United States Patent

Niederholtmeyer

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[54] DOOR JACK

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[51] **Int. Cl.** **B66f 15/00,** E05c 15/00, B65g 7/12

[58] **Field of Search** .....254/39, 131; 292/258, 288, 292/289, 306, 339, 343, DIG. 15; 294/2, 15; 269/133

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[57] **ABSTRACT**

A door jack to facilitate the installation of doors. An elongated pry-bar is provided having a pry-foot at its lower end. An elongated stabilizing rod is provided having a pad on one end. A sleeve is secured to the upper end of the pry-bar and reciprocally receives the stabilizer rod which extends forwardly therefrom in the same general direction as the foot. A coil spring surrounding the stabilizer rod biases the rod and pad outwardly away from the pry-bar. A lock washer on the stabilizer rod locks the same against inward movement from a selected position. The foot may be inserted under the bottom edge of a door and the pry-bar pivoted rearwardly thus elevating the door to the desired elevation for hanging the same. In that position, the pad on the end of the stabilizer rod engages the surface of the door under the influence of the spring, the lock washer preventing rearward movement of the pad and stabilizer rod. Thus, the door is maintained in the desired elevated position for installation of hinges, etc. The jack may also be used for carrying the door to the installation site.

10 Claims, 5 Drawing Figures

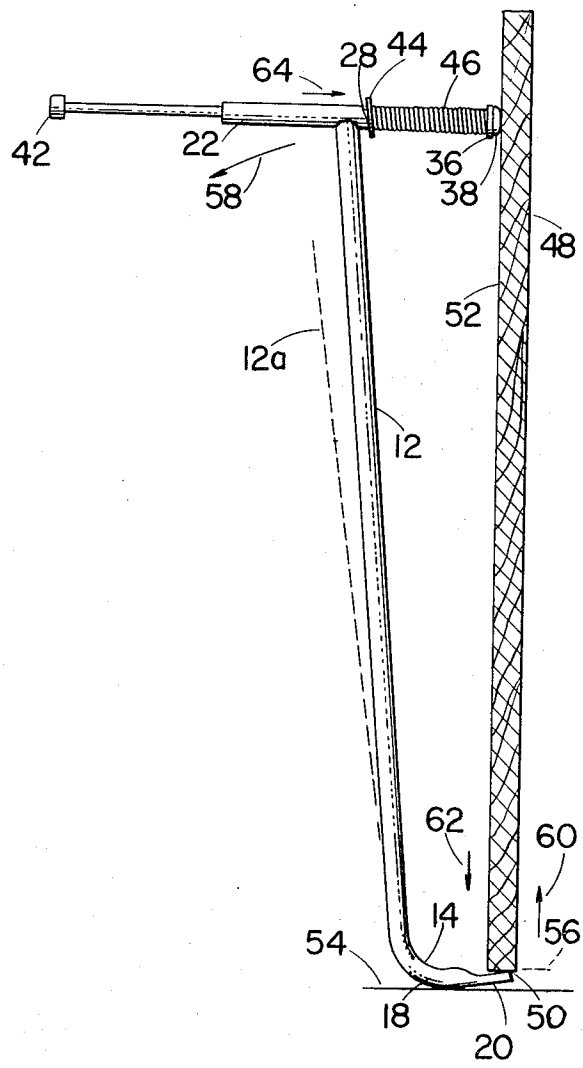


FIG. 1

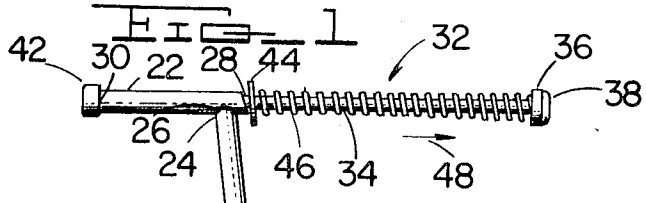


FIG. 2

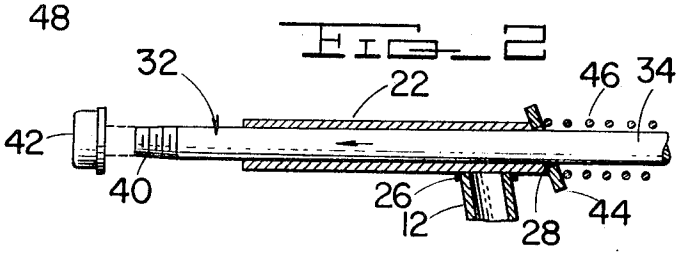


FIG. 4

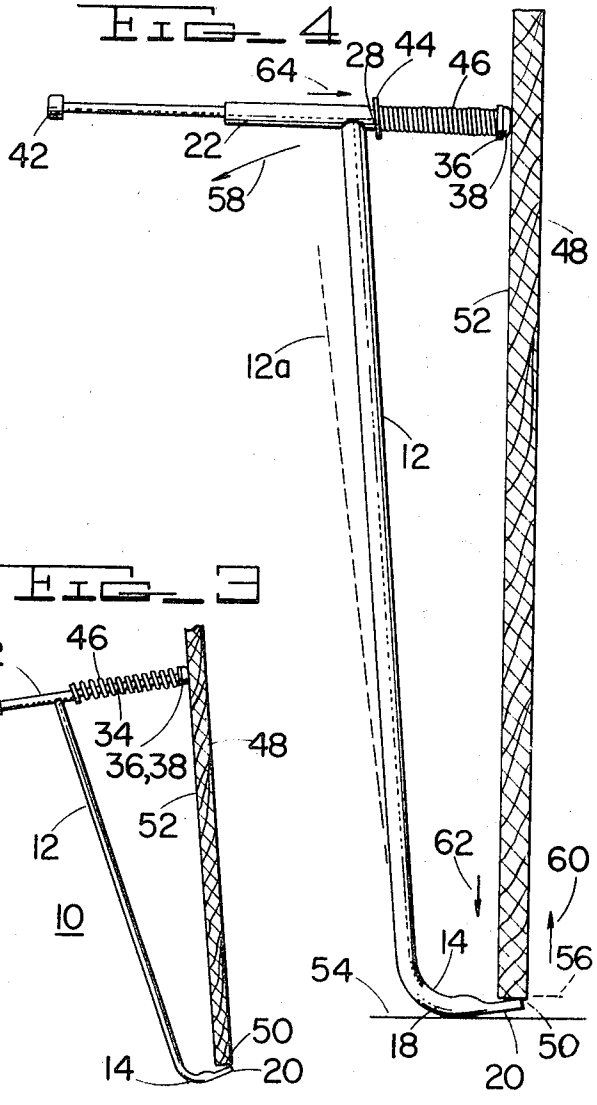


FIG. 5

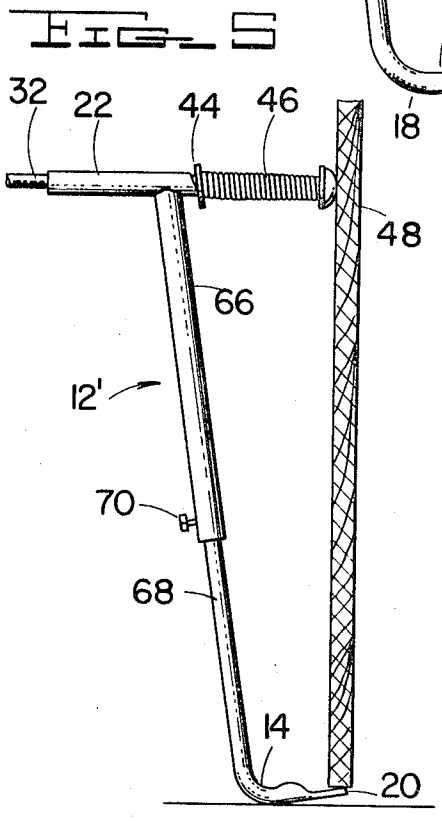


FIG. 3

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DOOR JACK

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to a door jack for facilitating the installation and handling of doors.

2. Description of the Prior Art

The hanging of doors has heretofore been a laborious, time-consuming operation. One or more workmen have first carried the door to the installation site. The door is then placed against the doorjamb, the door is manually lifted until the bottom edge thereof is at the proper elevation above the floor, and shims or wedges are inserted under the door to maintain it at the proper elevation. The door is then scribed as required to fit the jamb, and the proper location of the hinges is marked on the jamb and the side edge of the door. The door is then manually removed from the jamb, cut as required to fit the jamb, and the mating hinge parts are respectively installed on the jamb and on the side edge of the door. The door is then carried back to the jamb and manually lifted to the proper elevation in order to mate the hinge parts, following which the hinge pins are inserted. It is then necessary to hold the door in an open position, as by a wedge, while the door hardware is installed.

The above-described conventional method of hanging doors has generally been a two-man operation, has been extremely time-consuming, and the lifting of the door has been laborious involving stooping and back strain. To the best of the present applicant's knowledge and belief, no handtool has been available for facilitating the handling and installation of doors.

SUMMARY OF THE INVENTION

In accordance with the invention, there is provided a door jack with which a door may be carried by one man to the installation site, which is employed for elevation of the door to the proper elevation, for maintaining the door at that elevation for scribing and marking of hinge locations, and again for hanging the door on the hinges, and which may also be employed for holding the hung door for the installation of hardware.

In accordance with the broader aspects of the invention, a door jack is provided comprising an elongated pry-bar member having a pry-foot formed on one end thereof, the foot extending outwardly from the pry-bar member in a given direction and defining an angle therewith. An elongated stabilizing member is provided, and means are provided for mounting the stabilizing member on the pry-bar member adjacent the other end thereof for reciprocal movement with respect thereto. The stabilizing member has a portion extending outwardly from the pry-bar member generally in the same direction as the foot and defining an angle with the pry-bar member, the extension portion having an end spaced outwardly from the pry-bar member. Spring means are provided for biasing the end of the stabilizing member outwardly away from the pry-bar member, and locking means are provided for preventing movement of the stabilizing member from a selected position rearwardly toward the pry-bar member.

It is accordingly an object of the invention to provide a door jack for facilitating the handling and installation of doors.

The above-mentioned and other features and objects of this invention and the manner of attaining them will become more apparent and the invention itself will be best understood by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings, wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view showing one embodiment of the door jack of the invention;

FIG. 2 is a fragmentary view, partly in cross section and partly exploded, showing further details of the construction of the door jack of FIG. 1;

FIG. 3 is a side view showing the use of the door jack of the invention for carrying a door;

FIG. 4 is a side view showing the use of the door jack of FIG. 1 in hanging a door; and

FIG. 5 is a fragmentary, side view showing a modification of the door jack of the invention.

Referring now to FIGS. 1–4 of the drawing, the door jack of the invention, generally indicated at **10**, comprises an elongated pry-bar member **12** having a pry-foot **14** formed on its lower end **16**. Foot **14** is joined to pry-bar **12** by a curved portion **18**, and is flattened at its outer end as at **20**. Foot **14** defines an angle with pry-bar **12**, shown as being generally a right angle. Foot **14** extends forwardly from pry-bar **12**. Pry-bar **12** may be formed of suitable tubular metal, such as steel.

A tubular sleeve member **22** is provided secured to the upper end **24** of pry-bar **12**, as by welding at **26**. Sleeve **22** has a beveled end **28** adjacent pry-bar **12** and an opposite end **30** spaced therefrom, as shown.

An elongated stabilizing rod **32** is provided reciprocally received in sleeve **22** and having a portion **34** extending forwardly therefrom in the same direction as foot **14**. A metal pad **36** is secured to the outer end of rod portion **34**, as by welding, and preferably has resilient padding **38** secured to its outer surface, as by suitable adhesive. The other end **40** of rod **32** projects rearwardly beyond end **30** of sleeve **22** and is threaded, as shown, to receive cap member **42**.

A suitable locking washer **44** is mounted on rod portion **34** and a suitable coil spring **46** surrounds rod portion **34** and extends between pad **36** and locking washer **44**. It will be seen that spring **46** normally biases rod portion **34** and pad **36** outwardly away from pry-bar **12**, as shown by the arrow **48**, engagement of cap **42** with end **30** of sleeve **22** limiting the extent of the outward movement of rod portion **34** and pad **36**. It will be seen, however, that spring **46** will tend to tilt washer **44** in the direction of beveled end **28** of sleeve **22**, thus causing washer **44** lockingly to engage rod portion **34** so as to prevent rearward movement of rod portion **34** and pad **36** from a selected position.

Pry-bar **12** is preferably disposed at a slight angle with respect to sleeve **22** and stabilizing rod **32**, rod portion **34** thus being disposed at an acute angle slightly less than 90° with respect to pry-bar **12**, as shown. In a specific embodiment, pry-bar **12** had an overall length of 40 inches, foot **14** had an overall length of 6 inches, sleeve **22** had a length of 6 inches, and stabilizing rod **32** had a length of 18 inches. It will be understood that these dimensions, particularly the length of the pry-bar **12**, may vary to suit the particular workman.

Referring now to FIG. 3, a door jack **10** may be employed for carrying a door **48** to the installation site. Here, flattened end **20** of foot **14** is inserted under the bottom edge **50** of the door, and pads **36**, **38** are placed in engagement with surface **52** of door **48** with rod portion **34** fully extended by spring **46**. A workman may then grasp spring **46** to lift door **48**, jack **10** being inclined slightly so that the door **48** is inclined, as shown, and the workman may then carry the door, holding one side edge with his other hand, to the installation site. Pry-bar **12** is preferably of the proper length so that the workman carries the same and door **48** by means of spring **46** and rod portion **34** with his arm extended substantially straight, thus eliminating stooping, back strain and the necessity for carrying the door by grasping the opposite side edges.

Referring now to FIG. 4, when the door has been thus carried to the door jamb upon which it is to be hung, curved portion **18** of foot **14** is placed upon the floor **54**, and pry-bar **12** is pivotally moved, as suggested by the dashed line **12***a*, until flattened end **20** of foot **14** has elevated bottom edge **50** of door **48** to the proper elevation above the floor **54**, as indicated by the dashed line **56**, washer **44** being manipulated to permit compression of spring **46** so as to maintain pads **36**, **38** in engagement with surface **52** of door **48**. It will be seen that outward pivotal movement of pry-bar **12**, as shown by the arrow **58**, will result in upward movement of bottom edge **50** of door **48**, as indicated by the arrow **60**.

With the bottom edge **50** of door **48** thus raised to the desired elevation **56** above floor **54**, and with pads **36**, **38** engaging surface **52** of door **48**, it will be seen that spring **46** will

tilt washer 44 to its locking position against beveled end 28 of sleeve 22. It will be seen that the weight of the door exerts a downward force on flattened end 20 of foot 14, as indicated by the arrow 62, which tends to pivot pry-bar 12 and sleeve 22 inwardly toward door 48, as shown by the arrow 64. However, such relative inward movement of sleeve 64 on stabilizer rod 32 is restrained by the action of locking washer 44 under the influence of spring 46. Thus, jack 10 maintains door 48 against the door jamb at the selected elevation 56 above floor 54 so as to permit scribing of the door, as required, and marking of the hinge locations on the side edge of the door and on the door jamb.

The door may then be removed, again being carried by door jack 10 in the manner shown in FIG. 3, cut to the proper size, as required, and the hinge plates respectively installed on the side edge of the door and on the door jamb at the previously marked locations. The door may then be returned to the jamb by means of jack 10, in the manner shown in FIG. 3, and again elevated to the proper elevation 56, in the manner shown in FIG. 4, so as to permit mating of the hinges and installation of the hinge pins.

Following hanging of the door on the hinges, the door may be partially opened, flattened end 20 of foot 14 inserted beneath bottom edge 50, and washer 44 manipulated so that spring 46 forces pads 36, 38 against surface 52, the position of the jack being generally that shown in FIG. 4, thereby to hold the door in its partially opened position so as to permit installation of the lock, door knobs, etc.

Referring now to FIG. 5 in which like elements are indicated by like reference numerals and similar elements by primed numerals, there is shown an embodiment of the invention in which an adjustable length pry-bar 12' is provided. Pry-bar 12' comprises an upper part 66 which telescopically receives lower part 68, the two parts 66, 68 being selectively secured together to provide the desired overall length for pry-bar 12' by a suitable setscrew 70.

It will now be seen that the bottom edge 50 of the door 48 is pried up with foot 15 of pry-bar 12, engagement of pads 36, 38 with surface 52 of door 48 and the cooperative action of spring 46 and locking washer 44 preventing the door from moving downwardly, thus maintaining the selected elevation of the bottom of the door from the floor so as to permit scribing of the door and locating of the hinges. It will be seen that the door jack of the invention eliminates much of the laborious and back-straining manhandling of the door previously required during the installation thereof, and completely eliminates the use of wedges previously required for maintaining the door at the proper elevation for scribing and locating the hinges.

While there have been described above the principles of this invention in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation to the scope of the invention.

I claim:

1. A door jack comprising: an elongated pry-bar member having a pry-foot formed on one end thereof, said foot extending outwardly from said pry-bar member in a given direction and defining an angle therewith; an elongated stabilizer member; means for mounting said stabilizing member on said pry-bar member adjacent the other end thereof for reciprocal movement with respect thereto, said stabilizing member having a portion extending outwardly from said pry-bar member generally in said direction and defining an angle therewith, said portion having an end spaced outwardly from said pry-bar member; spring means for biasing said end of said stabilizing member outwardly away from said pry-bar member; and locking means for preventing movement of said stabilizing member from a selected position rearwardly toward said pry-bar member.

2. The jack of claim 1 wherein said first-mentioned angle is generally a right angle.

3. The jack of claim 2 wherein said second-mentioned angle is an acute angle.

4. The jack of claim 1 wherein said stabilizing member is a rod, said mounting means comprising a sleeve reciprocally receiving said rod and secured to said other end of said first member.

5. The jack of claim 4 wherein said one end of said rod has an engaging pad thereon, said spring means comprising a coil spring surrounding said rod and extending between said pad and one end of said sleeve.

6. The jack of claim 5 wherein said locking means comprises a lock washer on said rod between said spring and said one end of said sleeve.

7. The jack of claim 6 wherein said one end of said sleeve is beveled thereby permitting said washer to tilt under the influence of said spring so as lockingly to engage said rod, the other end of said rod projecting beyond the other end of said sleeve, and further comprising stop means on said other end of said rod and engageable with said other end of said sleeve for limiting forward movement of said rod.

8. The jack of claim 7 wherein said foot comprises a curved extension of said pry-bar member terminating in a flattened end, said first-mentioned angle being generally a right angle whereby said flattened end may be inserted under the bottom edge of a door with said curved extension resting upon a supporting surface so that rearward pivotal movement of said pry-bar member will cause said foot to elevate said bottom edge of said door, said rod being moved outwardly by said spring so that said pad engages a surface of said door, said washer selectively locking said rod against inward movement thereof and of said pad whereby said door is maintained with said bottom edge so elevated.

9. The jack of claim 4 wherein said sleeve is elongated, said sleeve being secured to said pry-bar member adjacent said one sleeve end, the other end of said sleeve being spaced from said pry-bar member.

10. The jack of claim 1 wherein said pry-bar member comprises a first part adjustably telescopically receiving a second part, and means for selectively securing said parts together thereby to provide selective adjustment of the length of said pry-bar member.

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