May 6, 1930. G. W. MARTIN 1,757,256

VACUUM CLEANER AND CONDENSER

Original Filed Oct. 31, 1925 3 Sheets-Sheet 1

Fig. 1.

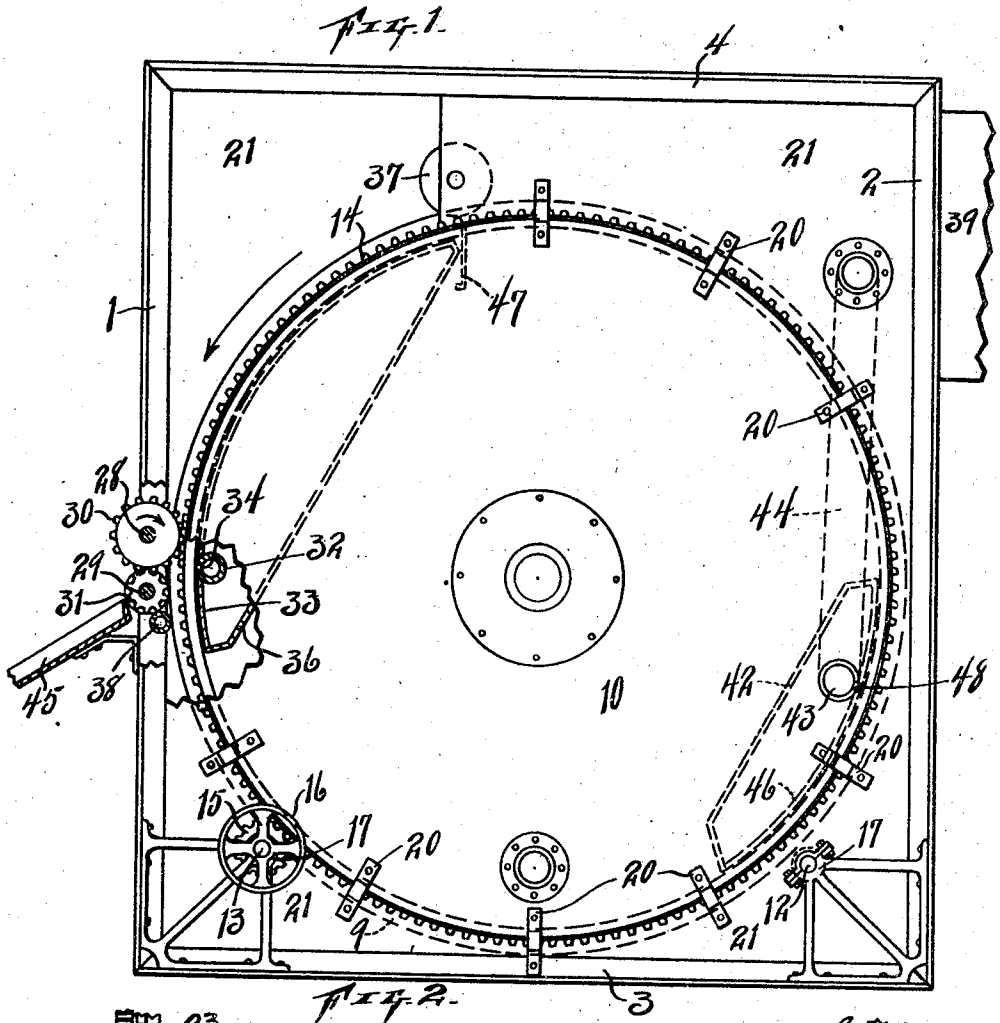
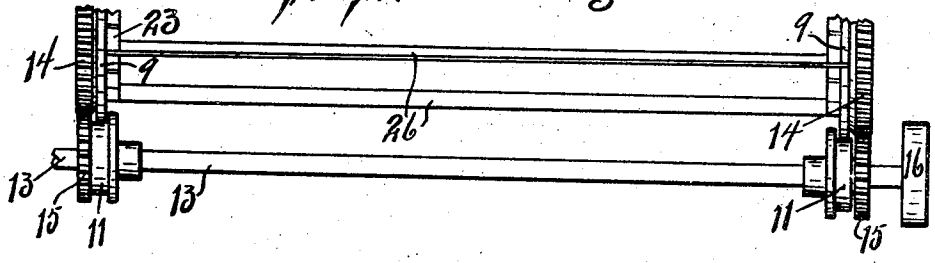


Fig. 2.



INVENTOR
GEORGE W. MARTIN.

BY A. D. Jackson

ATTORNEY

May 6, 1930. G. W. MARTIN 1,757,256

VACUUM CLEANER AND CONDENSER

Original Filed Oct. 31, 1925 3 Sheets-Sheet 2

Fig. 3.

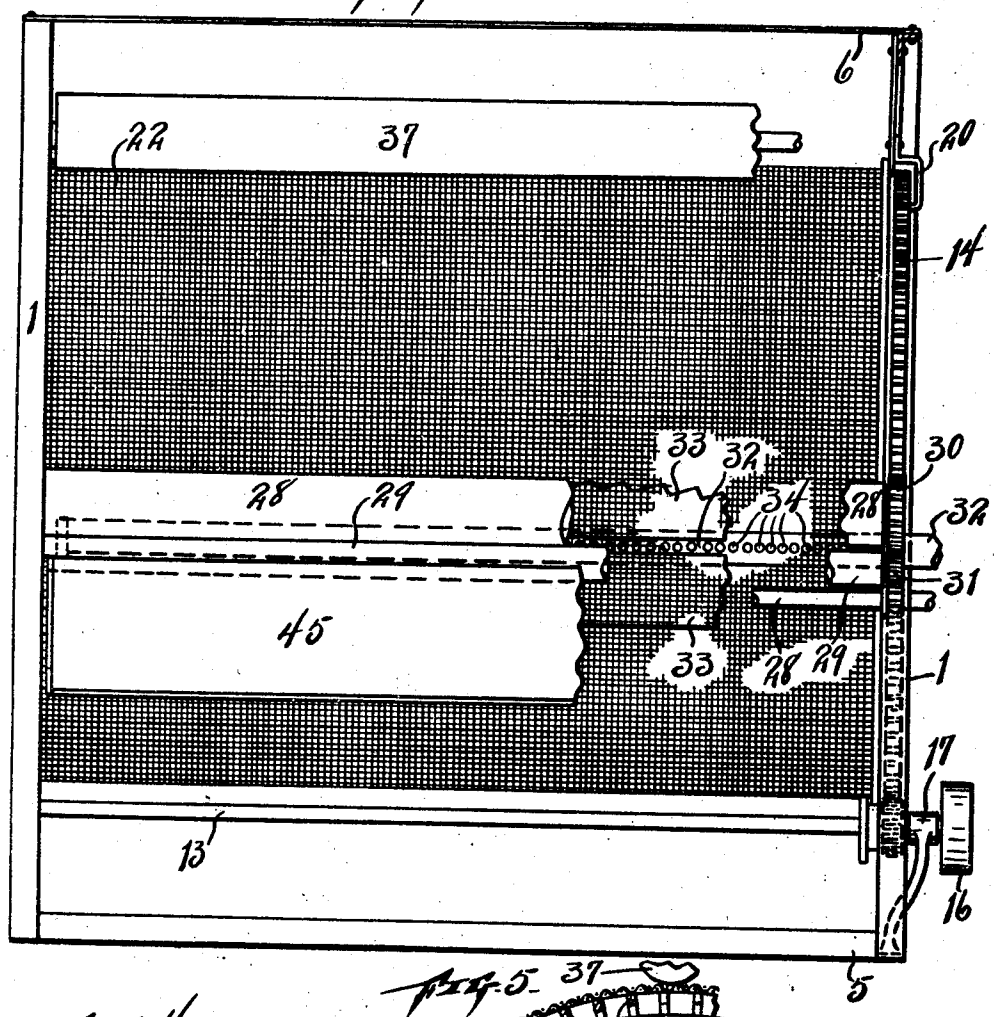


Fig. 4.

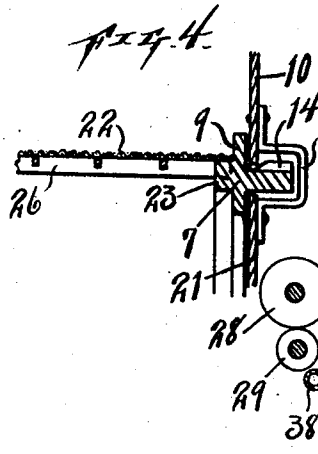
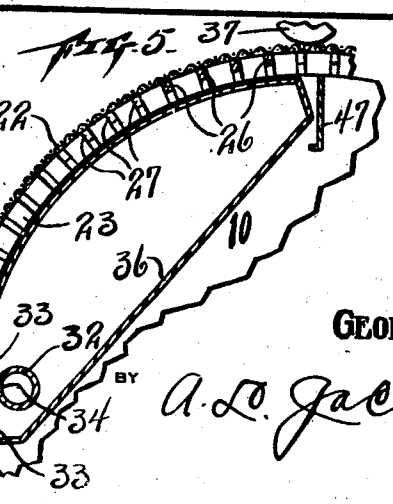


Fig. 5.



INVENTOR
GEORGE W. MARTIN
BY A. L. Jackson
ATTORNEY

May 6, 1930. G. W. MARTIN 1,757,256

VACUUM CLEANER AND CONDENSER

Original Filed Oct. 31, 1925 3 Sheets-Sheet 3

Fig. 6.

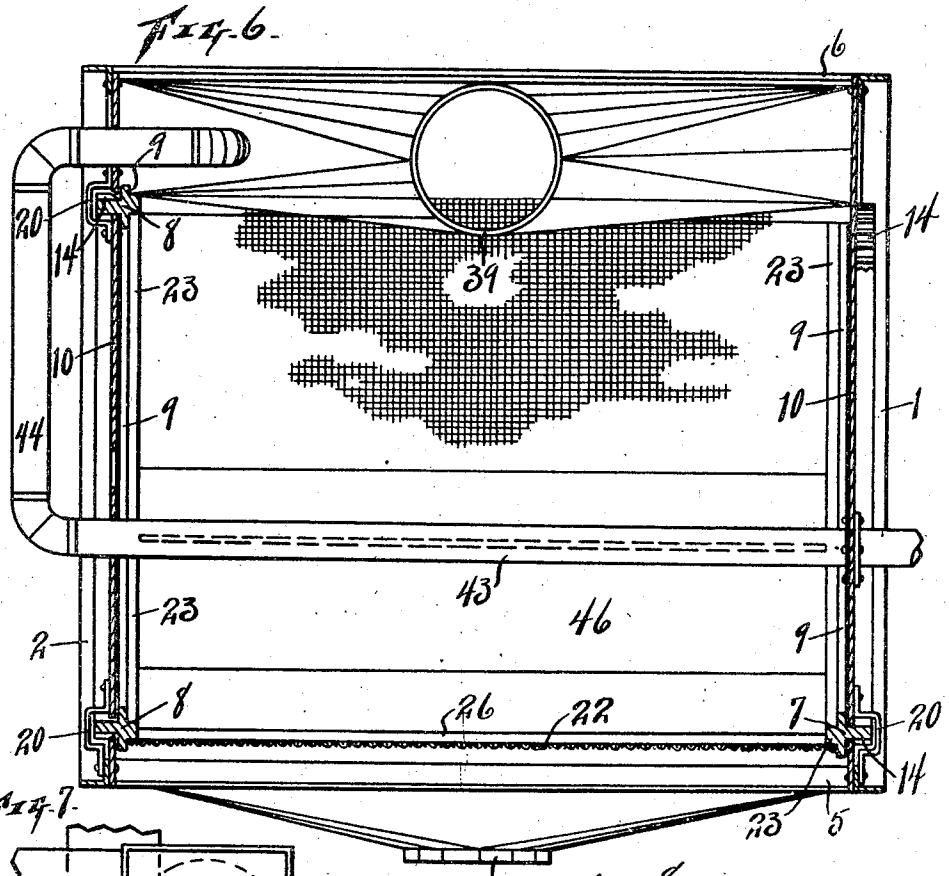


Fig. 7.

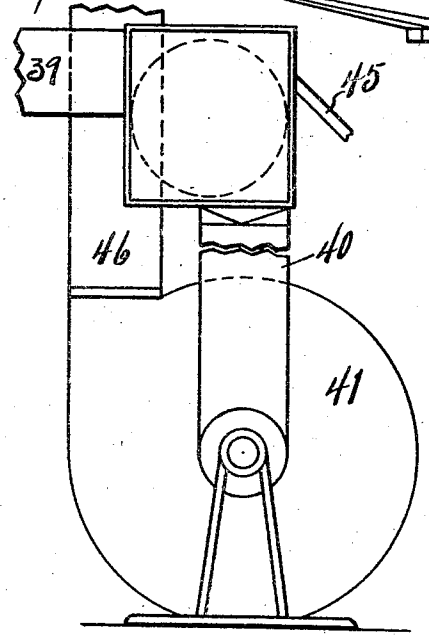
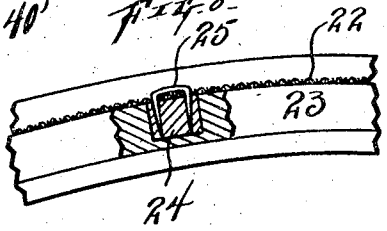


Fig. 8.



INVENTOR
GEORGE W. MARTIN.

BY A. O. Jackson

ATTORNEY

Patented May 6, 1930

1,757,256

UNITED STATES PATENT OFFICE

GEORGE W. MARTIN, OF FORT WORTH, TEXAS

VACUUM CLEANER AND CONDENSER

Refiled for abandoned application Serial No. 65,960, filed October 31, 1925. This application filed November 25, 1929. Serial No. 409,694.

My invention relates to condensers for linting and ginning machines for cleaning and condensing lint, hair, and other substances; and the object is to provide condensers and cleaners for cleaning lint, cotton, linters, hair, wool, and other substances and forming bats by fan vacuum, this invention being improvements on my former Patent, No. 1,299,982, April 8, 1919. Other objects and advantages will be fully explained in the following description and the invention will be more particularly pointed out in the claims.

Reference is had to the accompanying drawings which form a part of this application.

Fig. 1 is an end elevation of the condenser.

Fig. 2 is a detail view of the trunnions for supporting the revolving screen which is provided with tracts running on the trunnions.

Fig. 3 is a front elevation of the condenser, partly broken.

Fig. 4 is a detail sectional view, showing the screen construction and frame therefor and the track and guides.

Fig. 5 is a broken sectional view, illustrating the seal, the screen and means for blowing the lint from the screen between the stripping rollers, compressed air being supplied to the pipe shown.

Fig. 6 is a rear elevation of the condenser, partly in section.

Fig. 7 is a diagrammatic and elevation of the condenser on a smaller scale.

Fig. 8 is a detail view, showing the manner of attaching the screen to the reel.

Similar characters of reference are used to indicate the same parts throughout the several views.

The condenser is provided with a rectangular frame, having uprights 1 and 2, upper cross-beam 4, and base cross-beam 3 on each end. The machine frame has longitudinal beams 5 and 6 connected to the uprights 1 and 2. The revolving screen is mounted within the frame.

The screen has two circular frame members 7 and 8 which are provided with radial flanges which form tracks 9, which run inside of the end housing 10. The entire screen is supported on the tracks 9 which run on four trunnions 11. Two of the trunnions 11 are rigid with the revolving shaft 12 and the other two are supported on the drive shaft 13. The frame members 7 and 8 form the screen reel and the reel is driven by a cog wheel 14 which is integral with the circular frame member 7 and this cog wheel 14 is driven by a pinion 15 which is rigid with shaft 13 and the shaft 13 is driven by a pulley 16 which may be driven by any suitable power. The shafts 12 and 13 are journaled in bearings 17. The screen revolves within the disk housings 10. The housings 10 are made stationary by cleats 20 which are riveted to the housings 10 and attached to the frame housings 21. The cog wheel 14 is formed on a lateral flange of the circular frame member 7, of the screen reel. The cleats 20 serve to form a guide for the screen reel because the flanged cog wheels 14 run in the loops formed by the cleats 20.

The screen 22 is attached to lateral flanges 23 on the frame 7 and 8. The manner of attaching the screen 22 to the flanges 23 is to form circular cavities in the flanges and then to drive wooden pegs or fillers 24 in the cavities and then to drive staples 25 through the edges of the screen into the wooden pegs 24. The screen 22 is supported throughout its length between the circular frame members 7 and 8 by longitudinal bars 26, which have their ends secured in radial slots 27 which are formed in the inner lateral faces of the flanges 23. The bars 26 should be one-fourth inch thick and one and one-half inches wide.

Provision is made for stripping the lint from the screen 22. On the front part of the condenser, rollers 28 and 29 are provided for stripping and condensing the lint. These rollers are provided with gear wheels 30 and 31 for driving the rollers.

Gear wheel 30 is driven by the cog wheel 14 and wheel 30 drives wheel 31. A pipe 32 is mounted within the screen 22 and supported on the housings 10 and this pipe is perforated from end to end. The object of this pipe is to discharge compressed air for blowing the lint from the screen 22 in between the rollers 28 and 29. Guard members 33 are mounted on each side of the row 34 of perforations so

that the blasts discharged from the perforations 34 will not be diffused but driven to the rollers 28 and 29, stripping the lint from the screen 22. The bars 26 will be in close proximity to the guard members 33 and the blasts of compressed air will be discharged between the bars 26, as illustrated in Fig. 5. Compressed air is supplied to the pipe 32 from any suitable supply source. Provision is made for sealing a portion of the space within the screen as the screen approaches the compressed air pipe 32. A partition 36 is extended throughout the width of the screen and attached to the housings 10. The object is to cut off a portion of the space within the body of the screen so that a relatively small part of the screen will be exposed to the action of the air, approximately one quarter, more or less of the periphery of the screen being so exposed to the action of the air. The part of screen so protected by the partition 36 extends from the compression roller 37 to the roller 28. The roller 37 presses the air out of the cotton or other material and forms a bat of the material and the roller 37 forms a seal together with the partition 36 and guard members 33 so that the suction through the main body of the screen will not tend to draw the lint or cotton or other material backward towards the roller 37. A supplemental compressed air pipe 38 is placed below the roller 29 to co-operate with the rollers 28 and 29 in stripping the material from the screen and to prevent the material from being blown down below the roller 29. The blower pipe 38 will be particularly useful in case of heavy material, to prevent the material from falling down. This pipe 38 is perforated in the same manner as pipe 32 for escape of air which is forced through the pipe.

Suction is created on the inside of the screen by a pipe 39 which leads from the atmosphere or a line of pipe and the air and dust redrawn through the interior of the screen and out through the pipe 40 to the fan 41 which discharges the dust and dirt or sand into a dust collector or to the atmosphere.

The air suction through the body of the screen 22 will draw some of the material through the screen 22 within the main body of the screen and this material will be caught on the bars 26. In order to clean the material from the bars 26 and put such material back on the outside of the screen, a portion of the periphery of the screen 22 will be cut off or separated from the main space within the screen by a partition 42 which extends the full width, the same as partition 36, of the screen and is attached to the housings 10. A pipe 43 is run through this cut-off space and a pipe 44 is connected to pipe 43 and extended up and projected through an opening into the interior of the housing 21 so that this material brought up by suction through the pipe 44 will be again thrown on the outside of the screen 22.

The rollers 28 and 29 form a bat of the cleaned fibre which descends on the chute 45 to be delivered to a press (not shown). The lint or a material to be condensed comes from the gin stands (not shown) through the pipe 39 and is thrown on the revolving screen 22. The dust is drawn out through the screen and discharged through the fan 41 and out through the pipe 46. The lint is condensed on the exterior of the screen 22 and stripped from the screen by blasts from pipe 34 and blown to the rollers 28 and 29 in the form of a bat and descends by way of the chute 45 to the press.

Various changes in the sizes, proportions, constructions, and arrangement of the several parts may be made without departing from my invention.

A baffle 47 is stationary with the end housing members 10 and serves to prevent the suction draft from interfering with the material which is passing the sealed portion bounded by the members 36 and 33. The sealed portion of the space within the screen which is about the suction pipe 43 is provided with members 42 and 46 which serve to seal the suction from that portion of the screen which is passing the member 46. The pipe 43 has a longitudinal slot 48 so that the material which is lodged on the bars 26 will be drawn into the pipe 43 as each bar 26 passes the slot 48.

This application is filed as a substitute for my application filed Oct. 31, 1925, Ser. No. 65,960, allowed March 5, 1928.

What I claim is:—

1. A condenser and cleaner comprising a revolving screen and a housing therefor, circular tracks rigid with said screen, a pair of shafts and trunnions on said shafts for supporting said screen, gear wheels rigid with said tracks, a pinion on one of shafts for driving said screen, means for delivering material to said screen to be cleaned and condensed, and means for stripping the condensed material from said screen.

2. A condenser and cleaner comprising a reel consisting of two circular frame members and bars connected to said frame members for spacing and holding said members in operative position, said frame members having annular flanges projecting laterally inward and slotted to engage the ends of said bars and said frame members having annular flanges projecting laterally outward and gear wheels formed thereon and said frame members having annular flanges projecting radially outward to form tracks for said reel, trunnions for supporting said reel by supporting said tracks, shafts for said trunnions, pinions on one of said shafts for driving said gear wheels, a screen attached to said spacing bars, means for creating suction

through said screen and delivering material thereto, and means for stripping material from said screen and forming a bat thereof.

3. A condenser and cleaner comprising a revolving screen and a housing therefor, circular tracks rigid with said screen, a pair of shafts and trunnions on said shafts for supporting said screen by supporting said tracks, means attached to said housing for guiding said screen preventing displacement thereof, pinions on one of said shafts for driving said screen, means for creating suction through said screen and delivering material thereto, and means for condensing material on said screen and means for stripping material therefrom and forming a bat thereof.

4. A condenser and cleaner comprising a revolving screen and means for creating suction therethrough and delivering material thereto, means for condensing material thereon, rollers for stripping material therefrom and forming a bat thereof, and a blast pipe below said rollers co-operating therewith for forcing material between said rollers.

5. A condenser and cleaner having a revolving screen consisting of two circular frame members having lateral flanges projecting inwardly and provided with radial slots, bars for spacing said frame members secured in said slots, a wire mesh supported on said bars and covering said flanges, said flanges having circular cavities, wooden plugs in said cavities, staples driven through said screen into said wooden plugs for securing the screen to said flanges, means for creating suction through said screen and for delivering material thereto, and means associated with said screen for condensing the cleaned material and forming bats thereof.

6. A condenser and cleaner having a revolving screen and means for creating suction therethrough and delivering material thereto, means for condensing material on said screen means for stripping material therefrom and forming bats, means for removing material from the interior of said screen consisting of a suction pipe provided with a longitudinal slot adjacent to the interior of said screen and means for sealing a space about said suction pipe from said screen, except along said guarding means adjacent to said slot, and an extension of said suction pipe extended upwardly and within the screen housing for delivering the material to the outside of said screen.

In testimony whereof, I set my hand, this 23rd day of November, 1929.

GEORGE W. MARTIN.