No. 834,973. PATENTED NOV. 6, 1906.

C. A. FISK.

CENTER PUNCH.

APPLICATION FILED JAN. 26, 1905.

Fig. 1.

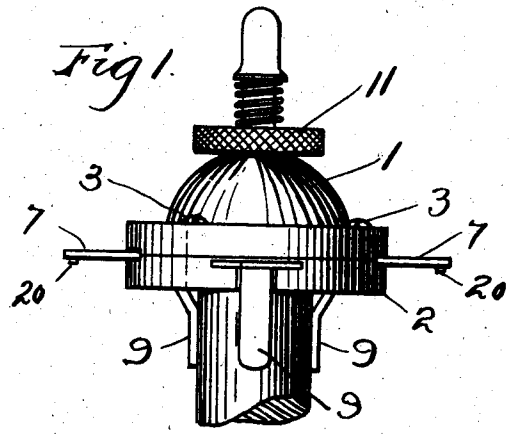
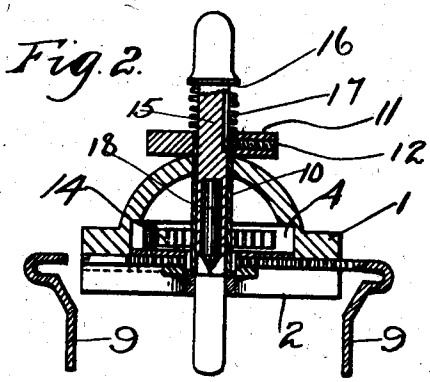


Fig. 2.



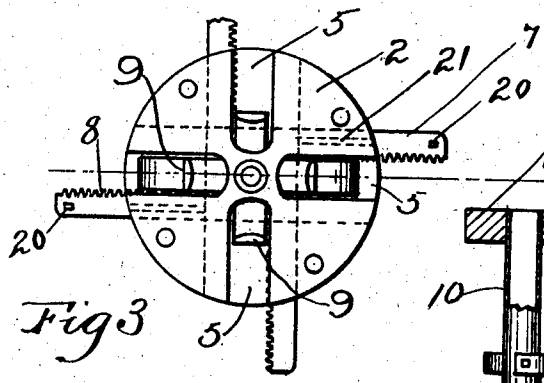


Fig. 3.

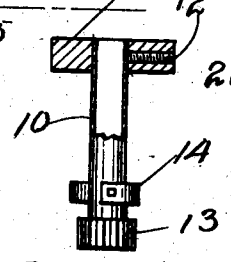


Fig. 7.

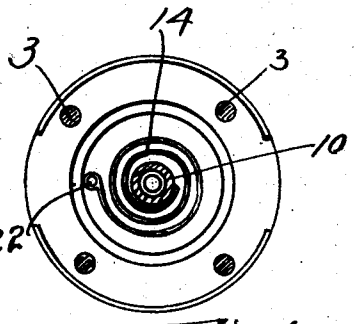


Fig. 6.

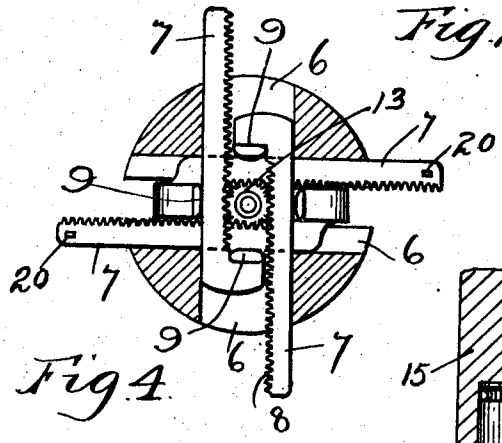


Fig. 4.

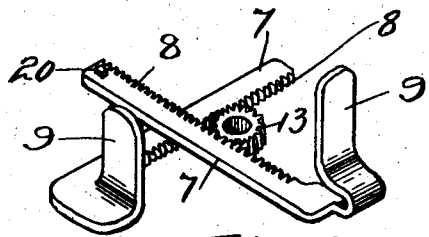


Fig. 5.

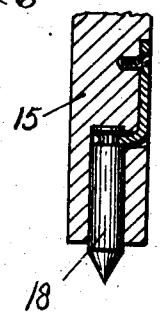


Fig. 8.

Witnesses

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CENTER-PUNCH.

No. 834,973. Specification of Letters Patent. Patented Nov. 6, 1906.

Application filed January 25, 1905. Serial No. 242,674.

To all whom it may concern:

Be it known that I, CARL A. FISK, a resident of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Center-Punches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in punches of that class known as "center-punches;" and it has for its object, among others, to provide a simple and cheap construction by which the punch may be readily adapted to holding square, round, or other regular-shaped articles and the holding arms or jaws universally adjusted to and from a central point. The punch is mounted to reciprocate through the hub of the centrally-disposed pinion.

The essential feature of this invention is that the universally-adjustable jaws will be automatically closed upon the work when the operating-nut is released, thereby bringing the punch instantly and automatically to the exact central point of the work and at the same time tightly gripping and holding the work in this position until the punch has been struck into the same to make the hole necessary for guiding the centering-drill.

The invention is fully set forth in this specification and more particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved centering-punch as applied to the end of a shaft. Fig. 2 is a central sectional elevation of the same. Fig. 3 is a bottom view of said device. Fig. 4 is a bottom view of the device with the casing in section, showing the universal operation of the four jaws. Fig. 5 is a perspcetive view showing two of the jaws disposed at right angles to each other, both of which jaws engage a common pinion, the two opposing jaws not being shown. Fig. 6 illustrates the spiral spring which acts to automatically close the jaws onto the work. Fig. 7 is a detail showing the spindle that holds the prick-punch, attached to which spindle is shown the gear and a portion of the actuating-spring. Fig. 8 is a detail showing another means by which the center-punch may be retained in the spindle 15.

Referring to the drawings, the body of the device is constructed in two parts, of which 1 is the upper portion, and 2 the lower plate, the two parts being held together by suitable screws 3 3. The upper portion is preferably constructed with a dome-shape top having a flange at its lower edge, said dome being chambered out and recessed at 4 (see Fig. 2) for the reception of the actuating spiral spring hereinafter more fully described.

The lower plate 2 is provided with four radial slots 5 5, as shown in Fig. 3, which slots extend from the periphery nearly to the center of said plate. On the inner face of this plate are formed grooves 6 6, in which grooves are slidably held the rack-arms 7 7. (See Fig. 4.) These rack-arms are preferably made of narrow strips of sheet metal, with rack-teeth 8 cut in one edge thereof. The outer end of each arm is offset or carried off to one side of the body portion of the arm and is turned up at right angles to the blade or arm of the same, forming a finger or jaw 9 (see Fig. 5) at the end of each arm, which fingers are for the purpose of engaging the work, as illustrated in Fig. 1. When the rack-arms are in position in the body of the device, the said fingers project out through the slots 5 5, in which slots said jaws are drawn to and from the center. At the opposite end of one of these arms is the stop-pin 20, which slides into the groove 21 (shown in Fig. 3) and by bringing up on the inner wall of said slot limits the outward motion of the said jaws.

Extending down through the center of the upper portion of the body is the tubular spindle 10, and to its upper end, that extends above the dome, is fixed the operating knurled nut or hand-wheel 11. This nut is secured to the tube by the set-screw 12. Fixed to the lower end of this tube is the pinion 13, which pinion engages the toothed edges of the four rack-arms 7 7 and by which gear said arms are actuated. The spiral spring 14 is connected at one end to the retaining-pin 22, that is fixed in the body of the device, while the opposite end of said spring is attached to the tube 10, which spring by its tension serves the very important purpose of drawing all of the engaging fingers 9 9 toward the center through the medium of the rack-arms 7 7, pinion 13, and tube 10, to which latter said spring is connected. Slidably mounted in this center tube 10 is the spindle 15, that is provided with the shoulder 16, against which the coil-

spring 17 acts to press it upward, and into a slightly-tapering hole in the lower end of the spindle is held the centering-punch 18.

The operation of the device may be more fully described as follows: By the tension of the spiral spring 14 acting on the pinion 13 through the tube 10 all of the fingers or jaws are drawn in and held normally in their closed position, or that position where they are nearest the center. When it is desired to open the jaws, the hand-wheel 11 is turned, which operates all of the jaws universally to draw them apart, and as soon as the device is applied to the work it is only necessary to release the hand-wheel and the jaws will close automatically onto the work, instantly centering the device thereon, and on account of the tension of the spring the device will grip the work and hold itself firmly in place. All that remains then to be done is to strike the punch with a hammer and the work of the centering-punch has been quickly accomplished.

The device is an extremely handy instrument, and the automatic jaw-closing feature makes it complete and practical.

The advantages of my improved center-punch will be at once apparent to those skilled in the art to which it appertains. It will be particularly observed that by making the body of the instrument in two parts I am enabled to more conveniently mill out the guideways for the movable members, thus insuring accuracy and smoothness of movement of said members. A further advantage is obtained by placing the movable members in one section and the operating means therefor in another section in that the parts can be quickly and accurately assembled and will occupy a minimum space, thus securing compactness. A still further advantage is obtained in making the body in sections in that parts may be readily removed from one section for repairs without disturbing the parts in the other section, thus saving time and labor.

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

1. A device of the character described comprising a body provided with a chambered portion, radial arms mounted to reciprocate in said body, a rotatable member for simultaneously moving said radial arms, a retracting-spring for said rotatable member located in the chambered portion of said body, and a punch carried by said body.

2. A device of the character described comprising a body formed of two members one of which is chambered, radial arms mounted to reciprocate in the other member, a tubular shaft, means carried by said shaft for simultaneously moving said radial arms, a retracting-spring for said tubular shaft located in said chambered portion, means for rotating said tubular shaft against the tension of said spring, and a punch mounted to reciprocate in said tubular shaft.

3. A device of the character described comprising a body portion provided with radial slots, rack arms or members working in said body and having bent portions or fingers extended through said slots, a tubular shaft, a pinion keyed thereon and meshing with said rack-arms, a spring acting on said shaft, means for rotating said shaft against the action of its spring, and a punch working in said tubular shaft.

In testimony whereof I have hereunto set my hand this 19th day of January, A. D. 1905.

CARL A. FISK.

In presence of—

HENRY I. JACOBS,

his
A. × SAMUELS.
mark