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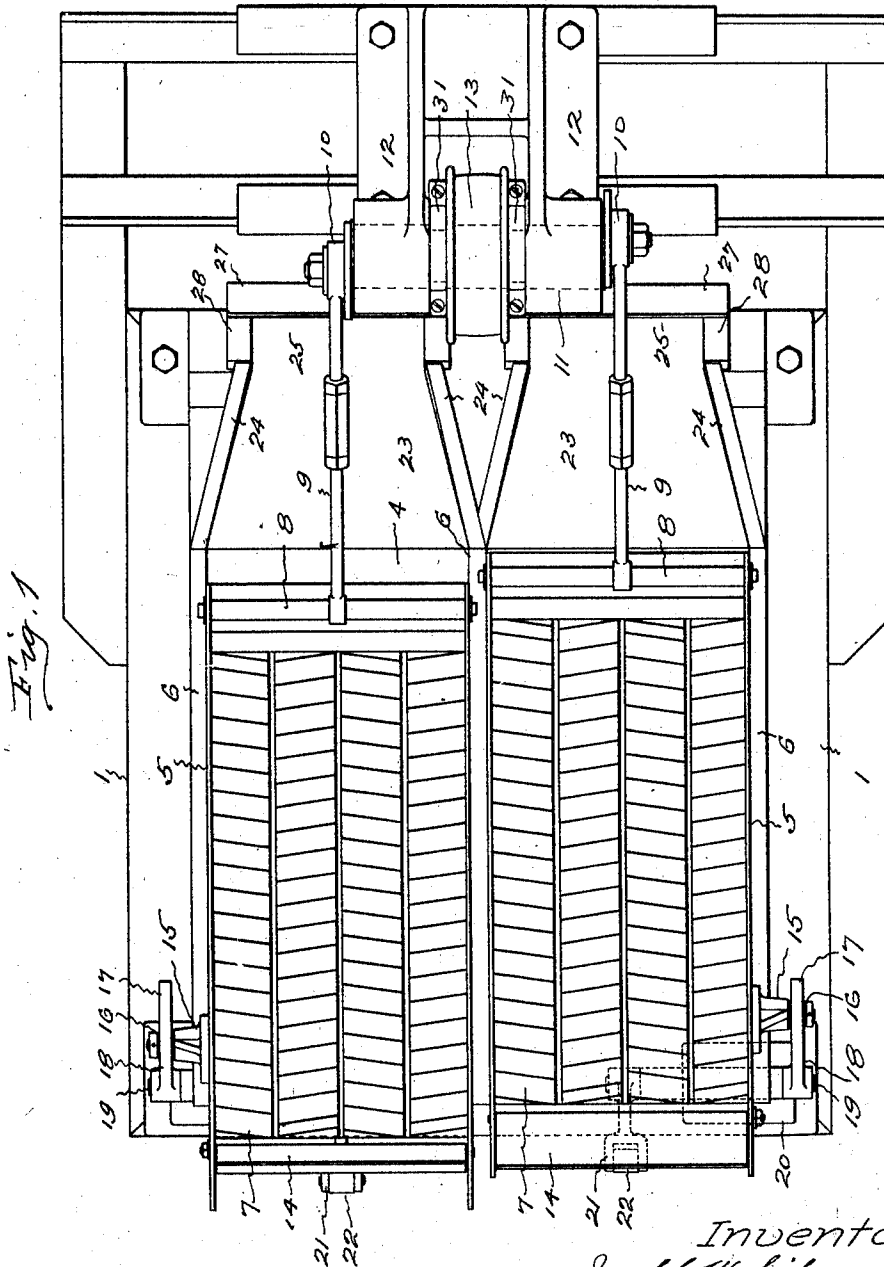
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MACHINE FOR MAGAZINING NUTS

Filed Nov. 25, 1927

2 Sheets-Sheet 1



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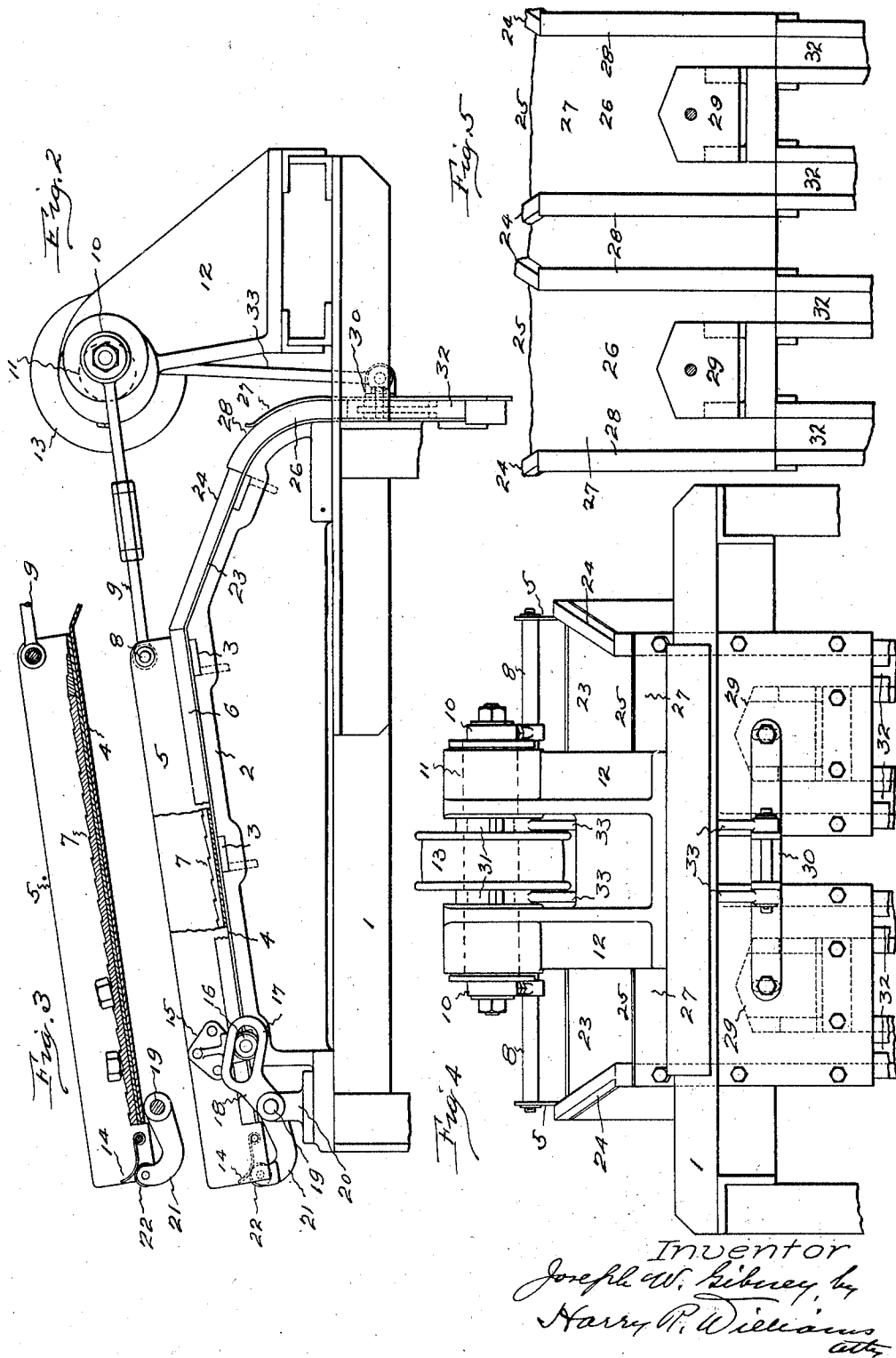
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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAGAZINING NUTS.

Application filed November 25, 1927. Serial No. 235,461.

This invention relates to a machine for delivering to a magazine crowned nuts all faced in the same direction so that subsequent operations, such as facing, necking or similar operations, may be correctly performed on them.

The object of the invention is to provide a simple machine which will receive crowned nuts in promiscuous masses and automatically stack them in the magazine of a machine, with their backs all facing the tool or tools that are to perform the subsequent operations.

This object is attained by arranging a tray that has the upper face of its bottom serrated on an incline and reciprocating this tray by suitable mechanism in such manner that those nuts which fall back down on the bottom of the tray will be caught by the edges of the serrations and kicked forward until they pass over the top end and slide down a trough and into the chutes of the magazine, while those nuts which fall crown face on the bottom of the tray will slide down the incline, not being caught by the edges of the serrations, until they reach the lower end where they are engaged by an oscillating wing which is actuated by the reciprocations of the tray so as to flip the nuts back onto the serrated bottom, which action generally turns the nuts over so that they will be engaged by the serrations and then advanced up the incline to the trough which directs them into the magazine chutes.

In the drawings a double machine is illustrated, that is, a machine which has two reciprocating trays and flapping wings arranged to deliver the nuts all faced in the same direction into four magazine chutes. Fig. 1 shows a plan of the machine which may be mounted on a table or bench, or can be attached directly to the machine that is to perform the subsequent operations on the nuts. Fig. 2 shows a side elevation of the machine. Fig. 3 is a longitudinal section taken through one of the reciprocatory trays to show its serrated bottom and flapping wing. Fig. 4 shows an elevation of the delivery end of the machine. Fig. 5 shows an elevation of the magazine troughs into which the properly faced nuts are delivered.

The bed 1 may be supported in any suitable manner. Mounted upon the bed are brackets 2 with inclined upper faces. These brackets are fastened to the top of the bed and are braced by bridging pieces 3. A plate 4 is fastened to the tops of the brackets. In the machine illustrated there are two similar trough shaped trays 5 that are slidable longitudinally on the inclined plate 4 between guide bars 6. Fastened to the inside of the bottom of these trays are plates 7 that are serrated to provide teeth which face upwardly. These plates are placed in the trays so that the serrations will be staggered, as shown in Fig. 1.

Extending across the upper end of each tray is a rod 8 which is connected by a link 9 with a crank 10 on a shaft 11 that is supported by bearings in brackets 12 which are fastened on the top of the bed. The shaft between its bearings is provided with a driving pulley 13. As this pulley is rotated cranks and links cause a rapid reciprocation of the trays up and down the incline ways in which they are held.

Extending across each tray near its lower end is a wing 14 that is pivotally supported by the sides of the tray. On the outside of each tray and movable therewith is a bracket 15 carrying a roll 16 which lies in the link 17 of a rocker arm 18 attached to a shaft 19 that is supported by a bracket 20 fastened to the bed. This shaft at the center of the tray has an upwardly extending finger 21 which carries a roll 22 that is designed to engage the back of the wing that extends across the lower end of the tray. As a tray moves down the incline the roll engaging the link in the rocker arm throws the finger upward against the wing, which moves down with the tray, and causes the wing to be quickly oscillated toward the upper end of the tray. When the tray moves upward the finger is oscillated away from the back of the upwardly moving wing, and allows the wing to swing down.

The nuts are dumped in a promiscuous mass upon the inclined serrated plates in the trays. Those nuts which fall with their inner faces down are engaged by the teeth of the serrations, while those nuts which land

with the crown faces down on the plates are not engaged by the teeth of the serrations as illustrated in Fig. 3. As the cranks revolve and the trays are reciprocated those nuts which are engaged by the teeth are intermit-
 5 tently kicked forward and upward by the teeth until they reach and pass over the top, while the nuts that are not engaged by the teeth slide down to the bottom into the path of the oscillating wings and by them are
 10 thrown up onto the serrated plates. When thus thrown up they usually are turned over and land with the inner faces down, but should they not so land they return to the wings and are again thrown up until they do
 15 land with the crowns up, and then are advanced to the upper ends of the trays.

Fastened to the brackets 2, and extending across the upper ends of the trays is a down-
 20 wardly sloping plate 23 upon which are guide bars 24 that provide tapering troughs 25 down which the properly faced nuts slide when they are kicked off from the trays. Leading from these inclined troughs are ver-
 25 tical channels 26 formed by plates 27 and guide bars 28. In each of these channels is a vertically movable plate 29 with a wedge shaped upper end. These plates are joined by a bar 30 that is connected by rods 33 with
 30 eccentrics 31 on the driving shaft. Extending down from the lower end of each of these vertical channels are two chutes 32, each of which has a cross sectional area of a size to receive a nut. As the nuts slide down the
 35 troughs into the vertical channels, the reciprocations of the pointed plates agitate them so that some fall into one chute and others fall into the other chute, and thus the nuts become stacked, in the machine illustrated, in
 40 four magazine chutes, all facing in the same direction.

It requires but a little power to operate one of these machines and they run continu-
 45 ously and quickly deliver nuts properly faced as long as nuts are supplied to the reciprocating trays. The machine could be built with a single reciprocating tray but it is preferred to make it a twin machine, that is, with two
 50 trays as illustrated, each of which is designed to deliver nuts properly related to two magazine chutes.

The invention claimed is:

1. A machine for magazing nuts which comprises a tray movably supported on an
 55 inclined path and having the upper surface of its bottom provided with serrations the teeth of which face upward and alternately incline in reverse directions, mechanisms for reciprocating the tray longitudinally up and
 60 down said inclined path, and a channel extending from the upper end of the tray for receiving the nuts which are advanced by the tray and thrown over the upper end thereof.

2. A machine for magazing nuts which
 65 comprises a tray movably supported on an

inclined path and carrying longitudinally ex-
 tending plates provided with transverse serrations the teeth of which face upward, said
 plates being arranged so that the serrations incline in reverse directions, mechanism for
 70 reciprocating the tray longitudinally up and down said inclined path, and a channel extending from the upper end of the tray for receiving the nuts which are advanced up the
 75 tray and over the upper end thereof.

3. A machine for magazing nuts which comprises a tray movably supported on an in-
 cline and having the upper surface of its bot-
 tom provided with serrations the teeth of
 80 which face upward, mechanism for reciprocating the tray, an oscillatory wing extending across the lower end of the tray, mechanism for oscillating said wing, and a channel extending from the upper end of the tray for
 85 receiving the nuts which are advanced up the tray and over the upper end thereof.

4. A machine for magazing nuts which comprises a tray movably supported on an in-
 cline and having the upper surface of its bot-
 90 tom provided with serrations the teeth of which face upward, mechanism for reciprocating the tray, an oscillatory wing extending across the lower end of the tray, mechanism actuated by the reciprocations of the
 95 tray for oscillating said wing, and a channel extending from the upper end of the tray for receiving the nuts which are advanced up the tray and over the upper end thereof.

5. A machine for magazing nuts which comprises a tray movably supported on an
 100 incline and having the upper surface of its bottom provided with serrations the teeth of which face upward, mechanism for reciprocating the tray, an oscillatory wing extending across the lower end of the tray, a finger for
 105 throwing the wing upwardly, mechanism for oscillating said finger, and a channel extending from the upper end of the tray for receiving the nuts which are advanced up the
 110 tray and over the upper end thereof.

6. A machine for magazing nuts which comprises a tray movably supported on an
 incline and having the upper surface of its
 115 bottom provided with serrations the teeth of which face upward, mechanism for reciprocating the tray, a channel extending from the upper end of the tray for receiving the nuts which are advanced up the tray and over the
 120 upper end thereof, an agitator movable in said channel, and mechanism for reciprocating said agitator.

7. A machine for magazing nuts which comprises a tray movably supported on an
 incline and having the upper surface of its
 125 bottom provided with serrations the teeth of which face upward, mechanism for reciprocating the tray, a channel extending from the upper end of the tray for receiving the nuts which are advanced up the tray and over the
 130 upper end thereof, a plurality of chutes ex-

tending from said channel and means movable in the channel for directing nuts therefrom into the chutes.

5 8. A machine for magazing nuts which comprises a tray movably supported on an incline, mechanism for reciprocating the tray, said tray having the upper surface of

its bottom shaped to advance nuts upward as it is reciprocated, means at the lower end of said tray for throwing upward on to the tray 10 such nuts as are not advanced thereby, and means for actuating said nut throwing means.

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