

May 24, 1955

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2,708,833

MOBILE AIR CONDITIONING MEANS FOR WINDOW OPENINGS

Filed Feb. 27, 1953

2 Sheets-Sheet 1

Fig. 1.

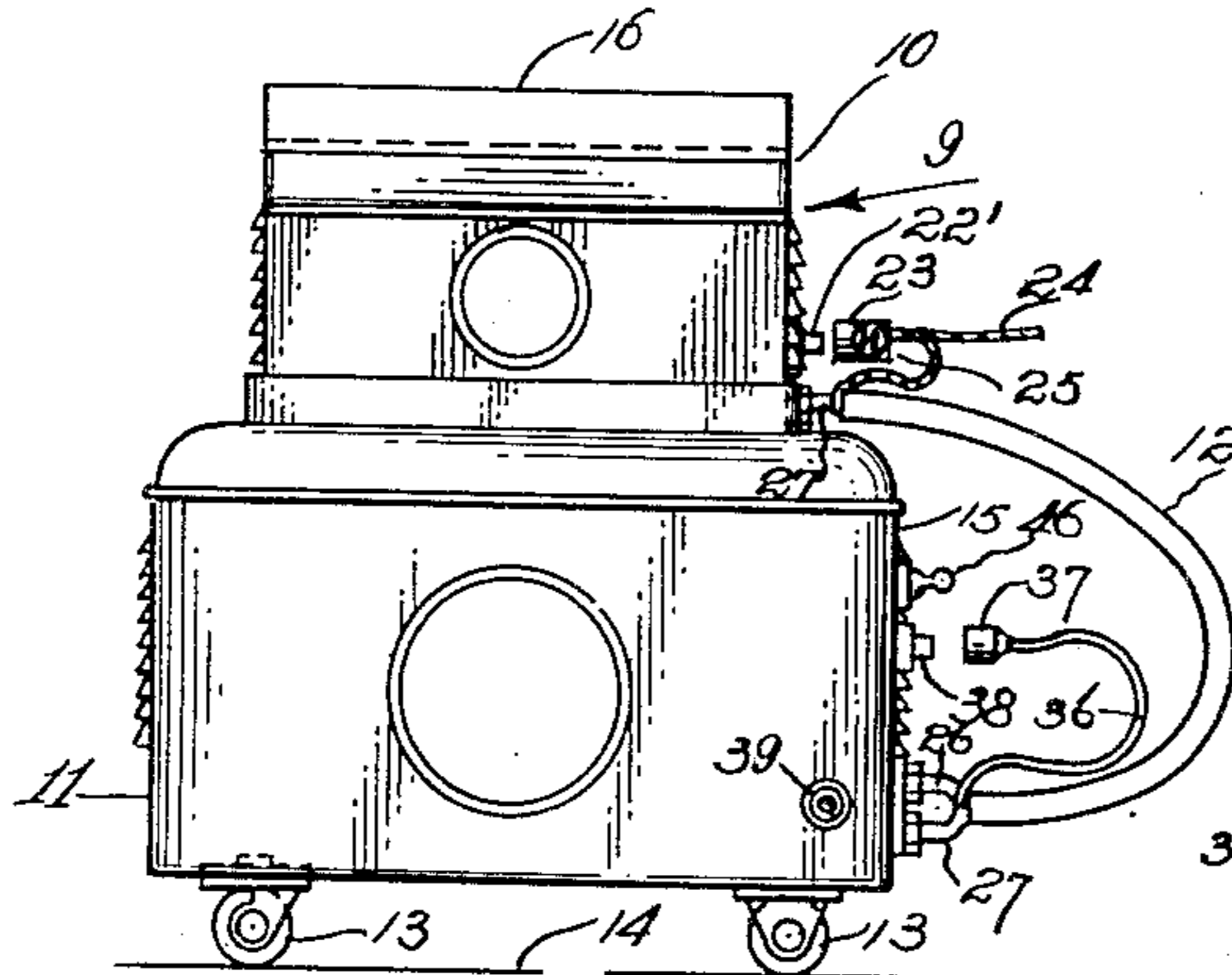


Fig. 2.

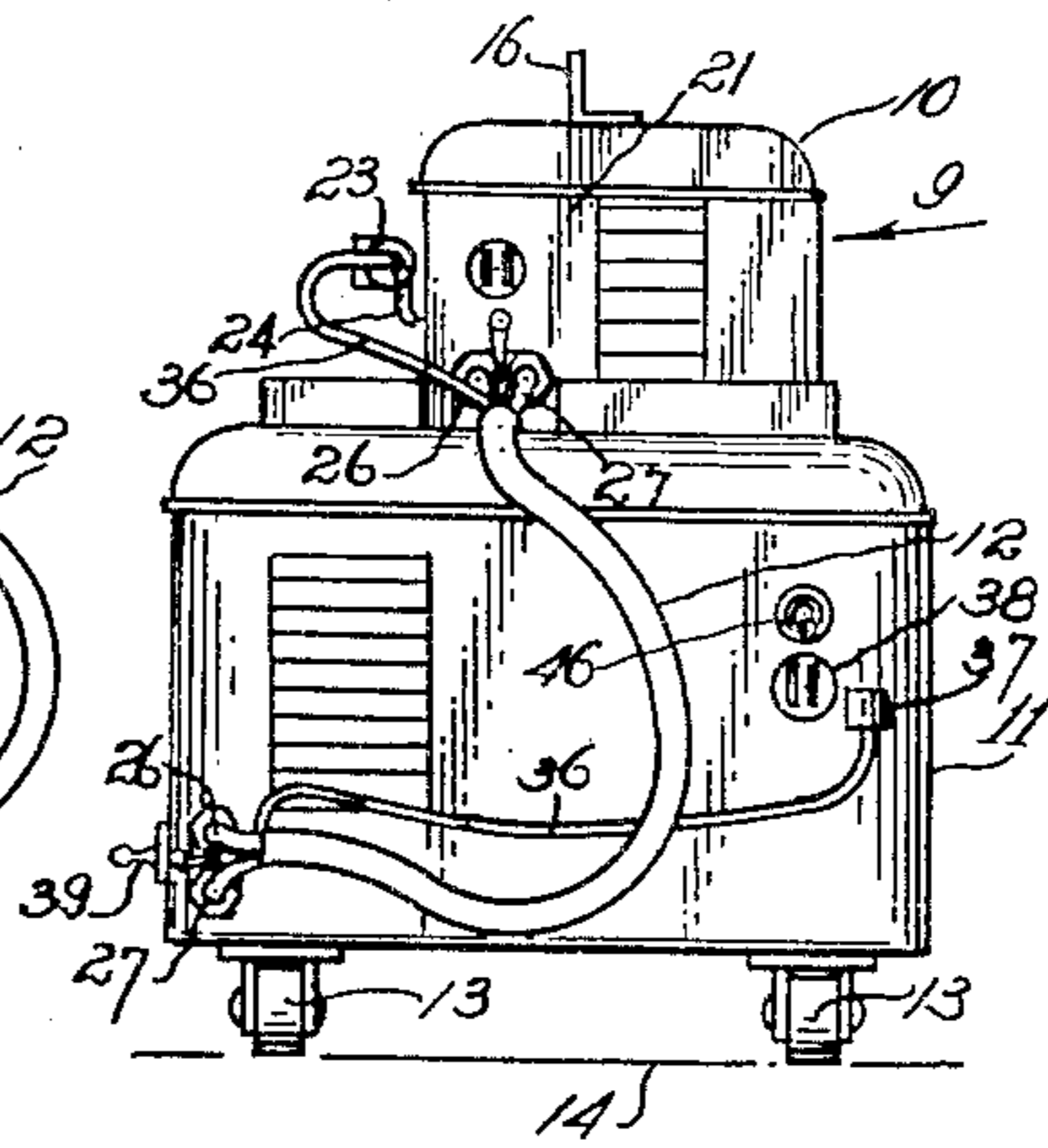


Fig. 3.

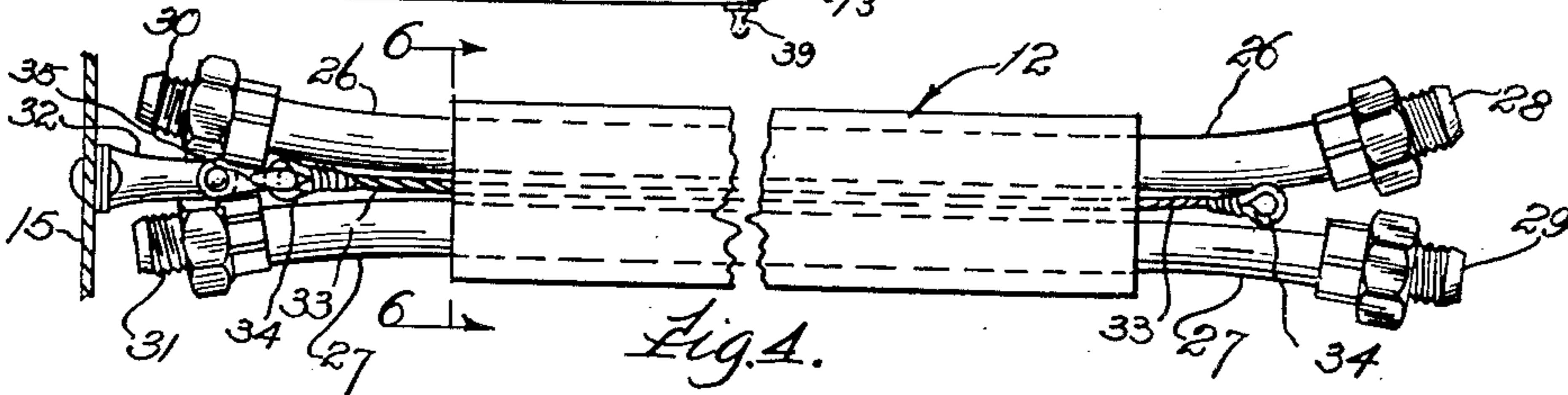
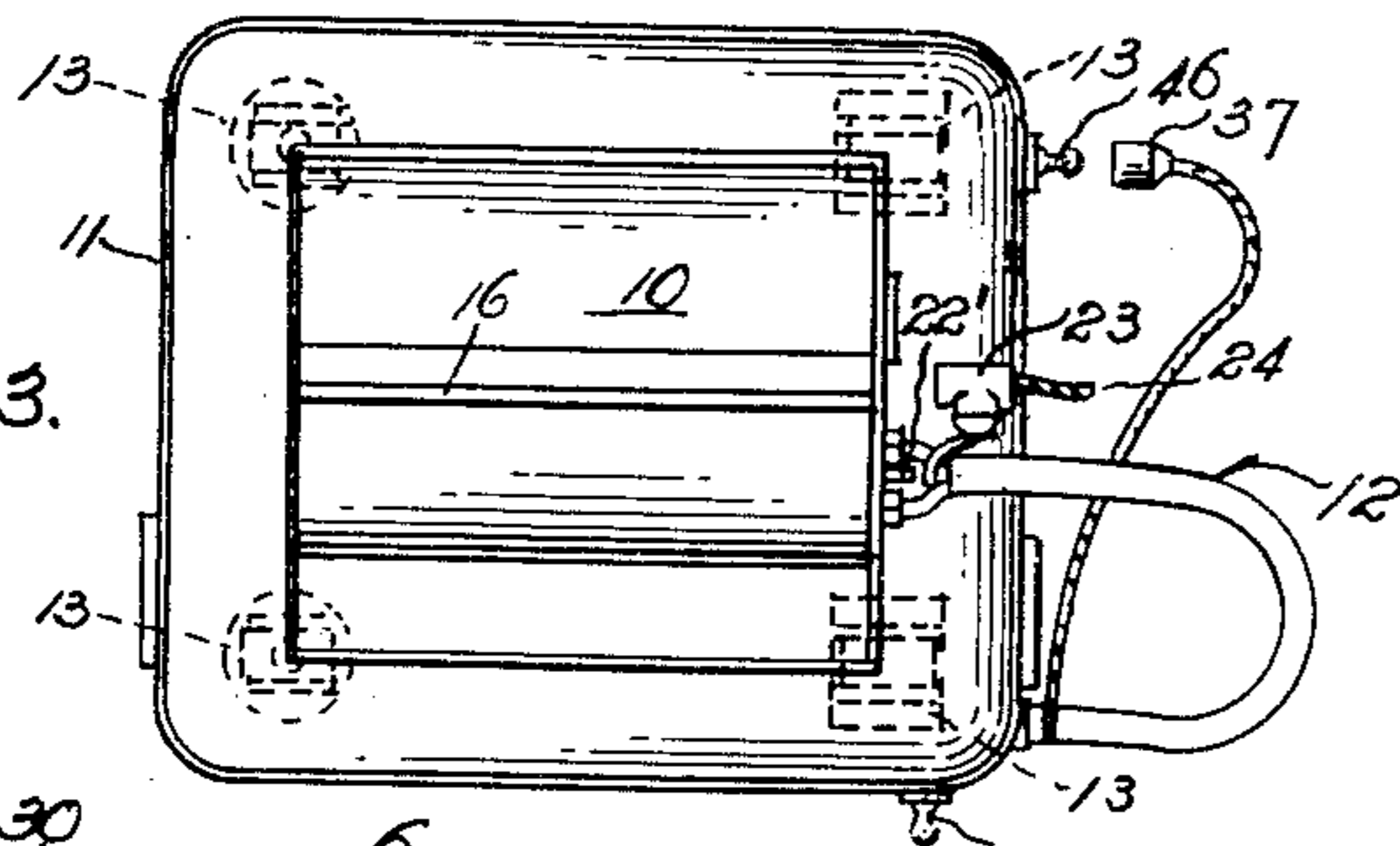


Fig. 4.

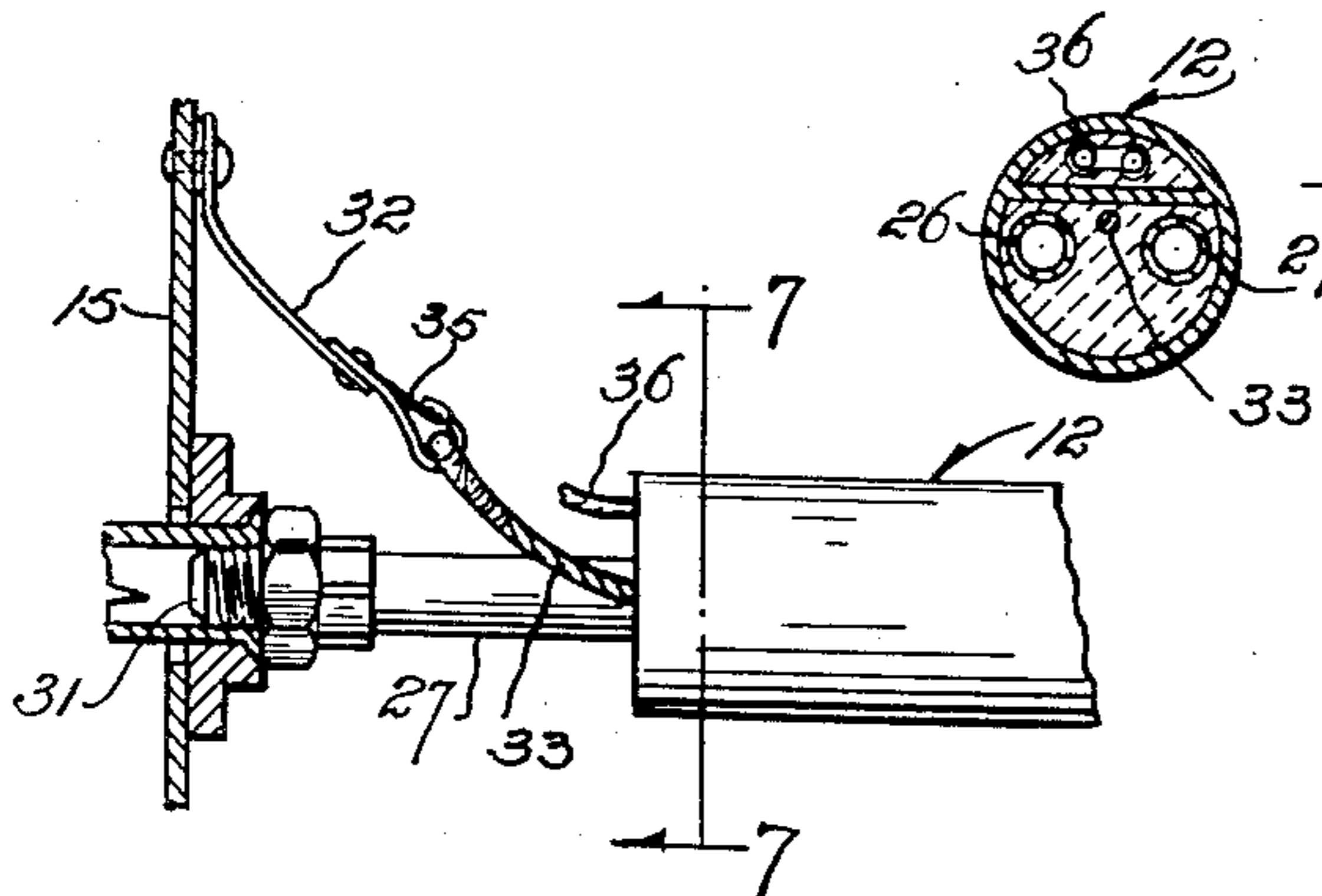


Fig. 5.

Fig. 6.

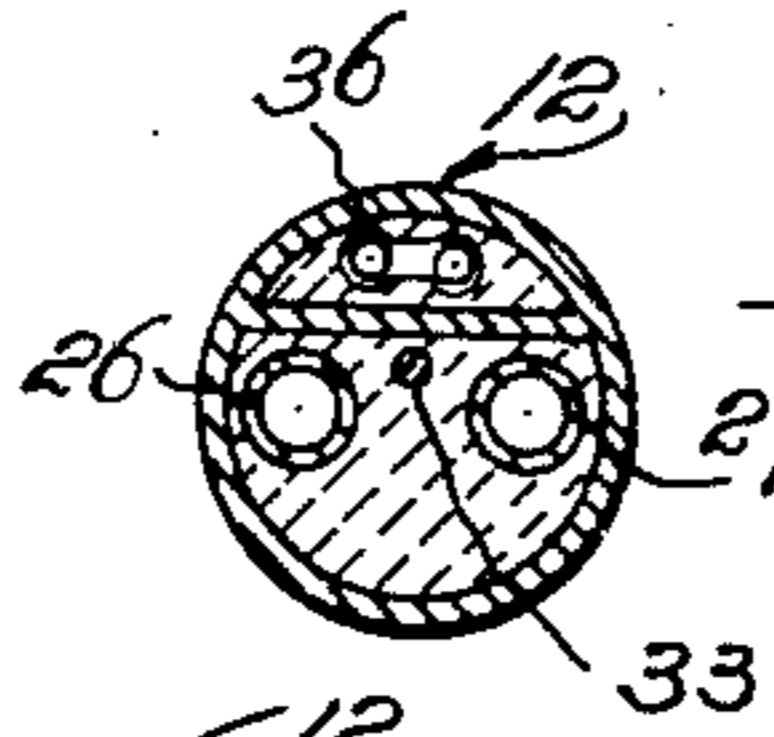
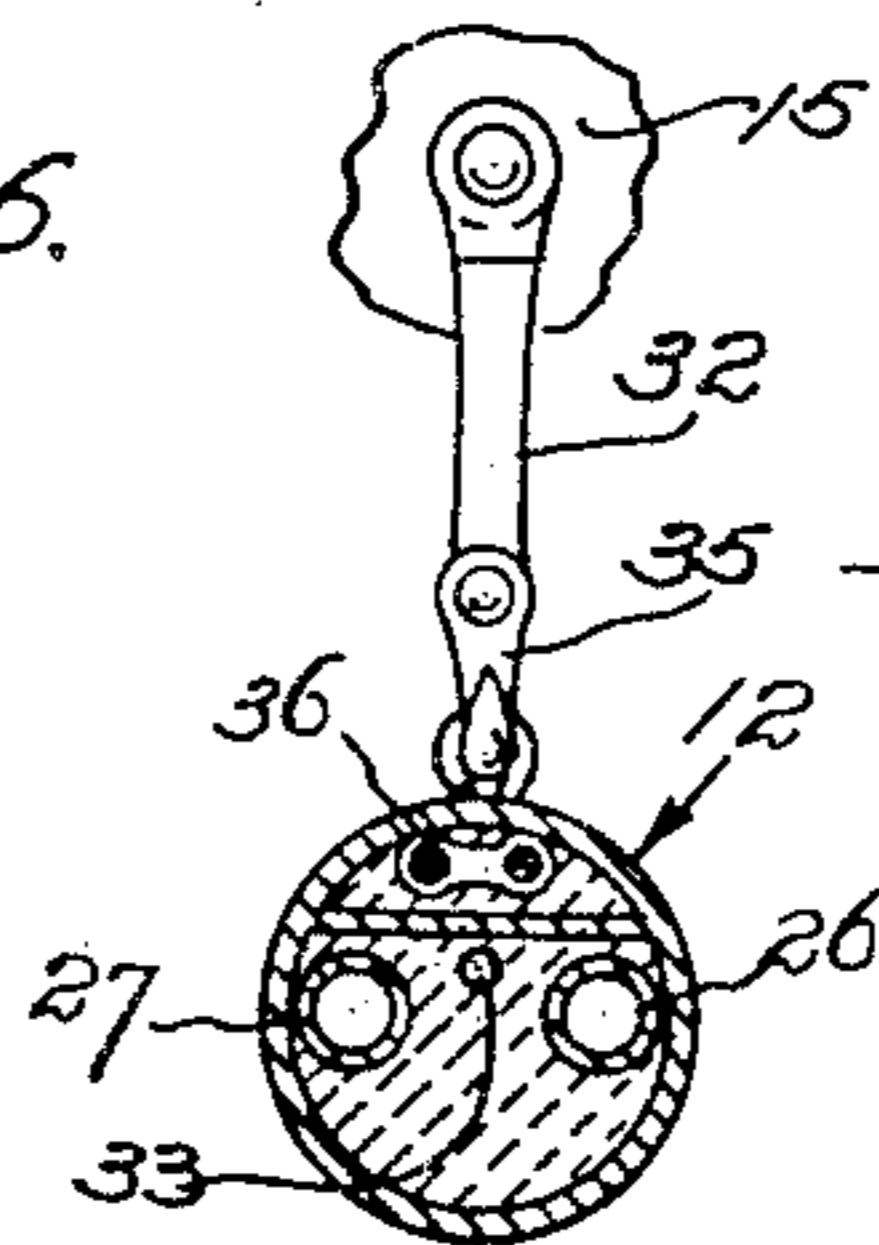


Fig. 7.



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2 Sheets-Sheet 2

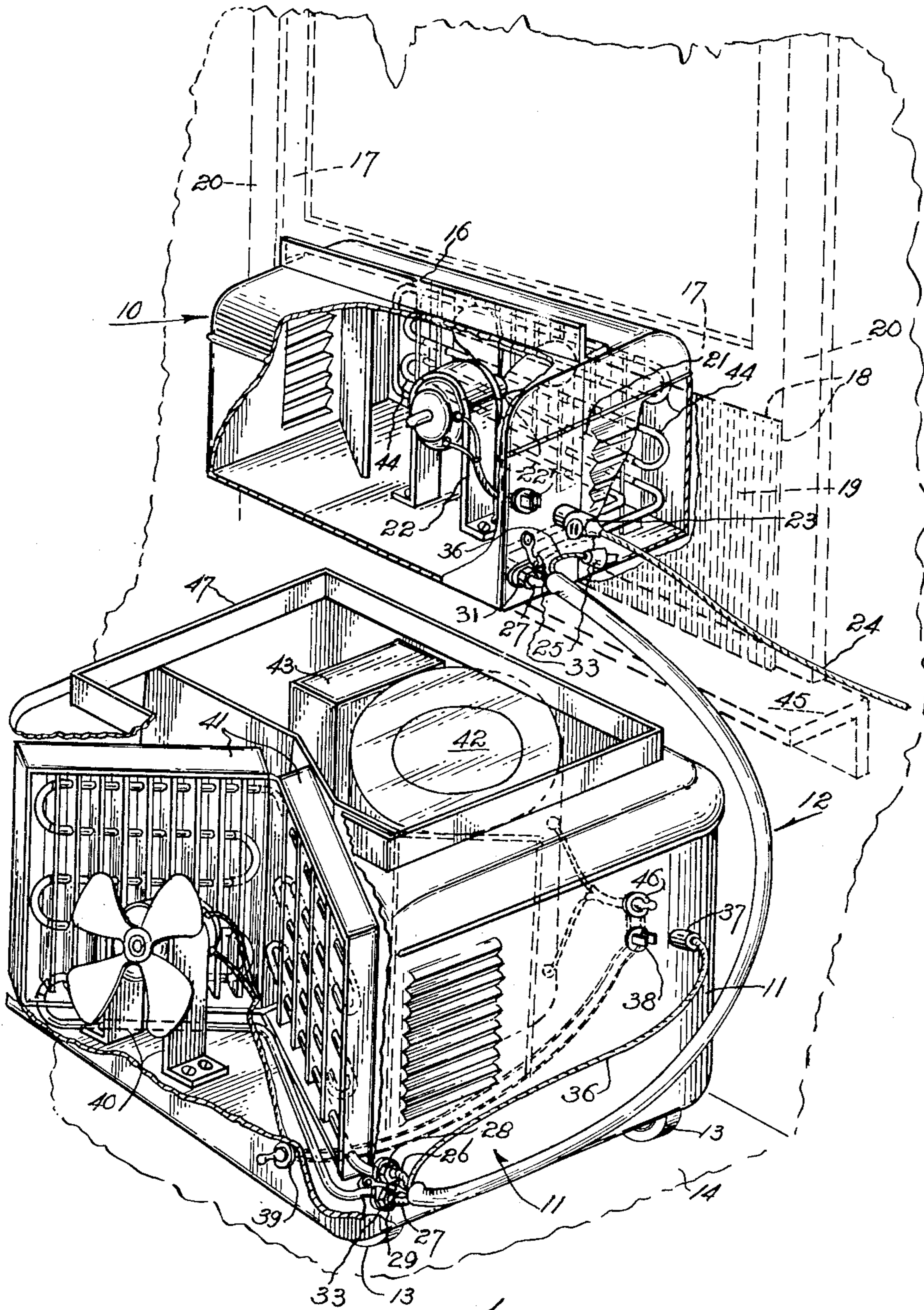


Fig. 8.

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1

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MOBILE AIR CONDITIONING MEANS FOR WINDOW OPENINGS

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Application February 27, 1953, Serial No. 339,230

5 Claims. (Cl. 62—129)

My invention relates to mobile air conditioning means.

An important object of my invention is to provide air conditioning means of the aforementioned character, which consists of two units, namely, a mobile compressor unit, and a portable condensing unit, as component units interconnected by flexible cable means so that the same may be moved from room to room or from one part of a room to another, near windows, so that the same may be installed in a window as indicated in Fig. 8.

Another object of my invention is to provide an assemblage of the aforementioned character which can be readily installed for operation and can also be readily removed from its installation in a partially opened window.

Another feature of my invention is to provide a condensing unit which will be light in weight, and which is smaller than the opening provided by a window when one of the sashes or the lower sash thereof is open, the said condensing unit being provided with suitable angle iron retainer means so that the condensing unit may be firmly clamped by the lower window sash against the window ledge.

A detailed object of the present invention is to provide in conjunction with a mobile and portable condensing unit, adapted to be placed in and extending partly through a window opening, an adjustable partition or panel member which will close the remaining portion of the window opening after the condensing unit is positioned therein, so that the entire unit, once placed in position as aforesaid and with the conventional window sash lowered onto the top thereof, will completely close the window opening to prevent ingress of outdoor air into the room which is air conditioned and also to prevent ingress of insects from the outside into the room in question. This panel closing the balance of the window opening in a preferred form of the invention may be formed of a transparent organic plastic material, thus permitting light to pass through the portion of the window opening not positively obstructed by the condenser unit.

A still further object of my invention is to provide safety cable means enclosed within the said flexible cable means and connecting means on the said condensing unit and compressor unit so that the said units will be held securely correlated to prevent accidental disconnection of the said condensing unit from the compressor unit.

A still further object of my invention is to provide an instrumentality of the aforementioned character which may be readily moved to various locations within a room or an apartment, and which may be conveniently handled by persons without involving the lifting and secure installation required of conventional units which are considerably heavier. In other words, an air conditioning means which is simple in its construction and economical to manufacture in quantity production.

The present case is related to my later and copending application, Serial No. 404,461, filed January 18, 1954, which is a continuation-in-part of the present application. The line of division between these two cases is based on the following principles:

(a) They shall have priority in the order of their respective filing dates;

2

(b) All claims properly based on the disclosure of the present application are in the present case; and

(c) Claims not supported by the present disclosure, but supported by the disclosure of said later application, Serial No. 404,461, are in that case.

Other objects and advantages inherent in my invention will become apparent from an examination of the accompanying drawings, and will be further set forth in the following description. In the drawings, in which like parts are designated by like numerals:

Fig. 1 is a front view of my invention assembled in position for moving the same from place to place.

Fig. 2 is a side view of Fig. 1.

Fig. 3 is a top plan view of the device of Fig. 1.

Fig. 4 is an enlarged view of the cable unit comprising an important structural element of my invention.

Fig. 5 is a fragmentary front view of a portion of the element illustrated in Fig. 4.

Fig. 6 is a cross-sectional view taken substantially on the lines 6—6 of Fig. 4.

Fig. 7 is a cross-sectional view taken substantially on the lines 7—7 of Fig. 5.

Fig. 8 is a perspective view of the air conditioning means installed in a window opening and shows certain portions thereof broken away in order to show more clearly the structural relationship of the parts comprising my invention.

Referring to the various views, the device of my invention is generally designated 9, and consists of a condensing unit 10, connected to a compressor unit generally designated 11, by means of a flexible cable element designated 12.

The condensing unit 10 is provided with a fan assembly 22 having a male electrical connection 22' to which is connected the double female electrical plug 23 attached to an electrical wire connection 24, the other end thereof having secured thereto a male plug not shown in the drawing, suitable for connecting the entire air conditioning unit to an electrical source of supply or an electrical socket.

Within the cable 12, which is made of flexible material, are the flexible conduits 26 and 27 terminating in unions 28, 29, 30 and 31, for suitably connecting the condensing unit 10 to the compressor unit 11. Within the said cable 12 is also contained an electrical wire connection 36, having a male plug 25 adapted to be secured to one of the outlets of the female plug 23; and in like manner at the other end of the wire 36 is provided a female plug 37 adapted to be connected to the prongs 38, which in turn are connected to switches 46 and 39, in order to control the operation of the device.

Within the compressor unit 11, I indicate a compressor 42, and a relay 43, as well as the coil assembly 41. In the condensing unit 10, I also show coil assembly 44, interconnected in order to circulate the gases through the flexible conduits 26 and 27, the same being connected by virtue of the union connections 28, 29, 30 and 31, as heretofore mentioned.

For safety purposes I provide a wire cable of a flexible nature 33, having eyes 34 at each end thereof to be releasably secured to the snap locks 35, having terminal straps 32 for securing the same both to the walls of the condensing cabinet 15 and the walls of the compressor unit 11, so that if the condensing unit 10 were to be dropped in handling or fall outside the confines of the room, namely, outside the window, it would not drop and be damaged or injure someone who might be passing therebelow.

The condensing unit 10 can be separated from its other component, the compressor unit 11, so that the condensing unit 10 may be placed between the window frame 20 and the sash frame 17, to rest on the window sill or

ledge 45, preferably with one end thereof against the side of the window frame 20, the opening 18 remaining being sealed by the sliding shutter 19 preferably of transparent organic plastic material. A slotted section 21 in the cabinet 15 permits the shutter 19 to be extended to operative position or retracted when not in use. The angle iron 16 stabilizes the unit 10 against the sash frame 17, thus holding the assembly rigidly in place.

The condensing units 10 has a fan assembly 22 and a condensing coil assembly 44. The compressor unit 11 has a fan assembly 40 and a coil assembly 41 interconnected by unions 28, 29, 30 and 31 of the conduits 26 and 27 housed by the flexible cable 12, so as to form a continuous passageway for the gases which are liquefied and volatilized to absorb the heat from the air circulated thereabout, resulting in the air conditioning cycle of operation.

The flexible cable 12 permanently connects the units 10 and 11 and contains the wire 36 for electrical connection therebetween to operate the fan assemblies 40 and 22, as well as the compressor 42. The compressor may be suitably controlled in any manner common in the art, preferably operating through the relay 43.

The electrical operation of the several instrumentalities may be as follows: Electric power for all the operating instrumentalities is received in the unit 10 through the wire 24, the plug 23 and the connection 22' and thence is conducted to the fan 22. Power for the compressor unit 11 to operate the compressor 42 and the fan 40 is transmitted from the plug 23 through the plug 25, the wire 36 in the flexible cable 12, the plug 37, prongs 38 and wiring in the unit 11 to the switches 39 and 46 which control flow of power to the motor operating fan 40 and the motor operating the compressor 42. These connections are substantially conventional and hence are not illustrated in greater detail.

The compressor unit 11, which is the heavier of the two units, may weigh about 125 lbs. and is supported on casters 13, so that it may be moved about on the floor 14 to any desirable window location in the room or in an apartment, at which time the unit 10 rests in the recess provided by the frame 47 on top of the compressor unit 11.

The unit 10 may weigh about 10 lbs. At present, units are manufactured weighing as much as the two units mentioned herein, and being manufactured as a single unit, so that they must be raised and lifted and very firmly, and more or less permanently secured to a window, so that attachment of the same within the confines of a window opening and removal of the same from the said window opening requires a mechanical installation to be actually done by a mechanic or an individual who will see to it that the entire arrangement is more or less permanently and rigidly secured.

The advantage of the present invention lies in the fact that the air conditioner is made up of a heavy unit 11, which is mobile and may be moved from place to place, and a component or complementary light weight window receiving unit 10, so that it can be readily lifted and installed, and the entire combination may be moved from room to room, or window to window, as desired.

A feature of my invention which makes this possible is the flexible cable 12, which is made long enough to permit setting the unit 11 near a window opening, permitting the unit 10 to be placed in sealing relationship by virtue of the shutter 19.

Another feature resident in my invention is the safety cable means 33, which is provided in order to prevent accidental damage to the unit or to individuals or property which may be situated outside the confines of the building, in preventing the rupture of the flexible cable 12 between the condensing unit 10 and compressor unit 11 during the operation of the frequent installations and removal from window openings that my invention may be subjected to.

Although the drawings and the above specification disclose the best modes in which I have contemplated embodying my invention, I desire to be in no way limited to the details of such disclosure, for in the further practical application of my invention many changes in the form and construction thereof may be made as circumstances require or experience suggests without departing from the spirit of the invention as expounded within the scope of the appended claims.

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

1. Mobile and partly portable air-conditioning means, comprising a portable condenser unit removably securable in a window opening between the sash frame and the window sill, a mobile compressor unit movably positionable interiorly and adjacent the said window opening, and flexible cable means interconnecting a portion of the said condenser unit lying interiorly of the said window opening and the said compressor unit.

2. Mobile and partly portable air-conditioning means, comprising a portable condenser unit removably securable in a window opening between the sash frame and the window sill, a mobile compressor unit movably positionable interiorly and adjacent the said window opening, flexible cable means interconnecting a portion of the said condenser unit lying interiorly of the said window opening and the said compressor unit, and angle iron gauging means secured to the top surface of the said condenser unit to fixedly position the said condenser unit in a window opening.

3. Mobile and partly portable air-conditioning means, comprising a portable condenser unit removably securable in a window opening between the sash frame and the window sill, a mobile compressor unit movably positionable interiorly and adjacent the said window opening, flexible cable means interconnecting a portion of the said condenser unit lying interiorly of the said window opening and the said compressor unit, angle iron gauging means secured to the top surface of the said condenser unit to fixedly position the said condenser unit in a window opening, a slotted opening in one end of the said condenser unit, and transparent panel means slidably secured in the said slotted opening and adapted to sealably close the open area of the said window opening unoccupied by the said condenser unit.

4. Mobile and partly portable air-conditioning means, comprising a portable condenser unit removably securable in a window opening between the sash frame and the window sill, a mobile compressor unit movably positionable interiorly and adjacent the said window opening, flexible cable means interconnecting a portion of the said condenser unit lying interiorly of the said window opening and the said compressor unit, and safety cable means within the said flexible cable means and attaching the said compressor unit to the said condenser unit.

5. Mobile and partly portable air-conditioning means, comprising a portable condenser unit removably securable in a window opening between the sash frame and the window sill, a mobile compressor unit movably positionable interiorly and adjacent the said window opening, flexible cable means interconnecting a portion of the said condenser unit lying interiorly of the said window opening and the said compressor unit, flexible conduit means within the said flexible cable means interconnecting the said condenser unit to the said compressor unit, and electrical wire means within the said flexible cable means interconnecting the said condenser unit and the said compressor unit.

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