Sept. 5, 1939. O. L. LAGERVALL 2,172,085

MUSIC STAND

Filed March 29, 1938 2 Sheets-Sheet 1

Fig. 1.

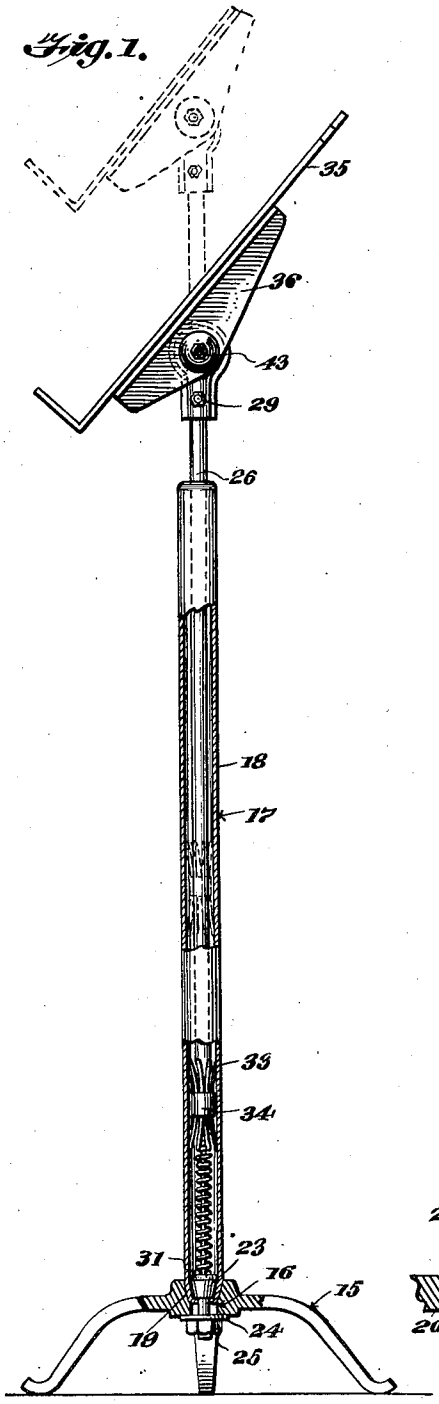


Fig. 2.

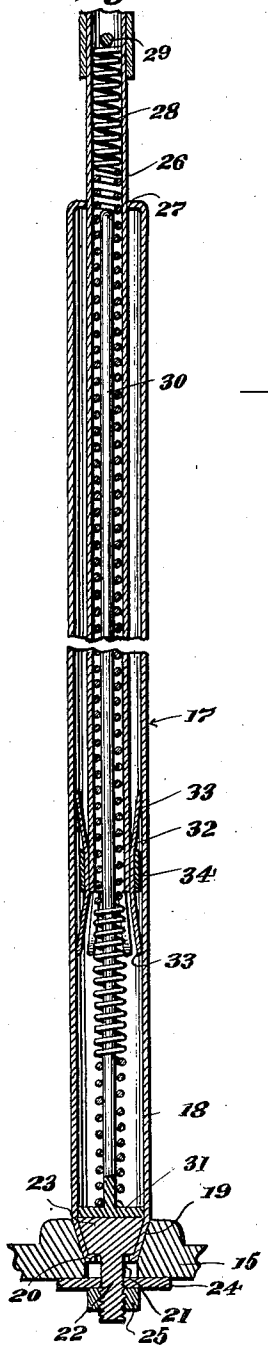


Fig. 3.

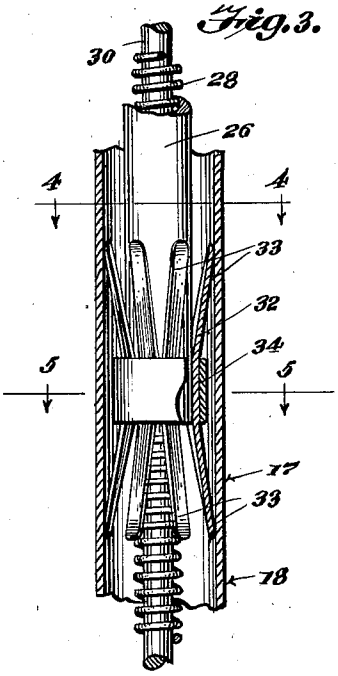


Fig. 4.

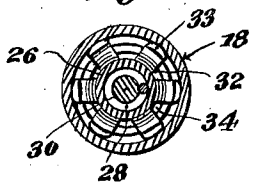
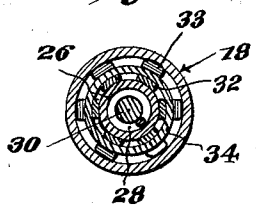


Fig. 5.



Inventor
OTTO L. LAGERVALL

By Irving L. McCathran
Attorney

Sept. 5, 1939. O. L. LAGERVALL 2,172,085

MUSIC STAND.

Filed March 29, 1938 2 Sheets-Sheet 2

Fig. 6.

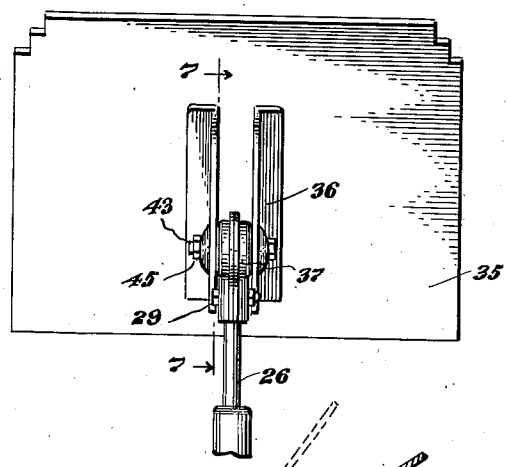


Fig. 10.

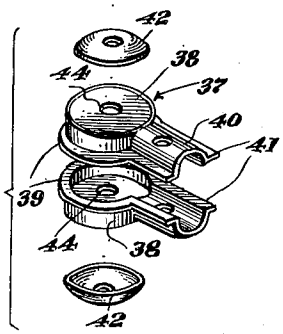


Fig. 7.

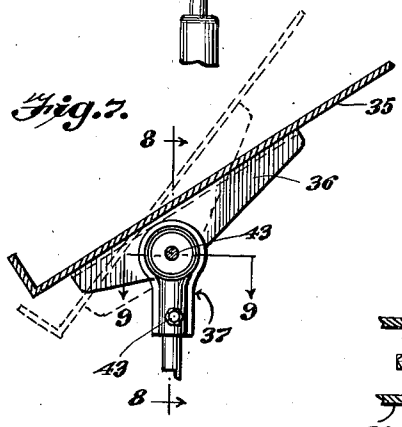


Fig. 9.

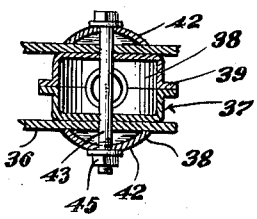
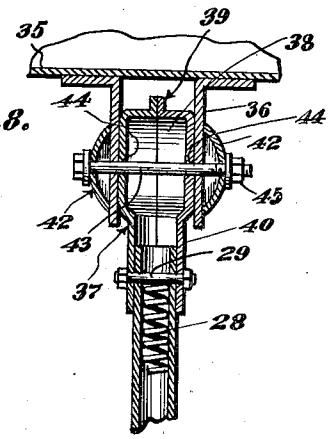


Fig. 8.



Inventor
OTTO L. LAGERVALL

By Irving A. McCathran

Attorney

Patented Sept. 5, 1939 2,172,085

UNITED STATES PATENT OFFICE

2,172,085

MUSIC STAND

Otto L. Lagervall, Manhasset, N. Y.

Application March 29, 1938, Serial No. 198,749

1 Claim. (Cl. 248—162)

This invention relates to music stands and the like, and has for one of its objects the production of a simple and efficient adjustable standard wherein the weight of the movable portion of the standard and the structure carried thereby are counter-balanced by a spring of sufficient strength to support the load placed thereon, and wherein automatic friction gripping means is provided to maintain the standard in a desired position, and at the same time permit the movable portion of the standard to be moved upward or downward to a selected position by the application of a minimum amount of pressure in a desired direction.

A further object of this invention is the production of a simple and efficient friction gripping means for frictionally holding the sections of an adjustable standard in a selected set position.

Another object of this invention is the production of a simple and efficient hinge connection for attaching a desk to the standard of a music stand or similar appliance.

In the drawings:

Figure 1 is a side elevational view of the music stand certain parts being shown in section;

Figure 2 is an enlarged fragmentary vertical sectional view through a portion of the standard;

Figure 3 is an enlarged vertical sectional view through a portion of the standard illustrating particularly the friction grip means;

Figure 4 is a transverse sectional view taken on line 4—4 of Figure 3;

Figure 5 is a transverse sectional view taken on line 5—5 of Figure 3;

Figure 6 is a rear elevational view of the upper end of the standard and illustrating the desk portion carried thereby;

Figure 7 is a vertical sectional view taken on line 7—7 of Figure 6;

Figure 8 is a vertical sectional view taken on line 8—8 of Figure 7;

Figure 9 is a horizontal sectional view taken on line 9—9 of Figure 7;

Figure 10 is a perspective view of the journal for connecting the desk with the standard, the various portions of the journal being shown drawn apart or separated.

By referring to the drawings, it will be seen that 15 designates a conventional base which may be of any suitable or desirable type having a centrally located aperture 16. A standard 17 is supported upon the base 15 and comprises a stationary hollow tube 18 having a tapering end 19, the aperture 16 also being tapered to receive the tapering end 19. The tapering end 19 is provided with an inturned annular flange 20 at its lower extremity. This flange 20 surrounds an aperture 21 formed in the lower end of the tube 18, through which aperture 21 extends the shank portion 22 of an anchoring plug, which anchoring plug is provided with an enlarged head 23 for fitting within the tapering end 19 of the tube 18 and providing a wedge securing element for firmly holding the tube 18 in engagement with the base 15. A washer 24 fits around the shank portion 22 and is clamped firmly against the under face of the base 15 by means of a nut 25 which is threaded upon the lower end of the shank portion 22. By tightening the nut 25 upon the shank portion 22 it will be seen by considering Figure 2 that the head portion 23 of the plug which provides a wedge grip for the tube 18 will be drawn tightly within the tapering end 19 of the tube 18 and firmly lock the tube 18 in engagement with the base 15.

The standard 17 also comprises an inner adjustable tube 26 which is slidably mounted through the tube 18, as shown in Figure 2, the tube 18 having an inwardly extending annular flange 27 at its upper end fitting snugly around the adjustable tube 26. The adjustable tube 26 is hollow and carries a counter-balancing coil spring 28 one end of which rests against a transversely extending stop pin 29 carried by the adjustable tube 26. This coil spring 28 also fits over an upright rod 30, which rod 30 extends upwardly through the tube 26 and is provided with an annular base 31 fitting snugly within the tube 18, and this annular base 31 rests upon the head portion 23. The lower end of the coil spring 28 rests upon the annular base 31, as shown in Figure 2, and it should be understood that the spring 28 is of such a size to work freely within the adjustable tube 26 without binding against the side walls thereof as the spring is compressed or expanded. The upright rod 30 preferably terminates near the upper end of the stationary tube 18, as shown in Figure 2.

A friction gripping device is carried near the lower end of the adjustable tube 26, as shown in detail in Figure 3, and this friction gripping device comprises a plurality of spring metal strips 32, the ends of which are flared outwardly with respect to the hollow tube 26 and in opposite directions to provide spring friction grip members 33. These spring strips 32 are preferably arranged around the exterior of the lower end of the tube 26 in spaced relation and are securely held upon the lower end of the tube 26 by means of an anchoring band 34. These strips 32 may be welded or otherwise fastened in position and provide oppositely arranged radially spreading elongated friction grip fingers for contacting with the inner face of the stationary tube 18 of the standard 17 in a manner as shown in Figure 3, the strips 32 preferably being of material length to provide a span of material distance between the frictional contact ends of the fingers 33 of each strip 32. Because of the manner in which these fingers 33 contact with the inner face of the tube

18, the adjustable tube 26 will be firmly braced within the tube 18 due to the fact that three points of contact will be provided in the nature of the two spaced fingers 33 of each strip 32 and the upper flange 27 of the tube 18.

By considering Figures 3 and 4, it will also be noted that the fingers 33 radiate outwardly both above and below the band 34 providing points of contact with the inner face of the tube 18 at various points around the inner circumference of the tube 18 thereby providing one series of gripping fingers above a lower series tending to stabilize the adjustable tube 26 in its movement within the stationary tube 18. It should be understood that the counter-balancing spring 28 is of a sufficient strength to support the normal weight of the adjustable tube 26, and the parts of the appliance carried thereby, and the spring fingers 33 are of sufficient strength to normally grip the inner face of the tube 18 with sufficient friction grip to hold the adjustable tube 26 in a set position against the expansible urge of the spring 28, but at the same time allow the tube 26 to be moved upwardly or downwardly within the tube 18 by a very slight or minimum pressure either in an upward or a downward selected direction by the operator.

From the foregoing description it will be seen that a very simple and efficient friction brake arrangement is provided comprising a minimum number of parts which may be readily assembled and easily adjusted if desired, by bending the ends 33 outwardly or away from each other in the event of wear. In this way the fingers 33 by being bent outwardly will provide a tighter friction grip against the inner face of the tube 18. Ordinarily, however, these strips 32 are so formed of spring metal as to cause the spring fingers 33 to provide proper and efficient friction gripping action.

By considering Figure 2 it will also be seen that the upright rod 30 will provide an efficient support and guide for the spring 28 and prevent the spring from buckling within the tube 18, the spring 28 being of sufficient size to fit properly within the tube 26 and to freely move therein without binding action.

A shelf or desk 35 is adapted to be carried by the upper end of the adjustable tube 26 and is provided with a pair of wing plates 36 which are spot welded or otherwise secured to the under face of the desk 35 and are arranged in spaced relation to each other as is illustrated in Figure 6 of the drawings. A journal member 37 is mounted between the spaced wing plates 36, as shown in Figure 6, and this journal member 37 comprises a pair of cup-like sections 38 having flanges 39 along their inner faces, the flanges of the respective cup-like sections 38 being adapted to abut as shown in Figure 6. Each section 38 is provided with a concave shank portion 40 having side flanges 41, the side flanges 41 of the respective sections abutting. These shank portions 40 are fitted snugly about or around the upper end of the adjustable tube 26 and are secured thereto by means of the stop pin 29 previously described, which stop pin extends through the tube 26 and shank portions 40 and is held in position by means of a suitable nut of a conventional type. This stop pin 29 performs a dual function, that is to say, the pin secures the two sections 38 of the journal 37 firmly together and in engagement with the tube 26, and also acts as an abutment or stop for the upper end of the spring 28, as shown clearly in Figure 8.

Concavo-convex spring washers 42 engage the outer faces of the wing plates 36, as shown in Figure 8, and a journal bolt 43 passes through these washers 42 and through the apertures 44 of the cup-like sections 38 of the journal 37. An adjusting nut 45 is threaded upon the bolt 43 and the tension of the gripping parts may be regulated by adjusting the nut 45 upon the bolt 43, in this way increasing or decreasing the tension of the concavo-convex spring washers 42, thereby providing an efficient pivot support for the desk 35 in a manner whereby the desk 35 may be angularly adjusted and will be frictionally held in such an adjusted position, or may be moved from the full line position to the dotted line position shown in Figure 7.

From the foregoing description, it will be seen that a very simple and efficient journal has been provided for connecting the desk 35 to the adjustable tube 26 and that the journal may be itself adjusted to increase or decrease the frictional grip of the washers 42 with respect to the plates 36, providing in this manner an efficient friction grip journal to frictionally hold the desk in an angular adjusted position and at the same time allow the desk to be easily moved by exerting a slight pressure upon the desk in a desired direction.

It should be understood that it is not desired to restrict the present invention to the construction of a music stand only, for the reason that the structural features are adaptable for use in connection with other adjustable standards for other types of appliances and that the desk may also be applied to other types of appliances without departing from the spirit of the invention.

Having described the invention, what is claimed as new is:

An adjustable support comprising a base formed with a tapered opening gradually reduced in diameter towards its lower end, a standard having a tubular lower section and a tubular upper section slidably received in the lower section through the upper end thereof, said lower section having an inturned flange at its upper end snugly engaging the wall of the upper section and providing a seal therearound, said lower section having its lower end portion tapered downwardly and terminating in an inwardly extending annular flange, the tapered lower portion of the lower section being snugly received in the tapered opening of said base, a tapered plug snugly received in the tapered lower portion of the lower section and resting upon the inwardly extending flange at the lower end of said lower section, a stem extending downwardly from said plug through the opening in the base, a fastener engaging said stem for drawing the stem and plug downwardly into tight wedging fit and firmly mounting the lower section to the base, a spring for urging the upper section upwardly and resting upon said tapering plug for holding said tapering plug in a firm position upon said flange at the lower end of the lower section and sealing the lower end of said lower section, said flanges providing a sealed-in structure whereby grease may be retained within the lower section without danger of ejection therefrom as the upper section is slidably moved within the lower section, and means for holding the upper section in a vertically adjusted position.

OTTO L. LAGERVALL.