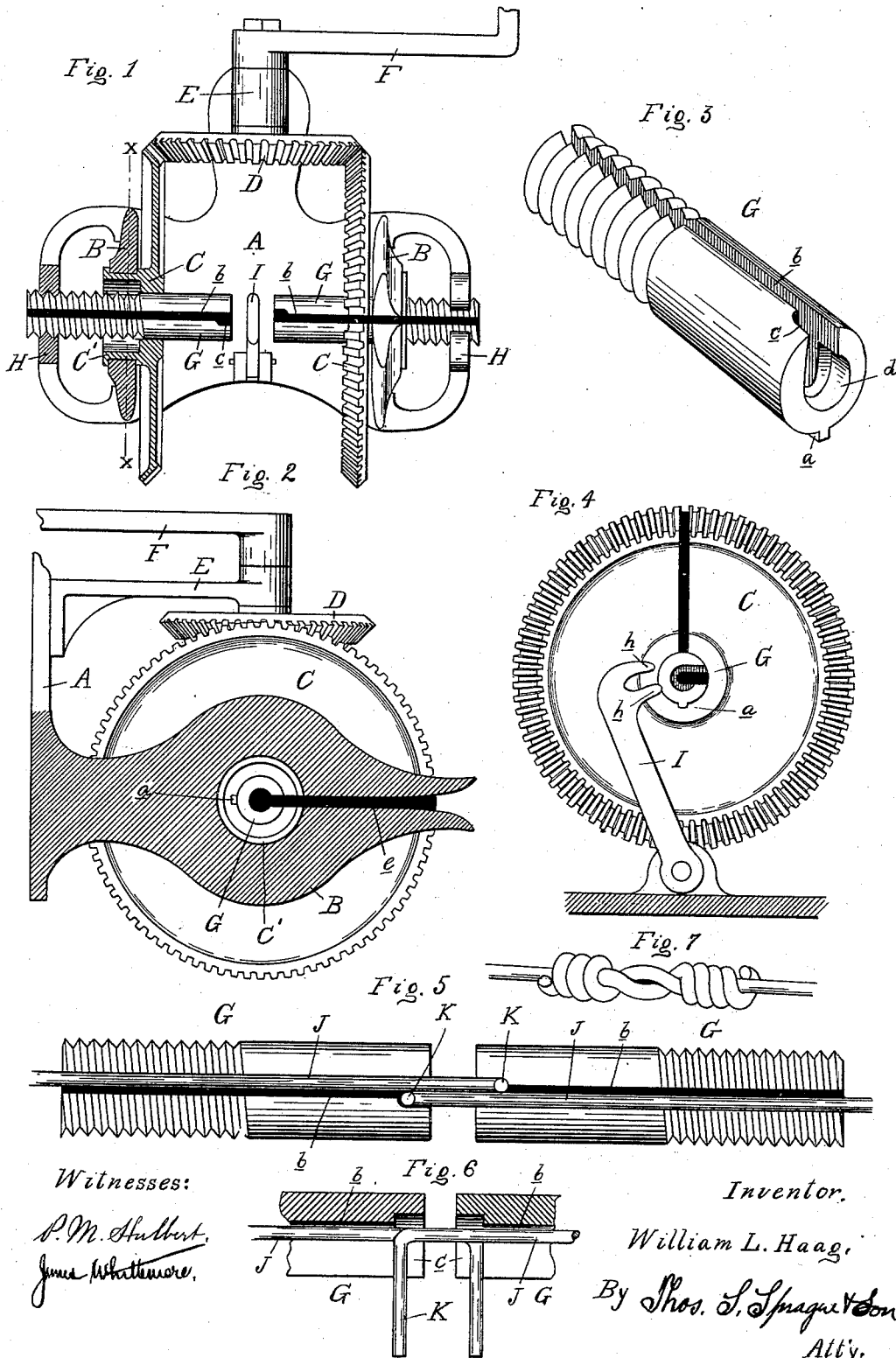


(No Model.)

W. L. HAAG.
MACHINE FOR SPLICING WIRE.

No. 383,178.

Patented May 22, 1888.



UNITED STATES PATENT OFFICE.

WILLIAM L. HAAG, OF LANSING, MICHIGAN.

MACHINE FOR SPLICING WIRE.

SPECIFICATION forming part of Letters Patent No. 383,178, dated May 22, 1888.

Application filed November 19, 1887. Serial No. 255,642. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. HAAG, a citizen of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Machines for Splicing Wires, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in machines for splicing wires; and the invention consists in the peculiar construction and arrangement of the twister mechanism, all as more fully hereinafter described and claimed.

In the drawings which accompany this specification, Figure 1 is a plan of my machine. Fig. 2 is a cross section on line *x x* in Fig. 1. Fig. 3 is a detached perspective view of one of the twister-mandrels. Fig. 4 is an end elevation thereof, with its actuating twister gear-wheel. Fig. 5 is a plan of the mandrels, showing them in relative position at the starting of the operation, and with the ends of the wires to be spliced shown in position therein. Fig. 6 is a section at right angles to the plan in Fig. 5, and Fig. 7 is a complete splice as made by my machine.

A is a frame or bed-plate, provided with the standards B upon opposite sides thereof, and in which are formed bearings for the twister-wheels C, which are journaled therein by means of the hollow trunnions C'. These twister-wheels are bevel-gears and intermesh with the bevel gear-wheel D, placed at right angles thereto and suitably journaled upon the standard E, outside of which a crank-handle, F, is attached for applying hand-power to the gear-wheel D. Each of the twister-wheels C is centrally apertured, and in these apertures are slidably secured the mandrels G, which are forced to rotate with the wheels C by means of the feather *a* upon the mandrels. The outer end of each mandrel is screw-threaded, and they have screw engagement with the brackets H, which are formed integrally with the frame or are secured thereto in any suitable manner.

Each mandrel is centrally apertured and provided with the longitudinal slot *b*, communicating with the interior aperture in the mandrel, and the inner end of the slot *b* and the

central aperture is enlarged, as shown in Fig. 3, for the purpose as hereinafter described.

The standards B extend beyond the periphery of the twister-wheels C, and such extension is provided with the guide slots *e*, which extend into the eye of the bearing formed therein, and which are adapted to communicate with corresponding radial slots in the twister-wheels and with the slot *b* in the mandrel.

I is a wire clamp, provided with movable or rigid jaws *h h*, adapted to be placed across and in line with the aperture through the mandrels, as will appear more fully hereinafter.

In practice (J J representing the line-wires to be spliced) the end of each line-wire is, preparatory to splicing, provided with the bent ends K K, and the wires are then respectively inserted into the mandrels in the relative position to each as shown in Fig. 5, where it will be seen that the enlargements *c* at the end of the longitudinal slots in the mandrels form stops or rests for the bent ends of the wires, permitting the wires to lie side by side. To introduce the wires in such manner into the mandrel, it is necessary to have the guide-slots *e* in the standards B register with the radial slots in the twister-wheels C and with the longitudinal slots *b* in the mandrel, and the parts are adjusted to permit of this being done by turning the handle F into the proper position.

At the same time the two mandrels G approach each other, leaving a space sufficient between them to clamp the wires, so that in the subsequent twisting of the wires the central portions between the mandrels are prevented from being displaced. This can be accomplished by any suitable clamping device, and it will be seen that the clamp shown in the drawings is adapted to perform this function by simply slipping the jaws on the wires, provided the slot in these jaws is made to bind the wires. Now, upon motion being given to the handle of the device, it will be seen that the two mandrels are rotated, and the bent ends K K of the wire are coiled around the line-wires, making the splice, as shown in Fig. 7. To remove the device from the wire, slots before described are made to register, and the clamp removed or detached from the wires, when it can be easily accomplished.

The function of the apertures *d* in the inner

ends of the mandrel is to draw the coil very tight upon the line-wire, and to this end its diameter is made just sufficiently large to permit the formation of the coil at a minimum diameter, and the result of this construction is that by means of this device a coil may be formed more tightly than by any other means at present employed, and the object of the invention—to adapt the machine for splicing all kinds of electrical wires—is thereby accomplished in the most perfect manner to insure good metallic contact between the parts.

What I claim as my invention is—

1. In a machine for splicing wires, the combination, with a supporting-frame and actuating mechanism, substantially as described, of two oppositely-revolving mandrels slidingly journaled in bearings in axial line with each other and provided with a feather, *a*, engaging the twister-wheels, a screw-feed, the enlargements *c* and *d* at the inner ends of the mandrels, and the wire clamp *I*, substantially as described.

2. In a machine for splicing wires, the com-

bination, with the revolving mandrels *G*, of the frame *A*, having the standards *B*, the twister-wheels *C*, journaled on hollow trunnions in the standards *B*, and in which the mandrels are slidingly secured, the brackets *H*, having a screw engagement with the mandrels, the bevel gear-wheel *D*, and the handle *F*, all arranged to operate substantially as described.

3. In a machine for splicing wires, the combination of two oppositely-revolving mandrels journaled in bearings in axial line with each other and having an endwise-sliding movement in opposite direction in their bearings, central apertures in said mandrels, the longitudinal slots *b*, the enlargements *c*, and the apertures *d* at the inner ends of said mandrels, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 12th day of October, 1887.

WILLIAM L. HAAG.

Witnesses:

JAMES WHITTEMORE,
P. M. HULBERT.