

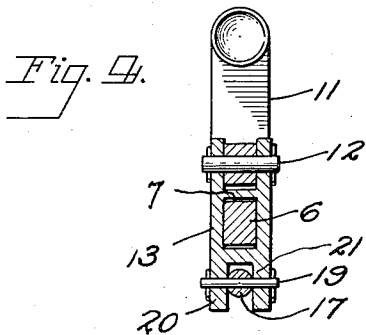
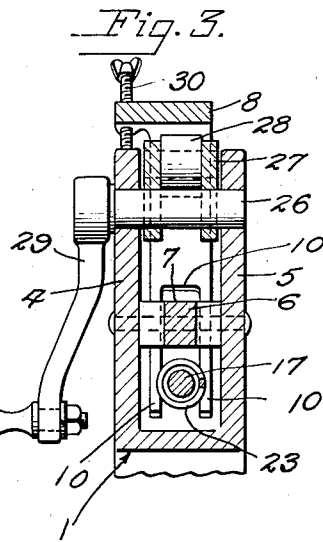
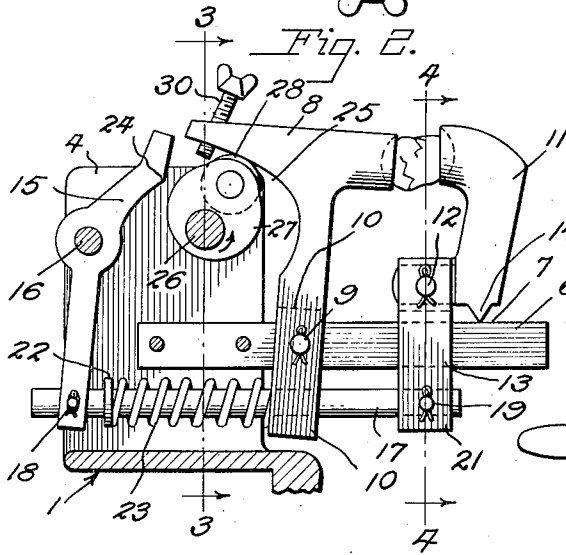
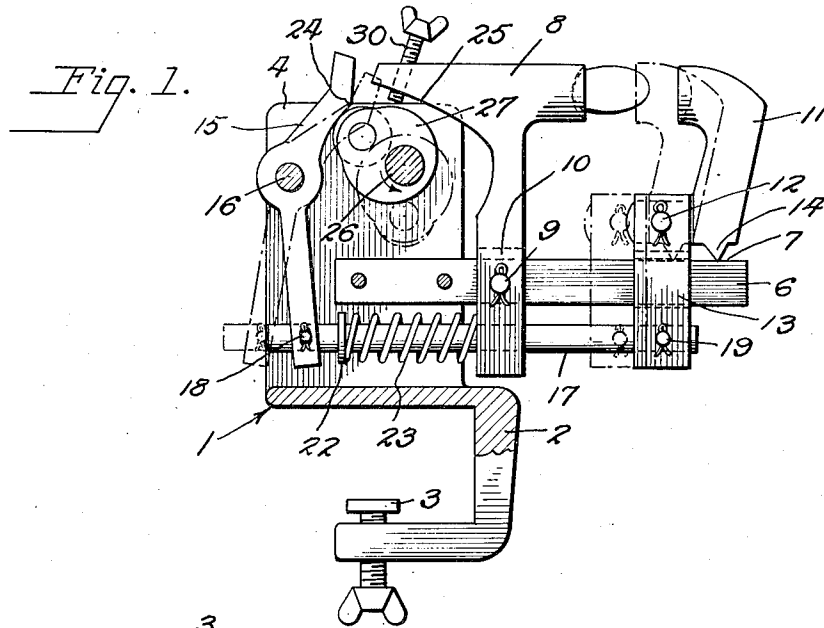
May 9, 1939.

W. A. SETTLE

2,157,501

NUTCRACKER

Filed Dec. 11, 1936



Inventor

W. A. Settle

By *Max F. Lawrence*
Attorney

UNITED STATES PATENT OFFICE

2,157,501

NUTCRACKER

Walter A. Settle, Tulsa, Okla.

Application December 11, 1936, Serial No. 115,410

4 Claims. (Cl. 146—16)

This invention relates to nut crackers especially designed for the commercial production of whole nut meats. The embodiment illustrated in the accompanying drawing and description is particularly adapted for cracking pecans although it is obvious that with possible slight variations in structure, it may advantageously be employed for cracking other hard shelled nuts.

One of the objects of the invention is to provide a nut cracker which holds the nut with resilient pressure prior to the application of the cracking force.

Another object of the invention is the provision of a nut cracker which automatically adjusts itself to the length of the nut.

Still another object of the invention is a nut cracker having means for positively adjusting the value of the cracking pressure, all of which objects have in view to break the shell sufficiently for the ready removal of the meat, with minimum fracturing of the meats.

Another object of the invention is to provide an anvil unit which reciprocates from nut-receiving to nut-releasing position with respect to a nut-cracking hammer, having a uni-directional detent so arranged as to inhibit retrogressive movement of the anvil unit under the cracking pressure of the hammer, ensuring a substantially uniform cracking pressure regardless of the speed of operation of the means which imparts the cracking pressure.

Other objects of the invention will appear as the following description of a preferred and practical embodiment thereof proceeds.

In the drawing, Figure 1 is a side elevation partly in section showing in heavy lines the position of the parts when the cracker is in nut-receptive position, the dotted lines illustrating the position of the parts when the nut is resiliently held, but prior to the cracking pressure;

Figure 2 is a similar view illustrating the position of parts during the cracking act;

Figure 3 is a cross section taken along the line 3—3 of Figure 2; and

Figure 4 is a section taken along the line 4—4 of Figure 2.

Referring now in detail to the several figures, there is a frame 1 comprising a clamping arm 2 with a clamp screw 3 adapting the nut cracker to be secured to any suitable horizontal support such as the top of a table. The frame has two parallel upstanding sides 4 and 5 between which is rigidly secured a horizontal and preferably non-round bar 6 which extends outwardly a dis-

tance beyond the side members as shown in Figures 1 and 2. This bar is preferably of non-round cross section. In any event it should have a flat top surface 7 and should be of hard tempered metal.

A hammer 8 is pivotally mounted at 9 upon the bar 6 and has a definite repose position determined by the contacting of the thumb screw 30 against the frame. The hammer is normally retained in this repose position by a spring 23. The repose position may be altered by screwing the thumb screw 30 in or out. This is done to vary the stroke of the hammer and consequently the value of the cracking pressure as will presently appear. There is an anvil unit comprising a carriage 13 freely slidable upon the bar 6 toward and from the hammer 8. An anvil 11 is pivotally mounted upon the carriage at 12. Said anvil has the form and function of a pawl, being off-set laterally with respect to the carriage and having a knife edged projection 14 which rests upon the flat top surface 7 of the bar 6. On account of its offset relation to the carriage, the weight of the anvil 11 presses the knife edge against the bar 6 so that there is never any lost motion between the anvil and bar, and when the pressure of the knife edge against the bar due to the weight of the anvil is augmented by the impact pressure transmitted by the hammer through the nut to the anvil, the knife edge is immovably pressed against the bar so that no reciprocation of the carriage along the bar in a direction away from the hammer is possible. Since the carriage does not have to grip the bar by tilting, the clearance between the carriage and the upper and lower faces of the bar may be practically nil so that there is no vertical lifting of the pivot and carriage due to the pressure of the anvil 11 against the bar through the fulcrum afforded by the knife edge 14. This means that the entire impact blow of the hammer is expended in cracking the nut and that none of it is dissipated in longitudinal movement away from the nut in rocking either the anvil or the carriage. Furthermore, no matter how slowly the hammer-actuating means may make contact with the hammer, the transmitted force through the nut will always be sufficient to hold the anvil against longitudinal movement away from the hammer inasmuch as the knife edge is already and always in contact with the bar 6.

The carriage is reciprocated by means of an actuating rod 17 which is connected by a pin 19 to the carriage, which passes through the bifurcated stem 10 of the hammer and between the

bifurcations 20 and 21 of a rocking lever 15, to which it is pivotally mounted by the pin 18. The rocking lever 15 is mounted upon a pivot 16 in the frame 4. The spring 23 which normally holds the hammer 8 in its definite position of repose, conveniently surrounds the actuating rod 17 and is held in compression between the stem 10 of the hammer and a collar 22 fixed with respect to the actuating rod 17.

A cam 27 is mounted between the sides 4 and 5 of the frame on a shaft 26 operated in any suitable manner as by the hand crank 29 shown in Figure 3 or by power. The cam has an anti-friction roller 28 which operates on cam surfaces 24 and 25 provided on the adjacent faces of the hammer and crank lever 15. The cam successively engages the hammer for throwing it forward against the compression of the spring 23. The cam then in its course of rotation releases the hammer and rocks the bell crank lever 15. When the hammer is released, it returns to its repose position urged by the spring 23. The bell crank lever 15 when engaged moves the actuating rod 17 forward sliding the carriage along the bar 6. The knife edge 14 of the anvil 11 opposes no obstruction to the movement of the carriage, by rod 17. When the cam releases the bell crank lever 15, the spring 23 restores the bell crank lever to its normal position. If there is no nut between the hammer and anvil when the bell crank is released, the upper portion of the bell crank lever will lie against the circular portion of the cam 27, limiting the distance through which the spring by its expansion can draw the rod 17 in a leftward direction as viewed from Figure 2. This distance is such that the face of the hammer and face of the anvil will never come together. When a nut is between the hammer and anvil, the leftward movement of the actuating rod 17 under the urge of the spring will impart a yielding pressure to the anvil 11 against the nut.

Obviously, the maximum throw of the hammer is always the same, being determined by the extent of the throw of the cam 27. It is possible however to vary the cracking pressure by changing its initial position so that it will move a greater or less distance in arriving at the point of maximum throw. This is accomplished by means of the thumb screw 30 which passes through the hammer and is in position to engage one of the sides of the frame as indicated in Figure 3. By screwing the thumb screw inwardly, the lost motion between the cam and hammer is increased so that the cracking pressure on the nut is diminished and vice versa. The adjustment of the cracking pressure is absolutely essential to the success of a commercial nut cracker inasmuch as the hardness of the shell varies with different batches and different varieties of nuts and the pressure value which will crack the shell without crushing the meat is quite critical.

In operation, it being assumed that the apparatus is set to run continuously, nuts are held manually in a line between the hammer and anvil when these two parts are in separated position, a fresh nut being presented just as soon as the previous one has been crushed. Due to the fact that the upper end of the bell crank lever will make contact with the circular part of the cam 27 before the spring 23 has drawn the actuating rod 17 leftward far enough to bring the faces of the anvil and hammer together, the

shell of the nut will be cracked without crushing the meat.

While I have in the above description disclosed what I believe to be a practical embodiment of the invention, it will be understood to those skilled in the art that the specific details as shown and described are by way of example and not to be construed as limiting the scope of the appended claims.

What I claim is:

1. Nut cracker comprising a frame including a bar, a hammer pivotally mounted on said bar and an anvil unit including a carriage closely embracing said bar and reciprocable thereupon in a direction toward and away from said hammer, said anvil unit including also an anvil pivotally mounted on said carriage, offset therefrom in the direction remote from said hammer and having a fulcrum portion normally contacting said bar under the weight of said anvil, said hammer and anvil having coacting nut-cracking faces, said hammer including means engageable with said frame for determining a normal position of repose for said hammer, actuating means for reciprocating said carriage, a spring normally urging said hammer into its position of repose and retracting said anvil unit yieldingly toward said hammer, and means for periodically moving said hammer against the tension of said spring from its position of repose into nut-cracking proximity to said anvil, said anvil fulcrum preventing recession of said anvil in response to the blow of said hammer.

2. Nut cracker comprising a frame including a bar, a hammer pivotally mounted on said bar and having a normal position of repose determined by the resting of said hammer against said frame, an anvil unit comprising a carriage closely embracing said bar and reciprocable thereupon in a direction toward and away from said hammer, said anvil unit including an anvil pivotally mounted upon said carriage, offset therefrom in the direction remote from said hammer and having a fulcrum edge resting upon said bar under the weight of said anvil whereby lost motion between said anvil and bar is obviated, and means for rocking said hammer away from its position of repose into nutcracking proximity to said anvil, the fulcrum edge of the anvil acting to prevent recession of said anvil unit away from said hammer responsive to the blow of said hammer.

3. Nut cracker comprising a frame including a bar, a hammer pivotally mounted upon said bar and having a normal position of repose determined by the resting of said hammer upon said frame, an anvil unit cooperating with said hammer including a carriage closely embracing said bar and slidable thereupon in a direction toward and away from said hammer, said anvil unit including also an anvil pivotally mounted in said carriage, offset therefrom in a direction remote from said hammer and having a fulcrum edge engaging said bar under the weight of said anvil whereby lost motion between said anvil and bar is obviated, an actuating rod for reciprocating said anvil unit, a spring surrounding said rod held in compression between said hammer and a fixture on said rod whereby said hammer is normally maintained in position of repose and whereby said actuating rod is normally retracted to bring said anvil yieldingly into proximity to said hammer, a bell crank mounted in said frame and operably connected to said actuating rod for reciprocating the latter, cam faces on the ham-

mer and bell crank and a cam mounted in said frame between said cam faces of the hammer and bell crank for successively actuating said hammer to deliver an impact blow to a nut held

5 between said hammer and anvil, and actuating said bell crank to move said anvil unit away from said hammer immediately after the nut-cracking movement of said hammer.

formed at one end of a body having a lug offset at the other end, said lug pivoted to the carriage adjacent the slide bar, said anvil body having a fulcrum directed towards the slide bar adjacent

5 said pivotal connection but on the side of the connection remote from the hammer, whereby pressure against the anvil presses said fulcrum into locking engagement with the slide bar to prevent sliding of the carriage on the slide bar.

4. In a nut cracker having a hammer and anvil,

10 means for mounting the anvil, comprising a slide bar, a carriage slidable on the bar, an anvil

WALTER A. SETTLE.

10