H. J. GILBERT.

METAL PULLEY.

APPLICATION FILED JULY 28, 1919.

1,382,829.

Patented June 28, 1921.

3 SHEETS—SHEET 1.

Fig. 1.

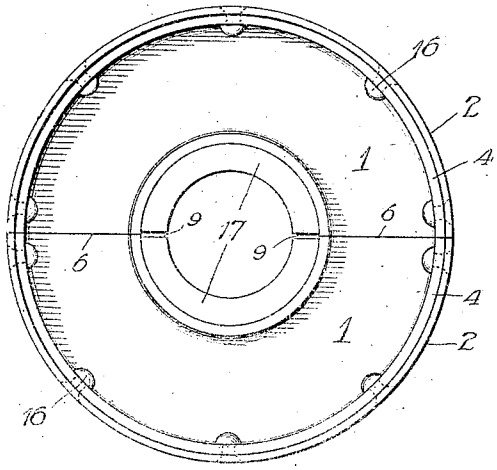


Fig. 2.

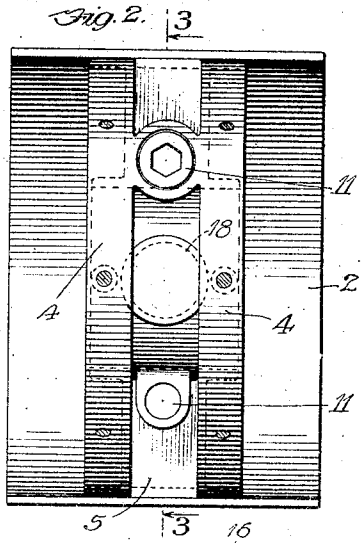


Fig. 3.

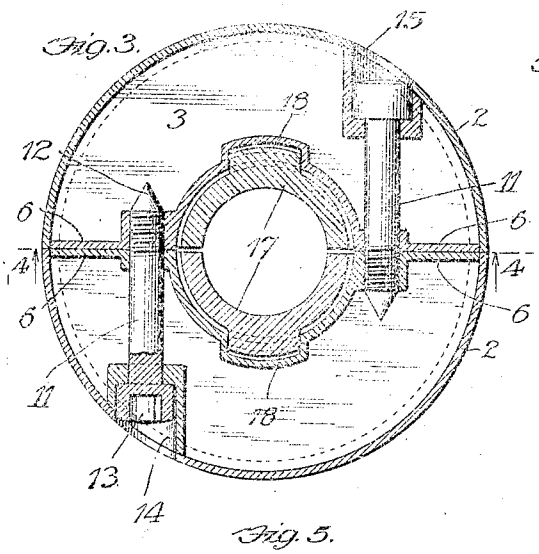


Fig. 4.

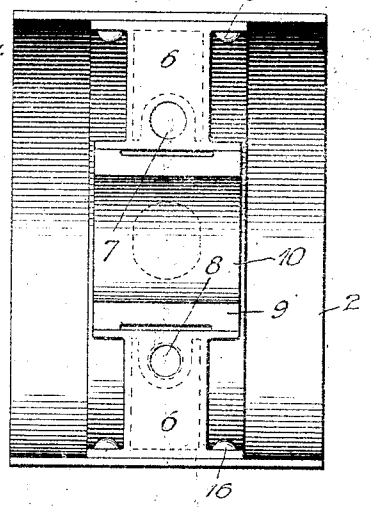


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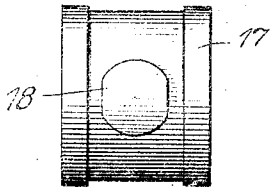
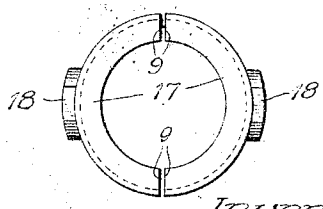


Fig. 6.



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3 SHEETS—SHEET 2.

Fig. 7.

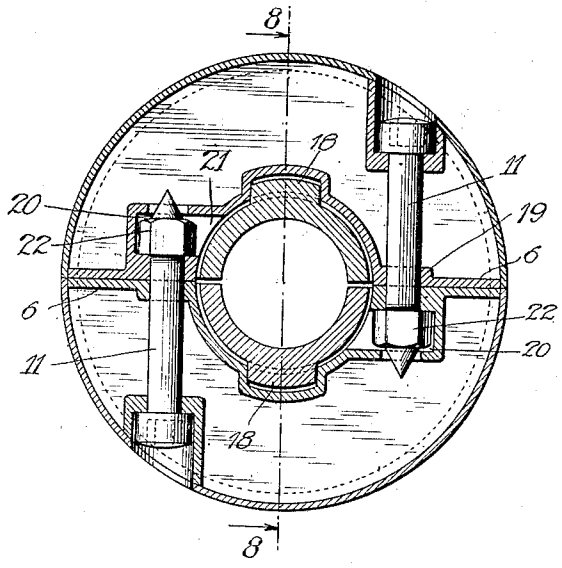
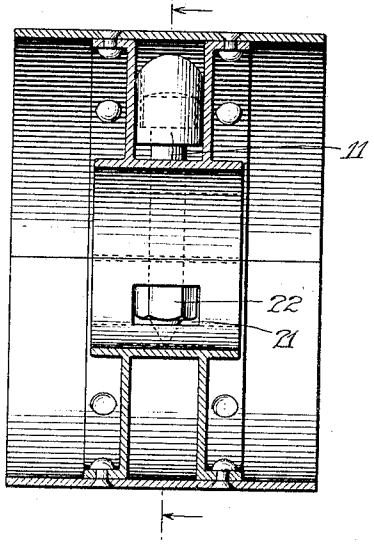


Fig. 8.



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3 SHEETS—SHEET 3.

Fig. 9.

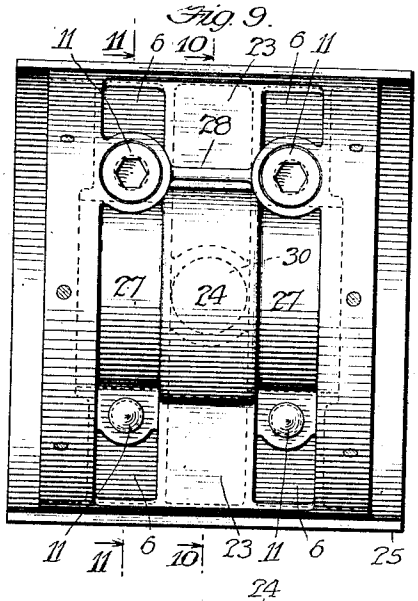


Fig. 10.

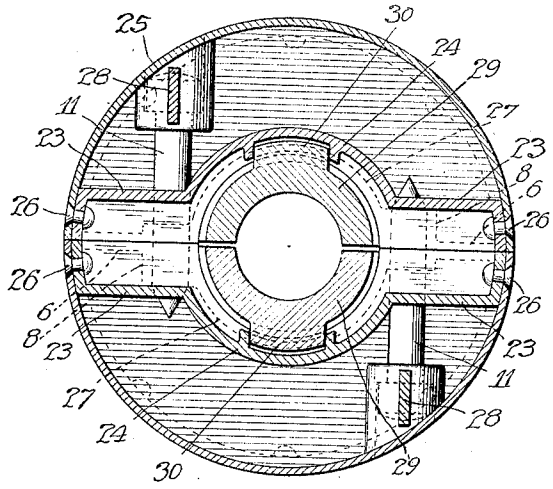


Fig. 11.

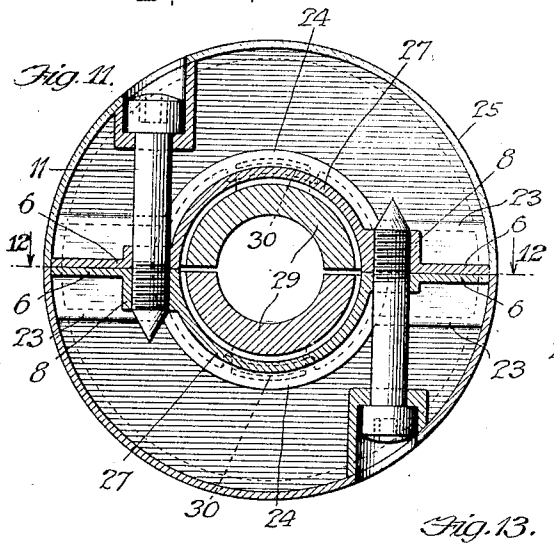


Fig. 12.

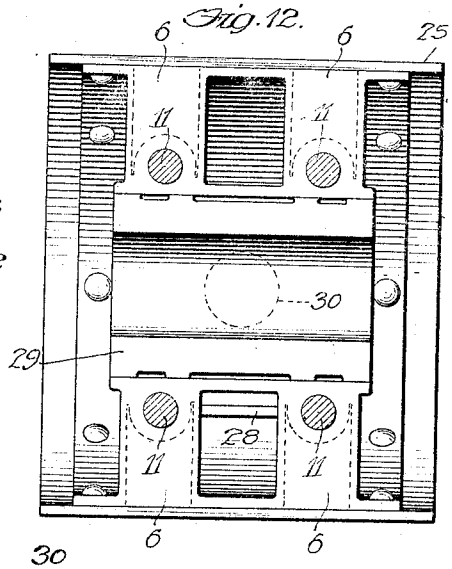
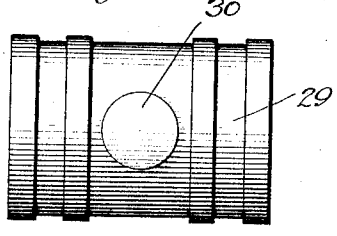


Fig. 13.



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UNITED STATES PATENT OFFICE.

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METAL PULLEY.

1,382,829. Specification of Letters Patent. Patented June 28, 1921.

Application filed July 28, 1919. Serial No. 313,796.

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 Metal Pulleys, of which the following is a specification.

My invention relates to metal pulleys and the object thereof is to provide a simple, inexpensive and efficient pulley of this character and of the split type. Speaking in general terms my pulley consists of two similar halves of novel construction of center portion and novel construction of the fastening means for securing said two halves or sections together and upon the shaft.

In the drawings Figure 1 is an elevation of a pulley embodying my invention; Fig. 2 a plan view of the pulley of Fig. 1 but with the rim removed from the upper half of the pulley; Fig. 3 a section on the line 3—3 of Fig. 2; Fig. 4 a plan view of one of the pulley halves; Fig. 5 a side elevation of the bushing; Fig. 6 an end elevation of the bushing; Fig. 7 a section similar to Fig. 3 but illustrating a modified form of construction as to the fastening means; Fig. 8 a section on the line 8—8 of Fig. 7; Fig. 9 a view similar to Fig. 2 but illustrating a modified form of construction; Fig. 10 a section on the line 10—10 of Fig. 9; Fig. 11 a section on the line 11—11 of Fig. 9; Fig. 12 a sectional plan of one of the pulley halves; and Fig. 13 a side elevation of the bushing.

Referring to the particular embodiment of my invention as illustrated in Figs. 1 to 6, the pulley is made in two halves or sections which are similar in construction and which when assembled and secured together constitute a complete pulley as shown in Fig. 1. Each pulley therefore comprises two similar centers indicated at 1, and a rim indicated at 2 which is divided or split on the same diameter as the centers.

Each center, as indicated in Figs. 2 and 3, is to a great extent formed hollow by the provision of opposite walls 3 having outturned flanged portions 4, but leaving an open space 5 between such walls which becomes covered and closed by the rim when applied. Each center has diametrical web portions 6, 6 which are closed except for the openings 7 and 8, the latter one of which is screw-threaded. Such center has also a hub portion 9 provided with a longitudinal recess 10. These holes 7 and 8 are located adjacent the hub portion and are adapted to receive and coöperate with cap screws 11, 11. Each screw is similarly made, being provided with a pointed end 12 for guiding purposes when being inserted, and also with an angular socket 13 in its head or cap portion, adapted to receive a suitable hand wrench. The head of each screw is received in a socket 14 formed in the center between the side walls and the stem or shank of the screw passes through the interior of the center as well as through the hole 7 thereof, and is screw-threaded in the hole 8 of the other center.

The rim sections 2 are provided with openings 15, registering with the sockets 14, and such rim sections are secured rigidly to the centers by means of the rivets 16 passing through the rim 2 and flanges 4.

The bushing 17 is made in two sections split on the same diameter as the pulley itself, and provided with opposite bosses 18 adapted to be received in the recesses 10 of the pulley hub.

In Figs. 7 and 8 I have shown a modified form of construction as to the fastening means for securing the two pulley halves together. In the first described construction the screws engaged the centers directly whereas in the modification they engage the same indirectly.

According to this modification each center has adjacent its line of split similar plain holes 19, through which the cap screws 11 pass, and also has a pocket or recess 20 at one side which is open to the hub of the pulley through the opening 21. In this pocket there is introduced an ordinary angular nut 22 into which the cap screw of the other pulley half or section screws. According to this construction an ordinary nut 22 may be employed which will obviate the necessity of tapping a hole in the center such as the hole 8 in the first form of construction.

In the forms of pulley above described the rim or face of the pulley is somewhat narrow. For a wider faced pulley the centers can be widened and the fastening means, that is the cap screws and associated parts, duplicated. Such a construction is illustrated in Figs. 9 to 13. The construction is substantially the same except for the increased width of rim and duplication of fastening means and with the further exception that web portions 23 are formed parallel with and above the diametrical web portions

6, thereby providing spaces in each center which communicate with the hub opening through openings 24. This particular construction is provided for the purpose of giving access for a working tool when the rim sections 25 are being riveted to the centers by means of the rivets 26 among others, the heads of the rivets 26 being in the interior of the centers in said spaces between the webs 6 and 23 above described. In order to give the proper strength to the centers the peripheral flanges 27 thereof are connected together by cross bars 28.

Each cap screw 11 passes through one of the webs 23 of its section or half, and also through the other web 6, and is screw-threaded into the hole 8 in the other pulley half.

The pulley is provided with a two section bushing 29 similar to the bushing 17 excepting that it is longer and provided with a greater number of peripheral ribs, and also provided with similar bosses 30.

By means of my invention I am enabled to provide a very simple and inexpensive construction of metal pulley which is moreover very light in weight but providing the maximum of strength. It is moreover capable of being made of any desired diameter and width, and moreover by reason of its smooth exterior dust or dirt is prevented from lodging or accumulating therein, which is frequently the case in certain places of use in pulleys of this character. I attain this smooth and clean exterior of pulley by providing the centers with smooth walls and locating the fastening means between them and there unexposed, except for the small openings through the rim, through which the fastening means are readily accessible. Furthermore the pulley is capable of being readily assembled and disassembled inasmuch as the only tool necessary is a socket wrench which may be merely a right-angled piece of metal with an angular end insertible in the sockets 13 of the cap screws.

I claim:

1. A split metal pulley, each half of which comprises a rim and a center formed hollow with opposite side walls, a central hub portion, and web portions between the hub portion and the rim, and means located between said side walls and engaging the rim of one-half and a web portion of the other half, for securing the two pulley halves together.

2. A split metal pulley, each half of which comprises a rim and a center formed hollow with opposite side walls and central hub portion and web portions, and means for securing the two pulleys halves together consisting of screws or bolts coöperating with said web portions and said rims.

3. A split metal pulley, each half of which comprises a rim and a center formed hollow with opposite side walls and central hub portion and web portions between the hub portion and the rim, and means for securing the two pulley halves together, consisting of screws or bolts coöperating with said web portions and with said rim, the rim having openings through which the screws are accessible.

4. A split metal pulley, each half of which comprises a rim and a center formed hollow with opposite side walls and central hub portion and web portions, said walls having a socket portion connecting them together near their periphery, and means for securing the two pulley halves together consisting of screws or bolts cooperating with said socket portions and web portions, the rim having openings through which the screws are accessible.

5. A split metal pulley, each half or section of which comprises a rim section and a center secured thereto and formed hollow with opposite side walls and central hub portion and web portions and a socket portion connecting the walls together near their periphery and peripheral flanges outturned from said walls and secured to the rim section, and means for securing the two pulley halves together consisting of oppositely disposed screws or bolts on opposite sides of the pulley axis coöperating with the socket portion and web portions and accessible through the rim of the pulley.

6. A split metal pulley, each half or section of which comprises a rim section and a center secured thereto and formed hollow with opposite side walls and web portions and central hub portion, the web portions having holes, the holes of one pulley half registering with the holes of the other half, and means for securing the two pulley halves together consisting of two oppositely disposed screws on opposite sides of the pulley axis, the screw of each pulley half passing through two of said registering holes and adapted to engage the other pulley half.

7. A split metal pulley, each half or section of which comprises a rim section and a center secured thereto and formed hollow with opposite side walls and web portions and central hub portion, said walls having a socket portion connecting them together near their periphery, and the web portions having holes, one being screw-threaded and the other plain, and means for securing the two pulley halves together consisting of two oppositely disposed screws on opposite sides of the pulley axis, each screw passing through the plain hole of its half and threaded into the screw-threaded hole of the other half.

8. A split metal pulley, each half or section of which comprises a rim section and

a center secured thereto and formed hollow with opposite side walls and web portions and central hub portion, said center having a socket between its walls and adjacent its periphery and having holes in its web portions registering with holes in the other pulley half, and a screw having a head received in said socket and itself provided with an end socket to accommodate a wrench, said screw passing through two registering holes and engaging the other pulley half.

9. A split metal pulley each half of which comprises a rim and a center formed of a central hub portion and web portions between the hub portion and the rim, and means engaging the rim of one half and the web of the other half for securing the two pulley halves together.

10. A split metal pulley each half of which comprises a rim and a center formed of a central hub portion and web portions between the hub portion and the rim, and clamping bolts for securing the two pulley halves together, each bolt engaging the rim of one half and the web of the other half.

11. A split metal pulley each half of which comprises a rim and a center formed of a central hub portion and web portions between the hub portion and the rim, and clamping bolts for securing the two pulley halves together, each bolt engaging the rim of one half and also passing through the web of such half and engaging the web of the other half.

12. A split metal pulley each half comprising a rim, a resilient transverse member connected at its ends with the rim, and bolts engaging respectively the rim of one pulley half and the transverse member of the other pulley half for clamping the two pulley halves together and compressing them onto the shaft.

HENRY J. GILBERT.