

Oct. 13, 1953

J. JONES

2,655,412

LIFT FOR CEILING BOARDS

Filed Dec. 22, 1947

2 Sheets-Sheet 1

Fig. 1

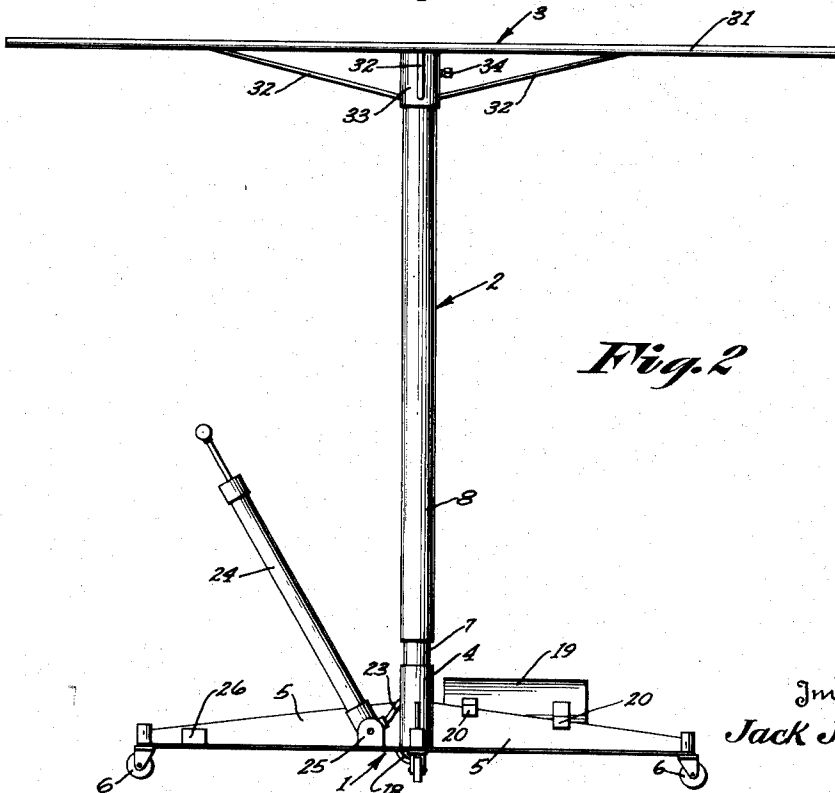
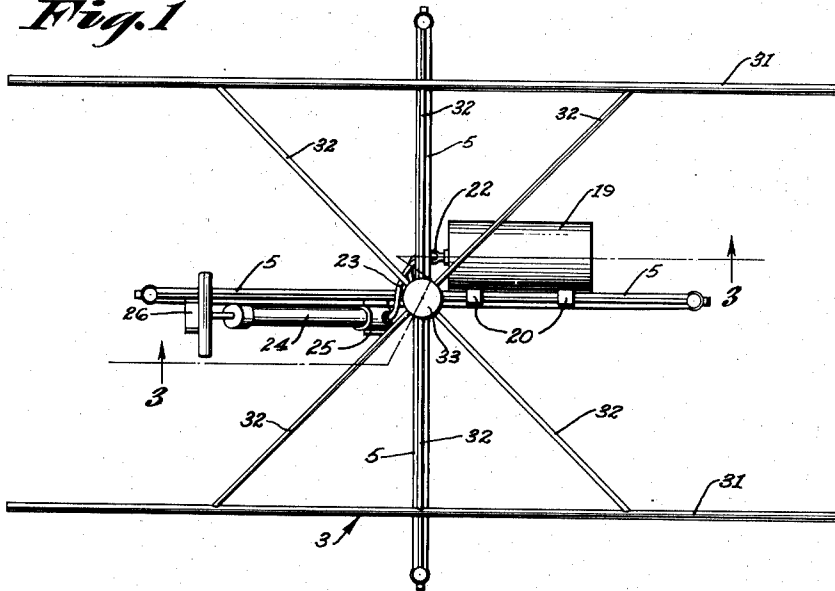


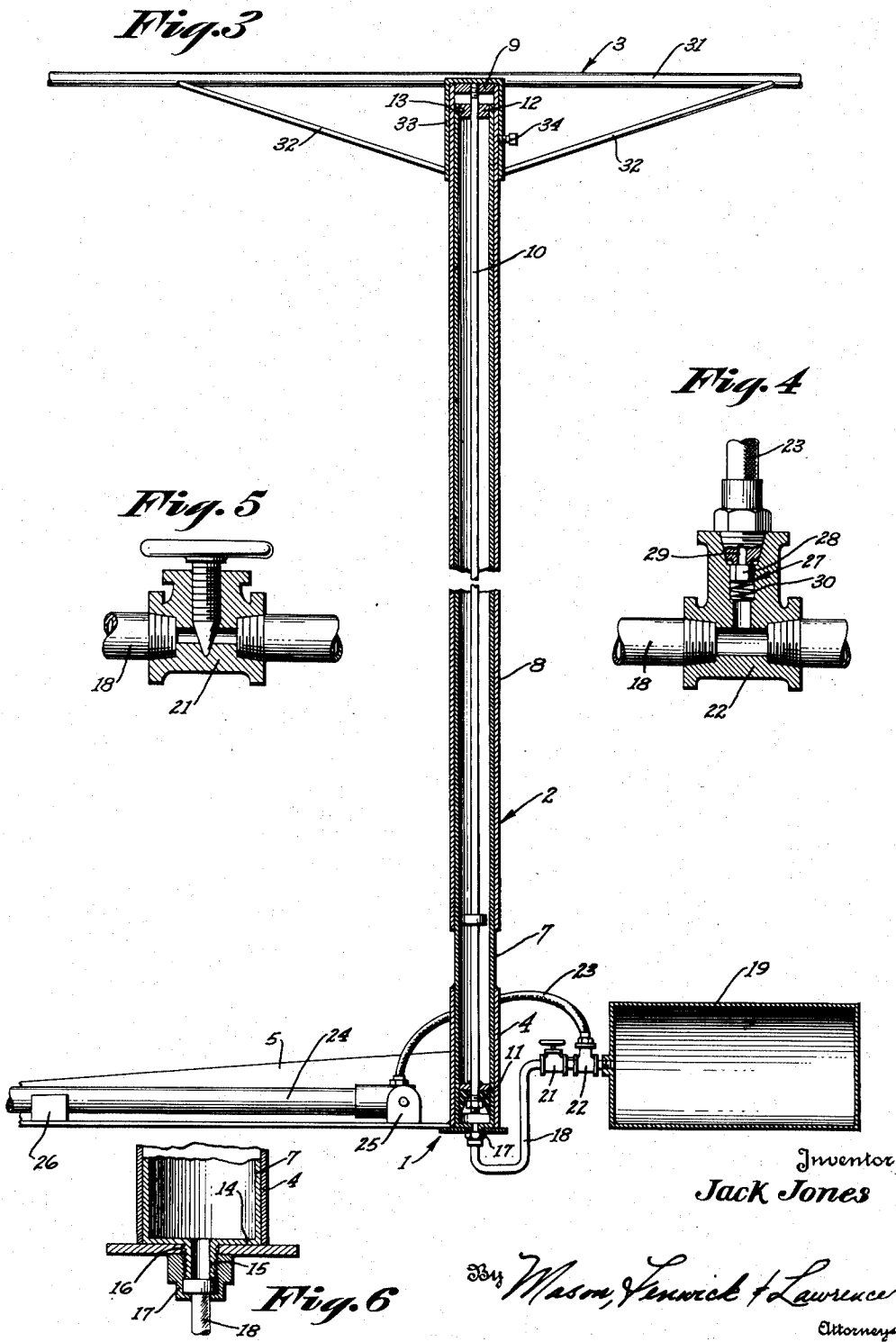
Fig. 2

Inventor
Jack Jones

By *Marion Leuwich & Laurence*
Attorneys

2,655,412

2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,655,412

LIFT FOR CEILING BOARDS

Jack Jones, Eden, Tex.

Application December 22, 1947, Serial No. 793,207

2 Claims. (Cl. 304-9)

1

This invention relates to portable automatic lifts, and more particularly to devices of such nature for raising relatively light loads by pneumatic pressure.

Considerable interior construction work is now being done with so-called wallboard, which is a composition board of fiber, plaster, or other material, and is generally supplied in large sheets, some four by eight feet in size. While these boards are not extremely heavy, their size makes them unwieldy, and it is practically impossible for one man to hold a board against ceiling rafters and nail it in position.

The object of the present invention is to provide a portable, lightweight, automatic lift operable by compressed air which is particularly adapted for use in lifting wallboard sheets to the ceiling level and holding them in position while they are being secured to the ceiling rafters.

Another object of the invention is to provide such a device which will hold the board against the ceiling with a yielding pressure so that the lift may be drawn down slightly to permit its shifting to properly position the board.

A further object of the invention is to provide a lightweight lift which can be quickly and simply disassembled and assembled so that it may be readily taken down and transported from job to job.

A still further object of the invention is the provision of a novel pneumatic system whereby air placed in a storage tank may be used repeatedly for lifting a load, the same air being recompressed after the load is removed.

Other objects of the invention will appear from the following description of one practical embodiment of the invention when taken in conjunction with the drawings which accompany and form a part of this specification.

In the drawings:

Figure 1 is a top plan view of a lift embodying the principles of the present invention;

Figure 2 is a side elevation of the device shown in Figure 1;

Figure 3 is a vertical section taken on the line 3-3 of Figure 1;

Figure 4 is a sectional detail of a check valve used in the device;

Figure 5 is a sectional detail of the lift control valve; and

Figure 6 is an enlarged detail of the manner in which the vertical pedestal of the lift seats in and is attached to the base member.

Referring to the drawings in detail, the lift comprises three main members, a base 1, a ver-

2

tical telescopic pedestal 2, and a scaffolding or skeleton platform 3.

Base 1 is composed of a vertically positioned tubular socket 4 to which are attached a plurality of legs 5 projecting radially from the base socket a sufficient distance to provide necessary stability. Each leg has a caster wheel 6 fixed to its outer end so that the device may be readily rolled from place to place.

Pedestal 2 is composed of two telescoping, tubular sections 7 and 8, the section 7 being of such size that it will slip within the base socket 4, and section 8 has a sliding fit over section 7. The upper end of section 8 is closed by a disk 9 which is centrally bored and tapped to receive the threaded upper end of a piston rod 10. A piston 11 is fixed to the lower end of rod 11 and is slidably positioned within the pedestal section 7. The upper end of section 7 is fitted with a bushing 12, held in position by means of set screws 13, and having a central opening through which piston rod 10 slides. Bushing 12 serves as a guide to maintain the piston rod in vertical alignment.

Lower pedestal section 7 has an apertured bottom 14, the aperture being surrounded by a tubular projection 15 which extends through an opening 16 in the bottom of the base socket 4. The end of projection 15 is threaded and a coupling 17, attached to the end of an air line 18, is screwed thereon. This attaches the air line to the bottom of section 7, and also securely fastens section 7 within socket 4. Air line 18 connects with a storage tank for compressed air 19 which is secured by means of clips 20 to one of the legs 5 of the base. A control valve 21 and a combination T-fitting and check valve 22 are connected in the line 18 between coupling 17 and tank 19, the T-fitting 22 being between the tank and valve 21. An air hose 23 is connected to the T-fitting 22 and leads to an air pump 24, which is swivelly connected to brackets 25 fixed to one of the legs 5. Pump 24 is of the well-known hand operated type and may be pivoted upward to the position shown in Figure 2 when in use, and lowered and held by clip 26 when not in use. Check valve 27 may be of any conventional type which will open to permit air to flow from hose 23 into tank 19 but prevent reverse flow. It is shown as comprising a valve 28 of polygonal cross-section which is movable in a throat of circular cross-section and seats upon the end of nipple 29. Spring 30 normally holds the valve against its seat. Valve

3

21 may be of any manually controlled type, and is shown as a conventional needle valve.

Load supporting platform 3 may be a solid platform, but for lightness it may consist merely of two spaced parallel bars 31, supported by braces 32 projecting from a centrally positioned cap 33. Cap 33 fits over the upper end of outer pedestal section 8 and is secured thereto by means of a set screw 34.

In use, the device is set up by inserting the pedestal 2 into socket 4 of the base and connecting coupling 17 to the projection 15 which extends through opening 16 in the bottom of socket 4. This couples the piston chamber within the pedestal to the air tank 19 and securely locks the pedestal to the base. The platform is then lifted, and its cap 33 fitted over the upper end of section 8 of the pedestal, set screw 34 then being tightened to hold the cap in place. With valve 21 cut off, hand pump 24 is operated to force air into tank 19 through check valve 27. The pressure in the tank is raised only enough to lift the wall board or other load the desired distance. The wallboard is then placed upon platform 3 and the lift rolled to a spot immediately below the ceiling area to which the wallboard is to be fastened. Valve 21 is then opened to permit compressed air to flow into the lower end of pedestal section 7 beneath pistons 11 to lift the piston and, through piston rod 10, the upper pedestal section 8 and platform 3. Valve 21 may be opened varied amounts to secure the desired speed of lift. When the wallboard contacts the ceiling joists, the movement of the lift will stop, but the air pressure will hold the board tightly against the ceiling. As a section of wallboard weighs less than an average-size man, and only sufficient pressure is put into tank 19 to lift the board and hold it in place on the ceiling, the operator can grasp the upper section of the vertical pedestal and draw the platform down slightly if the board is not exactly positioned and roll the lift sufficiently so that the board will be properly placed when permitted to contact the ceiling again. The pressure against the wallboard when in position against the ceiling is so light that the board may be tapped on one edge to shift its position if its misalignment is not great. After positioning, the board is nailed in place. During this entire operation valve 21 has remained open. To lower the platform, the operator merely grasps one of the upper movable portions of the device and draws the platform down to its lowest position, forcing the air in the piston chamber back through valve 21 into tank 19. In this manner all of the air used in lifting the platform is recompressed into tank 19 and valve 21 is closed holding the pressure until it is again needed. Thus, the original charge of air may be used repeatedly, and even with normal leakage the device may be used many times without recharging the tank. It will be noted that when the lift is lowered, piston 11 is very close to the bottom of its chamber, which leaves but little uncontrolled compressed air be-

4

tween valve 21 and piston 11 to expand when the lowering pressure is released. Due to this arrangement, the lift will not rise appreciably after valve 21 is closed. This also permits but a small loss of air when coupling 17 is removed when the lift is being disassembled for movement to another job.

The lift has been described in connection with placing wallboards in position against a ceiling, but it will be evident that it is also useful in any place where loads are to be raised, such as lifting boxes and bales from one floor to the next in warehouses, and similar operations. Although one practical embodiment of the invention has been illustrated and described herein, it will be understood that changes in the precise structure may be made without departing from the scope of the invention as defined by the appended claims.

What is claimed is:

1. A demountable lift comprising, a base having a socket therein provided with an opening in its bottom, a standard comprising upper and lower telescoping sections with the lower section having a piston chamber therein and a threaded tubular projection at its lower end in communication with said chamber adapted to project through the opening in the base socket when the lower section of the standard is seated in said socket, a platform removably secured to said upper section, a piston in said chamber connected to said upper section of the standard, and a closed fluid system to move said piston in said chamber including said lower section of the standard, a tank to receive an elastic and compressible fluid under pressure, a conduit connected to said tank and having a coupling on its other end for engagement with said threaded projection on said standard lower section to connect said tank to said piston chamber and lock said lower section to said base, and a valve in said conduit between said tank and said chamber to hold fluid within said tank and to release it therefrom.

2. In a demountable lift as claimed in claim 1, means by which make-up fluid may be supplied to said tank connected to said closed fluid system between said valve and said tank.

JACK JONES.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
244,092	Thayer	July 12, 1881
269,994	Bailey	Jan. 2, 1883
828,781	Smith	Aug. 17, 1906
900,945	Mills	Oct. 13, 1908
1,177,476	Bresse	Mar. 28, 1916
1,223,712	Meyers	Apr. 24, 1917
1,364,266	Fletcher	Jan. 4, 1921
1,762,397	Kinser	June 10, 1930
2,236,095	Ginter	Mar. 25, 1941
2,375,104	Heitshu	May 1, 1945
2,512,150	Geren	June 20, 1950