

John L. Parker's Imp^d Mode of forming Tapering Ferrules.

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PATENTED JUN 27 1871

FIG. 1

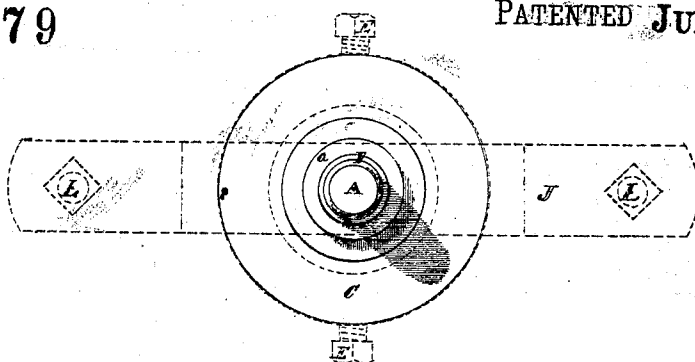


FIG. 3



FIG. 4

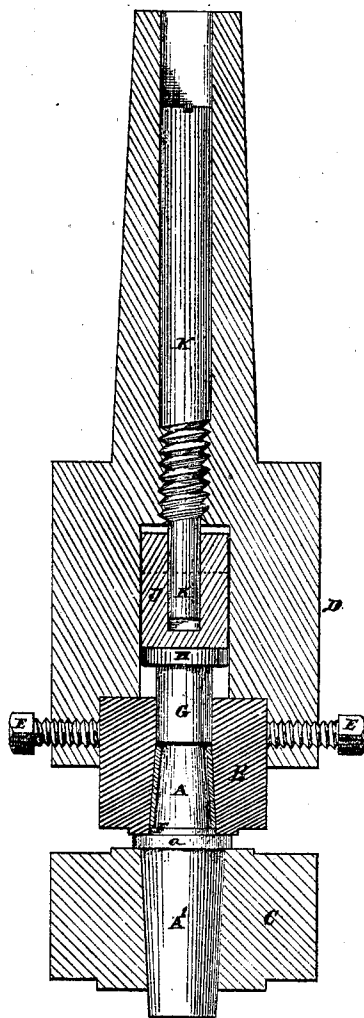


FIG. 2

Witnesses

Thos H. Dodge
A. E. Rice

Inventor

John L. Parker

UNITED STATES PATENT OFFICE.

JOHN L. PARKER, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR TAPERING FERRULES.

Specification forming part of Letters Patent No. 116,479, dated June 27, 1871.

To all whom it may concern:

Be it known that I, JOHN L. PARKER, of the city and county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in an Apparatus for Forming Tapering Ferrules; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing which forms a part of this specification, in which—

Figure 1 represents a plan view of the forming-spindle and press-bed, with the parts above indicated by dotted lines. Fig. 2 represents a central vertical section of the forming mechanism. Fig. 3 represents a perspective view of the ferrule before entering the tapering-die, and Fig. 4 represents a perspective view of the finished ferrule.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

The nature of my invention consists in an improved apparatus for forming tapering ferrules from cold iron, whereby open or closed ferrules can be formed with equal facility, as hereinafter described. As ferrules formed from cold iron have heretofore been made the mode of construction has been such as to necessitate the leaving of their sides straight and parallel, similar to illustration, Fig. 3. The straight ferrules are much used, but are not applicable to all classes of manufactures, as, in many instances, tapering ferrules are required; hence there is a great demand for a ferrule of a similar kind and quality to the above, but of a tapering form.

To supply such want, and to produce a tapering cold-iron ferrule, either open or closed at the end, is the object of my present invention.

The mechanism which I employ for imparting a tapering form to the ferrules is illustrated by Figs. 1 and 2 of the drawing, wherein A indicates a supporting or centering spindle to receive the partially-formed ferrules. B indicates the forming-die; C, the bed-piece of the press; and D, the movable head of the press, which rises and descends with a regular or intermittent motion when the mechanism is in operation. The parts herein shown are used in connection with a powerful mechanical press, which may be constructed in any suitable form, and need not herein be more fully described. The opening in the forming-die B is turned out to the proper size and taper which it is desired to impart to the ferrules,

and the die is secured in a recess in the movable head D by means of a pair of set-screws, E, in such position that when the press is in motion it will descend over the spindle A, as shown in Fig. 2. The spindle A is formed of the proper size to fit the interior of the ferrule at its base, but is turned more tapering than the matrix of the die, thus allowing sufficient space between the parts to enable the die to rectify any irregularity in the position of the ferrule I upon the spindle. The spindle is provided with a shoulder, F, equal in width to the thickness of the metal in the ferrules, and upon said shoulder the ferrule I rests and is wholly supported during the operation of tapering the ferrule. The shank A' of the spindle is formed somewhat tapering, and is fitted to a corresponding-shaped opening in the bed-piece C. It is also furnished with a flange or collar, a, which rests upon the top of the bed C and prevents the spindle from being pressed too far down into the opening by the action of the press. The spindle A can be readily removed from the bed-piece C to exchange it for one of a different size by striking it upon its lower end with a hammer or other tool; and the die B may be removed for a similar purpose by loosening the set-screw E. A discharging-pin, G, is fitted loosely in the upper part of the die B for forcing the finished ferrules therefrom. Said pin is provided with a flange, H, around its upper end to prevent it from dropping out of place, and it is operated by a cross-bar, J, arranged to work up and down in a vertical slot formed through the bed-piece D, from which its ends project in either direction, and where it is retained in proper position by a center-pin, K, upon which it can move freely up and down, while it is prevented from moving laterally. When the die B and head D descend the pin G and cross-bar J are forced up by the end of the spindle A or ferrule I pressing upon the bottom of the pin G; and when the head D rises the set-screws L L in the ends of the bar J are brought in contact with the frame of the pressing-machine, and the cross-bar J and pin G are thereby forced down, causing the ferrule I to be expelled from the die. The screws L L may be so adjusted that the ferrule will be discharged from the die at the proper moment, to be carried away by some mechanism suitably arranged for that purpose, which it is not necessary to herein describe.

The operation of forming the tapering ferrules

from cold iron is as follows: The ferrule I is first drawn up straight from the disk or blank by the method and in the manner heretofore practiced for drawing cold-iron ferrules, for which Letters Patent were granted to J. H. Cole April 28, 1868, No. 77,170. The ferrule I, after being thus drawn, is turned off square at its base, and, in case it is to be an open ferrule, the cap or end is cut out, as shown in Fig. 3. It is then placed upon the spindle A, with its square base resting upon the shoulder F, and the pressing mechanism is put into operation, and the die B is thereby caused to descend and embrace the ferrule I and spindle A, as illustrated in Fig. 2 of the drawing. The descending die embraces the ferrule upon all sides, and, as it is forced down, compresses and condenses the metal thereof at its upper end, thus diminishing its diameter so as to produce the desired taper, while, at the same time, the thickness of metal and strength at the upper end of the ferrule are increased. By the use of the shoulder F upon the spindle A, for supporting

the ferrules, I am enabled to form tapering ferrules from cold iron with open ends.

Having described my improved mode of forming tapering ferrules from cold iron, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination of the block B having a tapering hole in it of the diameter and taper required for the ferrule externally, the mandrel A more tapering than the hole in said die-block, a support for said mandrel, and mechanism to reciprocate die-block B, substantially as and for the purpose described.

2. The combination, with the bed C and movable head D of the power-press, of the centering-spindle A, forming-die B, discharging-pin G, and cross-bar J, substantially as and for the purposes set forth.

JOHN L. PARKER.

Witnesses:

THOS. H. DODGE,
A. E. PEIRCE.