Sept. 18, 1956 A. I. SCHRAM 2,763,320

FURNITURE ARTICLE WITH LIFTING JACK

Filed April 4, 1952

Fig. 1.

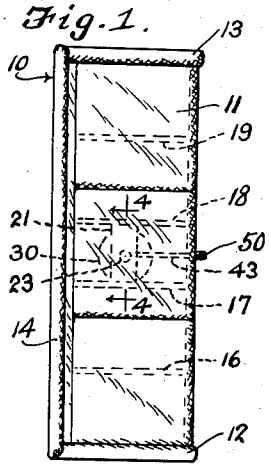


Fig. 2.

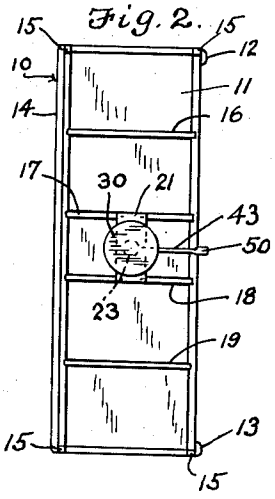


Fig. 7.

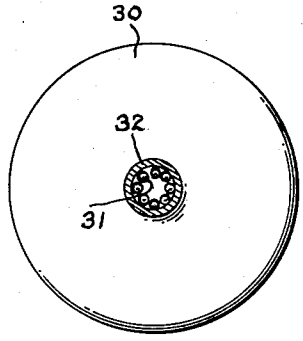


Fig. 3.

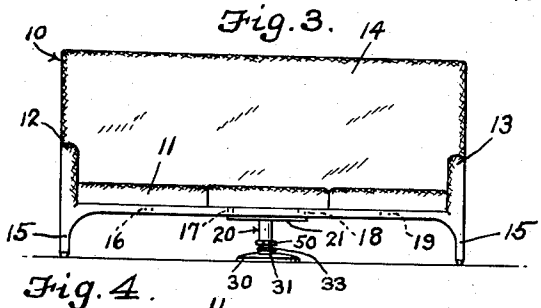


Fig. 4.

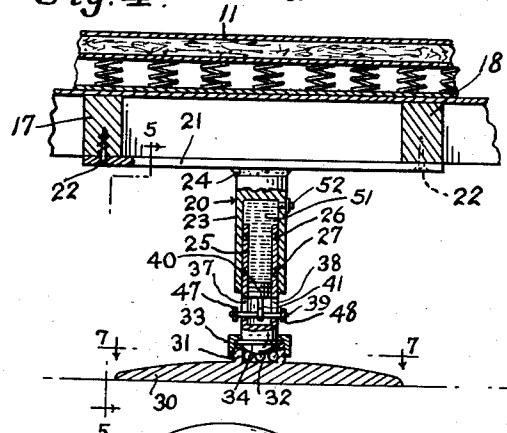


Fig. 5.

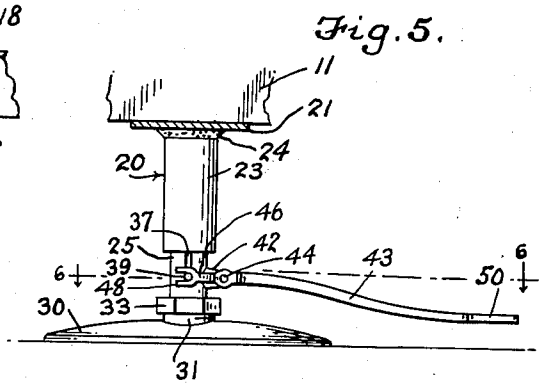
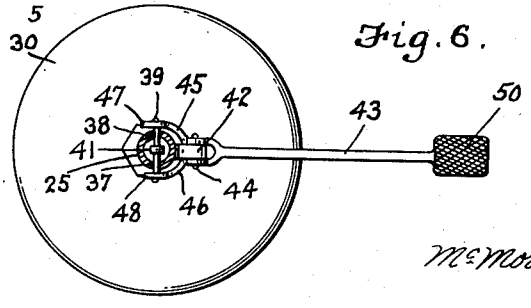


Fig. 6.



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FURNITURE ARTICLE WITH LIFTING JACK

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4 Claims. (Cl. 155—88)

This invention relates to furniture articles embodying elevating means therefor, and more particularly to a furniture article, such as a sofa or divan, having a jack rotatably secured to the under side of the frame thereof and depending from the frame so that the jack can be operated to elevate the sofa or divan and the sofa or divan can be turned while held in elevated position by the jack.

It is among the objects of the invention to provide an improved jack and sofa or divan combination wherein a jack is disposed below a sofa frame and is connected at its upper end to the under side of the seat near the center of the latter so that the jack can be operated to lift the sofa from the floor on which it rests, the jack having relatively rotatable components enabling the sofa to be turned to any desired position while supported by the jack and then returned to rest on the floor; which includes a jack assembly that can be attached to an existing sofa or divan with no material modification of the sofa or divan construction; and which also includes foot operated means located beneath a sofa or divan.

Other objects and advantages will become apparent from a consideration of the following description and appended claims in conjunction with the accompanying drawing wherein:

Figure 1 is a top plan view of a sofa and jack assembly illustrative of the invention;

Figure 2 is a bottom plan view of the assembly illustrated in Figure 1;

Figure 3 is a front elevational view of the sofa and jack assembly illustrated in Figures 1 and 2;

Figure 4 is a fragmentary cross sectional view on an enlarged scale on the line 4—4 of Figure 1;

Figure 5 is a fragmentary cross sectional view on an enlarged scale on the line 5—5 of Figure 4;

Figure 6 is a transverse cross sectional view on the line 6—6 of Figure 5; and

Figure 7 is a transverse cross sectional view on the line 7—7 of Figure 4.

With continued reference to the drawing, the illustrated sofa, generally indicated at **10**, has a seat **11** of elongated, rectangular shape, arms **12** and **13** disposed one at each end of the seat and upstanding therefrom, a back **14** extending along the back or rear side of the seat, and legs, as indicated at **15**, depending from the seat one at each corner thereof. The seat **11** is supported on a frame including cross members, as indicated at **16**, **17**, **18** and **19** extending transversely of the underside of the seat **11** at spaced apart locations along the latter. The cross members **17** and **18** are disposed adjacent to and spaced substantially equal distances from the midlength location of the seat.

A jack assembly, generally indicated at **20**, is disposed below the seat **11** of the sofa and comprises a flat head plate **21** of elongated, rectangular shape extending between the outer sides of the intermediate frame cross members **17** and **18** and secured at its ends to these cross members with the center of the plate substantially at the center of the seat **11**. The plate is secured to the cross

members **17** and **18** by suitable means, such as the screws **22** and an upper or outer cylinder **23** is secured at its closed upper end to the plate **21** at the center of the underside of the plate by suitable means, such as the weld joint **24**. The cylinder **23** depends perpendicularly from the plate **21** and the open upper end of an inner or lower cylinder **25** is slidable in the open lower end of the outer cylinder **23**. The inner cylinder is provided with external vertically spaced, circumferential grooves within the outer cylinder **23**, and oil seals **26** and **27** are mounted in these grooves and contact the inner surface of the outer cylinder to prevent leakage of hydraulic fluid between the inner and outer cylinders.

A flat base plate **30** is provided at the center of its upper surface with an annular, externally screw threaded boss **31**, and anti-friction bearing balls **32** are disposed in this boss. The closed lower end of the inner cylinder **25** is received in the boss and rests upon the bearing balls **32**, and a cap nut **33** is threaded onto the boss **31** and has at its upper end an inwardly directed flange which engages an annular shoulder **34** on the lower cylinder to secure the lower cylinder to the base plate **30** while providing freedom of rotational movement of the lower cylinder relative to the base plate.

Adjacent its lower end the inner cylinder **25** is provided with diametrically opposed and longitudinally extending slots **37** and **38** and a pin **39** extends transversely of the inner cylinder and through the slots **37** and **38**. A piston **40** is mounted in the inner cylinder **25** above the slots **37** and **38** and a piston rod **41** depends from the piston **40** and has at its lower end an eye formation which receives the pin **39** to connect the piston to the pin.

A lug **42** projects outwardly from the inner cylinder **25** adjacent the cap nut **33** and a jack-operating lever **43** is pivotally connected intermediate its length to the lug **42** at the outer end of the latter by means of a pivot pin **44** which extends through registering apertures in the lever and the lug. The lever is provided with a bifurcated end portion including legs **45** and **46** which are disposed one at each side of the lug **42** and which extend at respectively opposite sides of the inner cylinder **25** and are provided at their distal ends with forks **47** and **48** in which the corresponding ends of the pin **39** are received. A treadle **50** is provided on the other end of the lever and is spaced from the pivot pin **44** at a distance materially greater than the distance from the pivot pin to the pin receiving formations **47** and **48**, the distance from the inner cylinder **25** to the treadle **50** being such that the treadle projects only slightly beyond the front side of the sofa seat **11** adjacent the midlength location of the seat, as is shown in Figure 1.

A body of hydraulic fluid **51** is contained in the outer and inner cylinders between the top end of the piston **40** and the closed upper end of the outer cylinder **23** and a filling aperture and plug **52** is provided in the outer cylinder at the upper closed end of the latter for filling the chamber provided within the cylinders with hydraulic fluid.

In the use of the device, when the sofa legs **15** rest on the floor the treadle **50** is held in an elevated position above the floor by the weight of the sofa on the body of hydraulic fluid **51** and on the piston **40**. When it is desired to turn the sofa, the treadle **50** is forced downwardly by foot pressure to a location adjacent the floor and this raises the sofa sufficiently so that its legs are clear of the floor, a mechanical advantage for lifting the sofa being obtained by the difference in the distances of the opposite ends of the lever **43** from the pivot pin **44**. When the sofa has been raised so that its legs clear the floor it can be easily turned by reason of the anti-friction support provided by the anti-friction bearing balls **32** for the cylinders **23** and **25** on the base plate **30**. After the sofa has been turned to a desired angular position the

foot pressure on the treadle 50 is released so as to permit the sofa to return to rest upon the floor.

With this arrangement a heavy sofa or divan can be easily raised and turned to different positions for facing different objects, such as a window, a television appliance or a fireplace, without the necessity of manually lifting and moving the sofa.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being defined by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are, therefore, intended to be embraced therein.

What is claimed is:

1. In a jack, an outer cylinder having a closed upper end and an open lower end, an inner cylinder working within said outer cylinder, said inner cylinder having an open upper end and a lower end, a piston working within said inner cylinder, said piston having a lower end, a piston rod on and depending from the lower end of the piston and within said inner cylinder, a transverse pin on said piston rod, said inner cylinder having a side wall, opposed vertical slots in the inner cylinder side wall in which said pin is engaged, a lever having first and second ends, means pivoting said lever on said inner cylinder at a point intermediate said first and second ends, and means operatively connecting said first end of the lever to said pin.

2. In a jack, an outer cylinder having a closed upper end and an open lower end, an inner cylinder working within said outer cylinder, said inner cylinder having an open upper end and a lower end, a piston working within said inner cylinder, said piston having a lower end, a piston rod on and depending from the lower end of the piston and within said inner cylinder, a transverse pin on said piston rod, said inner cylinder having a side wall, opposed vertical slots in the inner cylinder side wall in which said pin is engaged, a lever having first and second ends, means pivoting said lever on said inner cylinder at a point intermediate said first and second ends, and means operatively connecting said first end of the lever to said pin, and an enlarged support engaging base rotatably secured to the lower end of the inner cylinder.

3. In an article of furniture, a horizontal frame having depending legs normally supporting the frame on a floor, an outer cylinder having a closed upper end and an open lower end, means securing the upper end of the outer cylinder to the frame, an inner cylinder working in said outer cylinder, said inner cylinder having an open upper end and a lower end, a piston working in said inner cylinder, said outer and inner cylinders containing hydraulic fluid above the piston, a flow engaging base on the lower end of the inner cylinder, and piston operating means mounted on the inner cylinder and operatively connected to the piston.

4. In an article of furniture, a horizontal frame having depending legs normally supporting the frame on a floor, an outer cylinder having a closed upper end and an open lower end, means securing the upper end of the outer cylinder to the frame, an inner cylinder working in said outer cylinder, said inner cylinder having an open upper end and a lower end, a piston working in said inner cylinder, said outer and inner cylinders containing hydraulic fluid above the piston, a floor engaging base on the lower end of the inner cylinder, and piston operating means mounted on the inner cylinder and operatively connected to the piston, and means securing said base revolubly to the lower end of the inner cylinder.

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