(No Model.)

C. R. WATROUS.

NUT CRACKER.

No. 343,351. Patented June 8, 1886.

Fig: 1.

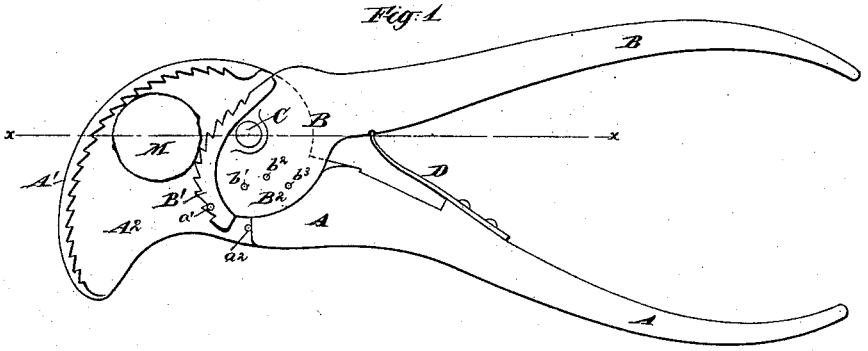


Fig: 2.

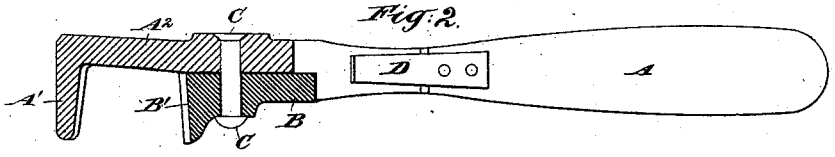


Fig: 3.

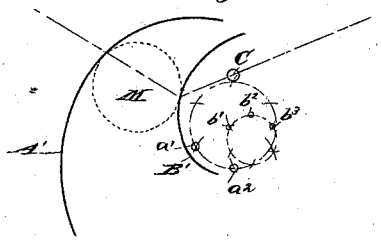
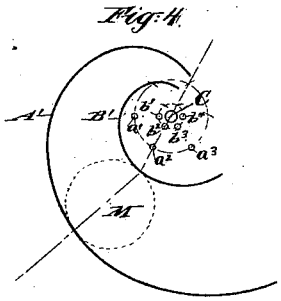


Fig: 4.



Witnesses:
Charles R. Searle,
F. A. Richmond

Inventor:
Charles R. Watrous
by his attorney
Thomas Drew Stetson

UNITED STATES PATENT OFFICE.

CHARLES R. WATROUS, OF LEDYARD, CONNECTICUT.

NUT-CRACKER.

SPECIFICATION forming part of Letters Patent No. 343,351, dated June 8, 1886.

Application filed April 10, 1886. Serial No. 198,436. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. WATROUS, of Ledyard, in the county of New London and State of Connecticut, have invented a certain new and useful Improvement in Nut-Crackers, of which the following is a specification.

I have invented a form of the parts, and especially of the surfaces which come in contact with the nut, by which a lever, turning on an axis and presenting a surface approximately concentric to another surface, which does not move therewith, can, by simply rocking on the center, subject the nut to both a compressing and rolling action under such conditions that nuts having a wide range of sizes can be treated, and that the purchase or mechanical advantage will be the same at all parts of the motion.

I prefer that what I term the "arcs" shall be approximately or exactly volute curves. I will represent them as approximate volutes, drawn from several different centers.

The following is a description of what I consider the best means of carrying out the invention:

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation of my device; Fig. 2, a section on the line x x in Fig. 1; and Figs. 3 and 4 are diagrams aiding to show the action of the device.

Similar letters of reference indicate corresponding parts in all the figures.

The device has two levers or main parts, turning on an axis or center like ordinary pinchers. A is one part, B the other; C, a strong rivet, serving as the axis; and D, a spring, performing the obvious function. A stout arc or partial rim, A′, is formed on the part A, its inner surface being roughened, as indicated, to prevent a nut from slipping when it is urged obliquely against the inner surface. An arc or partial rim, B′, of a smaller volute, nearly concentric to A′, is formed on the part B and roughened on its exterior. The breadth of these rims should be sufficient to receive a nut. Each may extend around so far as to constitute nearly a semi-cylinder. A^2 is a web of metal, strongly supporting the rim A′. Both the levers may be malleable cast-iron.

The curvature of the arcs A′ and B′ and their positions relatively to each other and to the axis C is important. The drawings represent what I esteem the best forms. The centers from which the arc A′ is described are marked a' a^2, &c., and the centers from which the arc B′ is described are marked b' b^2, &c. The arrangement should be such that as the levers A and B are turned on the axis C, a nut, M, introduced between A′ and B′, and pressed gently into contact, will, by the turning of the levers, be strongly compressed, and at the same time partially turned on its axis. The rolling motion is peculiarly favorable to cracking the nut.

I will for uniformity designate as B^2 the portion of the lever B which supports the arc B′. This is of much less extent than the corresponding web on the part A.

It will be observed that the lines of pressure from the point where the nut bears on the inner jaw, thence to the point of bearing on the outer jaw, form a knuckle, and that the shape and relative position of the crushing-surfaces are such that the angle of this knuckle is nearly the same on the various sizes of nuts; also, that as the instrument closes on the nut the latter is rolled inward a little, thus tending to prevent the knuckle from straightening too much or too soon, and affording what is equivalent to an increased motion of the jaws toward each other in the direction of the crushing-strain, and hence allowing the first or breaking "nip" to be had with a straighter knuckle than could otherwise be, together with the means of following up the pressure until the nut is sufficiently crushed.

Modifications may be made in the forms and proportions. I can dispense with the whole or a portion of the web A^2, which, as shown, strongly connects one edge of the rim A′ with the central portion of the lever A. I can make the device wider or narrower than shown.

I can dispense with the flare or angularity of the surfaces A′ B′, as exhibited in the section, Fig. 2. I can give such form to the parts that the cracking surfaces, as seen in these drawings, will be parallel, or I can increase the inclination in this direction more than is shown. I can increase or diminish the roughness of the several surfaces. I can increase or diminish the curvature. I prefer the whole as shown.

I claim as my invention—

1. A nut-cracker consisting of the lever A,

provided with the concave arc A′ and web A^2, and lever B, pivoted thereto and provided with the convex arc B′, the convex arc being arranged to face the concave arc, substantially as set forth.

2. The levers A B, having the curved arcs or rims A′ B′, webs A^2 B^2, pivot C, and spring D, combined and arranged as herein specified.

In testimony whereof I have hereunto set my hand, at Mystic, Connecticut, this 5th day of April, 1886, in the presence of two subscribing witnesses.

CHARLES R. WATROUS.

Witnesses:

STEPHEN WATROUS,

THOMAS H. POLLARD.