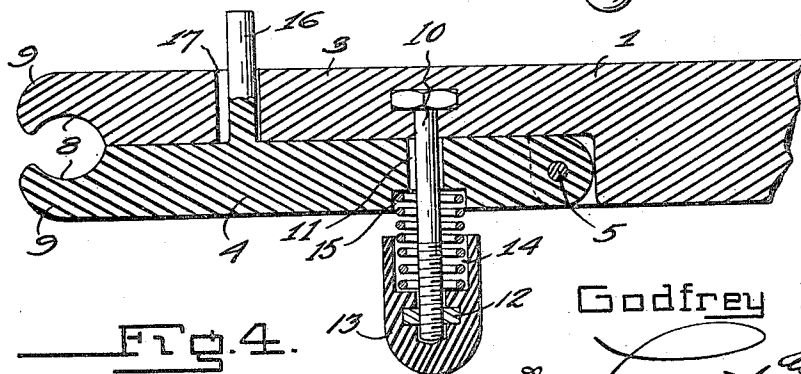
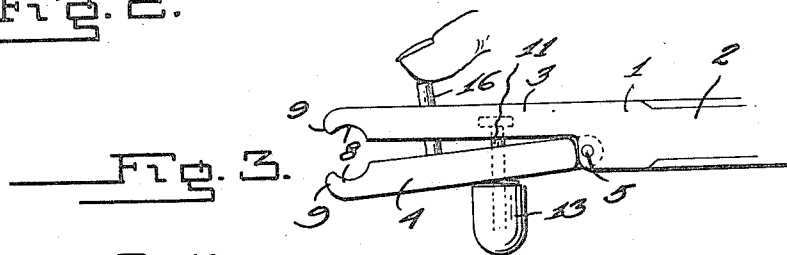
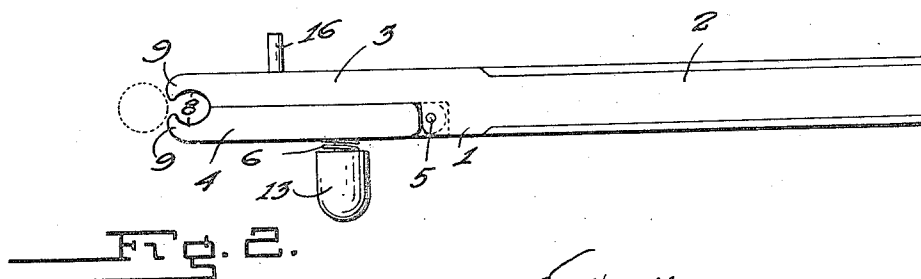
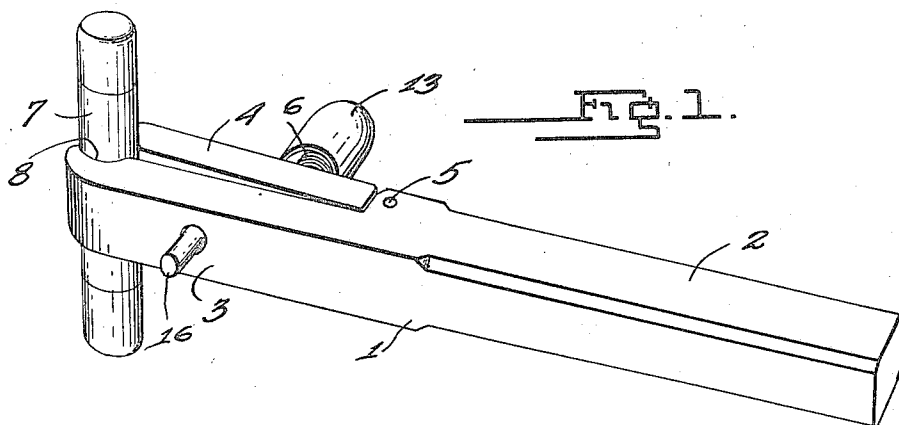


G. KNOSS, JR.
FUSE HANDLING TOOL.
APPLICATION FILED AUG. 20, 1918.

1,363,515.

Patented Dec. 28, 1920.



Inventor

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GODFREY KNOSS, JR., OF PHILADELPHIA, PENNSYLVANIA.

FUSE-HANDLING TOOL.

1,363,515.

Specification of Letters Patent. Patented Dec. 28, 1920.

Application filed August 20, 1918. Serial No. 250,731.

To all whom it may concern:

Be it known that I, GODFREY KNOSS, JR., a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Fuse-Handling Tools, of which the following is a specification.

This invention relates to that type of tool whereby a fuse of the cartridge or Navy type forming part of an electric circuit may be engaged and withdrawn from the usual supporting pairs of resilient fingers between which it is mounted, or whereby a fuse may be placed in operative position between such fingers, without danger of the operator touching any electrified part.

The primary object of the invention is to provide a tool of this general character which may be manipulated by the operator at a safe distance from the fuse and its associated parts but will at the same time require no skilful handling or knowledge of complicated mechanisms.

A further object is to provide an arrangement of parts by which an automatic engagement of the fuse may be effected by a pressure of the tool thereagainst.

Other objects are to provide means for readily releasing the tool from the fuse; to protect such metal parts as are required; to permit adjustment of the gripping tension exerted upon the jaws; to secure strength and stability of parts, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawing in which like numerals of reference indicate the same parts throughout the several views,

Figure 1 is a perspective view of my tool showing a fuse gripped by the jaws thereof.

Fig. 2 is an elevation of the tool with the jaws closed and about to be spread by engagement with a fuse.

Fig. 3 is a similar elevation showing the jaws opened by manual means as is done for releasing a fuse, and

Fig. 4 is a longitudinal central section of the device as shown in Fig. 2, but on increased scale.

Viewing the invention in its broader aspect, the tool preferably includes an elongated body portion 1 constituting a hand grip 2 at one end and a jaw 3 at its other end integral with the hand grip and accordingly

fixed or stationary with respect thereto. A movable jaw 4 is pivoted as by pins 5 or other suitable means, to the body portion 1 at the inner end of the fixed jaw, and is actuated normally toward the fixed jaw by a spring 6 so as to close upon and grip a fuse 7 when the same is inserted between the outer ends of said jaws.

In the specific embodiment of the invention illustrated in said drawing, the fixed jaw 3 is of less width than the body portion 1 of the tool, the two jaws together preferably equaling the width of said body, although this might be otherwise. Appropriate interengaging ears are provided on the body and movable jaw through which the pin 5 passes for hinging said parts together, and it is preferable to employ insulatory material, such as fiber, for said pin and also for said body portion and movable jaw.

The inside or facing surfaces of the jaws 3 and 4 adjacent their outer ends are curved or recessed inward, as at 8, for the reception of the fuse, and the opposing extremities 9 of said jaws beyond the recess are preferably spaced from each other, with the jaws closed, thus providing a gap therebetween. Said gap, however, is less than the diameter of the fuse to be engaged necessitating a spreading of the jaws to force the fuse into the recess. As shown, the said extremities, 9, 9 slope inwardly so as to readily wedge the jaws apart when pushed against a fuse, the extremities then passing over the fuse and permitting the spring 6 to return the jaws toward each other and seat the fuse in the opposing recesses 8.

Said spring is preferably under compression rather than expansive tension as it is found to retain its resiliency longer. For mounting the spring, I provide a bolt 10, preferably with its head embedded in the fixed jaw 3 and its shank projecting freely through a hole 11 in the movable jaw 4, engaging a nut 12 therebeyond which is also preferably embedded in an insulatory cap 13. This cap is provided, at its end toward the jaw, with an axial pocket 14 in which one end of the spring 6 is seated, the other end of the spring seating in a similar pocket 15 in the movable jaw, it of course being understood that the spring encircles the bolt. By this construction a considerable length of spring may be employed, but is adequately protected by the insulatory inclosing parts. The tension of the spring

may be adjusted by manipulating the cap which is fast with respect to the nut. Straining the spring beyond its elastic limit and regulating the width of opening between the jaws is prevented by engagement of the jaw with the edge of the cap.

In order to release the tool from a fuse, a finger piece 16 is provided, shown in this instance as integral with the movable jaw, although obviously the specific jointure of these parts may be varied. Said finger piece also by preference is in the same plane as the bolt 10 above described and projects from the body portion on the opposite side of the fixed jaw from the bolt, a hole 17 of suitable dimension permitting the free passage of said finger piece through the fixed jaw. Obviously pressure upon the projecting end of the finger piece 16 swings the movable jaw 4 away from the fixed jaw 3, against the compressive action of the spring 6.

In operation, the jaw end of the tool is placed against a fuse, for instance a burnt out fuse in an electric circuit, the removal of the fuse therefrom being desired. With the extremities 9 of the jaws engaging on opposite sides of the fuse, actuative pressure upon the tool moving the same longitudinally causes the jaws to be wedgingly separated by the extremities 9, 9 thereof mounting over the fuse, after which the spring 6 returns the jaws to seat the fuse between the curved recesses 8 thus securely holding the fuse with the operator's hands well away from the charged elements of the circuit. Thus held, the fuse may be lifted

from its position in the circuit. Removal of the fuse from the tool is effected by pressing upon the finger piece 16, whereupon the fuse may drop out. From the foregoing, it is believed use of the device to insert a fuse in position in a circuit will be readily understood.

I claim:

1. A tool of the character described comprising jaws adapted to receive a fuse transversely therebetween adjacent to their ends, a bolt carried by one of said jaws, a spring upon said bolt pressing against the other of said jaws, a nut on said bolt, and a cap of insulating material on said nut receiving the thrust of said spring and partially inclosing said spring.

2. A fuse pulling tool comprising jaws adapted to receive a fuse transversely therebetween, a bolt rigid with one of said jaws, a nut upon said bolt, a coil spring encircling said bolt and disposed intermediate said nut and the other of said jaws to normally urge the same toward the bolt supporting jaw, and means carried by said nut for limiting the spreading movement of said spring engaging jaw.

3. A fuse puller comprising a handle having a rigid jaw formed thereon, a movable jaw pivotally connected to said handle, a spring pressing against said pivoted jaw and normally urging said jaws together, a cap partially inclosing said spring and receiving the outward thrust thereof, said cap adapted to engage said movable jaw to limit the spreading movement thereof.

GODFREY KNOSS, JR.