March 16, 1926. 1,577,103

W. K. BROWN

TENSIONING AND ANCHORING DEVICE

Filed Feb. 14, 1925

Fig. 1.

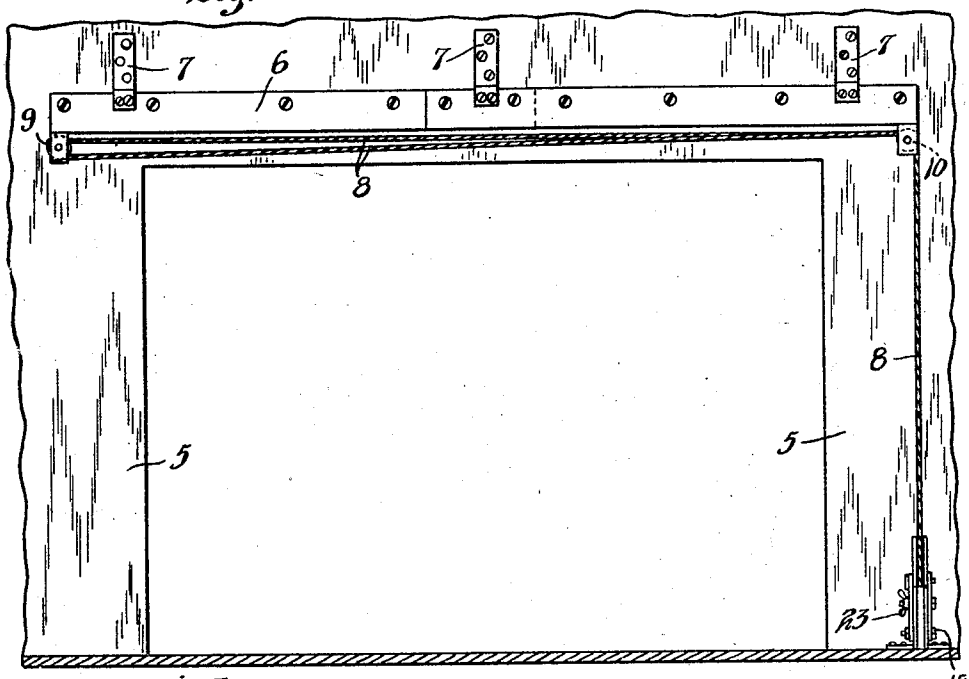


Fig. 3.

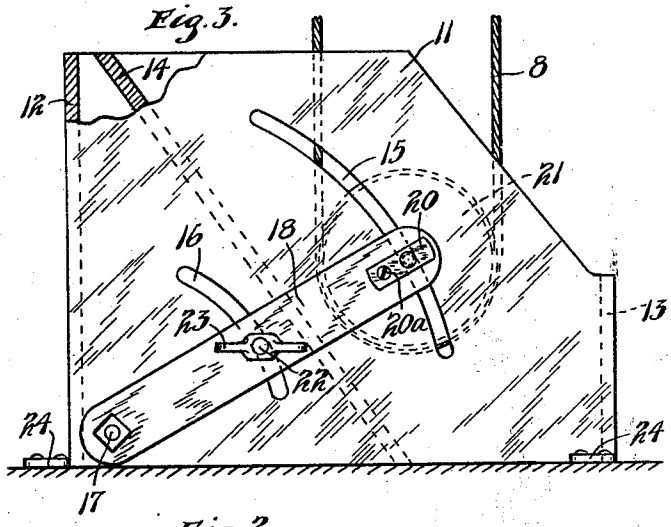


Fig. 4.

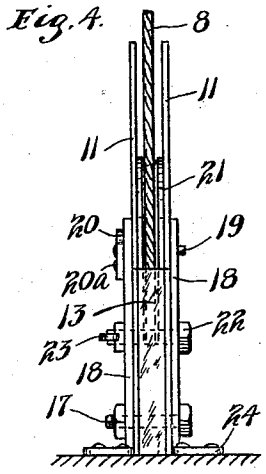
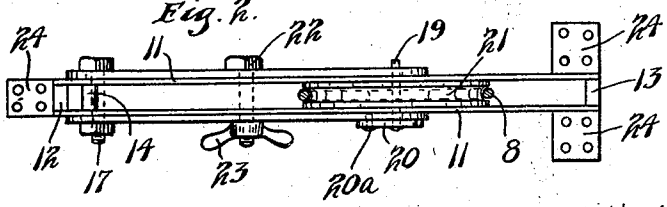


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM K. BROWN, OF CHRISTMAS LAKE, MINNESOTA, ASSIGNOR TO TWIN CITY SCENIC COMPANY, OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF MINNESOTA.

TENSIONING AND ANCHORING DEVICE.

Application filed February 14, 1925. Serial No. 9,143.

To all whom it may concern:

Be it known that I, WILLIAM K. BROWN, a citizen of the United States, residing at Christmas Lake, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Tensioning and Anchoring Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has for its main object to provide an extremely simple but highly efficient adjustable tensioning and anchoring device for endless flexible members.

The invention is especially designed to be used on the endless flexible members of theatrical curtain controlling apparatus such as disclosed and set forth in the applicant's pending application for patent on "Curtain supporting and operating apparatus," S. N. 754,091. In such apparatus, the endless flexible member, usually a rope or cable to which the curtain supporting members are attached, will stretch, often causing the device to jam or get out of order. This invention provides an efficient device capable of wide general usage but especially adapted to anchor the lower end of such a flexible member and permit ready adjustment to take up the slack or give therein.

It is a more specific object in a device of this nature to provide a channeled frame having a pair of radial arms working on the outer sides thereof with the sheave for holding said flexible member mounted between said arms and working in the channeled portion of said frame.

It is a further object of the invention to provide a single clamping member for readily loosening or securing said arms at a desired angle to the base of said frame, whereby the proper tension on an endless flexible member may be obtained.

It is a still further object to provide a tensioning and anchoring device capable of being manufactured at little expense and of durable construction, the wearing parts of which may be readily replaced or removed for repair.

These and other objects of the invention will be apparent from the following description made in connection with the accompanying drawings wherein like characters refer to similar parts throughout the several views, and in which:

Fig. 1 is a rear elevation of the curtain operating mechanism mounted at the back of the proscenium walls of a stage or theatre with the preferred form of invention mounted for operative use in connection with the endless flexible member employed;

Fig. 2 is a plan view of the preferred form of the invention;

Fig. 3 is a side elevation of the same; and

Fig. 4 is an end elevation of the same.

In Fig. 1 the proscenium walls of a stage or theatre are indicated by the numeral 5, at the top of which the rails or guides 6 for the curtain supporting members, are secured by the straps 7. The endless flexible operating member 8 is anchored at one end by the pulley 9 and passes over the pulleys 10, extending downwardly towards the floor of the stage where the bottom loop thereof is engaged by the improved tensioning and anchoring device.

The preferred form of the invention, as herein illustrated, comprises an upstanding channeled frame having the spaced parallel sides 11 re-enforced and spaced apart by means of the end bracing members 12 and 13. The diagonal bracing and guide member 14 extends transversely between the sides 11. Each of the sides 11 are also provided with a pair of concentric arcuate slots 15 and 16, the corresponding slots on said sides being transversely alined. Apertures are provided in the sides 11 at the radial centers of said slots, through which the nutted bolt 17 is passed to pivotally secure thereto a pair of parallel swingable arms 18 mounted on the outer sides of the sides 11, and having transversely alined apertures adjacent the free ends thereof in alinement with the outer arcuate slots 15. Through said apertures an axle pin 19 is adapted to be passed, said pin having a flanged head 20, preferably of rectangular shape, adapted to engage against the outer side of one of said arms 18 and be detachably secured thereto by means of the screw 20^a. The pin 19 obviously is adapted to work through the slots 15 when the arms are swung and constitute an axle for the sheave 21 mounted

in the channeled portion of the frame between the parallel sides 11. A bolt 22 passes transversely through the arms 18 and is adapted to work through the inner slots 16, having a threaded end engageable by the winged clamping nut 23. At the base of the frame out-turned securing flanges or straps 24 are provided, being apertured to permit the base of the frame to be secured to a fixed member.

The flexible member, in the form of a rope or cable, may be readily disposed about the sheave 21 by inserting a free end thereof between the diagonal guide 14 and the sheave 21, whereupon the ends of the rope or cable may be secured together to make the same endless. If it is not desirable to cut the cable, the axle pin 19 may be readily removed by detaching the screw 20a and removing the pin and sheave and then encircling the loop about said sheave 21 and replacing the same in proper position on its axle 19.

Obviously, when it is desired to take out the slack in the flexible member or increase the tension thereof, the winged nut 23 is loosened and the parallel arms pushed downwardly, as desired, when the arms are then again rigidly clamped against the sides 11 of the frame.

While the invention has been illustrated in application upon curtain operating apparatus, it is, of course, capable of wide general usage where a tensioning or anchoring device for endless flexible members is desired. The base of the frame may, obviously, be secured to a vertical wall, whereby the device will be applicable to anchor or tension the looped end of an endless flexible member horizontally disposed.

All of the working parts, with the exception of the sheave 21, are disposed on the outer sides of the frame where they cannot interfere with the smooth running of the flexible member. The device is manipulated and adjusted by means of the single winged nut 23 on the outer side of one of the arms 18.

The axle pin 19 may be quickly removed, as has been stated, by detaching the screw 20a and a new pin or sheave installed or the old members repaired, thus a quick replacement of the working parts of this device, as well as a ready means for properly engaging the loop of an endless flexible member, is provided.

It will, of course, be understood that various changes may be made in the form, details, proportions and arrangement of parts without departing from the scope of the invention.

What is claimed is:

1. A tensioning and anchoring device for endless flexible members comprising a frame having a substantially flat side, said side provided with a pair of concentric arcuate slots therethrough, a swingable arm pivoted at its lower end on the side of said frame on an axis passing through the radial centers of said arcuate slots, a transverse pin mounted on said arm and working through the outermost arcuate slot, a sheave journalled on said pin on the inner side of said frame adapted to receive one of the loops of an endless flexible member, a clamping device extending through said arm and said frame and through the innermost arcuate slot adapted to rigidly secure said arm to said frame at a desired angle to the base thereof.

2. A tensioning and anchoring device for endless flexible members comprising a frame having a pair of spaced parallel sides, each side provided with a pair of concentric arcuate slots there-through, said corresponding slots in said sides being transversely alined, a pair of parallel swingable arms pivoted at their lower ends on the outer sides of said frame on an axis passing through the radial centers of said arcuate slots, a transverse pin mounted between the free ends of said arms and working through said outermost arcuate slots, a sheave journalled on said pin between the sides of said frame and adapted to receive one of the loops of an endless flexible member, a transverse clamping device extending through said arms and through said innermost arcuate slots adapted to rigidly secure said arms to said frame at a desired angle to the base thereof, and a diagonal bracing and guide member transversely disposed between said parallel sides of said frame.

3. A tensioning and anchoring device for endless flexible members comprising a frame having a pair of spaced parallel sides, each side provided with a pair of concentric arcuate slots therethrough, said corresponding slots in said sides being transversely alined, a pair of parallel swingable arms pivoted at their lower ends on the outer sides of said frame on an axis passing through the radial centers of said arcuate slots, a transverse pin mounted between the free ends of said arms and working through said outermost arcuate slots and a sheave journalled on said pin between the sides of said frame and adapted to receive one of the loops of an endless flexible member, and a transverse clamping device extending through said arms and through said innermost arcuate slots adapted to rigidly secure such arms to said frame at a desired angle to the base thereof, said axle pin for said sheave carrying an enlarged head at one end thereof adapted to be detachably secured to one of said arms.

In testimony whereof I affix my signature.

WILLIAM K. BROWN.