

Dec. 19, 1939.

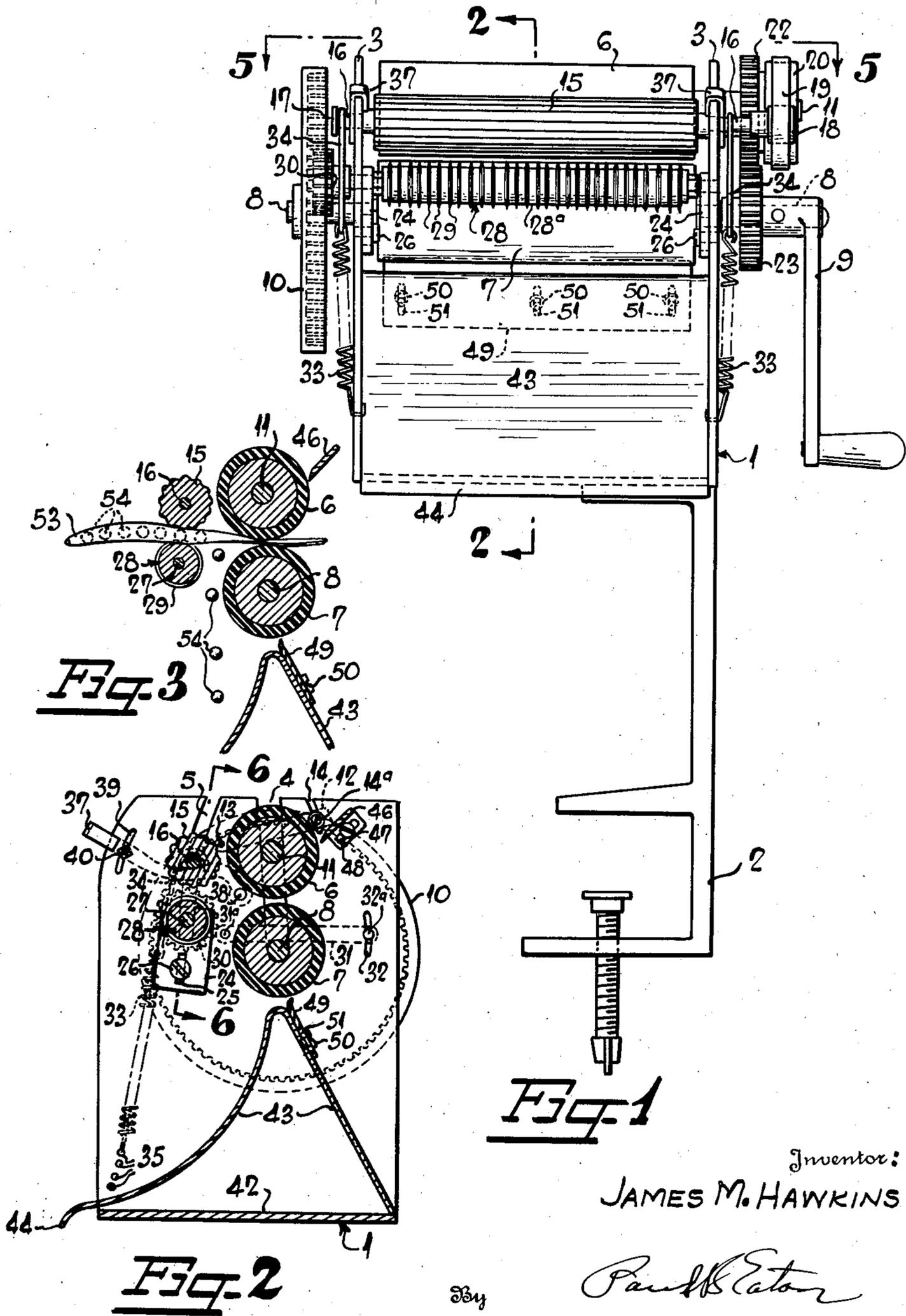
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2,183,769

PEA AND BEAN SHELLER

Filed July 28, 1938

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

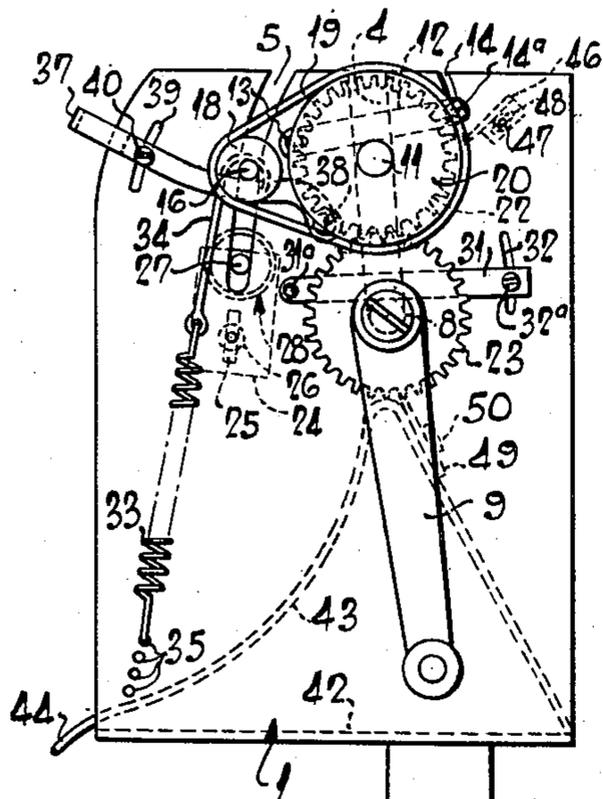


Fig. 4

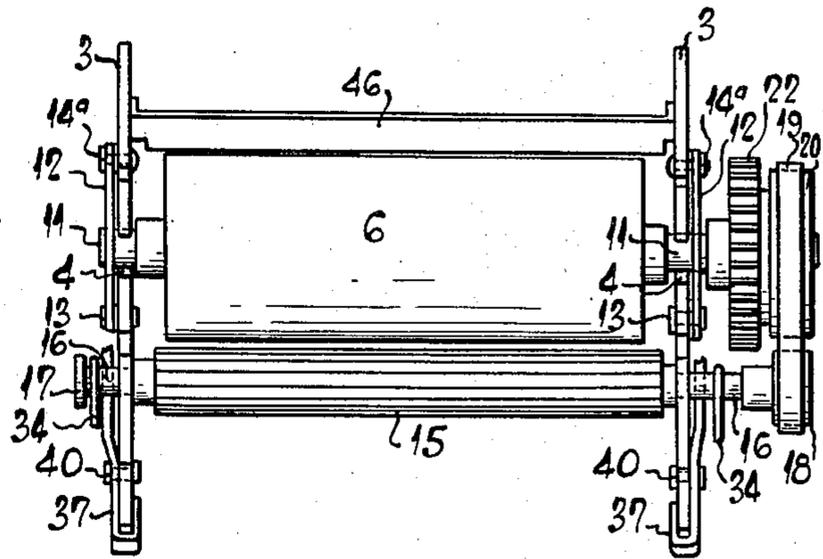


Fig. 5

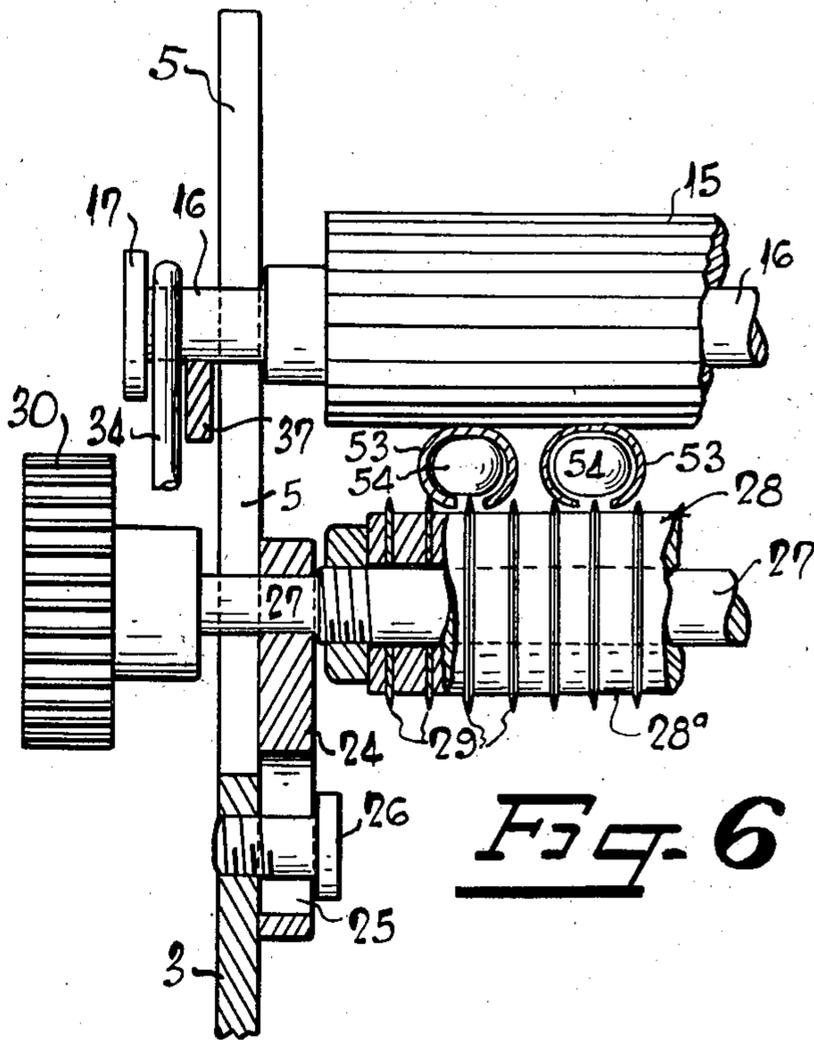


Fig. 6

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PEA AND BEAN SHELLER

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Application July 28, 1938, Serial No. 221,788

1 Claim. (Cl. 130—30)

The present invention relates to new and useful improvements in pea and bean shellers and has for one of its important objects to provide, in a manner as hereinafter set forth, a device of this character embodying a novel construction, combination and arrangement of the parts whereby substantially all of the green peas or beans may be removed from the hulls without being crushed or bruised.

Another very important object of the invention is to provide a sheller of the aforementioned character comprising novel means for splitting the hulls in a manner to facilitate the removal of the peas or beans therefrom.

Other objects of the invention are to provide a sheller of the character described which will be comparatively simple in construction, strong, durable, highly efficient and reliable in use, compact, light in weight, and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a front elevation of an embodiment of the invention;

Figure 2 is a transverse, sectional view taken along line 2—2 in Figure 1;

Figure 3 is a vertical sectional view similar to Figure 2, but showing the parts in operation;

Figure 4 is an elevation looking at the right-hand side of Figure 1;

Figure 5 is a plan view taken along line 5—5 in Figure 1;

Figure 6 is an enlarged vertical sectional view taken along line 6—6 in Figure 2.

Referring now to the drawings, in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a substantially U-shaped frame of suitable metal which is designated generally by the reference numeral 1. The frame 1 has fixed therebeneath a clamp 2 through the medium of which said frame is detachably secured on a table or any other suitable support. The upstanding side members 3 of the frame 1 have formed therein pairs of oppositely inclined slots 4 and 5, the upper portions of the latter being curved as shown to advantage in Figures 2 and 4 of the drawings. The reference numerals 6 and 7 designate smooth rubber or rubber covered ejecting or extracting rolls which are mounted in the slots 4 of the frame 1. The

rolls 6 and 7 are similar in size. The shaft 8 of the lower roll 7 is journaled in the lower end portions of the slots 4 and said shaft has fixed on one end portion thereof an operating crank 9. Fixed on the other end portion of shaft 8 is an internal gear 10. The shaft 11 of the upper roll 6 is journaled in intermediate portions of the slots 4 beneath bars 12 which are mounted on the side portions 3 of the frame 1 which extend across the slots 4. These bars are pivoted as at 13 to sidewalls 3 and their free ends are adjustably mounted in arcuate slots 14, by means of bolts 14a. Bars 12 function as positive stops for limiting the upward movement of the rubber roll 6 and also provide a means for vertically adjusting the play of the rubber roll. If desired, the bolts 14a may be loosened and rolls 6 and 7 removed from slots 4. The bars 12 function as positive stops for limiting the upward movement of the floating upper roll 6.

The reference numeral 15 designates a longitudinally corrugated metal feed roll, the shaft 16 of which is operable in the curved upper end portions of the slots 5. The shaft 16 is provided with a head 17 on one end. A pulley 18 is secured to the other end of shaft 16, which pulley has mounted thereon a belt 19. Belt 19 is also mounted on a pulley 20 which, in turn, is secured on the end of shaft 11. The roll 15 is approximately one-half of the diameter or size of the rolls 6 and 7. The roll 6 is driven in unison with the roll 7 through the medium of meshed gears 22 and 23 fixed on one end portion of shafts 11 and 8, respectively. Although considerably smaller than the rolls 6 and 7, the surface speed of the feed roll 15 is substantially the same as rolls 6 and 7.

Mounted on the inner sides of the portions 3 of the frame 1 are plates 24 of suitable metal. The plates 24 have formed in their lower portions vertical slots 25 which accommodate securing screws 26, thus permitting said plates to be adjusted vertically.

Rotatably mounted on the plates 24 is shaft 27 upon which gang knife 28 is mounted. Fixed on the shaft 27 at spaced points are knife discs 29. Fixed on one end of the shaft 27 is a gear 30 which is driven by the internal gear 10. It will thus be seen that the gang knife 28 is driven at considerably greater speed than the members 6, 7 and 15. Shaft 8 is confined in the lower portion of slots 4 by means of bars 31. These bars are pivoted as at 31a to the exterior of plate 3 and have their free ends adjustably secured in slots 32 by means of bolts 32a. The

The cutting edge of the disks 29 project beyond the periphery 28a a sufficient distance so as to slit the hull of a pea or bean but not the pea or bean contained within the hull.

5 It will be observed that the corrugated feed roll 15 is floatingly mounted in the curved upper portions of the slots 5. Tension springs 33 for the feed roll 15 have one end connected to the headed end portions of the shaft 16 through the
10 medium of hooks 34. The other ends of the springs 33 are adapted to be selectively hooked in openings 35 which are provided therefor in the lower portion of the frame 1. The springs 33 normally pull the ends of shaft 16 downwardly
15 in slots 5 and against the upper intermediate portion of bars 37. Each of these bars is pivoted as at 38 to the exterior of plate members 3 and have their free ends adjustably mounted in slots 39 by means of bolts 40. The bars 37 act as a
20 stop to limit the lowermost position of the shaft 16 and roll 15. It will thus be seen that rising of the feed roll 15 in the slots 5 will be yieldingly resisted. Mounted on the lower portion 42 of the frame 1 is what may be con-
25 sidered a substantially V-shaped guide 43 which is located beneath the lower roll 7 and which is adapted to deflect the hulls and the peas or beans which have been extracted therefrom as they drop from the rolls 6 and 7. The member
30 43 includes an extension 44 which projects beyond the base portion 42 of the frame 1, as seen in Figures 1, 2 and 4 of the drawings. Of course, suitable receptacles may be positioned beneath the opposite sides of the member 43 for
35 receiving the peas or beans and the hulls.

In order to prevent substances from accumulating upon the periphery of roll 6, a suitable stationary scraper 46 is provided with one edge thereof barely clearing roll 6. This scraper is
40 adjustably secured between sides 3 by means of set screws 47, said screws penetrating slots 48 in the downturned flanges on the ends of the scraper. A similar scraper 49 is provided for roll 7 and this scraper is adjustably secured to
45 the upper portion of member 43 by means of suitable set screws 50 which penetrate slots 51.

50 It is thought that the operation of the device will be readily apparent from a consideration of the foregoing. The peas or beans are fed in any suitable manner between the roll 15 and the gang knife 29 (Figures 3 and 6). Thus, the hulls 53 are rapidly split longitudinally. The knife discs 29 travelling considerably faster than the elements 6, 7, and 15, slice the hulls or pods

longitudinally. After being thus sliced longitudinally on one side, the hulls or pods, with the peas or beans 54 still therein, are gripped by and drawn between the rolls 6 and 7. The rolls 6 and 7 coact with each other to squeeze the beans or
5 peas out of the longitudinally slit hulls or pods. The peas or beans 54 thus removed fall by gravity on one side of the member 43 and the hulls or pods 53, after passing between the rolls 6 and 7, drop by gravity on the other side of said
10 member 43.

15 It is believed that the many advantages of a pea or bean sheller constructed in accordance with the present invention will be readily understood and although a preferred embodiment of the device is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangements of parts may be resorted to which will fall within the scope of the invention as
20 claimed.

In the drawings and specification there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being set forth in the appended claim.

I claim:

30 In a green pea and bean sheller, a framework having a pair of parallel sidewalls, each of said sidewalls having a pair of inclined slots therein, the upper ends of the slots being closer together than the lower ends, a pair of squeeze rolls mounted in one pair of slots in each of the side
35 walls and having their peripheries spaced a short distance from each other, a pair of feed rolls mounted in the other pair of slots for feeding peas and beans between the squeeze rolls, the lower of said feed rolls having a plurality of disk
40 knives forming a part thereof, and extending beyond the main periphery of the lower feed roll a distance just sufficient to slit the pea and bean hulls but without mutilating the peas and beans contained within the hulls, means for rotating
45 the squeeze rolls and means for driving the uppermost feed roll at substantially the same surface speed as that of the squeeze rolls, and means for driving the lowermost feed roll having the disk knives at a substantially greater surface
50 speed than the upper feed roll to thereby slit the hulls of the peas and beans before they are engaged by the squeeze rolls.

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