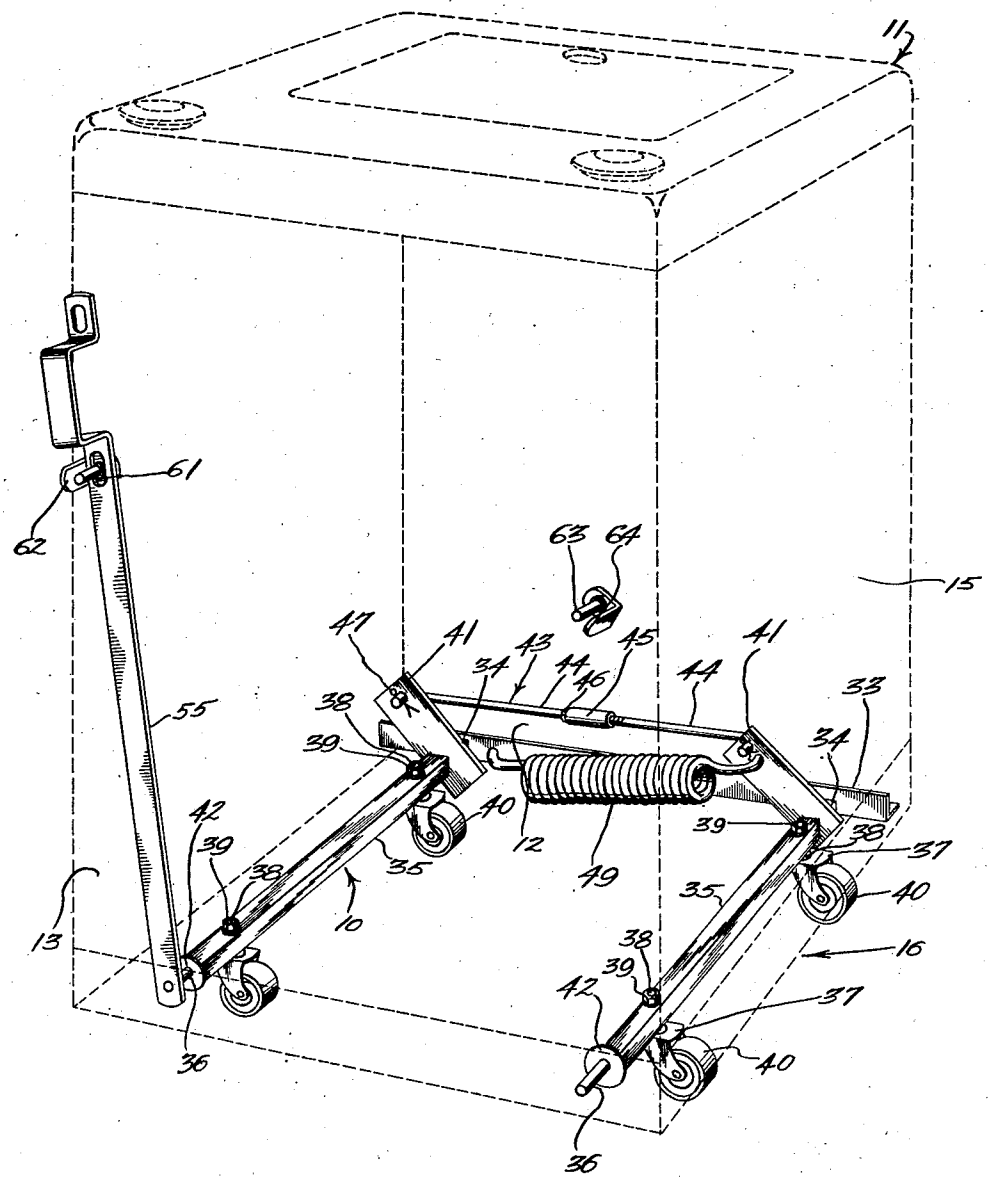
Nov. 5, 1957 P. E. GELDHOF 2,812,189

CASTER JACK ASSEMBLY FOR AUTOMATIC WASHING MACHINES

Filed Oct. 13, 1953 2 Sheets-Sheet 1

Fig. 1



Inventor

Peter Eduard Geldhof

By Neil, Sherman, Merriam, Baldwin & Laughlin Attys.

Nov. 5, 1957 P. E. GELDHOF 2,812,189

CASTER JACK ASSEMBLY FOR AUTOMATIC WASHING MACHINES

Filed Oct. 13, 1953 2 Sheets-Sheet 2

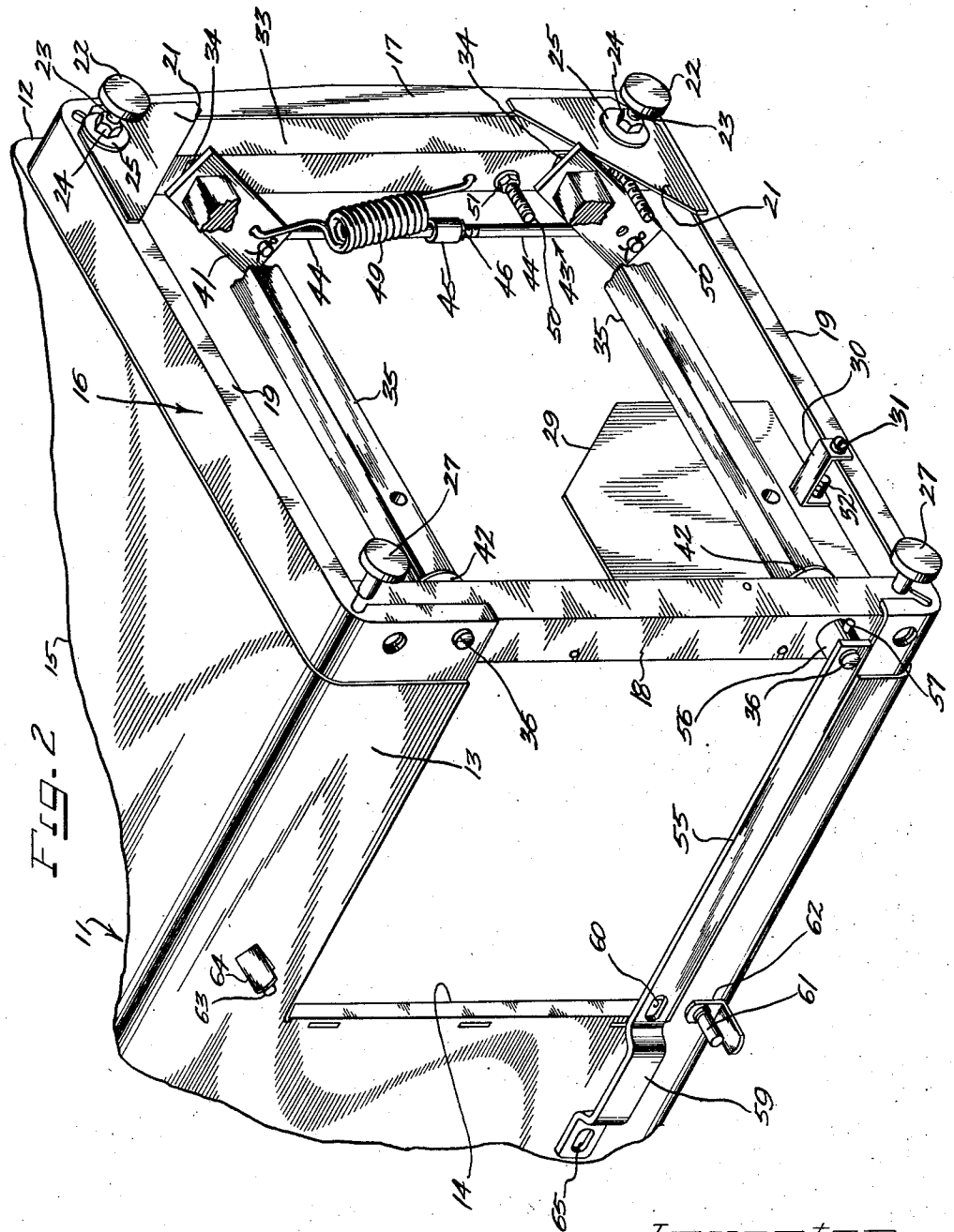


Fig. 2

Inventor
Peter Eduard Geldhof

By Kill, German, Merani, Goss & Simpson
Attys.

United States Patent Office 2,812,189 Patented Nov. 5, 1957

2,812,189

CASTER JACK ASSEMBLY FOR AUTOMATIC WASHING MACHINES

Peter Eduard Geldhof, Benton Harbor, Mich., assignor, by mesne assignments, to Whirlpool-Seeger Corporation, St. Joseph, Mich., a corporation of Delaware

Application October 13, 1953, Serial No. 385,765

8 Claims. (Cl. 280—44)

This invention relates to improvements in washing machines, and more particularly relates to an improved caster jack assembly adapted for washing machines for readily converting the usual stationary machine to a portable machine as required.

A principal object of my invention is to provide a simple and improved form of lifting and transporting means for washing machines and the like, affording a rolling support for the machine, to render the machine portable when desired and accommodating the machine to come into direct engagement with the floor for washing.

A further object of my invention is to provide a simple and improved form of caster jack for washing machines and the like, for raising the machine on supporting casters therefor, for rolling movement on the caster rollers from one place to another, and lowering the machine into solid engagement with the ground for washing.

Still another object of my invention is to provide a novel form of unitary caster jack assembly which may readily be assembled to the base of the cabinet of a washing machine and raise the machine for rolling movement along the ground and lower the machine into solid engagement with the ground for washing.

A still further object of my invention is to provide a unitary caster jack assembly having casters readily assembled to the washing machine cabinet for raising the supporting feet of the washing machine above the ground and lowering the feet into engagement with the ground by the operation of a simple operating lever.

A further object of my invention is to provide a caster jack assembly for assembly to the base of a washing machine and the like, in which the casters are mounted on, and are located by parallel squared shafts, rockingly mounted at one of their ends in a transverse frame member for pivotal movement with respect thereto, and connected for movement together by a parallel linkage assembly, biased to counterbalance the weight of the machine.

A still further object of my invention is to provide a novel and improved form of caster jack assembly readily attachable to the base of an automatic washing machine, for lifting the machine for rolling over the floor and lowering the machine into solid engagement with the floor, wherein the assembly is secured in position by the supporting legs of the machine and the supports for the casters are pivotally mounted in one of the side frame members for the base of the machine and operated from a lever on the outside of the machine, and are spring biased to counterbalance the weight of the machine.

These and other objects of my invention will appear from time to time as the following specification proceeds and with reference to the accompanying drawings wherein:

Figure 1 is a phantom view of an automatic washing machine having a caster jack assembly constructed in accordance with my invention, shown in full, as supporting the machine for rolling movement along the ground; and

Figure 2 is a fragmentary isometric view of the base

of a washing machine constructed in accordance with my invention looking at the machine from the bottom thereof, while lying on its side on the ground, in order to more clearly illustrate the caster jack assembly of my invention and the method of assembling the assembly to the base of the washing machine.

In the embodiment of my invention illustrated in the drawings, a caster jack assembly **10** is shown in Figure 1, as supporting a washing machine **11** for movement along the floor from one place to another, and as accommodating the machine to be lowered into engagement with the floor during the washing operation.

The washing machine **11** may be a machine of the type shown and described in my joint patent with Luther Ringer, No. 2,521,159, dated September 15, 1950, in which washing is effected in a tub (not shown) having an oscillatably driven agitator therein (not shown) and in which water is extracted from the clothes by spinning of the tub.

The washing machine **11** is no part of my present invention, except insofar as my novel caster jack assembly is concerned, so need only herein be described in sufficient detail to point out that the tub and mechanism for driving the agitator and spinning the tub are enclosed in a cabinet having a front wall **12**, a rear wall **13** having a rectangular opening **14** therein for access to the motor and drive mechanism for the machine (not shown) and having parallel side walls **15, 15**. The front, rear, and side walls are shown as extending upwardly from a base **16** comprising two parallel angle irons **17** and **18**, connected together by side frame members **19, 19** extending around the ends and outer sides of said angle irons and inwardly along the bottoms thereof for a part of the width thereof, and suitably secured thereto. The front angle iron **17** and side frame members **19, 19** are shown as being braced by gusset plates **21, 21**, forming supports for adjustable front leveling feet **22, 22**.

The front leveling feet **22, 22** are shown as being mounted on the ends of legs or threaded rods **23, 23** having nuts **24, 24** threaded thereon, and abutting washers **25, 25**, abutting the bottoms of the gusset plates **21, 21**. The rods **23, 23** are shown as extending through the gusset plates and may be secured thereto by nuts (not shown) abutting the inner or top sides of the gusset plates **21, 21**.

Stationary support feet **27, 27** are shown as being mounted on the rear angle iron **18** to form a support for the rear end portion of the washing machine. While said feet are shown as being mounted in fixed relation with respect to the horizontal leg of the angle **18**, it is obvious that said legs may be adjustable like the front feet **22, 22**, if desired.

A fire pan **29** is also shown as being secured to a horizontal leg of a side frame member **19** in vertically spaced relation with respect to the horizontal leg of said side frame member **19** by means of a bracket **30**. As herein shown, the bracket **30** is of a generally channel-like form, one end of which is secured to the horizontal leg of a side frame member **19**, as by a machine screw or bolt **31**. The other leg of said bracket is secured to the fire pan **29**, as by a machine screw **32**. The bracket **30** thus supports the fire pan beneath the motor, to protect the floor in case the motor should overheat or burn up.

Referring now in particular to the novel caster jack assembly of my invention and the simple manner of assembling this assembly to the base of a washing machine, to render the machine portable when desired, and to lower the machine to solidly engage the ground during washing, a frame member **33**, which may be an angle iron is shown as being adapted to extend across the front of the base of the washing machine, and as having two

parallel spaced horizontal rock shafts 35, 35 pivotally connected thereto.

The rock shafts 35, 35 are shown as being squared shafts having opposite rounded ends 36 concentric with the center thereof. One end 36 of each shaft extends through and is pivotally mounted on the vertical leg of the frame member 33. Washers 34, 34 are shown as being mounted on the forward rounded ends of the shafts 35, 35 and as abutting the inner face of the vertical leg of the frame member 33. Cotter pins (not shown) or the like may be provided to secure said shafts to the frame member 33. The opposite rounded end 36 of each squared shaft 35 is shown as being adapted to extend through and be pivotally supported in the rear angle iron 18 of the base of the cabinet of the washing machine and as abutting a washer 42 on the rounded end of said shaft abutting the inside of the horizontal leg of the angle 18.

Each squared shaft 35 is shown as being drilled at spaced apart points to form a mounting for casters 37, 37 on shanks 38, 38 thereof, which may extend through said holes. The shanks 38, 38 may be secured to said shafts as by nuts 39, 39 threaded thereon and abutting the top faces of the squared shafts 35, 35. The casters 37, 37 may be well known forms of casters, preferably ball bearing casters having rollers 40, 40. As herein shown, two casters are mounted on each squared shaft 35, although said casters need not be so arranged. Secured to the shafts 35, 35 inside of the washers 34, 34 are lever arms 41, 41 forming, in effect, parallel links connected together by an adjustable tie link 43. As herein shown, the tie link 43 comprises two rods 44, 44 threaded at their inner ends and connected together by a coupling 45 which may be locked thereto as by a lock nut 46. The outer ends of the links 44, 44 are shown as being inwardly turned at substantially right angles to the main body portions of said links and as extending through apertured portions of the lever arms 41, 41 adjacent the outer ends thereof. Cotter pins 47, 47 are provided to retain said links to said lever arms. The coupling 45 affords a means for adjusting the distance between the inner ends of the parallel links or lever arms 41, 41 to position the rollers 40, 40 of the casters 37, 37 to engage the floor at the same time and hold the machine level for rolling movement over the floor. The coupling 45 may also afford a means for lengthening the tie link 43 to accommodate the caster jack assembly to various widths of machines.

The weight of the washing machine is herein shown as being counterbalanced by a tension spring 49. One end of the tension spring 49 is shown as being connected to the vertical leg of the frame member 33, while the other end of said tension spring is shown as extending through and being connected with one of the lever arms 41, to act in a direction to bias the casters into an upright ground engaging position, to support the machine for rolling movement along the floor.

In assembling the caster jack assembly to a washing machine, the machine may first be laid on its side on the floor, as shown in Figure 2. The leveling feet 22, 22 may then be removed. Two spaced cap screws 50, 50 may then be threaded through the vertical leg of the frame member 33 on opposite sides of one link 41 to afford a means for limiting pivotal movement of the squared shaft 35, 35 in either direction. The cap screws 50, 50 may be locked in position by lock nuts and washers 51 in the usual manner. The spring 49 may then be connected between the vertical leg of the frame member 33 and one link or lever arm 41, to bias the opposite lever arm into engagement with one cap screw 50 and bias the shafts 35, 35 to have one face parallel to the floor and to position the casters 37, 37 to engage the ground and support the machine in an elevated position.

Assuming the frame member 18 has been horizontally drilled to support the opposite ends of the shafts 35, 35, the rounded rear ends 36, 36 of the squared shaft 35, 35 may be inserted through the drilled holes therefor. The front frame member or brace 33 may then be positioned adjacent the front frame member 17 of the base of the machine, to extend along the top sides of the gusset plates 21, 21. The feet 22, 22 may then be replaced with the legs thereof extending through drilled portions of the horizontal leg of the frame member 33. The legs 23 may be threaded within the horizontal leg of the frame member 33 or may be held thereto by nuts threaded on the legs 23 into engagement with the inside of said frame member. The lock nuts 24, 24 may then be tightened against the bottom of the gusset plates 21, 21 to rigidly hold the assembly in place.

When this has been done and the washers 42, 42 are on the rounded rear end portions 36, 36 of the squared shafts 35, 35, and abut the inner end of the frame member 18, an operating member or lever 55 may be placed on the outer rounded end of the longer shaft 35. Said operating lever is herein shown as having a sleeve 56 extending inwardly therefrom and secured to the rounded end 36 of the associated shaft 35 by a pin 57.

The operating lever 55 is shown as having an outwardly and inwardly bent hand grip portion 59 in the general form of an outwardly extending channel adjacent the outer end thereof. The lever 55 also has an elongated aperture 60 on the lower end of said channeled handle portion for engagement with a pin 61 mounted on and projecting outwardly from the cabinet wall 13, adjacent one side thereof. The pin 61 may be a roll pin to facilitate the release of the operating lever therefrom when under the load caused by the weight of the washing machine. A stop 62 in the form of an angle is shown as being mounted on one leg to the wall 13 and as having its other leg spaced outwardly from said pin 61 to limit movement of the lever 55 with respect to the pin 61 to enable the aperture 60 to readily locate and register with the pin 61. A similar pin 63 and stop 64 are mounted on the cabinet wall 13 adjacent the opposite side thereof from the pin 61. The pin 63 is adapted to engage an elongated slot 65 at the upper end of the handle portion of the operating lever 55, to lock said lever and the caster assembly in a retracted position, accommodating the machine to rest on the floor on its feet 22, 22 and 27, 27.

Assuming the locking pins 61 and 63 are in position and the lever 55 is secured to the outer end of the shaft 35 when assembling the caster assembly to the machine, the coupling 45 may then be turned to adjust the length of the tie link 43, to position the two shafts 35, 35 with their lower plane faces parallel to the floor when the operating lever 55 is locked in engagement with the pin 61, so as to assure that all of the rollers 40, 40 of the casters engage the floor at the same time and support the machine level with the floor.

With the caster assembly, assembled to the base of the washing machine and properly adjusted, with the inner faces of the shafts 35, 35 parallel to each other when the casters are in engagement with the ground to support the machine for rolling movement over the floor, the machine may then be turned to an upright position., This is preferably done when the operating lever 55 is in engagement with the pin 61. The machine may then be moved to the desired position. At this time, the operating lever 55 may be released from the pin 61 to lower the machine by gravity and place its feet 27, 27 and 22, 22 in engagement with the floor. The aperture 65 of the operating lever 55 may then be engaged with the pin 63, to hold the casters 37, 37 out of engagement with the floor. The leveling feet 22, 22 may then be adjusted to level the machine in the position in which it will operate, it being understood that this need only be done when assembling the

caster jack assembly to the base of the machine, and that once the feet 22, 22 are adjusted to properly level the machine, that they may be locked in this adjusted position.

With the caster jack assembly so assembled to the base of the washing machine 11, when it is desired to roll the machine to another location it is merely necessary to release the operating lever 55 from the locking pin 63 and move said operating lever into engagement with the locking pin 61 to pivot the rollers 40, 40 of the casters 37, 37 into engagement with the floor and lift the machine above the floor, it being understood that during the lifting operation the spring 49 acts as a counterweight, to compensate for the weight of the machine and enables the machine to be lifted for rolling on its casters over the floor with very little manual effort.

It may be seen from the foregoing, that a novel and simple form of caster jack assembly has been provided for a washing machine, which may readily be assembled to the machine, and make the usual stationary automatic washing machine portable, when desired, permitting it to be rolled to any spot in the house for washing or storing.

It may further be seen that the caster jack assembly of my invention provides a simplified form of portable support for a washing machine which may be universally used for various types and sizes of machines, and which may readily be assembled to a standard machine in a simple manner with a minimum amount of tools and effort.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. A caster jack particularly adapted for washing machines affording a means for lifting the machine for movement from place to place and lowering the machine for direct engagement with the floor for washing, comprising two parallel shafts, spaced casters on said shafts for supporting the machine for rolling movement over the floor, a frame member extending transversely of said shafts and having said shafts pivotally mounted thereon, parallel arms on said shafts, a link connecting said arms to move together, a spring connected between said frame member and one of said arms and counterbalancing the weight of the machine and biasing said casters into engagement with the ground, spaced stops on said frame member for limiting pivotal movement of said arms and shafts in either direction, an operating lever on the outer end of one of said shafts, for pivotally moving said shafts together, said operating lever being biased by said spring and locking pins engageable with said operating lever for locking said shafts into position to support the machine for rolling movement along the floor on said casters and into position to rest on the floor during washing.

2. In a caster jack for washing machines, for lifting the machine for rolling movement along the floor from place to place and for lowering the machine for direct engagement with the floor for washing, two parallel pivotally movable rectangular rock shafts, each of said shafts having spaced rollers mounted thereon rotatable about axes parallel to the bottom faces of said shafts, a frame member for connection to a washing machine to extend along one side of the base of a washing machine and forming a support for one end of each of said shafts, the opposite ends of said shafts being adapted to extend through and be carried by the base of the washing machine, each of said shafts having a lever arm secured thereto and projecting upwardly therefrom, a link connecting said lever arms together, a spring connected between said frame member and one of said lever arms for counterbalancing the weight of the machine, an operating lever on the outside of one of said shafts, and means for locking said operating lever and shafts in position to support the machine for rolling movement along the floor.

3. In a caster jack assembly and in combination with a washing machine having a cabinet and a base including a rectangular open frame and leveling feet forming a support therefor on the floor for washing, a frame member secured to said leveling feet and extending along one side of said base, two parallel shafts rotatably mounted in said frame member and having casters carried thereby for supporting the washing machine for rolling movement along the floor, a link secured to each of said shafts, means connecting said links to operate together, an operating lever on one of said shafts on the outside of said cabinet, for pivotally moving said shafts to bring said casters into engagement with the floor and lift said base above the floor for rolling movement therealong, and to pivot said shafts to lower said leveling feet into engagement with the ground, locking means holding said operating lever in position to support the washing machine for rolling movement on said rollers and to rest on the floor for washing, and means connected between said frame member and one of said links for counterbalancing the weight of the machine.

4. In a caster jack assembly and in combination with a washing machine having a cabinet and a base including an open frame and adjustable leveling feet forming a support therefor, a frame member secured to said feet and extending along one side of said base, two parallel rectangular shafts rotatably carried by said frame member at one of their ends and pivotally mounted at their opposite ends in a side of said open frame opposite from said frame member, casters mounted on said shafts for rotation about axes perpendicular to the lower faces thereof, a link secured to each of said shafts, a connecting link connecting said links and shafts to pivot together, an operating lever on one of said shafts on the outside of said cabinet, spaced locking means on a wall of said cabinet for engagement with said operating lever, to lock said lever in position to hold said casters in engagement with the ground to support the machine in an elevated position for transportation and in a position to hold said casters out of supporting engagement with the ground.

5. A readily attachable caster jack assembly particularly adapted for washing machines and the like, comprising two parallel rock shafts, a transverse frame member having adjacent ends of said shafts pivotally mounted thereon, two casters on each of said shafts, a lever arm connected with each of said shafts, a link connecting said lever arms to move together in parallel relation with respect to each other, a spring connected between said transverse frame member and one of said lever arms and biasing said lever arms to pivot in a direction to engage said casters with the ground and lift said assembly above the ground, said transverse frame member being adapted to be mounted on the base of a washing machine and the like adjacent one side thereof, and said shafts being carried by said transverse frame member for ready insertion in the base of the washing machine to be pivotally supported thereby, an operating lever on the outside of one of said shafts for pivoting said shafts together and adapted to extend along the outer side wall of the cabinet of the washing machine, and spaced stops on said transverse frame member engageable with one of said lever arms for limiting pivotal movement thereof in position to hold the machine above the ground for rolling movement on said casters and into position to accommodate the base of the machine to rest on the ground.

6. In a readily attachable caster jack assembly particularly adapted for washing machines and the like, two parallel rectangular rock shafts, a transverse frame member having adjacent ends of said shafts pivotally mounted thereon, casters on said shafts having rollers rotatable about axes parallel to the bottom faces thereof, a lever arm connected with each of said shafts, an adjustable tie link connecting said lever arms to move together, said link being adjustable to effect simultaneous engagement of said rollers with the ground upon rocking movement of said shafts in one direction, a tension spring connected between said lever arms and biasing said lever arms to

pivot in a direction to engage said rollers with the ground and lift said shafts and the machine supported thereby above the ground, said transverse frame member being adapted to be mounted on the base of a washing machine and the like adjacent one side thereof, and said shafts being carried by said transverse frame member for insertion in the base of the washing machine to be pivotally supported thereby, an operating lever on the outside of one of said shafts for pivoting said shafts together and adapted to extend along the outer side wall of the cabinet of the washing machine, and locking means for locking said operating lever in position to hold said rollers in engagement with the ground, to support the washing machine for movement therealong, and out of engagement with the ground to accommodate the washing machine to rest directly on the ground.

7. In a caster jack assembly and in combination with a washing machine having a cabinet and a base, adjustable leveling feet forming a support for said base and cabinet on the floor for washing, two parallel rock shafts transversely pivoted on said base, two casters on each of said shafts, a lever arm connected with each of said shafts, a link connecting said lever arms to move together in parallel relation with respect to each other, a spring connected between said base and one of said lever arms and biasing said lever arms to pivot in a direction to engage said casters with the ground and lift said assembly above the ground, an operating lever on the outside of one of said shafts for pivoting said shafts together in cooperation with said spring and adapted to extend along the outer side wall of said cabinet, and a stop on the wall of said cabinet engageable with said operating lever for holding the same in position to hold the machine above the ground for rolling movement on said casters.

8. In a caster jack assembly and in combination with a washing machine having a cabinet and a base having vertically adjustable leveling feet mounted thereon and forming a support therefor on the floor for washing, two parallel shafts rotatably carried by said base with one of said shafts projecting through the cabinet wall outside of the cabinet, casters mounted on said shafts for rotation about axes perpendicular to the axes of rotation of said shafts, a lever arm secured to each of said shafts, said lever arms projecting in the same direction from the shafts and parallel, a rigid link connecting said lever arms to operate together whereby angular movement of one lever arm will cause the same angular movement of the other lever arm, an operating lever on said projecting shaft on the outside of said cabinet, and locking means secured to the wall of said cabinet for engagement with said operating lever and located to lock said lever in position to hold said casters in engagement with a supporting floor surface to support the machine in an elevated position for transportation or operation.

References Cited in the file of this patent

UNITED STATES PATENTS

1,022,475	Goodwin	Apr. 9, 1912
1,355,173	Shadel	Oct. 12, 1920
1,667,267	Pitcher	Apr. 24, 1928
1,812,890	McWhorter	July 7, 1931
2,359,016	Wood	Sept. 26, 1944
2,730,374	Rogers	Jan. 10, 1956

FOREIGN PATENTS

23,748	Germany	Aug. 29, 1883
827,158	Germany	Jan. 7, 1952