

A. J. ADERHOLD.
COTTON AND LINT CONDENSER.
APPLICATION FILED MAY 16, 1908.

Patented Jan. 25, 1910.

4 SHEETS—SHEET 1.

947,220.

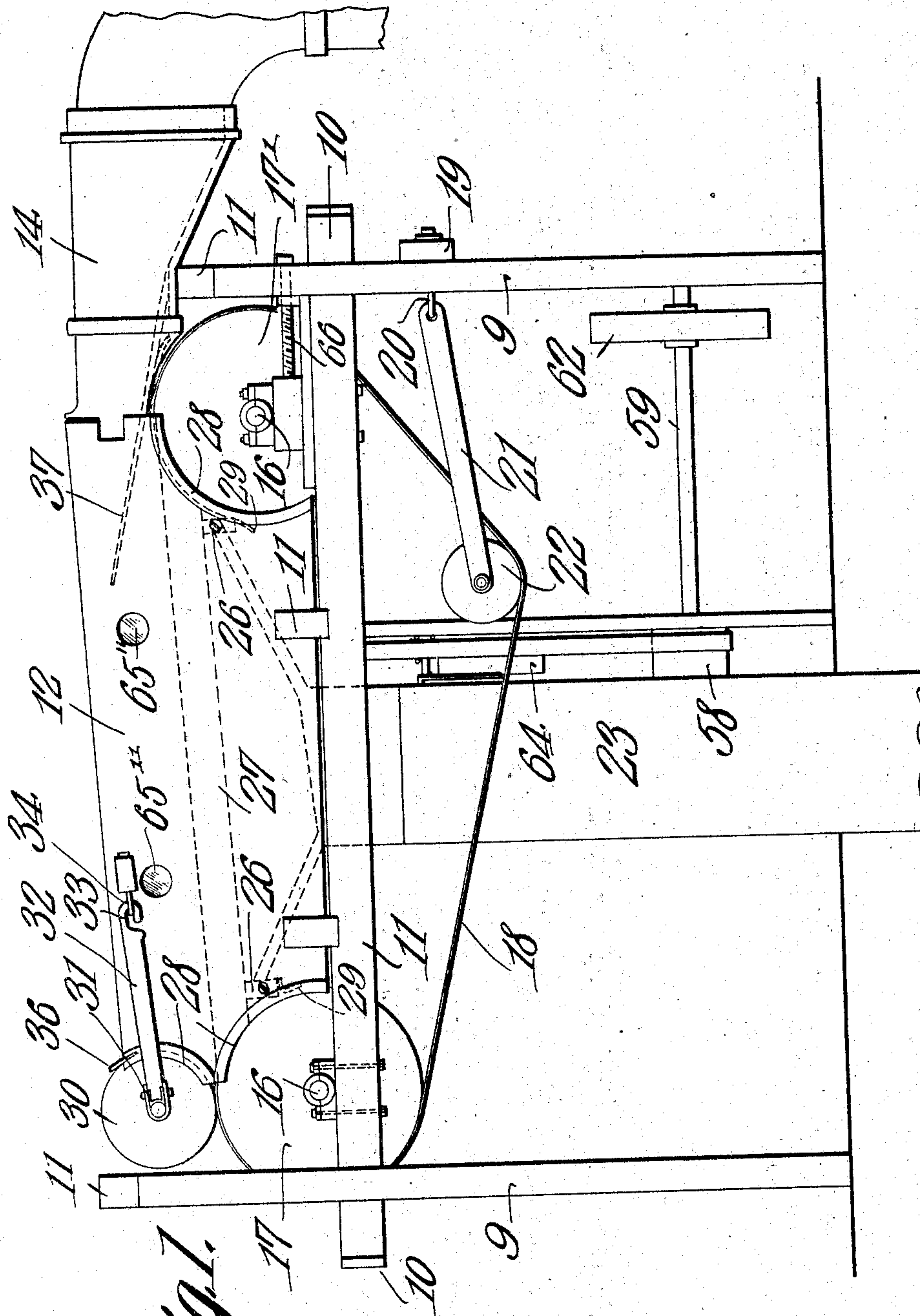


Fig. 1.

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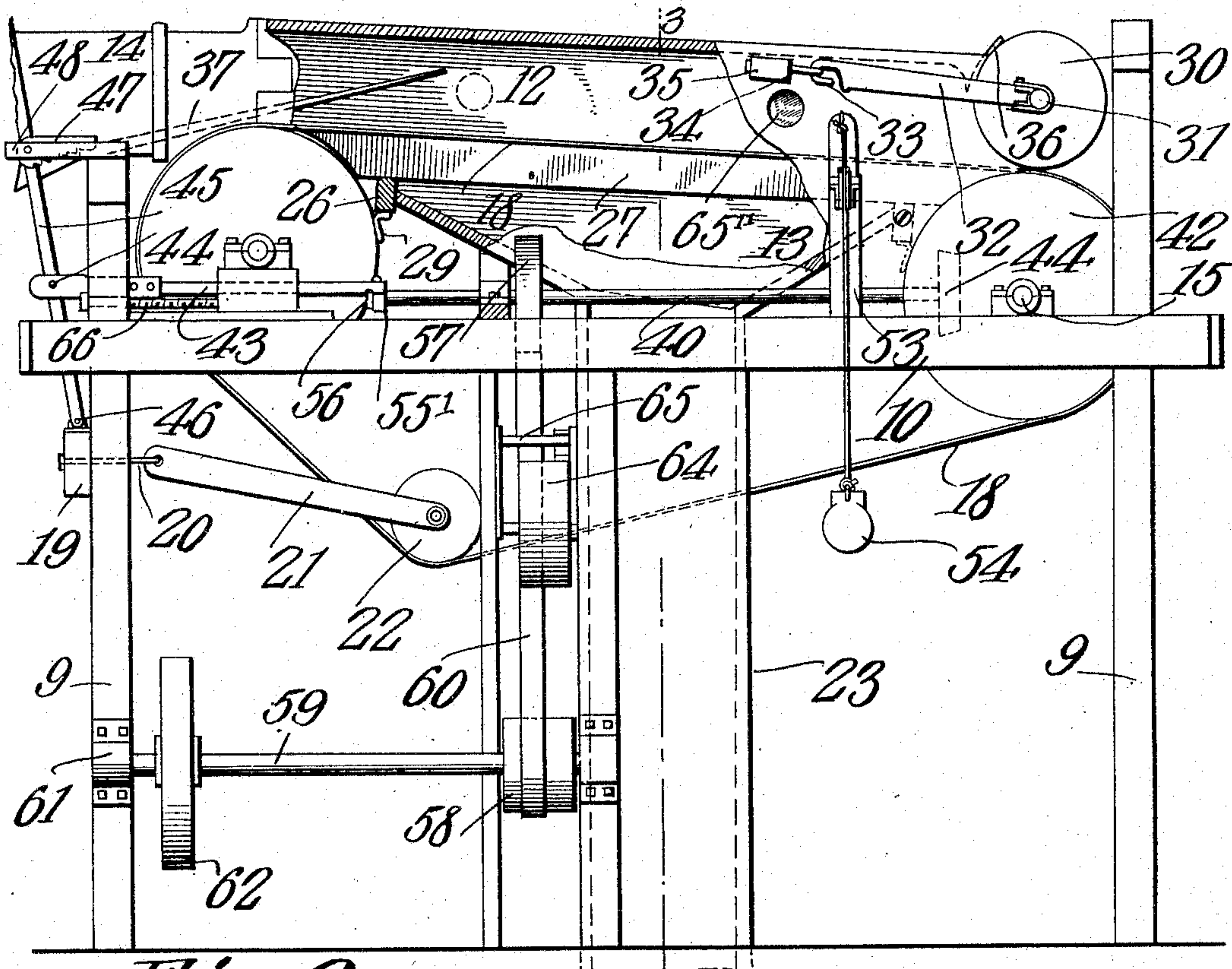


Fig. 2.

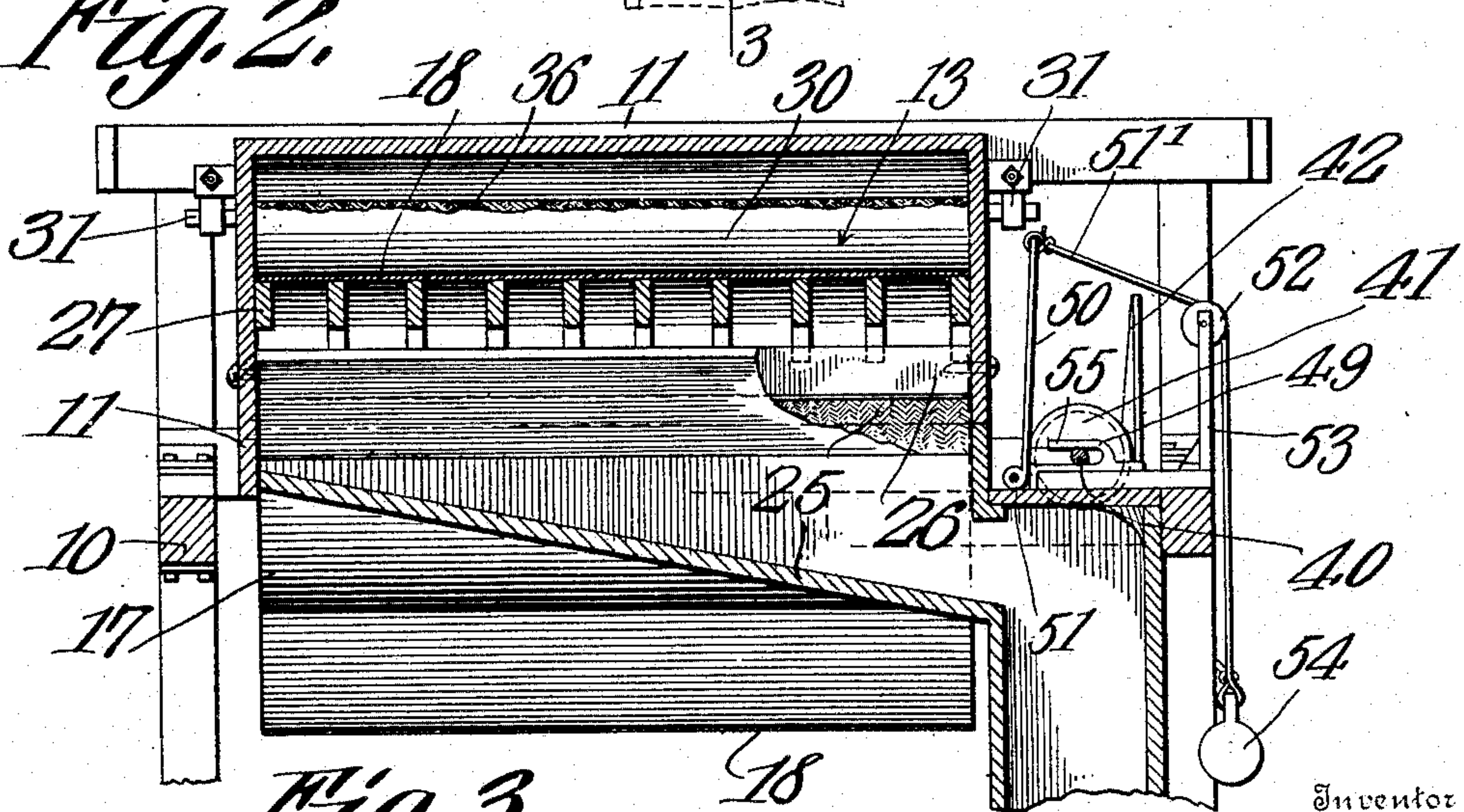


Fig. 3.

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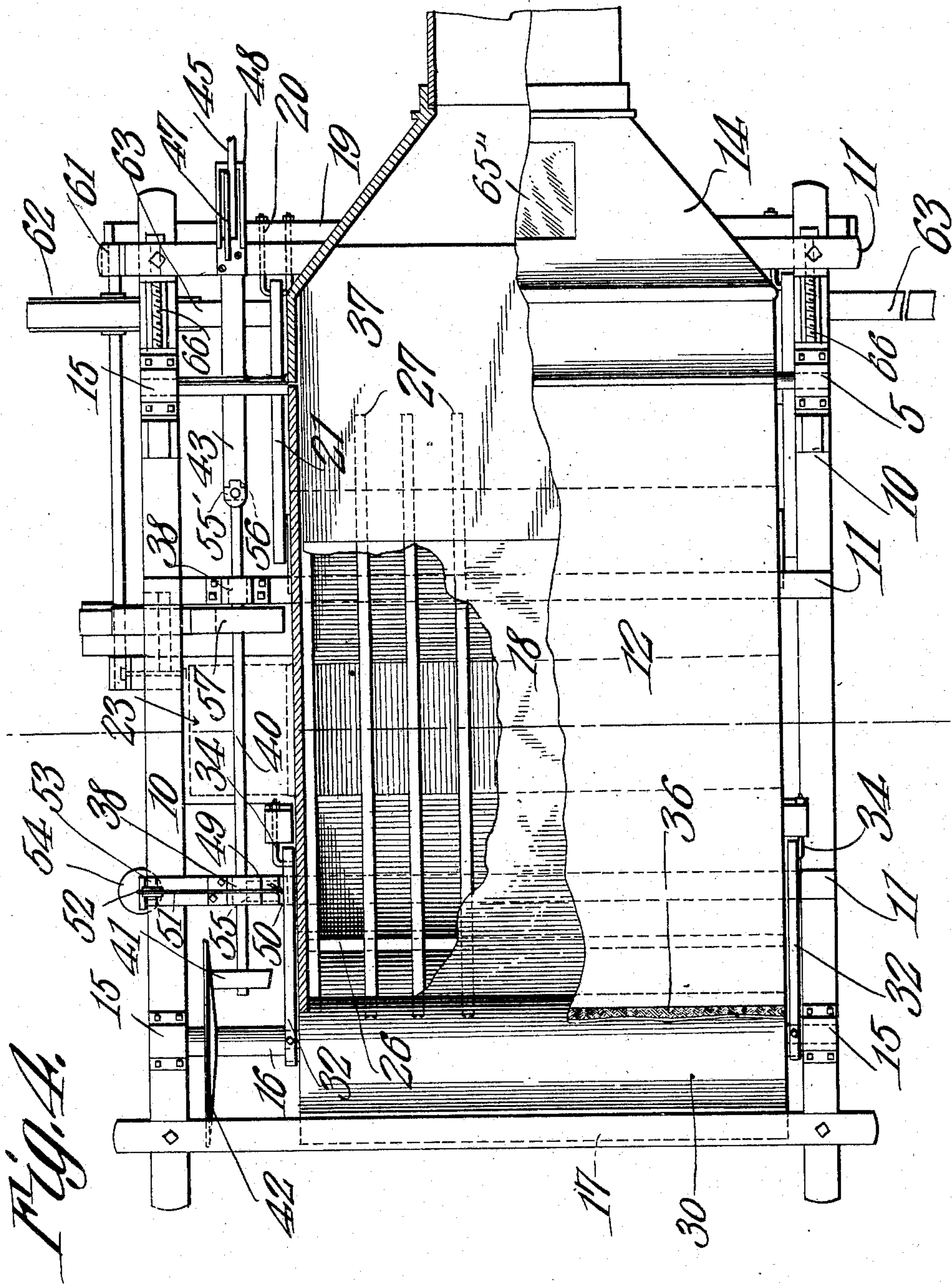


Fig. 4.

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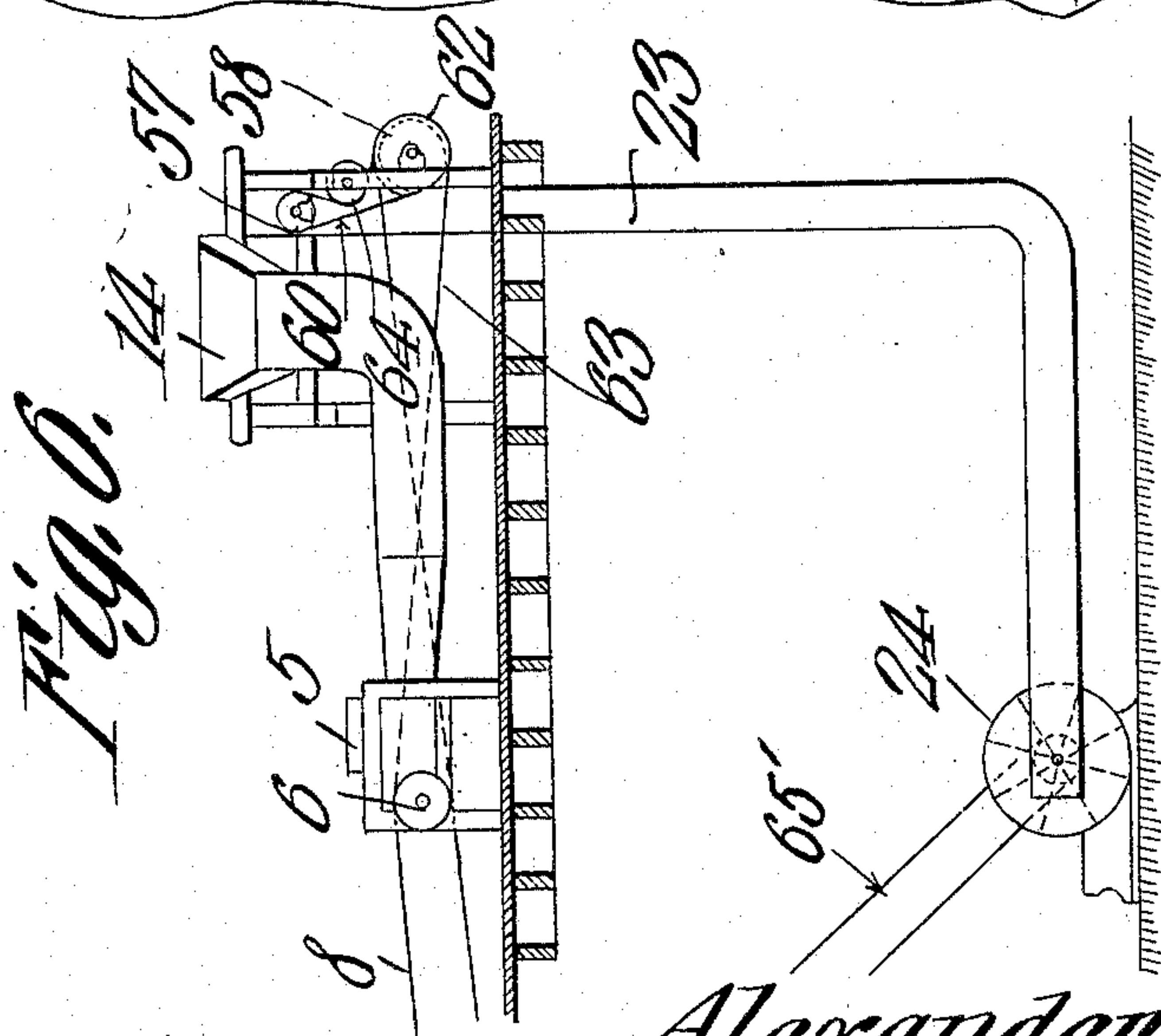
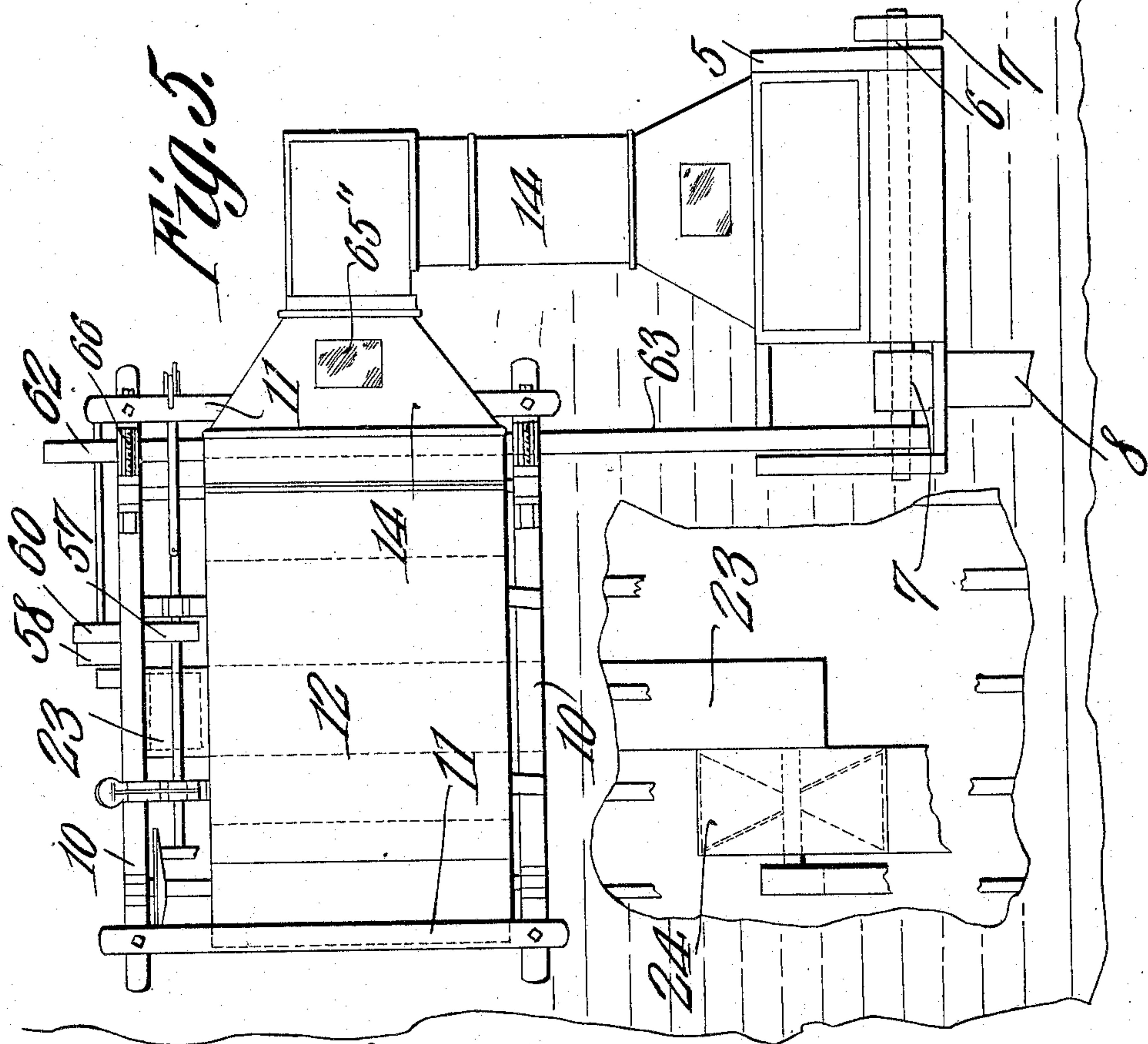
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4 SHEETS—SHEET 4.



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COTTON AND LINT CONDENSER.

947,220.

Specification of Letters Patent.

Patented Jan. 25, 1910.

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To all whom it may concern:

Be it known that I, ALEXANDER J. ADERHOLD, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented a new and useful Cotton and Lint Condenser, of which the following is a specification.

This invention relates to cotton and lint condensers.

The primary object of the invention is to provide means whereby cotton may be transferred from a gin or linter or a battery of gins or linters and thoroughly cleaned and battled.

A further object of the invention is to provide a condenser the construction and operation of which are such as positively to eliminate flying lint and dirt during the cleaning and batting of the cotton.

A further object is to provide a condenser having a suction fan associated therewith which removes the cotton from the gin-saws and transfers the same to the traveling belt of the condenser thus dispensing with the usual gin brushes.

A further object is to provide a condenser having a distributing table which overhangs the endless belt or conveyer and serves to spread the cotton uniformly over the surface of said conveyer so that dust and other foreign matter may be effectually removed by the suction fan.

A further object is to provide a condenser capable of being employed as a feeder to a cotton gin or linter without the necessity of changing or altering the construction of either device.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability, and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a side elevation of a condenser constructed in accordance with my invention. Fig. 2 is a similar view looking at the opposite side of the machine, a portion of the casing being broken away to show the interior construction of the same. Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a top plan view partly in section of the condenser. Fig. 5 is a similar view showing the manner of connecting the condenser with a cotton gin. Fig. 6 is a side elevation of Fig. 5.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved condenser forming the subject matter of the present invention may be attached to a gin or linter or to a battery of gins or linters and by way of illustration is shown in Figs. 5 and 6 of the drawings in connection with a cotton gin of the ordinary construction in which 5 designates the gin, the driving shaft 6 of which is provided with a wheel or pulley 7 connected through the medium of a belt 8 with a suitable source of power, not shown.

The condenser includes a supporting frame comprising spaced uprights 9 connected by longitudinal sills 10, and provided with transverse bars 11 secured in any suitable manner to the upper edges of the longitudinal sills.

Mounted on the frame between the longitudinal sills 10 is a casing or housing 12 having an interior chamber or compartment 13 for the reception of the cotton from the gin 5, the cotton being fed to the chamber 13 through an inlet pipe or conveyer 14 one end of which is connected with the gin above the saw, while the opposite end thereof communicates with the adjacent end of the casing 12.

Journalled in suitable bearings 15 carried by the longitudinal sills 10 are spaced shafts 16 to which are secured drums or rollers 17 and 17' supporting an endless belt or conveyer 18. One leg of the endless belt or conveyer 18 travels within the chamber 13 while the opposite leg of the belt extends beneath the casing or housing 12, said conveyer being formed of wire gauze or other foraminous material so as to permit small particles of foreign matter to readily pass through the same when the suction device is operated.

Secured to a transverse bar 19 at one end of the frame are U bolts 20 upon which are pivotally mounted suitable arms 21 carrying a terminal roller 22 which engages the lower leg of the belt 18 and serves to take up any slack in the latter. If desired, however, two or more rollers 22 may be employed for the purpose.

Extending through the bottom of the casing or housing 12 and communicating with the chamber 13 is a pipe or dust conductor 23, which latter is connected with a suction fan 24 of any approved construction so as to draw the dirt and other foreign matter carried by the cotton on the belt 18 downwardly within the pipe 23 and thus positively eliminate flying lint and dust during the condensing operation. The bottom of the casing or housing 12 is inclined in the direction of the mouth of the pipe 23, as indicated at 25, there being one or more transverse bars 26 disposed within the chamber 13 and to which are secured a plurality of spaced longitudinally disposed ribs 27, which latter form a support for the upper leg of the belt or conveyer 18. The side walls of the casing 12 are cut away to accommodate the rollers or drums 17 and 17' and secured to the side walls at the cut away portions thereof are strips of felt or other suitable material 28 which serve to prevent the inlet of air in order to make suction through the condenser as strong as possible. Strips of flexible material 29 are also secured to the transverse bars 26 for engagement with the drums beneath the upper leg of the belt or conveyer 18, said strip of material serving to prevent the inlet of air to the condenser.

Disposed above and co-acting with the drum 17 is a roller 30, the latter being mounted for rotation in suitable bearings 31 carried by pivoted levers 32. The levers 32 are provided with hooked terminals 33 which engage suitable eyes or links 34 carried by blocks 35 mounted on the side walls of the casing or housing, as shown. The roller 30 in conjunction with the drum 17 serves to form the cotton or lint into bats as the cotton is carried through the chamber on the belt or conveyer 18. A strip of flexible material such as carpet, felt or the like, indicated at 36 is secured to the casing or housing at the roller 30 in order to prevent the inlet of air at this point.

Attention is here called to the fact that the roller 30 is loosely mounted on the casing or housing 12 so as to accommodate itself to the volume of cotton fed through the chamber 13 on the endless belt or conveyer, the links or layers 32 supporting the roller being detachably secured to the eyes 34 so that the roller may be readily removed when desired. The lower wall of the feed pipe 14 is extended within the chamber 13 to form a distributing table 37, which latter is preferably disposed at a slight angle or inclination to the conveyer or belt 18 and serves to spread the lint or cotton uniformly over the surface of the conveyer during its passage through the chamber 13.

Journalled in suitable bearings 38 carried by the transverse bars 11 is a longitudinally disposed shaft 40 carrying a friction

pinion 41 which engages a relatively large friction wheel 42 mounted on the adjacent shaft 15.

Secured to the shaft 40 is one end of a lever 43 the opposite end of which is pivotally connected at 44 with the intermediate portion of a hand lever 45. The lower end of the hand lever 45 is pivotally mounted at 46 on the transverse bar 19 while its upper end is provided with a pawl or detent 47 having its lower face serrated for engagement with an over-hanging bracket or bar 48 secured to the adjacent upright of the supporting frame. It will thus be seen that by manipulating the lever 45 the shaft 40 may be adjusted longitudinally of the supporting frame so as to move the friction pinion 41 to different positions on the friction wheel 42 thereby to increase or diminish the speed of the drums 17 and 17'. The teeth on the pawl 47 by engagement with the over-hanging bracket 48 serve to lock the shaft 40 in adjusted position. The shaft 40 is slidably mounted for limited lateral movement on a guide 49 secured to the supporting frame at one side of the casing or housing 12.

Disposed at the rear of the guide 49 is a lever 50 the lower end of which is pivoted at 51 to the supporting frame, while the upper end thereof is secured to the adjacent end of a flexible cord or cable 51, the opposite end of the cord or cable being extended over a pulley or sheave 52 in an arm or support 53 and provided with a terminal weight 54, there being a bearing block 55 interposed between the lever 50 and shaft 40, as shown. It will thus be seen that the weight 54 will exert a lateral pull on the upper end of the lever 50 and through the medium of the bearing block 55 shift the shaft 40 laterally so as to normally and yieldably support the wheel 41 in engagement with the friction wheel 42.

The end of the lever 43 is provided with a circular collar 55' for the reception of the adjacent end of the shaft 40, the latter being formed with a terminal head 56 so as to permit rotation of the shaft within the collar 55' while at the same time permitting the shaft 40 to be adjusted longitudinally of the supporting frame when the lever 45 is actuated.

Secured to and mounted for rotation with the shaft 40 is a pulley 57, the latter being connected with a similar pulley 58 on a counter shaft 59 through the medium of a belt 60. The counter shaft 59 is journaled in a suitable bearing 61 on the supporting frame and is provided with a wheel or pulley 62, which latter is operatively connected with the driving shaft 6 of the gin saw by means of a belt 63. An idle pulley 64 is slidably mounted on a support 65 for engagement with the belt 60 thereby to maintain the latter at the proper tension. The

fan 24 may be connected with the driving shaft of the gin by a belt 65' or said belt may be extended to any other suitable source of power. It will thus be seen that when the gin is in operation motion will be transmitted through the medium of the belt 63 to the pulley 62 and thence through the medium of the belt 60 and friction gears 41 and 42 to the drums 17 and 17' so as to rotate the endless belt or conveyer 18, the fan 24 being actuated at the same time to create a suction in the chamber 13. When the fan is operated the suction created in the pipe 23 will draw the cotton off the gin saws and convey the same through the inlet or conductor 14 to the distributing table 37, the cotton being uniformly distributed over the upper leg of the endless belt or conveyer 18, in the manner before described. As the cotton travels through the chamber 13 on the conveyer 18 dust, dirt and small particles of foreign matter in the cotton will be drawn or sucked downwardly through the belt into the pipe 23, the clean cotton on the conveyer 18 being fed to the rollers 17 and 30 where the same is battened and discharged from the condenser.

It will here be noted that by employing the suction fan 24 the cotton is removed directly off the gin saws thus dispensing with the usual gin brushes. It will also be noted that the downward draft or suction produced by the fan 24 will effectually remove any dust or dirt taken up by the cotton and also prevent the flying of lint and dust during the cleaning and batting of the cotton.

Suitable display openings are preferably formed in the top of the inlet 14 and the side walls of the casing or housing so as to permit the operator to view the interior of the chamber 13, said display openings being covered by pieces of isinglass, glass or other suitable transparent material 65". The pipe 23 may be connected with a dust collector or if desired arranged to discharge to the atmosphere.

Secured to each of the bearings 15 at one end of the condenser are threaded rods or screws 66 by means of which said bearings may be adjusted longitudinally of the frame, thereby to aline or adjust the drum carrying the conveyer. If desired the threaded rods 66 may be connected with the bearings at both ends of the condenser so that either drum may be adjusted, without departing from the spirit of the invention.

While the condenser is shown in connection with a cotton gin it is obvious that the same may be used with equally good results in connection with a linter. The condenser may also be used as a feeder for a cotton gin or linter by placing the condenser above the gin or linter in which event, the cotton or seed will enter the condenser through the pipe 14 and be discharged between the drum

17 and roller 30 into the gin or linter, the dust and other foreign matter being effectually removed from the cotton by the suction created in the pipe 23, in the manner before stated.

The casing or housing is closed on all sides and is so constructed as positively to eliminate flying lint and dust during the cleaning and batting operation.

Having thus described the invention what is claimed is:

1. A cotton condenser comprising a casing having an inlet and an outlet at its opposite ends and a discharge opening in its bottom between its ends, a foraminous horizontally disposed belt moving between the inlet and the outlet longitudinally through the casing and inclosed thereby, drums in the inlet and outlet of the casing supporting said belt, a suction mechanism connected with the discharge opening in the casing below said belt, and a feed-pipe entering the inlet of the casing and having its bottom projected longitudinally inward and upward over the belt toward the top of the casing.

2. The combination with a supporting frame, of a casing having a longitudinally and transversely inclined bottom and provided with an inlet and outlet, a feed pipe disposed at the inlet, drums mounted for rotation on the supporting frame, a friction wheel mounted for rotation with one of the drums, an endless conveyer carried by the drums and operating within the casing, a longitudinally adjustable shaft journaled on the frame, a friction wheel carried by one end of the shaft and engaging the friction wheel of the drum, means for rotating the shaft, and means extending through one side of the casing at the inclined bottom thereof for creating a suction in the casing between the upper and lower legs of the conveyer.

3. The combination with a supporting frame, of a casing supported on the frame and provided with a chamber having an inlet and outlet, spaced drums mounted for rotation on the frame, an endless conveyer carried by the drums and operating within the chamber, a feed pipe communicating with the chamber at the inlet, a friction wheel rotating with one of the drums, a longitudinally disposed shaft mounted for lateral movement on the frame and provided with a friction pinion adapted to engage the friction wheel of the drum, means for adjusting the shaft longitudinally to change the position of the pinion with respect to the friction wheel, means for yieldably supporting the pinion in engagement with the friction wheels, and means for rotating the shaft thereby to impart motion to the conveyer.

4. The combination with a supporting frame, of a casing having an inlet and outlet, drums mounted for rotation on the

frame, an endless conveyer carried by the drums and operating within the casing, a feed pipe communicating with one end of the casing at the inlet, a batting roller pivotally mounted on the other end of the casing and co-acting with the adjacent drum at the outlet, a friction wheel carried by one of the drums, a longitudinal shaft mounted for lateral movement on the frame and provided with a friction pinion adapted to engage the friction wheel, a lever pivotally mounted on the frame, a weight secured to

the lever for exerting a lateral pressure on the longitudinal shaft, means for moving said shaft longitudinally of the frame, and means for rotating the shaft thereby to revolve the conveyer. 15

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ALEXANDER J. ADERHOLD.

Witnesses:

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J. H. TERRELL.