B. D. WASHBURN.
Sash-Pulleys.

No. 204,468. Patented June 4, 1878.

Fig. 1.

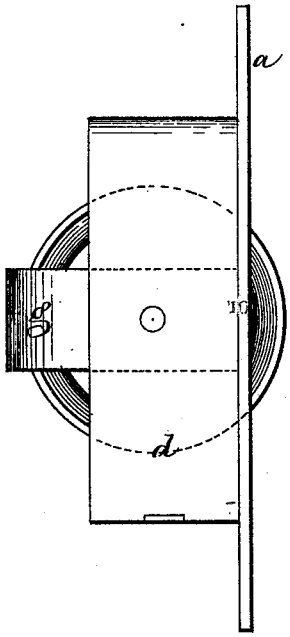

Fig. 2.

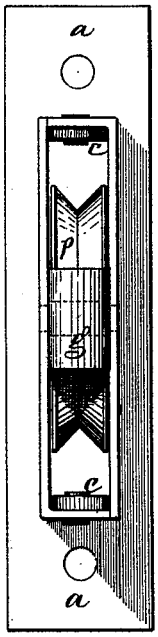

Fig. 3.

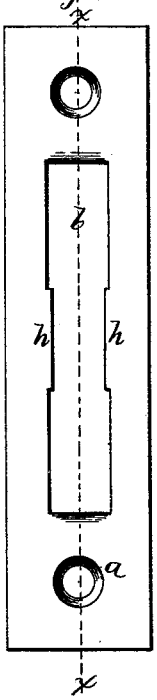

Fig. 4.

Fig. 5.

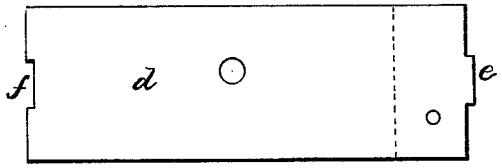

Fig. 6.

Witnesses.
L. H. Latimer.
H. C. Morse.

Inventor.
B. D. Washburn
by J. H. Adams Atty.

UNITED STATES PATENT OFFICE.

BENJAMIN D. WASHBURN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SASH-PULLEYS.

Specification forming part of Letters Patent No. **204,468**, dated June 4, 1878; application filed October 1, 1877.

To all whom it may concern:

Be it known that I, BENJAMIN D. WASHBURN, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Window-Sash Pulley, of which the following is a specification:

My invention relates to an improvement in that class of pulleys which are used in connection with window frames and sashes.

The object of my invention is to lessen the cost of the manufacture of the pulleys and pulley-frames, which is effected by making the latter of wrought metal struck out by dies.

My object is, further, to utilize a portion of the metal in making the face-plate, which has heretofore been wasted.

The invention consists in turning under a portion of the face-plate at each end of the slot, at right angles with the plate, and securing these ends to the case or frame which holds the pulley at the rear of the face-plate.

The invention further consists in making the casing of the pulley of two pieces of wrought metal struck out in dies, with the proper holes and fastening ends secured to each other and to the face-plate.

It also further consists of a separate strip or piece of metal, which serves as a band to control the cord, to stiffen the sides of the pulley, and to give a better bearing for an axle or spindle of the same, all as hereinafter more fully described and claimed.

Referring to the drawings, Figure 1 is a side elevation of a pulley and case embodying my invention. Fig. 2 is a rear view of the same. Fig. 3 is a front view of the face-plate with the roller removed. Fig. 4 is a central longitudinal section of the face-plate. Fig. 5 is a view of one of the sides of the casing as it is formed in the die. Fig. 6 represents the axle or spindle of the pulley.

a represents the face-plate, made of brass or other wrought metal. From the central portion of the face-plate is cut out a piece of about three-quarters of an inch in length, (more or less,) leaving slight projections at the sides, as shown at *h h*, Fig. 3. The pieces *c c* at each end of the slot are then turned under, as shown in Fig. 4, and each end is riveted to the casing at the rear.

The casing is composed of two pieces of wrought metal, struck out in the form shown in Fig. 5, bent over at one end, and joined at their edges by a tenon, and riveted together. The casing can be made of one piece of metal, with the ends joined together, if desired.

g represents a strip of metal, which is bent over the pulley or roller, and, having its ends bearing upon the projections *h h*, serves to prevent the cord from slipping off the roller. The sides of the strip *g* fit upon the spindle *i* and bear against shoulders *k k* on the spindle, (shown in Fig. 6,) so as to stiffen the sides of the pulley and insure a steady bearing to the same.

The central portion of the spindle *i* is of larger diameter than the ends, thus forming shoulders *k k*, against which the sides of the bent strip *g* abut, so that the ends of the spindle can be readily riveted to the casing without interfering with the connection of the strip *g* with the spindle or pulley, and the pulley is allowed to turn freely upon the spindle, or the spindle may be securely attached to the wheel and rotate in the sides of the casing.

The piece cut out from the face-plate to form the opening for the pulley has heretofore been wasted; but by bending down the strip cut from the front plate, as shown in Fig. 4, I not only utilize the material, but get a smooth rounding surface for the cord to strike against, thus preventing the fraying of the cord and obviating in this respect the objectionable feature of the sharp edges of the slot when the face-plate is stamped or cast in the usual manner.

The strips which are turned under may be cut at the center of the face-plate, if desired, and doubled over when bent, so that no loss of material is suffered.

The dies for stamping out the pulley-frames are constructed so as to admit of their parts being changed in their relations to each other. Thus I am enabled to manufacture the frames of different styles and sizes.

What I claim as my invention is—

1. The strips *c c*, cut and turned down from the face-plate to form a means of connection with the case *d*, substantially as and for the purpose set forth.

2. In a window-sash pulley, the combination,

with the face-plate *a*, of the two wrought metal pieces *d d*, secured to each other and to said face-plate, substantially in the manner shown and described.

3. The combination, with the pulley *p* and casing *d*, of the supporting-strap *g*, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

B. D. WASHBURN.

Witnesses:
J. H. ADAMS,
L. H. LATIMER.