No. 898,276. PATENTED SEPT. 8, 1908.

F. E. SLOAN.

METHOD OF MAKING SHEET METAL PULLEY CASINGS.

APPLICATION FILED DEC. 31, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

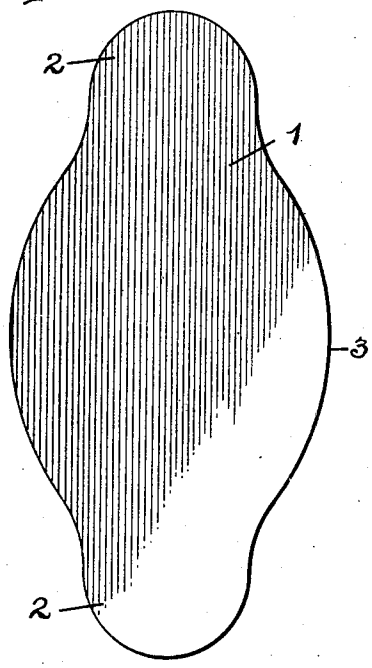


Fig. 2.

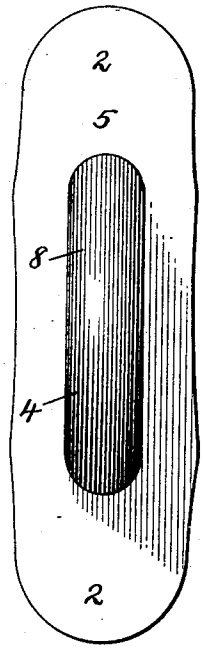


Fig. 3.

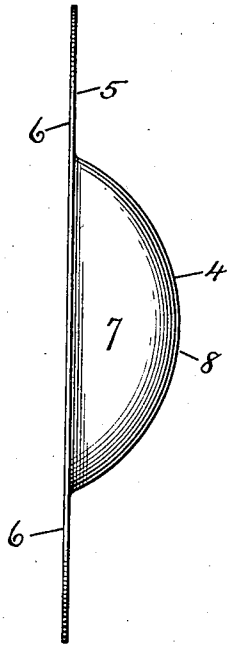


Fig. 4.

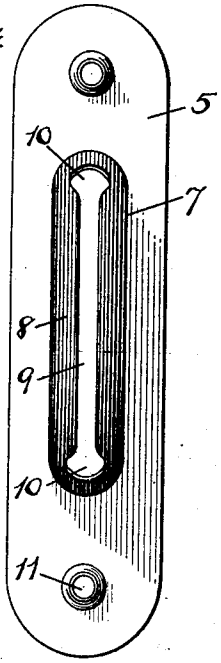


Fig. 5.

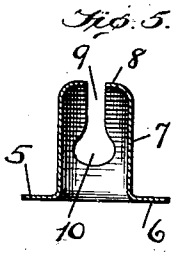


Fig. 6.

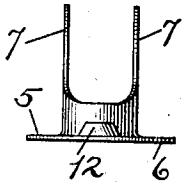
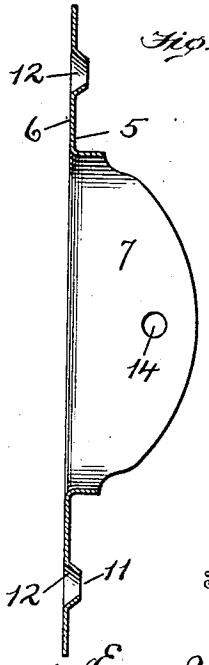


Fig. 7.



Witnesses

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No. 898,276. PATENTED SEPT. 8, 1908.

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METHOD OF MAKING SHEET METAL PULLEY CASINGS.

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2 SHEETS—SHEET 2.

Fig. 8.

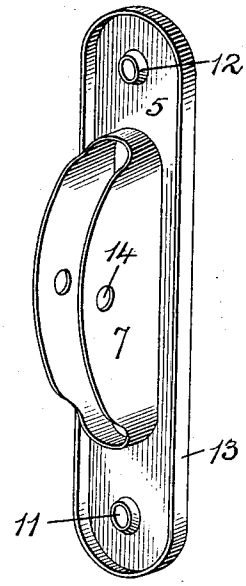


Fig. 9.

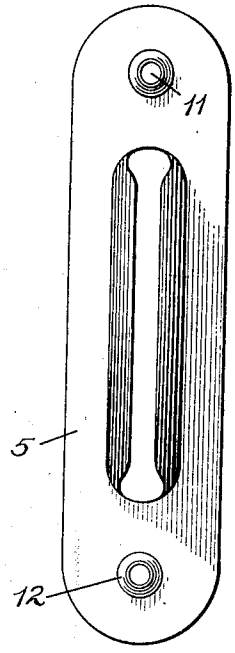


Fig. 10.

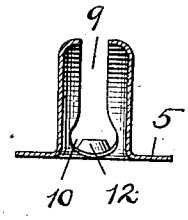


Fig. 11.

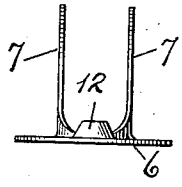
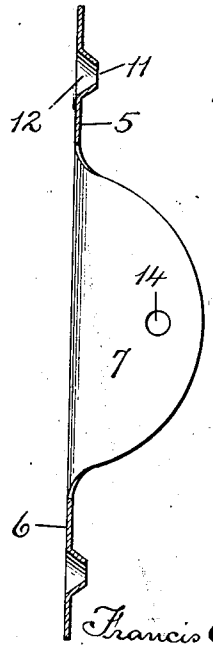


Fig. 12.



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METHOD OF MAKING SHEET-METAL PULLEY-CASINGS.

No. 898,276. Specification of Letters Patent. Patented Sept. 8, 1908.

Application filed December 31, 1907. Serial No. 408,746.

To all whom it may concern:

Be it known that I, FRANCIS EUGENE SLOAN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in the Methods of Making Sheet-Metal Pulley-Casings, of which the following is a specification.

This invention relates to improvements in the method of making sheet metal pulley casings and has reference to the pulley casings shown and described in my pending application Serial Number 381,195 filed June 28th 1907 for sheet metal pulley casings.

One object of the invention is to improve the method of manufacturing sash pulley casings from a blank of sheet-metal so that the pintle-supporting flanges thereof may be formed by metal that has been displaced from the blank within the marginal edges thereof.

Another object of the invention is to provide an improved method of manufacturing sheet metal pulley casings in which the pintle-supporting flanges are formed integrally with and project inwardly from the opposite edges of the pulley-opening.

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

Figure 1, shows a flat sheet-metal blank from which the casing is to be formed. Figs. 2 and 3 illustrate a rear elevation and side view respectively of the sheet metal form after the first operation on the blank. Fig. 4, shows a rear elevation of the partly finished casing after the second operation on the blank. Fig. 5, illustrates a cross-sectional view through the device shown in Fig. 4. Fig. 6, shows an end elevation of the complete casing. Fig. 7, illustrates a longitudinal sectional view through the complete casing. Fig. 8, shows a perspective view of a complete casing in its preferred form. Fig. 9, illustrates a partly-formed casing made in accordance with my invention but having a slightly modified form. Fig. 10, shows a cross-sectional view of the same. Fig. 11, illustrates an end of a complete casing of the modified form, and Fig. 12, shows a horizontal sectional view of the same.

In the production of a casing in accordance with my invention considerable difficulty has been experienced in producing the pintle-supporting flanges of sufficient width or depth to mount a pulley of a size in proper proportion thereto and at the same time to produce a casing of one piece in which the metal shall be of sufficient thickness at all points to withstand the strains to which it will be subjected in the practical use of the casing.

By my invention the casing is formed from a single blank; the metal is not weakened at any point and the product is cheap and at the same time strong and durable.

I am aware that it has been proposed to slit the metal of a blank in the formation of a pulley casing and to then bend the slit edge of the metal inwardly but for the purpose of forming rope or cord guides, and I am also aware that the pintle-supporting flanges or cheek-pieces have been formed by bending the side edges of the blank laterally, but as far as I am aware I am the first to form pintle-supporting flanges from metal that has been displaced from within the marginal edges of the face plate and carried inwardly.

Referring to the drawings the procedure in the production of the casing will first be described, particular reference being made to Fig. 1 which shows the blank, 1, from which the complete casing is to be formed. This blank is provided with upper and lower ends, 2, and outwardly-projecting side portions, 3, between the said ends so that said blank is of a greater width between its ends than at said ends. This blank is placed in a press or any well known construction and having properly-shaped die members to make a central longitudinal depression therein so as to form a semi-circular projection, 4, at the inner or surface, 5, of the blank,—the face, 6, of the blank forming the outer surface of the casing when completed. This hollow semi-circular projection, 4, is curved both in a longitudinal as well as a cross-wise direction after this first operation on the blank, as shown in Figs. 2 and 3. During the operation of forming this semi-circular projection the wider portions of the metal blank are drawn toward the central depression and this metal thus takes the place of metal that has been

displaced and forced through the central depression. In addition to this the metal acted upon by the die is stretched or drawn but to such a slight degree as to be almost imperceptible and without affecting its strength. It will thus be seen that after the first operation the semi-circular projection has the form of a housing having the flat sides or walls, 7, and a wall, 8, connecting said flat sides. In forming this semi-circular housing I have found that better results can be obtained and economies effected if the depth of the side walls thereof after the first operation, are less than in the completed casing, for the reason that the original width of the blank need not be so large and I avoid the liability of weakening or rupturing the metal in the effort to produce the total depth desired, and while it is possible at the first operation to make the housing the required depth by using sufficient metal, I prefer to obtain the increased depth by means of a second and then a third operation as will now be described.

The second operation to which the metal form is subjected is illustrated in Figs. 4 and 5 in which it will be seen that a longitudinal slot, 9, has been cut into what might be called the bottom wall, 8, of the semi-circular projection or housing. At each end the slot, 9, terminates in an elongated opening, 10, which latter are formed preferably simultaneously with the formation of the slot and have position adjacent the inner surface, 5, of the face plate. The exact location of these elongated openings, 10, is immaterial and the same may be closer to or further from the surface, 5, than as shown in Figs. 4 and 5. During this second operation the face plate may also be trimmed around its edges and provided with the perforations, 11, and the countersunk depressions, 12, around the same for the reception of screws or other fastening devices may be formed at the same time. It will thus be seen that after this second operation the partly formed casing will have a face plate, a longitudinal central opening with inwardly-projecting walls or flanges and a slotted bottom or wall, 8, which latter curves over from the walls, 7, and partly closes the bottom of said central opening, and the metal form is ready for the third operation. This third operation is employed to increase the width of the flat sides or walls, 7, which is effected by a die operation. In this operation the die members operate on the inturned sides of the slotted bottom wall, 8, and turn said walls outwardly in a direction parallel with and thus make them continuations of the flat side walls or flanges, 7, as shown in Fig. 6. By this operation the side walls are extended further away from the inner surface, 5, of the face plate and a sufficient width or depth of side wall is thereby provided to enable the proper size pulley to be utilized in the casing.

During either the second or third operations I may, and preferably do provide an outer rim flange, 13, around the face plate as shown in Fig. 8. This flange serves to stiffen and reinforce the face plate and prevent the ends thereof from curling or bending.

In Figs. 9 to 12 inclusive a slightly modified form of casing is illustrated, the only difference being in the location of the elongated openings, 10, at each end of the longitudinal slot, 9, and in the omission of the outer rim flange. In this form of device the flanges or walls, 7, are not connected at their ends as is true of the casing shown in Fig. 8, but the method employed to produce both casings is the same with the exception that that portion of the die for forming the outer flange is omitted in producing one device. While the pintle of the pulley may be supported in suitable perforations, 14, in the flanges or walls, 7, it may also be secured in any other well-known manner such as by welding it in place.

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

1. The method of manufacturing pulley casings from a single blank consisting in displacing the metal from within the marginal edges of the blank and forcing said displaced metal inwardly from the outer surface of the blank to form an elongated pulley-opening with pintle supporting flanges at opposite sides thereof.

2. The method of manufacturing pulley casings from a single blank consisting in displacing the metal from within the marginal edges of the blank and forcing it inwardly from the outer surface thereof to produce an elongated pulley opening with pintle supporting flanges at opposite sides of said opening and then longitudinally separating the pintle-supporting flange at one side of the opening from the flange at the other side of the opening.

3. The method of manufacturing pulley casings from a single piece of metal consisting in forming a flat blank which is narrower at its ends than between the latter, then drawing the metal at the wider portion of the blank toward the center thereof and displacing said drawn metal by forcing it inwardly from the outer surface to form an elongated pulley opening with pintle supporting flanges at its opposite longitudinal sides.

4. The method of manufacturing pulley casings from a single blank consisting in forcing the metal inwardly at a given point in the blank to form an elongated pulley housing which is closed at its inner end then removing

a longitudinal strip of metal from the inner end of the housing and finally turning the remaining portions of said housing end outwardly and parallel with the sides of the housing.

5. The method of manufacturing pulley casings from a single plate consisting in forcing the metal inwardly at a given point to form a projecting hollow pulley-housing at the inner side of the plate then removing the inner end of the housing and trimming the edges of the plate and finally turning the trimmed edge of the plate to produce a laterally-projecting flange.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS EUGENE SLOAN.

Witnesses:

CHARLES B. MANN, Jr.,

G. FERDINAND VOGT.