

APPLICATION FILED APR. 4, 1908.

Patented Dec. 7, 1909.

2 SHEETS—SHEET 1.



Wife

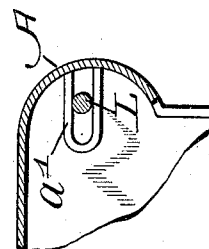


Fig. 1.

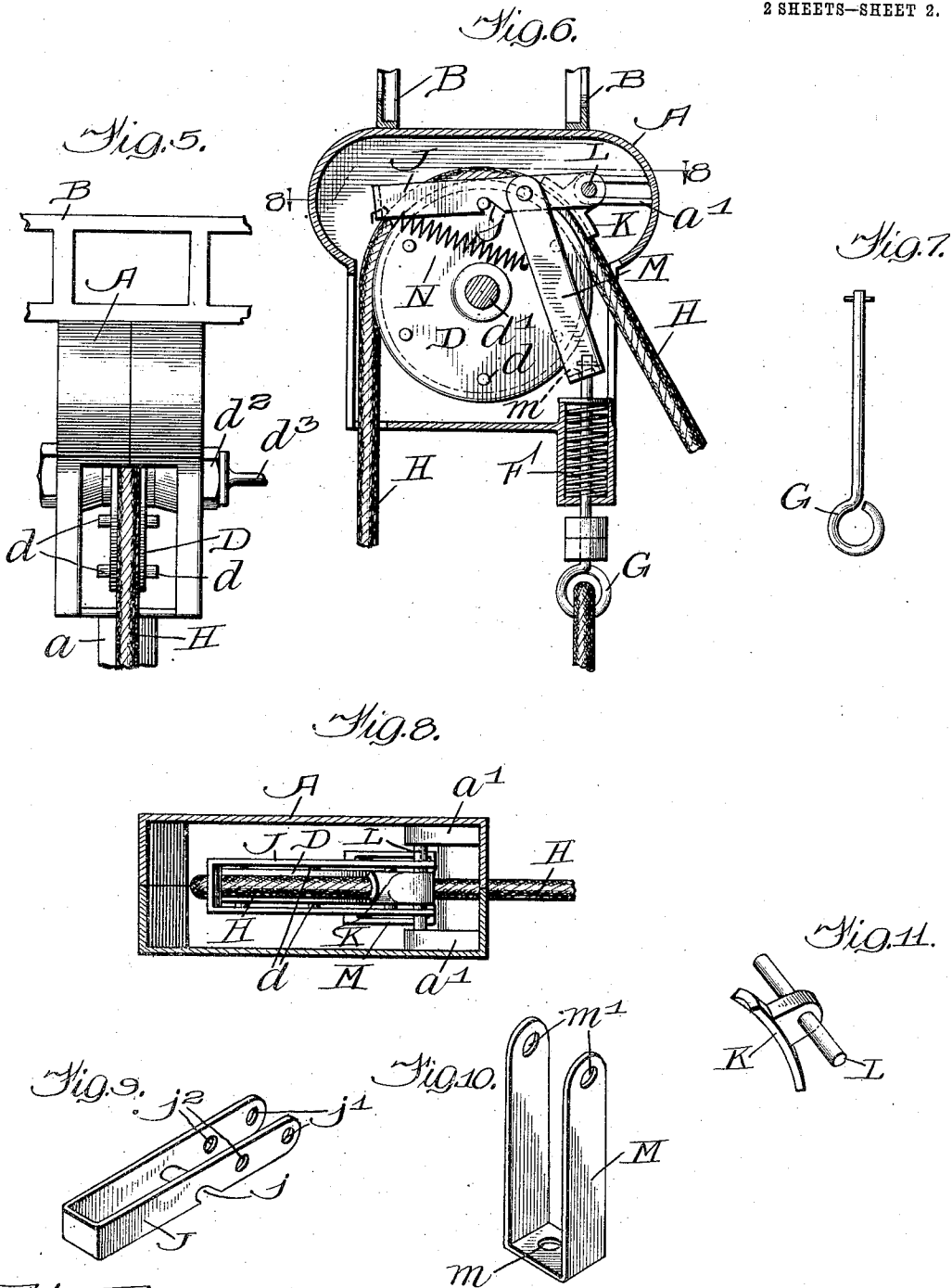
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H. A. MYERS.
HOISTING DEVICE.
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942,735.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

HUBERT A. MYERS, OF GOSHEN, INDIANA.

HOISTING DEVICE.

942,735.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed April 4, 1908. Serial No. 425,146.

To all whom it may concern:

Be it known that I, HUBERT A. MYERS, a citizen of the United States of America, and resident of Goshen, Elkhart county, Indiana, have invented a certain new and useful Improvement in Hoisting Devices, of which the following is a specification.

My invention relates to hoisting devices of that character in which an overhead sheave or pulley is employed, provided with a hoisting cable, and in which means are provided for automatically locking the sheave or pulley, and the cable as well, against backward movement when the pull on the cable is relaxed, whereby the object being hoisted can be raised and allowed to remain securely at any desired level, permitting the hoisting device to be moved horizontally to discharge the load at some point more or less remote from the place where it was picked up.

The object of my invention is the provision of an improved hoisting device of the foregoing general character, having improved means for automatically checking the fall of the object being hoisted, when the pull on the hoisting rope or cable is relaxed, and characterized by a simple and efficient general construction, as well as certain details of improvement, whereby the device is both economical to manufacture and satisfactory in use.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a vertical cross section of a hoisting device embodying the principles of my invention. Fig. 2 is a vertical longitudinal section on line 2—2 in Fig. 1. Fig. 3 is a detail side elevation of the sheave or pulley. Fig. 4 is a detail sectional view of the lost motion connection between the locking dog and the casing or housing of the device. Fig. 5 is a side elevation of the said hoisting device, certain upper portions thereof being broken away for convenience of illustration. Fig. 6 is a view similar to Fig. 1, but showing the mechanism in locked condition. Fig. 7 is a detail view of the eye-bolt to which the hoisting cable is attached. Fig. 8 is a horizontal cross section on line 8—8 in Fig. 6. Fig. 9 is a perspective of the double dog. Fig. 10 is a perspective of the yoke-link that connects the eye-bolt with the double dog. Fig. 11 is a perspective of

the brake shoe that bears upon the hoisting cable to automatically check the fall of the object being hoisted, when the pull on the cable is relaxed, as will hereinafter more fully appear.

As thus illustrated, my invention comprises a casing or housing A, constructed in any suitable manner, as by making it in sections and bolting the same together. At its top the said housing is provided with a truck B having removable wheels *b* adapted to travel along the double steel track or way C. Within the housing is a sheave or pulley D having pins *d* on the opposite sides thereof, arranged in a circle. The said sheave or pulley runs on an arbor or axle *d'* extending through and supported in the sides of the housing. Said arbor is threaded at its ends and provided with nuts *d²* having eyes *d³*. To these eyes are attached the shift ropes E, as shown. With this arrangement, the arbor or axle serves as a connection for clamping together the two halves of the housing. Also, it will be seen, the axis of the sheave or pulley extends in the direction of the movement of the hoisting device along the track or way C. The housing is provided with a socket or seat *a* for the spring F, which latter supports the eye-bolt G. One end of the hoisting cable H is secured to said eye-bolt, and is arranged to run over the sheave or pulley D and then to the ground where it can be operated. A tackle or sheave I rests in the slack or sag of the said cable, and may be provided with any suitable means for securing it to the object to be hoisted. On the inner surface of the housing, at opposite sides thereof, guides *a'* are provided, as shown.

The yoke-like double dog J embraces the sheave or pulley and is provided with notches *j* that will catch the pins when the sheave or pulley revolves backward, but will not interfere with the forward rotation thereof when the cable is operated to do the hoisting. The bifurcated end of said double dog is provided with pivot holes *j'*, and at a distance back therefrom with holes *j²*. A brake-shoe K is embraced between the sides of said double dog, and a pivot pin L extends through the said brake-shoe, as well as through the openings *j'*. This pin is supported in the guides *a'*, and in this way a lost motion connection is provided between the double dog and the housing, the brake-shoe moving back and forth with the double

dog. Thus the brake shoe is supported directly on the housing and not on the dog, and the latter is also on the housing and not on the shoe. A yoke M embraces the sheave or pulley and connects the locking dog J with the upper end of the eye-bolt G. Normally, the parts are as shown in Fig. 1, there being no load on the hoisting cable. This normal condition of the parts is maintained through the coöperation of the springs F and N, which latter connects the dog J with the housing, and keeps the pin L at the outer ends of the guides *a'*, as shown in Fig. 1. When the cable is loaded, however, and the pull on the cable is relaxed, then the parts assume the positions shown in Fig. 6. This is due to the fact that the slight drop of the load, when the pull on the cable is relaxed, causes two of the pins *d* to catch in the notches *j*, the spring F being at this time compressed by the weight carried by the cable. The back pull of the sheave or pulley causes the shoe K to bear hard upon the cable at the point where the same starts over the sheave or pulley, and thus the load is checked against falling, the action being purely automatic in this respect. When the cable is running light, then the sheave or pulley can be rotated in either direction.

Any suitable, known or approved expedient can be employed for releasing the load from the hoisting cable.

It is an important consideration of my invention that, with my improved construction, the brake-shoe K engages the rope or cable where the same starts over the sheave, as this gives increased gripping surface to the sheave, which tends to hold the rope or cable more securely than if the shoe were at the other side of the sheave.

What I claim as my invention is:

1. In a hoisting device, a sheave or pulley, a hoisting cable therefor, means for securing one end of the cable to the said hoisting device, and a brake-shoe for engaging the cable where the same starts over the sheave or pulley from the end thereof where the power is applied, and means operated by the sheave and the weight on the cable for operating said brake-shoe to check the fall of the load.
2. In a hoisting device, a sheave or pulley, a hoisting cable therefor, means for securing one end of the cable to the said hoisting device, a housing, a locking dog pivoted directly on the housing, the axis of the said sheave or pulley and locking dog being fixed relative to each other, means on the sheave or pulley for engaging the dog, and means on the sheave for communicating the weight of the load to said dog to bring the latter into operative relation to said sheave or pulley.
3. In a hoisting device, a sheave or pulley, a hoisting cable therefor, means for securing

one end of the cable to the said hoisting device, a locking dog, means on the sheave or pulley for engaging said dog, to positively lock the sheave, and a brake-shoe operated by said dog to engage the cable where the same starts over the sheave or pulley from the end thereof where the power is applied to check the fall of the load.

4. In a hoisting device, a sheave or pulley, a hoisting cable therefor, a pivoted locking dog for said sheave or pulley, and means for throwing the load directly on the said dog, at the outer side of the pivot, so that the dog sustains the weight thereof, to bring the latter into operative relation to said sheave or pulley.

5. In a hoisting device, a housing, a sheave or pulley, a hoisting cable therefor, a brake-shoe provided with a pivot having a sliding connection with said housing, and means for utilizing the weight of the load to bring the said shoe into engagement with said cable.

6. In a hoisting device, a housing, a sheave or pulley, a hoisting cable therefor, a brake-shoe slidably supported on the housing, and means operated by the sheave for utilizing the backward rotation of the sheave or pulley to draw the said shoe into engagement with the cable.

7. In a hoisting device, a sheave or pulley, a hoisting cable therefor, a yoke-like locking dog embracing the top of the sheave or pulley, means on the sheave or pulley for engaging the yoke, and means for supporting the load on the outer portion of said dog.

8. In a hoisting device, a sheave or pulley, a hoisting cable therefor, a locking dog for said sheave or pulley, means on the sheave for engaging said dog, and means by which the cable when loaded exerts a direct downward pull on said dog.

9. In a hoisting device, a sheave or pulley, a hoisting cable therefor, a locking dog for said sheave or pulley, means on the sheave for engaging said dog, and means for utilizing the weight of the load for depressing the dog, the entire connecting medium between the dog and cable having only downward movement to bring the dog into operative relation to the sheave or pulley.

10. In a hoisting device, a sheave or pulley, a hoisting cable therefor, a brake-shoe for engaging said cable, pivoted at one point only and a sliding connection by reason of which the backward rotation of the sheave or pulley brings the said shoe into engagement with the cable, as set forth.

11. In a hoisting device, a sheave or pulley, a hoisting cable therefor, a yoke-like locking dog for said sheave or pulley, a yoke for connecting the end of the cable with said dog, and a spring for keeping the two yokes normally raised.

12. In a hoisting device, a housing, a sheave or pulley, a hoisting cable therefor, a

locking dog for said pulley, a brake-shoe actuated by said dog, and a spring connecting the dog with the said housing to keep the brake-shoe normally out of engagement with said cable.

13. In a hoisting device, a two part housing, an arbor extending through the two parts to bind the same together, a sheave or pulley on said arbor, a hoisting cable for said sheave or pulley, a shift rope attached to the end of said arbor, an automatic brake mechanism supported on the two parts of the housing, and means for supporting the housing for horizontal traveling movement.

14. In a hoisting device, a sheave or pulley, a housing therefor, a hoisting cable for the same, a locking dog for said sheave or pulley, guides on said housing, a pivot pin for said dog, slidable in said guides, and a brake-shoe on said pin, adapted to engage the cable to check the fall of the load.

15. In a hoisting device, a sheave or pulley, a hoisting cable therefor, pins on the opposite sides of said sheave or pulley, and a yoke-like locking dog pivoted at one end and provided at each side with a notch for

engaging said pins, the sides of the yoke embracing the said sheave or pulley.

16. The combination of a housing, guides on the housing, a sheave or pulley in the housing, a hoisting cable for said sheave or pulley, a dog pivoted to slide in said guides, a brake-shoe on said pivot, a spring connecting the dog with the housing to keep the brake-shoe normally out of engagement with the cable, a link connecting the end of the cable with said dog, and a spring for keeping the link and dog normally raised.

17. The improved hoisting device, comprising a brake-shoe operative to engage the cable at the point specified, a sheave, means on the sheave for operating said brake-shoe, and means for securing one end of the cable to said device, substantially as shown and described.

Signed by me at Chicago, Illinois, this 23rd day of March 1908.

HUBERT A. MYERS.

Witnesses:

ALBERT J. SAUSER.
SARAH LEWIS.