May 29, 1956 L. E. SEGESMAN 2,747,215

CONVERTER CONTROLLING HANDLE POSITION IN SUCTION CLEANER

Filed April 3, 1951 3 Sheets-Sheet 1

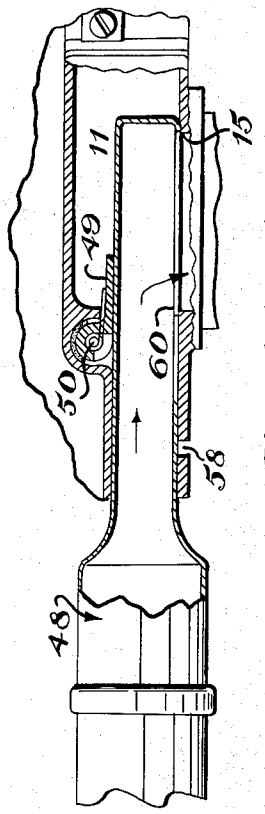


Fig. 4

Fig. 1

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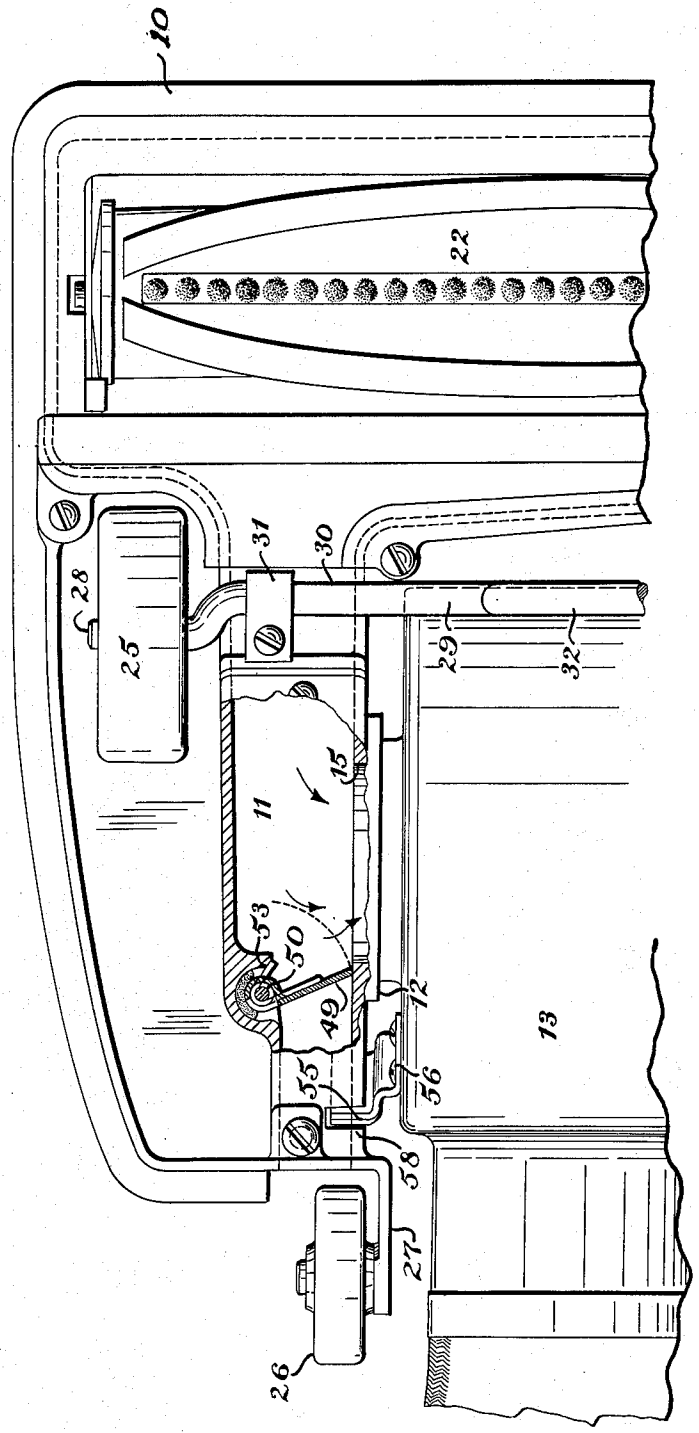


Fig. 2

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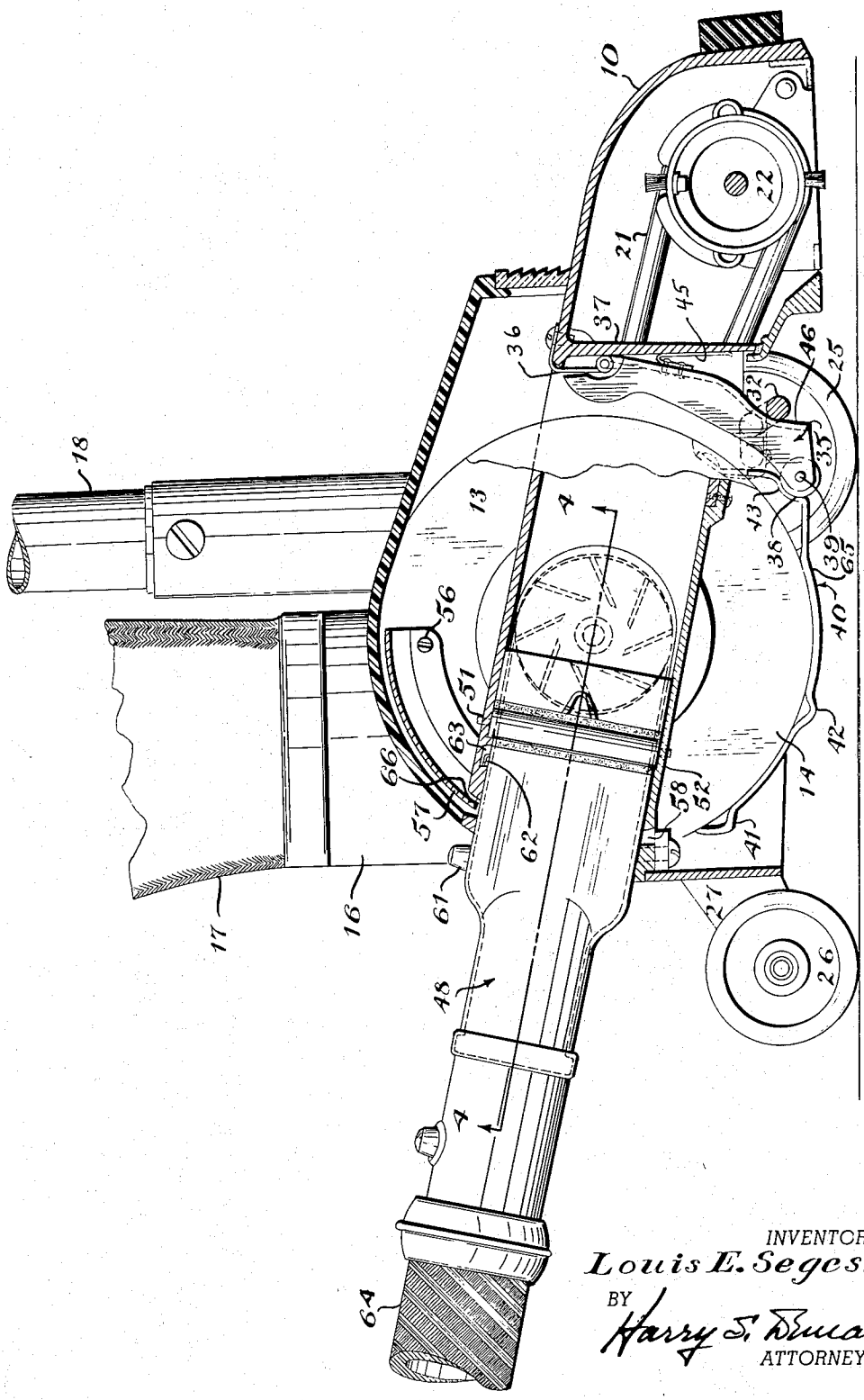


Fig. 3

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United States Patent Office 2,747,215 Patented May 29, 1956

2,747,215

CONVERTER CONTROLLING HANDLE POSITION IN SUCTION CLEANER

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Application April 3, 1951, Serial No. 218,947

3 Claims. (Cl. 15—333)

This invention relates to suction cleaners, and more particularly to converting a cleaner to and from off-the-floor cleaning.

An object of the invention is to provide a suction cleaner having a converter receiving port which is opened and closed by a barrier controlled by movement of the cleaner propelling handle into different positions. Another object is to provide a handle controlled barrier for a converter port and which cooperates with a converter, when attached to the port, to maintain the handle in one of its positions during off-the-floor cleaning. A further object is to provide a nozzle adjusting device which is locked in high nozzle position by a handle controlled barrier cooperating with a converter when the latter is attached to the cleaner. Other objects and advantages of the invention will be apparent from the following description and drawings, wherein:

Figure 1 is a side view partly in section of the cleaner in position for on-the-floor operation;

Figure 2 is a partial bottom view of Figure 1;

Figure 3 is a view similar to Figure 1 but showing the converter attached for off-the-floor cleaning; and

Figure 4 is a section along the line 4—4 of Figure 3.

The embodiment of the invention herein disclosed comprises a cleaner body provided with a surface cleaning nozzle **10** from the opposite ends of which extends a suction air passageway **11** and an unshown belt conduit each having a trunnion **12** rotatably supporting a housing **13** for a fan chamber **14** and an unshown motor. The fan chamber **14** has an inlet **15** and an exhaust **16** to which is attached the lower end of a filter bag **17** suitably supported at its upper end to a handle **18** secured to the housing **13**. A fan **19** is supported on the motor shaft **20** and the unshown opposite end of the latter is provided with a pulley for a belt **21** in the belt conduit, and the belt **21** is connected to an agitator **22** rotatably mounted in the nozzle **10**.

The cleaner body is supported on front wheels **25** and a pair of rear wheels **26**, the latter being each mounted on brackets **27** attached to the cleaner body. The front wheels **25** are supported on aligned offset ends **28** of a crank shaft **29** having intermediate offset portions **30** rotatably secured to the cleaner body by brackets **31**, and the shaft also has a central offset portion **32**.

An adjusting device for the nozzle **10** includes a lever **35** pivoted on a pin **36** mounted on the nozzle rear wall **37** and is provided at one end with a roller **38** supported on a pin **39**. The lower portion of the lever **35** is located between the central offset shaft portion **32** and a member **40** secured to the housing **13**, and the member **40** has stops **41** and **42** and a recess **43** for engagement with the roller **38** to limit movement of the handle **18** to its low, intermediate and vertical positions. A spring **45** at all times urges the roller **38** into engagement with the member **40**. The weight of the cleaner on the front wheels **25** at all times tends to rotate the shaft **29** clockwise and thus urges the center offset portion **32** of the shaft into engagement with the arcuate surface **46** of the lever **35**, whereby pivotal movement of the latter adjusts the nozzle **10**.

The suction air passageway **11** extends rearwardly of the fan eye **15** and terminates in a port **47** for inserting a converter **48** into the passageway. Entrance of air through the port **47** into the passageway **11** is controlled by a valve **49** supported on a pin **50** rotatably mounted in the walls **51** and **52** of the passageway **11**, and a spring **53** maintains the valve **49** in closed position during on-the-floor cleaning.

Access to the port **47** is controlled by a barrier or cover **55** secured to the housing **13** by screws **56** and has an arcuate portion **57** which extends between the walls **51** and **52** of the passageway **11** when the handle is in the position shown in Figure 1. A slot **58** in the wall of the air passageway permits movement of the barrier **55** with respect to the rear port **47** upon shifting the handle **18** between its horizontal and vertical positions. When the handle is moved to the vertical position shown in Figure 3 the barrier **55** is beyond the port **47** to permit insertion of the converter **48** into the air passageway **11**.

The converter **48** is provided at one end with an opening **60** for connection with the fan eye **15**, and a knob **61** operates a spring latch **62** which seats in a recess **63** in the top wall of the air passageway to position the opening **60** with respect to the fan eye **15**. One end of a hose **64** is attached to the converter **48** and the opposite end is provided with a suitable surface cleaning tool.

When the cleaner is employed for on-the-floor operation, the nozzle **10** is maintained in the adjusted position shown in Figure 1 during movement of the handle between its low and high operating positions, since the weight of the cleaner on the front wheels **25** rotates the shaft **29** clockwise to move the offset shaft portion **32** against the arcuate surface **46** of the lever **35**, and the roller **38** constantly engages the radial surfaces on the member **40** between the stops **41** and **42**, and the stop **42** and the point **65** on the member **40**. During such movement of the handle **18**, the barrier **55** obstructs the converter port **47** to prevent insertion of the converter **48** and the valve **49** is maintained in its closed position by the spring **53**. The dirt removed from the surface by the agitator **22** is carried by the air stream through the passageway **11** and fan eye **15** into the fan chamber **14** from which it is discharged into the bag **17** and the latter filters the dirt from the air stream.

When it is desired to perform off-the-floor cleaning, the handle **18** is moved to its vertical position shown in Figure 3 and the roller **38** seats in the recess **43** causing the lever **35** and the shaft **29** to rotate counterclockwise and lower the front wheels **25** to raise the nozzle to inoperative surface cleaning position. The barrier **55** is also shifted to uncover the port **47**, and the converter **48** is then inserted from the rear of the cleaner body through the port **47**, and during such insertion the valve **49** is moved to its open position and when the spring latch **62** seats in the recess **63** the converter opening **60** is seated adjacent the fan eye **15** to disconnect the latter from the nozzle **10**. The suction created by the fan **19** is then available to the hose **64** and its cleaning tool to clean surfaces off the floor.

The handle **18** is locked in its vertical position by the end **66** of the barrier **55** abutting the converter **48**, and rotation of the housing is also prevented to thereby position the seat **43** opposite the roller and maintain the nozzle **10** in its inoperative surface cleaning position.

In order to remove the converter **48**, the knob **61** is depressed to move the spring latch **62** out of the recess **63** and unlock the converter which is then pulled rearwardly out of the port **47**. Thereafter the handle **18** is free to be moved to its operating range.

While I have shown and described but one embodiment

of my invention, it is to be understood that this embodiment is to be taken as illustrative only and not in a limiting sense. I do not wish to be limited to the particular structure shown and described but to include all equivalent variations except as limited by the scope of the claims.

I claim:

1. A suction cleaner comprising: a body having suction creating means, means defining an inlet to said suction creating means, a surface cleaning nozzle, an air passageway between said nozzle and inlet, a port in said air passageway for inserting a converter adapted to extend into communication with said inlet and interrupt flow of air between said inlet and said nozzle, a handle mounted on said body for movement to different positions, a barrier for said port mounted for movement with said handle and at all times arranged at one side of said inlet to remain in non-interrupting relation between said inlet and nozzle during movement of said handle to different positions, said barrier obstructing said port when said handle is in one position and movable with said handle to non-obstructing position beyond said port to permit said insertion of said converter upon movement of said handle to another position, said converter when inserted being arranged with respect to said barrier to prevent movement of the latter and thus said handle from said another position.

2. A suction cleaner comprising: a body having suction creating means, means defining an inlet to said suction creating means, a surface cleaning nozzle, an air passageway between said nozzle and inlet, a port in said air passageway for inserting a converter adapted to extend into communication with said inlet and interrupt flow of air between said inlet and said nozzle, a handle mounted on said body for movement to different positions, nozzle adjusting means movably mounted on said body and operatively connected to said handle to raise said nozzle when said handle is moved to one position, a barrier for said port and at all times arranged at one side of said inlet in non-interrupting relation between said inlet and nozzle and operatively connected to said handle for movement therewith relative to said port to non-obstructing position beyond said port to permit said insertion of said converter upon movement of said handle to its said one position, said converter when inserted being arranged with respect to said barrier and handle to prevent movement of the latter and thus maintain said nozzle in its raised position.

3. A suction cleaner comprising: a body having suction creating means, means defining an inlet to said suction creating means, a surface cleaning nozzle, an air passageway between said nozzle and said inlet and extending beyond the latter to a port facing the rear of said body for insertion of a converter adapted to extend into said passageway into communication with said inlet and interrupt flow of air between said inlet and said nozzle, a handle on said body movable to different positions, a barrier for said port mounted for movement with said handle relatively to the entrance of said port, valve means movably mounted in said air passageway between said inlet and barrier, said handle when in one position moving said barrier to non-obstructing position beyond said air passageway for insertion of said converter through said port to move said valve means to open position, said converter when inserted being arranged with respect to said barrier to prevent movement of the latter and thus said handle from said one position.

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