J. EDSON.

SELF-ADJUSTING SHEAVES FOR BOOMS, &c.

No. 190,425. Patented May 8, 1877.

Fig. 1.

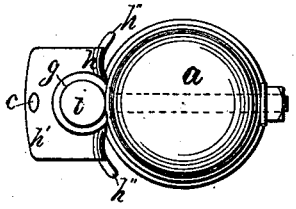


Fig. 2.

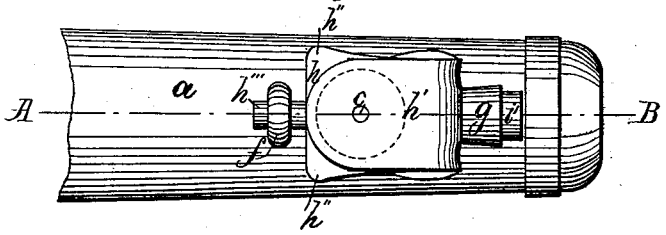
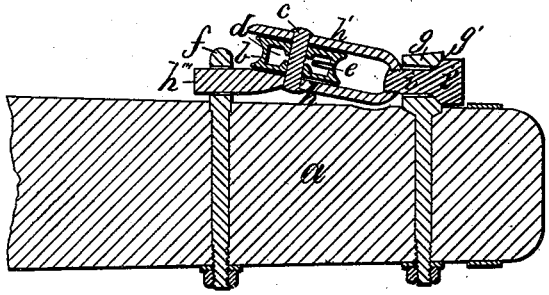


Fig. 3.



Witnesses:

Henry Chadbourn

F. Allen.

Inventor:

Jacob Edson

by

A. Van Andrén.

his atty.

UNITED STATES PATENT OFFICE.

JACOB EDSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO JAMES BAKER, OF SAME PLACE, TRUSTEE FOR BAKERS & HUMPHREY.

IMPROVEMENT IN SELF-ADJUSTING SHEAVES FOR BOOMS, &c.

Specification forming part of Letters Patent No. 190,425, dated May 8, 1877; application filed March 9, 1877.

To all whom it may concern:

Be it known that I, JACOB EDSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sulf-Lubricating and Self-Adjusting Sheaves; and do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in sheaves, consisting in first making the sheave self-lubricating, which is accomplished by making an annular chamber inside the sheave, around the pin or bolt on which it turns, which chamber decreases toward the said pin or bolt. The lubricating material is introduced into the said chamber through a tube extending from the outside of the sheave to the central portion of the annular cavity therein, by which arrangement the lubricating compound is prevented from being forced out by the centrifugal force when the sheave or roller is set in a rotary motion. When the said annular chamber is nearly filled with lubricating material it will produce a self-lubricating sheave or pulley, that may be run quite a long time without further care.

My invention also relates to making the sheave self-adjusting, so as to allow the rope to adjust itself automatically to divers inclinations, as may be desirable, on ship's rigging, hoisting-cranes, &c.; and this part of my invention consists of supporting the sheave shield or protector in a pair of bearings firmly secured to the spar, boom, or frame, &c., on which the sheave is used. The outer pivot is provided with a tapering head, that rests into a corresponding tapering recess in the outer bearing. The central line of the pivots and their bearings is arranged obliquely to the central line of the sheave and its rope, by which the sheave and its shield can be arranged in the closest proximity to the spar, boom, &c., on which it is used, without interfering with the desired oscillating motion of the sheave. The under side of the shield for the sheave is provided with side wings or extensions, by which arrangement strong and durable stops are produced, for the purpose of preventing the sheave and its shield from turning too far around its axis. Either of the said side wings come in contact with the spar, &c., on which the sheave is used when the shield is turned on its axis to its fullest extent. Beneath the outer end of the shield or protector I make recesses on the boom, spar, &c., on which the sheave is used, so as to allow the sheave to turn as much as may be desired, and still be in as close proximity to said boom or spar, &c., as may be practical.

The whole is made very light and strong, which is of great importance, especially when the sheave is used on booms, spars, stays, &c., that have to be moved up and down or sidewise.

On the accompanying drawings, Figure 1 represents an end view of my invention. Fig. 2 represents a plan view of the same; and Fig. 3 represents a central longitudinal section on the line A B, shown in Fig. 2.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

a represents the spar, boom, or frame, &c., to which the sheave is attached. *b* represents the grooved pulley, movable around the pin or bolt *c*. *d* represents an annular hollow chamber inside the pulley *b*, which chamber extends to the center of the pulley, so that the lubricating material that is introduced in said annular space can flow directly onto the pin or bolt *c*, and thus automatically lubricate the latter. The lubricating material is introduced into the annular space *d* through the tube *e*, the inner end of which terminates in proximity to the pin or bolt *c*, as shown in Fig. 3, by which the lubricating material is prevented from escaping through the inlet-tube *e* during the rotation of the pulley. *f* and *g* represent bearings, in which the sheave or block is supported, and in which it can turn, so as to automatically yield to the direction of the strain of the rope.

h h' represent the shield or frame of the block, of which *h* is the under side, and provided

with side wings or extensions h'' h'', that serve as stops against the spar, &c., on which the sheave is used, to prevent the latter from turning too far on its axis. The shield-plate h is carried out in its lower end as a pin or rod, h''', that is inserted in and can freely turn in the bearing f. Through the bearing g is inserted a pin, i, having a conical or tapering head, i', fitting into a corresponding conical or tapering recess, g', in the upper end of the bearing g. The inner end of the pin or bolt i is made with a screw-thread, and screwed into the upper end of the shield h h' and riveted on the inside. It will be seen, by reference to Fig. 3 of the drawings, that the line through the centers of the bearings f and g is not parallel to the center line of the pulley b, but oblique to the same, by which the sheave is brought as near as possible to its support without interfering with the desired oscillating motion of the sheave, according to the change of the direction of the strain of the ropes.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

1. The herein-described self-lubricating pulley b, with its annular hollow chamber d and inlet-tube e.

2. The herein-described self-adjusting sheave, having its bearings f g arranged in a line that is oblique to the center line of the pulley b, substantially as and for the purpose set forth and shown.

3. The herein-described oscillating sheave, having the side wings or stops h'' h'' on its shield or protector h, as set forth.

4. The combination, with the shield or protector h, of the pin or bolt h''' and its bearing f, and the conical or tapering head i', with its conical or tapering bearing g g', as set forth and described.

In testimony that I claim the foregoing as my own invention I have affixed my signature in presence of two witnesses.

JACOB EDSON.

Witnesses:
ALBAN ANDRÉN,
HENRY CHADBOURN.