

D. G. LANGLANDS.
PULLEY.

APPLICATION FILED MAY 6, 1909. RENEWED MAR. 23, 1911.

1,007,118.

Patented Oct. 31, 1911.

3 SHEETS-SHEET 1.

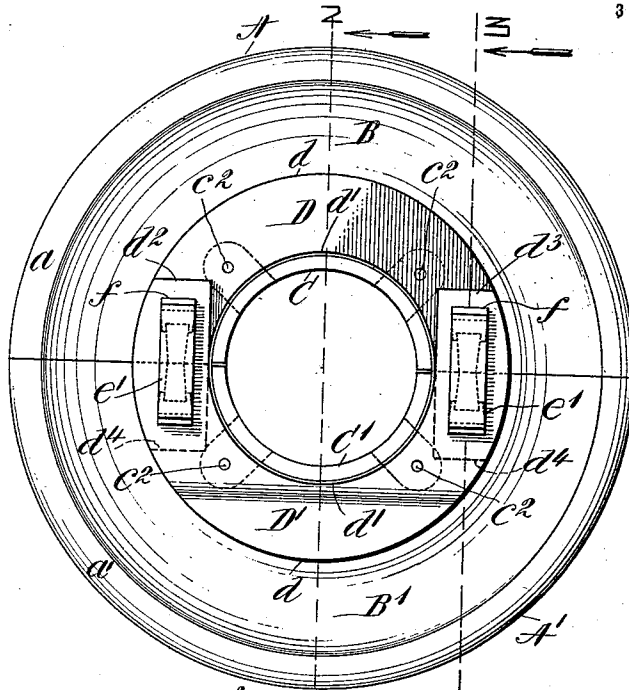


FIG. 1.

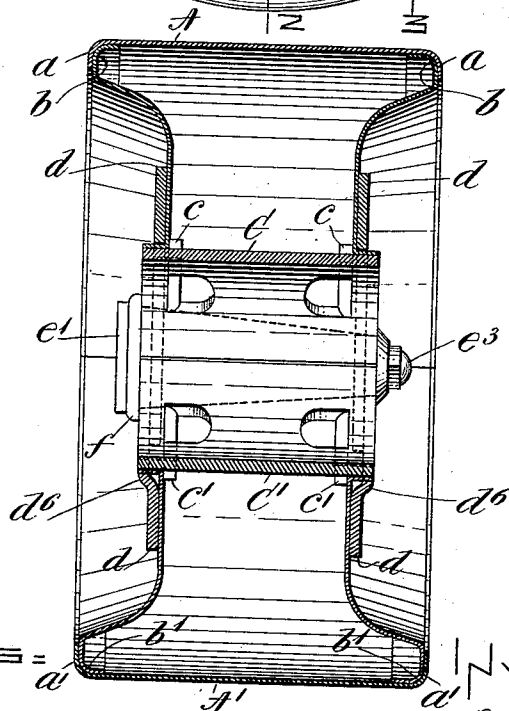


FIG. 2.

WITNESSES=

M. E. Flaherty
J. H. McPherson,

INVENTOR=

Daniel G. Langlands
By
Charles August Moore
his attorney.

D. G. LANGLANDS.
PULLEY.

APPLICATION FILED MAY 6, 1909. RENEWED MAR. 23, 1911.

1,007,118.

Patented Oct. 31, 1911.

3 SHEETS-SHEET 3.

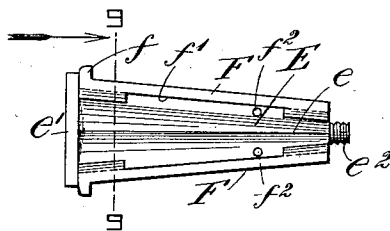
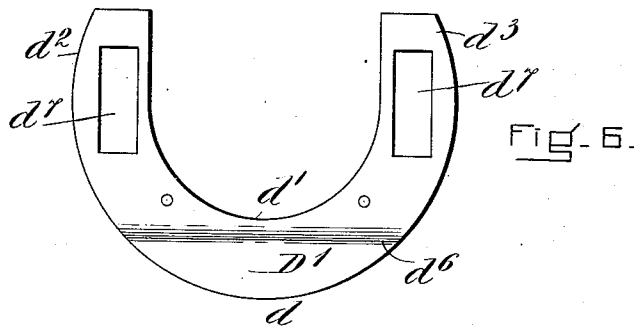
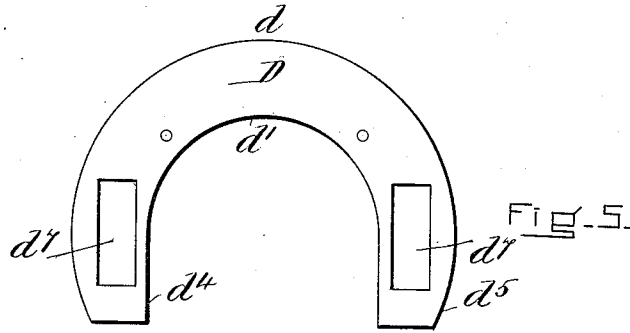


FIG. 7-

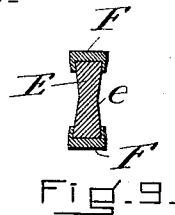


FIG. 9.

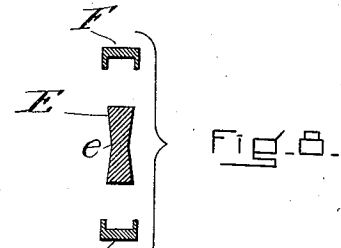


FIG. 8.

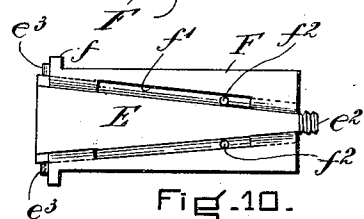


FIG. 10.

WITNESSES:

Mr. E. Flaherty.
J. W. McPherson.

INVENTOR=

Daniel G. Langlands

By

Charles F. Mott
his attorney.

UNITED STATES PATENT OFFICE.

DANIEL G. LANGLANDS, OF MELROSE, MASSACHUSETTS, ASSIGNOR TO WORCESTER
PRESSED STEEL PULLEY COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPO-
RATION OF MASSACHUSETTS.

PULLEY.

1,007,118.

Specification of Letters Patent.

Patented Oct. 31, 1911.

Application filed May 6, 1909, Serial No. 494,471. Renewed March 23, 1911. Serial No. 616,487.

To all whom it may concern:

Be it known that I, DANIEL G. LANGLANDS, of Melrose, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Pulleys, of which the following is a specification.

My invention is especially adapted for use in the construction of pressed metal sectional pulleys and relates particularly to improved means for joining the two sections together to form a complete pulley and the pulley as a whole to the shaft by the one operation.

My invention will be understood by reference to the drawings, in which—

Figure 1 is a side elevation of a pulley embodying my invention, Figs. 2 and 3 being sections taken, respectively, on lines 2—2 and 3—3 of Fig. 1. Fig. 4 is a section on line 4—4 of Fig. 3. Figs. 5 and 6 show details of the clamp, and Figs. 7 and 8 show details of the key bolt and its gibs. Fig. 9 is a section on line 9—9 of Fig. 7. Fig. 10 shows a modified form of key and gibs.

The pulley may be made in two or more sections. That shown in the drawing is made in two sections and is the best embodiment of my invention now known to me. The rim portion of each section and its support may be in one piece, but I prefer to make it in two pieces; A, A¹ being the two portions of the rim, each having a turned portion *a*, *a*¹, and B, B¹ being the central supports two for each section of the rim. Each central support is attached at its inner extremity to a hub section C, C¹ and at its outer extremity *b*, *b*¹ is brazed or otherwise attached to the rim, being properly shaped for the purpose. As shown in the drawings, each section of the hub C, C¹ has four lugs *c*, *c*¹, two at each end, punched up from the inside so that they stand at right angles to the axis of the hub and to these lugs the central supports of the pulley are riveted by rivets *c*² which also pass through the clamps D, D¹, D², D³ as below described. As shown therefore each of the two sections of the pulley comprises half of the entire rim, two of the central supports and half of the hub, all the parts being permanently attached together. The two sections of the pulley are preferably held together by clamps and housed wedge-shaped key bolts.

The clamps D, D¹, D², D³ are similar in

shape, the clamps D, D¹ being shown in Figs. 5 and 6. They are curved to conform on their outer edge *d* with the requirements of the shape of the central support and on their inner edge *d*¹ with the curvature of the hub C, C¹ about which they fit. When the pulley is attached to the shaft the extremities *d*², *d*³ of the clamps D¹, D³ overlap the extensions *d*⁴, *d*⁵ of the clamps D, D² and for this purpose the clamps D¹, D³ are bent slightly outward (see Fig. 3) as at *d*⁶.

The extensions *d*², *d*³ of clamp D¹ and *d*⁴, *d*⁵ of clamp D as shown are provided with rectangular openings *d*⁷ which are of the same size and are located to register when the clamps are in position on the pulley, and the extensions *d*³ of face plate D³ and *d*⁵ of clamp D² are provided with registering openings *d*⁸ which are of the same width as the openings *d*⁷, but are shorter than the openings *d*⁷ (see Fig. 3). The central supports are also provided with similar openings to register therewith. The clamps are riveted to the sections by the rivets *c*² which hold the hub sections to the central supporting sections. One is riveted on each side of each section and when the pulley is put together about a shaft with the extensions *d*², *d*³ overlapping the extensions *d*⁴, *d*⁵ the openings *d*⁷, *d*⁸ register with each other so that the structure may be held together and to the hub by key bolts as now to be described.

The key bolts are two in number and are alike, each being lettered E. Each bolt is wedge-shaped as is shown in longitudinal section in Fig. 3 and as indicated by dotted lines in Fig. 7 and is thin throughout its length. It is somewhat thinner along its middle than along its edge as indicated at *e* and is provided with a head *e*¹ at one end, the other end being threaded as at *e*² to receive a nut *e*³.

F are gibs of a length corresponding to the thickness of the pulley and made so that its edges may be bent inward to conform to the shape of the key bolt (see Fig. 8 where the gibs and bolt are shown in cross section before being assembled, and Fig. 9, a section taken on line 9—9 of Fig. 7, where the same parts are shown assembled). Each gib is provided with flanges *f* which engage the extensions *d*² of the clamp D¹ while its other end is flush with the extension *d*³ of the clamp D³.

The openings d^7 are made larger than the openings d^8 in order that the wedge-shaped key may be effective to draw the two sections of the wheel together.

5 When the sections of the pulley are to be joined about a shaft the sections are put in place with the extensions overlapping as above described, the openings in the extensions registering. The gibs and key are
10 then thrust into place as shown through the openings in the extensions and the nuts are screwed home to draw the key bolts into place to wedge the sections together. As
15 a result the pulley is clamped together and about the shaft so that it will take a tight hold on the shaft and at the same time will be easily removable. The general construction of the pulley is such as to give the
20 necessary strength without unnecessary weight and by reason of the shape of the central supports and their relation to the rim will prevent the accumulation of lint and dust such as is apt to accumulate in pulleys.

25 The pulley can be put together upon a shaft or removed by the manipulation of bolts and their nuts—a most simple operation. While the construction is especially intended for pressed steel pulleys of small
30 diameter it is evident that it is equally useful for other types of sectional pulleys, whatever their diameter. While I prefer to use key bolts which, the tighter they are driven in, the tighter the sections will be
35 drawn together, it will be evident that the same result may be secured by other adaptations of the principle of the wedge. Instead of a bolt an ordinary key may be used which when driven home will produce the
40 same result, or two keys driven in opposite directions may be used instead.

Instead of making the openings in the clamps of two sizes they may all be made
45 of the same size and in this case the same form of key is used, but the gibs are made as shown in Fig. 10 in which it will be noted that they are thicker at the ends which cooperate with the thin end of the key. When in place, however, they are
50 spread forming a substantially rectangular clamping means to hold the clamps firmly in place.

I prefer to cut away the sides of the flanges of the gibs for a portion of their
55 length as shown at f^1 and to provide pins f^2 on each side of the key to act as stops to prevent the gibs from sliding off the key when the key is out of the pulley. The head e^1 of the key E prevents the gibs from
60 sliding rearward off the key, though the same result may be attained when the key has no head by pins c^3 projecting from the large end of the key across the path of the gibs or by properly proportioning the length
65 of the cut away portions of the sides of the

gibs. This construction is very useful because it enables the workman in putting the pulley together to handle what is practically a single member, viz: the key and gibs attached together in the manner described instead of three members, a key and two gibs. This emphasizes the simplicity and utility of this invention. 70

What I claim as my invention is:—

1. A sheet metal sectional pulley comprising a rim, a hub and means for supporting said rim on said hub, and means for clamping the sections of said pulley together comprising clamps attached to each section, each adapted to overlap the rim-supporting means and the clamp of the other section, and keys adapted to pass through said overlapping portions as set forth. 75 80

2. A sheet metal sectional pulley comprising a rim, a hub, means for supporting said rim upon said hub, and clamping members, the clamping members of each section overlapping those of another section, the overlapping portions of said clamping members and the rim-supporting means being provided with openings adapted to register with each other, and means passing through said openings adapted to hold said sections together. 85 90 95

3. A sheet metal sectional pulley comprising a rim, a hub, means for supporting said rim upon said hub, and clamping members attached to said hub and said rim-supporting means, the clamping members of each section overlapping those of another section, the overlapping portions of said clamping sections and the rim-supporting means being provided with openings adapted to register with each other, and means passing through said openings adapted to hold said sections together. 100 105

4. The sectional pulley above described having a rim portion, a central support having key receiving openings, a hub portion and similar clamp members, each attached to one of the sections of said central support, said clamp members overlapping and having openings therethrough adapted to register with the openings through said central support to receive keys as set forth. 110 115

5. A sheet metal sectional pulley comprising a rim, a hub, central supports for each edge of the rim and overlapping members one located on each side of each section, said overlapping members each being provided with an opening adapted to register with a corresponding opening in the other overlapping member whereby two sets of openings will be provided one on each side of the hub and gibs and a key located in each set of openings, the action of said key tending to drive said gibs apart and so draw said sections together and said gibs preventing the endwise movement of said 120 125 130

key from tending to crush laterally the central supports of the pulley.

6. A sheet metal sectional pulley comprising a rim, a hub, a central support for each edge of the rim mounted on said hub, overlapping members, one located on each side of each section, each adapted to engage and overlap the corresponding member of the other section and means for clamping said overlapping portions together whereby said hub may be clamped upon a shaft as set forth.

7. The sheet metal sectional pulley above described comprising a rim, a hub, a central

support for each edge of the rim mounted on said hub, overlapping members one located on each side of each section, each adapted to lie against another of said members and being provided with an opening adapted to register with the openings in the other overlapping members and keys adapted to be passed through said openings and to be fastened therein as described.

DANIEL G. LANGLANDS.

Witnesses:

M. E. FLAHERTY,
J. D. McPHERSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."