

1,043,555.

E. WILDERMAN.
NUT CRACKING MACHINE.
APPLICATION FILED JUNE 10, 1907.

Patented Nov. 5, 1912.

4 SHEETS—SHEET 1.

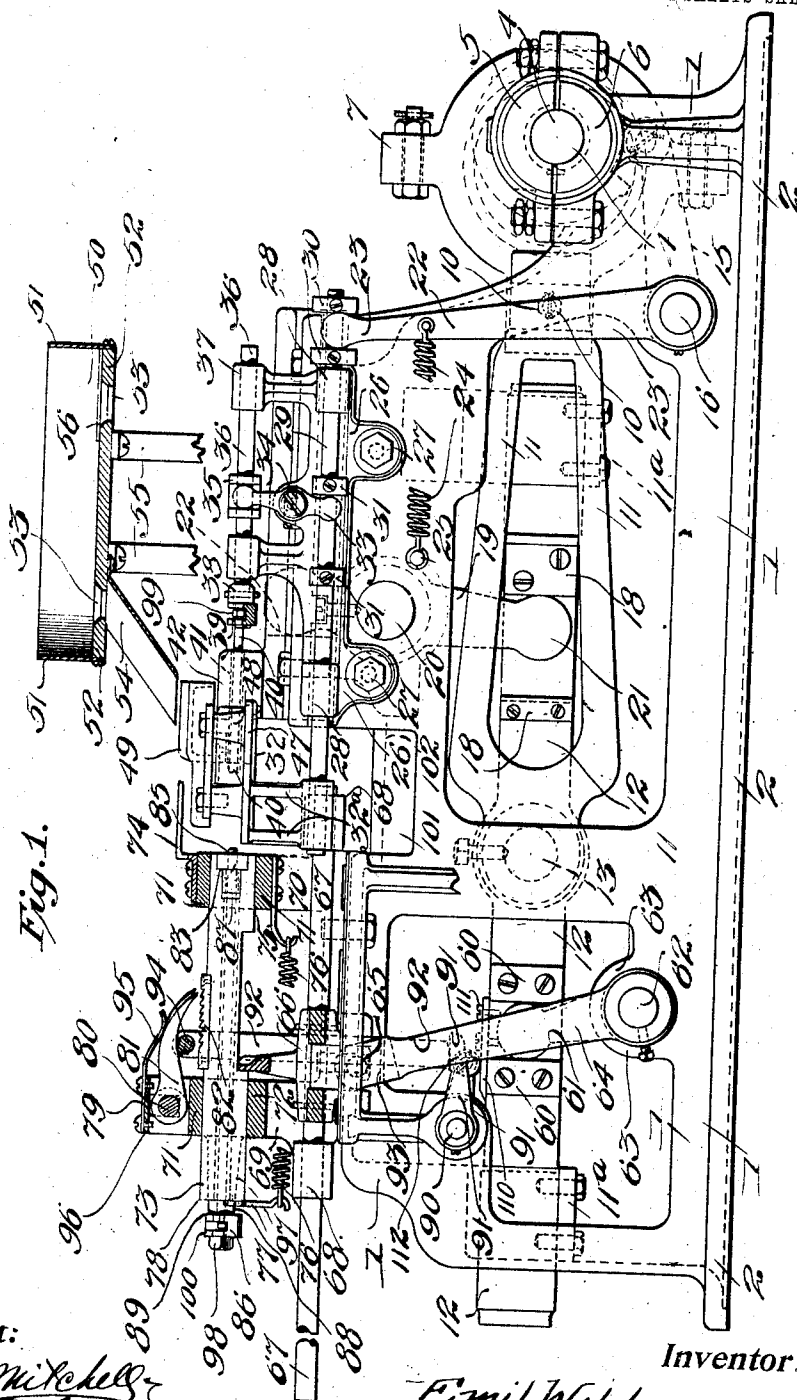


Fig. 1.

Attest:

Robert W. Ashby

Inventor:

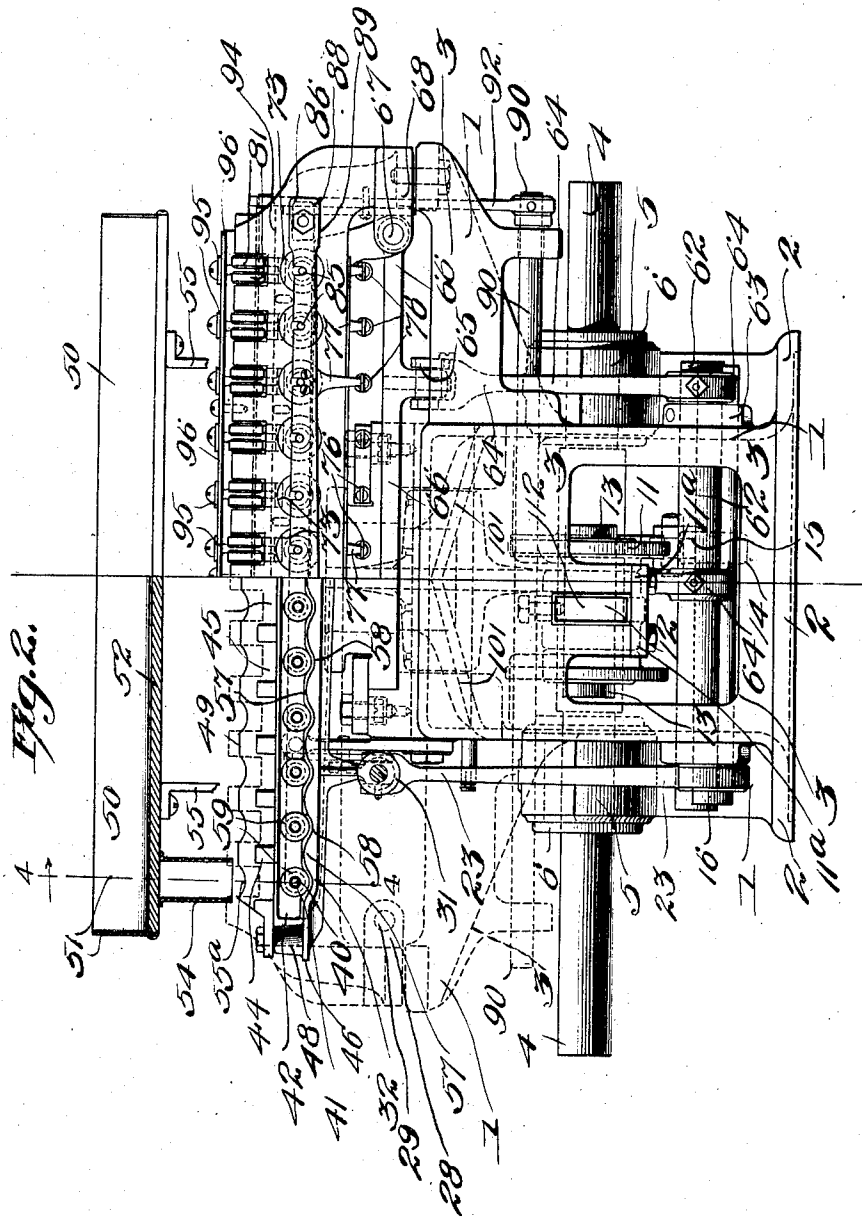
Emil Wilderman
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Attest:
Robert W. Cushman
for *James W. Smith*

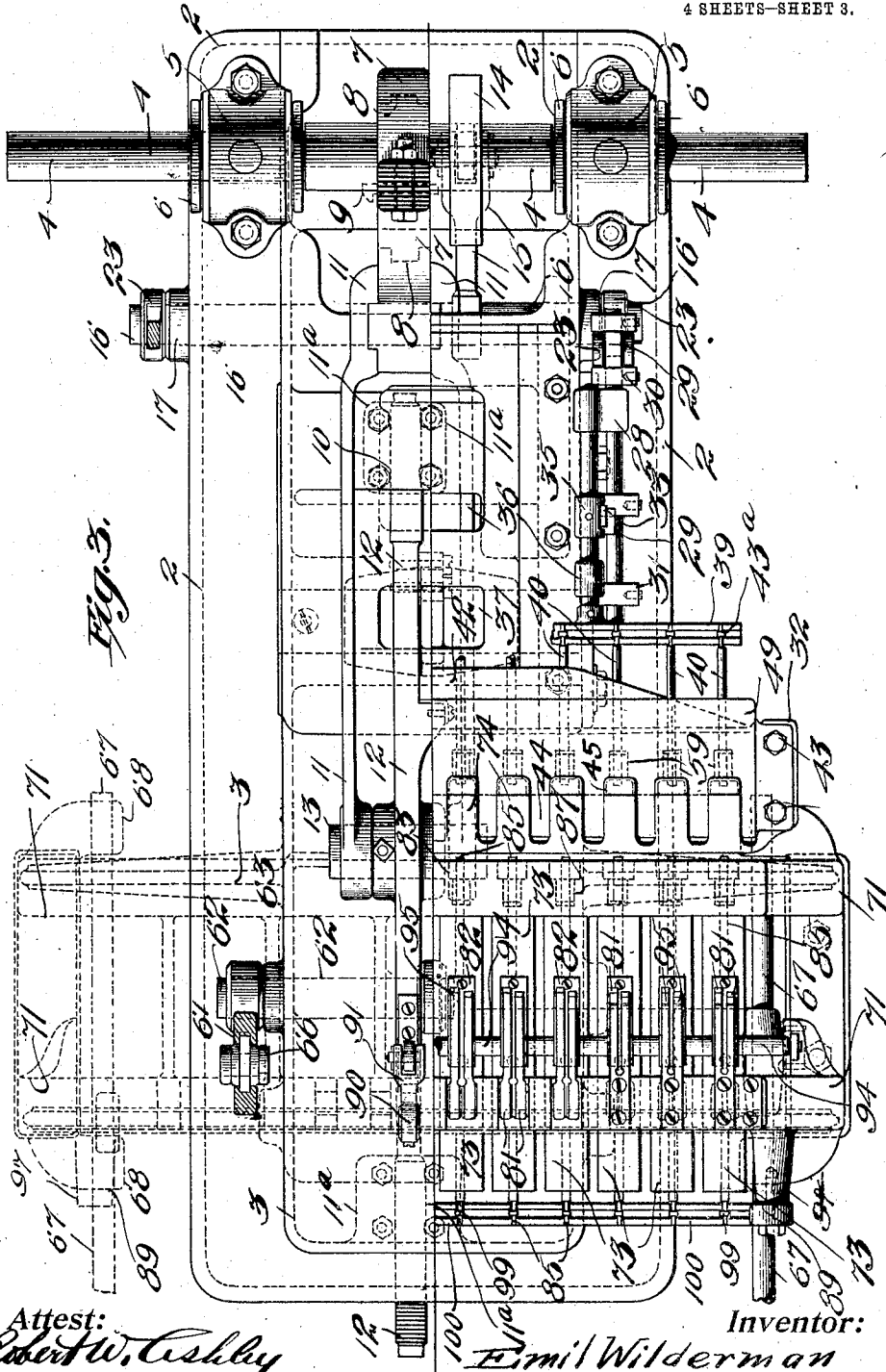
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Attest:
Robert W. Cuskey
of and for the Inventor

Inventor:
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4 SHEETS—SHEET 4.

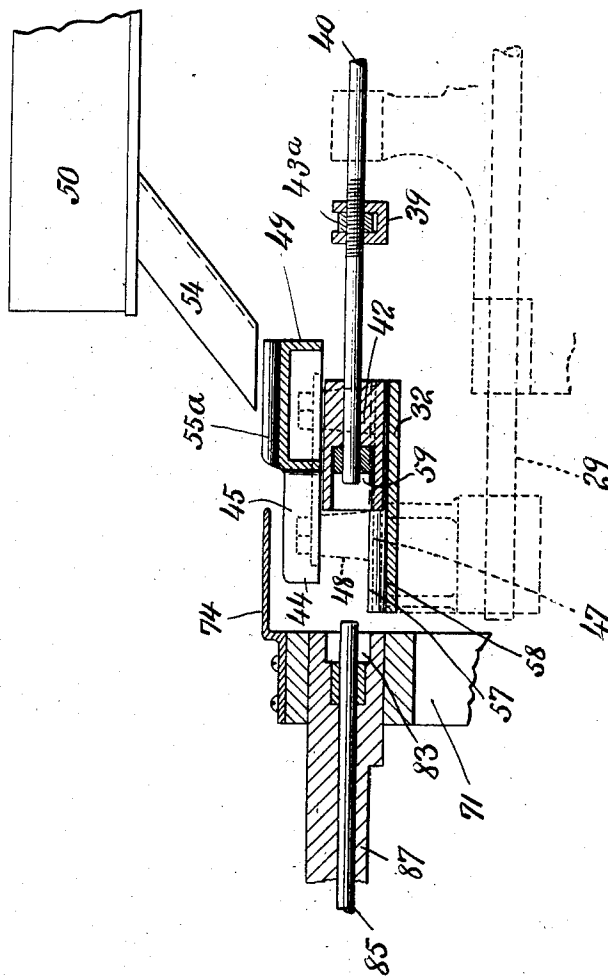


Fig. 4

Inventor
Emil W. Lehmann
By his Attorneys
Barney, Blaschke & Ogden

UNITED STATES PATENT OFFICE.

EMIL WILDERMAN, OF CARLSTADT, NEW JERSEY, ASSIGNOR TO HABICHT, BRAUN AND COMPANY, OF NEW YORK, N. Y.

NUT-CRACKING MACHINE.

1,043,555.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed June 10, 1907. Serial No. 378,092.

To all whom it may concern:

Be it known that I, EMIL WILDERMAN, a subject of the Emperor of Germany, residing at Carlstadt, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Nut-Cracking Machines, of which the following is a specification.

The invention relates to improvements in nut cracking and shelling machines and consists essentially in the features as hereinafter more fully set forth.

In the following is described in connection with the accompanying drawings one embodiment of the invention the features thereof being more particularly pointed out hereinafter in the claim.

In the drawings Figure 1 is a side elevation of the device, parts being shown in longitudinal section to more clearly illustrate the essential parts thereof; Fig. 2 is an end elevation, parts being shown in vertical cross section; Fig. 3 is a plan view, parts being cut away, illustrating the actuating mechanism of the device and Fig. 4 is a vertical sectional view along line 4, 4 of Fig. 2 looking in the direction of the arrows.

Similar numerals of reference indicate similar parts throughout the several views.

1 indicates side frames supported on base plate 2 and joined together at their respective ends by means of webs 3.

4 designates a drive shaft mounted in housed bearings 5, said bearings 5 being preferably cast with side frames 1. Collars 6 are mounted on drive shaft 4 adjacent to housed bearings 5 and are adapted to prevent strain or side movement of the shaft caused by its driving power. The means for driving said drive shaft 4 is not shown in the drawings, but it is obvious that the machine may be driven in any suitable manner as by a series of fast and loose pulleys and belt or by means of a chain of transmission gears connected directly with the driving means of a motor.

7 indicates an eccentric mounted on collar 8 which is in turn fastened to drive shaft 4 by means of key 9. Said eccentric 7 has pivotally connected therewith as at 10 crank arms 11, 11 pivotally connected at their other ends to eccentric rod 12 as at 13.

14 indicates an eccentric mounted on drive shaft 4.

15 is an arm fast on a rock shaft 16 and

which is pivoted to the eccentric 14, so that as the latter rotates the arm 15 is oscillated to rock the shaft 16 in its bearings 17.

Eccentric rod 12 has mounted on one side thereof blocks 18, 18 adapted to engage arm 19 as hereinafter described, arm 19 being mounted on shaft 20, finding bearings in side frames 1. One end of arm 19 is provided with a head 21 adapted to engage blocks 18, 18 and the other end of arm 19 carries a head 22 adapted to actuate the nut cracking and releasing devices. Shaft 16 has mounted at each end an operating arm 23 adapted to actuate the nut receiving table and releasing means as hereinafter described. A spring 24 is provided at each side of the machine, one end of each spring being fastened to a pin 25 mounted in side frame 1, the other end being fastened to the respective operating arms 23, to return said arms 23 to their normal positions when they are at their extreme stroke in either direction.

26 indicates a frame bolted to side frame 1, one at each side of the machine by bolts 27, each frame 26 having cast therewith bearings 28 adapted to receive an actuating rod 29 each of which has fastened on its outer end adjusting blocks 30, 30, and on their central portions adjusting blocks 31, 31, the object of said adjusting blocks 30, 30 being to provide means for engaging the upper ends of operating arms 23. Adjusting blocks 31, 31 act as means for limiting the movement of the receiving table 32 which is mounted on supports 32^a fastened to the extreme inner ends of actuating rods 29 and also as means for actuating the arms 33 pivotally mounted as at 34 in frames 26 at each side of the machine. The upper ends of arms 33 engage blocks 35 rigidly mounted on rods 36 which are in turn mounted in bearings 37 on said frames 26. Rods 36 have mounted on their inner ends a cross head 38 having fastened thereto a channel cross piece 39 which is adapted to carry a plurality of plunging rods 40 which extend longitudinally through openings 41 in casement 42, casement 42 being fastened to receiving tables 32 by means of bolts 43. Rods 40 are provided with adjusting nuts 43^a located in the channel in cross piece 39 for regulating the length of the operating portion of said rods. Table 32 has fastened on web portions 46 thereof a plate 47 having

formed thereon lugs 48 adapted to receive a feeding table 49 provided with a plurality of projecting lugs 44, the spaces between the lugs forming openings 45 to permit the discharge of nuts therethrough.

50 is a hopper comprising side and end members 51 and bottom 52. Said bottom 52 has formed therein a plurality of openings 53 in one or more rows as hereinafter described, the openings in each row being in direct alinement with a plurality of chutes 54 suitably fastened to the under side of bottom 52 and adapted to discharge into suitable reception pockets 55^a on table 49. Said hopper 50 is fastened to the frame 1 of the machine by means of downwardly extending rods or standards 55. It will be seen that with a machine operating on one side of the hopper one set of openings 53 are utilized, whereas with two machines arranged in juxtaposition the opposite set of openings may be utilized, one operator supplying nuts for both sets of openings. If only one machine is used the openings leading to the feeding table of the other may be closed by means of sheet metal capping 56 as shown in Fig. 1 of the drawings. Feeding table 49 also acts as a means for preventing the nuts from being fed onto the receiving table 32 when the operating parts thereof are in the position of cracking. The receiving surface of receiving table 32 has formed thereon a series of convolutions 57, the concave portions 58 thereof acting as the nut receiving sections after the nuts are permitted to pass through openings 45 in feeding table 49. Casement 42 is provided with sockets 59 at openings 41 adapted to receive one end of the nuts during the cracking operation.

Eccentric rod 12 has fastened on its inner end blocks 60 which act as bearing surfaces for arm 61 mounted on shaft 62 which is in turn mounted in lugs 63 on side frames 1. Shaft 62 has mounted at each end an arm 64 pivotally connected at their upper ends, as at 65, to frames 66 which are in turn mounted on rods 67 supported in bearings 68 preferably cast with side frames 1. Said side frames 1 have cast therewith upwardly projecting lugs 69 and 70 which support castings 71, 71 having formed therein bearings 72 adapted to receive sliding tubes 73. Castings 71, 71 on lugs 70 have mounted on their upper ends a plurality of prongs or fingers 74, to prevent one charge of nuts from leaving the feeding table 49 and passing on to the reception table 32, while the preceding charge is being cracked, and on the under portion of said castings 71, 71 are hooks 75 adapted to receive one end of tension springs 76, the other end of said springs being fastened to hooks 77 mounted on the extreme outer ends 78 of said sliding tubes 73. Upwardly projecting lugs 69

have formed on their extreme upper ends above castings 71, 71 bearings 79 adapted to receive a shaft 80 which has mounted thereon a plurality of pawls 81 adapted to engage racks 82 mounted on the top of sliding tubes 73. Pawls 81 are adapted to engage the teeth on racks 82 when sliding tubes 73 are at the full extent of their forward stroke and when the nut holders or sockets 83 mounted in the inner ends of said sliding tubes 73, receive the nuts from the reception table. Rods 85 having one end mounted in cross piece 86 at the rear ends of sliding tubes 73, and the other end resting in a bearing formed in the bottom of socket 83, are adapted to slide through tubes 73 in direct alinement with rods 40 operating in openings 41 in casement 42. Heads 87 are mounted on the ends of tubes 73 around and in front of sockets 83 and are adapted to form guides for the nuts into said sockets and to cooperate with sockets 59 during the cracking operation.

90 is a shaft mounted in side frames 1 and has mounted at each end an arm 91, the outer ends of said arms being adapted to support vertical lifting pins 92 mounted in bearings 93 in frames 1. Pins 92 have mounted on their upper ends a cross rod 94 adapted to rest normally against the under surface of pawls 81. Pawls 81 are held in their disengaging positions by means of rod 94 and in their engaging positions by means of flat springs 95 mounted on cross bar 96 on the upper end of projecting lugs 69 which force the pawls downward when rod 94 is lowered. Cross head 86 is fastened to lugs 97 cast with side frames 1 by means of bolts 98.

The rod 85 may be adjusted within the head 87 by means of the nut 99 on the shank portion of the rod and between the walls 100 of the channel cross head 86.

The operation of the device is as follows: The nuts are fed by hand from hopper 50 through openings 53 into chutes 54. The lower open ends of chutes 54 discharge directly upon table 49, whence the nuts pass through openings 45 and fall onto the concave surface 58 of the convoluted surface 57 of the nut reception table 32. The nuts will remain in this position until sliding tubes 73 are brought into operation by means of the eccentric rod 12 and arm 64. When in this position the nuts are caught up by sockets 83 and brought into the position for cracking by means of the forward movement of the sliding tubes 73. Pawls 81 fall into engagement with the teeth on rack 82 and hold the parts firmly in position while rods 40 and 85 are advancing and cracking the nuts. Rods 40 and 85 are brought forward by means of the mechanism shown and described and clear the sockets from any remaining portions or

parts of cracked nuts. While the machine is in the act of cracking one charge of nuts, a second charge in chutes 45 is resting on feed table 49 where they are held by means of fingers 74 and when the first charge of nuts is cracked and cleared away, the next charge will fall onto the convoluted surface of the reception table into cracking position. The forward movement of rods 40 and 85 described above as cleaning the sockets also causes the cracked nuts to fall onto a suitable inclined surface 101 whence they are conveyed to any desirable receptacles (not shown).

It is obvious that drive shaft 4, operating arms 11, and eccentric rod 12 actuating the nut cracking and releasing means, and that eccentric 14 actuating operating arms 23, will cause a reciprocating motion to the reception table and the means for releasing the nuts from their respective positions after having been cracked.

By referring to Fig. 1 it will be seen that the eccentric rod 12 carries a cam piece 110 adjustably secured to the rod by screws 111. On the shaft 90 is further mounted an arm carrying a cam roll 112, shown dotted behind the arm, and which coöperates with the said cam piece to rock the shaft 90 and the arm 91 to lift the pins 92. For different sizes of nuts this cam piece may be adjusted so as to regulate or time the lift of the pins 92 which in turn regulate or time the descent of the pawls 81 so as to regulate the motion of the tubes 73 and the sockets

83 to adapt themselves to the size of the nut to be cracked.

The machine while performing the above functions is continuously operating and it will be seen that a device of the nature as herein shown and described will considerably increase the cracking properties of an ordinary nut cracking apparatus.

It is further obvious that the device as herein described may be varied in many ways without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent of the United States is:

In a nut cracking machine a combination of a hopper, a table beneath said hopper, means for discharging nuts from said hopper onto said table, means for reciprocating said table, jaws beneath said table and moving therewith, means for discharging nuts from said table in front of said jaws, a second set of jaws opposing said first-named jaws, means for reciprocating said second set of jaws, means for adjusting the relative movement of said jaws toward each other to accommodate the varying size of the nuts and means for discharging the cracked nuts from between said jaws.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EMIL WILDERMAN.

Witnesses:

ROBERT W. ASHLEY,
HERMANN W. BRAUN.