No. 758,195. PATENTED APR. 26, 1904.

M. C. SCHWEINERT & H. P. KRAFT.

MACHINE FOR CONTRACTING FERRULES, &c.

APPLICATION FILED AUG. 2, 1902.

NO MODEL.

FIG. 2.

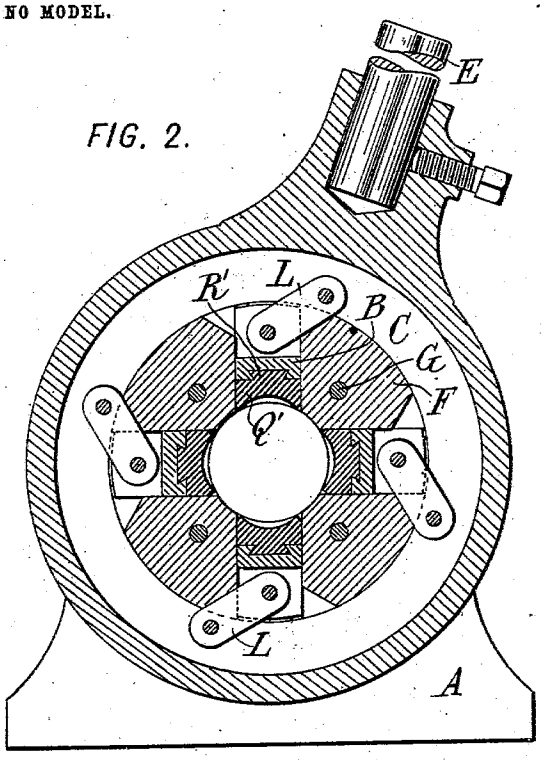


FIG. 1.

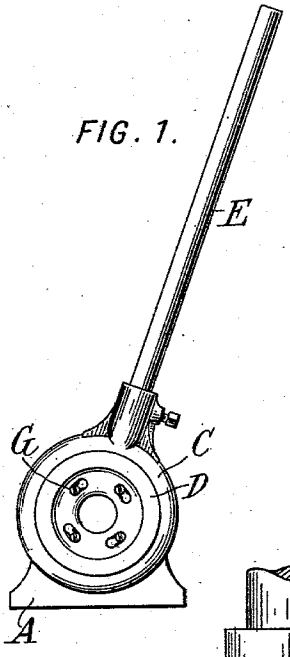


FIG. 3.

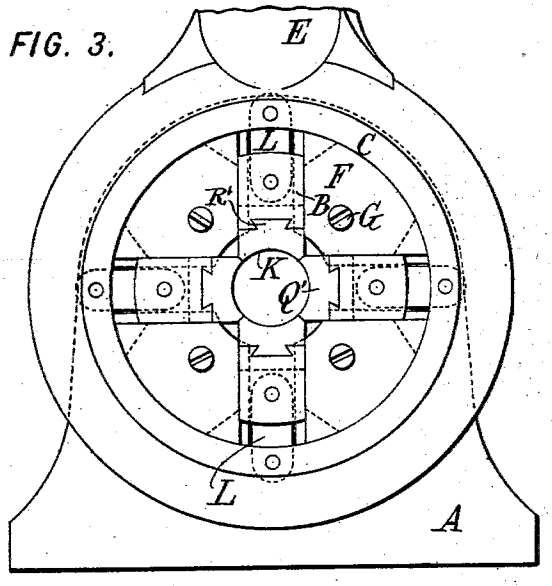
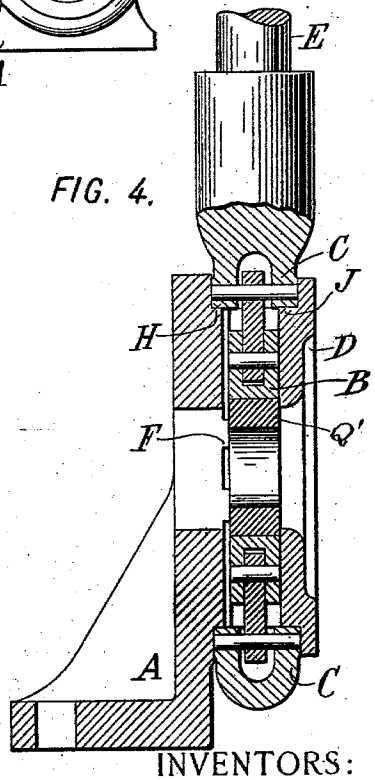


FIG. 4.



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No. 758,195. Patented April 26, 1904.

UNITED STATES PATENT OFFICE.

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MACHINE FOR CONTRACTING FERRULES, &c.

SPECIFICATION forming part of Letters Patent No. 758,195, dated April 26, 1904.

Application filed August 2, 1902. Serial No. 118,160. (No model.)

To all whom it may concern:

Be it known that we, MAXIMILIAN CHARLES SCHWEINERT, residing at West Hoboken, in the county of Hudson and State of New Jersey, and HENRY P. KRAFT, residing in the city, county, and State of New York, citizens of the United States, have jointly invented certain new and useful Improvements in Machines for Contracting Ferrules and the Like, of which the following is a specification.

Our invention aims to provide an improved machine for contracting ferrules—such, for example, as those which are ordinarily applied to the end of a hose—which machine shall be capable of quick and easy operation and which shall be at the same time of simple and cheap construction, but durable and not likely to get out of order, and which shall be adapted to contract a ferrule without corrugation or distortion thereof other than the reduction to a cylindrical form of reduced diameter. Our invention aims to provide such machine having various other advantages referred to in detail hereinafter.

Referring to the accompanying drawings, illustrating a machine embodying our invention, Figure 1 is a face view of a complete machine. Fig. 2 is a central transverse section through the body of the machine. Fig. 3 is a front view of the machine with the face-plate removed and with the parts in another position from that shown in Fig. 2. Fig. 4 is a central vertical section of the machine with the parts in the position of Fig. 3.

Our improved machine is designed to be mounted on an ordinary work-table, bench, or the like, being provided for this purpose with a stationary standard which supports the various operative parts. The contracting of the ferrule is accomplished by means of a series of radially-movable jaws, which are forced inward simultaneously, the faces of these jaws being preferably of such shape that they form together substantially a continuous circle when they are moved inward to their meeting-point. Preferably the jaws are guided by a series of suitable passages formed in the stationary standard, and an operating member is provided which by a single movement forces the jaws inward to contract the ferrule and then outward to release it. The operating member is preferably a ring carried by the stationary standard, being held in place preferably by means of a face-plate fixed to the standard, so that the ring lies between the standard and the face-plate and is rotatable relatively thereto.

Referring now to the embodiment of the invention illustrated, A is a stationary standard of any suitable design adapted to be attached to a fixed support, as by means of the bolt-holes shown. The radially-movable jaws B and the ring C, which controls the operation of said jaws, are held between the standard and a face-plate D, fixed to the standard. The parts are apertured, as shown, to permit the insertion within the jaws of the ferrule to be contracted. The rotation of the ring by means of a hand operating member, such as lever E, then forces the jaws first inward to contract the ferrule and then as the rotation is continued outward to release the ferrule.

The stationary standard A is provided on its face with lugs or projecting portions F, between which are radial grooves forming the guide-passages for the jaws B. Preferably the lugs F are equal in thickness to the jaws B, so that the outer faces of the two are flush, and the ring D has a flat inner face and is attached directly to the lugs F, as by means of screws G or the like, so as to hold the jaws in their guiding-grooves. The ring C is held in place between the standard A and the face-plate D, each of these parts being preferably rabbeted, as at H and J, respectively, to receive the inner periphery of the ring.

In order that the ferrule shall not be corrugated or forced into folds or wrinkles, but shall be subjected to uniform external pressure all around in such manner that its fibers shall be closed together with the effect of reducing it in diameter, but without otherwise perceptibly distorting it, the faces K of the jaws are preferably shaped to form together, Fig. 3, a circle when the jaws are moved inward to their meeting-point. In connection

with such faces the means for transmitting the motion of the ring to the jaws is also preferably arranged to move the jaws fully and exactly to the closed position of Fig. 3 before the commencement of the withdrawing movement. The motion-transmitting devices, for example, may be a series of toggle-links L, Fig. 2, connecting the jaws to the ring C at suitable points, preferably such that when the lever E is vertical, as in Fig. 3, the jaws shall be closed and a movement in either direction will open them. The lever has two operative positions—that is to say, positions in which the machine is ready for operation. Thus commencing with the lever in position of Fig. 1 and the ferrule in place the operator has merely to pull the lever toward and past the vertical position to an equal distance on the opposite side in order to contract the ferrule in the machine and to release it, leaving the machine ready for the insertion of the next ferrule. The next operation will be by moving the lever back to its original position. The machine is therefore extremely rapid and simple in operation, the parts at the completion of one operation being at once in position for the beginning of the next. The toggle-links preferably extend into the guide-passages, as shown. The operation is automatically stopped at each end by the links striking first one and then the other side of the guide-passages, limiting the movement and avoiding accidental jamming or derangement of the mechanism by the operator.

In order to adapt the machine to ferrules of different diameters, the jaws may be provided with separable face-pieces Q′. Face-pieces of different sizes may be substituted for each other at will, and the machine shown is arranged to permit the exchange of face-pieces very quickly and easily. The face-pieces Q′ in the construction shown are provided with overhanging tongues R′, extending axially of the machine and fitting in similar undercut grooves in the body B of the jaws. The face-plate D of the machine being removed, the face-pieces Q′ of the jaws may be drawn directly out and replaced by others of a different size. The face-plate of the machine being then put back holds the pieces Q′ of the jaws in position. Preferably, also, the face-plate is adapted for removal without entirely withdrawing the screws G, which extend into the standard or fixed portion of the machine. Thus, as shown in Fig. 1, the screws G pass through circumferential slots in the face-plate D, which slots are enlarged at one end sufficiently to permit the passage of the head of the screws. The screws being in the position of Fig. 1 and being tightened hold the face-plate D firmly in position. Upon loosening the screws very slightly the face-plate may be turned by hand until the enlarged portion of the groove comes under the head of the screw and may then be withdrawn axially.

Though we have described with great particularity of detail machines embodying our invention, yet we are not to be understood as limiting the invention to the particular embodiments thereof described. Various modifications are possible to those skilled in the art, in the details, and in the arrangement and combination of parts without departing from the invention.

What we claim is—

1. In a machine for contracting ferrules and the like, the combination with a stationary standard, and jaws adapted to be moved radially inward to contract the ferrule, and outward to release the same, of a pivoted hand operating member having two positions of rest, and mechanism controlled by said member for imparting such movements to said jaws, said mechanism moving said jaws from their inactive positions to their active positions and returning them to said inactive positions during a single movement of said hand operating member from one position of rest to another.

2. In a machine for contracting ferrules and the like, the combination with a stationary standard and jaws adapted to surround a ferrule and to be moved radially to contract the same at all points, of a pivoted hand operating member adapted to give said jaws their full normal ferrule-contracting movement, and a motion-transmitting connection between said member and each of said jaws transforming the rotary movement of said member in one direction into a reciprocating movement of said jaws throughout their full normal movement in alternate radial directions, whereby each of said jaws is moved inward to contract a ferrule, and then outward to restore the jaws to their original positions, by a single movement of said hand operating member in one direction.

3. In a machine for contracting ferrules and the like, the combination with a series of jaws adapted to surround a ferrule and to be moved radially to contract the same at all points and having faces which form together substantially a circle when the jaws are moved inward to their meeting-point so as to contract such ferrules without corrugating them, of an operating member adapted to give said jaws their full normal ferrule-contracting movement, and motion-transmitting connections between said member and each of said jaws transforming the movement of said member into a reciprocating movement of said jaws throughout their full normal movement in alternate radial directions, whereby each of said jaws is moved inward to their meeting-point and then outward, to contract a ferrule and then to restore the jaws to their original positions, by a single movement of said operating member.

4. In a machine for contracting ferrules and the like, the combination with a stationary

standard A provided on its face with lugs F integral therewith and having a series of radial guide-passages between said lugs, of jaws B guided in said passages adapted to surround a ferrule and to be moved radially to contract the same at all points and having faces adapted to form together substantially a circle when the jaws are moved inward to their meeting-point so as to contract such ferrules without corrugating them, a face-plate D, a ring C between said standard and face-plate, a hand operating-lever E for said ring, and toggle-links L attached at opposite ends to said ring and said jaws, said links being free to swing past the dead-center equally in either direction to transform the rotary movement of the ring in one direction into a reciprocating movement of said jaws, and said links being of such length that as said hand-lever E is turned continuously in either direction each of said jaws is moved inward to their meeting-point and then drawn outward by said links to contract a ferrule and then to restore the jaws to their original position.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

M. CHARLES SCHWEINERT.
HENRY P. KRAFT.

Witnesses:
FRED WHITE,
ARTHUR N. EDROP.