

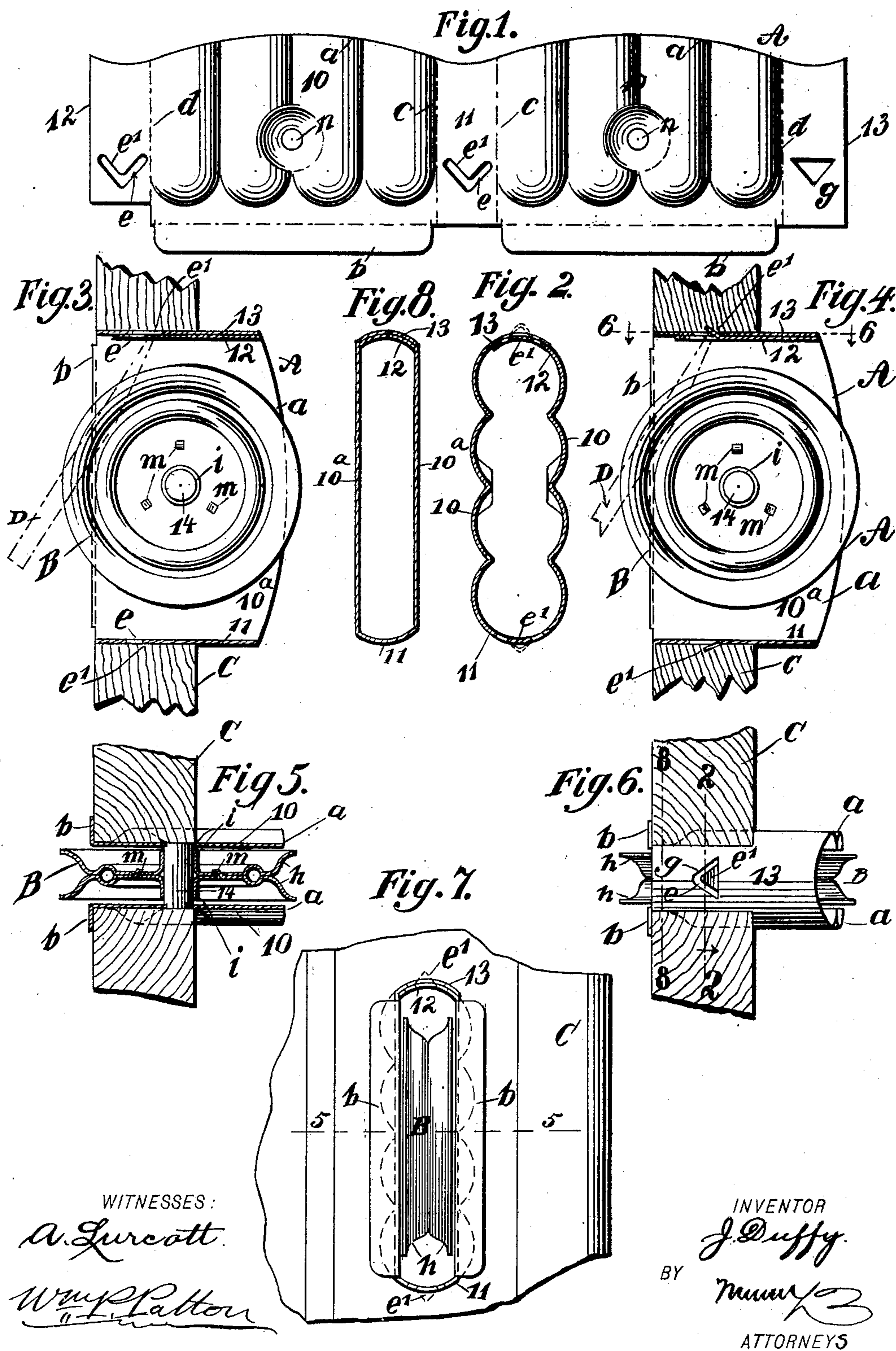
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Patented Oct. 30, 1900.

J. DUFFY.
SASH PULLEY.

(Application filed Nov. 24, 1897.)

(No Model.)



UNITED STATES PATENT OFFICE.

JOHN DUFFY, OF GRAND RAPIDS, MICHIGAN.

SASH-PULLEY.

SPECIFICATION forming part of Letters Patent No. 660,629, dated October 30, 1900.

Application filed November 24, 1897. Serial No. 659,654. (No model.)

To all whom it may concern:

Be it known that I, JOHN DUFFY, of Grand Rapids, in the county of Kent and State of Michigan, have invented new and useful Improvements in Sash-Pulleys, of which the following is a full, clear, and exact description.

This invention relates to the frames and rollers of sash-pulleys, and has for its object to provide novel and improved features of construction for a device of the indicated character which will afford an extremely simple, cheap, and durable sash-pulley which is easy to apply and that in service is reliable at all times.

The invention essentially consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a corrugated sheet-metal blank which when bent into form provides a novel pulley-casing that is a feature of the invention. Fig. 2 is a sectional view of the preferred form of the pulley-casing on the line 2 2 in Fig. 6. Fig. 3 is a sectional side view of a modified form of the pulley-casing inserted within a mortise in the side of a window-casement, shown in part, a pulley being positioned in the casing. Fig. 4 is a side view similar to Fig. 3, but illustrating means for locking the pulley-casing in the window-frame. Fig. 5 is a sectional plan view of the sheave or pulley proper and the preferred form of the casing therefor, substantially on the line 5 5 in Fig. 7. Fig. 6 is a sectional plan view of a portion of a window-casement jamb and a top view of the improved sash-pulley casing in position therein. Fig. 7 is an exterior face view of a portion of a window-casement jamb and of the improvements therein, and Fig. 8 is a transverse sectional view of the modified form of the pulley-casing on the line 8 8 in Fig. 6.

The casing provided for housing and rotatably supporting the grooved roller or sheave, and which together form the improved sash-pulley, is formed of a single piece of sheet metal, preferably sheet-steel, of a proper thickness. As illustrated in Fig. 1, it consists of

an oblong substantially rectangular plate. Two widened side portions 10, of like dimensions, are separated from each other by a narrower portion 11, which forms an end wall of the casing when the blank is bent to produce the casing. The side portions 10 are preferably corrugated, as shown in Figs. 1 and 2, but may be flat, as shown at 10^a in Figs. 3, 4, and 8. At each end of the blank a portion thereof is formed of the same shape and nearly the same area as the intermediate portion 11, said end portions, respectively designated by the reference characters 12 13, becoming the end wall of the casing opposite from the end wall 11 when the casing is completed. Beyond the ends of the casing portions 11 12 13 the side walls 10 of said casing are extended and preferably curved on their edges, as at *a*. The opposite edge portions of the side walls 10 are sufficiently prolonged beyond the adjacent edges of the parts 11 12 13 to produce flanges *b* thereon, which nearly equal in length the width of the sides 10.

In the formation of the casing A from the corrugated or flat sheet-metal blank said blank is bent at *c c* along the lines between the side walls 10 and end walls 11, said bends being in the same direction and sufficient in degree to dispose the side walls 10 substantially in parallel planes, as is clearly shown in Figs. 2 and 8, the end wall 11 being preferably rendered convex. The portions 12 13 are now lap-folded one upon the other along the lines *d d*, the portion 12 being innermost, and said end wall sections are preferably bent to curve outwardly similar with the end wall 11, as shown in Fig. 2.

In cutting the casing-blank into form or after said piece is cut into shape an essentially V-shaped slot *e* is produced in the end wall 11 at a suitable distance from the flanges *b*, and preferably near said flanges. In the end portion 12 a like V-slot *e* is formed, which will be opposite the V-shaped slot in the portion 11 when the casing is completed. The portion 13, forming the exterior wall of the casing opposite the wall 11, is provided with an essentially triangular aperture *g*, that registers with the V-shaped slot *e* in the wall 12 when these portions of the casing are lap-folded together. Preferably the innermost wall portion 12 is reduced in height, so as to

permit the edge of the end wall 13 alone to be seen when the casing is completed.

It will be observed that the slots *e* are slightly curved at their apices, and, furthermore, that they produce substantially V-shaped tongues *e'*, which are integral with the walls 11 12 at their bases, these tongues having their slightly-rounded free ends projected toward the flanged end of the casing A. The flanges *b* may have their corners rounded, as shown in Figs. 1 and 7, and to adapt them for service are bent outwardly at right angles to the sides 10, and thus are adapted to lie in the same plane.

The grooved sheave B, which is preferably employed in conjunction with the casing that has been described, is composed of two similar half-sections that are preferably formed of sheet metal. As shown, each sheave-section consists of a sheet-metal blank cut and struck into form by suitable dies, so as to produce an "ogee-curved" periphery *h* thereon, and surrounding a central perforation of the circular sheave-section an integral sleeve *i* is exteriorly projected.

The two similar sections of the sheet-metal sheave B are firmly secured together, with their flat sides in contact, by a plurality of tongues *m*, that are integrally formed on one half-section of the sheave and project through perforations in the other half-section thereof, said tongues being bent after insertion so as to forcibly bear upon the wall of the sheave-section they are inserted through, whereby the two sections of the sheave are firmly held together.

It will be seen in Fig. 5 that when the two sheave-sections are secured together the ogee-formed peripheries of said sections together produce a circumferential groove for the sheave, and the aligned sleeves *i* afford a cylindrical box for the reception of a pintle 14, which is cylindrical and loosely fits in the sleeves *i*.

At suitable points *n* the sides 10 of the casing A are oppositely perforated for reception of the ends of the pintle 14, and the latter is affixed in place by riveting the ends or by other means, so that the pintle will serve the double purpose of stiffening the sides 10 and of affording a journal whereon the sheave B may revolve.

When the improved sash-pulley is to be affixed in a mortise of the window-casing jamb C, the casing A is slid into said mortise, within which it should neatly fit, such insertion being limited by the contact of the flanges *b* with the outer face of the jamb, as best shown in Figs. 5, 6, and 7. The operator now introduces a punch D, (shown by dotted lines in Figs. 3 and 4,) so as to pass the body of the punch in the groove of the sheave B toward one of the tongues *e'*, and presses the small end of said punch upon the tongue, as indicated in Fig. 3. A smart blow of a hammer on the punch D will bend the upright

tongue *e'* that the punch engages, so as to incline it outwardly at an angle from the wall 13 of the casing, said tongue then projecting through the orifice *g* and embedding its body in the wooden wall of the mortise in the jamb C, as clearly shown in Fig. 4. The operation is now repeated, so as to bed the other tongue *e'*, that is formed on the wall 11, in the wooden wall of the mortise, and as these mortise-walls are produced across the grain of the wood it will be evident that the bent tongues *e'* will be adapted to securely retain the casing A in place within the jamb of the window-casing. The formation of the slots *e* in the walls 11 12 of the casing facilitates the application of the punch D when said tongues are to be bent, and said slots are also necessary to enable a workman to introduce the bent end of a thin hook-tool for engagement with the bent tongues *e* to pull the latter toward the sheave B, so as to straighten them, and thus permit an easy removal of the casing A and sheave B from the jamb C, should this be desired. It will be apparent that the bending of the tongue *e'* that is on the wall portion 12 outwardly through the orifice *g* in the outer wall portion 13 will bind the parts 12 13 together, and thus render the applied sash-pulley that has been described substantial at the point mentioned.

In the formation of receiving-mortises in casement-jambs it is in some cases a common practice to bore a series of intersecting holes in said jamb which at their points of intersection will admit the walls 10 of the casing A. In such a formation of the mortises, as well as when they are produced with parallel sides, the flanges *b* serve to cover up the joints or crevices at the sides of the casing when inserted and so produce a neat finish when the casing is exposed to view.

The entire work of producing the improved sash-pulleys in quantity may be conducted on ordinary cutting and punching machinery, it being understood that suitable dies are provided, so that the improvement may be manufactured at a moderate cost and afford for general use a cheap, durable, neat, and reliable sash-pulley that is adapted for easy application and removal.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A pulley-casing formed of a sheet-metal plate bent into form with its ends overlapping each other at one end of the casing, one overlapping end being provided with an opening and the other with a tongue adapted to be bent outward through said opening and into engagement with the end wall of the mortise, after the casing has been inserted in said mortise, whereby the ends of the casing will be locked together and the casing secured in its mortise, as set forth.

2. A sheet-metal pulley-casing provided with side flanges and having overlapping por-

tions at one end of the casing, one overlapping portion being provided with an opening and the other with a tongue, the other end of the casing being also provided with a tongue, 5 said tongues being adapted to be bent outward into engagement with the end walls of the mortise after the casing has been inserted in said mortise, substantially as described.

3. A blank for a pulley-casing, comprising 10 an approximately rectangular plate provided on one longitudinal edge with extensions on the portions that are to form the sides of the casing, the plate being apertured in the portions to form the sides of the casing and provided at one end with an opening and at the 15 other end with a tongue, said ends being adapted to be overlapped and secured together by the tongue of one overlapping portion enter-

ing the opening of the other portion, substantially as described. 20

4. A blank for a pulley-casing, consisting of an approximately rectangular plate, having two widened corrugated side portions 10 having extensions *b* at one end, a narrow portion 11 connecting the side portions and provided with a tongue *e'*, and end portions 12 25 and 13, the end portion 13 being provided with the opening *g* and the end portion 12 with the tongue *e'*, the end portions being adapted to be overlapped and secured together 30 by the tongue entering the opening, substantially as described.

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Witnesses:

JOHN W. SHISLER,
D. W. COLBURN.