

June 19, 1923.

1,459,609

J. H. AUSTIN

NUT CRACKER, SHELLER, AND SEPARATOR

Filed May 2, 1922

3 Sheets-Sheet 1

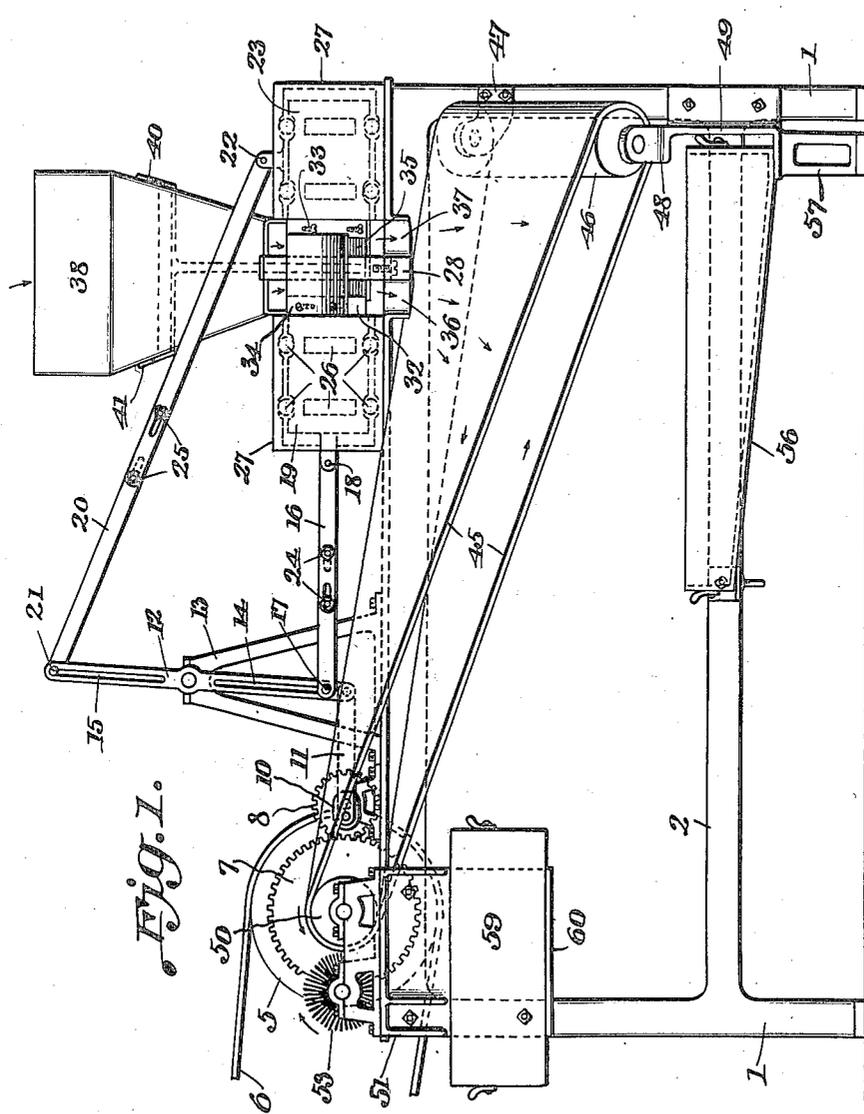


Fig. 1.

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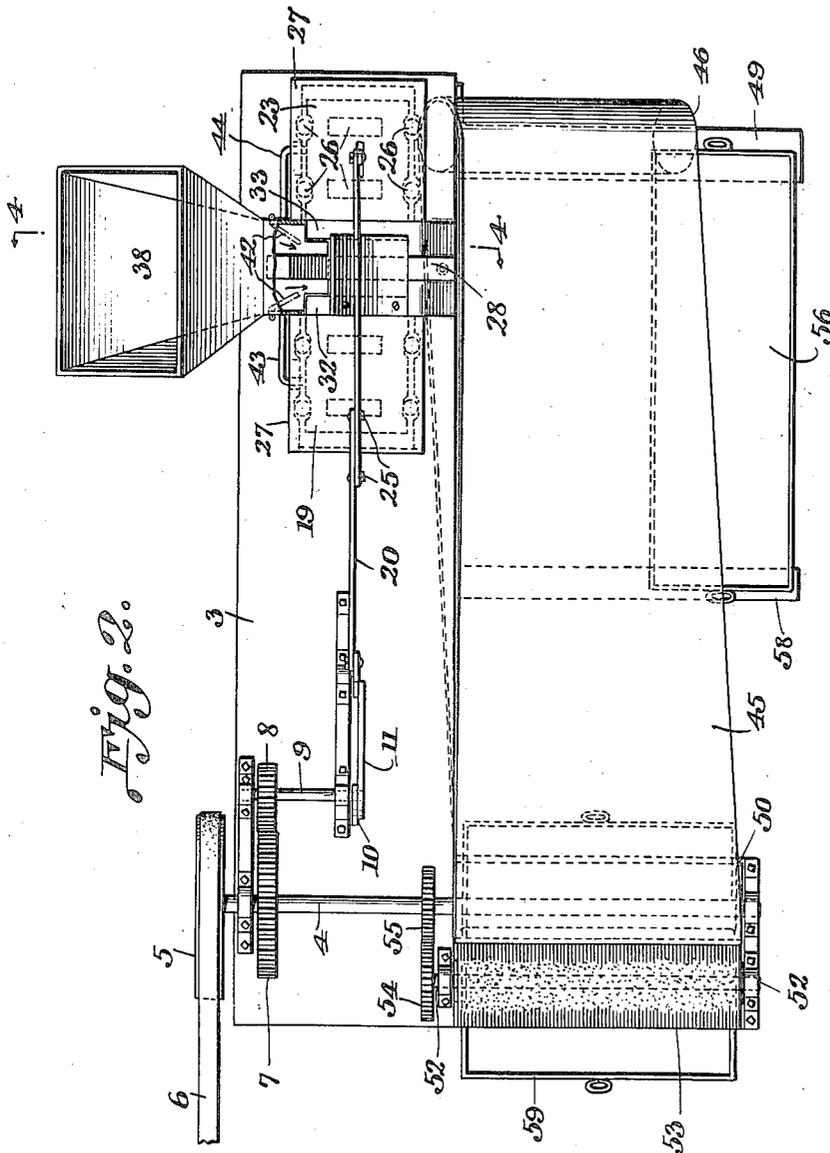
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3 Sheets-Sheet 2



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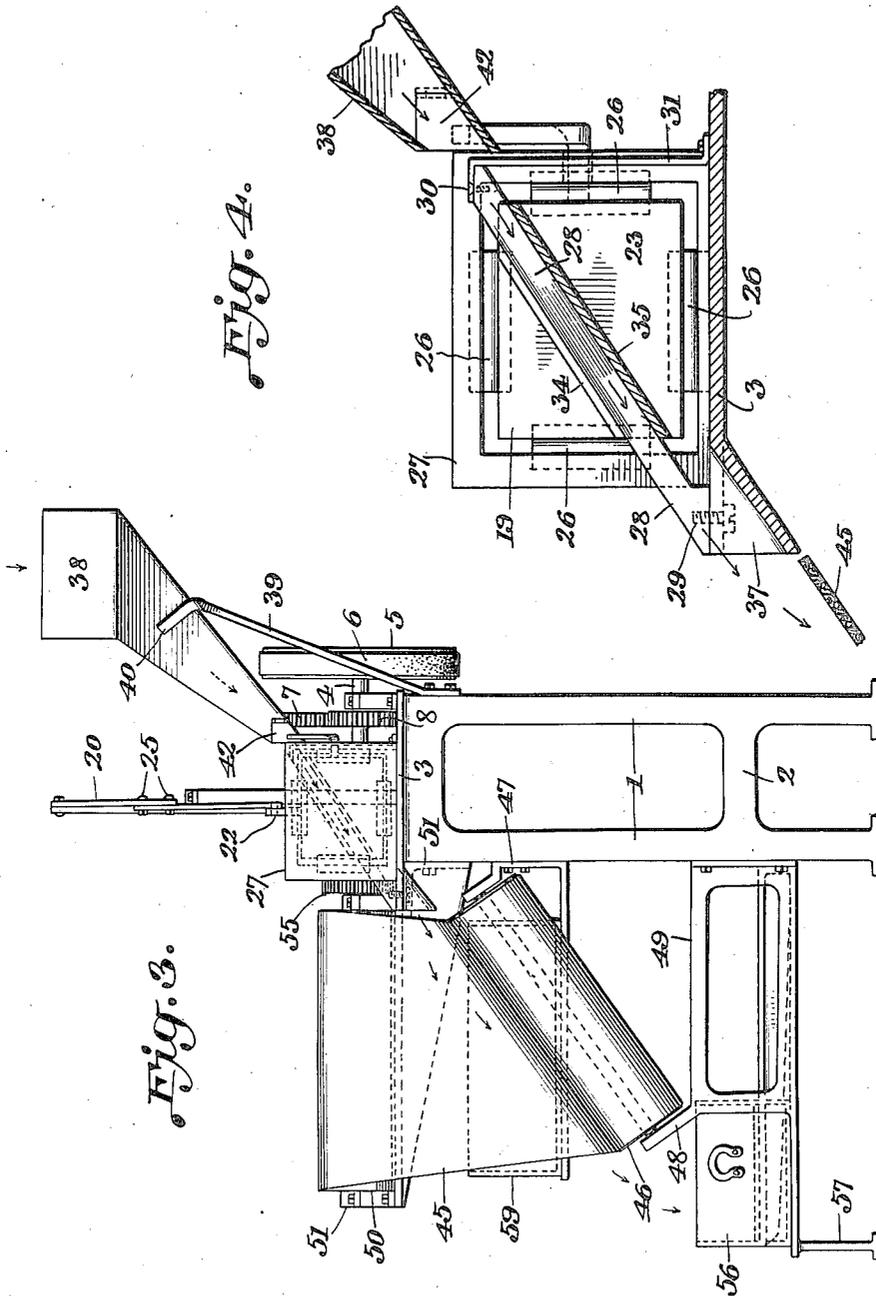


Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN H. AUSTIN, OF ALBUQUERQUE, NEW MEXICO.

NUT CRACKER, SHELLER, AND SEPARATOR.

Application filed May 2, 1922. Serial No. 557,833.

To all whom it may concern:

Be it known that I, JOHN H. AUSTIN, a citizen of the United States, and resident of Albuquerque, in the county of Bernalillo and State of New Mexico, have invented certain new and useful Improvements in a Nut Cracker, Sheller, and Separator, of which the following is a specification.

The object of my invention is a machine for shelling nuts and separating them from their hulls or shells. While adapted for various kinds of nuts, it is particularly intended for shelling the piñon nut. Due to the toughness of the shells and the varying sizes of the nuts, it has been found difficult to crack and shell these nuts by machines which are successful in the treatment of other nuts.

An object of the invention is to provide simple and efficient means for feeding the nuts in sequence between a fixed jaw and a rapidly oscillating jaw, the distance between the jaws varying so that nuts that are too small to be cracked in the first part of the movement between the jaws will be caught in the latter part of said movement.

Another object of the invention is to provide means for giving two movable jaw members rapid oscillatory movement with relation to a single fixed jaw member, and to vary the distance of movement of the movable jaws when desired.

Another object of the invention is to provide means for automatically separating the kernels from the shells and conducting each to a receptacle therefor.

Other objects will be apparent from the following detailed description and the appended claims:

In the drawings:

Figure 1 is a side elevation of the complete device.

Figure 2 is a top plan view.

Figure 3 is an end view.

Figure 4 is a section on the line 4-4 of Figure 2.

There is provided a frame work having legs 1, a lower cross piece 2 and a top plate 3 of rectangular form supported by the legs and suitably fastened thereto. In suitable bearings at one end of the top is mounted a shaft 4 having a pulley or fly wheel 5 at its outer end to which power is transmitted from the source by a belt 6. The shaft 4 carries a pinion or gear 7 with which meshes a much smaller gear 8 on a shaft 9 mounted in

bearings on said top plate. The inner end of this shaft 9 is provided with a short link 10 forming an eccentric, and pivoted to the link 10 is another link 11. A walking beam or similar oscillating member 12 is mounted on bearings at the top of an inverted V-shaped support 13 also carried by the top plate. This walking beam extends in a substantially vertical position and its arms are slotted as shown at 14 and 15.

A two-part link 16 has a pin 17 at one end working in the slot 14 and at its other end is pivoted at 18 to an ear extending from a block 19. Another longer two-part link 20 has a pin 21 working in the slot 15 and its other end connected at 22 to a block 23. The link 16 is made extensible by means of bolt and slot connections 24 and the link 20 is made extensible by similar connections 26. The blocks 19 and 23 are mounted to reciprocate readily in similar casings 27 by means of roller bearings 26 at their top, bottom and both sides.

Midway between the blocks 19 and 23 is a fixed metal jaw or buffer 28. This buffer is inclined at an angle of about 45° and is fastened by a screw 29 or similar fastening to the top plate, while the other end is attached by a screw 30 to the upper end of a standard 31 carried by the top plate and fastened thereto. This buffer or jaw 28 is firmly supported and of such a size that it may be firm and unyielding.

Attached to the face of the block 19 is a jaw or buffer 32 of a size similar to the jaw 28, and attached to the opposing face of the block 23 is another jaw or buffer 33. These jaws which move with the respective blocks are inclined at the same angle and in the same direction as the fixed jaw 28. Fastened to the upper edge of the jaw 32 is a flat metal plate 34 which, as clearly shown in Figures 1 and 2 extends towards the other block and overlies the fixed jaw 28, extending to the edge of the movable jaw 33. Similarly there is fastened to the under edge of the jaw 33 a flat metal plate 35 which extends towards the jaw 32 and underlies the fixed jaw 28. It will be seen that the fixed jaw 28, movable jaws 32 and 33, with the plates 34 and 35 form two passageways through which nuts are fed. These passageways are slightly tapered from top to bottom in order that the smaller nuts may not slip through uncracked.

These passages terminate at their lower ends in spouts 36 and 37 preferably formed as integral parts of the top plate 3. To the upper ends of the passages the nuts are delivered from a hopper 38 which may be of any usual or desired form, but preferably has its lower portion inclined in the same plane as the passages just described. The hopper is, or may be supported by a brace member 39 attached to the main frame at its lower end and forked at its upper end to provide side arms 40 and 41 that engage the sides of the hopper as shown.

As shown in Figure 2 the exit of the hopper is provided with two pivoted swinging members 42 which are preferably spring held in their normal position and partially close the entrances to the passages, so that the nuts will not quite pass through. Attached to the blocks 19 and 23 respectively are arms 43 and 44 whose ends terminate adjacent the swinging members 42. As the blocks are moved, these arms engage the swinging members and give them a slight jar so that the nuts are dropped through one by one, and generally with their small ends down.

As the nuts pass out the spouts 36 and 37 they fall upon an endless canvas or other belt 45. At one end this belt passes around a roller 46 mounted at an inclination of about 30° which roller is supported at one end in a bracket 47 carried by one of the legs 1 and at its lower end in a bracket 48 upon an auxiliary frame 49 attached to the same leg 1. The belt passes about a horizontal roller 50 at its other end, this roller being mounted on a continuation of the shaft 4, a bearing for the outer end of this shaft being provided in an auxiliary support 51 fastened to the frame. Supported at one end in a bearing on the top plate 3 and at its other end in a similar bearing carried by the support 51 is a shaft 52 carrying a cylindrical brush 53 mounted parallel to the shaft 4 and closely adjacent to the roller 50, which brush will clear the belt of the shells adhering thereto. The brush shaft 52 is provided with a gear 54 meshing with a gear 55 on the shaft 4, so that it and the belt will be rotated from the same source of power that drives the cracking device.

As the kernels roll off the belt they drop into a receptacle 56 supported at one end by an extension of the auxiliary frame 49, which frame has a leg 57, and at its other end by a support 58 extending outwardly from the cross piece 2. As the hulls are brushed off the belt they fall into a receptacle 59 carried by an auxiliary support 60 suitably attached to the main frame.

The operation of the device is apparent from the above description. The blocks with their attached jaws are oscillated quite rapidly and the nuts drop in from the hop-

per one by one but in rapid succession. The shells are thoroughly broken by one or more blows of the movable jaws during the passage of the nuts from the hopper to the spouts 36 and 37. As the nuts and broken shells drop out on the belt, the nuts will roll off into the receptacle 56 while the shells will be carried on and finally brushed off by the brush 53 into the receptacle 59.

While the device has been described in its preferred form as adapted particularly to the piñon nut, it may be used for other nuts by a variation in size of the parts. Various detail changes may be made, as belt drives may be substituted for the gearing. Other material may be used for the belt. The desired speed of operation may be varied by changing the relative sizes of the gears 7 and 8. Other modifications will be obvious to one skilled in the art, and in general it may be stated that the invention is to be regarded as limited only by the scope of the appended claims.

I claim as my invention:

1. A nut shelling machine comprising an inclined fixed jaw, movable jaws similarly inclined on each side thereof, means for reciprocating the movable jaws toward and away from the fixed jaw, and means for intermittently feeding nuts between the jaws.

2. A nut shelling machine comprising an inclined fixed jaw, a block on each side of the fixed jaw, similarly inclined jaws carried by the blocks and opposed to the fixed jaw, and providing tapered passageways, means for reciprocating the blocks, and means for feeding nuts between the jaws.

3. A nut shelling machine comprising a fixed jaw, a block on each side of the fixed jaw, a similarly inclined jaw carried by each block, roller bearings for said blocks, means for reciprocating said blocks in unison, and means for feeding nuts between the jaws.

4. A nut shelling machine comprising a fixed jaw, a movable jaw on each side of the fixed jaw, a plate fastened to the upper side of one movable jaw and extending across the fixed jaw, a similar plate fastened to the lower side of the other movable jaw and extending across the fixed jaw, means for reciprocating the movable jaws, and means for feeding nuts to the passages formed by the jaws and the plates.

5. A nut shelling machine comprising an inclined fixed jaw, similarly inclined movable jaws at the sides thereof, means carried by the movable jaws and forming together with the fixed jaw inclined passages, means for reciprocating the movable jaws, and means for intermittently feeding nuts to the passages.

6. A nut shelling machine comprising an inclined fixed jaw, an inclined movable jaw at each side thereof, the lower end of each movable jaw being slightly nearer the fixed

jaw than the upper end thereof, means for reciprocating the movable jaws in unison, and means for feeding nuts between the jaws.

5 7. A nut shelling machine comprising an inclined fixed jaw, a similarly inclined movable jaw on each side thereof, means carried by the movable jaws and forming in connection therewith passages for the nuts,
10 means for reciprocating the movable jaws, a hopper for the nuts, means for preventing the free delivery of nuts from the hopper, and means reciprocating with the jaws

for causing said means to permit the nuts to be fed one by one.

15 8. A nut shelling machine comprising a fixed jaw, a movable jaw on each side thereof, a walking beam, one arm of which is connected to each jaw, eccentric mechanism connected to the walking beam, and means for
20 operating said eccentric from a source of power to reciprocate the movable jaws.

In testimony whereof, I have hereunto subscribed my name.

JOHN H. AUSTIN.