

T. X. JONES.

PULLEY.

APPLICATION FILED AUG. 18, 1908.

936,778.

Patented Oct. 12, 1909.

Fig. 4.

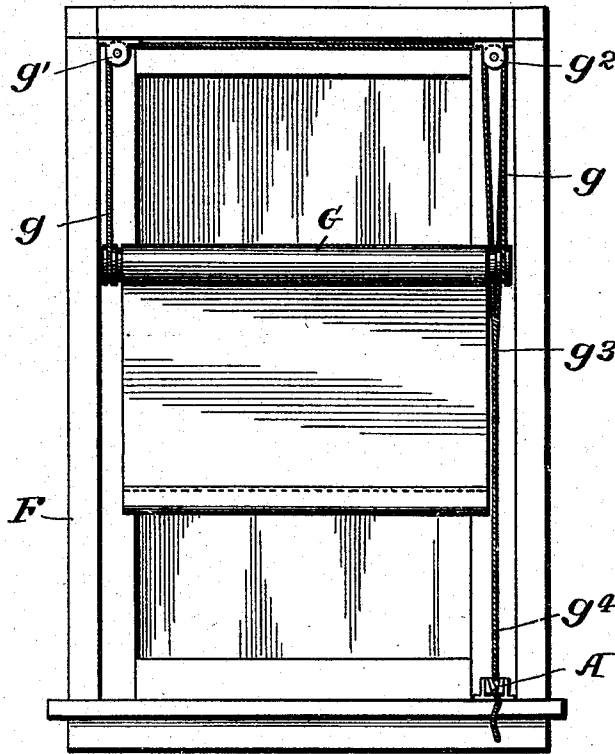


Fig. 1.

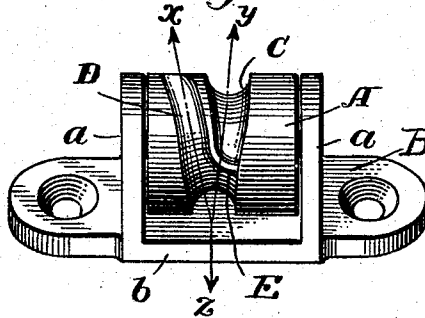


Fig. 5.

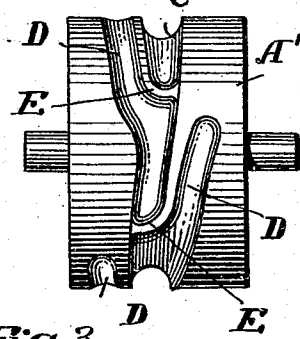


Fig. 2.

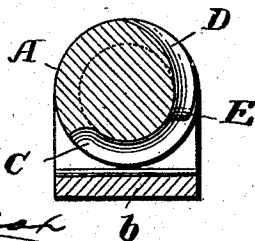
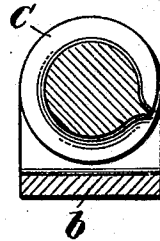


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS X. JONES, OF COLUMBUS, OHIO, ASSIGNOR TO RICHARD S. JONES, OF RACINE, WISCONSIN.

PULLEY.

936,778.

Specification of Letters Patent.

Patented Oct. 12, 1909.

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To all whom it may concern:

Be it known that I, THOMAS X. JONES, citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Pulleys, of which the following is a specification.

My invention relates to improvements in pulleys, and has for its object the provision of a device of this character which will automatically lock or cause the gripping of the cord or rope employed when it is released after a hoisting operation.

My improved pulley is designed primarily for coöperation with a window shade adjuster, and I have therefore shown and shall describe it in that connection, but it will be understood that the pulley is also well adapted for other uses, such as raising and lowering loads in general, and in all combinations of hoisting apparatus where it is desirable to grip and hold the hoisting rope.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved pulley; Fig. 2 is a section through the same taken on line $x-z$ of Fig. 1; Fig. 3 is a similar section, taken on line $y-z$ of Fig. 1; and Fig. 4 is a general view illustrating the invention applied to a shade adjuster; and Fig. 5 shows a modification.

Referring to the drawings, A is the pulley, shown as of the usual cylindrical form and rotatably mounted at a on the fixed support B. The pulley is provided with an operative contact surface, shown as a groove C, for engagement with a hoisting line, rope or strap, this groove C extending around the circumference of the pulley in a plane slightly oblique to the axis thereof.

Extending from the operative groove C is a spirally arranged branch contact surface in a curve of increasing radius, shown as branch groove D having a depth decreasing from the juncture of the grooves. The increasing radius of the spiral branch contact surface, represented by the decreasing depth of branch groove D, causes this surface to approach the fixed coöperating surface b of support B as the pulley revolves in the proper direction.

In order to render the locking or gripping action of the pulley automatic, I provide what I have termed a guiding means or guide ridge E extending across the opera-

tive contact surface or groove C at or adjacent its junction with branch contact surface or groove D. This guide ridge is of such height, and is so disposed, as not to interfere with the normal working of the pulley when raising or lowering a load, but when the hoisting cord or rope is released and its tension thereby relieved the partial backward rotation of the pulley deflects the slack end of the cord or rope onto the branch contact surface, when a slightly further rotation in the same direction then causes the cord or rope to be gripped between the spiral branch contact surface and the fixed coöperating surface b . When further operation is required, a pull upon the free end of the cord or rope will release the same. It will thus be seen that the gripping and releasing of the cord or rope is entirely automatic.

In Fig. 4 I have shown my improved automatic pulley in combination with a shade adjuster, the novel features of which will be made the subject of a separate application. In said figure, F is a window frame, G a shade roller adjustably mounted by being suspended from cords g passing over pulleys $g^1 g^2$. Cords g are preferably united at g^3 to a single hoisting cord g^4 which passes under the automatic pulley A.

It will of course be understood that my improved pulley is intended for other uses and in all combinations where its advantages of construction make it desirable. It will further be understood that I am not limited to a single branch contact surface or groove, but there may be several of these extending on the same side or on opposite sides of the main contact surface or groove, as illustrated in Fig. 5, this arrangement being particularly desirable for pulleys of larger size, when the number of branches is optional or according to the size of the pulley.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is,—

1. A pulley having an operative contact surface for engagement with a hoisting line or rope and mounted in proximity to a coöperating fixed surface, a spirally arranged branch contact surface extending from said operative contact surface in a curve of increasing radius, and guiding means beginning upon and extending from said

operative contact surface to said branch contact surface, substantially as described.

2. A pulley having a face provided with an operative groove and mounted in proximity to a cooperating fixed surface, a branch groove of gradually decreasing depth extending from said operative groove, and a guide reach extending across said operative groove to the entrance of said branch groove, substantially as described.

3. A pulley having a face provided with a substantially annular operative groove and mounted in proximity to a cooperating fixed surface, a branch groove of gradually

decreasing depth extending from said operative groove and adapted to clamp a hoisting line or rope, and a guide ridge at the juncture of said grooves extending into said operative groove and arranged to deflect a hoisting line or rope into said branch groove when the hoisting tension is relieved, substantially as described.

In testimony whereof I have affixed my signature, in presence of two witnesses.

THOMAS X. JONES.

Witnesses:

LYDIA E. CUNNINGHAM,
J. J. WALDVOGEL.