

H. J. GILBERT.
PULLEY.
APPLICATION FILED MAR. 8, 1904.

991,146.

Patented May 2, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

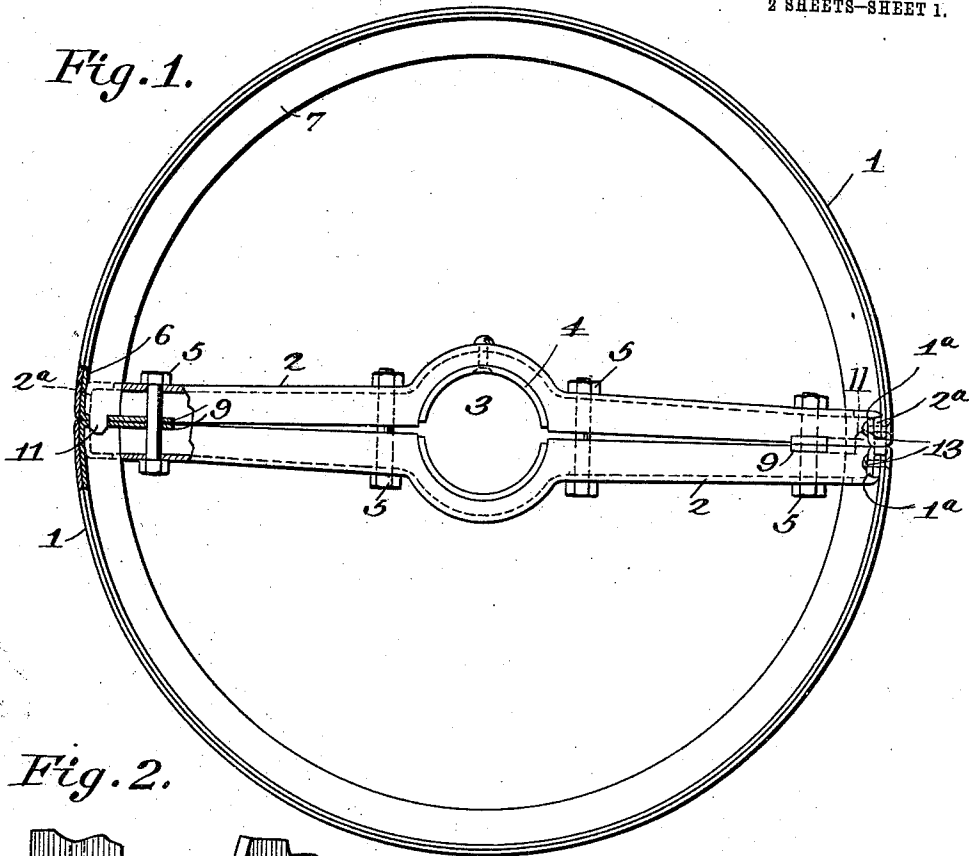


Fig. 2.

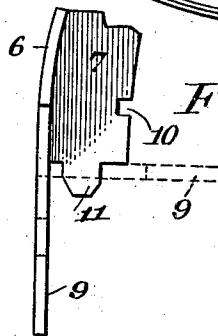
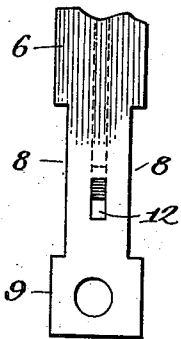


Fig. 3.

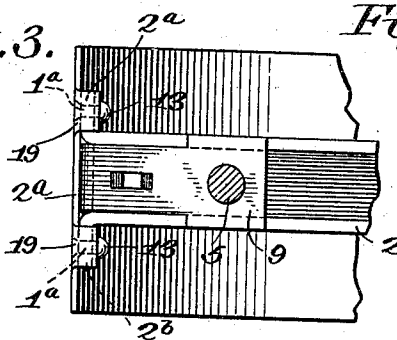


Fig. 4.

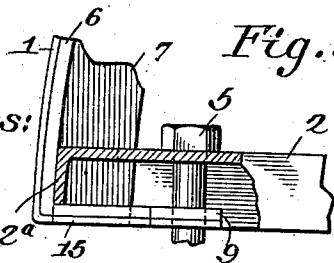


Fig. 9.

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3 SHEETS—SHEET 2.

Fig. 7.

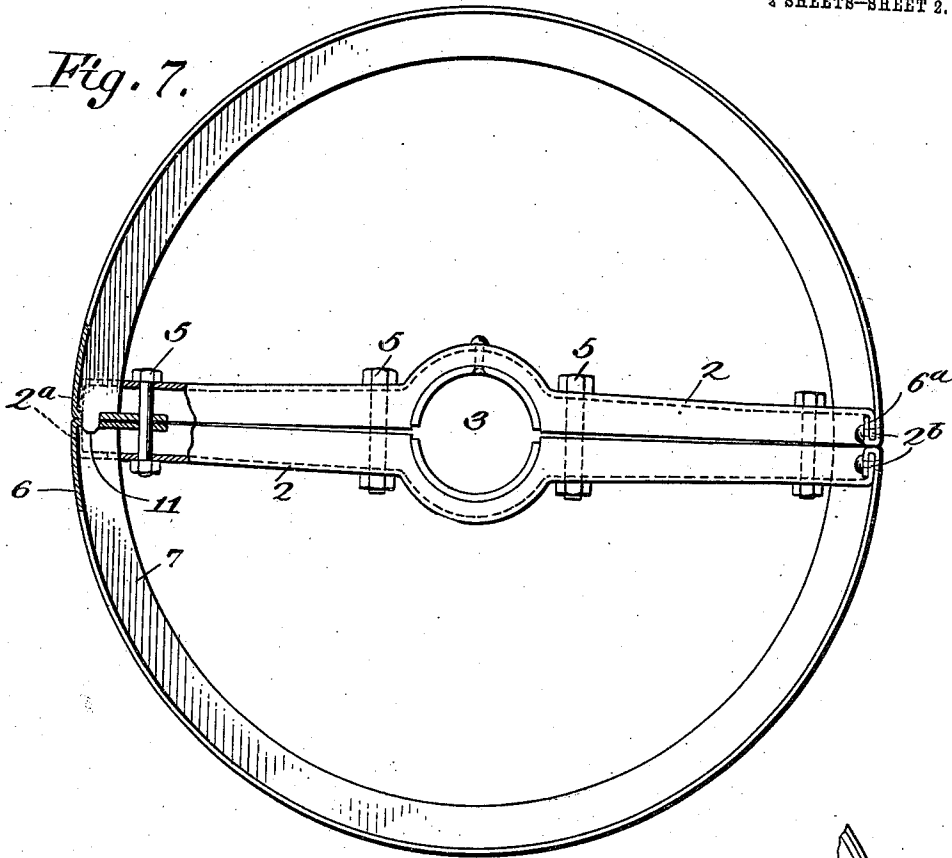


Fig. 5.

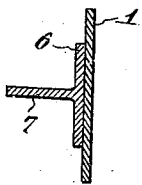


Fig. 8.

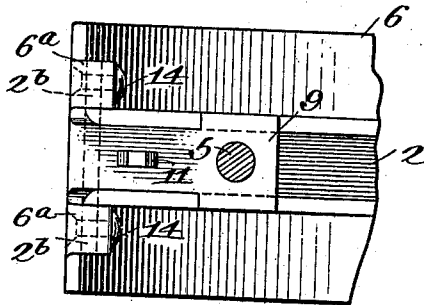
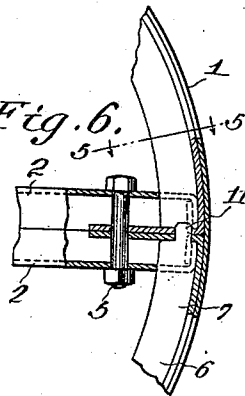


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY J. GILBERT, OF SAGINAW, MICHIGAN.

PULLEY.

991,146.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed March 8, 1904. Serial No. 197,073.

To all whom it may concern:

Be it known that I, HENRY J. GILBERT, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Pulleys, of which the following is a specification.

My invention relates to pulleys and the like and the object thereof is to produce from sheet metal a pulley comparatively light, simple and inexpensive but nevertheless efficient and durable.

The various features of advantage and utility possessed by and embodied in my improved pulley will be made apparent by the description hereinafter given taken in connection with the drawing.

In the accompanying drawing, Figure 1 is a side elevation of my improved pulley containing and embodying my present invention, one end of the spoke arms and meeting ends of the rim together with other associated parts being shown in section; Figs. 2, 3 and 4 detail views of the parts of the interlocking connection; Fig. 5 a section on the line 5—5 of Fig. 6; Fig. 6 a sectional elevation of the meeting ends of the rim segments and spoke arms at the left hand side of the pulley illustrated in Fig. 1; Fig. 7 an elevation of a modified form of pulley structure; Fig. 8 a bottom plan view of one of the meeting ends of a pulley half; and Fig. 9 a detail view of a modified form of interlocking connection.

My invention may be embodied in pulleys of different construction, the preferred form of which, as shown in Fig. 1, comprises spoke arms, rim and reinforcing member, but so far as the broad idea of my invention is concerned the rim may be dispensed with as shown in Fig. 8, in which case the so-called reinforcing member serves as the rim.

The preferred form of pulley selected to embody my invention and illustrated in the first sheet of the drawings comprises essentially the two rim segments 1, and similar spoke arms 2 which are expanded or outwardly curved at their middle portion to form a shaft bore or opening 3 within which may be provided, if found desirable or necessary, a split hub thimble 4. These arms are substantially the same in general construction and arrangement as those described

in my prior application for improvements in pulleys filed June 9, 1903, Serial No. 160,730, such spoke arms being approximately U-shape in cross-section and arranged flange to flange and clamped together, or rather onto the shaft, by clamping bolts 5. As in the spoke arms of my said prior application, the ends of the spoke arms of my present pulley structure are slit back and bent to form an inwardly extending tongue 2^a and two lateral tongues 2^b which in my previous construction engaged sockets formed by the inturned and backwardly folded meeting ends of the rim segments, but which in the present instance are interlocked with the rim segments without the provision of sockets. For the purpose of securing this interlocking between the rim segments and the lateral tongues of the spokes, the meeting ends of the rim segments are provided with tongues 1^a which are inwardly and backwardly folded, as seen in Figs. 1 and 4, in such manner as to form sockets to receive the lateral tongues of the spoke arms.

Upon the inner face of each of the rim segments is arranged or secured a reinforcing or strengthening member which, as shown, partakes of the form and construction of an ordinary T-iron substantially semi-circular in shape, and fitting such inner face of the rim segments. The flange portion 6 of each T-iron is extended at opposite ends beyond the web portion 7 thereof (which is substantially a semi-circle or slightly less), and is adapted to be folded inwardly across the ends of the said web portion, so as to lie practically on a radius of the pulley when completed, as seen in Fig. 1. The infolded ends of the flange portion are substantially T-shaped because of longitudinal and parallel recesses 8 forming the end head 9, as clearly shown in Fig. 2. The body of the flange portion 6 between the said recesses lies between the flanges of the U-shaped spoke arms and the head or end 9 is inlaid in such spoke-arm flanges which are recessed for such purpose (Fig. 4), with the result that the entire inturned portion of the T-iron flanges lies flush with the edges of the spoke arm flanges.

The heads or ends 9 of the inturned flanges are each provided with a bolt hole to receive the outer set of clamping bolts 5,

each of which is passed through the flattened tops of the two spoke arms and the intumed flanges of the two meeting T-irons, all as clearly illustrated in Fig. 1.

5 As shown in Fig. 3, the edge of the web portion of each T-iron, near each of its opposite ends, is provided with a notch 10 to receive the flattened top of its spoke arm, which is provided with a longitudinal slot
10 of a width corresponding to the thickness of the web, with the result that the spoke arms and T-irons are effectually interlocked (without the use of bolts or rivets) against both lateral and axial displacement and
15 strain. The ends of the web portion of the T-irons thus pass through the spoke arms and abut their intumed flange portions.

One of the extreme ends of the web portion of the T-irons is provided with a projection 11 constituting a locking pin arranged to extend across the meeting line or
20 joint between the two halves of the pulley. To accommodate the locking pin and permit the adjacent extended flange of the T-irons to be inwardly folded, such flange
25 is provided with a slot 12 through which the pin 11 passes, the same projecting sufficiently to enter a corresponding slot in the adjacent intumed flange of the meeting
30 T-iron of the other pulley half. Each of the two T-irons is thus provided with a pin arranged to engage the other T-iron. The T-irons and spoke ends are thus effectually interlocked and in addition the same are se-
35 cured to each other and to the rim in suitable manner, as by the rivets 13, as seen in Figs. 1 and 4.

The spoke structure illustrated in the second sheet of drawings is substantially the
40 same as that already described with the exception that the rim segments are dispensed with and that the meeting ends of the T-irons, which now constitute the rim or rim segments, are provided with tongues 6^a
45 which are folded inwardly and backwardly to form sockets to receive and engage the lateral tongues 2^b on the ends of the spoke arms 2, as clearly illustrated in Figs. 7 and 8. In addition to the interlocking connection
50 between the spoke arms and the sockets, as just explained, the parts may be secured together in suitable manner as by means of rivets 14.

When the T-irons act or serve as reinforcing or strengthening members for a rim
55 or rim segments, the flange portion thereof may be of any desired width, and likewise when such T-irons serve as the rim itself, the flange portion thereof may be formed or
60 rolled of any desired width according to the width of pulley face required. The pulley structure just described and comprising simply the T-irons and spoke arms, while not now considered the preferable form,

nevertheless affords and provides a simple 65 and efficient pulley embodying the broad features of my invention.

Instead of terminating at the joint or meeting line between the pulley halves, the middle portion of the ends of the rim seg- 70 ments may be provided with middle tongues 15 which, as shown in Fig. 9, are folded inwardly parallel to the intumed tongues of the flange portion of the T-irons and in-
75 laid in the spoke arms which are sufficiently recessed to receive the sets of intumed tongues. The clamping bolts consequently pass through the spoke arms and also such intumed tongues.

I claim:

1. A pulley comprising spoke arms and rim segments substantially T-shape in cross section entering said spoke arms, the flanges and the web of said T-shaped segments being interlocked with each other; substan- 85 tially as described.

2. A split pulley each half of which comprises a spoke-arm and a substantially semi-circular rim member which is substantially T-shape in cross-section and whose ends are 90 interlocked with its spoke-arm, said rim member having a portion passing through the spoke-arm; substantially as described.

3. A split pulley, each half of which comprises a spoke arm and a substantially semi-circular rim member which is substantially T-shape in cross-section and whose flange 95 portion is extended and infolded at the meeting ends to form sockets to be engaged by the ends of its spoke arm and also extending radially to engage the spoke arm; sub-
100 stantially as described.

4. A pulley comprising T-iron segments having their flange portions extended and inwardly folded on a radius of the pulley, 105 and spoke arms connected with such infolded flanges; substantially as described.

5. A pulley comprising spoke arms and T-iron segments having their flange portions extended and inwardly folded to en- 110 gage the ends of the spokes and having their web portions passing through said spoke arms; substantially as described.

6. A pulley comprising spoke arms, and T-iron segments having their flange portions extended and inwardly folded across the ends of their web portions, said spoke 115 arms being connected with said infolded flange portions of the T-irons and having end slots to receive the web portions there-
120 of; substantially as described.

7. A pulley comprising spoke arms, and T-iron segments having locking pins projecting across the meeting line of such seg- 125 ments and having their meeting ends infolded to interlock with the ends of the spoke arms; substantially as described.

8. A pulley comprising rim segments, re-

inforcing members arranged therewithin and having one portion extended beyond the remainder and inturned at the meeting line of the pulley, and spoke arms having their ends interlocked with said extended portion of said members which engage the spoke arms substantially in the plane of the division line of the pulley; substantially as described.

9. A split pulley comprising rim segments, spoke arms and T-shaped reinforcing members arranged within the segments, the ends of said members adjacent the meeting line of the pulley being interlocked with each other as to their webs and flanges and also interlocked with said spoke arms; substantially as described.

10. A pulley comprising rim segments, reinforcing members arranged therewithin and comprising T irons having locking pins projecting from and integral with an end of their webs and extending across the meeting line of the segments and engaging the other pulley half, and spoke arms connected with such members; substantially as described.

11. A pulley comprising rim-segments, T-irons arranged therewithin and having their flange portions extended and inwardly folded, and spoke arms connected with such infolded flanges, the web of the T-irons passing through the spoke arms; substantially as described.

12. A pulley comprising spoke arms and rim segments substantially T-shape in cross section, the web thereof entering and interlocking with said spoke arms and the flanges thereof interlocking with such spoke arms; substantially as described.

13. A pulley comprising rim-segments, T-irons arranged therewithin and having their flange portions extended and inwardly folded across the ends of their web portions, and spoke arms connected with said T-irons and having end slots to receive the web portions thereof; substantially as described.

14. A pulley comprising rim-segments, T-irons arranged therewithin and having their flange portions extended and inwardly folded, and spoke arms having suitably shaped ends to engage such flange; substantially as described.

15. A pulley comprising rim-segments, T-irons arranged therewithin and having their flange portions extended and inwardly folded, and spoke arms having suitably shaped ends to engage such flange portions and having end slots to receive the web portions of such T-irons; substantially as described.

16. A pulley comprising rim-segments, two substantially semi-circular T-irons arranged therewithin, each of which has its flange portion extended and on one side of the pulley provided with a slot 12 and hav-

ing its web portion on the same side of the pulley provided with a projecting locking pin 11 and on the opposite side with a recess corresponding to such pin, said extended flange portion being arranged to fold inwardly and to receive the locking pin in its slot 12, and spoke arms connected to such T-irons; substantially as described.

17. A pulley comprising rim-segments, T-irons arranged therewithin having their flange portions extended and inwardly folded, said flange portions having side recesses 8 forming an end head 9, and spoke arms approximately U-shape in cross-section and having their flanges recessed to receive the heads 9 of the infolded flanges of the T-irons, and means for clamping the pulley halves together; substantially as described.

18. A pulley comprising rim-segments, T-irons arranged therewithin having their flange portions extended and inwardly folded, said flange portions having side recesses 8 forming an end head 9, and spoke arms approximately U-shape in cross-section and having their flanges recessed to receive the heads 9 of the infolded flanges of the T-irons, the flanges of the T-irons of the two pulley halves substantially meeting and being provided with bolt holes, and clamping bolts passed through said spoke arms and infolded flanges; substantially as described.

19. A pulley comprising rim-segments, T-irons arranged therewithin having their flange portions extended and inwardly folded, said flange portions having side recesses 8 forming an end head 9, and spoke arms approximately U-shape in cross-section and having their flanges recessed to receive the heads 9 of the infolded flanges of the T-irons, the flanges of the T-irons of the two pulley halves substantially meeting and being provided with bolt holes, the spoke ends being longitudinally slotted to receive the web portions of the T-irons, and clamping bolts passed through said spoke arms and infolded flanges; substantially as described.

20. A pulley comprising rim-segments, T-irons arranged therewithin and having inturned flange portions and spoke arms approximately U-shape in cross-section and having end tongues connected with said flange portions, the middle one of the tongues and also a portion of the flattened top of the spoke arms being slotted to receive the web portions of the T-irons; substantially as described.

21. A pulley comprising rim-segments, T-irons arranged therewithin and having their meeting ends infolded, and having their web portions provided with notches near their opposite ends, and spoke arms approximately U-shape in cross-section and having their ends interlocked with the infolded ends of the T-irons, said ends being

each provided with a longitudinal slot receiving the web portion of its T-iron and engaging the notch 10 thereof; substantially as described.

- 5 22. A pulley comprising spoke arms and a rim formed in two segments and T-shaped in cross section whose flanges are inwardly directed at the meeting line of the pulley,

both the ends of the web and the flanges thereof being interlocked with the ends of 10 the spoke arms; substantially as described.

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