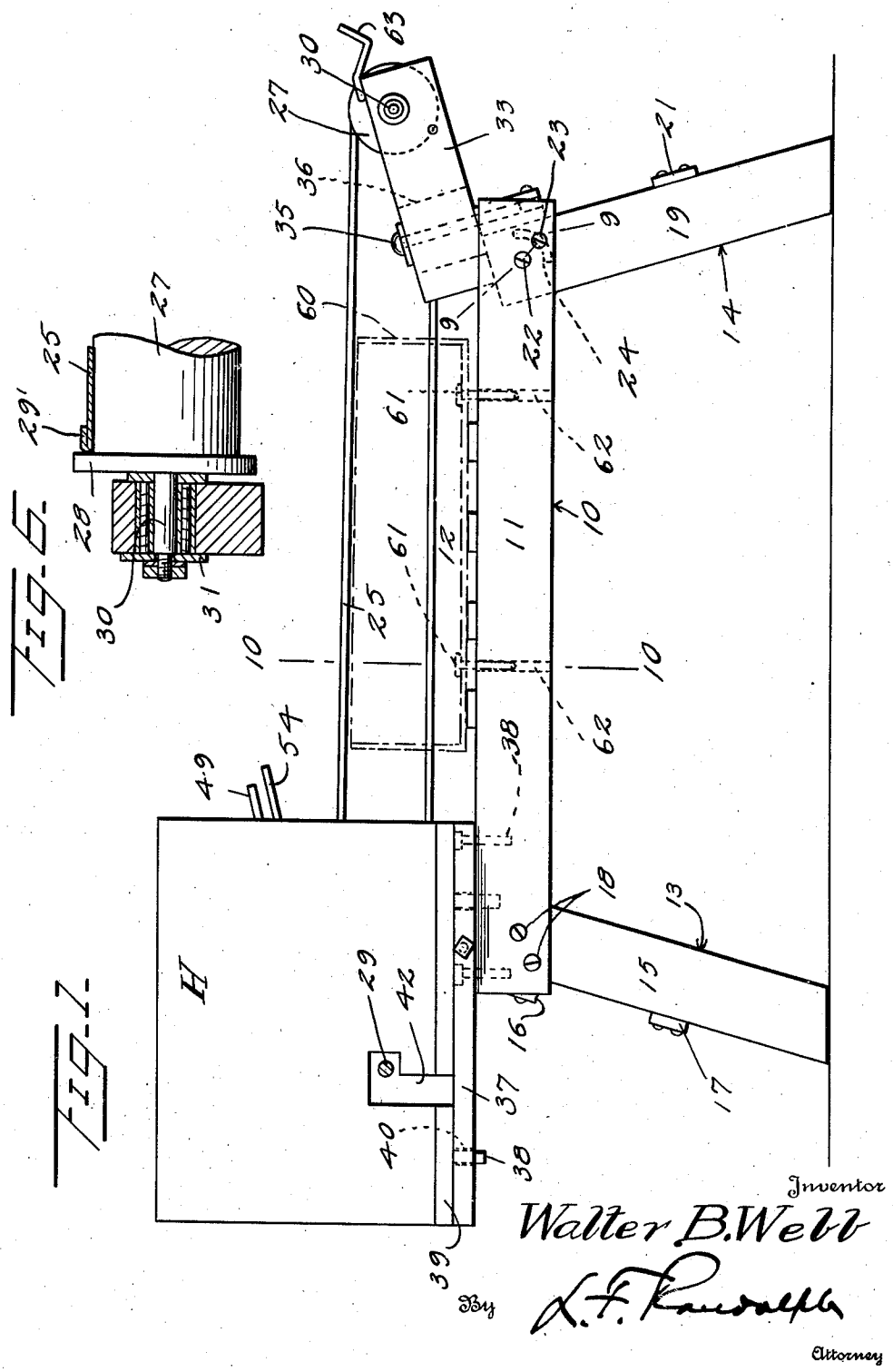
July 13, 1943. W. B. WEBB 2,324,446

HAND BEAN PICKER

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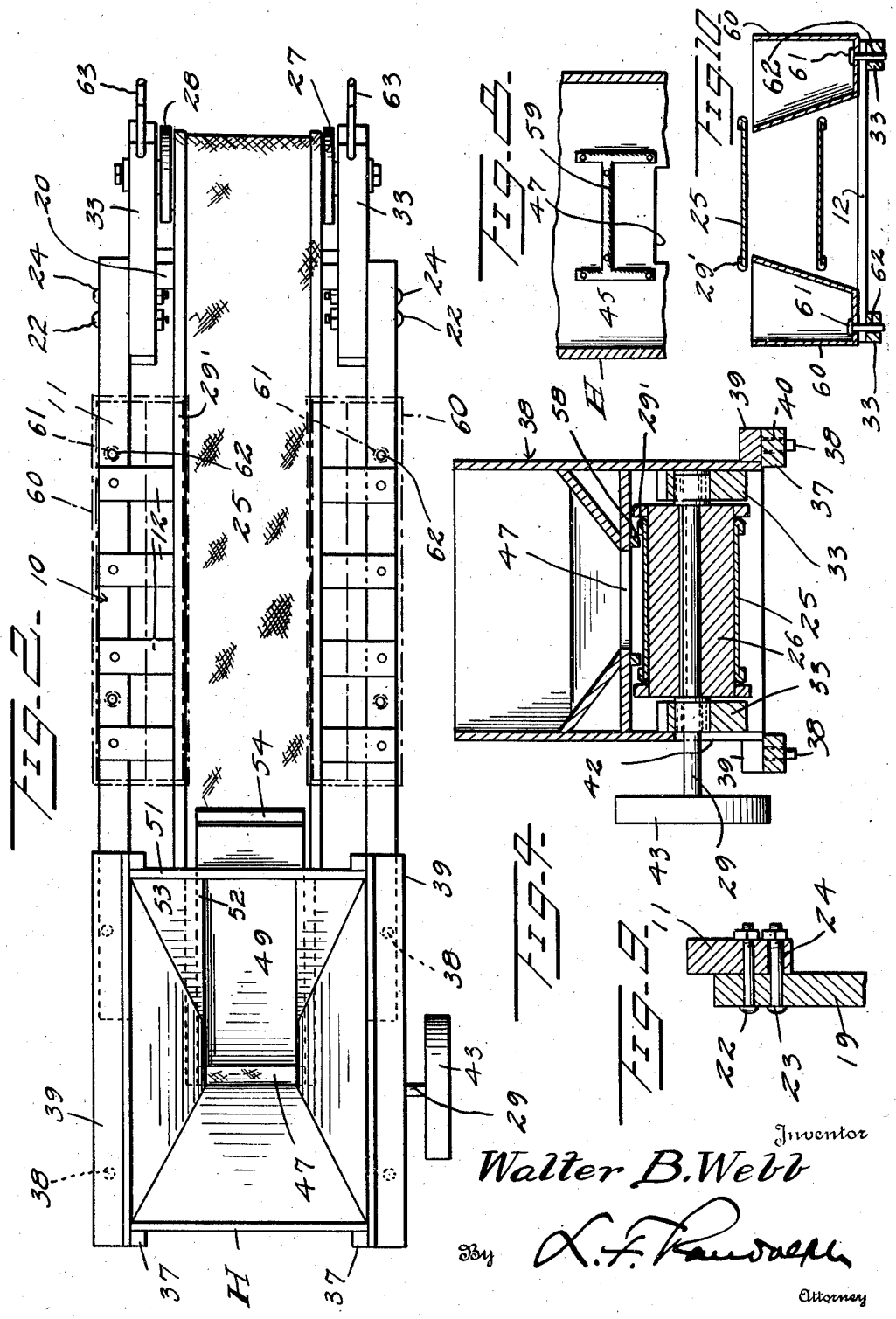


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HAND BEAN PICKER

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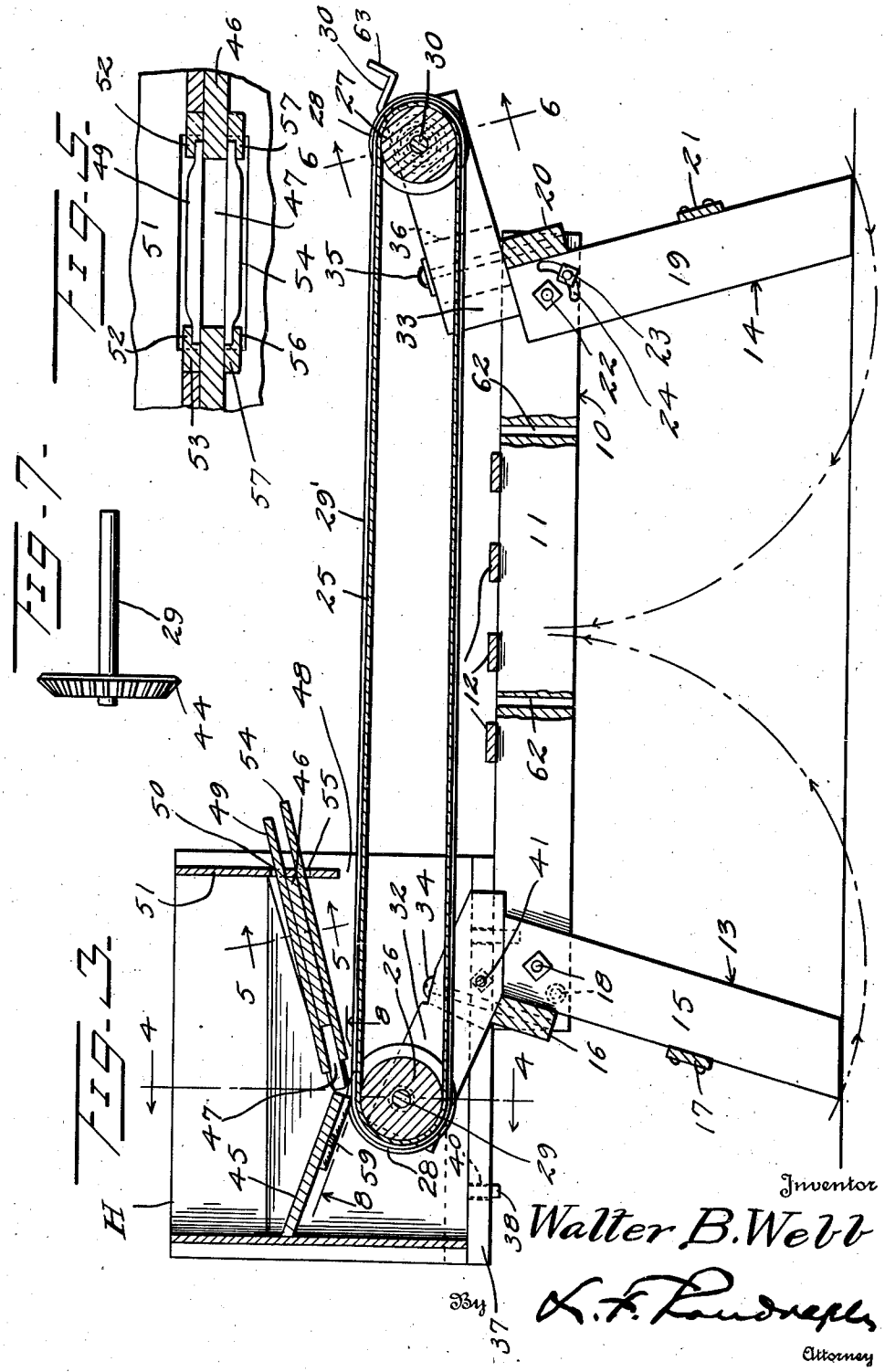


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HAND BEAN PICKER

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HAND BEAN PICKER

Walter Burton Webb, New Gloucester, Maine

Application July 16, 1942, Serial No. 451,235

7 Claims. (Cl. 198—56)

This invention relates to a hand bean picker or means for spreading beans or other articles or materials before inspection so that discards may be removed by hand.

It is particularly aimed to provide such a structure having a conveyor capable of operation manually or by power as preferred, a structure which is foldable or collapsible to occupy minimum space, a structure wherein the belts may be effectively tensioned and the mounting of which coacts with the adjustment of the legs or supports of the structure, and a structure having a removable hopper to coact with the conveyor and provided with means to cut off the same incidental to removing.

The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:

Figure 1 is a view of the apparatus in side elevation;

Figure 2 is a plan view thereof;

Figure 3 is a substantially central longitudinal sectional view through the apparatus;

Figure 4 is a cross sectional view taken on the line 4—4 of Figure 3;

Figure 5 is a cross section taken on the line 5—5 of Figure 3;

Figure 6 is a cross section taken on the line 6—6 of Figure 3;

Figure 7 is a detail of gear means which may be employed to power-operate the apparatus;

Figure 8 is a cross section taken on the line 8—8 of Figure 3;

Figure 9 is a detail section taken on the line 9—9 of Figure 1; and

Figure 10 is a cross sectional view taken on the plane of line 10—10 of Figure 1.

Referring specifically to the drawings wherein like reference characters designate like or similar parts, the framework of the apparatus or machine consists for instance of a table generally designated 10 and which may comprise parallel side beams 11 spaced apart and rigidly connected together by battens 12. Front and rear supports are provided at 13 and 14. The rear support consists of spaced apart legs 15 connected at the top by a cross batten 16 and adjacent the bottom by a cross brace 17. A pair of bolts 18 connect each leg 15 to a side beam 11. One or both of the bolts 18 of each pair is removable so that the remaining bolt will provide an axis to enable the front support 13 to be folded upwardly and inwardly according to the dot-dash lines and arrows in Figure 3.

As to the hind or rear support 14, it consists of a pair of spaced apart legs 19 connected rigidly at the top by a batten 20 and at a lower elevation by a cross brace 21. The legs 19 are secured by a pair of bolts 22 and 23, a pair for each leg 19, securing them to the adjacent side beam 11. The bolts 23 are passed through arcuate slots 24 in the legs and are adjustable, so that their nuts may be loosened to enable the rear supporting structure 14 to be folded inwardly and upwardly in the path of the dot-dash lines and arrows shown in Figure 3. At the same time, the nuts of the bolts 22 and 23 will rigidly secure the legs 19 in place.

An endless conveyor is horizontally disposed above the table 11 at 25 and may consist of any flexible material for instance canvas. Such conveyor is trained over rollers 26 and 27, at its front and rear ends, respectively, the rollers having flanges 28 to confine the belt or conveyor to the proper path. Such belt or conveyor also has its side edges doubled or reinforced as at 29'. This feature also aids in preventing beans from moving laterally off the conveyor.

Rollers 26 and 27, are mounted respectively on shafts 29 and 30, respectively, journaled at both ends preferably in roller bearing structures 31 as detailed in Figure 6, in bearing members 32 and 33, respectively. The lower edges of the bearing members 32 fit and rest on the upper edges of the legs 15 and batten 16, and bolts 34 removably secure such bearing members 32 to the batten 16.

The bearing members 33 are detachably secured by screws or bolts 35 to the batten 20. Bolts 35 pass through elongated slots 36 in the bearing members, enabling the bearing members 33 to be adjusted in an angular path parallel to the upper edges of the legs 19 and batten 20. In addition, the arcuate slots 24 enable the legs 19 to have pivotal movement on the bolts 22 in order to afford sufficient leverage to properly tension the belt or conveyor 25.

At the feeding end of the frame 10, the latter has suitably secured extension bars 37 provided with vertical holes or openings detachably interengaged by studs or dowels 38 carried by bars 39 secured on opposite sides of a feeding hopper H. The beans or articles to be picked or sorted are supplied into the open end of said hopper H. The mentioned openings in bars 37 occupied by the studs 38 are designated 40. To prevent accidental detachment of the hopper from the table

or bars 37, a transverse bolt 41 may be removably passed through a suitable part of the hopper and the bars 37. Also, at one side of the hopper, it is provided with an L-shaped opening 42, affording clearance about the shaft 29, for attachment and detachment of the hopper. Said shaft 29 may be driven or operated in any suitable manner, that is, manually or by power. In the latter event, a belt drive may be connected to the pulley 43 or in lieu of the pulley 43 I may provide a gear wheel 44 on the shaft 29 as shown in Figure 7, and drive gearing be operatively associated with the gear 44 and a source of power.

The hopper H has an elevated bottom consisting of downwardly converging sections 45 and 46 spaced apart or provided with a discharge opening 47 through which the beans or articles fall onto the conveyor 25 so as to be drawn out of the hopper H and to be sorted or picked by operators standing or seated on either or both sides of the conveyor between the hopper and the opposite end of the apparatus.

An adjustable double slide gate is provided in the hopper for the opening 47. The slides or gates are respectively designated 49 and 54 and are disposed on opposite sides of the bottom section 46 and movable through openings 50 and 55, provided in the front wall 51 of the hopper. Said wall 51 also has an opening at 48 to provide clearance for reception and operation of the conveyor 25. Guide rails or bars are provided at each side of the slide 49 and the latter may have spring or clasp fingers 52 gripping such guide rails, as shown in Figure 5, to hold the slide adjustably in any position to which it may be moved. The adjustment of the slide 49 determines the extent of opening 47 which is exposed for passage of the beans to the conveyor, in order to regulate such passage. The other slide 54 has guides 57 at each side thereof and has spring or clasp fingers 56 engaging the same, to hold the slide 54 in any adjusted position. The slide 54 is provided preferably to entirely close or cut off the opening 47 preparatory to removing the hopper H as when transporting or storing the device. It will be noted that on the under surface of the floor section 45, felt or other packing or filler material 59, may be provided in any desired configuration in order to prevent falling or escape of beans from the conveyor at the left hand end.

On each side of the table suitable receptacles 60, into which the picker or pickers deposit the bad beans, are provided. These receptacles may be of any desired size and shape but at their open ends they preferably extend under the upper run of the conveyor 25. They may rest across the battens 12 and be secured against accidental displacement by means of nails or other pegs 61 removably placed through openings in the bottom of the receptacles 60 and openings 62 in the rails or beams 11 of the table. The good beans preferably fall off or are discharged by the conveyor at the right hand end into a suitable receptacle. Such receptacle may be the ordinary burlap bag (not shown) suspended from hooks 63 carried by the bearing members 33. Obviously, in lieu of bags, backets or any other receptacles may be placed on the ground beneath the right hand end of the conveyor in order to catch and retain the goods beans.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:

1. An apparatus of the class described, comprising a frame, supporting means at one end thereof, means connecting said supporting means to the frame whereby it may be rigid with respect thereto or movable to folded position, a second support, means connecting the second support to the frame whereby it may be rigid with respect thereto or swung to and from a folded position, bearing members carried by the support and extending upwardly therefrom in diverging relation, rolls mounted by the bearing members, and a conveyor traversing said rolls.

2. An apparatus of the class described, comprising a frame, supporting means at one end thereof, means connecting said supporting means to the frame whereby it may be rigid with respect thereto or movable to folded position, a second support, means connecting the second support to the frame whereby it may be rigid with respect thereto or swung to and from a folded position, bearing members carried by the support and extending upwardly therefrom in diverging relation, rolls mounted by the bearing members, and a conveyor traversing said rolls, said supporting members consisting of legs and battens connecting the legs, the bearing members being directly secured to the battens.

3. An apparatus of the class described, comprising a frame, supporting means at one end thereof, means connecting said supporting means to the frame whereby it may be rigid with respect thereto or movable to folded position, a second support, means connecting the second support to the frame whereby it may be rigid with respect thereto or swung to and from a folded position, bearing members carried by the support and extending upwardly therefrom in diverging relation, rolls mounted by the bearing members, and a conveyor traversing said rolls, said supporting members consisting of legs and battens connecting the legs, the bearing members being directly secured to the battens, and means securing one set of bearing members adjustably to the adjacent batten.

4. An apparatus of the class described, comprising a frame, supporting means at one end thereof, means connecting said supporting means to the frame whereby it may be rigid with respect thereto or movable to folded position, a second support, means connecting the second support to the frame whereby it may be rigid with respect thereto or swung to and from a folded position, bearing members carried by the support and extending upwardly therefrom in diverging relation, rolls mounted by the bearing members, and a conveyor traversing said rolls, said supporting members consisting of legs and battens connecting the legs, the bearing members being directly secured to the battens, the means securing the legs of the second mentioned supporting member consisting of bolts, and the legs having arcuate slots through which the bolts pass.

5. An apparatus of the class described, comprising a frame, supporting means at one end thereof, means connecting said supporting means to the frame whereby it may be rigid with respect thereto or movable to folded position, a second support, means connecting the second support to the frame whereby it may be rigid with respect thereto or swung to and from a folded position, bearing members carried by the support and extending upwardly therefrom in diverging relation, rolls mounted by the bearing members, and a conveyor traversing said rolls, said supporting members consisting of legs and battens connecting the legs, the bearing members being directly secured to the battens, the means securing the

legs of the second mentioned supporting member consisting of bolts, and the legs having arcuate slots through which the bolts pass, and a hopper supported on the frame having means to discharge beans or the like onto the conveyor.

6. An apparatus of the class described, comprising a frame, supporting means at one end thereof, means connecting said supporting means to the frame whereby it may be rigid with respect thereto or movable to folded position, a second support, means connecting the second support to the frame whereby it may be rigid with respect thereto or swung to and from a folded position, bearing members carried by the support and extending upwardly therefrom in diverging relation, rolls mounted by the bearing members, and a conveyor traversing said rolls, said supporting members consisting of legs and battens connecting the legs, the bearing members being directly secured to the battens, the means securing the legs of the second mentioned supporting member consisting of bolts, and the legs having arcuate slots through which the bolts pass, and a hopper supported on the frame having means to discharge beans or the like onto the conveyor, consisting of an adjustable gate, means removably mounting the hopper on the frame, and means to close the discharge opening incidental to removal of the hopper.

7. An apparatus of the class described, comprising a frame, supporting means at one end thereof, means connecting said supporting means to the frame whereby it may be rigid with respect thereto or movable to folded position, a second support, means connecting the second support to the frame whereby it may be rigid with respect thereto or swung to and from a folded position, bearing members carried by the support and extending upwardly therefrom in diverging relation, rolls mounted by the bearing members, and a conveyor traversing said rolls, said supporting members consisting of legs and battens connecting the legs, the bearing members being directly secured to the battens, the means securing the legs of the second mentioned supporting member consisting of bolts, and the legs having arcuate slots through which the bolts pass, and a hopper supported on the frame having means to discharge beans or the like onto the conveyor, extensions on the frame, interengaging means between the hopper and frame to removably mount the hopper, and a gate operable to close the hopper discharge opening incidental to removal of the hopper.

WALTER B. WEBB.