2 Sheets--Sheet 1.

A. De MESTRE.

Machine for Twisting Wire.

No. 162,042. Patented April 13, 1875.

Fig: 1.

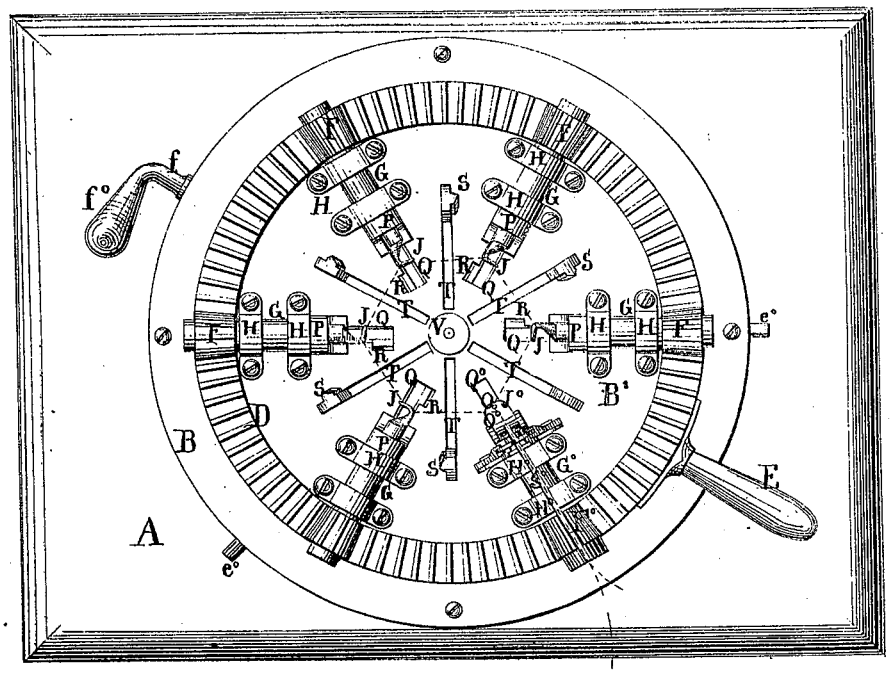


Fig: 4

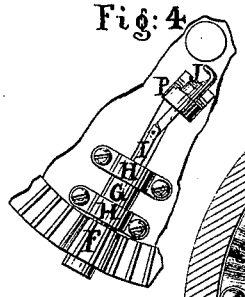


Fig: 2.

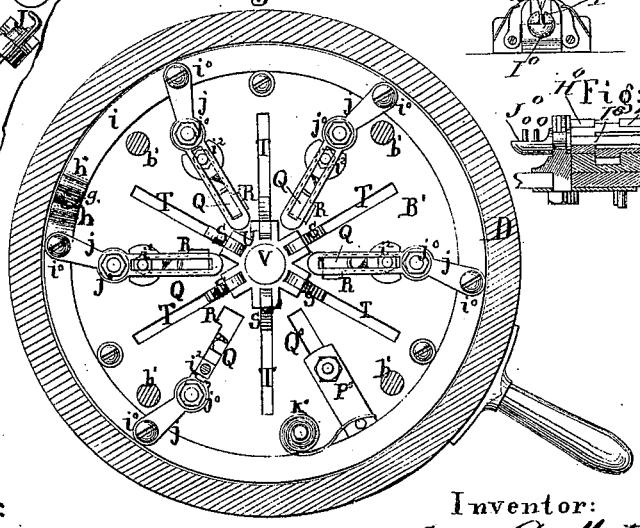


Fig: 5.

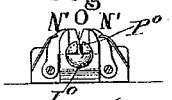
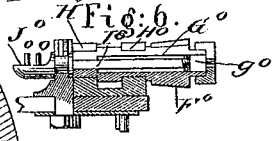


Fig: 6.



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2 Sheets--Sheet 2.

A. De MESTRE.

Machine for Twisting Wire.

No. 162,042. Patented April 13, 1875.

Fig: 5.

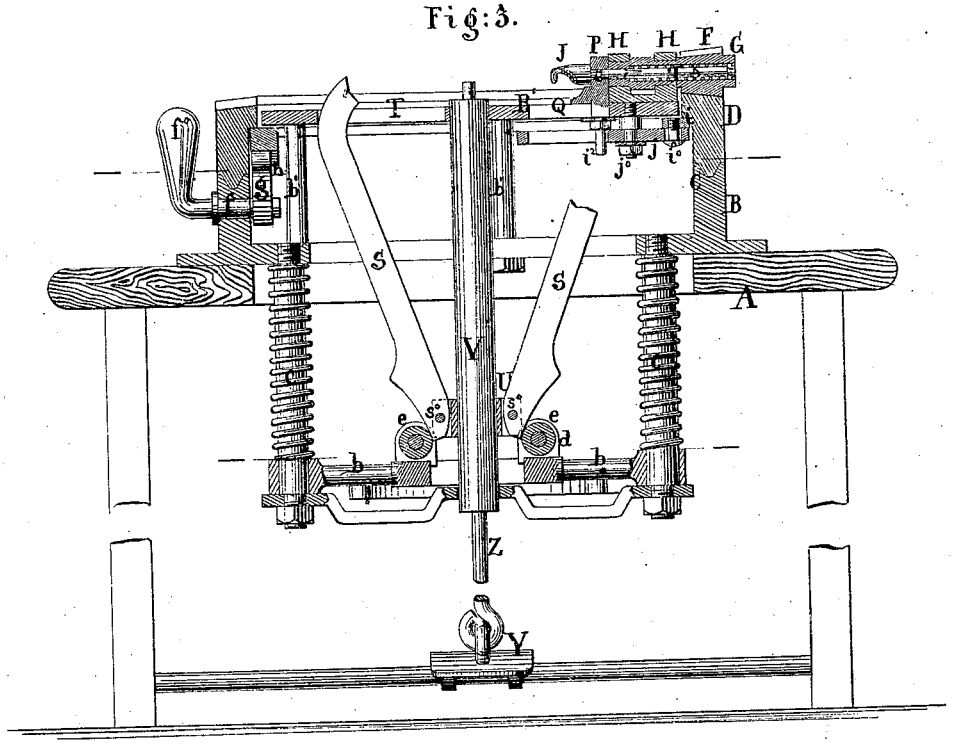


Fig: 7.

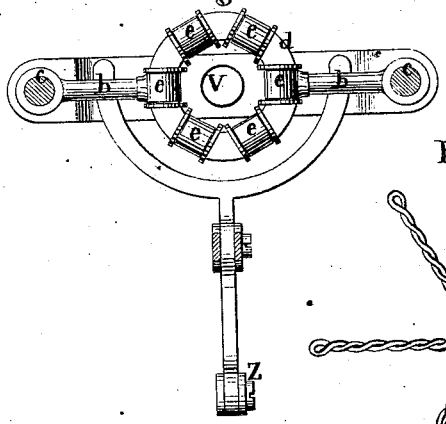
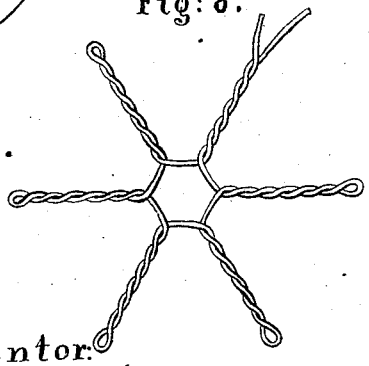


Fig: 8.



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UNITED STATES PATENT OFFICE.

ADRIEN DE MESTRE, OF BORDEAUX, FRANCE.

IMPROVEMENT IN MACHINES FOR TWISTING WIRE.

Specification forming part of Letters Patent No. **162,042**, dated April 13, 1875; application filed September 29, 1874.

To all whom it may concern:

Be it known that I, ADRIEN DE MESTRE, of Bordeaux, France, have invented a certain new and Improved Machine for Twisting Wire, of which the following is a specification:

The object of this invention is to twist wire for the final production of wire caps for bottles, such as are described in the United States Patent No. 136,045, granted to me February 18, 1873.

My invention consists in a series of twisting-hooks, the shanks of which are fitted into hollow arbors which radiate from a common center, and receive a revolving motion by suitable gear-wheels. With these twisting-hooks are combined compressing-levers, which act on and control those portions of the wire to be twisted, which are situated between the twisting-hooks. After the wire has received the desired twists it is freed from the twisting-hooks by a releasing mechanism, which imparts to said hooks a lateral movement.

This invention is illustrated in the accompanying drawing, in which Figure 1 represents a plan or top view. Fig. 2 is a horizontal section of Fig. 1. Fig. 3 is a vertical central section. The remaining figures are details, which will be referred to as the description progresses.

Similar letters indicate corresponding parts.

In the drawing, the letter A designates a table, on which is secured a flanged ring, B, the upper edge of which is provided with a groove, C, that forms the guide for the master-wheel D, which gears in a series of pinions, F, mounted on shafts G, which converge inwardly from the master-wheel, and have their bearings in fixed journal-boxes H. From the master-wheel extends a handle, E, which serves to turn said wheel in its groove C, for the purpose of imparting a revolving motion to the shafts G. Stops e^0 limit the motion of the master-wheel. The journal-boxes H are secured to a plate, B′, which is supported by standards b', rising from the flanged ring B. (See Fig. 3.) The shafts G are bored out to receive the shanks I of hooks J, said shanks being square, or otherwise so formed that they are compelled to rotate with their shafts, while they are free to slide in or out, and with said shanks are combined springs k, which have a tendency to retain the same in the position shown in Fig. 3, and which also serve to insure the proper tension during the operation of twisting the wire, as will be hereafter more fully explained. The outer ends of the shafts I are turned off round, and they have their bearings in slides P, which move in slots Q, radiating from the center of the plate B′. One of the radiating shafts G^0, Figs. 1 and 6, is provided with a groove, g^0, which extends through the pinion F^0, journal-boxes H^0, and into the shank of the hook J^0, which hook is different from the hooks J, being composed simply of two pins, O O, Figs. 1 and 6, which are secured in the flattened end of the shank I^0. On the slide P^0 of the shank I^0 are secured two jaws, N′, Fig. 5, which serve to clamp the ends of the wire, and prevent the same from becoming entangled, as will be hereafter more fully explained. The slide P^0 is subjected to the action of a spring, K^0, (see Fig. 2,) which has a tendency to retain the hook J^0 in the position shown in Fig. 1. The slide P^0 moves in the radial slot Q^0, which is of uniform width throughout, while the guide-slots Q of the slides P are provided with recesses R, Figs. 1 and 2, the object of which is to facilitate the operation of disengaging the twisted wire from the hooks J, as will be presently explained. In the plate B′ are a series of radiating slots, T, which extend between the shafts G G^0, and which form the guides for levers S. These levers have their fulcrums on pivots s^0, secured in a bracket, U, which is fastened to an arbor, V, that extends downward from the center of the disk B′. The lower ends of the levers S are cam-shaped, and exposed to the action of friction-rollers e, which are mounted on a ring, d, Fig. 7, from which extend arms b, the outer ends of which embrace rods c, which are fastened in the flanged ring B, and round which are wound suitable springs for the purpose of depressing the arms b together with the ring d. A bifurcated lever, which connects, by a rod, Z, with a treadle, Y, serves to raise the ring d against the action of its springs, and whenever said ring is raised the levers S are forced inward toward the center of the plate B′. Said levers are so formed that they fall back by their own gravity, or by means of counter-weights or springs, when-

ever the ring d is permitted to follow the action of its springs. Beneath the plate B′ is situated a ring, i, Figs. 2 and 3, and from this ring extend a series of levers, j, which turn on pivots j^0, secured to the plate B′, while their outer ends are secured to the ring i by means of pivots i^0. The inner ends of said levers are slotted, and made to embrace pivots i^2, which extend from the slides P. On the ring i are two lugs, h, between which catches a lever, g, mounted on a shaft, f, that extends through the flanged ring B, and is provided with a handle, f^0, so that by turning said shaft the ring i receives a short revolving motion, whereby the levers j are caused to vibrate on their pivots. This vibrating motion, however, cannot take place before the slides P have reached the inner ends of their guide-slots Q, so that they can enter the lateral recesses R.

The wire to be twisted is doubled up, and both its ends are placed into the groove of the shaft G^0, and between the jaws N and the pins O O of the hook J^0. Then the bight of the wire is opened and placed on the several hooks J, as indicated in dotted lines in Fig. 1. By applying power to the treadle Y the upper ends of the levers S are forced inward, and those portions of the wire which are situated between the hooks J J^0 are drawn inward to a certain extent, and the springs k k^0 expose the wire to the required strain. After this the master-wheel D is turned, and, by imparting to the hooks J J^0 a rapid revolving motion, the wire is twisted and brought in the form shown in Fig. 8. By the time the twisting of the wire has been accomplished the slides P have reached the inner ends of their guide-slots Q, while the hooks J all point in a direction opposite to that of the recesses R. The ring i is then turned by means of the shaft f, so as to impart to the hooks J, together with their slides P, a lateral motion, whereby the hooks are disengaged from the wire, and the latter can be taken out of the machine.

The lateral motion of the hooks is rendered feasible by making their shanks in two parts, which are hinged together, as shown in Fig. 4, where one of said hooks is represented in the position last described.

During the operation of twisting the ends of the wire are retained between the jaws N′, and thereby said ends are prevented from getting entangled.

The wire star formed by this machine (see Fig. 8) is afterward subjected to subsequent operations for the purpose of forming wire caps. The machines used for these subsequent operations, however, form the subject-matter of other applications for patents, where the same will be fully described.

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

1. The combination of hooks J, sliding in radiating shafts G, with levers S, moving in radiating slots T, and with a master-wheel, D, constructed and operating substantially as shown and described.

2. The grooved shaft G^0 and hook J^0, composed of pins O O, in combination with hooks J, shafts G, slides P P^0, jaws N′, pinions F F^0, and master-wheel D, substantially as set forth.

3. The combination of jaws N′ with the grooved shaft G^0 and hook J^0, substantially as specified.

4. The combination of the ring d, carrying friction-rollers e, with a treadle, Y, levers S, hooks J J^0, and radiating shafts G G^0, substantially as described.

5. The ring i and levers j, in combination with slides P, hooks J, hinged shanks I, and recesses R in the guide-slots Q, substantially as set forth.

ADRIEN DE MESTRE.

Witnesses:
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E. MEREL.