July 5, 1932. W. R. WUEST 1,866,282

WINDLASS

Filed Dec. 31, 1928

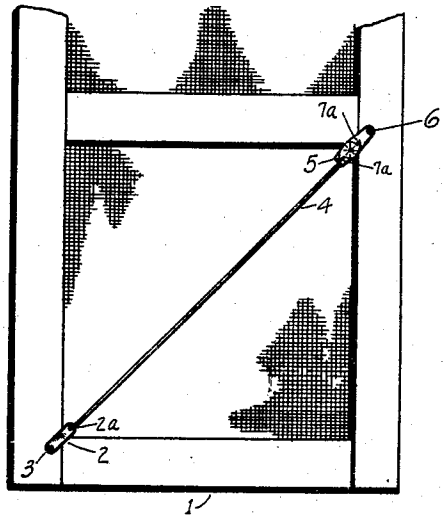


Fig. 1.

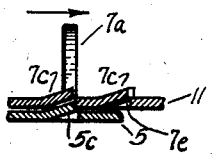


Fig. 3.

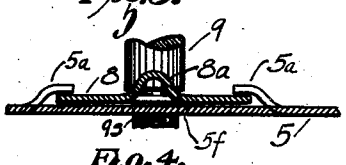


Fig. 4.

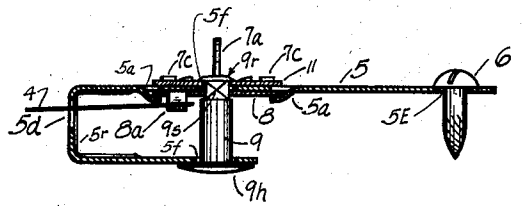


Fig. 2.

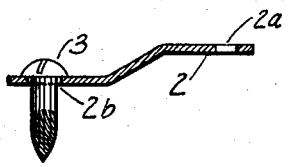


Fig. 6.

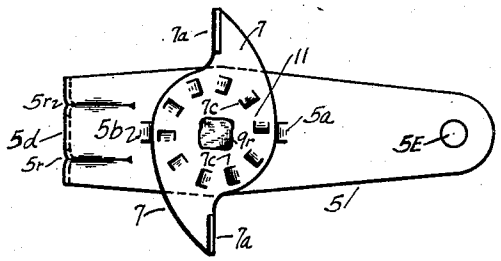


Fig. 5.

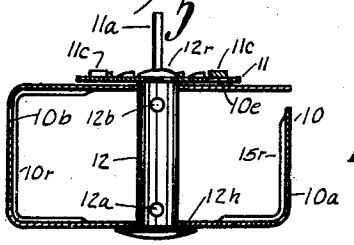


Fig. 7.

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UNITED STATES PATENT OFFICE

WALTER R. WUEST, OF LOUISVILLE, KENTUCKY

WINDLASS

Application filed December 31, 1928. Serial No. 329,611.

My invention primarily relates to a windlass in combination with an adjustable stay or brace for doors, gates and like structures and has for its principal object a means to provide a simple and inexpensive device to correct and prevent their sagging and to insure their being squarely maintained so as to swing freely when opening or closing and consists of certain improvements in construction which will be fully disclosed in the following specification and claims.

In the following drawing which forms part of this specification:

Fig. 1 is a front elevation of the screen door showing my invention applied.

Fig. 2 is a cross sectional view of the windlass.

Fig. 3 is a detail of the ratchet structure and more particularly the ratchet teeth and pawl.

Fig. 4 is a detail of a section of the drum, auxiliary reel flange and frame.

Fig. 5 is a plan view of the windlass.

Fig. 6 is the anchor.

Fig. 7 is a cross sectional view of a slightly modified structure.

In the drawing and designating characters thereon, 1 indicates a door to which is secured the windlass as shown in Figs. 2 and 5, secured by means of screw 6; also the wire or other flexible member 4 extending from the windlass to the eye 2*a* of anchor 2 which is secured to the door by screw 3, which passes through opening 2*b* of the anchor.

Frame 5 of the windlass is constructed of flexible material such as spring steel and is fashioned with an open opening 5E to receive screw 6, round openings 5*f*, 5*f* to receive the drum 9 which, with drum heads 9*h* and 11, constitute the reel, these drum heads being disposed on the outside of the frame.

Head 11 is preferably riveted to drum 9 as shown at 9*r*. 5 is also fashioned with a pawl or detent 5*c* so located as to register with a series of annually disposed ratchet teeth 7*c*, 7*c* of reel head 11 upon rotation. The pawl will also register with the notches 7*e* formed by having been cut and bent to form these ratchet teeth from 5. Opening 5*d* provides a guide for the wire 4. Reinforcing grooves 5*r*, 5*r* are pressed into the body of 5 to stiffen the spring action.

Drum head 11 is formed with arms 7—7 and lips 7*a*, 7*a* to provide finger levers for turning the reel which, in its rotation, will wind up wire 4 threaded through eye 8*a* of auxiliary reel drum head 8 which is fabricated with a square hole sufficiently large to allow it to be slidably keyed to the square portion 9*s* formed on drum 9. Drum head 8 is loosely located on drum 9 and held adjacent the frame 5 by reason of overlapping lugs 5*a*. As winding begins in the direction shown by arrow in Fig. 3, pawl 5*c* which is rigid is forced away and out of engagement with notch 7*e* in flange 11. This is made possible by reason of the flexibility of frame 5. The winding is progressed until the desired tension is produced on wire 4.

Attention is directed to the fact that frame 5 is constructed as a spring member and a pronounced spring action takes place between its contact with reel head 9*h* on around to the ratchet and pawl members which produces a most positive, gentle, enduring, inexpensive and incidental spring action with a consequent enduring ratchet for the ratchet and pawl device. It should be remembered that head 11 is riveted to the drum and that auxiliary head 8 is slidably mounted on the square portion.

As this windlass has other applications than to doors and gates, I have shown in Fig. 7 a modified form, using the identical principle employed heretofore, wherein only two drum heads 12*h* and 11 are used to form the drum and the simple box-like frame 10. In this frame structure, 10*a*, 10*b*, are guide openings to admit the flexible winding members which thread through openings 12*a*, 12*b* in drum 12. 10*r*, 10*r* indicates the reinforcement means for frame 10. Its structure affects twice the take up ability as shown in the former structure, as two flexible members are employed in place of one.

A feature of my device as applied to doors resides in the fact that the windlass, wire and anchor are all attached by two simple anchorage devices, such as screws or nails, and that the reel will self-align itself in response to ten-

sion as it is applied to the wire and anchor in the process of performing the work for which it is intended. Also to the fact that the winding drum is disposed within the outer surfaces of the door.

Many variations and proportions will suggest themselves to one familiar with the use to which my invention may be applied, therefore, I do not wish to be limited other than by the appended claims.

What I claim is:—

1. In a windlass constructed with a U flat spring frame, the outer faces of each arm being embraced by heads rigidly attached to a reel shaft extending through bearings in each arm of the frame, said frame being further provided with a pawl to engage annular notches formed in one of the embracing heads, which is further equipped with extensions to form a lever.

2. In a windlass constructed with a U flat spring frame, the outer faces of each arm being embraced by heads rigidly attached to a real shaft extending through bearings in each arm of the frame, said frame being further provided with a pawl to engage annular notches formed in one of the embracing heads which upon rotation will cause the frame to yield.

3. In a windlass constructed with a U formed spring frame, the outer faces of each arm being embraced by heads rigidly attached to a reel shaft extending through bearings in each arm of said frame, one end of said shaft being squared to loosely receive an auxiliary reel head flange through a central opening in same, said flange being disposed within said frame which is provided with engaging lugs to limit the axial travel of said flange, said frame being further provided with a pawl to engage annular notches formed in one of the embracing heads, which is further equipped with an extension to form an operating lever.

4. In a windlass constructed with a U spring frame, the outer faces of each arm being embraced by heads rigidly attached to a reel shaft extending through bearings in each arm of said frame, one end of said shaft being squared to loosely receive a reel head flange through a central opening in same, said flange being equipped with an eye and disposed within said frame which is provided with engaging lugs to limit the axial travel of said flange, said frame being further provided with a pawl to engage annular notches formed in one of the embracing heads.

5. In a windlass constructed with a U spring frame carrying a reel shaft extending through bearings in each arm of said frame, said reel shaft being equipped with three reel heads, two being exteriorly disposed and one interiorly disposed of said frame.

6. In a windlass constructed with a U spring frame carrying a reel shaft extending through bearings in each arm of said frame, said reel shaft being equipped with three reel heads, two being exteriorly disposed and one interiorly disposed of said frame, one of said heads being provided with an extension to form an operating lever.

7. In a windlass constructed with a U spring frame carrying a reel shaft extending through bearings in each arm of said frame, said reel shaft being equipped with three reel heads, two being exteriorly disposed and one interiorly disposed of said frame and slidably mounted on said shaft, one of said heads being provided with an extension to form an operating lever.

In testimony whereof I affix my signature.

WALTER R. WUEST.