

No. 708,255.

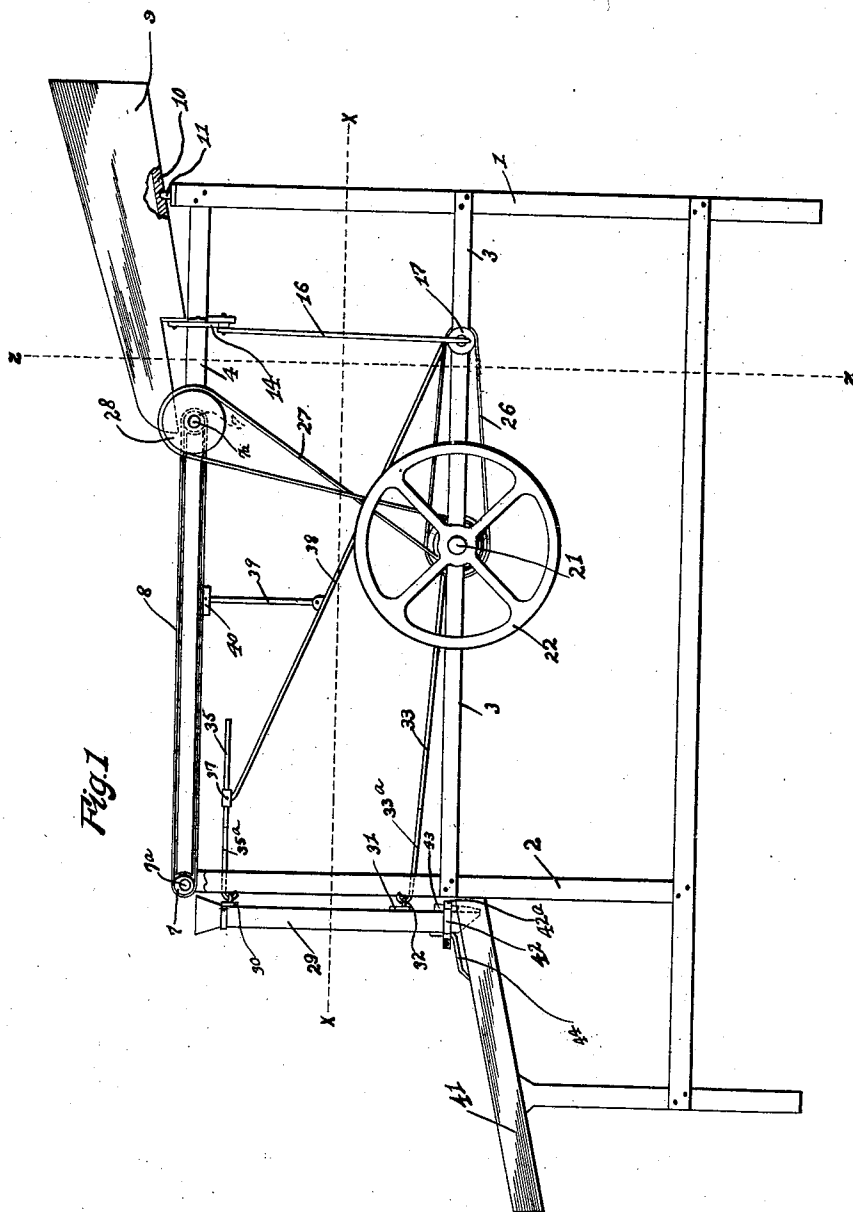
Patented Sept. 2, 1902.

B. PROUTY & W. H. BUDD, JR.
CRACKER STACKING MACHINE.

(Application filed Apr. 4, 1902.)

(No Model.)

3 Sheets—Sheet 1.



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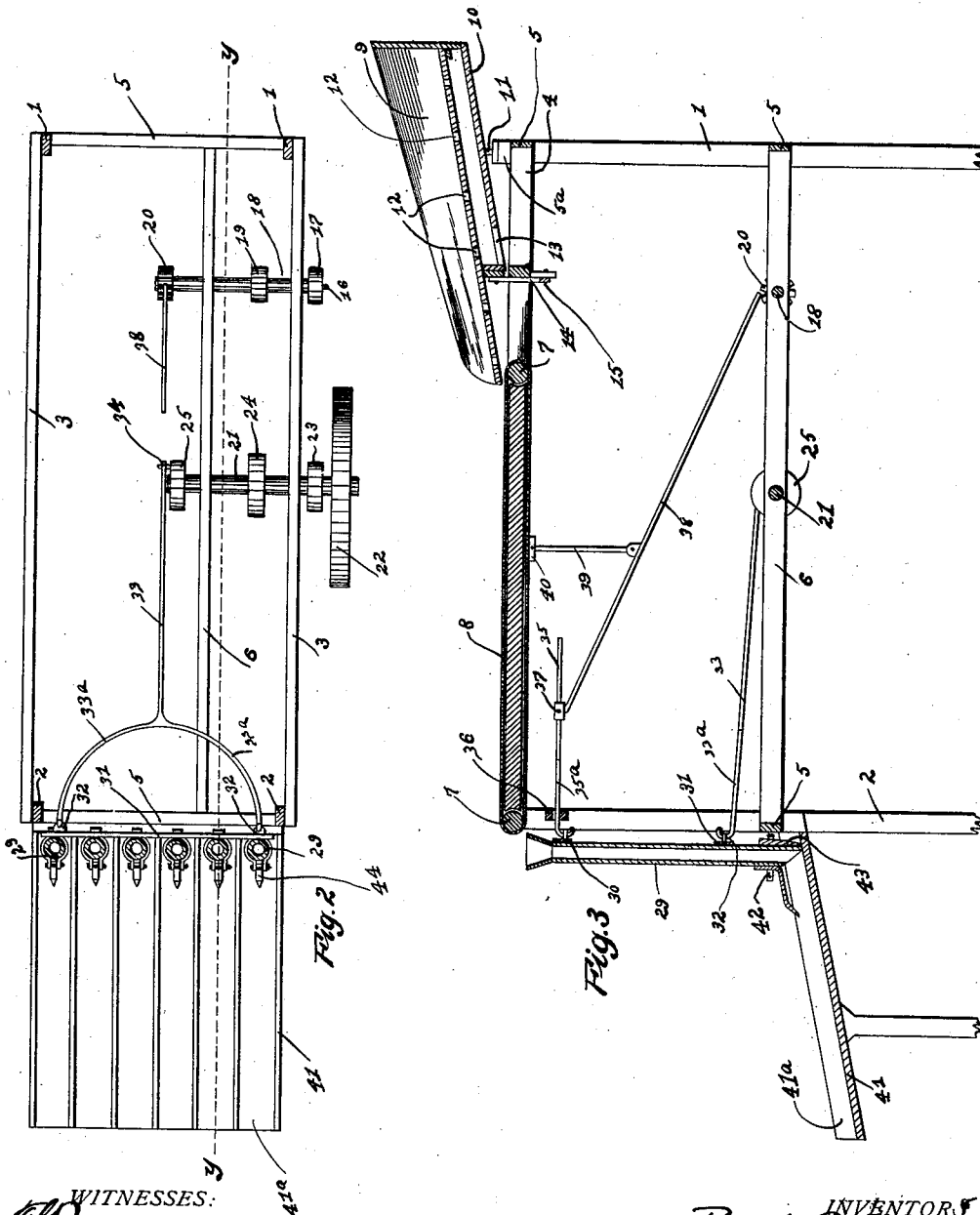
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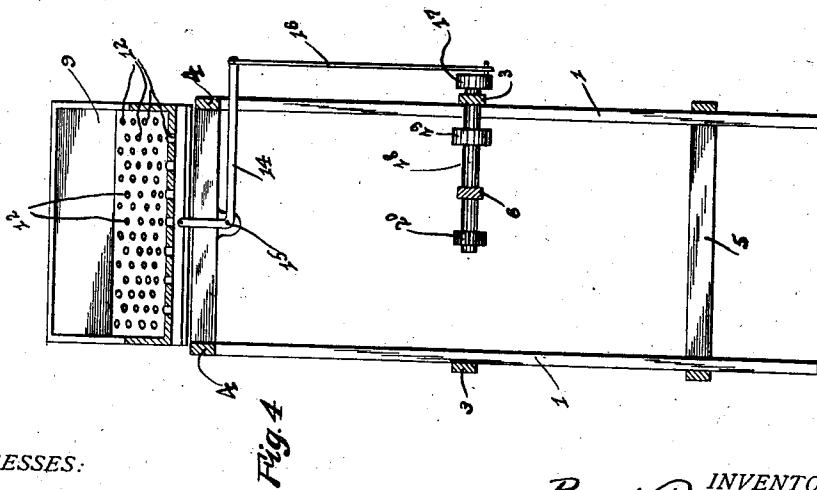
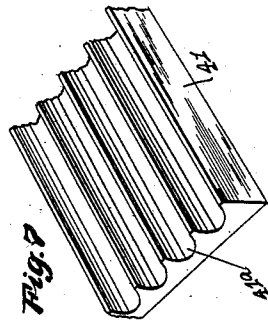
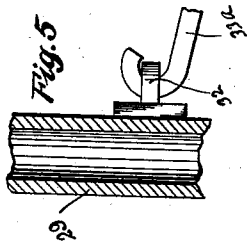
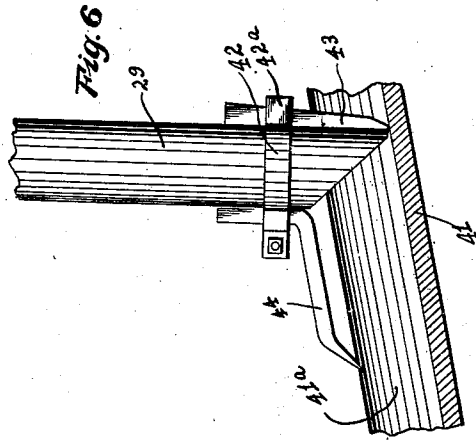
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UNITED STATES PATENT OFFICE.

BURT PROUTY AND WILLIAM H. BUDD, JR., OF COLUMBUS, OHIO.

CRACKER-STACKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 708,255, dated September 2, 1902.

Application filed April 4, 1902. Serial No. 101,323. (No model.)

To all whom it may concern:

Be it known that we, BURT PROUTY and WILLIAM H. BUDD, Jr., citizens of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Cracker-Stacking Machines, of which the following is a specification.

Our invention relates to the improvement of cracker-stacking machines; and the objects of our invention are to provide an improved mechanism whereby crackers or biscuits may be assembled and stacked or packed in parallel positions, to construct our improved machine in a simple manner, and to produce certain improvements in details of construction and arrangement of parts which will be more fully pointed out hereinafter. These objects we accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of our improved machine, showing for the sake of clearness a portion of the upper horizontal frame-bar removed. Fig. 2 is a sectional view on line *xx* of Fig. 1. Fig. 3 is a vertical section, indicated by the line *yy* in Fig. 2. Fig. 4 is a transverse section on line *zz* of Fig. 1. Fig. 5 is a detail view in section of a portion of one of the cracker conducting and assembling tubes. Fig. 6 is a view in elevation of the lower end portion of one of said tubes, showing a portion of the discharge-table in section; and Fig. 7 is a detail view in perspective of a portion of said discharge-table.

Similar numerals refer to similar parts throughout the several views.

In carrying out our invention we employ an upright framework in which is included front end standards 1, rear end standards 2, side frame-bars 3 and 4, and upper and lower end frame-bars 5. The lower end frame-bars 5 are connected by a longitudinal frame-bar 6, which extends, as shown in Fig. 2 of the drawings, on one side of the center of the width of the machine. Journaled between the upper horizontal frame-bars 4 are the spindles 7^a of rolls 7, one of these rolls being arranged at what we will term the "rear end" of the machine and the remaining roll being located at a point in rear of the front of the machine-frame. The rolls 7 carry an endless conveying apron or belt 8. Supported above

the forward end of the machine-frame, with its forward point in position to discharge its contents upon the apron 8, is an inclined hopper or feed-receptacle 9, said hopper being formed with an under side compartment 10, the bottom of which is at 11 pivotally connected with a forward and upper cross frame-bar 5^a. The bottom plate of the hopper 9 is, as indicated at 12, perforated, while the under side compartment 10 has formed in its lower side, adjoining its lower and rear end, an outlet-opening 13. To the outer side of the rear wall of the compartment 10 is pivoted the upper end of the upwardly-extending arm of a bell-crank lever 14, this lever being fulcrumed, as indicated at 15, at the junction of its outwardly and upwardly extending arms. The outwardly-extending arm of said lever 14 has a jointed or pivotal connection with the upper end of a downwardly-extending eccentric-rod 16. The lower end of this rod 16 is eccentrically connected with a wheel or disk 17, which is carried on the outer end of a horizontal shaft 18, which bears in the frame-bars 3 and 6. This shaft also carries a comparatively small belt-wheel 19 and a toothed wheel 20. At a point in rear of the shaft 18 we journal in a similar manner a shaft 21, this shaft 21 carrying on its outer end portion a belt or power wheel 22 and at other points on said shaft small belt-wheels 23 and 24. The shaft 21 also carries on its inner end a suitable wheel or disk 25. Through the medium of a belt 26 the wheels 24 and 19 are connected, and through the medium of a crossed belt 27 the wheel 23 and a wheel 28, carried on the end of one of the roller-spindles 7^a, are connected.

Arranged in front of the main frame of the machine and extending from a point slightly below the upper level of the framework is a transverse row of parallel and vertical cracker-conducting tubes 29, these tubes being connected in their upper and lower portions and on their rear sides by transverse bars 30 and 31. The lower bar 31 is provided on opposite sides of the center of its length with projecting eyes 32, with which are engaged the hook-shaped ends of the yoke-like termination 33^a of a forwardly-extending rod 33, the latter being eccentrically connected at its end, as indicated at 34 in Fig. 2, with the wheel 25 of

the shaft 21. The upper tube-connecting bar 30 is similarly connected with the ends of a correspondingly-shaped yoke termination 35^a of a horizontally-disposed rod 35, the latter extending loosely through an opening in the cross frame-bar 36, which extends between the standards 2. The inner end portion of the rod 35 is connected at 37 with the upper end of a forwardly and downwardly extending vibrating rod 38, the latter being supported near the center of its length by being pivotally connected with the lower end of a depending hanger-rod 39, the upper end of which is connected with a cross-bar 40, which extends beneath the upper horizontal frame-bars 4. The lower and forward end of the rod 38 bears upon the upper sides of the teeth of the toothed wheel 20 of the shaft 18. As indicated more clearly in Fig. 6 of the drawings, the lower end of each of the tubes 29 is cut to a bevel form, so that the rear portions of said tubes extend lower than the forward portions thereof, as shown. These extended rear portions of the tubes terminate, when said tubes are in vertical positions, within the bottoms and rear end portions of parallel upper side grooves 41^a of a table 41, which table inclines from the rear portion of the framework in the manner indicated in Figs. 1 and 3 of the drawings. About the lower end portion of each of the tubes 29 is arranged a clamp or collar 42, (see Figs. 6 and 3,) this clamp or collar being provided on the rear side of the tube with a keeper-like projection 42^a, through which is adapted to slide loosely a follower-pin 43, the latter having its lower and preferably pointed or beveled end portion bearing on the bottom of the corresponding groove 41^a of the table 41. On the forward side of the tube 29 the clamping-ring 42 serves to hold, in connection with said tube, the upwardly-extending shank portion of an outwardly-extending finger 44, this finger having its outer end inclined downward, and, as indicated more clearly in Fig. 6, the lower termination of said downwardly-inclined finger portion is when the tube is in a vertical position adjacent to the upper side of the table 41.

In operation the crackers to be assembled or stacked are deposited in the hopper 9, from which they are fed onto the endless belt 8. Motion is communicated to the belt-wheel 22 and its shaft 21 by a belt from a suitable source of power, and through the connection of the belt-wheels 24 and 19 rotary motion is communicated to the shaft 18. The belt 27, which connects the wheels 28 and 23, serves to impart a traveling motion to the carrying apron or belt 8. The eccentric connection of the rod 16 with the wheel 17 of the shaft 18 results in an upward and downward or reciprocating motion of said rod 16, which through its connection with the bell-crank 14 operates to rock the latter on its pivot, causing a lateral or shaking motion of the hopper 9. This motion of the pivoted hopper results in shaking

the crackers contained therein onto the belt 8, while the comparatively small pieces of broken crackers will find an outlet through the openings or perforations 12 of said hopper-floor, thence into the inclined compartment 10, from which they will be discharged through the opening 13. The movement of the belt 8 results in delivering the crackers carried thereby into the enlarged mouths of the tubes 29, with the result that the crackers are discharged from the inclined lower ends of said tubes in upright or substantially upright positions within the grooves or channels 41^a of the table 41. During this operation of feeding the crackers into said channels the reciprocating motion of the rod 33 results, through the connection of its yoke termination with said tubes, in swinging the lower end portions of the tubes outward and inward. At each outward movement of each tube a number of the recently-discharged crackers are forced outward and downward in the table-channel, part of the crackers thus forced outward passing the downturned end or point of the finger 44 when the latter is lifted by said outward-swinging motion of the tube. In the return of the lower end of the tube, however, toward a vertical position it is obvious that the last-discharged crackers will through engagement with the outer one of the same be retained in the inner end portion of the table-groove, thereby maintaining in the inner end of the table-groove a small number of stacked or assembled crackers, which will form a guide or basis for the stacking or assembling of the crackers which are next discharged from the tube. It will thus be seen that at each outward-swinging movement of the tubes a certain proportion of the crackers will be moved outward in the tubes beyond the fingers and that the crackers so moved will be stacked or assembled in positions facilitating the removal of the same for packing. It will also be observed that as the tubes move outward and the ends of said tubes move upward and out of contact with the bottoms of the grooves of the table the follower-pins 43 will gradually slip downward through the keeper projections 42^a of the clamps 42 and retain a frictional contact with said groove-bottoms, the lower ends of the pins in this manner serving when the tubes are thus raised or swung outward by contact therewith to retain the crackers in their upright positions.

In order to insure the proper movement of the crackers through the tubes and prevent tendency toward the same choking or becoming clogged therein, we provide the vibrating rod 38 and the connection of the same with the upper portions of the tubes, said rod 38 by contact with the teeth of the wheel 20 during the rotation of the latter having imparted thereto a vibratory movement which is communicated to the tubes, but which vibratory movement is not sufficient, as will be under-

stood, to move the enlarged mouths of the tubes out of positions for receiving the crackers discharged from the apron 8.

From the construction and operation herein shown and described it will be seen that a simple, reliable, and effective mechanism is provided for collecting and stacking or assembling crackers in condition for facilitating the packing of the same.

Having now fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a cracker-stacking machine, the combination with a framework and a hopper pivotally mounted thereon, of cracker-conducting tubes movably connected with said framework and a cracker-carrying mechanism arranged between said hopper and the mouths of said tubes, substantially as specified.

2. In a cracker-stacking machine, the combination with a framework and a grooved table arranged adjacent thereto, of a plurality of tubes having their lower ends beveled or inclined and extending within said table-grooves and means for imparting a swinging motion to said tubes, substantially as specified.

3. In a cracker-stacking machine, the com-

bination with a framework, and a grooved table arranged adjacent thereto, of a plurality of cracker-conducting tubes having their lower end portions extending within the grooves of said table and having said lower end portions beveled as described, a finger extending outwardly from each of said tubes and adapted when said tubes are in a vertical or substantially vertical position to engage the upper portion of a cracker arranged on edge within the groove of said table and means for imparting a swinging movement to the tubes, substantially as specified.

4. In a cracker-stacking machine, the combination with a framework and a grooved table arranged adjacent thereto, of a plurality of cracker-conducting tubes having their lower beveled ends discharging within the grooves of said table, means connected with the lower portions of said tubes for imparting a swinging motion thereto and means for imparting a vibratory motion to the tubes, substantially as specified.

BURT PROUTY.

WILLIAM H. BUDD, JR.

In presence of—

C. C. SHEPHERD,

A. L. PHELPS.