

Dec. 20, 1949

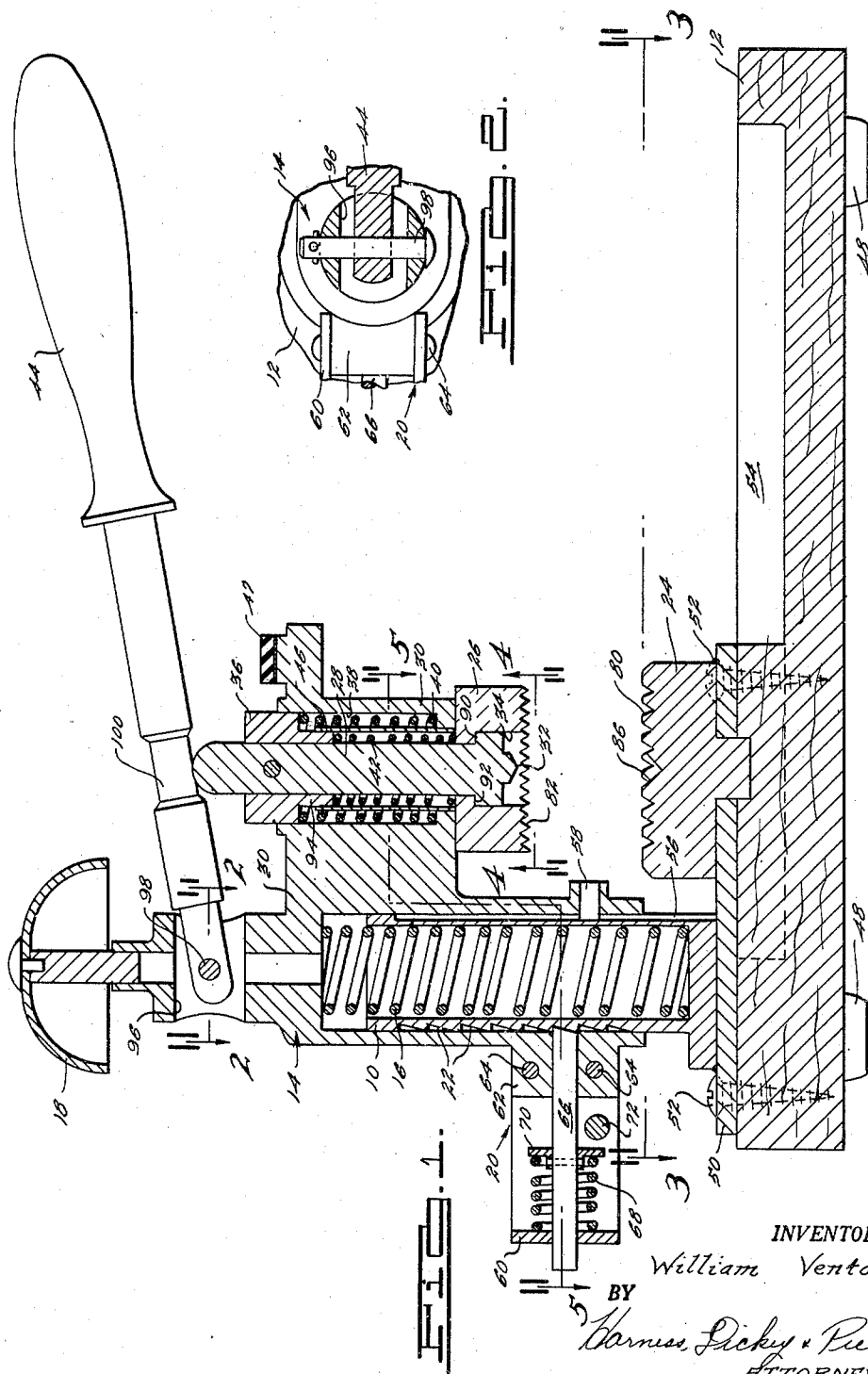
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2,491,628

NUTCRACKER

Filed July 16, 1947

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

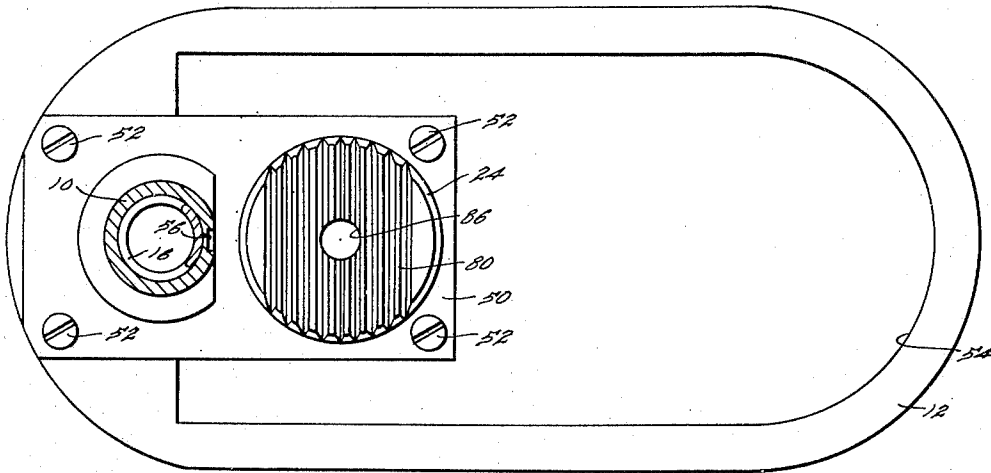


FIG. 3.

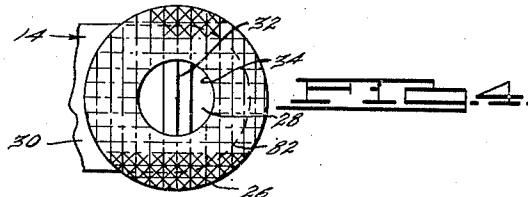


FIG. 4.

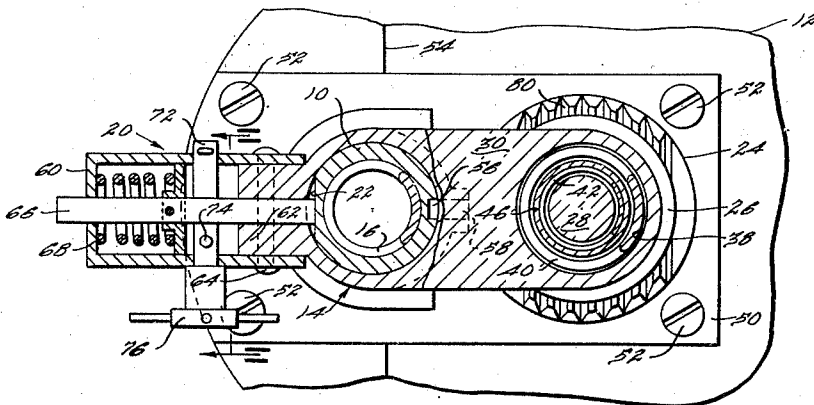


FIG. 5.

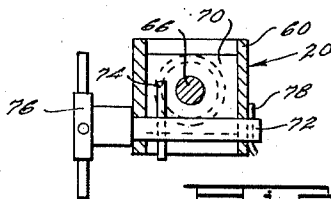


FIG. 6.

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NUTCRACKER

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1 Claim. (Cl. 146—16)

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This invention relates broadly to new and useful improvements in nutcrackers.

An important object of the present invention is to provide a nutcracker which is well adapted to break the shell of the nut without crushing the meat.

Another object of the present invention is to provide a nutcracker having provisions for automatically clamping and holding the nut before the shell is cracked.

Still another object of the invention is to provide a nutcracker of the above-mentioned character wherein the nut-clamping members are mutually adjustable to accommodate different sizes of nut.

Yet another object of the invention is to provide a nutcracker of the above-mentioned character wherein the nut-clamping and -cracking parts are retracted automatically after each operation of the device.

A further object of the invention is to provide a nutcracker of the above-mentioned character having a base shaped to catch the broken portions of the nut after the shell is cracked.

A still further object of the invention is to provide a nutcracker of the above-mentioned character which is strong and rugged in construction and efficient in operation.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the drawing forming a part of this specification and wherein like numerals are employed to designate like parts throughout the same:

Fig. 1 is a longitudinal sectional view of a nutcracker embodying the present invention;

Fig. 2 is a fragmentary, horizontal sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary view looking in the direction of the arrows 4—4 in Fig. 1;

Fig. 5 is a fragmentary, horizontal sectional view taken on the line 5—5 of Fig. 1; and

Fig. 6 is a vertical sectional view taken on the line 6—6 of Fig. 5.

A preferred embodiment of the invention is shown by way of illustration in the drawing. Broadly, the device here shown comprises a vertical, tubular post 10 at one end of a base 12, which post supports a vertically movable carriage 14. The latter normally is urged upwardly by a spring 16 which is disposed within the post 10 and confined between the lower end of the latter and the carriage. The carriage 14 can be pushed

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downwardly on the post 10 manually by means of a knob 18 on the upper end thereof, and a latch mechanism designated generally by the numeral 20 engages notches or teeth 22 on the post 10 to hold the carriage lowered against the action of spring 16.

The nut-cracking portion of the device comprises stationary and movable jaws 24 and 26 and a nut-splitting element 28. The stationary jaw 24 is supported solidly on the base 12 beside the post 10, whereas the movable jaw 26 and the nut-splitting element 28 are carried by a laterally projecting arm 30 of the carriage 14. The nut-splitting element 28 extends centrally through jaw 26, and the lower end thereof is provided with a splitting edge 32 which normally is received in a recess or socket 34 in the bottom face of jaw 26. On the upper end of nut-splitting element 28 is a guide 36 which travels in and snugly fits a vertical bore 38 in the arm 30. A spring 40 confined in the bore 38 reacts against the stop 36 to hold the knife edge 32 of element 28 normally retracted in socket 34 and jaw 26 against the arm 30. A second spring 42 confined between jaw 26 and stop 36 functions as a spring drive between the nut-splitting element 28 and the jaw and connects these members for normal mutual operation. A manually operable handle 44 pivoted to the carriage 14 and movable downwardly against the projecting upper end of the nut-splitting element 28 is actuated to clamp and crack a nut placed between the jaws 24 and 26. Also, it will be observed that a fixed sleeve 46 disposed coaxially within the bore 38 separates springs 40 and 42 and provides additional support for the guide 36. A stop 47 of rubber or the like on the carriage 14 limits downward movement of the handle 44 and consequently of the nut-splitting element 28.

In operation, jaws 24 and 26 are spaced approximately by placing the nut to be cracked therebetween and pushing downwardly on the knob 18 until the upper jaw 26 engages the nut (Fig. 1). When knob 18 is released, the catch mechanism 20 holds the carriage 14 approximately in the adjusted position and with the upper jaw 26 against or in proximity to the nut. Handle 44 is then pressed downwardly against the nut-splitting element 28 to press the element and the movable jaw 26 against the nut. Manifestly, jaw 26 is coactive with the nut-splitting element 28 due to the spring drive 42. Therefore, the jaw 26 moves with the element 28 until it engages the nut, at which time the jaw 26 remains stationary and serves to clamp the nut solidly against the

lower jaw 24. Thereafter, continued actuation of handle 44 moves the nut-spring element 28 independently of jaw 26 whereby to project the splitting edge 32 from recess 34 and to drive it against the nut. During independent movement of the nut-splitting element 28, spring 42 is further compressed, and reaction of the spring against jaw 26 increases the clamping action of the same and assists in holding the nut clamped firmly between the two jaws. Element 28 is driven downwardly in independent travel a distance sufficient to split the shell of the nut but insufficient to penetrate or crush the meat with the shell. As suggested, the stop 47 engages handle 44 to positively prevent the element 28 from being driven too far on its splitting stroke.

When handle 44 is released, the splitting edge 32 is withdrawn into socket 34, and the spring 40 retracts jaw 26 and element 28 as a unit to the position shown in Fig. 1. The two jaws 24 and 26 are then spaced to receive another nut of approximately the same size as the one previously cracked, and any desired number of equisized or substantially equisized nuts thereafter may be cracked without further adjustment of the device.

To crack a nut which differs materially in size from the nut previously cracked, the jaws 24 and 26 are again spaced approximately by adjusting the position of carriage 14 on the post 10. If the nut is smaller the jaws may be adjusted merely by again pressing downwardly on the knob 18. On the other hand, if the nut is larger, the catch 20 is actuated to release the post 10 so that spring 16 can raise the carriage to its initial position and the knob is again depressed to readjust the jaws 24 and 26 in the manner hereinabove described.

The base 12 may be of any desired size and may assume a variety of shapes. Also, it may be made of any suitable material such as metal, wood, or plastic. In the form of the invention here shown, the base 12 is made of wood and is generally oval in plan, as best shown in Fig. 3. Pads 48 of rubber or the like support the base 12 and prevent the latter from marring or scratching any surface upon which the device is placed. Preferably, the post 10 and the stationary jaw 24 are fixed on a mounting plate 50, and the latter is fastened on the base 12 by screws 52 or the like. Also, the top surface of the base 12 is dished, as at 54, and the dished area preferably embraces the lower jaw 24 (Fig. 3) to receive fragments of the nut which fall on one side or the other of the jaw.

The post 10 may be welded or otherwise fixed on the mounting plate 50, and one side thereof is provided with a vertical guide 56 which receives a guide pin 58 carried by the carriage 14. Guide pin 58 prevents the carriage 14 from rotating on the post 10 whereby to hold the jaws 24 and 26 centered with respect to each other and to assure proper engagement of the latch mechanism 20 with the notches 22.

Specifically, the latch mechanism here shown comprises a U-shaped strap 60 which embraces an embossment 62 on the lower portion of carriage 14. Rivets 64 hold the strap 60 fixed on the embossment 62. A slidable latch pin or detent 66 is received in aligning openings provided in the strap 60 and embossment 62, and the inner end of the latch pin is positioned for engagement with the notches or teeth 22, as shown in Fig. 1. Also, it will be observed that each notch or tooth 22 is downwardly tapered and that the inner end

of latch pin 66 is correspondingly tapered so that the pin will move easily from one tooth to another when the carriage 14 is pushed downwardly on the post 10. A preloaded compression spring 68, confined between the strap 60 and a stop plate 70 fixed to the pin 66, urges the latter constantly inwardly in the direction of post 10. In order to retract the latch pin 66, a small rotatable shaft 72 is journaled in opposite arms of the strap 60 in front of the stop plate 70 and at one side of the latch pin 66 (Figs. 1 and 6). A radial pin 74 carried by shaft 72 engages the stop plate 70 upon rotation of the shaft and retracts the latch pin 66 against the action of spring 68. A hand wheel 76 is fixed on one end of shaft 72 to facilitate rotation thereof, and a cotter pin 78 cooperates with the hand wheel 76 to hold the shaft 72 in place (Fig. 6).

From the foregoing it will be readily apparent that latch pin 66 moves freely along the series of notches 22 when carriage 14 is pushed downwardly on the post 10 and that when a nut is clamped between jaws 24 and 26, it automatically engages one of the teeth when the carriage is released to hold the carriage approximately in the released position. Thereafter, latch pin 66 prevents spring 16 from returning the carriage 14 until it is retracted by actuation of hand wheel 76 in the manner hereinabove described.

In order to enhance the gripping action of the jaws 24 and 26, the clamping surface of jaw 24 is provided with relatively large or coarse grooves or serrations 80, and the corresponding surface of jaw 26 is formed with relatively small or fine serrations 82. Also, it will be observed that the clamping surface of lower jaw 24 is formed with a central recess 84 (Fig. 3) and that the upper jaw 26 is provided with two series of serrations 82 which extend at right angles to each other to provide a plurality of square, bluntly pointed gripping teeth (Fig. 4).

With reference to the specific nut-clamping and -splitting mechanism here shown, it will be observed that the nut-splitting element 28 is formed at the lower end thereof with an annular shoulder 90 which seats upwardly against an annular seat 92 defined by the bottom of socket 34. Thus, the nut-splitting element 28, in effect, carries the upper clamping jaw 26 and the latter is free floating within defined limit on the element 28. Also, it will be observed that the guide 36 is provided at the inner end thereof with a portion 94 of reduced diameter, and, as suggested, the portion 94 fits snugly in the upper end of sleeve 46 and provides additional bearing surface for steadying and supporting the nut-splitting element 28. Preferably the outer spring 40 is stronger than the inner spring 42, since the latter spring merely functions to advance jaw 26 with the nut-splitting element 28 when the latter is moved downwardly by handle 44, whereas the outer spring 40 must return the entire assembly, including the handle 44, after each operation of the device.

The handle 44 may be pivoted in any suitable place on the carriage 14 and in any desired manner which permits sufficient leverage to be applied against the nut-splitting member 28. In the form of the invention here shown, the attached end of handle 44 projects into a horizontal bore 96 provided in the carriage 14 adjacent the upper end thereof and is fastened by a pivot 98. Also, the portion of handle 44 which engages the nut-splitting element 28 preferably is of reduced diameter, as at 100; and, if desired, the upper

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end of the nut-splitting element may be transversely grooved so that the element and the handle interfit to prevent rotation of the nut-splitting element.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same and that various changes in the size, shape, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the appended claim.

Having thus described the invention, I claim:

A nutcracker comprising a base; a vertical post on said base; a carrier vertically adjustable on said post; means for releasably holding said carrier in a selected adjusted position on said post; a stationary lower jaw on said base laterally of said post; a nut-splitting element carried by and independently vertically movable relative to said carrier, said element disposed directly above said lower jaw and having a downwardly directed nut-splitting edge adapted to co-operate with said lower jaw to crack a nut disposed therebetween; a manual actuator pivoted to said carrier and engaging downwardly against said nut-splitting element, said actuator operable to advance said nut-splitting element in the carrier and against a nut disposed on said stationary lower jaw; spring means confined by said carrier and said nut-splitting element normally holding the latter retracted; an upwardly facing shoulder on

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said nut-splitting element; an upper jaw mounted for vertical sliding movement of the said nut-splitting element adapted to co-operate with said lower jaw to clamp a nut preparatory to engagement thereof by said nut-splitting element; a second spring means confined between said nut-splitting element and said upper jaw normally holding the latter pressed downwardly against said shoulder; and a socket in the under face of said upper jaw adapted to receive said nut-splitting edge when said upper jaw is in engagement with said shoulder.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
537,477	North	Apr. 16, 1895
702,721	Gerstmayr	June 17, 1902
998,482	Elder	July 18, 1911
1,094,698	Bostrom	Apr. 28, 1914
1,108,920	May	Sept. 1, 1914
1,210,414	Burkhardt	Jan. 2, 1917
1,663,980	Giesecke	Mar. 27, 1928
2,140,428	Ferney	Dec. 13, 1938
2,178,375	Lennard	Oct. 31, 1939
2,200,515	Moeller	May 14, 1940