

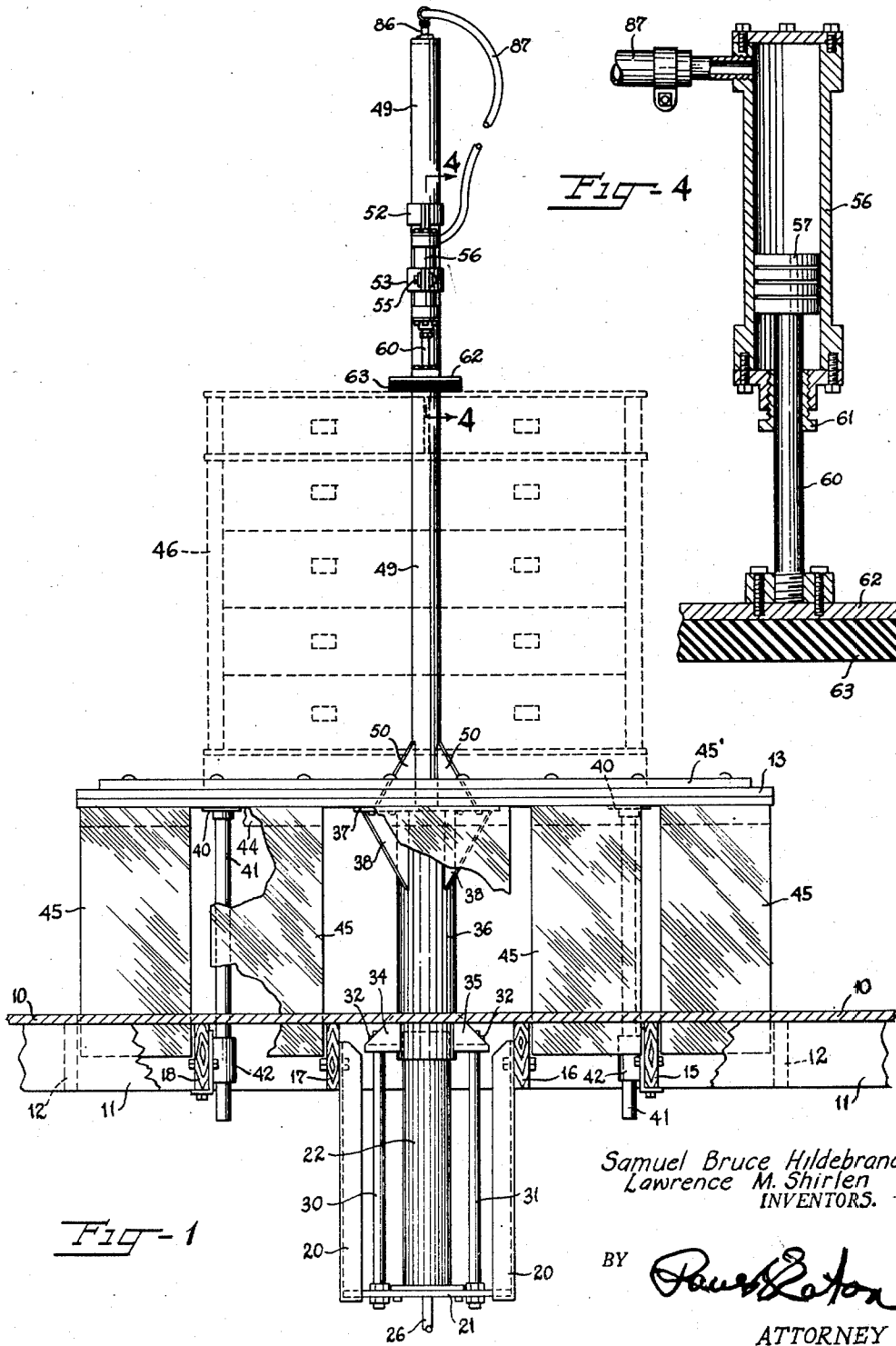
Aug. 1, 1950

S. B. HILDEBRAND ET AL
VERTICALLY ADJUSTABLE FLUID PRESSURE
ACTUATED WORK HOLDER

2,517,431

Filed July 12, 1946

3 Sheets-Sheet 1



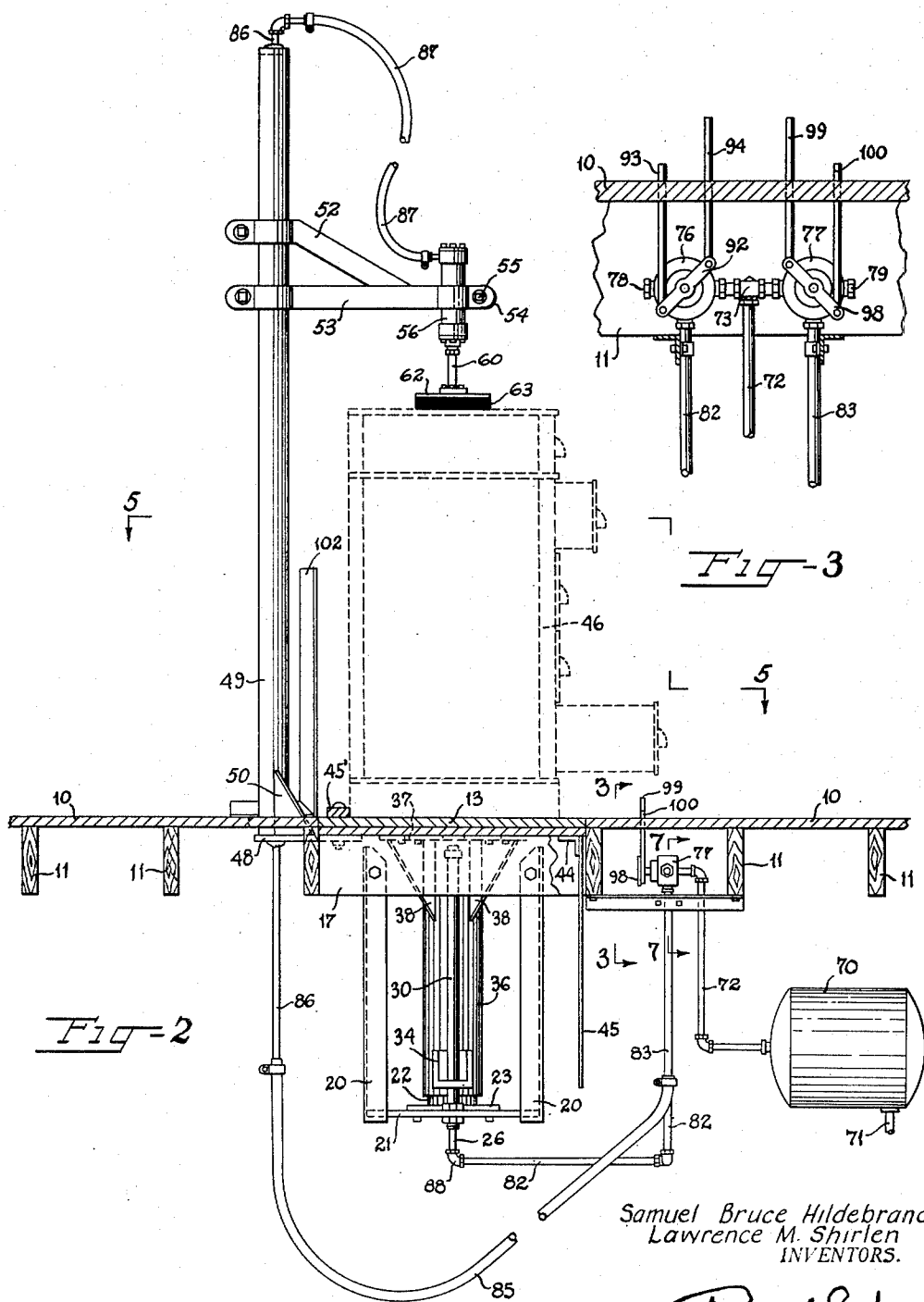
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3 Sheets-Sheet 2



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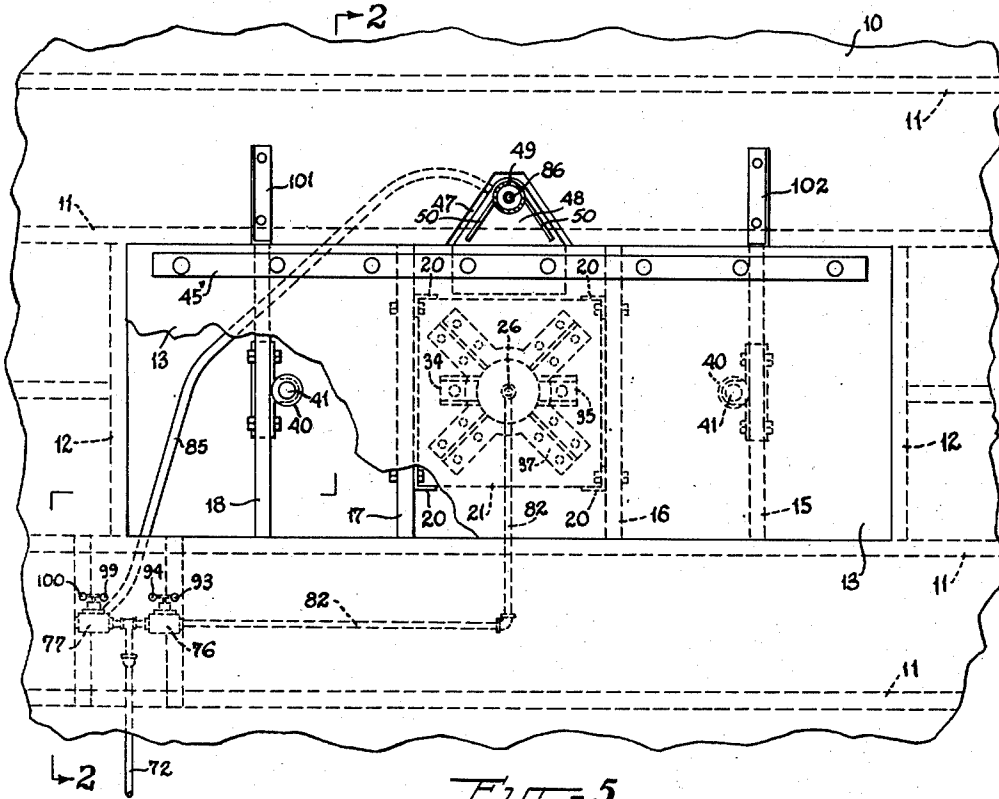
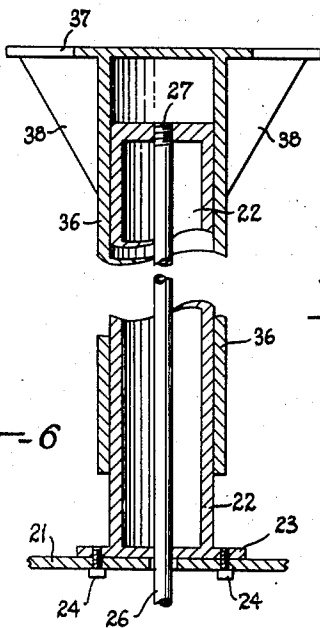
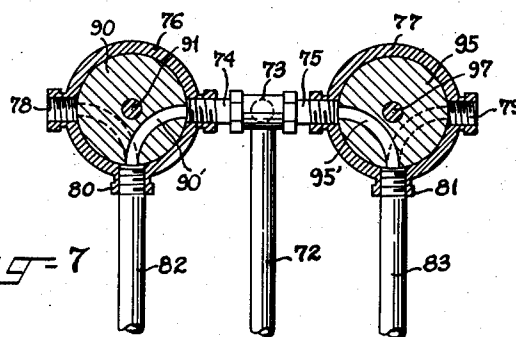
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3 Sheets-Sheet 3



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VERTICALLY ADJUSTABLE FLUID PRESSURE ACTUATED WORK HOLDER

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3 Claims. (Cl. 144—288)

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This invention relates to a work holder or press and more especially to means on which a chest of drawers, china closet and the like can be placed and the work piece can be elevated to proper position, so that a workman will not have to stoop over while fitting drawers or doors in the same, for example, and the elevated platform, which supports the article of furniture has a post rising upwardly therefrom with a suitable clamp for engaging the top of the chest with pneumatically operated means for pressing against the top of the article for holding the same firmly on the platform while it is being operated upon by a workman, such as in fitting the drawers in the framework or fitting doors therein.

It is an object of this invention to provide a platform onto which an article can be placed together with means for elevating the platform, and means carried by the platform for pressing against the top of the article for holding it firmly in position while it is being worked upon, and without scarring or defacing the article in any manner, and which holding means is quickly releasable, so that the platform can be moved to lowered position, either before or after releasing the clamping pressure on the article.

It is another object of this invention to provide means for supporting a piece of furniture, such as a chest of drawers and the like, and which support can be elevated to the proper level and which support carries clamping means adapted to engage the top of the article being worked upon for pressing it against the platform and holding it in a position, where it will not move when pressure is applied sidewise thereon, such as in fitting drawers and the like.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which:

Figure 1 is a front elevation of the apparatus showing the floor of the building, with which it is associated, in section and showing the platform in raised position;

Figure 2 is a view partly in section and partly in elevation and taken along the line 2—2 in Figure 5;

Figure 3 is an elevation taken substantially along the line 3—3 in Figure 2;

Figure 4 is a vertical sectional view taken substantially along the line 4—4 in Figure 1;

Figure 5 is a top plan view and taken partly in section along the line 5—5 in Figure 2;

Figure 6 is a vertical sectional view through the raising means for the platform;

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Figure 7 is a vertical sectional view through the control valves and taken substantially along the line 7—7 in Figure 2.

Referring more specifically to the drawings, the numeral 10 indicates the floor of a building, which is supported by a plurality of joists or sleepers 11. Suitable cross sleepers 12, 15, 16, 17 and 18 are provided between some of the sleepers 11 and a portion of the floor 10 is cut away providing a platform 13.

To the cross pieces 16 and 17 are secured four downwardly projecting angle members 20, which have secured between their lower ends a plate 21 on which is supported a piston 22, said piston 22 having a flanged lower portion, as at 23, and being secured to the plate 21 by any suitable means, such as screw 24. This piston has a pipe 26 projecting upwardly therethrough and penetrating the top closed end of the piston, as at 27. Plate 21 has secured therein the lower ends of a pair of guide rods 30 and 31, having suitable enlargements, such as nuts 32 on their upper ends and these bolts and guide rods 30 and 31 slidably penetrate upstanding ears 34 and 35, which are fixedly secured to the lower end of a cylinder 36.

Cylinder 36 is secured to the lower surface of platform 13, by any suitable means, such as a plate 37. Plate 37 is reinforced by suitable fins 38 secured to the lower surface thereof and welded to the exterior of cylinder 36.

The lower surface of the platform 13 has suitable flanges 40, to which are secured downwardly projecting guide rods 41, which are slidably mounted in cuffs 42 secured on the transverse sleepers 15 and 18, which guide the platform 13 in its up and down movements.

The front edge of the platform 13 has secured thereto an angle iron or other suitable support 44, which has secured thereto a plurality of plates or vanes 45, which project downwardly and prevent the foot of an operator from being projected into the path of the platform 13 during a lowering operation.

Secured to the floor 10 is a pair of L-shaped angle brackets 101 and 102, which rise upwardly and serve as a guide for the rear edge of the platform 13 in a raised and lowering operation, whereas the vanes 45 serve as a guide for the platform 13 also, as well as the guide rods 41, which slide in the cuffs 42.

The rear surface of the platform 13 has secured thereto a suitable slat or other stop member 45', against which the rear lower edge of the work piece, such as a chest of drawers 46, is

adapted to be placed when placed in position on the platform 13.

The floor of the building has a cut away portion, as at 47, into which projects a plate 48, which is secured to the lower surface of the platform 13 and this has welded thereto a suitable upriser or pipe 49, which is reinforced by suitable vanes 50 welded to the plate 48 and to the pipe 49. This pipe 49 projects upwardly and has slidably mounted thereon the two arms 52 and 53 of a bracket 54.

In the outer end of bracket 54 is clamped by means of a bolt 55, a cylinder 56 having a piston 57 slidably mounted therein, which piston 57 has a piston rod 60 slidably mounted in a packing gland 61 in the lower end thereof. The lower end of piston rod 60 is secured to plate 62, having a soft pad 63 of rubber, felt or any other suitable material secured to the lower surface thereof for engaging the upper surface of the chest of drawers 46.

The raising and lowering of the platform 13 and the operation of piston 57 is accomplished by means of a compressed fluid, such as compressed air. A suitable source of compressed fluid, such as compressed air, is indicated by reference character 70 and air may be forced into this from a suitable compressor, not shown, through a pipe 71. Leading from the compression tank 70 is a pipe 72, which leads to a T 73 and branch pipes 74 and 75 are connected to valve housings 76 and 77 respectively. These valve housings have exhaust ports 78 and 79 and have other ports 80 and 81, to which pipes 82 and 83 respectively are connected. The pipe 83 is connected to a suitable flexible hose 85, which in turn is connected to a pipe 86, which passes up through support pipe 49 and penetrates the upper end of the pipe 49, and is connected by a suitable flexible hose 87 to the upper end of cylinder 56. Pipe 82 is connected by means of an elbow 88 to the pipe 26, which goes up through the stationary piston 22.

Rotatably mounted in valve housing 76 is a rotatable core 90, having a stem 91 projecting from the outside thereof on which a lever 92 is mounted. Pivotaly secured to the lever 92 are uprising push rods 93 and 94, which slidably penetrate the floor 10 of the building. Core 90 has a passageway 90', which, in one position, connects pipes 74 and 82 and admits air to the lower cylinder. Valve casing 77 has a core 95 therein having a passageway 95', which connects pipes 75 and 83. Core 95 has an outwardly projecting stem 97, to which a double ended lever 98 is connected and the free ends of which are connected to push rods 99 and 100, which slidably penetrate the floor 10.

Method of operation

With the platform 13 lowered to floor level, a chest of drawers or other object, being desired to be worked upon, is placed on the platform 13. The bracket 54 is adjusted by sliding up or down on the pipe 49 until the pad 63 engages the top of the chest of drawers with the piston moved all the way upwardly in the cylinder 56. Then the push rod 100 is pushed to where the parts occupy the positions, shown in Figures 3 and 7, and compressed air is admitted through pipe 83, hose 85, pipe 86, hose 87 to the top of cylinder 56, which forces piston 57 downwardly to clamp the chest on the platform 13. Then the push rod 93 is pushed downwardly to the position, shown in Figures 3 and 7, and compressed air will be ad-

mitted through pipe 82 and pipe 26 to the top of the piston 22 and a chest of drawers 46 will be raised to the proper height to where the operator can pull out and slide in the drawers without undue stooping. If desired, the platform 13 can be raised before the work piece is clamped thereon.

After the drawers have been fully fitted and other work, if desired, has been performed upon the chest, such as painting or fitting of doors, then the push rod 94 can be depressed to where passageway 90' and valve core 90 will connect the pipe 82 with exhaust port 78 and air will be exhausted from the cylinder 36 and parts will move to lowered position, or the position shown in Figure 2. Then the push rod 99 can be depressed, which will cause passageway 95' to connect pipe 83 with exhaust port 79 and air will be exhausted from the cylinder 56, and thus the chest of drawers will be unclamped and can be removed for the insertion of another chest of drawers on the platform 13.

In the drawings and specification, there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

We claim:

1. Apparatus for elevating and clamping a work piece in position, comprising a platform disposed at substantially floor level, pneumatic means for raising the platform, means for guiding the platform during a raising operation, means secured to one edge of the platform and extending upwardly, and over a work piece, a clamping member mounted on the upwardly extending means for engaging the top of the work piece disposed on the platform, and pneumatic means for causing the clamping means to exert pressure on the top of the work piece.

2. Work holding means comprising a platform disposed in and closing a hole in the floor of a building, pneumatic means secured to the lower surface of the platform and to the floor structure of the building for elevating the platform relative to the floor, a standard rising from near one edge of the platform and having a vertically adjustable bracket thereon, a piston and cylinder mounted on the bracket, said piston having means for engaging the top of the work piece, means for admitting air to the cylinder on the bracket for forcing the piston downwardly to apply pressure to the top of the work piece and means for exhausting fluid from the cylinder and from the pneumatic means to release pressure on the top of the work piece and to allow the platform to move to floor level by gravity.

3. Apparatus for elevating a work piece such as a chest of drawers to a suitable height for work to be performed thereon by a workman without stooping, comprising a platform fitting into a hole in the floor structure of a building, a sub-frame secured to the lower surface of the floor, a piston and cylinder assembly disposed below the platform, the remote ends of the assembly being secured to the lower surface of the platform and to the sub-frame, said platform having a plurality of downwardly extending guiding rods secured to the lower surface thereof, fixed guides in the floor structure for receiving said rods, means for admitting a fluid under pressure to the piston and cylinder assembly for raising said platform, an upwardly extending post on one side

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of the platform, a vertically adjustable bracket mounted near the upper end of the post, a bracket cylinder mounted in the bracket, a piston in the cylinder and having a piston rod projecting from the lower end of the cylinder and a clamping member on the lower end of the piston rod and means for supplying fluid under pressure to the cylinder on the bracket to move its piston downwardly to cause the clamping member on its piston rod to engage the top of the work piece. **10**

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