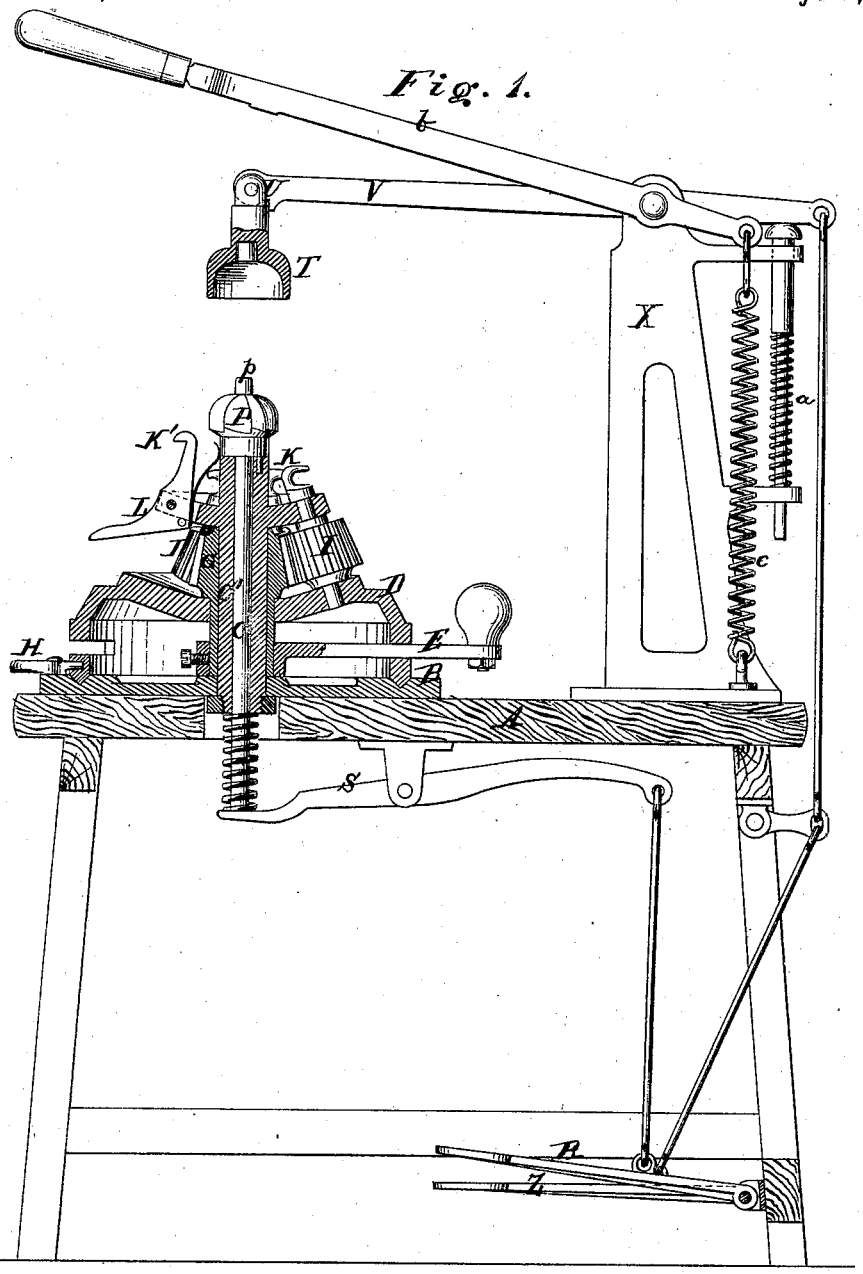
2 Sheets--Sheet 1.

A. De MESTRE.

Machine for Making Wire Caps.

No. 166,075. Patented July 27, 1875.

Fig. 1.



Witnesses
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Chas. Wahlers.

Inventor.
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by
Van Santvoord & Lauff
Attys

2 Sheets--Sheet 2.

A. De MESTRE.

Machine for Making Wire Caps.

No. 166,075. Patented July 27, 1875.

Fig. 2.

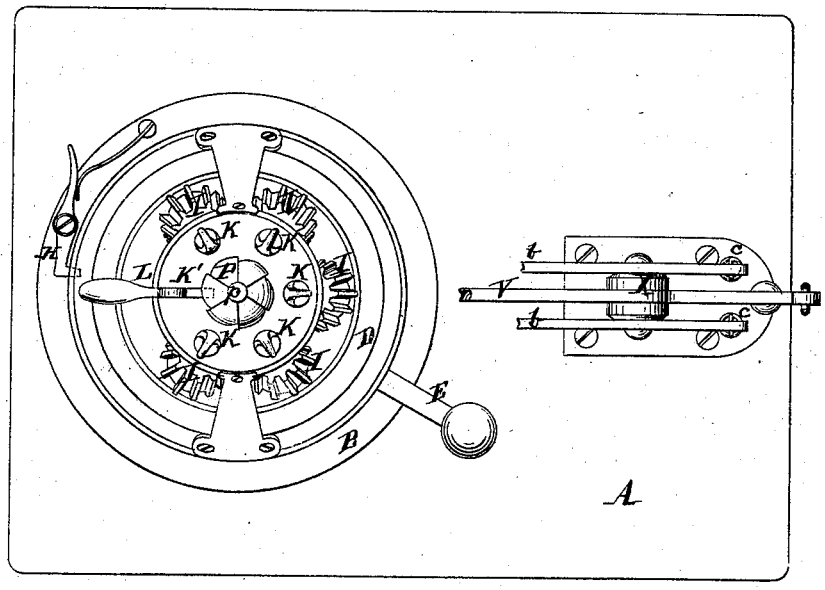


Fig. 3.

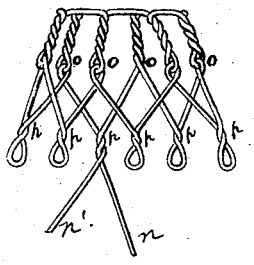
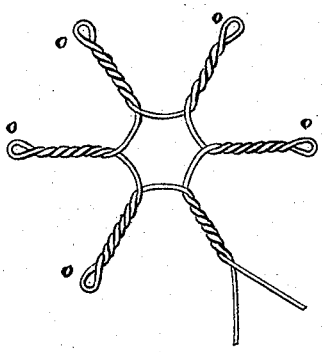


Fig. 4.



Witnesses.
Otto Hufeland
Chas. Wahlers.

Inventor.
Adrien De Mestre
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UNITED STATES PATENT OFFICE

ADRIEN DE MESTRE, OF BORDEAUX, FRANCE.

IMPROVEMENT IN MACHINES FOR MAKING WIRE CAPS.

Specification forming part of Letters Patent No. **166,075**, dated July 27, 1875; application filed May 7, 1875.

To all whom it may concern:

Be it known that I, ADRIEN DE MESTRE, of Bordeaux, France, have invented a certain new and useful Improvement in Machines for Making Wire Caps, of which the following is a specification:

This invention is illustrated in the accompanying drawing, in which—

Figure 1 represents a sectional side view. Fig. 2 is a plan or top view. Fig. 3 is a side view of a wire cap produced by this machine.

Similar letters indicate corresponding parts.

This invention consists in the combination of a forming-die with twisting-hooks, in such a manner that, by depressing a wire star over the forming-die and passing the loose end of said star through its loops, a wire cap is produced which can be used for fastening stoppers in bottles. With the forming-die is combined a cup, which is swiveled to a pin that is pivoted to a lever, said cup serving to depress the wire star over the forming-die. The twisting-hooks are journaled in a common head, and each of said hooks is provided with a pinion, which gears in a central wheel inclosed by the head, so that by turning said central wheel a revolving motion is imparted to the twisting-hooks. Two treadles are combined with the cap-forming mechanism—one for elevating the cup, and the other for elevating the die, for the purpose of releasing the wire caps after the same have been completed as far as this operation can be accomplished by the mechanism forming the subject-matter of this present application for a patent.

In the drawing, the letter A designates a wooden table, on which is secured a bed-plate, B, which is provided with a circular guide-groove for the head D, so that said head can be turned in either direction. In the head is contained a conical pinion, G, which turns freely on the arbor C′, that extends up through the center of the head, said pinion being connected to a handle, E, which extends out through a slot in the side of the head, and serves to impart to the pinion a partial revolving motion. A spring catch or latch, H, serves to lock the head D to the bed-plate B. The central pinion G gears in five pinions, I, mounted on oblique shafts, which have their bearing in the head D, and on the upper ends of which shafts are formed five hooks, K. A sixth hook, K′, is formed at the upper end of a rod, L, which is pivoted to the top plate of the head D, and which is subjected to the action of a spring having a tendency to throw the same out away from the center of the head. A thumb-piece formed at the lower end of the rod L serves to force the hook K′ inward against the action of its spring. Through the arbor C′ extends the central shaft C, on which is mounted the forming-die P at a height above the hooks K K′, to correspond to the depth which it is desired to give to the wire caps. This die is provided on its circumference with six shoulders, to form abutments for the arms of the wire star which is to be formed into a cap, said wire star being formed on a machine described in a patent granted to me April 13, 1875, and shown in Fig. 4 of the drawings annexed to this present specification. From the forming-die projects a pin, *p*, which is intended to catch in the center of the wire star, so as to keep the same in the required position. The shaft C rests upon a lever, S, which is situated beneath the table, and which connects with a treadle, R, so that by stepping on said treadle the forming-die is raised up. A spiral spring applied to the shaft C has a tendency to keep the forming-die down. Over the forming-die is fitted a cup, T, which swivels on a pin, U, that is pivoted to the end of a lever, V, so that said cup can freely accommodate itself to the motions of the forming-die. The lever V has its fulcrum in a standard, X, which rises from the table A, and the rear end of said lever is connected to a treadle, Z, so that by stepping on this treadle the cup T may be raised from the forming-die. A spiral spring, *a*, which acts on the lever V, has a tendency to keep the cup T down upon the forming-die. The standard X forms the bearing for the fulcrum of another lever, *b*, which extends over the forming-die and the cup T, and is provided with a handle, by means of which the same can be depressed upon the cup. A double spring, *c*, serves to keep the lever *b* up.

In order to form the wire caps the cup T is raised by stepping on the treadle Z, a wire star, Fig. 4, is adjusted on the forming-die P, each of the arms of said star being placed against one of the shoulders of the die. Then

the cup T is lowered, and by depressing the hand-lever *b* the wire star is depressed over the forming-die, one or two hard blows being given by said hand-lever for the purpose of imparting to the star the required form. The loose end *n* of the wire star is then passed successively round under the hooks K and through the loops *o* of the star, and finally under the hook K′, where the same is twisted together with the short wire end *n*′. The head D is then disengaged by releasing the latch H, and a revolving motion is imparted to it from left to right, and after the latch has again dropped in gear with the head D the handle E is turned from right to left, whereby the hooks K are caused to revolve and to produce the twists *p*, Fig. 3. When this operation has been completed the forming-die P is raised by stepping on the treadle R, so that the wire will be stretched, and the wire cap will receive the desired depth and the required shape.

In order to remove the finished wire cap from the forming-die the cup T is raised by stepping on the treadle Z, the rod L is forced in so as to disengage the hook K′, the treadle R is released and the forming-die P lowered, and the wire cap can be readily taken off from the hooks K.

The wire caps produced by these operations are finished in another machine, and finally applied to bottles by an apparatus of peculiar construction, both of which form the subject-matters of separate applications for patents, and will be described in their proper places.

I desire to call attention to the fact that the invention claimed in the above entitled application was patented in Great Britain in 1874, and numbered 683.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the revolving head D, the pinions I, journaled in and carried by the same, and provided with the hooks K, the central pinion G, arranged between the pinions of the hooks, the lever E, connected with the central pinion for partially revolving the same, and the forming-die P, arranged on the shaft C, passing through the central pinion, all substantially as described.

2. The combination of a cup, T, and hand-lever *b* with the forming-die P and the twisting-hooks K, substantially as set forth.

3. The combination, with the revolving hooks K, their pinions I, and the central pinion G, arranged between the same, of the pivoted hook K′, having a thumb-piece, L, and a spring to throw it away from the hooks K, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 24th day of March, 1874.

ADRIEN DE MESTRE. [L. S.]

Witnesses:
ALBION P. STEVENS,
CH. F. THIRION.