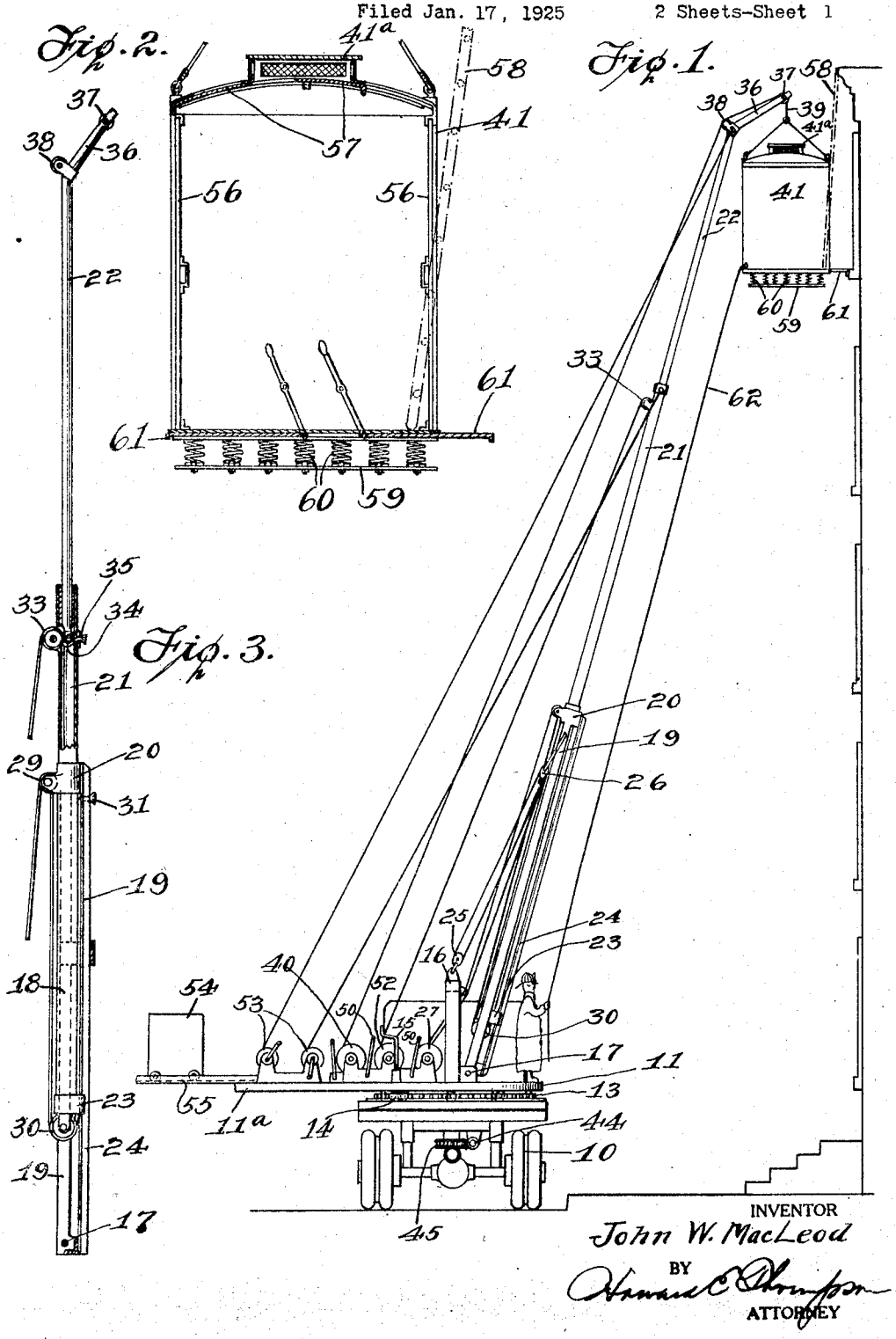
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J. W. MacLEOD

FIRE APPARATUS

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Fig. 4.

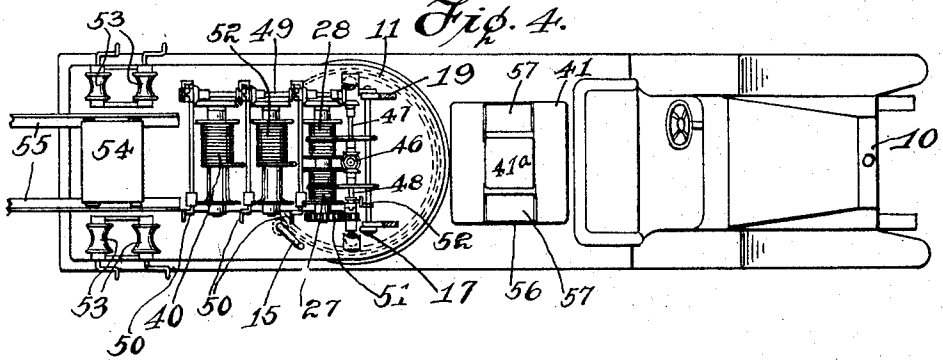
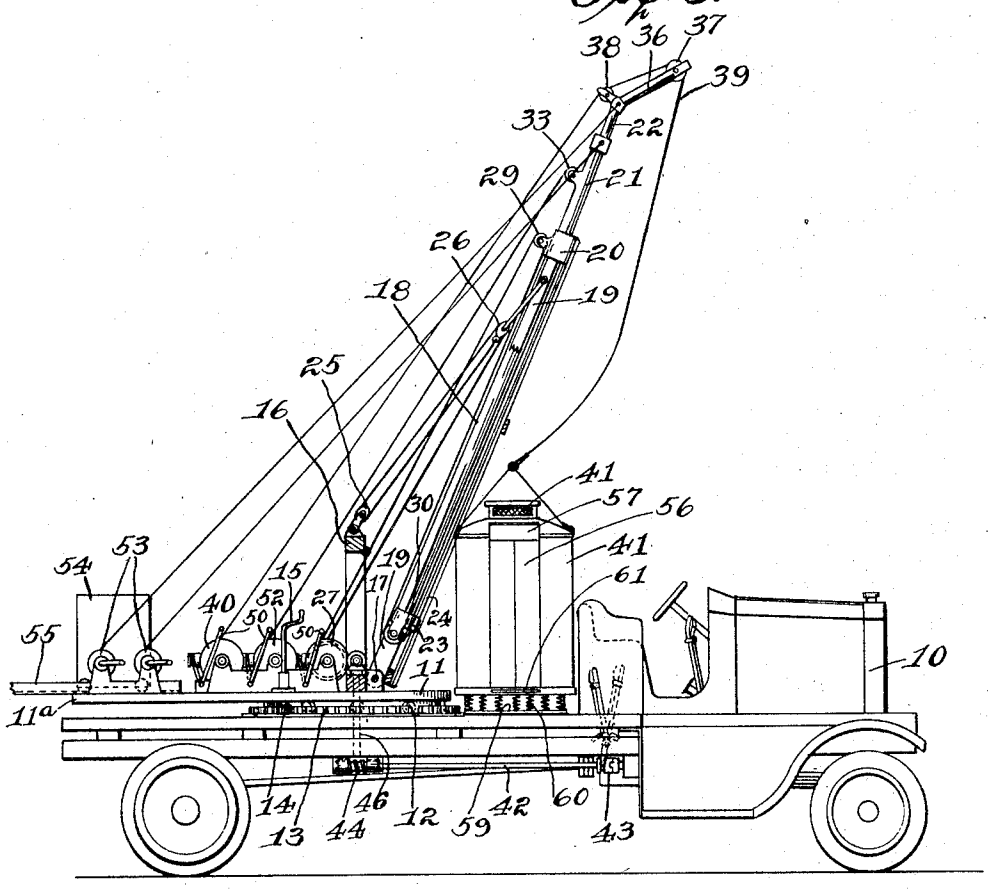


Fig. 5.



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UNITED STATES PATENT OFFICE.

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FIRE APPARATUS.

Application filed January 17, 1925. Serial No. 2,972.

To all whom it may concern:

Be it known that I, JOHN W. MacLEOD, a citizen of the United States, and residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Fire Apparatus, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to fire apparatus and particularly to apparatus of this class which is adapted for use in safely conveying the occupants of a dwelling or other building from a predetermined floor thereof to a point of safety as well as to provide means for conveying firemen and others to predetermined floors of the building without subjecting them to the dangers of the fire; and the object of the invention is to provide a portable apparatus of the class specified which is mounted upon a suitably constructed motor vehicle in the manner of constructing other fire apparatus commonly employed whereby the apparatus may be conveyed from a fire station or the like to a predetermined place where the apparatus is to be used; a still further object being to provide an elevator member or lift which forms a part of the apparatus, means being employed for permitting of the raising of said member or lift to a predetermined point and in juxtaposition to predetermined floors, or parts of a building structure, said means involving a derrick structure composed of telescoping members; a further object being to provide means for moving said telescoping members in predetermined position; a still further object being to provide means for moving the derrick and the elevator member or lift separately or collectively into predetermined positions with reference to the motor vehicle; and further to the provision of means for counterbalancing the member or lift; a still further object being to provide means for coupling the motor of the vehicle with the several mechanisms of the apparatus to be mechanically operated; and with these and other objects in view the invention consists in an apparatus of the class and for the purpose specified, constructed and operated as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Fig. 1 is a diagrammatic view of my improved apparatus and covering the method of its use;

Fig. 2 is a sectional detail view of an elevator member or lift which I employ;

Fig. 3 is a sectional detail view of a part of a beam which I employ;

Fig. 4 is a plan view of my improved vehicle with parts of the construction broken away and shown in section; and,

Fig. 5 is a side and sectional view of the construction shown in Fig. 4.

In the accompanying drawing I have diagrammatically illustrated one method of carrying my invention into effect, and in Figs. 1, 4 and 5 of the drawing, 10 represents a motor vehicle of any suitable kind or class in connection with which the apparatus is mounted and by means of which the apparatus may be conveyed from one point to another. My improved apparatus, as illustrated, comprises a revolvable platform 11 mounted on the framework of the vehicle, said platform being preferably mounted on rollers 12 and being rotated by a gear 13 on the platform and a pinion 14 meshing with the gear 13 and actuated by a crank 15 or in any other desired manner. Mounted centrally and transversely of the axis of the platform 11 is an upstanding frame 16 to the lower end portion of which is pivoted on a shaft 17 a beam 18, said beam comprising a frame 19, the upper end of which is contracted and joined to a bearing 20 in which is slidably mounted a tubular member 21 and a tube or rod 22 adapted to be telescoped into the tubular member 21, the lower end of the tubular member 21 has a bearing 23 cooperating with a rail 24 on the frame 19 to support and guide the member 21 in its movement longitudinally of the frame 19.

It will be apparent that the frame 19 together with the members 21 and 22 constitute the telescoping parts whereby the beam may be extended to predetermined points within the limits of the beam structure and collapsed into such position as to facilitate the convenient movement of the apparatus through the streets or roads of predetermined towns or cities.

Coupled with the frame 16 is a pulley 25 and a similar pulley 26 coupled with the

upper end of the frame 19 and a cable is secured to the pulley 26, passes around the pulley 25 and then around the pulley 26 and thus around a winch 27 mounted upon the platform 11, whereby the inclination of the beam 18 with reference to a vertical line may be governed, another winch 28 is employed in juxtaposition to the winch 27 on which a cable is mounted, said cable passing around a pulley 29 mounted on the bearing 20 and around a pulley 30 at the lower end of the tubular member 21, the free end of said cable being secured to the upper end of the frame 19 as shown at 31 in Fig. 3 of the drawing. By means of this construction the tubular member may be raised in the frame 19, another winch 52 mounted on the platform 11 rearwardly of the winches 27 and 28 and a cable wound on said winch passing around a pulley 33 secured to the member 21 and around a pulley 34 at the bottom of the member 22, and secured to the upper end portion of the member 31 as shown at 35 in Fig. 3 of the drawing. With the last named construction the telescoping member 22 may be raised into predetermined position in the member 21.

The upper end portion of the member 22 is offset to a degree as shown at 36 and provided at its free end with a pulley 37 inwardly of which is another pulley 38 and, in practice, a cable 39 is passed around said pulley and one end of which is wound on a winch 40 mounted on the platform 11 and from the other end of which is suspended an elevator member or lift 41. All of the winches 27, 28, 52 and 40 are preferably mechanically operated by the motor of the vehicle 10 and, in the drawing, I have diagrammatically illustrated means for accomplishing this result comprising a shaft 42 adapted to be coupled with a motor driven shaft through a clutch mechanism 43 and on the shaft 42 is a worm 44 meshing with a worm gear 45 on a vertical shaft 46 extending centrally through and constituting an axis for the platform 11, and horizontal shafts 47 and 48 coupled with the vertical shaft 46 through suitable ears whereby the winches 28, 52 and 40 may be driven through the shaft 47 through a suitable gear and clutch construction on said winches and on a shaft 49 actuated by the shaft 47, the clutches being controlled by clutch levers 50. The winch 27 is driven through gears on the winch and shaft 28 as at 51, the operation of the winch being controlled through a clutch operated by a lever 52, all of which is shown in Fig. 4 of the drawing.

From the foregoing it will be apparent that the beam 18 as well as the separate parts thereof may be moved into several positions mechanically by the motor of the vehicle and the member or lift 41 may also be operated. Four other winches 53 are also preferably employed, said winches being arranged in pairs, on opposite sides of and mounted upon the platform 11 and cables are passed therearound and coupled with the members 21 and 22 and serve to reinforce and steady said members or the beam 18 as a whole in the use thereof. All of the winches 53 may be hand-controlled and actuated in the manner of devices of this class but it will be understood that, if desired, these winches may also be mechanically operated.

Mounted upon the rear end of the platform 11 or what might constitute an extension 11^a thereof is a ballast plate 54 mounted in suitable tracks or runways 55 whereby the member or lift 41 may be counterbalanced.

The elevator member or lift 41 is in the form of a cagelike member, such as commonly employed in the elevators of office buildings and the like which will be constructed so as to render the same fireproof in all of the walls thereof, will be closed and constructed of suitable material, the top of the member being provided with a shielded fan 41^a to provide ventilation for said member which will prevent the passage of sparks or the like thereinto. In the construction shown the member 41 is provided in opposite side walls with slidable door members 56 and at the top and in juxtaposition to the openings controlled by the doors 56 with openings closed by sliding door members 57. The first of said doors controlling the admission of persons into and the discharge of persons from the member 41 through the opposite sides thereof, while the latter controls the admission of persons into the member 41 from a point above the top of the member 21 by use of a suitable ladder 58 indicated in dotted lines in Figs. 1 and 2 of the drawing. The bottom of the member 41 is preferably provided with a shock absorbing member 59 suspended from the bottom of said member by a multiplicity of coiled springs or other cushioning means 60, whereby when the lift is lowered to a street or other surface pains need not be taken in the placement of said member on said surface. Extensible wall members 61 are also preferably employed whereby the member 41 may be coupled with the sill of a window opening and whereby the admission of persons into the member 41 through one of the door openings may be facilitated. A guide cable 62 is also preferably employed in connection with the member 41 to guide the member and prevent its striking projections on the wall of a building and this cable may be controlled by a fireman or in any other desired manner.

It is preferred that the member 41 be normally positioned on the vehicle forwardly of the platform 11 and rearwardly of the driver's seat or compartment of the vehicle as indicated in Fig. 5 of the drawing, and the beam be normally inclined forwardly to a slight extent and be rotated with the vehicle or independently thereof when the vehicle traverses corners or sharp turns in order that the beam may clear building lines or other structures, and the use of my improved apparatus will be readily understood from the foregoing description when taken in connection with the accompanying drawing and the following statement.

When the vehicle with my improved apparatus thereon has reached a fire or other place where the apparatus is to be used and it is desired to raise the member 41 to a predetermined floor of a building, as diagrammatically illustrated in Fig. 1 of the drawing, said member is first raised from the vehicle and the beam 18 adjusted into the proper position, that is to say, that the members 21 and 22 thereof lifted to the proper height by the operation of the several winches employed, after which the member 41 is raised into juxtaposition to the desired floor and the occupants of the building on such floor may pass into said member, one of the doors 56 being opened by a fireman within said member to accomplish this result, and the door may then be closed and said member moved to an adjacent building by simply rotating the platform 11 to discharge the occupants within the member into an adjacent building or onto the roof of an adjacent building, or the member 41 may be lowered to the street level and again raised, and the above operation repeated as often as may be desired.

It will also be apparent that by use of a ladder in connection with the member 41 persons may enter said member from a point higher than the position of said member with reference to a building, as indicated in dotted lines in Fig. 1 of the drawing. It will also be apparent that the member 41 may be used to raise a predetermined number of firemen to a predetermined floor in fighting a fire in a building especially when said floor cannot be reached in any other way than externally of the building and still further the member 41 may be used to raise a hose to a predetermined floor level to permit of the fighting of a fire at such floor level, or to permit of the passage of a hose into the building at such floor level.

In all of the foregoing uses of the member 41 it will be understood that the same may be swung clear of the building in its ascent or descent to clear fire in the lower floors or structures of a building and to accomplish results which cannot be accomplished by the use of ladders as is the common practice.

It will be understood that while I have diagrammatically illustrated one method of carrying my invention into effect and have shown an elevator member or lift 41 of specific construction and a beam of specific construction with means for actuating the several parts of the beam and the member 41, and other details of construction, that I am not necessarily limited to the structural details herein shown and described nor am I limited to the specific uses of the apparatus herein set out, and various changes in and modifications of the construction herein shown and described may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

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

1. An apparatus of the class described comprising a motor vehicle, a platform revolubly mounted thereon, a beam mounted in connection with said platform and movable therewith, said beam being composed of extensible parts, a lift member adapted to be normally supported on said vehicle and to be raised and lowered with reference to a predetermined structure and capable of movement toward and from said structure, the elevation of said lift member being governed by said beam, means for actuating said member, means for actuating said beam and the parts thereof both of said actuating means being in operative connection with the motor of the vehicle.

2. An apparatus of the class described comprising a motor vehicle, a platform revolubly mounted thereon, a beam mounted in connection with said platform and movable therewith, said beam being composed of extensible parts, a lift member adapted to be normally supported on said vehicle and to be raised and lowered with reference to a predetermined structure and capable of movement toward and from said structure, the elevation of said lift member being governed by said beam, means for actuating said member, means for actuating said beam and the parts thereof, both of said actuating means being in operative connection with the motor of the vehicle, and means for controlling the operation of the several actuating means employed.

3. An apparatus of the class described comprising a motor vehicle, a platform revolubly mounted thereon, a beam mounted in connection with said platform and movable therewith, said beam being composed of extensible parts, a lift member adapted to be normally supported on said vehicle and to

be raised and lowered with reference to a predetermined structure and capable of movement toward and from said structure, the elevation of said lift member being governed by said beam, means for actuating said member, means for actuating said beam and the parts thereof, both of said actuating means being in operative connection with the motor of the vehicle, means for controlling the operation of the several actuating means employed, and means movably disposed on the platform for counterbalancing said lift member.

4. An apparatus of the class described comprising a motor vehicle, a platform revolubly mounted thereon, a beam mounted in connection with said platform and movable therewith, said beam being composed of extensible parts, a lift member adapted to be normally supported on said vehicle and to be raised and lowered with reference to a predetermined structure and capable of movement toward and from said structure, the elevation of said lift member being governed by said beam, means for actuating said member, means for actuating said beam and the parts thereof, both of said actuating means being in operative connection with the motor of the vehicle, means for controlling the operation of the several actuating means employed, and means for manually rotating said platform.

5. In an apparatus of the class described, a lift member comprising a rectangular hollow body closed at the top, bottom and sides, a door controlling admission into the chamber of said body, means for ventilating the chamber of said body, shock absorbing means at the mottom of said body, and a supplemental floor member slidable relatively to the main floor member and adapted to be projected through said body.

6. In an apparatus of the class described, a lift member comprising a rectangular hollow body closed at the top, bottom and sides, a door controlling admission into the chamber of said body, means for ventilating the chamber of said body, shock absorbing means at the bottom of said body, a supplemental floor member adapted to be projected through said body, and a supplemental door in the top portion of said body and in juxtaposition to the first named door.

7. An apparatus of the class described comprising a motor vehicle, a platform rotatably mounted upon the frame of the vehicle, said platform having a radial extension normally positioned over the vehicle frame, a beam pivotally mounted in connection with said platform adjacent the fulcrum of rotation thereof, said beam being composed of a plurality of extensible parts, a plurality of winch devices mounted on said platform and for actuating the several parts of said beam and for controlling the angular position of the beam with reference to said platform, a lift device normally supported on the vehicle frame forwardly of said platform, means cooperating with said beam for raising and lowering said lift, and means for guiding and steadying the upper end portion of the beam.

8. An apparatus of the class described comprising a motor vehicle, a platform rotatably mounted upon the frame of the vehicle, said platform having a radial extension normally positioned over the vehicle frame, a beam pivotally mounted in connection with said platform adjacent the fulcrum of rotation thereof, said beam being composed of a plurality of extensible parts, a plurality of winch devices mounted on said platform and for actuating the several parts of said beam and for controlling the angular position of the beam with reference to said platform, a lift device normally supported on the vehicle frame forwardly of said platform, means cooperating with said beam for raising and lowering said lift, means for guiding and steadying the upper end portion of the beam, and means movably disposed on the extension of said platform for counterbalancing said beam.

9. An apparatus of the class described comprising a motor vehicle, a platform rotatably mounted upon the frame of the vehicle, said platform having a radial extension normally positioned over the vehicle frame, a beam pivotally mounted in connection with said platform adjacent the fulcrum of rotation thereof, said beam being composed of a plurality of extensible parts, a plurality of winch devices mounted on said platform and for actuating the several parts of said beam and for controlling the angular position of the beam with reference to said platform, a lift device normally supported on the vehicle frame forwardly of said platform, means cooperating with said beam for raising and lowering said lift, means for guiding and steadying the upper end portion of the beam, means movably disposed on the extension of said platform for counterbalancing said beam, said lift constituting a closed box-shaped member, and doors at the sides and top of said member for controlling the admission thereinto.

10. An apparatus of the class described comprising a motor vehicle, a platform rotatably mounted upon the frame of the vehicle, said platform having a radial extension normally positioned over the vehicle frame, a beam pivotally mounted in connection with said platform adjacent the fulcrum of rotation thereof, said beam being composed of a plurality of extensible parts, a plurality of winch devices mounted on said platform and for actuating the several parts of said beam and for controlling the angular position of the beam with reference to said

platform, a lift device normally supported on the vehicle frame forwardly of said platform, means cooperating with said beam for raising and lowering said lift, means for guiding and steadying the upper end portion of the beam, means movably disposed on the extension of said platform for counterbalancing said beam, and an extensible supplemental floor member on said lift, said floor member having a flange adapted to engage the sill of a window to retain the same in predetermined position with reference to such window.

11. An apparatus of the class described comprising a motor vehicle, a platform rotatably mounted upon the frame of the vehicle, said platform having a radial extension normally positioned over the vehicle frame, a beam pivotally mounted in connection with said platform adjacent the fulcrum of rotation thereof, said beam being composed of a plurality of extensible parts, a plurality of winch devices mounted on said platform and for actuating the several parts of said beam and for controlling the angular position of the beam with reference to said platform, a lift device normally supported on the vehicle frame forwardly of said platform, means cooperating with said beam for raising and lowering said lift, means for guiding and steadying the upper end portion of the beam, means movably disposed on the extension of said platform for counterbalancing said beam, an extensible supplemental floor member on said lift, said floor member having a flange adapted to engage the sill of a window to retain the same in predetermined position with reference to such window, and means for placing the lift actuating means in operative connection with the motor of the vehicle.

12. An apparatus of the class described comprising a motor vehicle, a platform rotatably mounted upon the frame of the vehicle, said platform having a radial extension normally positioned over the vehicle frame, a beam pivotally mounted in connection with said platform adjacent the fulcrum of rotation thereof, said beam being composed of a plurality of extensible parts, a pluralty of winch devices mounted on said platform and for actuating the several parts of said beam and for controlling the angular position of the beam with reference to said platform, a lift device normally supported on the vehicle frame forwardly of said platform, means cooperating with said beam for raising and lowering said lift, means for guiding and steadying the upper end portion of the beam, means movably disposed on the extension of said platform for counterbalancing said beam, an extensible supplemental floor member on said lift, said floor member having a flange adapted to engage the sill of a window to retain the same in predetermined position with reference to such window, means for placing the lift actuating means in operative connection with the motor of the vehicle, and means for placing the lift and beam actuating means in operative connection with the motor of the vehicle.

In testimony that I claim the foregoing as my invention I have signed my name this 15th day of January, 1925.

JOHN W. MacLEOD.