

J. A. BURNS.
CLAMPING DEVICE.

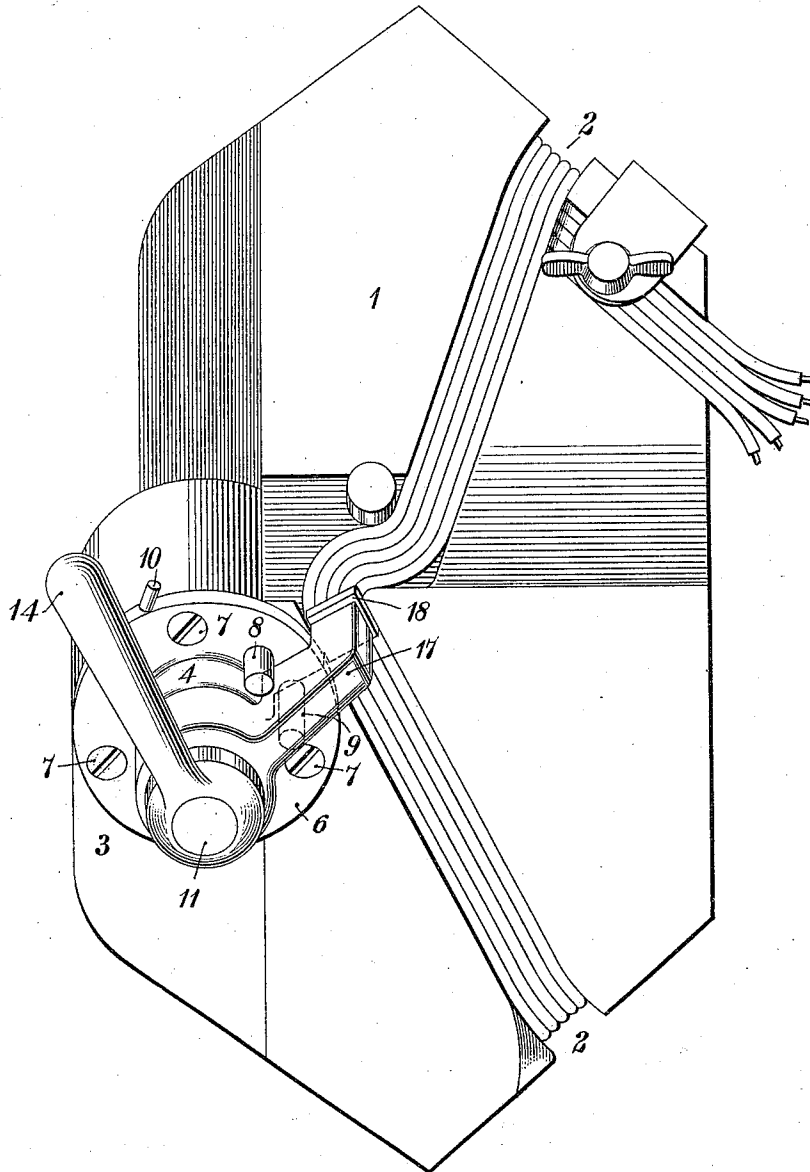
APPLICATION FILED DEC. 31, 1908. RENEWED MAR. 20, 1911.

1,049,337.

Patented Jan. 7, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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2 SHEETS--SHEET 2.

Fig. 3.

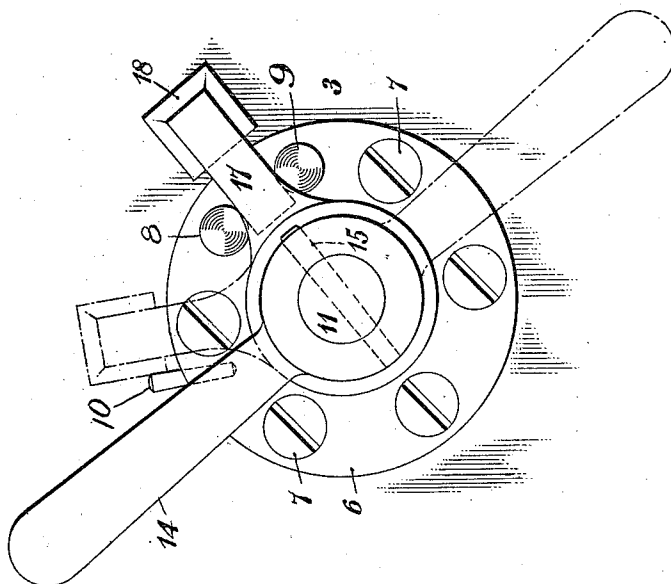
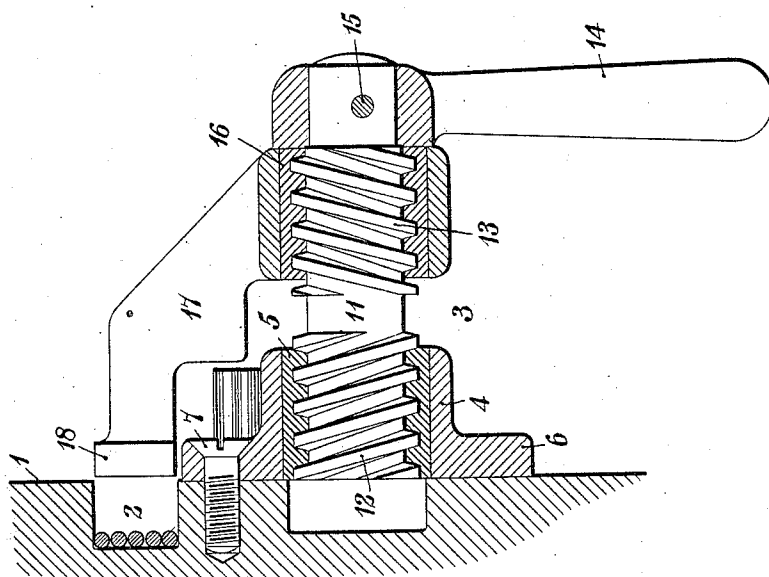


Fig. 2.



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CLAMPING DEVICE.

1,049,337.

Specification of Letters Patent.

Patented Jan. 7, 1913.

Application filed December 31, 1908, Serial No. 470,265. Renewed March 20, 1911. Serial No. 615,660.

To all whom it may concern:

Be it known that I, JAMES A. BURNS, a citizen of the United States, and a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Clamping Devices, of which the following is a specification.

My invention relates to clamping devices and has particular reference to clamps employed in connection with molds utilized for forming coils to be applied to electrical machines, though susceptible of wider and more general application.

The object of my invention is to provide a clamping device which shall exert a powerful clamping action and at the same time be quickly applied and have a large range of movement toward and away from the work.

In the accompanying drawings, Figure 1 is a perspective view of a mold equipped with a clamp embodying my invention, Fig. 2 is a sectional view of the clamp and a portion of the mold shown in Fig. 1, and Fig. 3 is a plan view of the clamp shown in the other figures.

In the use of molds for forming coils to be applied to electrical machines, it is found necessary to clamp certain portions of a partially formed coil while other portions of the coil are bent into shape in order that displacement of strands may be averted. Various forms of clamping devices have been employed for this purpose, but in all cases with which I am familiar such clamping devices as have been employed have either been unsatisfactory, so far as the functions performed have been concerned, or have involved the expenditure of considerable time in applying them and in detaching them after they have performed their function.

A clamp embodying my invention may be instantly applied to that portion of a coil which it is desired to temporarily hold against displacement and be as quickly removed when its function has been performed.

As shown in the accompanying drawings, the mold 1 is provided with a recess or groove 2 of such form and dimensions as may be desired for the particular coil to be wound, and, adjacent to this groove, is mounted the clamp 3 which comprises a

head 4 having a nut 5 securely seated in it or being itself provided with a screw thread, having a base flange 6 which is fastened to the mold frame by means of screws 7. The base flange 6 of the head is preferably provided, adjacent to the coil groove or recess 2, with two pins 8 and 9 of different lengths and, at a suitable distance at one side and nearer the shorter pin 8, with a stop pin 10.

Mounted in the head 4 is a shaft 11 provided with a screw thread 12, which engages the nut 5 and, adjacent to its opposite end, with a screw thread 13, the pitch of which is opposite that of the screw thread 12.

Mounted upon the outer end of the shaft 11 is a handle 14 which is securely fastened thereto by a pin 15 or otherwise, and, mounted upon the outer screw threaded portion 13 is a nut 16 which is seated in or forms a part of a clamping member 17 the inner free end of which constitutes or is provided with a clamping head 18 the face of which, when in clamping position, is located over or seated in the coil groove or recess 2.

When a layer or a plurality of layers of wire has been wound in the recess or groove 2, and it is desired to bend them laterally or otherwise manipulate them, the handle 14 is turned to the position shown in Fig. 1 and in full lines in Fig. 3 and, since there is no resistance to movement of the member 17, it will move with the handle until it strikes the pin 9. While the member 17 is moved toward the pin 9 it is also moved inwardly by reason of the action of the stationary nut 5 and the screw 12. As soon as rotative movement of the member 17 is stopped by the pin 9, the screw 13 will operate in the nut 16 and, the two screws, acting together, will serve to move the member rapidly inward between the pins 8 and 9 until the head 18 engages the coil in the groove or recess 2. A reverse movement of the handle 14 will serve to raise the member 17 rapidly until it clears the pin 8, when it will turn with the shaft 11 until it comes into engagement with the stop pin 10.

When it is desired to again use the clamping device, the handle 14 is moved toward the pins 8 and 9 and the parts will again operate as above set forth.

It will be understood that minor variations in structural details may be made within the scope of my invention.

I claim as my invention:

1. In a clamping device, the combination with a stationary member and a rotatively and axially movable member having reversely pitched screw-threads, of a shaft having screw-threads which cooperate with the respective members, and means for turning said shaft to actuate said movable member both rotatively and axially.
2. In a clamping device, the combination with a shaft having oppositely pitched screw-threads upon its respective ends and an operating handle, of a rotatively and axially movable clamping member having a nut mounted upon the outer end of the shaft, and a stationary base having a nut to receive the inner end of the shaft and provided with pins for arresting the rotative movement of the movable clamping member and guiding its axial movement.
3. In a clamping device, the combination with a shaft having oppositely pitched screw-threads upon its respective ends and an operating handle, of a stationary nut for the inner end of the shaft and a movable nut mounted upon the outer end of the shaft and provided with a laterally and inwardly projecting clamping member that is operated both rotatively and axially by said shaft and its handle.

4. In a clamping device, the combination with a stationary member embodying a nut and two adjacent guide pins or projections of different lengths, of a shaft having a screw-thread in said nut and a screw-thread of opposite pitch upon its outer end, and a clamping member having a nut mounted upon the outer screw-thread and movable therewith to engage the longer pin or projection and then movable inwardly between the pins or projections.

5. In a clamping device, the combination with a stationary member having a nut and adjacent guide projections of different lengths, of a rotatively and longitudinally movable clamping member having a nut, a shaft having threads of opposite pitch to engage the respective nuts, and means for rotating said shaft to carry the movable clamping member into engagement with the longer projection and then force it inwardly between said projections.

In testimony whereof, I have hereunto subscribed my name this 22nd day of December, 1908.

JAMES A. BURNS.

Witnesses:

IRENE WOLFRUDDALE,
BIRNEY HINES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."