Oct. 3, 1944. C. A. LOUCKS 2,359,431

BEAN CLEANER

Filed June 29, 1943 3 Sheets-Sheet 1

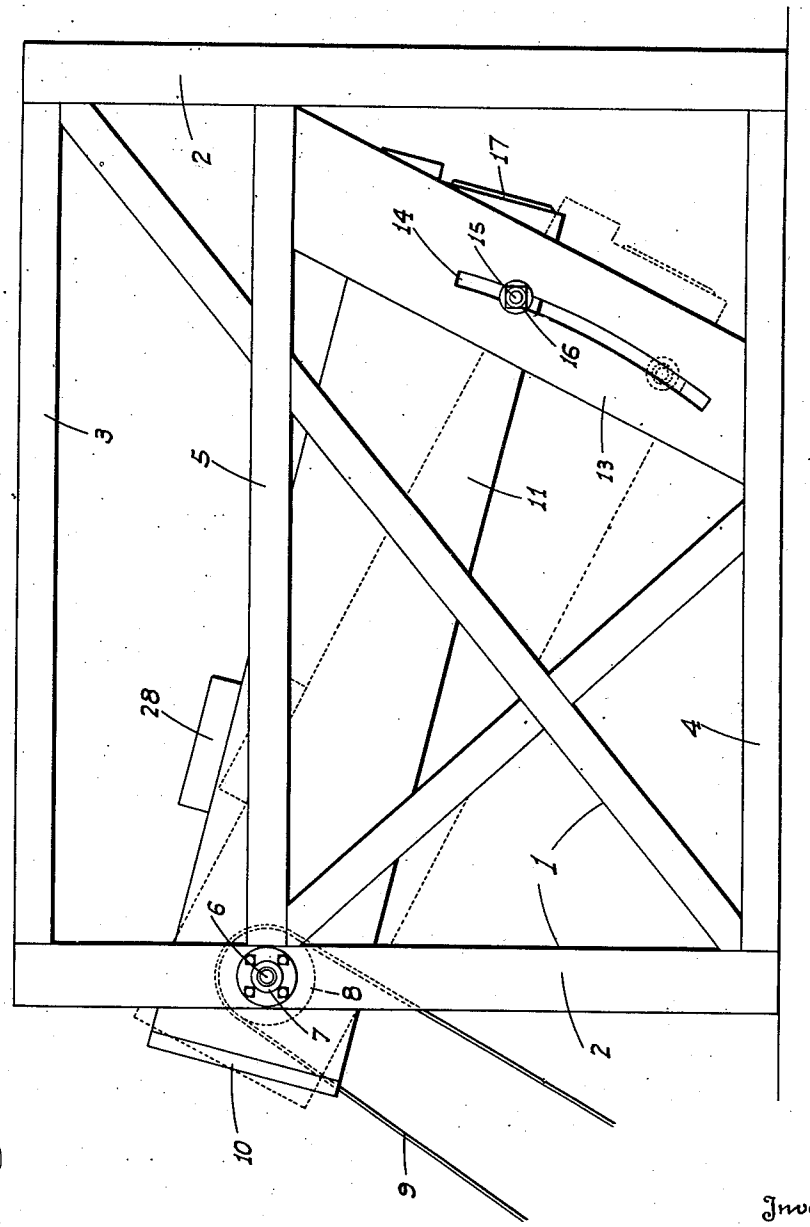


Fig. 1

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BEAN CLEANER

Filed June 29, 1943 3 Sheets-Sheet 2

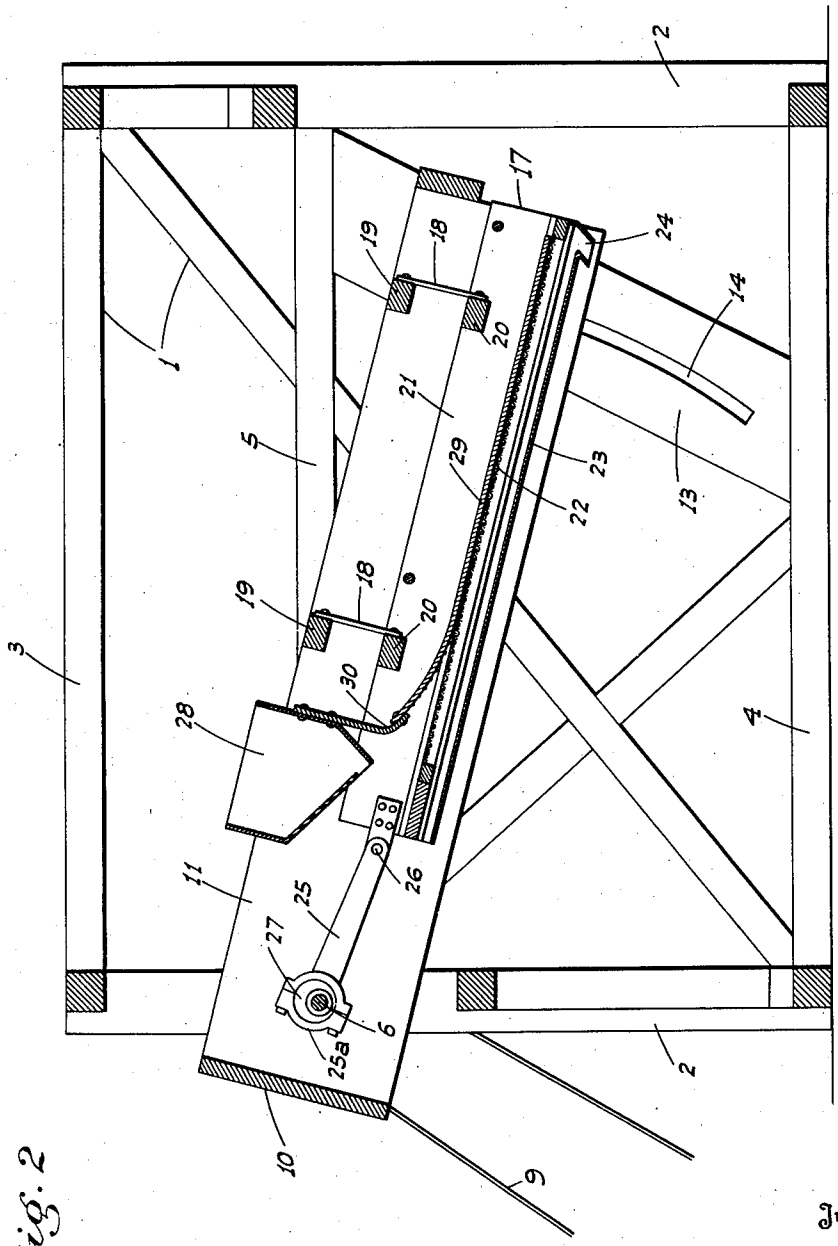


Fig. 2

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BEAN CLEANER

Filed June 29, 1943 3 Sheets-Sheet 3

Fig. 3

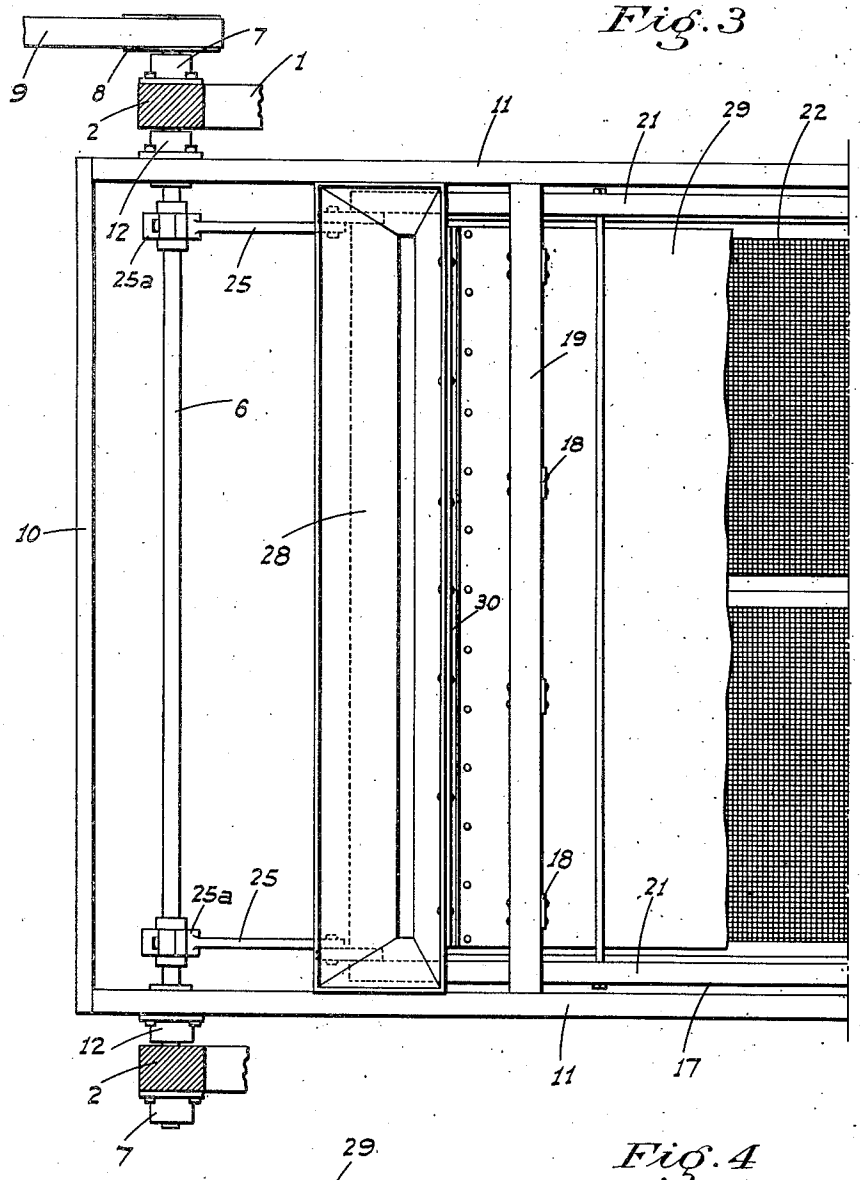
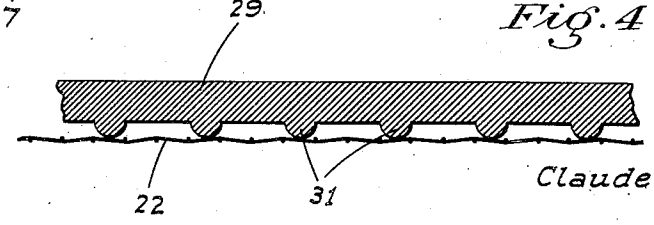


Fig. 4



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2,359,431

UNITED STATES PATENT OFFICE

2,359,431

BEAN CLEANER

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Application June 29, 1943, Serial No. 492,688

2 Claims. (Cl. 209—404)

This invention relates in general to an improved bean cleaner for removing small lumps of dirt from dried beans after harvesting and prior to packaging for the market.

Another object of the invention is to mount and drive the shaker table so that the inclination of the latter can be varied without necessity of adjustment of the driving mechanism and without varying the angle or stroke of the connecting rods which reciprocate the shaker table and which angle or stroke is such as to impart a substantially straight line motion to said table as is here desirable at all times.

A further object of the invention is to provide a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a side elevation of the machine.

Figure 2 is a longitudinal sectional elevation taken through the shaker table.

Figure 3 is a fragmentary plan view, with the drape partly broken away.

Figure 4 is an enlarged, fragmentary longitudinal section of the screen top and drape as in engagement.

Referring now more particularly to the characters of reference marked thereon, the machine comprises a substantially rectangular upstanding main frame 1 of skeleton type and which includes end posts 2, upper and lower side beams 3 and 4 respectively, and intermediate side beams 5.

A horizontal cross shaft 6 is journaled at its ends in bearings 7 mounted on corresponding ones of the posts 2, and projects beyond one end thereof to support a pulley 8 driven by means such as an endless belt 9 which is connected to a power source (not shown).

A rectangular or box frame 10 which includes parallel sides 11 is supported adjacent one end, which is its upper end, by the shaft 6 which rotatably extends through bearings 12 mounted in opposite sides 11 of said frame; said frame extending at a forward and downward incline from said shaft between the sides of the main frame 1. The main frame 1 includes longitudinal and arcuately slotted plates 13 extending between the side beams 4 and 5 on both sides, the slot 14 in each plate being concentric to shaft 6. Studs 15 project through slots 14 from the sides 11 of the box from adjacent its lower end, and nuts 16 threaded on said studs adjustably secure the box frame in place, and at the desired inclination.

A rectangular shaker table 17 is disposed within the box frame for reciprocation lengthwise relative to the latter; the shaker table being suspended between and substantially parallel to the longitudinal edges of sides 11 of the box frame by means of an upper and lower transverse row of flexible leaf springs 18 connected between corresponding cross members 19 and 20 on the box frame and shaker table respectively; the latter including upstanding, parallel sides 21 by which members 20 are supported.

The top 22 of the shaker table is a taut wire screen of a mesh as large as possible without admitting of the passage of beans, and a catch pan 23 with a lower outlet spout 24 is mounted beneath the screen top 22. The screen is removable, so that different mesh screens may be used.

The shaker table is reciprocated by means of a pair of transversely spaced connecting rods 25 pivotally connected at their forward ends with the upper ends of sides 21 of the shaker table as at 26, and formed at their other ends with straps 25a engaging eccentrics 27 secured on shaft 6, whereby with rotation of said shaft the shaker table is reciprocated back and forth. As the shaft 6 is also the axis for box frame 10, the inclination of the latter, and consequently the shaker table, can be varied without changing the angle or stroke of the table reciprocating mechanism.

A feed hopper 28 is mounted on the box frame 10 above and extends across the upper end of the shaker table, and a substantially full width, full length drape 29 of heavy flexible material, such as fabric-reinforced rubber belting, is attached to the hopper by a flange 30 and thence sweeps down to and rests on screen top 22 to a point adjacent the lower end of the latter.

The under side of drape 29 is rough and preferably transversely corrugated or ribbed, as shown at 31, whereby to increase the abrading action between the reciprocating screen and stationary drape.

The intermingled beans and lumps of dirt flow from hopper 28 downward between the drape and inclined screen top 22; the frictional or abrading action produced between the rough under side of the drape and said screen top causing the lumps of dirt to disintegrate and drop through the screen into pan 23 and out spout 24. The clean beans remain on the screen and discharge

from the lower end thereof where they are separately received in a bin or the like.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. A material separating machine comprising a normally fixed frame including longitudinally extending, transversely spaced side members, a longitudinally inclined shaker table disposed between said side members, means connected to said shaker table to reciprocate the same lengthwise, and means supporting the shaker table from said frame for substantially straight line reciprocating movement; said supporting means comprising rigid cross members extending between said side members of the frame above and spaced lengthwise of the shaker table, corresponding cross members on the shaker table, and a transverse row of spaced, upstanding, forwardly facing leaf springs connected between adjacent ones of the cross members on the frame and shaker table, said leaf springs being disposed lengthwise at substantially a right angle to the plane of the incline of said shaker table.

2. A material separating machine comprising a main frame, a driven horizontal shaft journaled in and extending from side to side of said main frame, a box frame disposed within said main frame at a forward and downward incline, said box frame including spaced sides and the shaft extending therethrough in journaled relation adjacent the upper end of said box frame, a shaker table disposed in the box frame in substantially parallel relation, vertically spaced corresponding cross members on the box frame and shaker table at longitudinally spaced points, a transverse row of spaced, upstanding forwardly facing leaf springs connected between said corresponding cross members on the box frame and shaker table, an eccentric on the shaft between the sides of the box frame, a connecting rod extending between the eccentric and the adjacent end of the shaker table, and means securing the box frame, at a point below the shaft, in connection with the main frame.

CLAUDE A. LOUCKS.