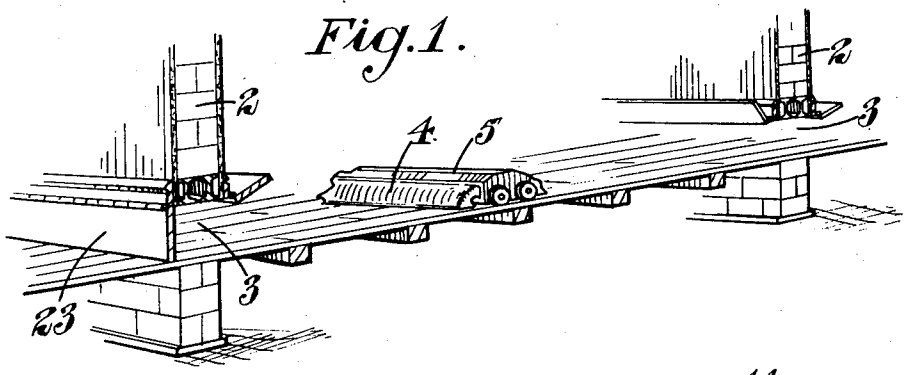
July 18, 1933. A. RILEY 1,919,132

CLEANING OF ROOMS

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Fig. 1.



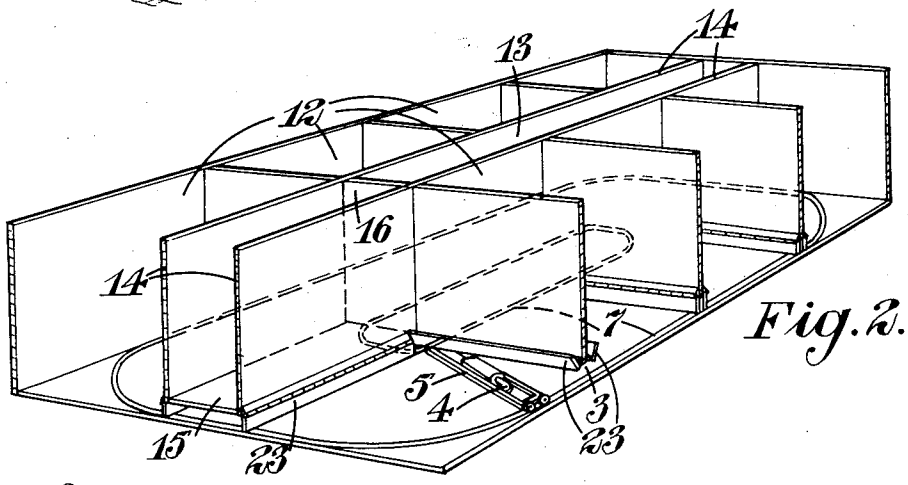


Fig. 2.

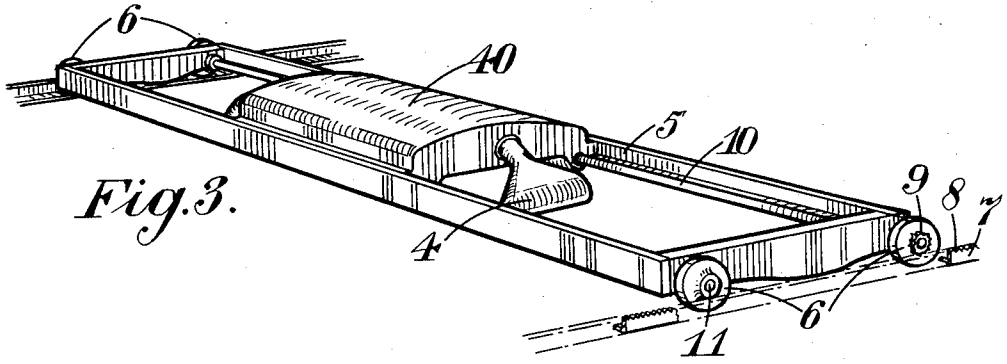


Fig. 3.

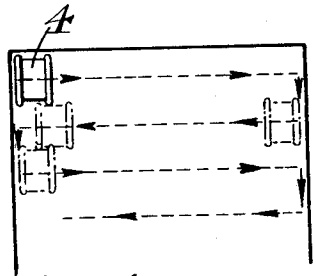


Fig. 4.

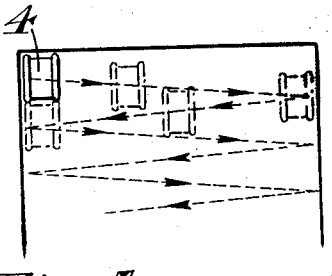


Fig. 5.

Inventor
Allan Riley
by Mawhinney & Mawhinney
Attorneys.

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CLEANING OF ROOMS

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Fig. 6.

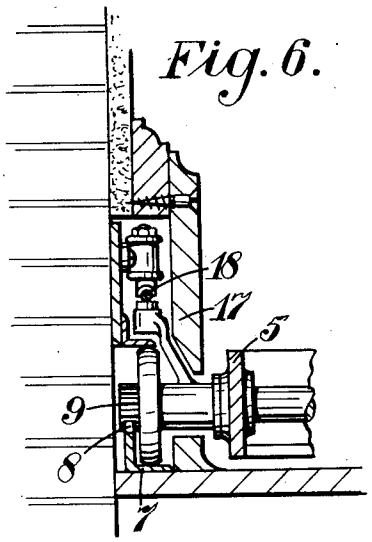
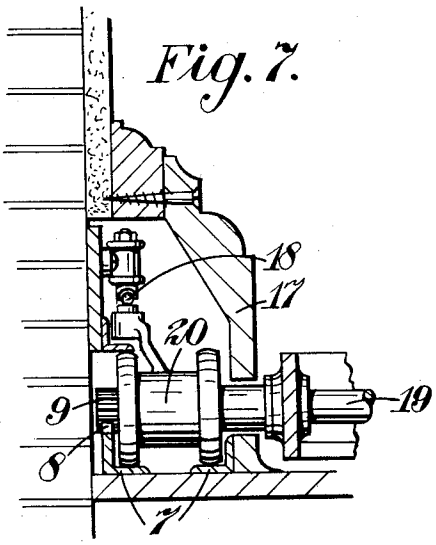


Fig. 7.



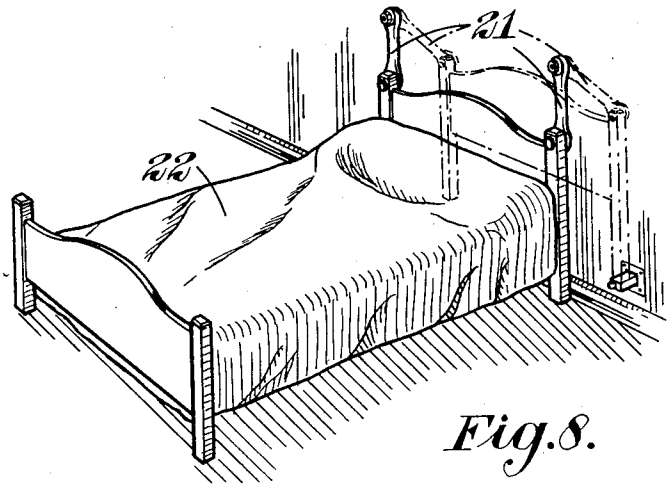


Fig. 8.

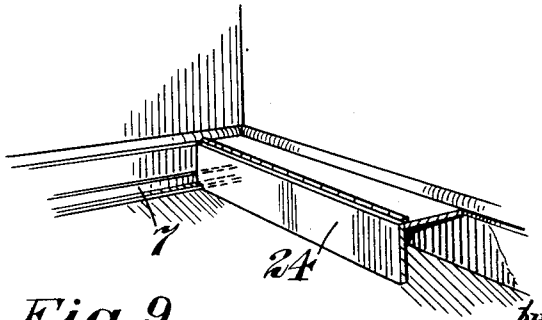


Fig. 9.

Inventor
Allan Riley
by Mawhinney & Mawhinney
Attorneys.

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1,919,132

UNITED STATES PATENT OFFICE

ALLAN RILEY, OF FILLONGLEY, NEAR COVENTRY, ENGLAND

CLEANING OF ROOMS

Application filed April 6, 1932, Serial No. 603,581, and in Great Britain April 7, 1931.

This invention relates to dwelling-houses or other buildings, and has for one of its objects to provide improved means for enabling a floor to be quickly cleaned or similarly acted upon. A further object is to enable all the floors of rooms on the same level to be easily, quickly and completely cleaned, if necessary, in one operation. The term "cleaned" is used to cover polishing, washing, vacuum-cleaning, etc.

According to one feature, a floor-cleaning, polishing or like device is mounted upon a movable carriage guided by means adjacent a side of the floor.

According to a further feature, a method of cleaning or otherwise treating the floors of a number of rooms on a common level consists in passing the guided cleaner from one room to the next through openings in the walls.

In the accompanying drawings,

Figure 1 is a perspective sectional view of a fragmentary part of a building having a number of rooms on the same level the floors of which are acted upon in accordance with the invention,

Figure 2 is a diagrammatic perspective representation partly in section, of a modified form of the building and floor-cleaning or like apparatus adapted in accordance with the invention,

Figure 3 is a perspective view of one form of self-actuated and self-propelled cleaning apparatus,

Figures 4 and 5 are diagrams illustrating alternative methods of traversing the floor with the cleaning apparatus shown in Figure 3,

Figures 6 and 7 are fragmentary sections showing alternative guiding and driving means for the cleaning apparatus,

Figure 8 is a perspective view of a bed showing diagrammatically one method of suspending it clear of the floor so that the cleaning device can pass beneath it, and

Figure 9 is a perspective view of a corner of a room adapted in accordance with a feature of the invention.

In the arrangement shown in Figure 1, the walls 2, 2, between different rooms on the same level are each provided with an opening 3 the height of which is substantially that of a normal skirting-board whilst the lower edge is flush with the floor as shown.

Such openings enable a low-built but relatively wide floor-cleaning or like device 4 mounted on a carriage 5 to pass from one room to another, being guided by means at the side of rooms in a manner later described.

The advantages of the invention become more apparent when there are a number of rooms arranged in a straight line, the rooms being of substantially equal width and having, as far as possible, flush side walls. In this case the openings may extend the full width of each dividing wall, the latter being supported by a strong steel or other beam or beams. The cleaning device can then be arranged to clean the full width of the different floors in a single traverse from end to end of the set of rooms. Alternatively, it may only be half this width, in which case it may be moved up one side of the set of rooms, reversed in the end room and returned down the other side of the set, thus enabling the furniture in the various rooms to be moved aside to give it a clear run.

In further alternative methods of traversing the floor, the cleaner may be caused to move across the width of the room and at each end of its travel to move forwardly in the manner indicated by the arrows and dotted lines in Figure 4, or the cleaner, while traversing the width of the floor, can also be caused simultaneously to move forwardly as indicated in Figure 5.

To permit of this the cleaning device 4 is relatively narrow and incorporated with a saddle 40 mounted for reciprocation on a carriage 5 (Figure 3) which is substantially the width of the floors to be acted upon. This carriage is adapted for moving longitudinally of the floor. For this purpose, wheels or rollers 6, 6 are provided on the ends of the carriage and these are guided on rails 7, 7 extending the length of the room adjacent each side wall. One of the rails is provided with rack teeth 8, and a pinion 9 coaxial with one of the wheels 6 engages these teeth so that when the pinion is rotated the carriage will be moved along the rails 7. The saddle 40 is slidable on the carriage and engages shafts 10 and 11 on which the rollers 6 are mounted.

In the arrangement shown in Figure 2, involving a building specially constructed to incorporate the features of the invention, there are arranged, on the same level, a number of rooms 12, 12 on either side of a central passage 13 which extends the full length

of the building and into which the rooms may open. The dividing walls 2 of the rooms, and also those 14, 14 between the end rooms and the passage, are provided with openings 3, 3 at their lower ends extending the full width of the respective walls. Such an arrangement provides a closed circuit for the floor-cleaning device, such as that shown in Figure 3, which can be moved on guide rails 7, 7 through the rooms at one side of the passage, across the latter at the end, and then back through the rooms on the other side of the building. The cleaning device, when not in use, is conveniently stored under a false floor 15 at one end of the passage which may then be blanked off by a door 16. In each of the end rooms the cleaning device moves in a curved path which leaves untouched a portion in one corner which may be utilized to contain a fixture such as a fire grate or kitchen range or a heavy or non-portable piece of furniture, or the end rooms may be shaped to the curve swept by the cleaner.

The floor-cleaning device may be a vacuum-cleaner 4 or any other suitable device.

The cleaning device may be pushed by one or more persons, who would pass through doors in the various walls.

The rails 7, 7 may be sunk in the floor or disposed behind skirting-boards 17 as in Figure 6, the power being supplied from a suspended cable 18 or from one of the running rails.

In another arrangement as shown in Figure 7, the cleaning device, not shown, is attached to the end of an arm 19 projecting through a slot in skirting-boards from an electrically-propelled trolley 20 running on rails 7, 7, and propelled by a pinion 9 along the rack 8, all of which is disposed behind the skirting-boards. In this case the cleaning device could run on rubber-tired wheels or rollers and the carriage on which it is mounted could be the full width or slightly more than half the width of the room, in which latter case another carriage could be provided to travel the other side of the room.

In order to present an unobstructed floor space for cleaning, the less-easily portable furniture such as beds, tables, etc., would be fixed to the walls of the rooms or supported therefrom by lazy tongs or hinged arms such as 21 shown in connection with the bed 22 in Figure 8.

The apertures 3 in the dividing walls are preferably closable by sliding or hinged strips 23 arranged to simulate skirting-boards. These strips would be raised by hand or otherwise.

The invention can equally well be applied for cleaning the floor of a single room instead of a number thereof. In this case the guide rails 7, 7 can be disposed on the surface of the floor near the lower end of the skirting as shown in Figure 9. When not in use the carriage and cleaning device can be concealed in a casing or box such as 24 at one end of the room.

As it may be unnecessary to clean all the floors on the same level, for example, a floor of a bathroom, boxroom and the like, the cleaner may be arranged to pass beneath such rooms these being provided with false floors raised above those over which the cleaner travels in the manner shown at 15 in Figure 2.

When a permanent fitting, such as a fire-grate interferes with the clear run of the cleaner, the latter may be caused to travel beneath the grate and hearth, these for this purpose being fixed in a raised position above the floor.

By the invention the floor of a room or the floors of a number of rooms on the same level can be quickly and completely cleaned with little or no labour on the part of the operator.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. In a cleaning device for the floors of a building, the combination of walls defining compartments in the building and provided with spaces at the bottom of the walls opening against the floors, hinged skirting boards carried by the walls and normally suspended to enclose said spaces, a cleaning element for movement over said floor and having guide means projecting beneath said skirting boards and into said spaces, and guide rails disposed in said spaces beneath the walls and engaging the guide means of the cleaning element to maintain the latter in position when moved over the floor.

2. In a cleaning device for the floors of buildings, a cleaning element provided to move across the floor, walls defining a compartment on the floor a pair of opposite walls having spaces at their lower ends for receiving the opposite ends of the cleaning element, and guide rails mounted on said floor in said spaces beneath the walls and engaging the opposite ends of said cleaning element to guide the same for uniform movement at opposite ends over the floor.

3. In a cleaning device for floors, a movable cleaning element for engagement with the floor, walls defining compartments above the floor and having spaces at their lower ends opening against the floor to receive said cleaning element for movement between the defined compartments, and skirting boards hinged to the walls for enclosing the spaces therebeneath and adapted to be raised for admitting passage of the cleaning element beneath the walls.

ALLAN RILEY.