

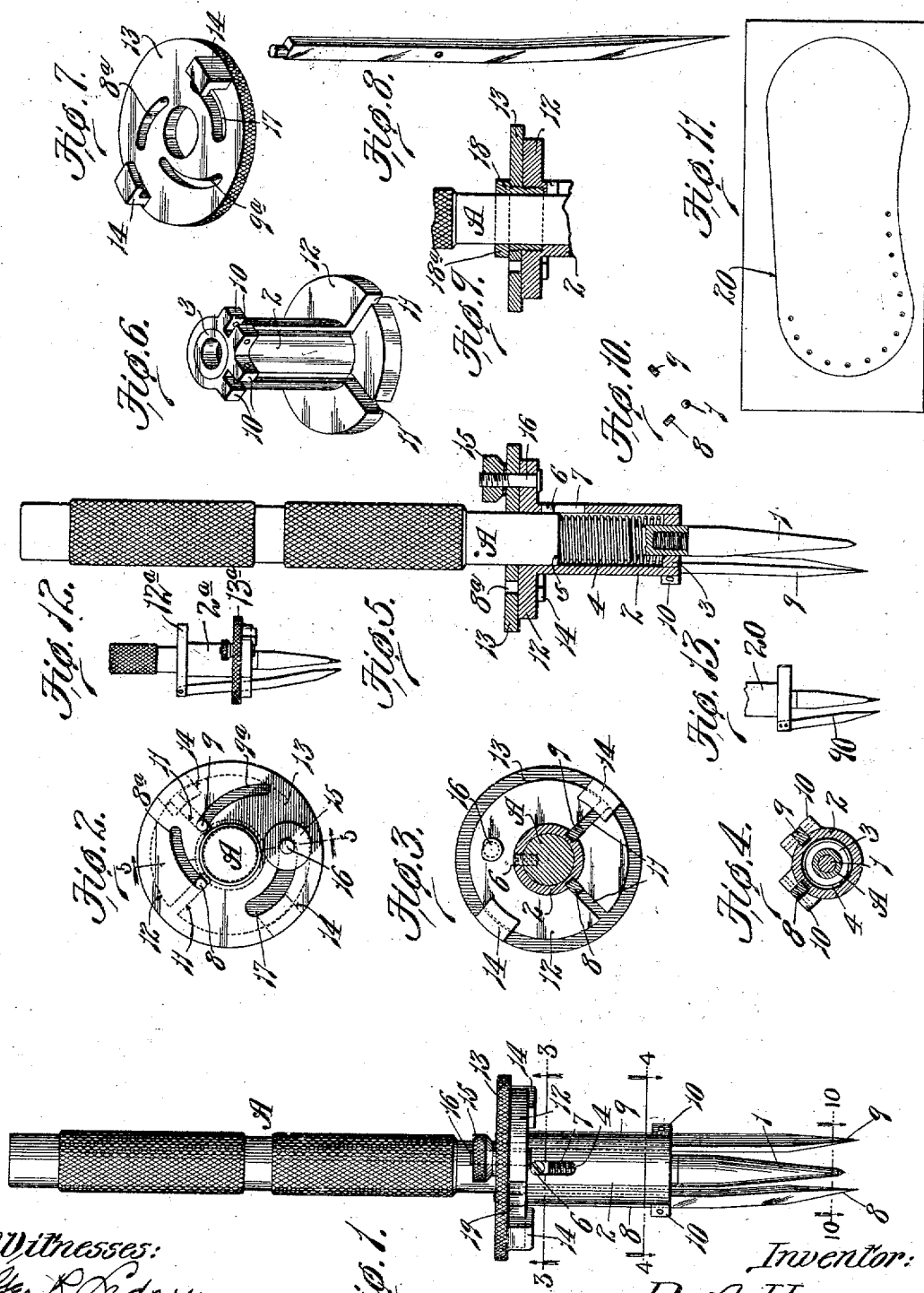
R. A. HOGGE.

CENTER PUNCH.

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956,765.

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Witnesses:
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Fig. 1.

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UNITED STATES PATENT OFFICE.

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CENTER-PUNCH.

956,765.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, RICHARD A. HOGGE, a citizen of the United States, residing at Louisiana, Missouri, have invented a certain new and useful Improvement in Center-Punches, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to center punches such as are used in machine shops for marking a metal plate at the point where a hole is to be drilled therein.

The method usually practiced in cutting an opening in the center or inner portion of a plate or block of metal is to first scribe the shape of the opening on the plate with a sharp-pointed instrument and then bore a row of holes inside of the scribe mark so as to detach that portion of the plate which lies inside of the scribe mark. The plate has to be marked or "punched" at the various points where the holes are to be drilled, and in order that the drill holes will be spaced equal distances apart and also an equal distance inwardly from the scribe mark, the workman has to first use a pair of dividers to mark the plate at the points where the drill-centering marks are to be formed, and then form said centering marks with a center punch. This method of laying out work requires a great deal of care and skill on the part of the workman and is costly as the workman consumes a great deal of time in first marking the plate with a pair of dividers and then marking or punching it with the center punch.

One object of my invention is to provide a center punch which is so constructed that a workman will not have to first mark off the plate with a pair of dividers or other spacing tool prior to the operation of forming the drill-centering marks in the plate.

Another object is to provide a center punch having means for locating the marking tool or punch at the required distance from the scribe mark on the plate, and also at the required distance from the last punch mark that has been formed in the plate.

Another object is to provide a tool of the character above described which can be adjusted so as to enable it to be used for forming centering marks for drills of different diameters.

Another object is to provide a center

punch which comprises a marking tool and a pair of positioning devices which cooperate with each other to arrange the marking tool directly over the point where it is desired to mark the plate, one of said devices being placed on the scribe mark which the workman first forms on the plate, and the other positioning device being placed on the last punch mark formed on the plate.

Still another object of my invention is to provide a tool of the construction referred to in the preceding paragraph having means for adjusting both positioning devices simultaneously and causing one device to move twice as far as the other device so that the holes which are subsequently formed in the plate will just clear each other and also clear the scribe mark.

Other objects and desirable features of my invention will be hereinafter pointed out.

Figure 1 of the drawings is an elevational view of a center punch constructed in accordance with my invention; Fig. 2 is a top plan view of said tool; Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 1, looking in the direction indicated by the arrow; Fig. 4 is a horizontal sectional view taken on the line 4—4 of Fig. 1, looking downwardly in the direction indicated by the arrow; Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 2, looking in the direction of the arrow; Fig. 6 is a perspective view of the sleeve that carries the positioning devices, said sleeve being arranged in an inverted position; Fig. 7 is a perspective view of the adjusting plate arranged in an inverted position; Fig. 8 is a perspective view of one of the positioning devices; Fig. 9 is a vertical sectional view illustrating one means for locking the adjusting plate; Fig. 10 is a horizontal sectional view taken on approximately the line 10—10 of Fig. 1 so as to show the relative positions of the marking tool and the positioning devices; Fig. 11 is a top plan view of a plate or block of metal and illustrates the way in which my improved center punch is used; and Figs. 12 and 13 are elevational views of slightly modified forms of my invention.

Referring to the drawings which illustrate the preferred form of my invention, A designates the shank of the tool which the workman grasps in his hand, and 1 designates a punch or marking tool that is de-

tachably connected to the lower end of said shank, as shown clearly in Fig. 5. A sleeve 2 is loosely mounted on said shank to form a support for a pair of positioning devices hereinafter described, and a ring 3 is arranged in the lower end of said sleeve and permanently connected thereto so as to form an abutment or stop for the lower end of a coiled expansion spring 4 mounted on the shank A and engaging a shoulder 5 on the said shank. The spring 4 tends to force the sleeve 2 and the parts carried thereby downwardly so as to normally hold the marking tool 1 out of contact with the plate or piece of metal being operated on, said shank being provided with a stop 6 that projects into an elongated slot or recess 7 in the sleeve 2 so as to limit the downward movement of said sleeve.

A pair of positioning devices which preferably consist of sharp-pointed members 8 and 9 are pivotally connected intermediate their ends to bifurcated ears or lugs 10 on the sleeve 2, said positioning devices being so arranged that the point or lower end of the device 9 is twice as far from the end of the marking tool 1 as is the point or lower end of the device 8, this feature being illustrated clearly in Fig. 10. The upper ends of the devices 8 and 9 pass through radially disposed slots 11 formed in a flange 12 on the upper end of the sleeve 2, and means is provided for rocking said devices on their pivots so as to move them relatively to the marking tool 1 and thus permit the tool to be used with different-sized drills.

In the construction herein shown the means for adjusting the positioning devices consists of a plate 13 arranged above the flange 12 on the sleeve 2 in such a manner that it can be turned or rotated about the shank A as an axis. The plate 13 is provided with cam-shaped slots 8^a and 9^a into which the upper ends of the positioning devices 8 and 9 project so that said devices will be rocked on their fulcrums whenever the plate 13 is turned. Said plate is provided on its under side with L-shaped projections 14 that project underneath the flange 12 on the upper end of the sleeve 2 so as to prevent the plate from moving relatively to said sleeve, and some suitable means is provided for locking the plate 13 in its adjusted position. The means illustrated in Fig. 1 for locking said plate consists of a clamping nut 15 mounted on a screw-threaded stud 16 which projects upwardly from the flange 12 through an arc-shaped slot 17 in the plate 13, the nut 15 being adapted to be screwed downwardly so as to clamp the plate 13 tightly against the flange 12. The means illustrated in Fig. 9 for locking the plate 13 consists of a sleeve 18 screwed into the flange 12 and provided with a head 18^a that bears upon the plate 13 when the sleeve

18 is screwed downwardly, the shank A of the tool passing through the sleeve 18, as shown clearly in Fig. 9. The peripheral edge of the plate 13 is preferably knurled so as to enable it to be manipulated easily, and the peripheral edge of the flange 12 is provided with a scale or graduation marks 19, as shown in Fig. 1, with which one of the L-shaped devices 14 on the under side of the plate coöperates so as to assist the workman in adjusting the tool.

In laying out a plate in which an opening is to be formed the workman first scribes the plate at 20 with a sharp-pointed tool so as to outline the opening, and if a quarter-inch drill is to be used to drill a row of holes in the plate to detach the center portion of the plate, the workman picks up the center punch and manipulates the plate 12 thereof until the scale 19 shows that the positioning device 8 is an eighth of an inch away from the end of the marking tool 1, and the positioning device 9 is one-fourth of an inch away from the end of said marking tool. He then places the positioning device 8 on the scribe mark 20 and strikes the shank A a blow so as to force the marking tool 1 into the plate to make a centering mark for the drill. The positioning device 9 is then inserted in the punch mark that has just been formed in the plate and the positioning device 8 is placed on the scribe mark 20 and the shank A is struck another blow so as to form a second drill centering mark. These operations are repeated until the entire distance around the scribe mark has been traversed. Practically no skill on the part of the workman is required to lay out the plate after it has been scribed for he simply has to arrange the positioning device 8 on the scribe mark and the positioning device 9 in the last punch mark that the tool 1 has formed in the plate, said two devices co-operating with each other to locate the marking tool an eighth of an inch inwardly from the scribe mark 20 and a quarter of an inch in advance of the last punch mark that has been formed. If a one-eighth inch drill is to be used the workman manipulates the plate 13 until the positioning device 8 is spaced a sixteenth of an inch from the marking tool 1 and the positioning device 9 an eighth of an inch from said marking tool, the rotary movement of the plate 13 causing the positioning device 9 to move twice as far as the positioning device 8 toward and away from the marking tool.

A center punch of this construction overcomes the necessity of first marking off the plate with a pair of dividers; it enables a workman to lay out a plate quickly and without exercising a great deal of care; it enables a workman to lay out a piece of work accurately, and as the positioning devices accurately center the marking tool 1

it reduces the liability of an error being made in laying out a plate in which an irregular-shaped opening is to be formed.

While I have herein shown my invention applied to an ordinary center punch that is adapted to be struck a blow with a hammer I do not wish it to be understood that my broad idea is limited to this exact construction for the same idea could be embodied in an automatic center punch such, for example, as those in which a blow is imparted to the marking tool by means of a spring-actuated device arranged in the hollow handle or shank of the punch.

It is, of course, preferable to provide the tool with means for adjusting the positioning devices 8 and 9 but, if desired, said positioning devices could be rigidly connected to the movable sleeve, such a structure being illustrated in Fig. 13 wherein the reference character 90 designates one of the positioning devices which is rigidly connected to a sleeve 20 loosely mounted on the shank of the tool.

In Fig. 12 I have illustrated a tool in which both positioning devices are positively connected at their upper ends to the flange 12^a at the upper end of the sleeve 2^a, a plate 13^a being rotatably mounted on said sleeve for adjusting said positioning device relatively to the marking tool.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A center punch provided with positioning devices which consist of pivotally mounted members that are adapted to rest stationary on the work when the impression tool is actuated, and means for adjusting the points or lower ends of said members relatively to the impression tool of the punch.

2. A center punch provided with movable positioning devices that are adapted to rest upon the work and thus arrange the impression device in proper position, an actuating member for adjusting said devices, and means for locking said actuating member.

3. A center punch provided with a plurality of pivotally mounted positioning devices, a rotatable member having cam-shaped surfaces which impart movement to said devices, and means for locking said member.

4. A center punch having a sleeve mounted on the shank of the punch, positioning devices pivotally connected to said sleeve, and means carried by said sleeve for adjusting said devices.

5. A center punch having a sleeve mounted on the shank of the punch, positioning devices pivotally connected to said sleeve, and a rotatable member carried by said

sleeve and provided with cam-shaped surfaces that cooperate with said devices to impart movement thereto.

6. A center punch provided with a sleeve that is mounted on the shank of the punch, pivotally mounted positioning devices carried by said sleeve, a rotatable member carried by said sleeve and provided with cam-shaped slots into which the upper ends of said positioning devices project, and means for locking said rotatable member to said sleeve.

7. A center punch comprising positioning devices that are adapted to rest upon the material being operated on, and a movable marking tool normally spaced away from said material and adapted to be forced into engagement with same when said positioning devices remain at rest.

8. A center punch comprising positioning devices that are adapted to be held at rest upon the material being operated on, a marking tool, and yielding means for normally sustaining the point of said tool above the surface of the material being operated on.

9. A center punch provided with a shank, a sleeve loosely mounted on said shank, a spring interposed between a shoulder on said sleeve and a shoulder on said shank for holding the sleeve in a certain position, and positioning devices carried by said sleeve and adapted to be held at rest on the work when the punch is actuated.

10. A center punch provided with a shank, a sleeve loosely mounted on said shank, a spring interposed between a shoulder on said sleeve and a shoulder on said shank for holding the sleeve in a certain position, positioning devices carried by said sleeve, and cooperating means on said shank and sleeve for limiting the movement of one part relatively to the other.

11. A center punch comprising a shank provided with a marking tool, a sleeve loosely mounted on said shank and provided at its upper end with a flange, a coiled expansion spring interposed between a shoulder on said shank and a shoulder on said sleeve, pivotally mounted positioning devices carried by said sleeve, a rotatable member arranged above said flange and provided with means for actuating said positioning devices, and means for preventing said member from moving vertically relatively to said flange.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 29th day of September 1909.

RICHARD A. HOGGE.

Witnesses:

WILLIAM CUREEN,
J. P. CHANDLER.

It is hereby certified that Letters Patent No. 956,765, granted May 3, 1910, upon the application of Richard A. Hogge, of Louisiana, Missouri, for an improvement in "Center-Punches," were erroneously issued to Fredrick M. McCracken, as assignee of the entire interest in said invention, whereas said Letters Patent should have been issued to the inventor, *said Hogge and Fredrick M. McCracken, jointly*, said McCracken being owner of *one-half* interest only; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 24th day of May, A. D., 1910.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.