UNITED STATES PATENT OFFICE.

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PUNCH-CENTER INDICATOR.

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To all whom it may concern:

Be it known that I, LOUIS ROGERS, a citizen of the United States, residing at Albion, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Punch-Center Indicators, of which the following is a specification.

This invention relates to punch center indicators, and has for its object the production of devices having particular construction and arrangement, alternately advanced and withdrawn by the operation of a punch, and including a pointer arranged to indicate upon the upper surface of a plate to be stamped the center of the die below the plate. In the process of punching a series of rivet holes through a plate, the centers of the areas desired to be stamped out are prick-punched or chalked on the upper surface of the plate, and it is convenient and expedients to know when such center mark in each instance is exactly in the path of the center of the punch and corresponding point of the die. By the use of this invention the positioning of the plate in one place after another for punching is readily and quickly carried out by the operator.

The various parts of this invention and their arrangement are set out in the accompanying drawings, of which—

Figure 1 represents a punching machine having this invention applied thereto and showing a side view thereof. Fig. 2 is an enlarged side view of a portion of a punching machine having this invention applied thereto, as illustrated in Fig. 1, the drawing being on an increased scale to more plainly show the construction. Fig. 3 is a section of the bracket plate on the broken line \( \sigma-\sigma \) of Fig. 2, showing the means for pivotally and adjustably clamping the arm to the plate. Fig. 4 is a top plan view of a portion of a plate in the process of being punched, and shows the extremity of the pointer in its indicating position directed to the center of the area to be stamped out.

Throughout the drawings and description the same letter is used to refer to the same part.

Considering the drawings, the punch frame A has the customary reciprocating punch head B provided with a punch C. As it descends the punch passes through the plate D into the die E supported by the die block F. All are of ordinary construction and arrangement.

In the mouth of the frame A is secured a bracket plate G, by means of its rearwardly-projecting flange \( \varphi \), and the screws H. The plate supports the operating members of this invention. The arm J is pivotally and adjustably connected with the plate G, by means of the thumbscrew \( j \) and the bolt K. The bolt passes through the slot \( k \) in the plate G, and through the spacing sleeve or collar L. The top of the arm J is pivotally engaged by the sleeve L which passes through the arm and through a washer Z. The bolt may be clamped by the thumbscrew at any point of the vertical slot \( k \), while the arm is free to swing on the sleeve L.

To the lower end of the pivoted arm J the bar M is pivotally connected, and the pointer m is formed integrally with the bar M and is usually an extension thereof turned flatwise as shown in Fig. 2. Another portion of the bar M is pivotally connected with one leg of a bell crank lever N, and the other leg of the bell crank projects beneath the punch head B, as best set out in Fig. 2. The bell crank has a certain adjustment with respect to the punch head and frame, by means of the screw \( n \) that passes through the leg of the bell crank and bears against the frame. The upper end of the adjusting screw \( n \) is yieldingly held against the lower surface of the overhanging part of the frame A by the bell crank lever N, as shown in Figs. 1 and 2. The return spring O has one end attached to the pivot of the bell crank, and the other end secured pivotally to the lower end of the arm J. The office of the spring O is to return the pointer m into its indicating position and to hold it yieldingly there.

In explaining the operation of this invention, let it be assumed that it is desired to punch a series of holes \( d \) in the plate D. The pointer m is directed to a line perpendicular to the die at its middle point, and the line coincides in this case with the axis of the punch C. In Fig. 4, the dot P indicates the center of the circular area of the plate to be stamped out. If, therefore, the plate be moved until the extremity of the pointer passing over the plate is directly over the dot P, the operator knows that the center of the punch will strike the dot P and the hole \( d \) will be accurately located. As the punch head B descends, the bell crank and arm J are swung to the right against the force of the spring O, and the pointer is
moved out of the path of the punch, to be again returned to its indicating position by the spring as the punch head rises.

The pointer m is adjustable horizontally and vertically. It is adjusted horizontally when the bell crank N is adjusted by means of the screw a, and its extremity is adjusted up or down according as the pivot bolt K of the arm J is adjusted down or up in the slot k. If desired, the flange g of the bracket plate G may be provided with transverse slots, such as the slot h in Fig. 2, for the screws H, and the whole may then be adjusted sidewise on the frame A.

Having now described this invention and explained the mode of its operation, what I claim and desire to secure by Letters Patent of the United States is:

1. In a punch center indicator, the combination with a punch frame, of a movable punch head, a die and die-supporting means, a pointer, and means actuated by the punch head for advancing the pointer to a given point above the die as the head rises, and for withdrawing the pointer as the said head descends.

2. In a punch center indicator, the combination with a punch frame, of a movable punch head, a die and a die-support, and means provided with a pointer and adjustable vertically and horizontally, the said means being actuated by the punch head and constructed to advance the pointer to a given point above the die as the head rises and to withdraw the pointer as the said head descends.

3. In a punch center indicator, the combination with a punch frame, of a movable punch head, a die and die-supporting means, a pointer having its extremity arranged at a distance above the die and directed to a line perpendicular to the die at a predetermined point, a bar connected with the pointer, a bell crank lever and an arm each having an end pivotally connected with the bar, the said bell crank and arm being pivotally connected with the said frame, one leg of the bell crank projecting beneath the said punch head, means for adjusting the said leg with respect to the said head whereby the pointer is horizontally adjusted, and a spring arranged to return the pointer to its indicating position.

4. In a punch center indicator, the combination with a punch frame, of a movable punch head, a die and die-supporting means, a pointer having its extremity arranged at a distance above the die and directed to a line perpendicular to the die at a predetermined point, a bar connected with the pointer, a bell crank lever and an arm each having an end pivotally connected with the bar, the said bell crank and arm being pivotally connected with the said frame, one leg of the bell crank projecting beneath the said punch head, means for adjusting the said leg with respect to the said head whereby the pointer is horizontally adjusted, and a spring arranged to return the pointer to its indicating position.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS ROGERS.

Witnesses:

LUCY FELLOWS,
R. J. GRISWOLD.