

Oct. 20, 1959

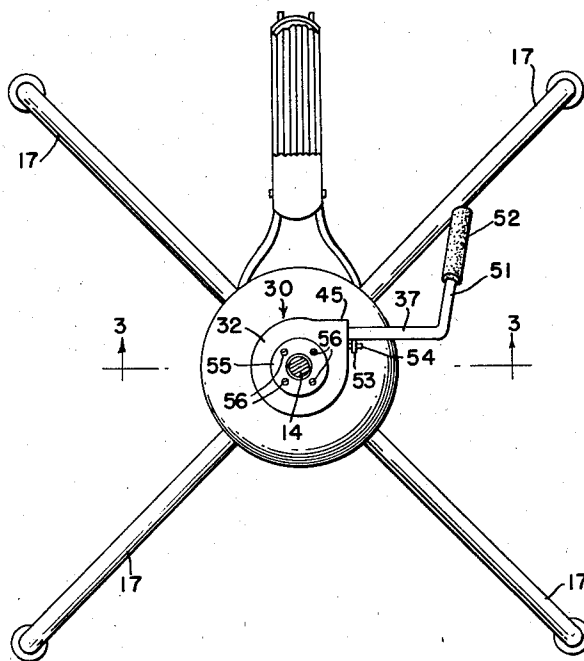
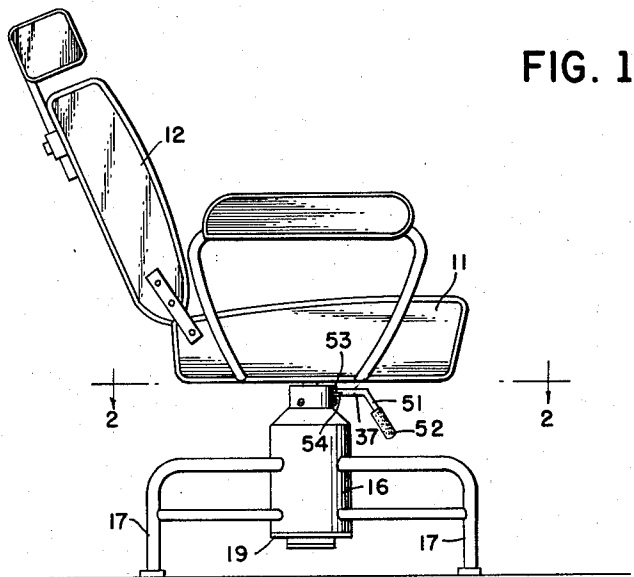
L. S. ROMITO

2,909,247

LOCK FOR ELEVATOR CHAIRS

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INVENTOR.  
LEOPOLD S. ROMITO

BY

*Albert G. Kramer*  
ATTORNEY

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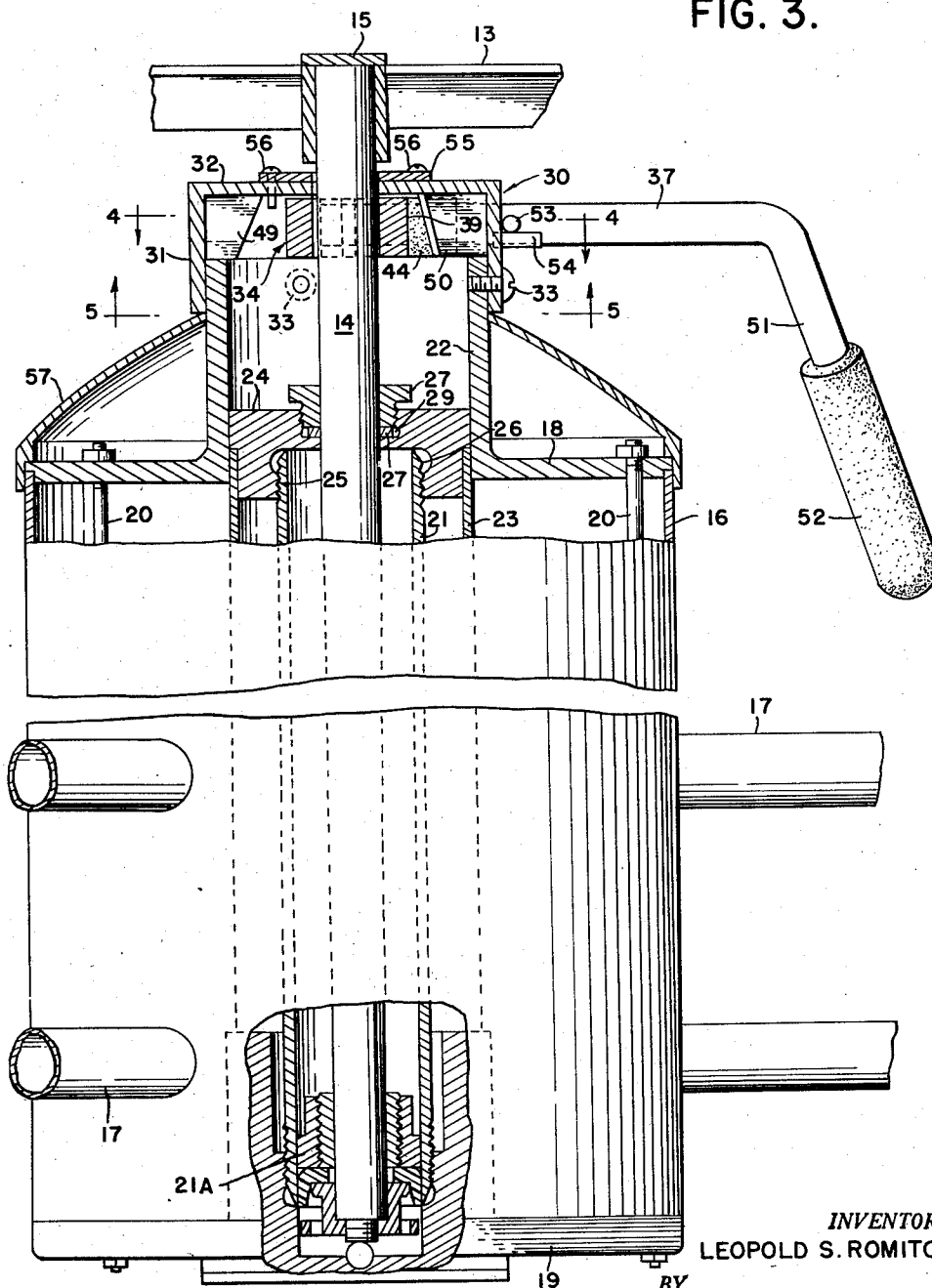
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FIG. 3.



INVENTOR.  
LEOPOLD S. ROMITO

BY  
*Albert J. Kramer*  
ATTORNEY

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FIG. 5.

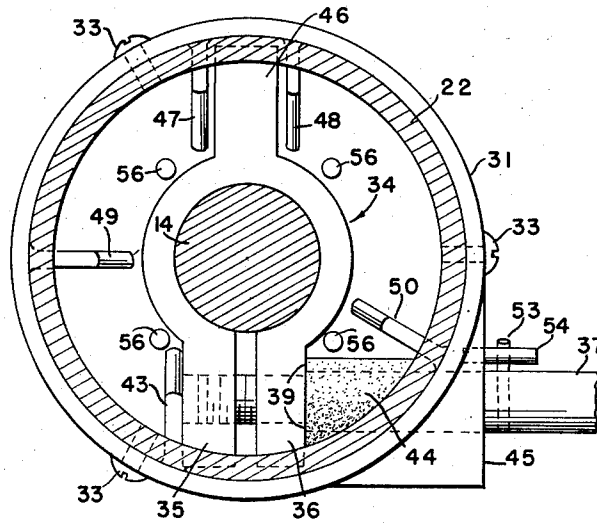


FIG. 4.

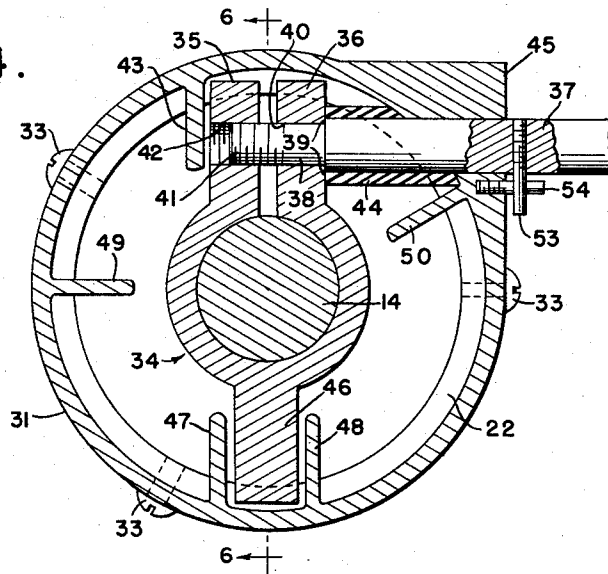
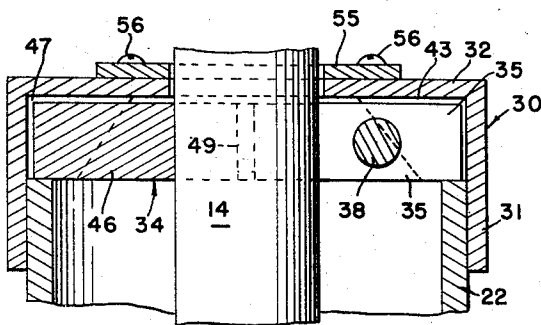


FIG. 6.



INVENTOR.  
LEOPOLD S. ROMITO

BY

*Albert J. Kramer*

ATTORNEY

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**LOCK FOR ELEVATOR CHAIRS**

Leopold S. Romito, Ravenna, Ohio

Application August 1, 1958, Serial No. 752,455

4 Claims. (Cl. 188-75)

This invention relates to elevator chairs and it is more particularly concerned with the provision of a locking device for holding the chair seat in elevated positions.

Elevator chairs are extensively used in many places, including barber shops, beauty parlors, dental treatment rooms, etc. A type of beauty treatment chair employing a hydraulic lift mechanism is described in my copending application for patent Ser. No. 506,839, filed May 9, 1955, now Patent No. 2,854,061. The present invention is especially adaptable to a chair of this type and will, for illustrative purposes, be described hereinafter as an improvement thereover, although it is equally applicable to hydraulic chairs used for other purposes.

An object of the invention is the provision of a locking device which is applied directly to the supporting shaft of the chair, which shaft is usually the piston ram of a hydraulic cylinder.

A special feature of the invention is the provision of such a locking device which obviates binding between the shaft and the locking mechanism in the released position of the device and which also prevents misalignment of the shaft in either locked or released position of the device, so that in cases where the shaft is the piston rod or ram of a hydraulic mechanism, damage is obviated thereto by reason of any such misalignment, such as between the piston head and its cylinder wall.

Another object and feature of the invention is the provision of such a locking device which is positive in its holding action and which holding action is uniformly applied to the entire contact area between it and the shaft.

A further object of the invention is the provision of such a device which is easy to assemble, long wearing, and which is not likely to get out of order or require frequent repairs.

These objects and features and still further objects, features and advantages of the invention will appear more fully from the following description, considered together with the accompanying drawing in which an embodiment of the invention is illustrated.

In the drawing:

Fig. 1 is a side elevational view of a hydraulic chair containing the embodiment.

Fig. 2 is a section along the line 2-2 of Fig. 1.

Fig. 3 is a partial section along the line 3-3 of Fig. 2.

Fig. 4 is a section along the line 4-4 of Fig. 3.

Fig. 5 is a section along the line 5-5 of Fig. 3.

Fig. 6 is a section along the line 6-6 of Fig. 4.

Referring with more particularity to the drawing in which like numerals designate like parts, the embodiment is illustrated in connection with a beauty chair of the type described in my said copending application for patent and which comprises an upper structure that includes a chair seat 11 and a back rest 12 connected together and mounted on a support frame 13 at the top of a vertical hydraulic ram 14. The frame is connected to a socket 15 which fits over the upper end of the ram 14 and acts as a thrust bearing.

The hydraulic unit per se is contained in a housing which

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comprises a cylindrical shell 16 to which the chair legs 17 are connected, this construction being a feature of my said copending application. The housing also comprises an upper wall 18 and a bottom wall 19 between which the shell 16 is sandwiched, all three of these parts being secured together as a unit by vertical tie rods 20 between the upper wall and bottom wall, or by any other suitable means.

The hydraulic unit comprises a piston cylinder 21 in which the piston head 21A slidably moves in raising and lowering the chair seat and to which the bottom end of the ram 14 is connected.

The upper wall 18 is provided at the center with an upwardly projecting cylindrical neck 22, the base of which abuts a cylindrical wall 23. The wall 23 surrounds the piston cylinder 21 and comprises with it the fluid reservoir of the hydraulic unit.

An upper end wall 24 for the reservoir and piston cylinder is disposed within the neck 22 and is secured in place by threads 25 engaging threads 26 of the piston cylinder. The ram 14 projects upwardly through the wall 24 and a seal comprising packing 27 and a gland nut 28 is provided in a recess 29 of the wall 24 about the ram.

The neck 22 is surmounted by a cap 30 having a cylindrical vertical wall 31 about the outside of the neck and a top wall 32 above the neck. It is secured to the neck by means of screws 33. Between the upper edge of the neck 22 and the top wall 32 a split ring collar 34 is disposed about the ram 14. The split ends of the collar are integral with outwardly projecting parallel arms 35 and 36 to which the inner end of a rocker shaft 37 is connected. This inner end has a reduced portion 38 to provide an annular shoulder 39 in abutting engagement with the outer side of the arm 36. The portion 38 passes through an aperture 40 in the arm 36 and is provided with threads 41 which engage a threaded aperture 42 in the arm 35.

The arms 35 and 36 are disposed between a rib 43 adjacent the outer side of the arm 35 and a resilient tube 44 between the outer side of the arm 36 and the vertical wall 31 of the cap 30, the outer end of the tube being cut to fit or approximately fit the wall 31 at that point.

A bossed portion 45 is provided on the exterior of the wall 31 through which the shaft 37 projects and on which it is rotatably supported.

The side of the collar 34 opposite the arms 35 and 36 is provided with an outwardly projecting finger 46 which is loosely disposed between a pair of ribs 47 and 48. Additional ribs 49 and 50 are also provided between the rib 43 and the ribs 47 and 48. Each of these ribs is integral with the cap 30. They extend radially inward from the side wall 31 and downwardly from the top wall 32 a distance slightly greater than the thickness of the collar 34 to abut the upper edge of the neck 22. The outer ends of the arms 35 and 36 and of the finger 46 also rest on the upper edge of the neck 22. Thus, the collar is trapped between the said ribs and the upper wall 32.

By these means the collar is self-adjusting to irregularities between it and the ram 14 that would tend to cause binding by displacement of the ram from its concentric position within the cylinder 21. Such displacement not only affects the braking force between the ram and the collar, but also tends to misalign the piston head in the cylinder to cause injury to the cylinder wall and piston head, leakage of oil and other undesirable effects.

The shaft 37 extends outwardly from the boss 47 and its outer end portion 51 is bent at a convenient angle to provide leverage as a handle and to which a rubber hand grip 52 may be attached.

To prevent damage to the collar 34, which is conventionally fabricated of cast iron and thus would have limited tensile strength, when turning the shaft 37 to release

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position, a pin 53 is secured to the shaft and is adapted to abut another pin 54 on the boss 45 when the full release position of the collar is reached.

The cap 30 is also conveniently fabricated of cast iron and, to protect it from damage, the portion thereof adjacent the ram 14 is provided with a steel reinforcing ring 55 secured in position by screws 56.

A shield 57 is disposed about the neck between the lower end of the cap 30 and the periphery of the wall 18.

Having thus described my invention, I claim:

1. A self-adjusting brake for a shaft comprising a split ring surrounding the shaft, stationary members axially disposed on either side of the ring, said ring abutting the stationary members and being radially movable relative thereto, means carried by one of the stationary members for releasably tightening the ring about the shaft, one of the said stationary members comprising a cylinder and the other a cap having an end wall on the end of the cylinder, said ring being disposed between the end wall of the cap and the end of the cylinder to which it is applied and means between the cap and the cylinder for holding the end wall of the cap in spaced relation to the end of the cylinder.

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2. A self-adjusting brake as defined by claim 1 in which the means for holding the end wall of the cap in spaced relation to the end of the cylinder comprises ribs integral with the cap and in contact with the end of the cylinder.

3. A self-adjusting brake as defined by claim 2 in which a plurality of ribs are provided and means carried by the ring for abutting the ribs and limiting rotational movement of the ring relative to the cap.

4. A self adjusting brake as defined by claim 1 in which the means for releasably tightening the ring about the arm includes a rotatable shaft having an exterior portion adapted for the application thereto of a rotational force.

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