June 23, 1925. 1,543,093

J. A. BICKL

CENTER AND ECCENTRIC MARKING DEVICE

Filed April 21, 1924 2 Sheets-Sheet 1

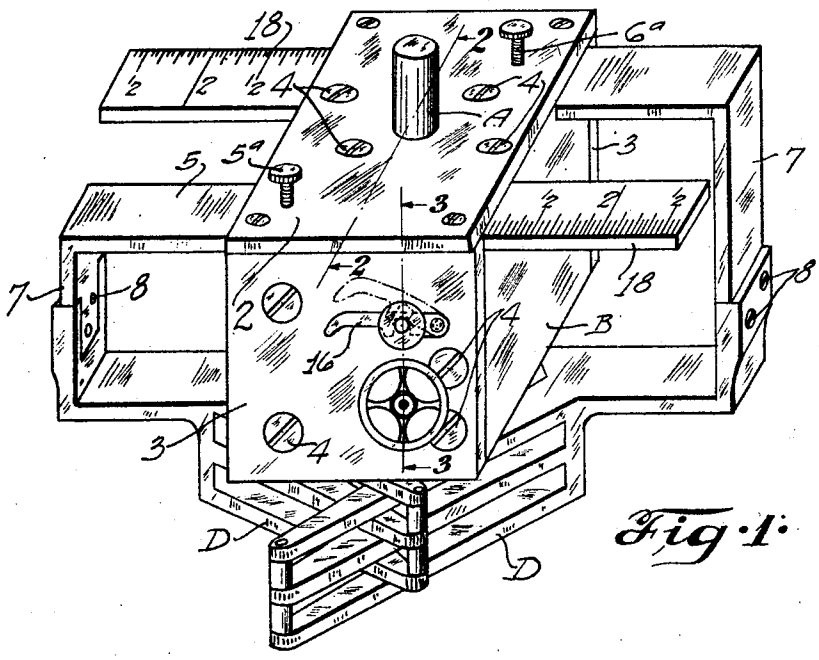


Fig. 1.

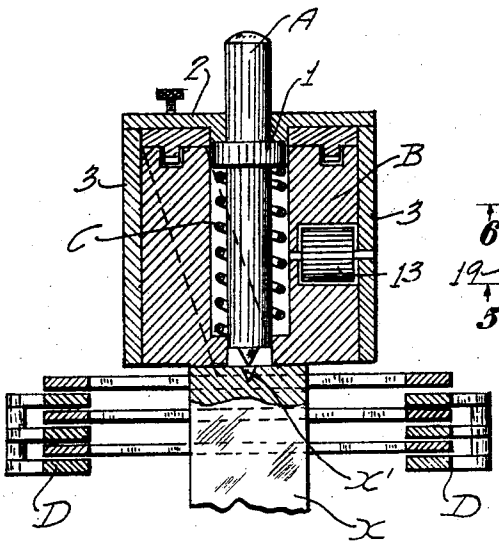


Fig. 2.

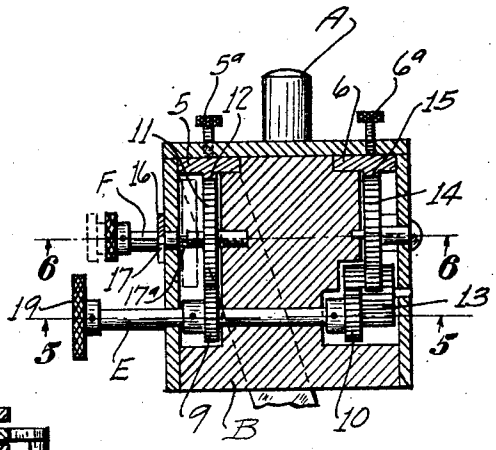


Fig. 3.

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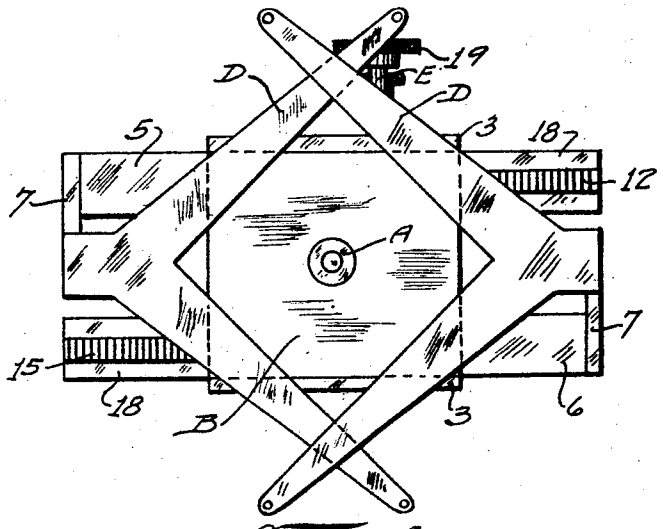



Fig. 4.

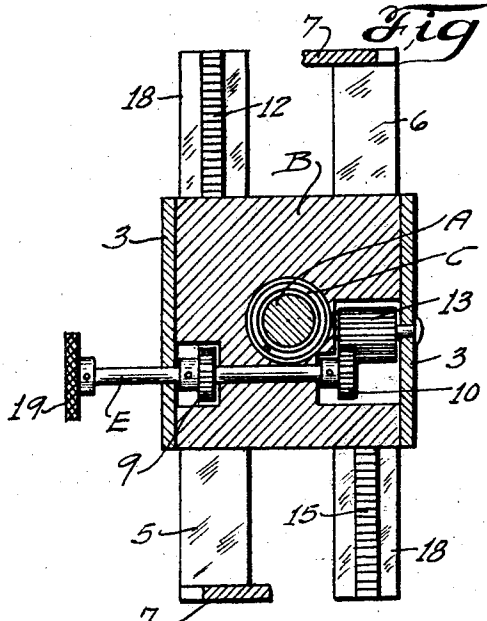



Fig. 5.

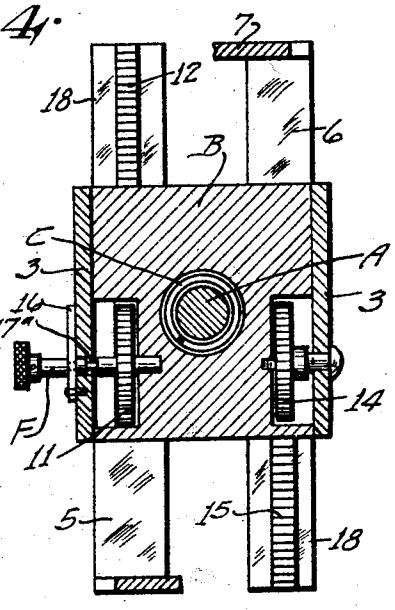



Fig. 6.

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Patented June 23, 1925. 1,543,093

# UNITED STATES PATENT OFFICE.

JOHN ADAM BICKL, OF ST. LOUIS, MISSOURI.

## CENTER AND ECCENTRIC MARKING DEVICE.

Application filed April 21, 1924. Serial No. 707,953.

*To all whom it may concern:*

Be it known that I, JOHN ADAM BICKL, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Center and Eccentric Marking Devices, 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 devices of the kind that are used for marking a center point or an eccentric point on a member or on a piece of stock that is to be machined.

The main object of the invention is to provide a compact device of simple design that can be adjusted quickly to change it from a center markng device to an eccentric making device.

Another object is to provide a device of the character above referred to that is accurate and easy to adjust. Other objects and desirable features of my invention will be hereinafter pointed out.

To this end I have devised a marking device that is composed of a marking element, preferably a punch, a body portion that carries said marking element, opposed locating elements on said body portion combined with a manually-operable means that is adapted to be actuated to move said locating elements into engagement with an object to be marked so as to maintain said object in a certain position with relation to said marking element, and means whereby the position of said locating elements relatively to each other can be changed more or less when it is desired to form an eccentric mark on an object. The device is capable of various uses, but it is particularly adapted for use in making a center mark or an eccentric mark in the end of a shaft or in the end of a piece of stock of round, square or other cross-section that is to be machined.

Figure 1 of the drawings is a perspective view of a marking device constructed in accordance with my invention.

Figure 2 is a vertical sectional view, taken on the line 2—2 of Figure 1.

Figure 3 is a vertical sectional view, taken on the line 3—3 of Figure 1.

Figure 4 is a bottom plan view of the device.

Figure 5 is a horizontal sectional view, taken on the line 5—5 of Figure 3; and

Figure 6 is a horizontal sectional view, taken on the line 6—6 of Figure 3.

Referring to the drawings which illustrate the preferred form of my invention, A designates the marking element of the device which preferably consists of a punch reciprocatingly mounted in the body portion B of the device and normally mantained in an elevated position, as shown in Figure 2, by means of a coiled spring C which surrounds the marking element A between a collar 1 thereon and the end wall of a vertically-disposed bore in the body portion B in which the marking element A is arranged. The body portion B of the device can be formed in various ways without departing from the spirit of my invention, but I prefer to form said body portion from a block of metal that has a top face plate 2 and two end face plates 3 secured to same by screws 4 or in any other suitable manner.

In the form of my invention herein illustrated two opposed locating elements D (preferably Y-shaped or yoke-shaped in general outline) are arranged on the underside of the body portion B of the device, one of said locating elements being carried by a slide 5 and the other being carried by a slide 6 that are arranged in parallel relation with each other and which are reciprocatingly mounted in the body portion B of the device in such a way that the locating elements D can be moved inwardly and outwardly with relation to the punch A so as to determine the position of said punch with relation to the object $x$ that is to be marked. The particular construction of the locating elements D is immaterial, so far as my broad idea is concerned, but I prefer to make the locating elements D of considerable depth so that when they are moved inwardly into engagement with a shaft or piece of stock $x$ that is to be marked, they will have sufficient bearing area on said shaft or stock to hold the body portion B of the device firmly on the end of the shaft and prevent it from tilting or assuming an angular position. One convenient way of constructing the locating elements D is to provide each of said elements with two sets of diverging fingers arranged in overlapping relation

with sets of diverging fingers on the opposed locating element, as shown in Figure 1, but this is only one of numerous ways of constructing the locating elements. The slides 5 and 6 that carry the locating elements D are arranged in guideways in the top part of the body portion B of the device, and each of said slides is provided at one end with an angularly-disposed arm 7 to which one of the locating elements is connected by fastening devices 8, the arms 7 being inclined slightly to the vertical, as shown in broken lines in Figures 2 and 3, so that the punch or marking element A will be centered properly with relation to the locating elements D, as shown more clearly in Figure 4.

A manually-operable means is provided for moving the locating elements D towards and away from each other simultaneously and at the same speed. When the device is being used for making a center mark in an object, the locating elements D are so positioned with relation to the punch A that said punch will be located the same distance from the center of each of the locating elements. Consequently, when the operating means for the locating elements is actuated, both of said elements will move the same distance and at the same speed to vary the distance between the centers of said elements and the punch A. In order that the device may be used for making an eccentric mark in an object, the operating means for the locating elements is so constructed that the position of said locating elements relatively to each other can be changed so as to arrange one of said elements a greater distance from the punch than the other element is located from the punch, thus causing the punch A to be located at one side of the center of the object being marked when the locating elements are moved into engagement with said object.

Various means can be used for operating the locating elements D, but I prefer to equip the device with a manually-operable adjusting shaft E that is arranged horizontally in the body portion B of the device as shown in Figure 3, and provided with two rigid pinions or gears 9 and 10, the pinion 9 meshing with a pinion 11 that co-operates with a rack 12 on the underside of the slide 5 and the pinion 10 meshing with a reversing pinion or transfer pinion 13 that meshes with a pinion 14 which co-operates with a rack 15 on the underside of the slide 6. When the shaft E is turned to the right or in a clockwise direction, the locating elements D will move outwardly away from the punch A, and when said shaft E is turned in the reverse direction, said locating elements will move inwardly towards the punch. In order that the slide 5 may be disconnected from the mechanism that is used to operate the locating elements D, the pinion 11 is constructed in such a way that it can be disengaged from the pinion 9 on the adjusting shaft E and from the rack 12 on the slide 5, thereby enabling the slide 5 to be moved manually to change the relative position of the opposed locating elements D or to change the symmetrical relationship between the punch A and the centers of said locating elements. In the form of my invention herein illustrated the pinion 11, which I will refer to as a shiftable pinion, is rigidly connected to a shaft F that is arranged in the body portion B of the device in such a manner that said shaft is adapted to be moved outwardly into the position shown in dotted lines in Figure 3 so as to disengage the pinions 9 and 11, or moved inwardly into the position shown in full lines in Figure 3 so as to cause the pinion 11 to mesh with the pinion 9 and the rack 12 on the underside of the slide 5. Any suitable means can be used for holding the shiftable shaft F in its two extreme positions, the means herein illustrated for this purpose consisting of a catch or dog 16 pivotally mounted on the body portion B of the device in such a way that when the pinions 9 and 11 are in mesh, said catch will project into an annular groove 17 in the shiftable shaft F, and when the pinions 9 and 11 are out of mesh, said catch will project into an annular groove $17^a$ in the shaft E. In order to assist the operator in setting the locating elements D properly to use the tool to make an eccentric mark in an object, each of the slides 5 and 6 is provided with graduations 18, as shown in Figure 1. It is preferable to provide the device with means for locking the slides 5 and 6 in adjusted position, and while various means can be used for this purpose without departing from the spirit of my invention, I prefer to arrange set screws $5^a$ and $6^a$ in the top face plate 2 of the body portion of the device so as to clamp said slides and the locating elements D carried by same after said elements have been moved into engagement with the object to be marked.

When the device is being used to form a center mark on an object $x$, the locating elements D are so arranged with relation to each other that the center of each of said locating elements is located the same distance from the punch A. To position the device on the object to be marked the operator turns the shaft E to the right by manipulating the hand wheel 19 on the end of said shaft so as to separate the locating elements and permit the device to be arranged on the end of the object $x$ to be marked. Thereafter, the operator turns the shaft E in the reverse direction so as to cause the locating elements D to move inwardly into engagement with the object $x$, thereby causing the object to be arranged in such a posi-

tion with relation to the punch A, that said punch will be located at the exact center of said object. The set screws $5^a$ and $6^a$ are then tightened so as to hold the locating elements in adjusted position, and thereafter the operator strikes the punch A a blow so as to force the end of the punch into engagement with the end of the object $x$, thereby making a center mark $x'$ in said object. If it is desired to form an eccentric mark in an object, the operator swings the catch 16 upwardly into the position shown in broken lines in Figure 1, and then pulls the shaft F outwardly into the position shown in broken lines in Figure 3 so as to disengage the slide 5 from the mechanism that is used to adjust the locating elements D. The operator then moves the slide 5 manually into such a position that the mark on the scale 18 thereon which represents the degree of eccentricity of the proposed mark lines up with the edge of the top face plate 2 of the body portion of the device. For example, if the proposed mark is to be one-half inch off center, the operator moves the slide 5 to the left until the character on the scale 18 that designates one-half inch is in alignment with the edge of the face plate 2 that overlaps said slide. The operator then raises the catch 16 so as to disengage it from the groove $17^a$ in the shaft F and moves said shaft inwardly so as to cause the pinion 11 thereon to mesh with the pinion 9 on the shaft E and with the rack 12 on the underside of the slide 5. From this point on the device is manipulated in the same way that it is manipulated when a center mark is being made on an object. For example, the operator turns the shaft E to the right so as to separate the locating elements D; he then arranges the device on the end of the object $x$ to be marked; he then turns the shaft E in the reverse direction so as to move the locating elements D into engagement with said object; he then tightens the set screws $5^a$ and $6^a$ to hold the locating elements in adjusted position, and finally, he strikes the punch A a blow so as to force the end of same into the end of the object embraced by the locating elements.

A marking device of the construction above described is of such simple design that it can be used by any mechanic; it can be adjusted quickly and easily; it is accurate and it greatly facilitates the operation of laying out work to be machined, due to the fact that it can be used for making a center mark or an eccentric mark in the end of a shaft or piece of stock of round, square or other cross-sectional shape.

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

1. A device for the purpose described, comprising a body portion, a reciprocating marking element carried by said body portion, a pair of slides arranged in said body portion in parallel relation, opposed locating elements on said slides that are adapted to engage the object to be marked, a manually-operable rack and pinion mechanism for simultaneously moving said slides in opposite directions to separate said locating elements and for thereafter moving said slides simultaneously in opposite directions to close said locating elements, and means whereby one of said slides can be disengaged from said rack and pinion mechanism and moved manually to change the position of the locating element thereon relatively to the other locating element.

2. A device for the purpose described, comprising a body portion, a reciprocating punch mounted in said body portion, a pair of slides arranged on said body portion in parallel relation, opposed locating elements on said slides, a manually-operable means for actuating said slides to separate and close said locating elements, and means whereby one of said slides can be disengaged from said manually-operable means and adjusted manually when the device is to be used for making an eccentric mark in an object, there being graduations on said slides.

3. A device for the purpose described, comprising a body portion, a spring-pressed punch reciprocatingly mounted in said body portion, a pair of slides arranged in said body portion in parallel relation, opposed locating elements carried by said slides and arranged on the underside of said body portion, an adjusting shaft in said body portion provided with two pinions, and means that co-operates with said pinions and with said slides to cause said slides to move simultaneously in opposite directions to separate said locating elements when said adjusting shaft is turned in one direction and to move simultaneously in opposite directions to close said locating elements when said adjusting shaft is turned in the opposite directions.

4. A device for the purpose described, comprising a body portion, a spring-pressed punch reciprocatingly mounted in said body portion, a pair of slides arranged in said body portion in parallel relation, opposed locating elements carried by said slides and arranged on the underside of said body portion, racks on said slides, a shiftable gear arranged between one of said pinions and the rack on one slide, and means comprising a reversing pinion for connecting the other pinion on said shaft to the rack on the other side.

5. A device for the purpose described, comprising a body portion, a spring-pressed punch reciprocatingly mounted in said body portion, a pair of slides arranged in said

body portion in parallel relation, opposed locating elements carried by said slides and arranged on the underside of said body portion, racks on said slides, a shiftable gear arranged between one of said pinions and the rack on one slide, means comprising a reversing pinion for connecting the other pinion on said shaft to the rack on the other side, a shaft connected to said shiftable gear for moving it into and out of mesh with its co-operating pinion, and means for holding said shiftable gear either in its operative position or in its inoperative position.

JOHN ADAM BICKL.