June 9, 1931. T. S. OPHEIM 1,809,179

LOCKING SHEAVE

Filed Oct. 19, 1928

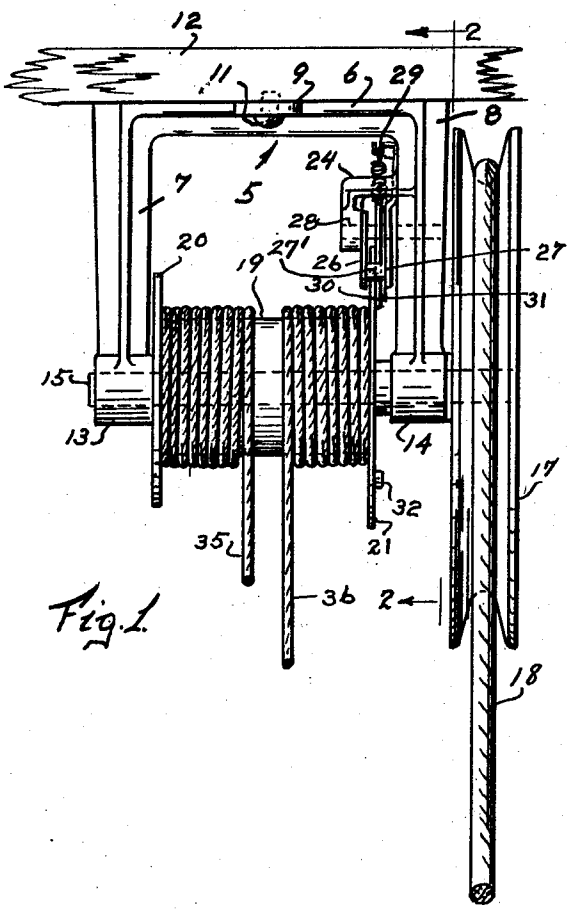


Fig. 1.

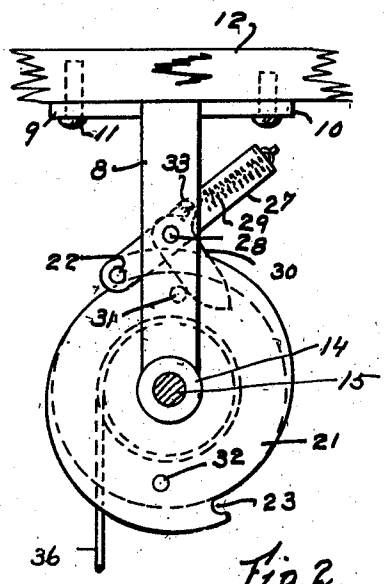


Fig. 2.

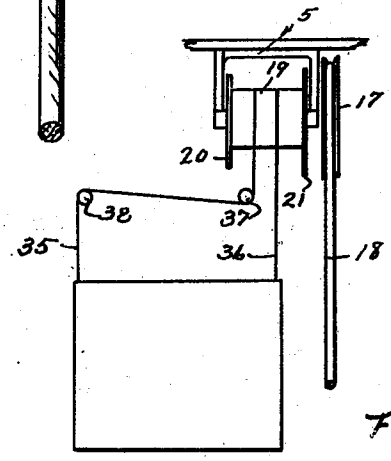


Fig. 4.

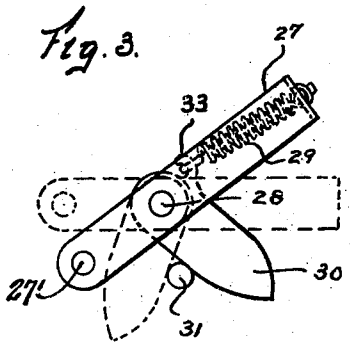


Fig. 3.

INVENTOR.
TORGILS S. OPHEIM.

by H. A. Dieckman
ATTORNEY.

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UNITED STATES PATENT OFFICE

TORGILS S. OPHEIM, OF LONG BEACH, CALIFORNIA

LOCKING SHEAVE

Application filed October 19, 1928. Serial No. 313,624.

My invention relates to a sheave adapted to carry a rope or cable for supporting articles at varying heights above the ground or floor and is more particularly adapted for the use of cleaners in cleaning carpets, tapestries and the like, it having for its prime object the provision of a device of the above character so constructed and arranged as to be capable of being locked against rotation in one direction so as to hold the articles being suspended at the desired height and having releasing means whereby it may be rotated in either direction at the will of the user.

Another object is to provide a device of the above character which will be cheap and simple in construction and simple and efficient in operation.

Other objects and advantages will appear hereinafter and, while I have shown and will describe the preferred form of my invention it will be understood that I do not limit myself to such preferred form, but that various changes and adaptations may be made therein without departing from the spirit of my invention.

In the drawings accompanying and forming a part hereof:

Fig. 1 is a front elevation of a sheave constructed according to my invention in an operative position.

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

Fig. 3 is an enlarged fragmentary detail of the locking mechanism of my sheave.

Fig. 4 is a diagrammatic view showing one way of using my invention.

Referring to the drawings my device comprises a supporting bracket 5, composed of the integral cross member or base 6 and the depending legs 7 and 8. Extending outwardly from each side of the base 6 about centrally of its length are ears 9 and 10 through which pass the securing screws 11 by means of which it is securely mounted upon a supporting beam 12.

The lower ends of the legs 7 and 8 terminate in bearings 13 and 14 and in these bearings is mounted a shaft 15, one end of which projects for a distance beyond the outer side of bearing 14 and has rigidly secured thereon a grooved pulley 17 around which passes the operating cable or rope 18.

Rigidly mounted upon shaft 15 between the bearings 13 and 14 is a sheave or drum 19 provided at each end with the annular flanges 20 and 21, the flange 21 being provided in its outer periphery with opposed notches or teeth 22 and 23. Extending outwardly from the inner face of leg 8 immediately above the flange 21 is an inverted L-shaped bracket 24 and pivotally mounted in this bracket is a locking dog adapted for engagement with the notches 22 and 23 to prevent reverse rotation of the sheave. This locking dog comprises a pair of spaced side members 26 and 27 rockably mounted upon the pivot 28 carried in bracket 24. A pin 27′ extends through, and connects the free ends of the members 26 and 27, and this pin engages the notches 22 or 23. Member 27 is longer than member 26 and its free end is bent to extend inwardly a short distance and this inturned end supports one end of a coil spring 29. Loosely mounted at one end upon the pivot 28, between the members 26 and 27 is a trigger 30 which extends downwardly on the outer side of the flange 21 and is adapted to be engaged by the pins 31 and 32, extending outwardly from the outer face of said flange. Projecting from the edge of trigger 30 parallel with the free end of the member 27 of the locking dog is a hook 33 upon which is mounted the other end of the coil spring 29. It will be noted that the hook 33 projects out from the edge of the trigger sufficiently so that when said trigger is rocked on the pivot 28 the end of the coil spring carried by said hook will be elevated or lowered to change the direction of the "pull" thereof from above to below the axis of said pivot, or vice versa, thereby rocking the effective end of the locking dog up or down, and locking or releasing the sheave.

In the use of my invention in cleaning tapestries, carpets and the like the sheave 19 will be provided with two cables or ropes 35 and 36 and one end of each being rigidly secured thereto. The free end of the cable

36 will extend downwardly and be provided with suitable means for detachably engaging the carpet or rug to be cleaned. The free end of the cable 35 will extend downwardly and around a grooved wheel 37 and thence over a grooved pulley 38 and downwardly and will then be likewise provided with means for detachably engaging the carpet or rug to be cleaned. It will be understood that it is the custom to support the carpet or rug at each end and it will also be understood that additional cables or ropes may be used if found necessary or desirable. The rope 18 will then be used to rotate the grooved pulley 17 and with it the sheave 19 to wind the cables upon said sheave until the carpet or rug is at the desired height and the locking dog engages one of the notches 22 or 23. As it is desired to raise the carpet higher this operation is repeated. When it is desired to lower the carpet or rug the sheave will be rotated counter-clockwise as viewed in Figure 2 until one of the pins 31 or 32 engages and rocks the trigger 30 to move the locking dog out of the path of the notches 22 or 23 as before explained when the rotation of the sheave may be reversed. Reversing the direction of rotation of the sheave will cause the dog to move into the path of the notches.

The trigger 30 is journaled on the pin 28 as previously stated, and is connected to the locking dog by means of the spring 29. Clockwise rotation of the sheave or drum 19 (as shown in Figure 2) will cause the pins 31—32 to engage the trigger, but the trigger being yieldable, they will pass but merely elevating the trigger slightly and causing the locking dog to press more tightly against the flange 21. Counter-clockwise rotation of the drum (as viewed in Figure 2) will cause the pins 31 or 32 to engage the trigger 30 before the notches 22 or 23 engage the pin 27′. This will swing the trigger to the position shown in dotted lines in Figure 3, and the pull of the spring 29 is altered so that the locking dog swings into the dotted line position in Figure 3, which position is out of the path of the notches, thus enabling the drum to rotate freely in the counter-clockwise direction. Clockwise rotation of the drum will cause the pins 31, 32 to swing the locking dog in engaging position as will be readily understood. The bracket 24 is so arranged that the locking dog cannot tilt too far in releasing position, and the trigger is always in position to be engaged by the pins 31, 32.

Having described my invention what I claim is:

1. In a device of the character described, including a stationary support, a flanged drum rotatably mounted in said support, one of the flanges of the drum having peripheral notches therein, a locking dog pivotally mounted on said stationary support, a pin on the locking dog arranged to engage the notches to prevent rotation of the drum in one direction, a trigger pivotally mounted on the stationary support, a spring connecting said trigger and the locking dog, pins on the flange of the drum, said pins being arranged to engage the trigger and swing the locking dog out of the path of the notches when the drum is rotated in one direction, in the opposite direction of rotation of the drum, said pins engage the trigger to press the locking dog against the flange and means to rotate said drum.

2. In a device of the character described, including a stationary support, a flanged drum rotatably mounted in said support, one of the flanges of the drum having peripheral notches therein, a bracket extending from the stationary support, a pin extending through the bracket and the support, a locking dog journaled on the pin, a trigger journaled on the pin, a spring connecting one end of the trigger and one end of the locking dog, a pin in the locking dog, said last named pin engaging the notches in the flange to prevent rotation of the drum in one direction, means on the face of the flange to engage the trigger whereby the locking dog is swung into or out of engagement with the notches.

In witness that I claim the foregoing I have hereunto subscribed my name.

TORGILS S. OPHEIM.