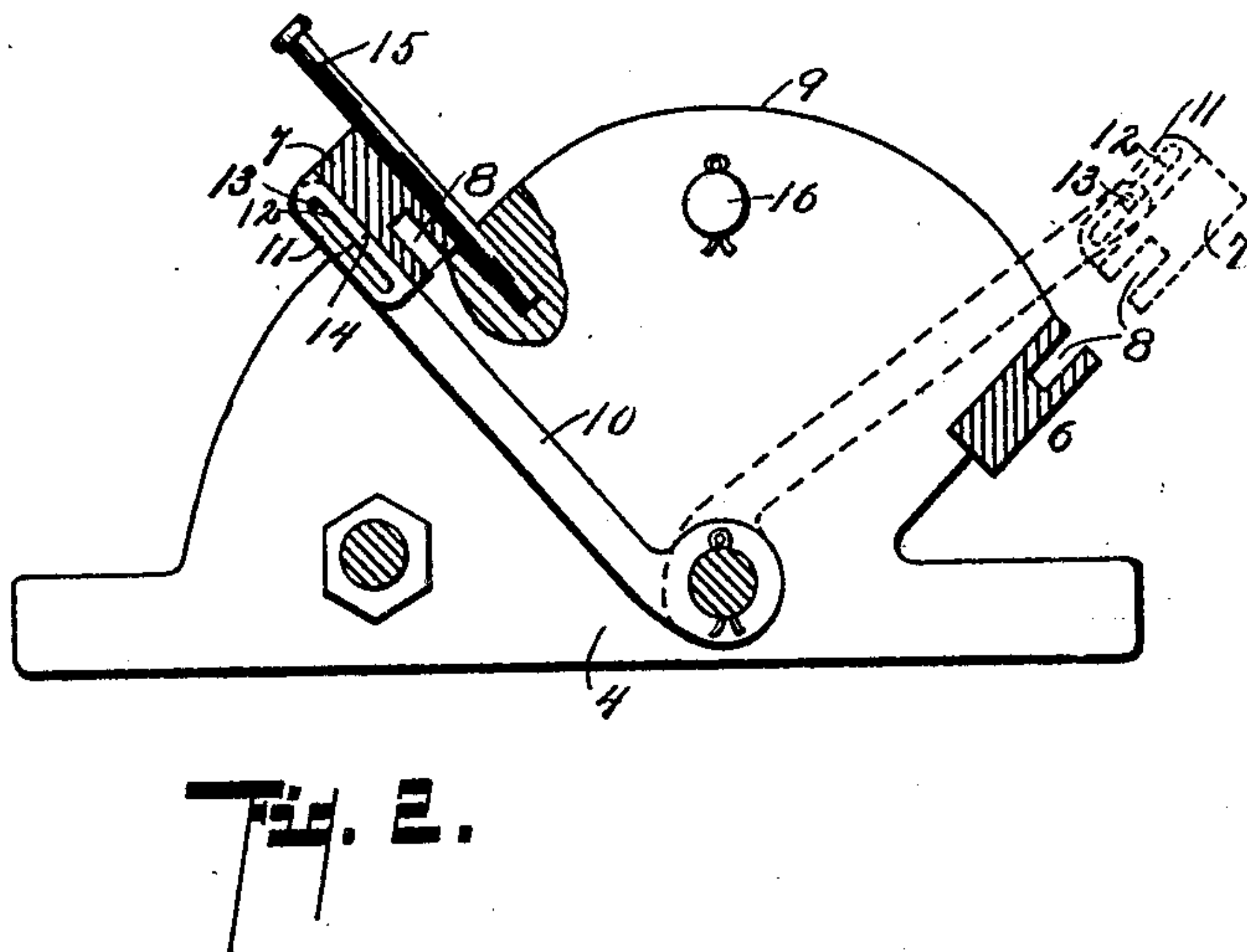
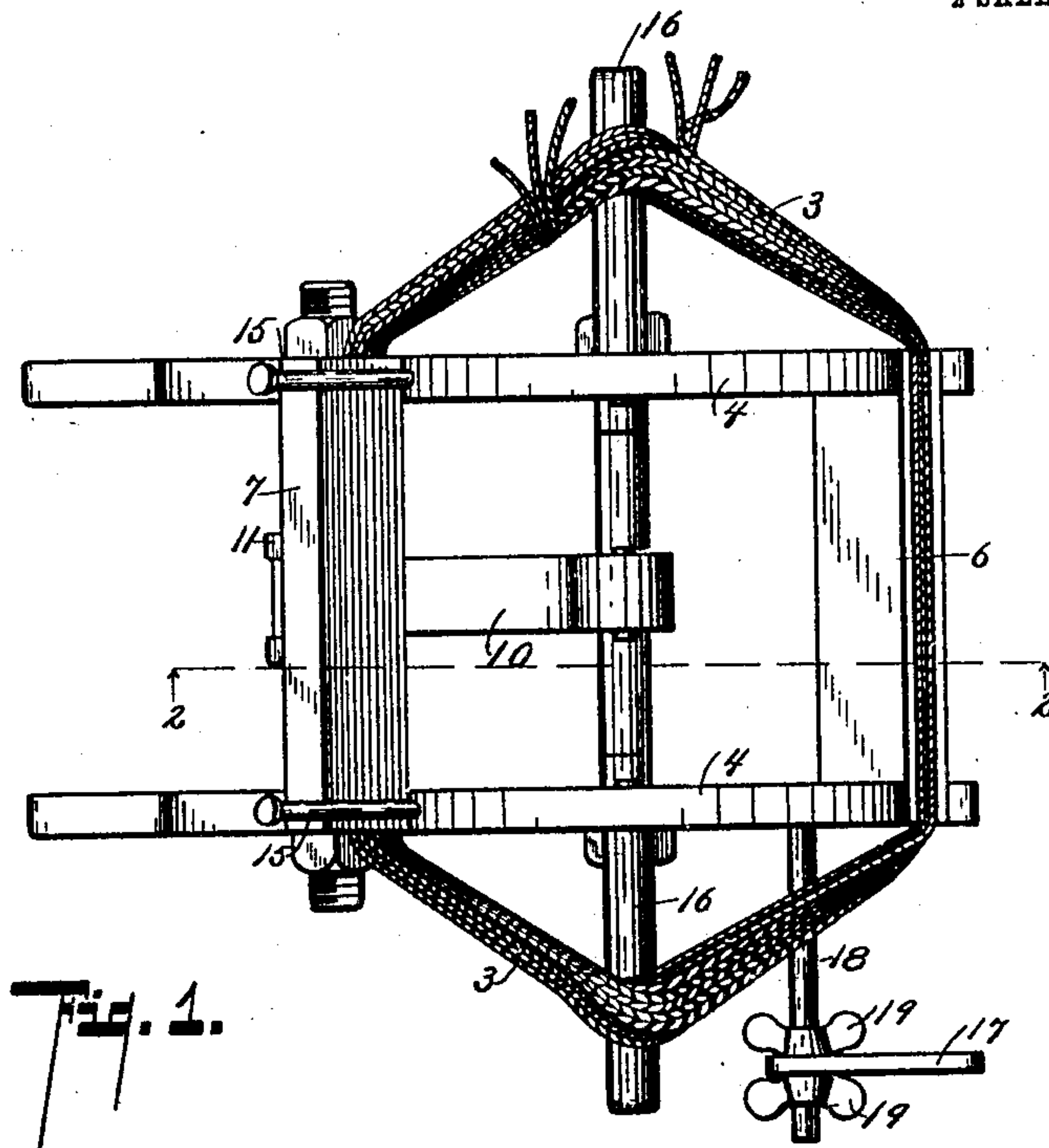


J. F. CARD.
 DEVICE FOR USE IN MAKING ARMATURE COILS.
 APPLICATION FILED OCT. 16, 1908.

913,103.

Patented Feb. 23, 1909.
 2 SHEETS—SHEET 1



Inventor

Witnesses

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By

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Attorneys

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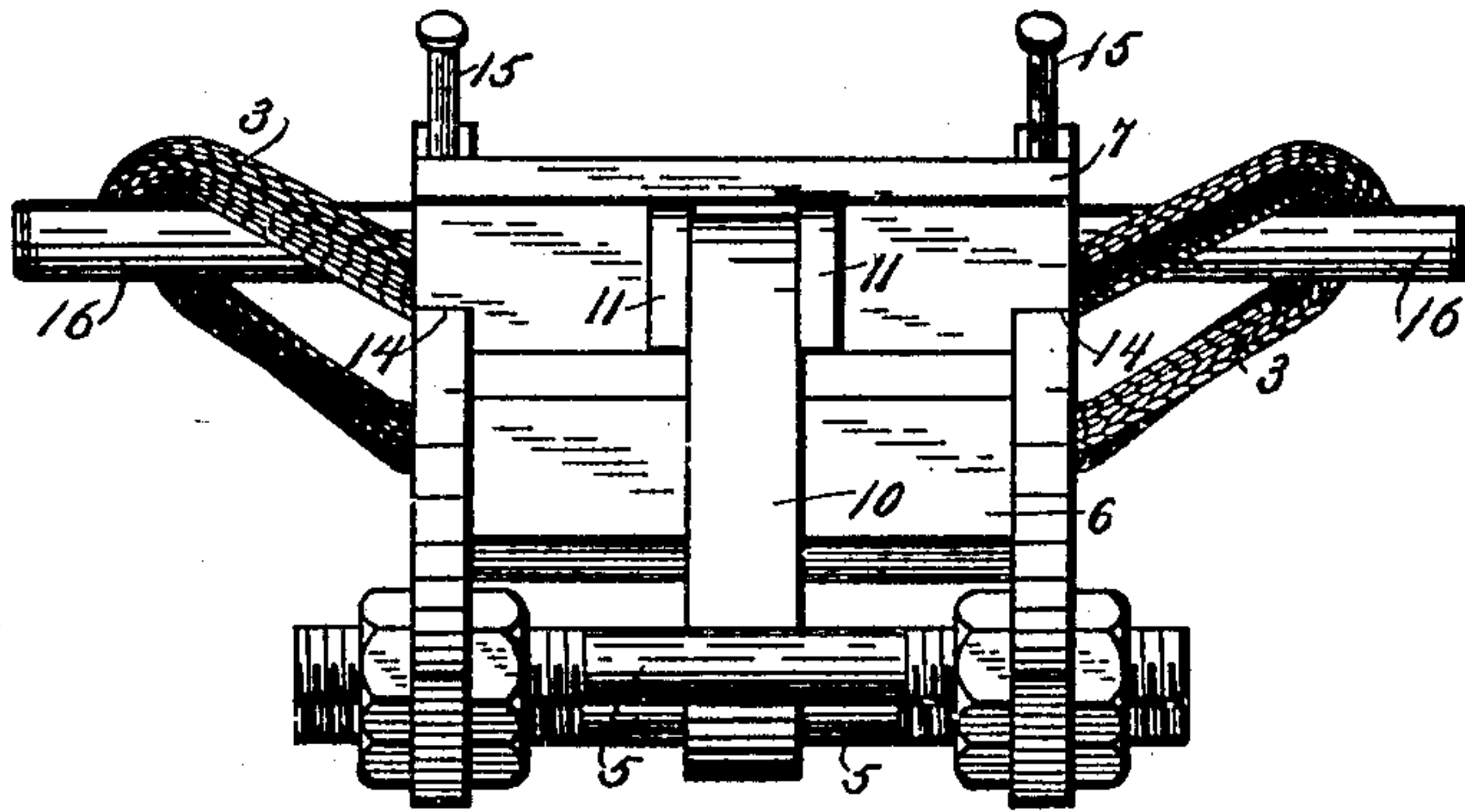


Fig. 3.



Fig. 4.

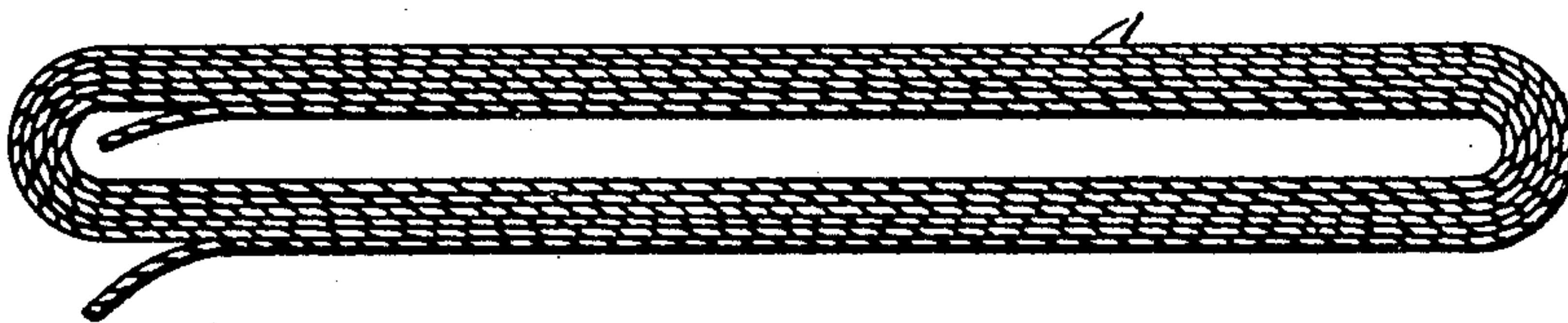


Fig. 5.

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UNITED STATES PATENT OFFICE.

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DEVICE FOR USE IN MAKING ARMATURE-COILS.

No. 913,103.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed October 16, 1908. Serial No. 458,120.

To all whom it may concern:

Be it known that I, JOHN F. CARD, a citizen of the United States, residing at Three Rivers, Michigan, have invented certain new and useful Improvements in Devices for Use in Making Armature-Coils, of which the following is a specification.

The main object of this invention is to provide a device for use in making armature coils by which the coils may be quickly and rapidly formed, even by an unskilled workman.

A further object is to provide a device of the class described which is very simple in structure and capable of very rapid manipulation.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a plan view of a structure embodying the features of my invention. Fig. 2 is a vertical section taken on a line corresponding to line 2—2 of Fig. 1, looking in the direction of the little arrows at the ends of the section line. Fig. 3 is a side elevation looking from the left of Fig. 1. Fig. 4 is an edge view of one of the coils before the same is placed in the machine for forming. Fig. 5 is a side view of one of the coil sections.

In the drawings, similar numerals of reference refer to similar parts throughout the several views.

Referring to the drawing, my invention is especially designed for use in the manufacture of armature coils of the well-known type in which the armature core has longitudinal grooves adapted to receive the coils, and as these are well-known in the art, I have not illustrated the same herein. It is desirable that the coils should be so conformed that they may be arranged on the core in series, with their ends overlapping, so that they may be effectively banded and the desired connections made thereto. By the aid of my device, coils of this type can be very effectively and rapidly formed.

In the manufacture of the coils, I first form wire into loop-like units 1, which are then arranged side by side, there being a plurality of units in each coil, three units being illustrated in the coil 2 shown in Fig. 4. Complete coils 3 are shown in the machine in Figs. 1 and 3; that is, the coils are shaped up in the machine and may be provided with a winding or covering, if desired. This, however, forms no part of my present invention.

My improved apparatus consists of a frame preferably comprising end plates 4 connected by cross rods 5, thus securing a simple and efficient frame. A pair of coil holders 6 and 7 are provided, the coil holder 6 being secured upon the end plates and the coil holder 7 being movable relative to the coil holder 6. These holders are preferably provided with longitudinal slot-like grooves 8 adapted to receive the coils. The end plates 4 are provided with ways 9 for the movable coil holder, the ways being preferably curved, as illustrated, so that the movable holder is properly guided in the forming of the core.

The movable holder is preferably supported on the pivoted arm 10 mounted on one of the cross rods 5 of the frame, the holder being adjustably secured to the support by means of a slot and pin connection, the holder being provided with a pair of brackets 11 having slots 12 therein in which the pivots 13 on the support are engaged. This allows the adjusting of the support to engage the same upon the coil as shown in Fig. 4, one side of the coil resting in the fixed jaw or holder 6, and the other being engaged by the movable jaw or holder 7. After the coil is arranged in the holders, the movable holder is thrown over on the ways 9 against rests 14 provided therefor at the end of the ways. The holder may be held in this position by the retaining pins 15 which are inserted in suitable holes provided therefor in the ways. The ends of the coils are supported by the supports 16, which project outwardly from the end plates, the supports being located centrally relative to the holders when the movable holder is at the end of its stroke or movement.

For convenience in inserting the coils into the device, I preferably provide an adjustable gage 17 which is supported on the rod 18, being adjustably secured thereto by means of the thumb nuts 19. By thus

forming and arranging the parts, the coils may be very quickly formed and are suitably shaped to be placed on the core and properly mounted thereon.

5 My improved device, although very simple and economical in structure, is capable of very rapid manipulation, and by the aid thereof, an unskilled workman, or boys or women can effectively and easily perform
10 the work.

I have illustrated and described my invention in detail in the form preferred by me, although I am aware that the same may be very greatly varied in structural details
15 without departing from my invention, and I desire to be understood as claiming the same specifically, as well as broadly.

Having thus described my invention, what I claim as new and desire to secure by
20 Letters Patent is:

1. In a device of the class described, the combination with a frame comprising a pair of end plates, a pair of oppositely facing coil holders having slots therein to receive a coil,
25 one of said holders being secured to said end plates and the other being movable; a swinging support for the movable coil holder pivoted between said end plates, said movable coil holder being adjustably mounted
30 on its said support; curved ways on the upper edges of said end plates for said movable holder; rests on said ways for said movable holder pins for supporting said movable holder against its said rests; coil supports
35 projecting outwardly from said end plates; and a coil gage.

2. In a device of the class described, the combination with a frame comprising a pair of end plates, a pair of oppositely facing coil
40 holders having slots therein to receive a coil, one of said holders being secured to said end plates and the other being movable; a swinging support for the movable coil holder pivoted between said end plates, said movable
45 coil holder being adjustably mounted on its said support; curved ways on the upper edges of said end plates for said movable holder; rests on said ways for said movable holder; pins for supporting said movable
50 holder against its said rests; and coil supports projecting outwardly from said end plates.

3. In a device of the class described, the combination with a frame comprising a pair of
55 end plates, a pair of oppositely facing coil holders having slots therein to receive a coil, one of said holders being secured to said end plates and the other being movable; a swinging support for the movable coil holder pivoted between said end plates, said movable
60 coil holder being adjustably mounted on its said support; curved ways on the upper edges of said end plates for said movable holder; coil supports projecting outwardly
65 from said end plates; and a coil gage.

4. In a device of the class described, the combination with a frame comprising a pair of end plates, a pair of oppositely facing coil holders having slots therein to receive a coil,
70 one of said holders being secured to said end plates and the other being movable; a swinging support for the movable coil holder pivoted between said end plates, said movable coil holder being adjustably mounted on its
75 said support; curved ways on the upper edges of said end plates for said movable holder; and coil supports projecting outwardly from said end plates.

5. In a device of the class described, the combination with a frame comprising a pair
80 of end plates, a pair of oppositely facing coil holders having slots therein to receive a coil, one of said holders being secured to said end plates and the other being movable; curved ways on the upper edges of said end plates
85 for said movable holder; rests on said ways for said movable holder; pins for supporting said movable holder against its said rests; coil supports projecting outwardly from said end plates; and a coil gage. 90

6. In a device of the class described, the combination with a frame comprising a pair of end plates, a pair of oppositely facing coil holders having slots therein to receive a coil,
95 one of said holders being secured to said end plates and the other being movable; curved ways on the upper edges of said end plates for said movable holder; rests on said ways for said movable holder; pins for supporting
100 said movable holder against its said rests; and coil supports projecting outwardly from said end plates.

7. In a device of the class described, the combination with a frame comprising a pair of end plates, a pair of oppositely facing coil
105 holders having slots therein to receive a coil, one of said holders being secured to said end plates and the other being movable; curved ways on the upper edges of said end plates for said movable holder; coil supports projecting
110 outwardly from said end plates; and a coil gage.

8. In a device of the class described, the combination with a frame comprising a pair of end plates, a pair of oppositely facing coil
115 holders having slots therein to receive a coil, one of said holders being secured to said end plates and the other being movable; curved ways on the upper edges of said end plates for said movable holder; and coil supports
120 projecting outwardly from said end plates.

9. In a device of the class described, the combination of a pair of coil holders, one of said holders being movably supported relative to the other; ways for said movable coil
125 holder; supports for the ends of the coil said supports being located relative to said ways so that the coil is automatically engaged thereon and supported thereby as the movable coil holder is actuated. 130

10. In a device of the class described, the combination of a pair of coil holders, one of said holders being movably supported relative to the other; ways for said movable
5 coil holder; and supports for the ends of the coil said supports being located relative to said ways so that the coil is automatically engaged thereon and supported thereby as the movable coil holder is actuated.

10 11. In a device of the class described, the combination of a pair of coil holders, one of said holders being movable relative to the other; a curved way for said movable coil
15 holder; and rod-like supports for the ends of the coil located within the arc of said curved way.

12. In a device of the class described, the combination with a pair of coil holders, one of said holders being movable relative to the other; of supports for the ends of said coil, 20 said supports being located relative to the path of said movable holder, so that the coil is automatically engaged thereon and supported thereby as the movable coil holder is actuated. 25

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

JOHN F. CARD. [L. s.]

Witnesses:

W. J. DUNN,

W. B. PIERSON.