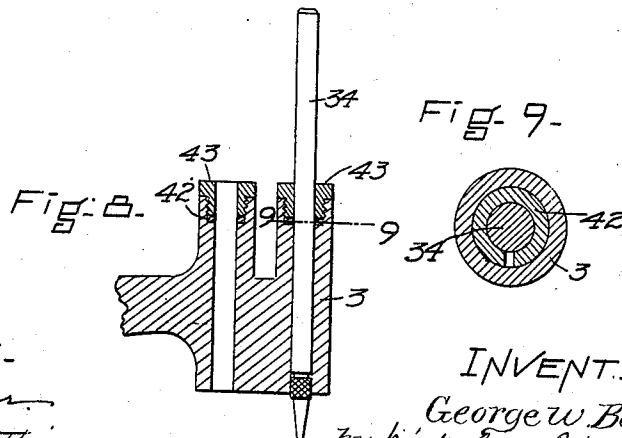
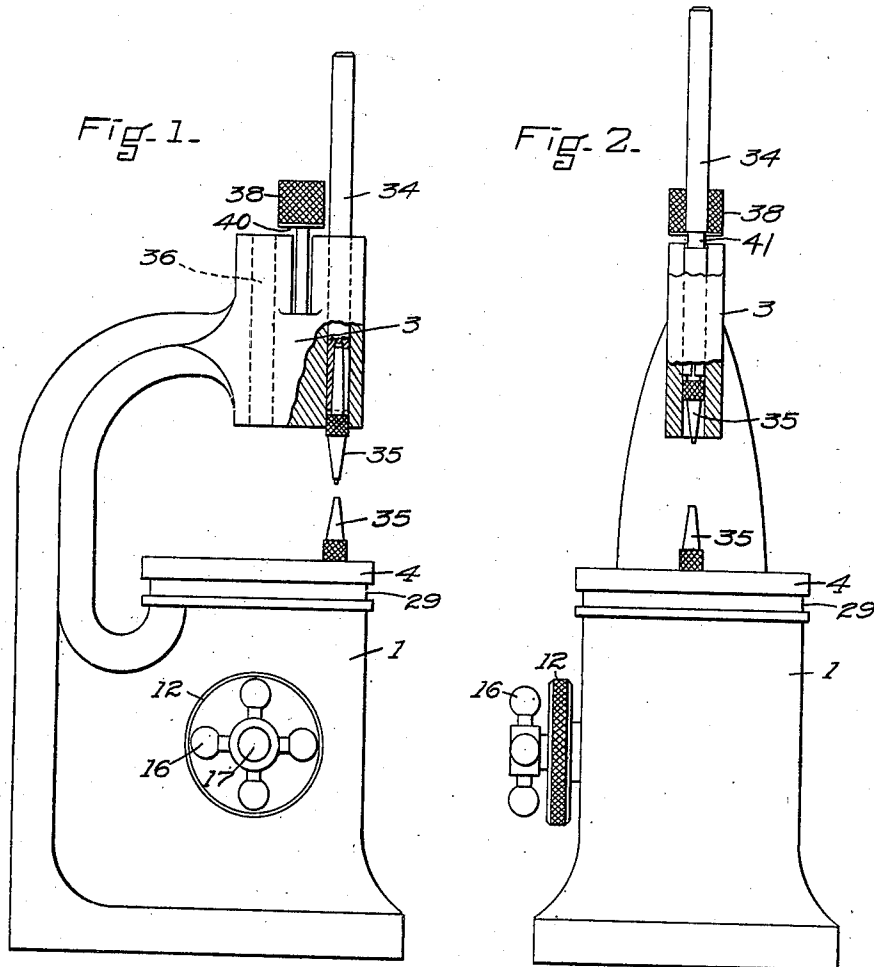


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G. W. BOWERS.
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APPLICATION FILED JULY 13, 1910.

Patented June 27, 1911.
2 SHEETS-SHEET 1.



WITNESSES.
M. Crozier
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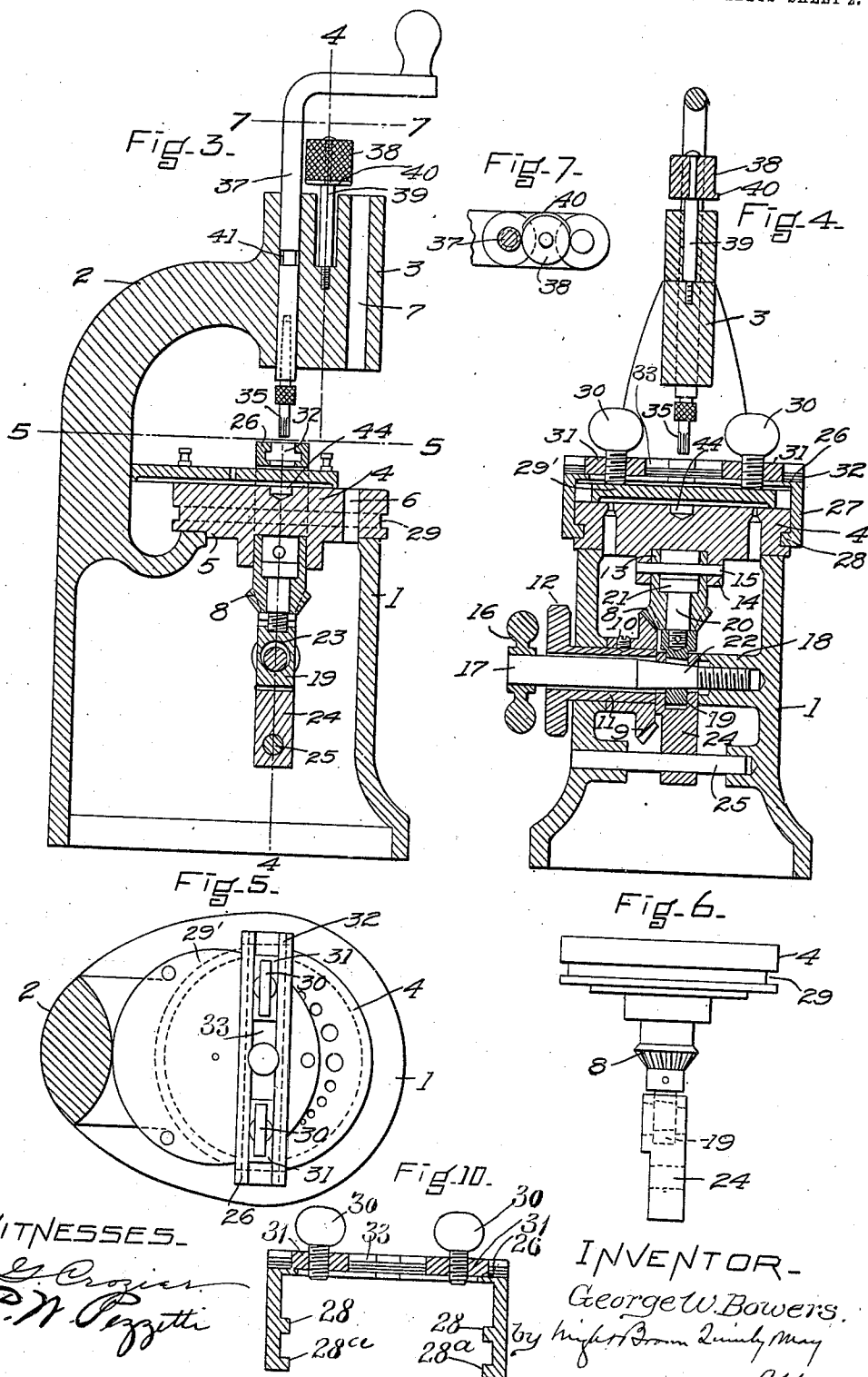
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WITNESSES.
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UNITED STATES PATENT OFFICE.

GEORGE W. BOWERS, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO HAMMEL, RIGLANDER & COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

STAKING-TOOL.

996,054.

Specification of Letters Patent. Patented June 27, 1911.

Original application filed December 31, 1909, Serial No. 535,754. Divided and this application filed July 13, 1910. Serial No. 571,738.

To all whom it may concern:

Be it known that I, GEORGE W. BOWERS, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Staking-Tools, of which the following is a specification.

This invention relates to staking tools such as are used by jewelers and watchmakers and embodies matter originally illustrated, described and claimed in an application for staking tool filed by me December 31, 1909, Serial No. 535,754, and divided from said application, the present application being a division of the application aforesaid.

The particular invention which I desire to claim in this application has for its object to provide a means or clamp adapted to be readily attached to and detached from a work-supporting table or platen to hold pieces upon which work is to be done in a firm manner, and in any desired position upon the table so that it may be acted upon by an appropriate operating tool.

A further object is to improve the construction of staking tools by making provision whereby other tools than those used ordinarily in staking tools may be employed, and by which the usual tools and other tools may be made operative in different positions over the table or platen of the tool.

Still another object is to provide a shank, and so construct all the operating tools used in connection with the staking tool and including the so-called stumps and punches, that all may be mounted in or upon such shank, or may be attached in or upon the platen to permit of their being interchangeably used.

A final object is to provide an improved, novel and simple frictional retaining device, whereby the shank of the operating tool may be arrested and held at any height above the table or support to permit the operator to turn and adjust such table without requiring him to use one hand for holding the operating tool clear of the table.

The manner in which I carry the above-named objects into practical effect is described in detail in the following specification, and one possible embodiment of the

tool as a whole with the accessories is shown for the purpose of illustration in the accompanying drawings, in which—

Figure 1 is a side elevation of the tool. Figure 2 is a front elevation of the tool. Figure 3 is a vertical central section of the tool. Figure 4 is a cross-section on the line 4—4 of Fig. 3. Figure 5 is a plan view of the parts represented below the line 5—5 of Fig. 3. Figure 6 is a detailed view of the platen or die of the machine detached, with the associated members by which it is rotated and clamped. Figure 7 is a sectional plan view of the part below line 7—7 of Fig. 3. Figure 8 is a sectional view of the head of the tool, showing a modified construction. Figure 9 is a cross-section on an enlarged scale on line 9—9 of Fig. 8. Figure 10 is a longitudinal section of a modified form of clamp.

The same reference characters indicate the same parts in all the figures.

In the drawings 1 represents the base portion of the tool from which rises a gooseneck 2, terminating in a head 3 which overlies the base. This head contains a number of passages adapted to receive operating tools, the purpose of which is more fully hereinafter described.

On the top of the base is mounted a platen or die 4, represented as a circular table which rests upon the base and is confined by a shoulder 5 projecting somewhat within the rim of the base, as shown in Figs. 3 and 4, said shoulder being loosely fitted within the base to permit accurate locating of each hole of the platen by means of a pointed centering punch. This platen or die has the usual circular series of holes, these varying in diameter. One of the openings or passages in the head 3 and designated by the character 7 is substantially over a line perforations 6 so that a punch or other operating tool contained in the passage 7 is held in line with any one of the perforations 6 which may be brought beneath it by adjustment of the platen, for performing the work usually required with tools of this character.

The platen may be rotarily adjusted without being directly touched by the fingers. A suitable means for effecting this rotation consists of beveled gearing, one member or

pinion of which gearing is represented at 8 and is secured to the platen, while the complementary member or gearing is represented at 9 and is fastened by a set screw 10 or
 5 other equivalent means to a sleeve 11, passing through the side of the base and having on its outer end a knurled flange or knob 12 by which it may be turned. The pinion 8 has a hub 13 which enters a recess in the
 10 under side of the platen and is surrounded by a flange 14 thereof. Through this flange and the pinion hub passes a pin 15 by which these parts are secured together. As will be readily seen, rotation of the flange or
 15 knob 12, accomplished by rolling it between the thumb and fingers, will accomplish a rotation of the table, and this without requiring the table to be directly touched. Also as the pinion 9 may be made larger than the
 20 pinion 8, as shown in the drawings, an increased speed of rotation of the table may be obtained.

The platen is secured in any of its adjustments by clamping means, of which the external and visible part is a knobbed operating
 25 wheel 16 secured to a shaft 17. This shaft passes through the sleeve 11, without touching it, into the interior of the base and is threaded into a boss 18 projecting from
 30 the opposite wall of the base. The shaft passes through a bar 19 fastened to a stud 20 contained within the pinion 8, of which stud the head 21 bears upon a shoulder within the pinion and is thus enabled to exert
 35 a downward pressure thereon without being withdrawn. The part of the shaft 17 which passes through the bar 19 is tapered as shown at 22, and is contained in an opening 23 in the bar. As the shaft 17 is screwed
 40 inward, its tapered portion bears downward upon the bar 19 and thus clamps the platen upon the base. This is due to the fact that the shaft has a bearing only on the lower boundary of the perforation 23. Conversely,
 45 unscrewing of the shaft 17 releases the platen so that it may be turned. The bar 19 is guided by a block 24 in which it is contained, and through which the shaft 17 passes. The lower end of this block is secured
 50 by a pin 25, supporting the shaft always in a central drawing and binding position.

By reason of the propinquity between the handles 12 and 16, it is possible to release,
 55 adjust and clamp the platen in the least possible time, because the user's hand need be moved only a short distance in order to grasp either the handle 12 or 16 after releasing the other. This enables a considerable saving of time to be effected by this
 60 tool over those previously used.

The principal feature of the invention which it is my object to protect in the present application is a means capable of ready
 65 attachment to and detachment from the

platen of the tool, by which parts of watches and other pieces on which work is done may be easily and firmly secured to the platen. This securing means or clamp is conveniently a bar 26 having end pieces 27 extending
 70 substantially at right angles, arranged so as to embrace the platen and spaced a sufficient distance apart to admit the full diameter of the platen between them. These end pieces have flanges or toes 28, which are
 75 turned inward so as to take into a peripheral groove 29 in the platen. The cross bar portion of the clamp is a sufficient distance above these toes to permit articles of the required thickness, such for instance as a
 80 watch plate 29', to be admitted between it and the platen. When the article is thus located, as shown in Figs. 3, 4 and 5, it is secured by one or more clamp screws 30, which are threaded through slides 31, ad-
 85 justably carried by the clamp. When these screws are turned down they press upon the upper surface of the watch plate or other article and force it against the surface of the table, as shown in Fig. 4. The slides 31
 90 have ribs or flanges in their opposite sides which are contained in guiding grooves 32 in the cross piece of the clamp. The screws project through a longitudinal slot 33 in the cross bar which permits them to be moved
 95 with the slides so as to engage the watch plate 29' or other article clamped on the platen at any points necessary to hold the latter securely. I propose also to construct the clamp so that it will not only be capable
 100 of gripping a piece of relatively small height, as shown in Figs. 3 and 4, said piece being for example the plate of a watch movement, but also capable of securing deeper or
 105 thicker objects, such as a complete watch movement. Accordingly, as shown in Fig. 10, I construct the clamp with two sets of toes 28 and 28^a, either of which sets of toes may be inserted in the peripheral groove 29
 110 of the platen. The toes 28^a are farther removed from the cross bar 26 of the clamp than are the toes 28, consequently when they are set in the groove of the platen, a relatively thick article may be placed between the platen and the cross bar of the clamp,
 115 and secured.

This staking tool is adapted to be used in the ordinary way for the purpose to which this type of tool is ordinarily adapted, and
 120 operating tools 35 which may be punches or stumps (so called) of any suitable form may be detachably engaged with a holder or shank 34 which is adapted to be passed through the channels 7 in the tool head 3 in registry with the line of perforations 6.
 125 The larger of these perforations is also adapted to receive one of said operating tools.

The ordinary staking tool is equipped with a set of punches having long shanks
 130

adapted to be inserted through the passage in the head of the tool and with stumps having short shanks capable of being inserted in one of the larger openings in the platen and of being supported by the platen. In the present invention I make all of the stumps and punches alike, each having a short shank, as shown in Fig. 1, which may be inserted either in one of the perforations of the platen, or in a recess in the holder 34. The latter is of about the proportions of the shank or handle of the ordinary punch, but is recessed or bored out at one end to receive the short shank of any one of the modified punches or stumps. Thus the same holder may be employed as the shank of any one of the operating tools, and all of these tools may be used interchangeably with this handle. By virtue of this invention the punches may be used as stumps and the stumps as punches, thus increasing the range of work permitted, without requiring an increase over the ordinary number of working tools.

In carrying out the possibilities of wider use of the staking tool afforded by the detachable clamp 26, I provide an additional passage or channel 36 in the head 3, which is preferably arranged as shown in Figs. 3 and 4, approximately in line with the pivotal axis of the table or platen 4. This is adapted to receive a removable tool or tool-holder of the general character represented by 37 in Fig. 3, for performing operations on watch plates and other articles capable of being secured by the clamping means hereinbefore described.

From the foregoing it will be seen that by the present invention I have provided a staking tool capable of much more extended use than any tool of this character hitherto used, the amplified use being occasioned by the clamping means which enables articles to be secured in any desired position upon the table or platen of the tool, and the provisions for guiding operating tools in line with different parts of the platen.

It is desirable to hold the operating tools clear of the platen at such times as the latter or the work held thereon are being adjusted, and for this purpose I have provided an improved and simple device which may be readily operated to hold the working tool in an elevated position and to release the same so that it may descend upon the work. Such means comprises preferably a rotary head 38 journaled upon a stud 39, which is secured as shown in Fig. 3 in the head 3 of the tool midway between the passages 7 and 36. This rotating head 38 is of such diameter as to be clear of the tool-holders 34 and 37, but it has a flange or rib 40 extending from one side, as shown in Figs. 4 and 7, of such extent as to extend somewhat across the passage 7 or 36 when

turned toward one or the other. Each tool-holder has a groove 41 as shown in Figs. 2 and 3, adapted to receive the lip 40 when the tool is raised to a sufficient height, and the upper limit of which groove constitutes a shoulder that rests on the flange and holds the tool in an elevated position. Thus by raising the operating tool sufficiently high and giving the locking head 38 a slight turn, either tool may be held elevated without liability of falling, while it may be instantly released by simply turning the locking head through a small angle.

Another device for holding the operating tool at an elevation, and one which is operative at all times to hold the tool in any position is shown in Figs. 8 and 9. This is a yieldingly acting frictional device such as a divided spring ring 42, contained in the head so as to surround the passage for the tool shank and to embrace the latter yieldingly with a frictional grip. One of these rings is arranged in or around each of the plurality of such passages. The rings are retained in place by nuts 43 screwed or pressed into the recesses containing the rings and centrally apertured in alinement with the tool passages. The ring grips the tool shank firmly enough to hold it at any elevation, and at the same time yieldingly, so that it may be moved up or down by the application of sufficient force.

By reason of the manner in which the locking bar 19 is connected with the platen as hereinbefore described, there is no exposed fastening device at the center of the platen, as has been the usual construction hitherto, but the platen clamping means is connected well below the upper surface of the platen, leaving the latter solid and continuous from side to side. This enables a recess as 44 of any desired extent to be formed centrally in the upper surface of the platen to allow cutting tools to pass freely through the work. Furthermore the form of connection between the clamping bar 19 and the table, which is a headed stud contained rotatively in the pinion 8, which latter is an internally shouldered sleeve, permits free rotation of the platen relatively to the locking bar whenever the latter is loosened by withdrawal of the tapered shaft or rod 17. The guiding block 24 for the clamping bar is so formed that when the lower portion of the shaft 17 presses downward upon the clamping bar, the reaction of its pressure is taken by the upper part of the guiding block, as shown in Fig. 4.

The difference between the tool-holders 34 and 37 is that the former is straight and is used when the tools carried by it require to be moved rectilinearly by pressure or blows on the end of the holder. The holder 37, however, is made in the form of a crank shaft and is designed to hold such tools as

are given a rotary movement in use, such as cutting tools, being internally tapered, to give a firm grip on the fitting tapered shank of the cutting tool.

5 I claim,—

1. In combination with a staking tool and the platen forming part of such tool, a clamp extending over the supporting surface of said platen and means on the clamp adjustable in the plane thereof for holding pieces on the platen.

2. The combination with a staking tool and a rotatable platen forming part of said tool, of a clamp adapted to be secured to said platen, and having a portion extending over the supporting face of the latter, and means carried by said clamp for engaging the work on said platen.

3. In combination with a staking tool and a rotatable platen forming part of such tool, a clamp comprising a bar extending across the face of the said platen and having ends adapted to engage with the periphery of the latter at opposite points, and clamping screws threaded through said bar and adapted to bear on articles placed on the platen beneath the bar.

4. In a staking tool, a rotatable platen having its periphery encircled by a groove in combination with a clamp adapted to span said platen and having end members formed to engage the peripheral groove thereof, said

clamp being provided with means for holding the work resting on said platen.

5. In combination with a staking tool provided with a rotatable platen, a clamp adapted to span the face of said platen, end members on said clamp arranged to embrace the platen and having flanges to underlie the periphery of the platen at opposite points, and gripping means carried by said clamp.

6. In combination with a staking tool, a clamp adapted to lie across the face of the platen of such tool, end members on said clamp arranged to embrace the platen and having flanges to enter a groove or grooves in the outer sides of the platen, slides mounted movably on said clamp, and screws threaded into said slides adapted to bear on an article placed on said platen.

7. The combination with a staking tool provided with a rotatable platen, a clamp having a portion extending over the supporting face thereof, means for securing said clamp at any angle about the center of said platen, clamping screws, and means carried by said bar for adjustably supporting said screws.

In testimony whereof I have affixed my signature, in presence of two witnesses.

GEORGE W. BOWERS.

Witnesses:

PETER W. PEZZETTI,
E. BATCHELDER.