

Jan. 23, 1934.

R. H. BOWEN
MULTIGROOVED PULLEY

1,944,779

Filed July 3, 1930

4 Sheets-Sheet 1

FIG. I.

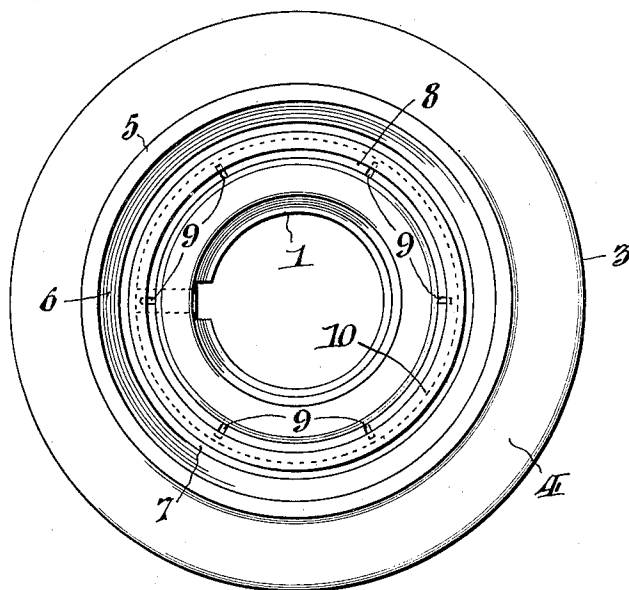
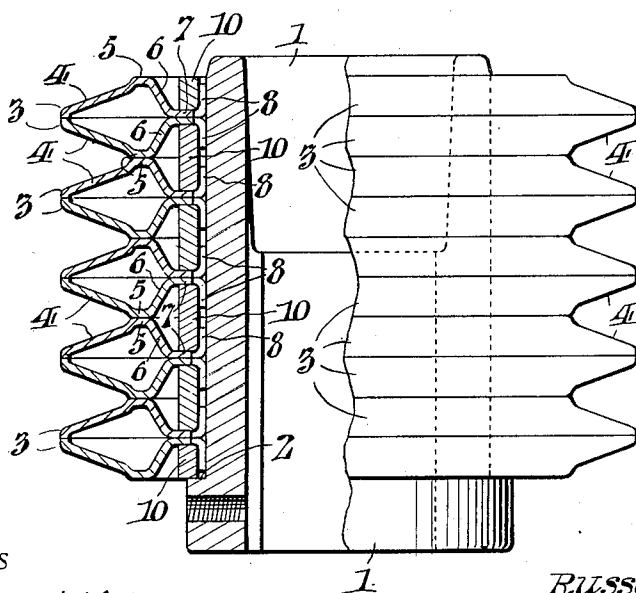


FIG. II.



WITNESSES

John A. Weidlee
George M. Muschamp

INVENTOR:

Russell H. Bowen,
BY Tracy Paul
ATTORNEYS.

Jan. 23, 1934.

R. H. BOWEN

1,944,779

MULTIGROOVED PULLEY

Filed July 3, 1930

4 Sheets-Sheet 2

FIG. III.

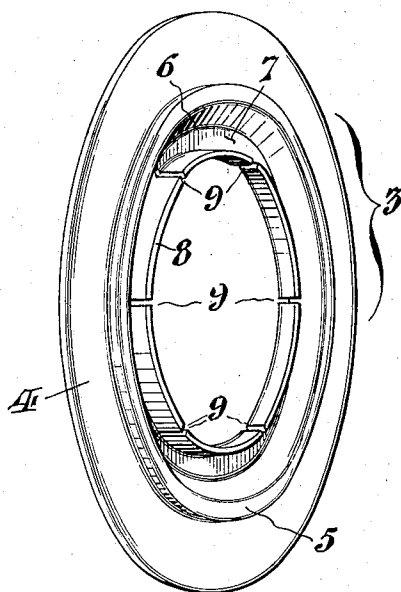
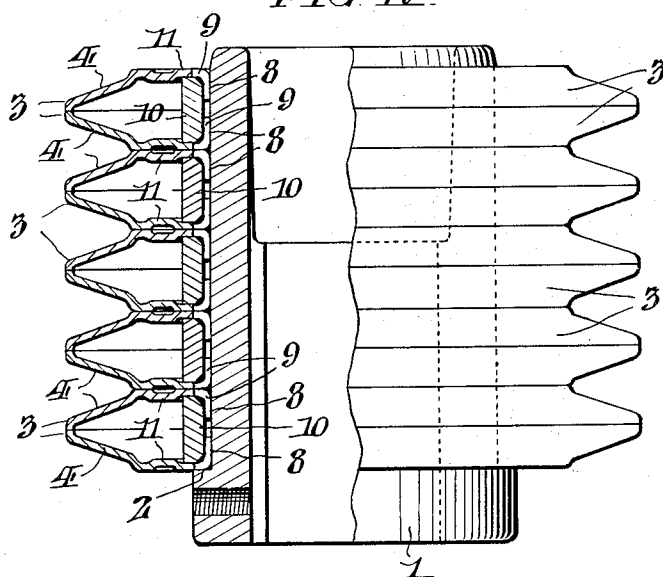


FIG. IV.



WITNESSES

John A. Weidler
George M. Murchamp

INVENTOR:

Russell H. Bowen,
BY Tracy Paul
ATTORNEYS.

Jan. 23, 1934.

R. H. BOWEN

1,944,779

MULTIGROOVED PULLEY

Filed July 3, 1930

4 Sheets-Sheet 3

FIG. V.

VI →

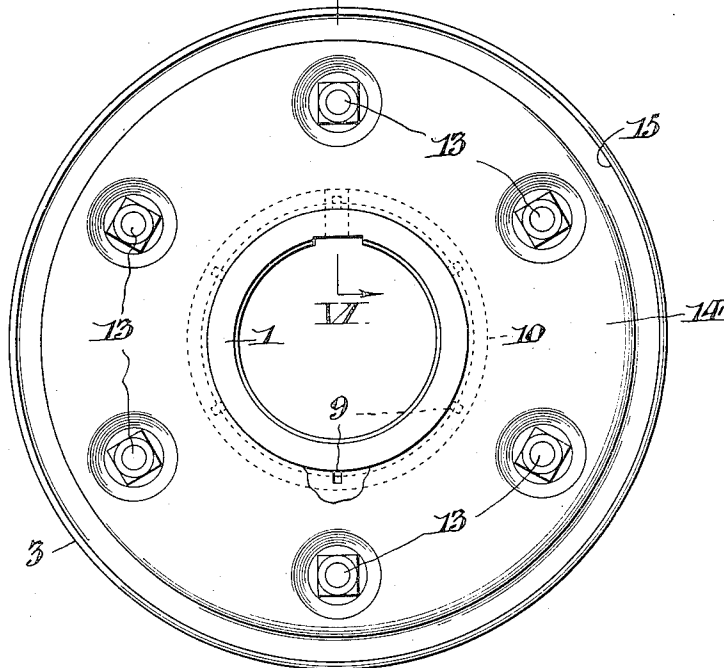
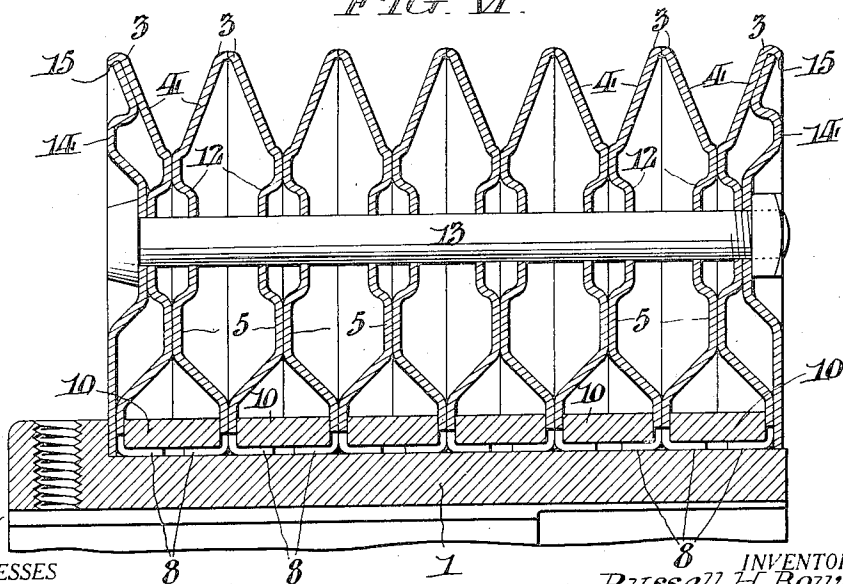


FIG. VI.



WITNESSES

John A. Weidler
George M. Munsch

INVENTOR:
Russell H. Bowen,
BY Tracy Paul
ATTORNEYS.

Jan. 23, 1934.

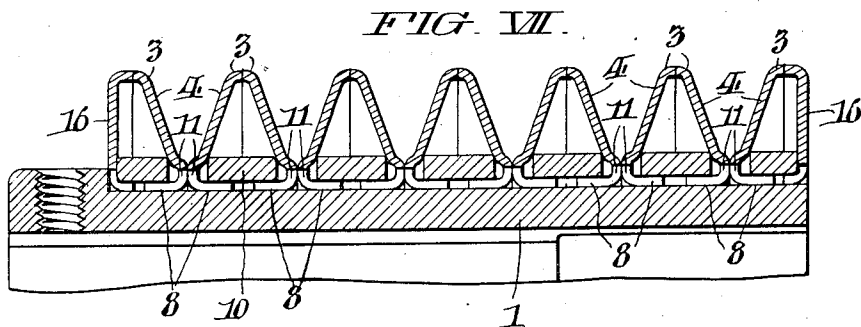
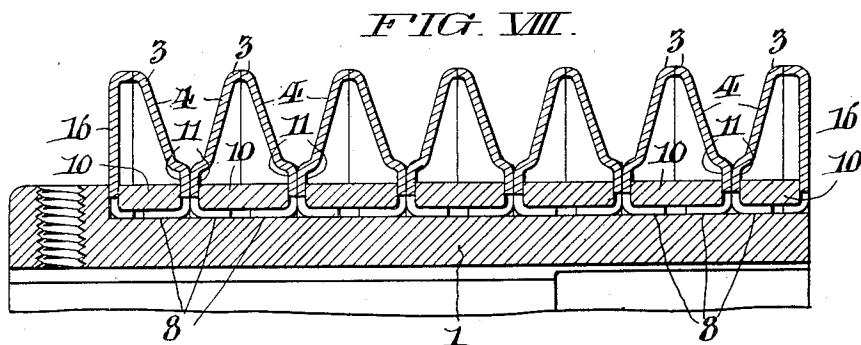
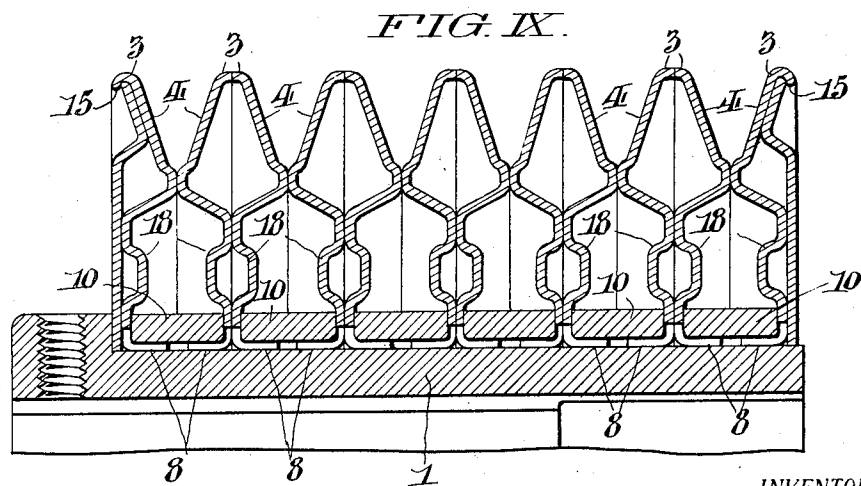
R. H. BOWEN

1,944,779

MULTIGROOVED PULLEY

Filed July 3, 1930

4 Sheets-Sheet 4



WITNESSES

John A. Weidner
George W. Muschamp

INVENTOR:

Russell H. Bowen,
BY *Foley & Paul*
ATTORNEYS.

UNITED STATES PATENT OFFICE

1,944,779

MULTIGROOVED PULLEY

Russell H. Bowen, Philadelphia, Pa., assignor to
The American Pulley Company, Philadelphia,
Pa., a corporation of Pennsylvania

Application July 3, 1930. Serial No. 465,504

4 Claims. (Cl. 64—17)

My invention relates to the construction of a multi-grooved pulley the perimeter of which is built up by the juxtaposition upon a hub of annular stamped metal disks secured thereto each including an inclined portion which forms one wall of a groove. Each disk is flanged and may be secured to the hub by means of a collar surrounding the flange and the hub and clamping them together. Each collar may be sufficiently broad to secure the flanges of two adjacent disks. The multi-grooved pulley is built up by the successive juxtaposition upon the hub and fixture thereon of alternately reversed annular paired disks, of the above construction.

In the accompanying drawings I have shown different plans for the utilization of this principle.

Fig. I is an end view of one form of my improved pulley.

Fig. II is a side elevation of the same with a portion broken out to show structural details.

Fig. III is a perspective view of the disk employed in the embodiment shown in Figs. I and II.

Fig. IV is a view similar to Fig. I of an alternative embodiment of my invention.

Figs. V and VI are respectively an end view of another embodiment of my invention, and a partial sectional view thereof.

Figs. VII, VIII and IX are further views each showing in partial section an additional alternative embodiment of my invention.

The hub 1 is provided with a shoulder 2. The hub is preferably hollow, with capacity for splining upon a main shaft.

Referring to the form of pulley shown in Figs. I and II the perimeter of the pulley is built up by the paired juxtaposition upon the hub of the annular disks 3. Each disk 3 comprises an outer inclined surface 4 reaching to the perimeter of said disk which forms one wall of a groove, and each disk 3 is also formed with a lateral flange 8 on its inner edge. The flange 8 may be slotted as at 9, Fig. III. The portion of the disk 3 which connects the flange 8 with the inclined surface 4 includes a flattened contact surface 5, a reversed inclination 6, and a straight web 7. By placing these annular disks 3 upon the hub 1 in alternatively reversed position as shown, a multi-grooved perimeter for the pulley is built up, each adjoining pair of inclined surfaces 4 forming a single groove. Two adjacent disks 3 with their surfaces 5 in contact may be secured to the hub by a single collar 10 having such dimensions that the flanges 8 of two of said disks may be clamped between it and the hub 1, one passing around one

edge and the other around the other edge of the collar 10. The parts are shaped to make this a driving fit so that the compression of the collar 10 firmly secures each disk 3 in place against both lateral strain and torque. The slotting of the flange 8 prevents this compression of the collar 10 from having any warping effect upon the remainder of the disk 3. The extreme disk 3 may be brought up against the shoulder 2, and succeeding disks 3 with their attachment collars 10 having been forced close up against each other there is produced the multi-grooved pulley which I have shown, in which the use of the stamped disks lightens the pulley and also provides an economical construction.

In Fig. IV I have shown an alternate method for constructing such a pulley in which each disk 3, in addition to the inclined groove wall 4 and the flange 8, is formed with a web 11 connecting the inclined wall with the flange, said flange being in each instance slotted at 9 as in the first described embodiment. The pulley is similarly built up by placing these disks 3 in successively reversed position on the hub 1. In this embodiment of my invention each collar 10 secures to the hub 1 disks 3 which form two walls of adjacent grooves, while in Fig. II each collar secures disks which form the two walls of a single groove.

In Figs. V and VI there is shown a modification of the pulley illustrated in Figs. I and II suitable for larger pulleys. In this form the flattened contact surface 5 is more extensive and provided with a corrugation 12. Bolts 13 passing through the contact surfaces of the disks 3, preferably where corrugated, clamp the disks in proper juxtaposition against relative displacement. There are also provided annular end pieces 14 which may be shaped as shown with their outer perimeters caught under the downwardly turned edges 15, of the adjacent disks 3. The tightening of these bolts 13 against the annular end pieces 14 increases the rigidity of the pulley.

In Fig. VII there is shown an embodiment of my invention somewhat similar to that shown in Fig. IV except that the web 11 of each disk 3 is shortened, lessening the contacting surface and decreasing the diameter of the pulley. In this embodiment the collars 10 do not cover the entire surface of the flanges 8 of the disks 3 which they secure. Annular end pieces 16 are employed to furnish the terminal surfaces of the pulley.

In Fig. VIII the same pulley is given a larger diameter by slightly elongating the webs 11. In

this case the collars 10 are shown as securing the entire width of the flange 8 to the hub.

In Fig. IX I have shown a modification of the pulley shown in Fig. II in which an elongated and corrugated web 18 takes the place of the shorter flat web 7 shown in Fig. II, thus producing a larger sized pulley.

It is evident that the annular disks 3 may be shaped in various different ways to accomplish the same purpose as the embodiment of my invention which I have particularly described, the essential point of the invention being the building up of the multi-grooved pulley by the successive juxtaposition upon the hub of these disks, and the securing of them to the hub as by the collars 10 which confine flanges or similar portions of each disk 3 against the hub 1.

Having thus described my invention I claim:

1. A multi-grooved pulley comprising a hub; annular stamped metal disks each formed with an outer inclined groove wall and a slotted flange on the inner edge, and means surrounding said slotted flanges and securing them to the hub.

2. A multi-grooved pulley comprising a hub; annular disks of stamped metal juxtaposed in alternately reversed position on the hub, each including an outer inclined groove wall and a flange on the inner edge; and collars each surrounding the flanges of two adjacent disks and securing them to the hub.

3. A multi-grooved pulley comprising a hub, similar annular metal disks juxtaposed in alternately reversed position on the hub, each including an outer inclined groove wall; means for securing the inner edges of said disks to the hub; and annular end pieces with their outer perimeters caught under the edges of the adjacent disks.

4. A multi-grooved pulley comprising a hub, similar annular metal discs juxtaposed in alternately reversed position on the hub, each including an outer inclined groove wall and an inner flange parallel with and resting upon the outer surface of the hub, and a collar surrounding the flange and securing it to the hub.

RUSSELL H. BOWEN.

25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150