Aug. 29, 1950 H. D. WINTER 2,520,618

OVERHEAD ROLLING DOOR ASSEMBLY

Filed April 21, 1947

Fig. 2

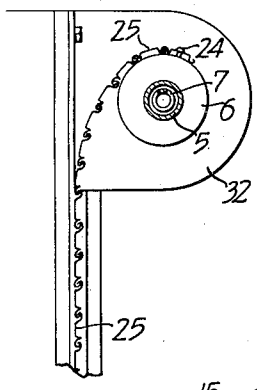
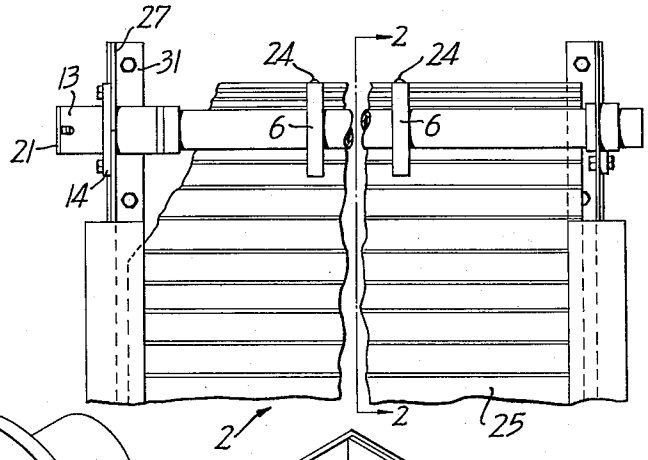


Fig. 1



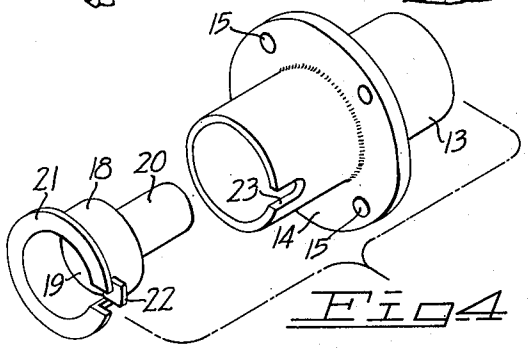


Fig. 4

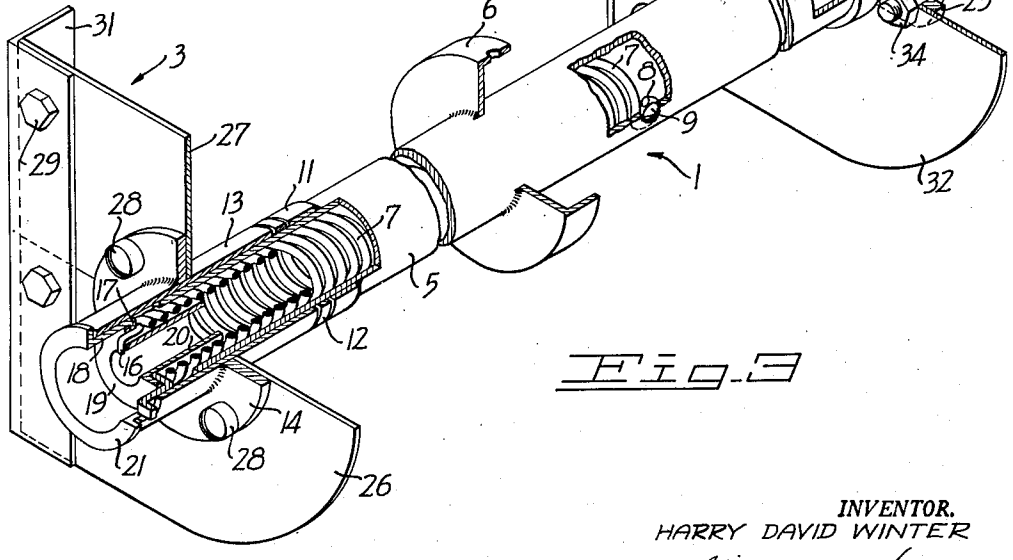


Fig. 3

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OVERHEAD ROLLING DOOR ASSEMBLY

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5 Claims. (Cl. 160—315)

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This invention relates to an overhead rolling door assembly, and in general has for its object the provision of a simplified construction for mounting a drum on a pair of bearing sleeves carried by opposed brackets, and for spring loading said drum by a coil spring disposed within said barrel, said spring being secured at one end to said barrel, and at its other end to one of said brackets.

More specifically the object of this invention is the provision of a drum sub-assembly, a pair of bracket sub-assemblies and an articulated door or curtain, all of which can be readily assembled at a building site to form an integral operative structure.

The invention possesses other advantageous features, some of which, with the foregoing, will be set forth at length in the following description where that form of the invention which has been selected for illustration in the drawing accompanying and forming a part of the present specification is outlined in full. In said drawing one form of the invention is shown, but it is to be understood that it is not limited to such form, since the invention as set forth in the claims may be embodied in a plurality of forms.

Referring to the drawing:

Fig. 1 is a rear elevation of an overhead rolling door assembly embodying the objects of my invention.

Fig. 2 is a section taken on the line 2—2 of Fig. 1.

Fig. 3 is an isometric projection partly in section of the overhead rolling door assembly as shown in Fig. 1, but with the articulated curtain removed therefrom.

Fig. 4 is an exploded isometric projection of the left bearing sleeve and spring mandrel which are shown in their operative position at the left end of Fig. 3.

The assembly shown in these figures may be considered as including a drum sub-assembly generally designated by the reference numeral 1, an articulated curtain generally designated by the reference numeral 2, arranged to be fastened to the drum sub-assembly, a left hand bracket sub-assembly 3, and a right hand bracket sub-assembly 4.

The drum sub-assembly 1 includes a drum 5, to which are welded a number of longitudinally spaced curtain supporting collars 6. Disposed within the drum 5 is a coil spring 7 terminating at its inner end in an eye 8, and extending through the drum 5 and the eye 8 is a bolt 9 by which the inner end of the spring is fastened to the drum. Welded to the drum 5 is a thrust

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collar 11, and disposed over the drum adjacent the collar 7 is a thrust bearing ring 12. Mounted over the left end of drum 5 is a bearing sleeve 13 provided intermediate its ends with a radial flange 14 formed with a number of longitudinal bolt holes 15. By means of a suitable tool the left end of the spring 7 can be stretched outwardly through the left end of the barrel 5. With the spring in this extended position its longitudinally extendig end 16 is passed through a pair of registering holes formed in the inwardly extending flange 17 of a spring retaining sleeve 18, and in the outwardly extending flange 19 of a mandrel 20, and turned over as shown in Fig. 3. As indicated in Figs. 3 and 4, the flange 19 of the mandrel 20 overlaps the flange 17 of the spring retaining sleeve 18, this latter sleeve being provided at its outer end with an outwardly extending flange 21 arranged to seat over the left end of the bearing sleeve 13. Provided on the periphery of the spring retaining sleeve 18 is a finger 22 arranged to seat in a notch 23 formed in the outer end of the bearing sleeve 13 so as to key these two members together as shown in Fig. 3. Disposed over the right end of the drum 5 is a bearing sleeve 23a provided with a radially extending finger 23b, this finger being formed with a bolt hole extending therethrough as shown at the right end of the Fig. 3.

Mounted on the collars 6 by means of screws 24 is an articulated curtain or door 25 of any well known standard construction, and preferably made of a light metal such as aluminum, magnesium or alloys thereof.

The left bracket sub-assembly 3 includes a pair of complementary coplanar bracket plates 26 and 27 formed along their meeting edges with opposed semicircular openings of a diameter sufficient to receive the bearing sleeve 13. The plates 26 and 27 are provided with bolt holes arranged to register with the holes 15 formed in the flange 14 and to receive bolts 28. Since the flange 14 overlaps both of the bracket plates 26 and 27, this flange serves to hold the two bracket plates together as an integral structure when assembled. Fastened to the rear ends of the bracket plates 26 and 27 by bolts 29 is an upstanding angle iron 31 by which the left bracket sub-assembly 3 may be mounted adjacent the door opening.

The right hand bracket sub-assembly 4 includes a bracket plate 32 provided with a circular opening arranged to receive the bearing sleeve 23a. These two members may be fastened together as

an integral unit by means of a bolt 33 extending through the finger 23b, and to which is threaded a nut 34. Welded to the inner vertical edge of the bracket plate 32 is an angle iron 35 provided with suitable bolt holes 36 by which it may be fastened to a building adjacent the door opening.

To assemble these various units into an operative structure, the angle iron 31 and the bracket plate 26 to which it is bolted and the bracket assembly 4 are secured in their proper position over a door opening. The right end of the drum subassembly is then inserted into the circular opening of the right bracket assembly 4, and the finger 23b bolted to the bracket plate 32. While performing this operation the bearing sleeve 13 is resting in the semi-circular opening of the bracket plate 26. Following this the upper bracket plate 27 is positioned over the lower plate 26 and bolted to the angle iron 31. This having been done the curtain 25 is screwed to the collars 6, although optionally the curtain may be mounted on the drum prior to the installation of the drum. In either event the curtain is wound on the drum 5 so as to assume its full open position. With the curtain in this position the bearing sleeve 13 is rotated through a sufficient number of turns to place the spring 7 under a torque such that it will substantially balance the weight of the curtain in its open position. With the bearing sleeve in this adjusted position its flanged 14 is bolted to the two bracket plates 26 and 27. A downward movement of the curtain is accompanied by a clockwise rotation of the drum as viewed in Fig. 3 which serves to increase the torque on the spring to thereby balance the additional weight of the curtain carried by the drum.

Instead of adjusting the torque of the spring while the curtain is in its fully open position, it can be adjusted while the curtain is in its fully closed position. However, the former procedure is preferable for the desired adjustment can be made without turning the bearing sleeve 13 through as many revolutions as would be required by the latter procedure. The exact number of turns required to be made depends, of course, on many factors, such as for example the strength of the spring, the radius of the collars 6, and the weight of the curtain, but can be predetermined readily by trial and error.

It will therefore be seen that I have provided an overhead rolling door assembly consisting of several sub-assemblies of simple construction which can readily be assembled, into an operative unit and balanced.

I claim:

1. A rolling door assembly comprising: a pair of opposed brackets; a bearing sleeve mounted in each of said brackets, said sleeves being axially aligned and one of them being angularly adjustable with respect to its associated bracket; a drum journaled in said bearing sleeves; and a coil spring disposed within said drum, one end of said spring being fastened to said drum, and the other end thereof being fastened to said angularly adjustable bearing sleeve.

2. A rolling door assembly such as defined in claim 1, and wherein an articulated curtain is mounted on said drum.

3. A rolling door assembly such as defined in claim 1 wherein said spring is fastened to said angularly adjusable bearing sleeve by means of spring retaining sleeve extending into and keyed to said adjustable bearing sleeve.

4. A device of the character described comprising: a first bracket; a second bracket opposed to said first bracket and including upper and lower coplanar plates; a bearing sleeve mounted on said upper and lower plates and adjustably fastened thereto; a drum journaled at one end in said first bracket and at its opposite end in said bearing sleeve; and a spring disposed within said drum, said spring being secured at one end thereof to said drum and at its other end to said bearing sleeve.

5. A rolling door assembly comprising: a pair of opposed brackets; a bearing sleeve mounted in each of said brackets, said sleeves being axially aligned and one of them being angularly adjustable with respect to its associated bracket; a drum journaled in said bearing sleeves, one end of said drum extending through and beyond one of said bearing sleeves; and a coil spring disposed within said drum, one end of said spring being fastened to said drum, and the other end thereof being fastened to said angularly adjustable bearing sleeve.

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The following references are of record in the file of this patent:

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