

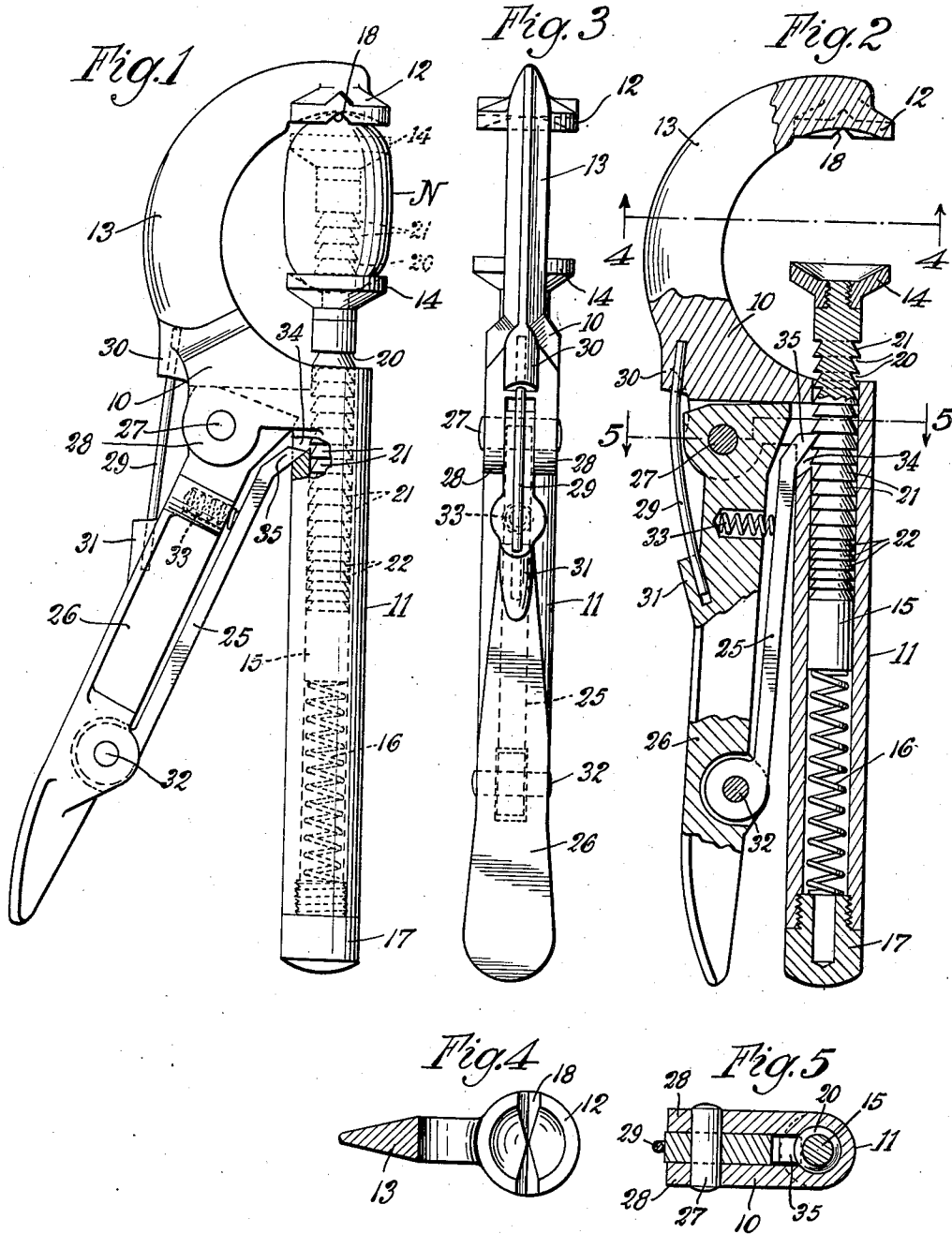
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NUTCRACKER

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NUTCRACKER

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1 Claim. (Cl. 146—16)

The present invention relates to nutcrackers and the like. It has particular reference to a device which has a limited and controllable movement.

5 With many varieties of nutcrackers the closing jaws are directly connected to the operating handle, and are so resisted by the whole nut, that when the nut yields, the continuing applied pressure is too great for the resistance of the cracked nut. This results in crushing the meat in the nut. In some types of devices the sudden yielding of the jaws may catch the fingers or the hand to pinch or injure the same.

15 The object of the invention is to produce a device which has clamping jaws actuated with limited motion, which may be repeated to give a step-by-step advance.

A further object of the invention is to provide clamping jaws which are urged toward closed position so as to clamp a nut merely to position and hold it for the cracking pressure, and to provide means to actuate the cracking jaws with one or more short advances to crack the nut.

25 Various other and ancillary objects and advantages of the invention will appear from the following description and explanation of the invention in its presently preferred embodiment, shown in the accompanying drawing in which:

Fig. 1 represents the device holding a nut, ready to be cracked.

Fig. 2 represents the device after several step-movements from the position shown in Fig. 1, the jaw being engaged to be moved.

Fig. 3 shows a view of the device of Fig. 2 looking from the left.

Fig. 4 is a cross-section taken on line 4—4 of Fig. 2, showing the face of the fixed jaw.

Fig. 5 is a cross-section taken on line 5—5 of Fig. 2 showing engaging parts which effect actuation.

40 The device has two relatively movable clamping or cracking jaws movable toward and away from each other. Preferably, means is provided to urge them into closed position with but slight pressure, so that they may be opened readily to insert a nut merely for holding the nut to be cracked. Independent means is operative to move into engaging position with a suitable part to give a limited movement in a direction to close the jaws with heavy pressure. This limited movement is called a step-movement, and preferably is repeated as required. The motivating device is actuated once for each step-movement, and successive actuations produce successive step-movements, giving an incremental advance.

The preferred device has a body member 10 providing a tubular handle 11 at one end and a jaw member 12 at the other. The jaw member is shown aligned with the opening of the tubular handle 11 and spaced from it. The body member has a yoke position 13 into which the article to be cracked fits when it bears against the jaw member 12. A movable jaw member 14 is carried on the end of a plunger-shaft 15 which is slidable in the tubular handle 11, preferably against a coiled compression spring 16. A threaded cap 17 is shown closing the end of the tubular handle 11, as an abutment for the spring 16. The spring 16 gives sufficient pressure to move the jaws in a closing direction simply to hold a nut. The spring is sufficiently light to permit opening the jaws by slight hand pressure to insert a nut. The face of the jaws 12 and 14 may be made as desired. Each jaw is shown with a concave face to aid in holding a nut. In addition jaw 12 has a diametrical groove 18 into which the ridges of certain nuts may be placed.

Means is provided to engage the plunger 15 to move it with heavy pressure to crack the nut. The character of said means is such as to be cooperative with certain structure associated with the plunger 15 for the desired ends. In the present form the plunger is provided with a series of obstructions or parts which may be engaged one at a time to move the shaft. Since the plunger shaft 15 as shown is round, and free to rotate in the hollow handle 11, the obstructions are circumferential. By cutting into the shaft, a series of annular grooves are formed, resembling the bottoms of partially nested cones. These provide a series of notches 20 and teeth 21 to provide a ratchet-like surface. The spacing of the teeth determines the length of the step-movement or the increment of motion. The increments may be equal or unequal. At the jaw end, the increments are shown larger than at the other end. The larger increments are used where the nut is large, but when the nut or fragment of a nut is small, smaller increments 22 are used to avoid crushing after cracking.

45 To engage the teeth a pawl 25 moves into engaging position with a tooth 21. The pawl is then moved to push the plunger jaw onto the nut. If the nut is not cracked or insufficiently cracked, the pawl is moved back to pick up one or more teeth, and the construction may be varied to limit the number of teeth to one or more.

Pivoted into the body member 10 is a complementary handle 26. Handle 26 and handle 11

are held in the hand for squeezing. A pivot 27 passes through spaced parallel projecting ears 28 of the body. The handle 26 is biased to open position by a suitable spring, such as spring wire 29 riding in holes in the bosses 30 and 31 located respectively on the body 10 and the handle 26. Handle 26 carries pawl 25, which is pivoted at 32 near the swinging end of the handle 26. The pawl is resiliently mounted with respect to the handle. Since the pawl is of rigid structure, rather than being of resilient material, a small spring 33 is set into the handle to urge the pawl 25 away from the handle 26 and hence toward handle 11. The latter is recessed at 34 (Fig. 2) for the point 35 of the pawl 25 to enter and engage the series of teeth 22. When the handle 26 is normally moved away from handle 11 by spring 29, pawl 25 is out of engagement with the teeth. Thus the plunger is free to slide in the handle against spring 16.

After the plunger 15 has been given a full stroke to the limit permitted by the pawl, the handle 26 may be moved to draw the pawl back along the ratchet-like teeth 22. As illustrated the handle may be moved part way back to pick up one tooth, or all the way back, picking up two teeth. The device may readily be constructed to vary the length of the stroke, and the maximum number of teeth picked up in a normal return.

In operating the device to crack a nut, for example the nut N in Fig. 1, the nut is inserted by pushing the plunger from dotted-line position to full line position. Then the handle 26 is moved from its normal position shown, to the position shown in Fig. 2. It will be observed in Fig. 1 that pawl 25 will pick up the sixth tooth, and in Fig. 2 that it still engages the sixth tooth. It can

therefore be seen that if the plunger remains in the position of Fig. 2, the pawl can be partly retracted to engage the seventh tooth, or further retracted to engage the eighth tooth. Thus the user may effect a short stroke or double that short stroke in the next squeeze of the handles 26 and 11.

The pawl and ratchet device has been shown only in one relation, that is, the ratchet is moved by the pawl, but it is to be understood that this arrangement may be reversed in modifications of the structure.

The device may be modified in numerous respects without departing from the spirit and scope of the invention as set forth in the appended claim.

I claim:

A device for cracking nuts and like operations, comprising a pair of pivoted handle members arranged to be squeezed together by a hand, a spring tending to move said handle members apart, one of said handle members being hollow, a plunger slidable in said hollow handle, a spring tending to move said plunger out of the handle, a series of teeth on said plunger, a jaw on the end of said plunger, an extension of said hollow handle member terminating in a jaw opposed to the jaw on the plunger, a resiliently movable pawl pivoted to the other handle member and movable therewith into and out of engagement with said series of teeth, and further movable when engaging a tooth to move the plunger in a direction to close the jaws, and means on the hollow handle positioned to engage the pawl as it is positioned by wide open handles and to move the pawl out of engaging position with said teeth.

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