(No Model.)

# G. C. COWLES.

## PULLEY.

No. 445,047. Patented Jan. 20, 1891.

Fig-1-

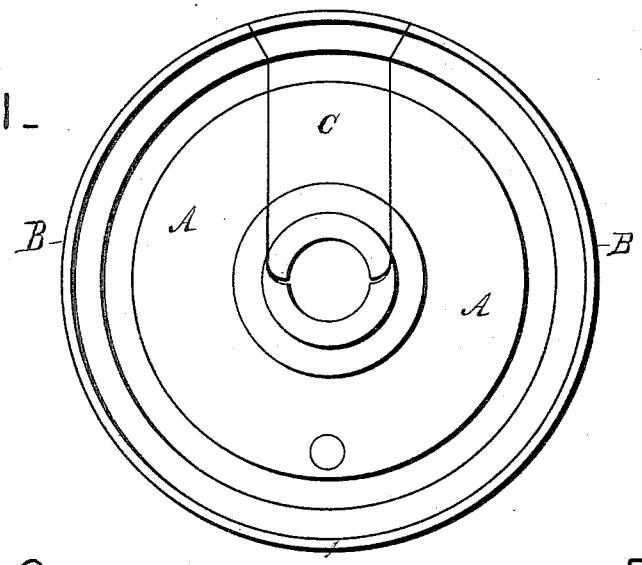



Fig-2-

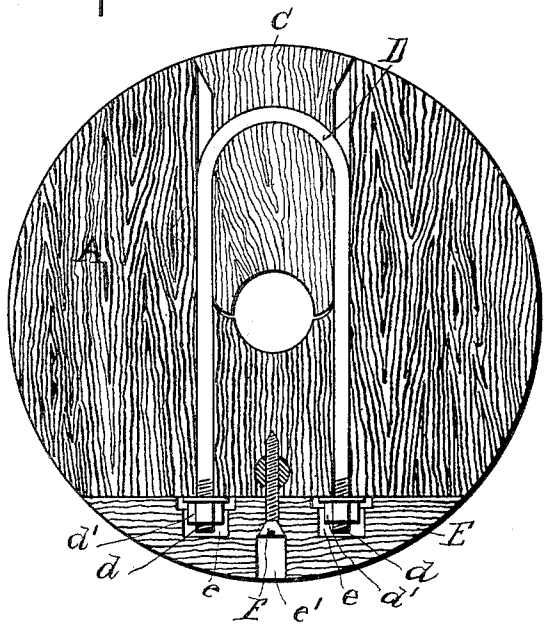
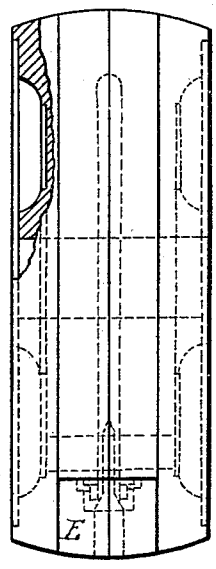



Fig-3-




WITNESSES

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

GEORGE C. COWLES, OF SAGINAW, MICHIGAN, ASSIGNOR OF ONE-HALF TO EDWARD GERMAIN, OF SAME PLACE.

## PULLEY.

SPECIFICATION forming part of Letters Patent No. 445,047, dated January 20, 1891.

Application filed June 14, 1890. Serial No. 355,446. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE C. COWLES, a citizen of the United States, residing at Saginaw, county of Saginaw, State of Michigan, have invented a certain new and useful Improvement in Pulleys; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

In the drawings, Figure 1 is a side elevation of my pulley. Fig. 2 is a perspective view of the same. Fig. 3 is an edge elevation showing in dotted lines the relation of the parts.

My invention is designed to produce a simple and cheap wood pulley having an opening from the center out through the rim, whereby the pulley may be placed on or removed from the shaft at will.

In carrying out my invention A represents the web of the pulley and B the rim.

C is a suitable removable section which extends from the center out through the rim.

D is what may be termed a "U-bolt," the closed end passing through a suitable orifice in the removable section of the web A, while the ends *d* project through the main web to a point adjacent to the rim.

In the rim adjacent to the ends *d* is the removable block E, provided with suitable recesses *e*, into which the ends of the bolt and the nuts *d'* are housed. The block E may be held in its place by any suitable means, a suitable mode being to pass the wood-screw F into the orifice *e'* and on down into the main web, as shown.

To remove the removable section from the pulley, I proceed as follows: I first remove the wood-screw F, and this will enable the block E to be slipped out. I then unscrew the nuts from the ends of the U-bolt D, and when this is done the removable section may be pulled out, the bolt passing through suitable grooves in the main portion of the web on either side of the removable portion. The bolt entering these grooves also practically forms a groove-and-tenon joint, so that the removable section is prevented when in place from any lateral movement or displacement. When the removable section has been taken out and the pulley placed on the shaft, it may be replaced in the same manner as when taken apart, the block E put in position and held by the screw, and the pulley is ready for work with a smooth web and no opening or sharp corner to catch anything when it is revolving, and the removable portion is held tightly in place by the bolt. Of course, instead of the U-bolt, two independent bolts might be used and the block E be engaged to the web in any suitable manner.

Another feature of my invention is the peculiar manner of arranging the different layers or plies, so that the grain of the two outer plies shall be at right angles to the position of the removable web and U-bolt, while the two inner plies shall have the grain extend parallel with the U-bolt, so that the pressure of the nuts *d'* is upon the end of the grain instead of on the side of it.

What I claim is—

1. In a pulley, the combination, with the web, of the removable section extending from the center out through the rim, said removable section being secured to the main portion by a bolt rigidly engaged to the removable section and extending through the web to the opposite side, where it is suitably engaged, substantially as described.

2. In a pulley, the combination, with the web and a removable section extending from the center out through the periphery, of a U-bolt having its closed end passed through said removable section and its free ends extended through the main portion of the web to a point adjacent to the rim of the pulley, where it is suitably engaged to the web, substantially as described.

3. In a pulley, the combination, with the web and the removable section extending from the center out through the rim, of a suitable U-bolt having its closed end passed through an orifice in said removable section and its free ends extending through the main portion of the web to a point adjacent to the

rim, where they are engaged by suitable nuts, and the suitable covering-block E, adapted to fill the opening in the rim, and suitable means for engaging said block to the web, substantially as described.

4. In a pulley, the combination, with the removable web and the clamping-bolt, of the main web, against which the clamping-bolt bears, the grain of said web being parallel with the length of the bolt, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

GEORGE C. COWLES.

Witnesses:
GEO. W. WENDOCK,
M. D. LINTON.