

June 28, 1966

E. L. RIDGEWAY
ELEVATING PLATFORM

3,258,139

Filed June 19, 1964

3 Sheets-Sheet 1

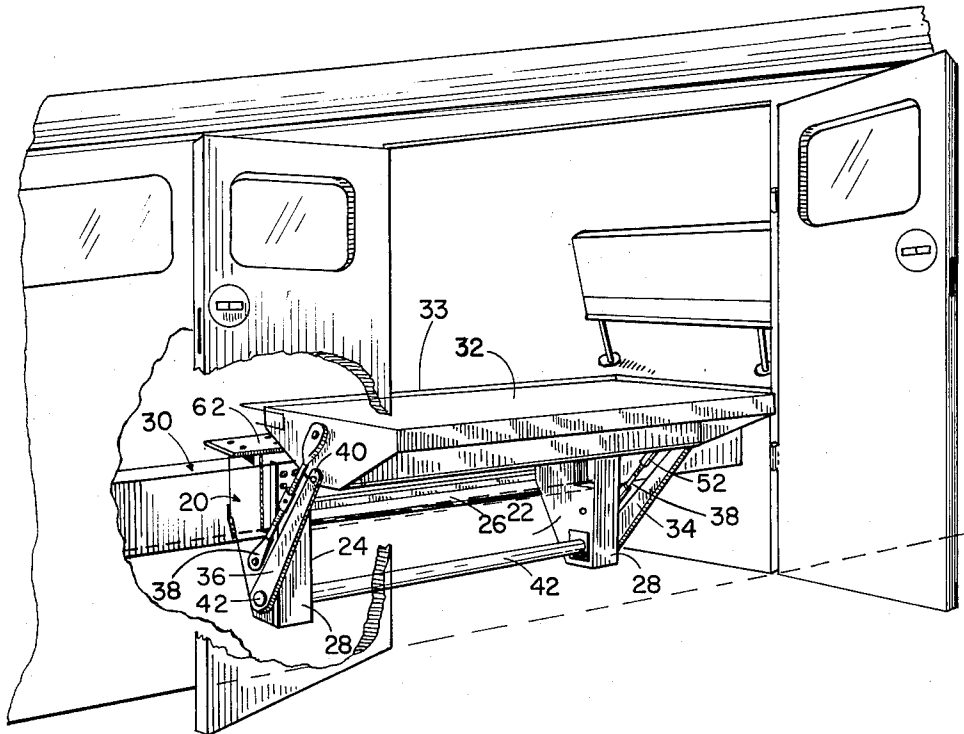


FIG. 1

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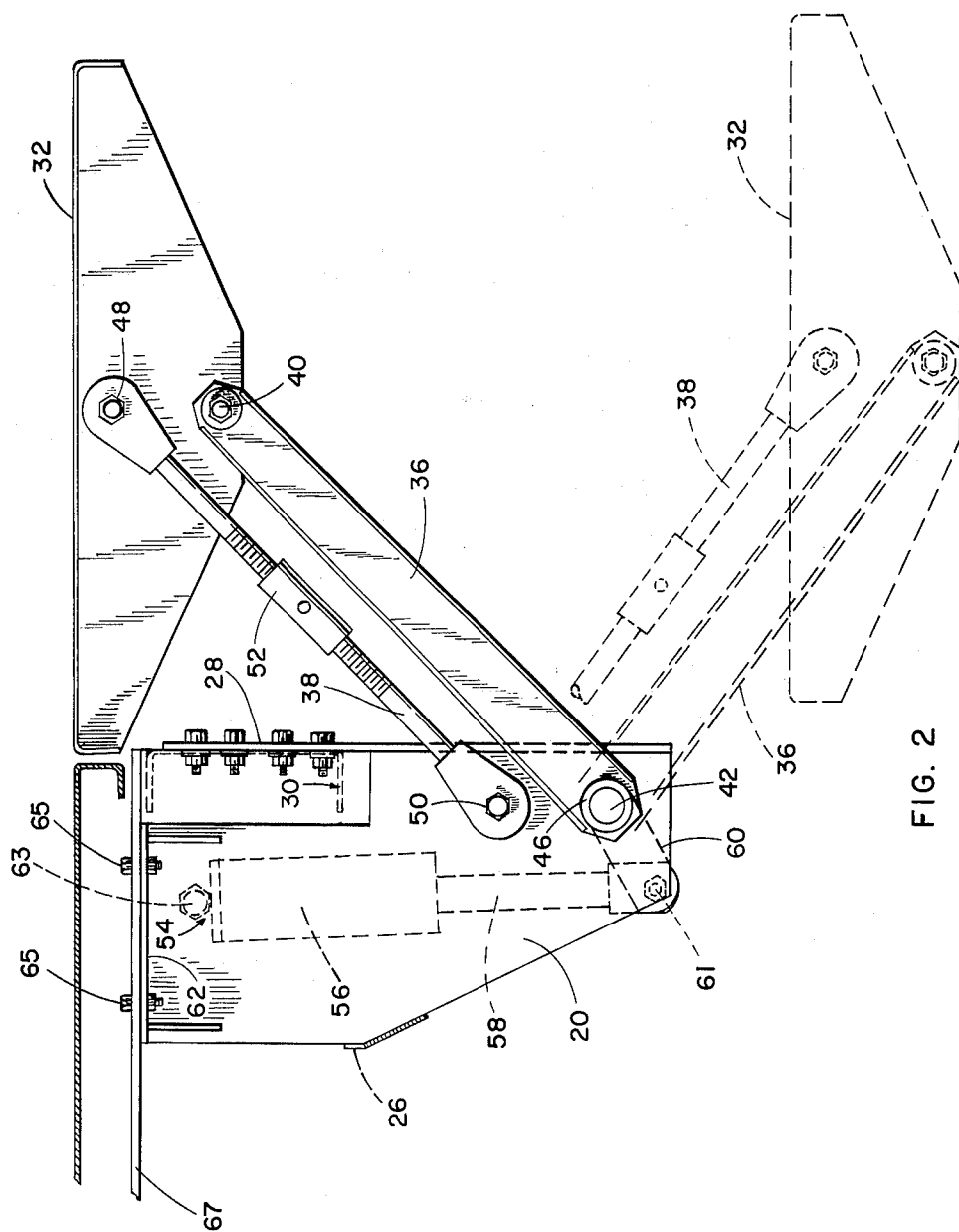


FIG. 2

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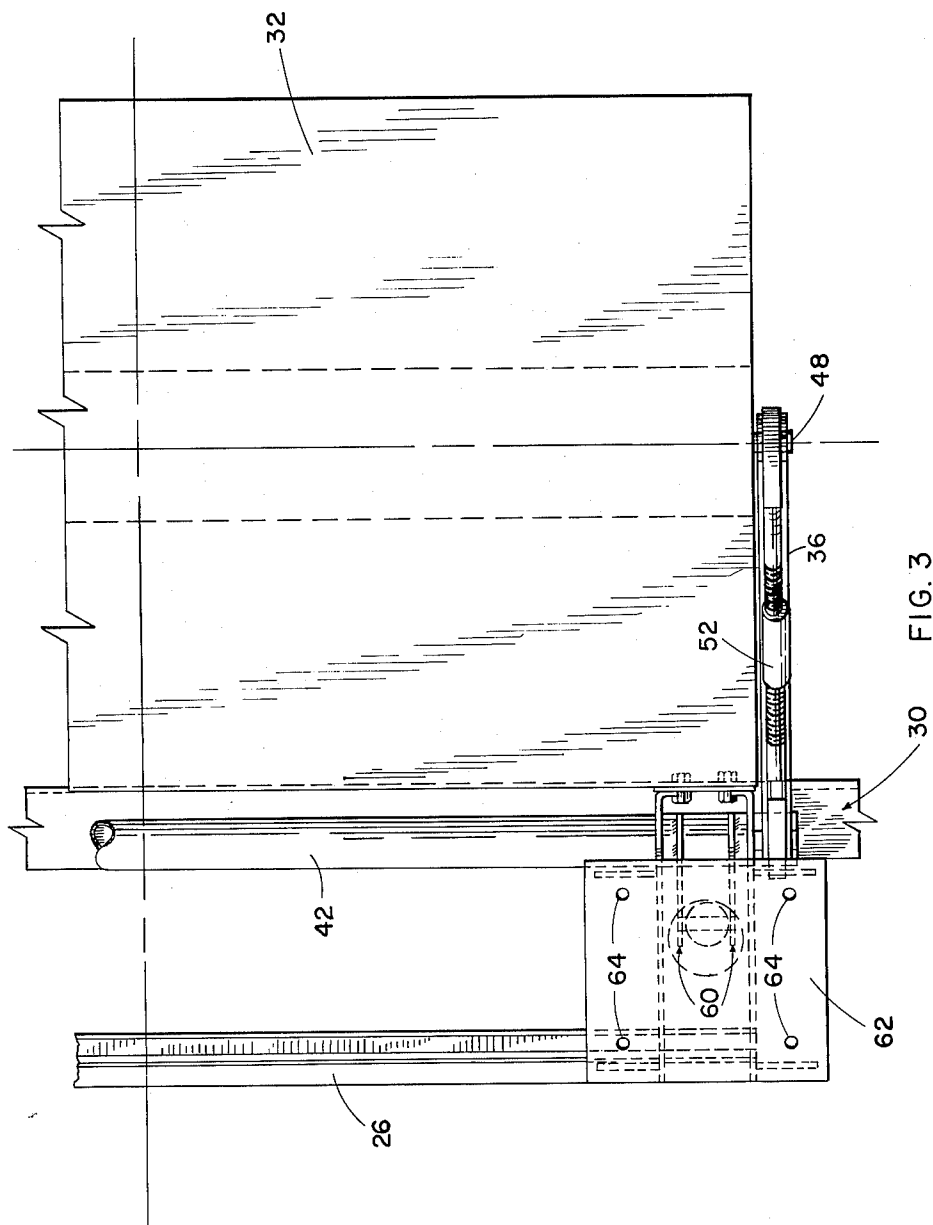
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ELEVATING PLATFORM

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The present invention relates generally to lift platforms and specifically to a powered lift platform to be attached to the body of a public conveyance or other vehicle for loading and unloading persons or freight at the curbside of said vehicle.

In general, the lift platform of the present invention comprises, in combination, a platform frame means, a lift platform, shaft means rotatably mounted to said platform frame means, a pair of lift arms pivotally mounted to said platform and keyed to said shaft means, a connecting member pivoted at each end between said platform and said platform frame means, power means for rotating said shaft means, linkage means connecting said power means to said shaft means and mounting plate means fastened to said platform frame means to be attached to the body of the vehicle.

As one aspect of the present invention, the novel construction of the lift platform permits the use of such an apparatus for loading or unloading invalids or injured persons unable to use the regular steps provided on public conveyances.

As another aspect of the present invention, the simple construction of the lift platform requires no special tools for easy mounting of the platform to the vehicle body to become an integral part of the vehicle.

As another aspect of the present invention, the novel construction of the lift platform insures long service and easy maintenance.

As another aspect of the present invention, the lift platform is pivoted centrally of its width to provide a novel linkage that may be positioned within an open-sided recess provided in the vehicle floor such that the platform may be flush with both the surface and the outer edge of said floor.

As another aspect of the present invention the novel construction of the powered lift platform permits the lift platform to be positioned flush with the outer edge of the vehicle floor whereby the closed doors of the vehicle act as a safety stop to prevent accidental lowering of the platform during transit.

As a further aspect of the present invention, the novel construction of the lift platform incorporates an adjustable parallel linkage which permits precise leveling of the platform to insure that the platform will be kept level at all times.

It is therefore an object of the present invention to provide a powered lift platform which can be attached to a public conveyance for loading and unloading invalid passengers.

It is another object of the present invention to provide a powered lift platform of simple construction which may be mounted easily to the vehicle body and thereafter becomes an integral part of the vehicle.

It is another object of the present invention to provide a powered lift platform of durable construction to insure long service and a minimum of maintenance.

It is another object of the present invention to provide a powered lift platform with associated linkage which may be positioned within an open-sided recess provided in the vehicle floor.

It is another object of the present invention to provide a powered lift platform which may be positioned such that the closed doors of the vehicle act as a safety against accidental lowering of the platform during transit.

It is a further object of the present invention to provide a powered lift platform which may be adjusted simply and quickly to keep the platform level at all times.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred form of embodiment of the invention is clearly shown.

In the drawings:

FIG. 1 is a perspective view of the powered lift platform of the present invention;

FIG. 2 is a side view of the apparatus shown in FIG. 1; and

FIG. 3 is a partial top view of the apparatus shown in FIG. 1.

Referring in detail to the drawings, the powered lift platform of the present invention is illustrated in FIG. 1 and comprises a platform frame means, indicated generally at 20 including a right frame member 22, a left frame member 24, and a cross support 26. Frame members 22 and 24 include brackets 28 which are bolted to a longitudinally extending frame member 30 of the vehicle.

A lift platform 32 is supported by right lift arm 34, left lift arm 36 and connecting members 38.

Lift arms 34 and 36 are pivoted to lift platform 32 by pivot pins 40 at their outer ends and keyed at their inner ends to a shaft 42.

Shaft 42 is rotatably mounted in frame members 22 and 24 through bearings 46, as best seen in FIG. 2.

Referring to FIG. 2, connecting members 38 extend adjacent and parallel to lift arms 34 and 36. Connecting members 38 are pivoted at their outer ends to lift platform 32 at 48 and pivoted at their inner ends to frame members 22 and 24 at 50. Members 38 include a standard turnbuckle 52 permitting adjustment of their length to keep the lift platform 32 level at all times.

A power means, indicated generally at 54, include right and left hydraulic cylinder 56 and piston rods 58. Piston rod 58 and shaft 42 are operatively connected by link 60 at a pivot 61 as best illustrated in FIG. 2. The upper end of cylinder 56 is pivoted to its respective frame member at a pivot pin 63. An electro-hydraulic system is a preferred type of power means with a variety of control mechanisms adaptable for operation of the system, but it is important to note that other power means could be used to rotate shaft 42 without departing from the spirit of the invention.

Referring to FIGS. 2 and 3, a mounting plate 62 provided with holes 46 and securely welded to the top of platform frame means 20 is bolted to the bottom surface of vehicle floor member 67 by bolts 65 thereby providing a stable connection between the powered lift platform and the vehicle.

FIGS. 2 and 3 show only the right half portion which is identical to the left half portion of the powered lift platform.

In operation, the powered lift platform of the present invention is mounted in place behind the doors of a public conveyance or other type vehicle. A lever control, remote wire control or a push button control with a solenoid controlled valve, not illustrated, is operatively connected to the electro-hydraulic power unit. As an invalid or injured person is about to board the vehicle, the operator of such vehicle operates power means 54 through the control system and as piston rod 58 makes its upward stroke, shaft 42 rotates clockwise, with reference to FIG. 2, actuating lift arms 36 and 38 to lower lift platform 32 to ground level. The invalid, if in a wheel chair, is wheeled onto lift platform 32 and the operator of the vehicle operates the control system to move piston rod 58 through a downward stroke rotating shaft 42 counterclockwise, with reference to FIG. 2, actuating lift arms 36 and 38 to raise lift platform 32 into an open-sided recess provided

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in the vehicle floor flush with both the surface and the outer edge of said floor. The wheel chair containing the invalid may then simply be wheeled aboard the vehicle.

It is important to point out that the lift platform 32 is pivoted to lift arms 36 and 38 centrally of its width at pins 40 thereby permitting platform 32 to be positioned into recess 33 flush with the outer edge of the vehicle floor. The closed doors of the vehicle then act as a safety device by preventing accidental lowering of the platform during transit.

While the form of embodiment of the present invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

I claim:

1. A powered lift platform to be attached to a public conveyance or other vehicle of the type that includes a passenger supporting floor and a longitudinally extending frame member, said lift platform comprising, in combination, platform frame means mounted inwardly of said frame member; a lift platform including an inner edge and an upper surface forming a portion of said passenger supporting floor; a transversely extending shaft means rotatably mounted to said platform frame means; right and left lift arms having outer ends pivoted to said lift platform at a pivot location spaced outwardly from said inner edge and inner ends rigidly attached to said shaft means; a connecting member extending substantially parallel to said lift arms and pivoted at one end to said lift platform and at the other end to said platform frame means; power means attached to said platform frame means for rotating said shaft means; linkage means operatively connected to said power means and said shaft means; and mounting plate means on the top of said platform frame means for attachment to said vehicle.

2. The apparatus defined in claim 1 wherein said connecting member is adjustable in length for precisely leveling said lift platform.

3. A powered lift platform to be attached to a public conveyance or other vehicle of the type that includes a passenger supporting floor and a longitudinally extending frame member, said lift platform comprising, in combination, platform frame means; a lift platform including an inner edge and an upper surface forming a portion of said passenger supporting floor; a transversely extending shaft means mounted inwardly of said frame member rotatably mounted to said platform frame means; right and left lift arms having outer ends pivoted to said lift platform at a pivot location spaced outwardly from said inner edge and inner ends keyed to said shaft means; a connecting member extending substantially parallel to said lift arms and having an outer end pivoted to said lift platform and an inner end pivoted to said platform frame means; power means attached to said platform frame means for rotating said shaft means including hydraulic cylinder and piston means; linkage means operatively connecting said cylinder and piston means to said shaft means; and mounting plate means on the top of said platform frame means for attachment to said vehicle.

4. The apparatus defined in claim 3 wherein said connecting member is adjustable in length for precisely leveling said lift platform.

5. A powered lift platform to be attached to a public conveyance or other vehicle of the type that includes a passenger supporting floor and a longitudinally extending frame member, said lift platform comprising, in combination, platform frame means mounted inwardly of said frame member; a lift platform including an inner edge and an upper surface forming a portion of said passenger supporting floor; a transversely extending shaft means rotatably mounted to said platform frame means; right and left lift arms having outer ends pivoted to said lift platform at a pivot location spaced outwardly from said inner edge and inner ends keyed to said shaft means; a pair of connecting members each of which extends sub-

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stantially parallel to a respective one of said lift arms, each of said connecting members having its outer end pivoted to said lift platform and its inner end pivoted to said platform frame means; power means mounted on said platform frame means for rotating said shaft means; linkage means operatively connected to said power means and said shaft means; and mounting plate means on the top of said platform frame means for attachment to said vehicle.

6. The apparatus defined in claim 5 wherein said connecting members are adjustable in length for precisely leveling said lift platform.

7. A powered lift platform to be attached to a public conveyance or other type vehicle having an open-sided recess provided in the floor of said vehicle and a longitudinally extending frame member, said powered lift platform comprising, in combination, platform frame means mounted inwardly of said frame member; a lift platform including an inner edge and an upper surface forming a portion of said floor; linkage means attached to said platform frame means and pivoted to said lift platform at a pivot location spaced outwardly from said inner edge, said linkage means being disposed inwardly and below the outer edge of said floor whereby said lift platform may be swung into said recess and flush with said outer edge of said floor; power means attached to said platform frame means and operatively connected to said linkage means for raising and lowering said lift platform; and mounting plate means on the top of said platform frame means for attachment to said vehicle.

8. The apparatus defined in claim 7 wherein said linkage means includes a pair of parallel members pivoted to each side of said platform.

9. The apparatus defined in claim 7 wherein said linkage means includes a pair of parallel members pivoted to each side of said platform and wherein certain of said parallel members are adjustable in length for precisely leveling said lift platform.

10. A powered lift platform to be attached to a public conveyance or other type vehicle having an open-sided recess provided in the floor of said vehicle and a longitudinally extending frame member, said lift platform comprising, in combination, platform frame means mounted inwardly of said frame member; transversely extending shaft means rotatably mounted to said platform frame means; a lift platform; linkage means rigidly attached to said shaft means and pivoted to said lift platform centrally of its width, said linkage means being disposed inwardly and below the outer edge of said floor whereby said lift platform may be swung into said recess and flush with said outer edge of said floor; power means attached to said platform frame means and operatively connected to said shaft means for rotating said shaft means; and mounting plate means on the top of said platform frame means for attachment to said vehicle.

11. The apparatus defined in claim 10 wherein said linkage means includes a pair of parallel members pivoted to each side of said platform.

12. The apparatus defined in claim 11 wherein said linkage means includes a pair of parallel members pivoted to each side of said platform and wherein certain of said parallel members are adjustable in length for precisely leveling said lift platform.

References Cited by the Examiner

UNITED STATES PATENTS

2,391,813	12/1945	Wood.
2,779,488	1/1957	Trotter et al.
2,843,277	7/1958	Brannan.
3,032,214	5/1962	Brannan.

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