

E. D. DRAPER.  
Sheave.

No. 223,802.

Patented Jan. 27, 1880.

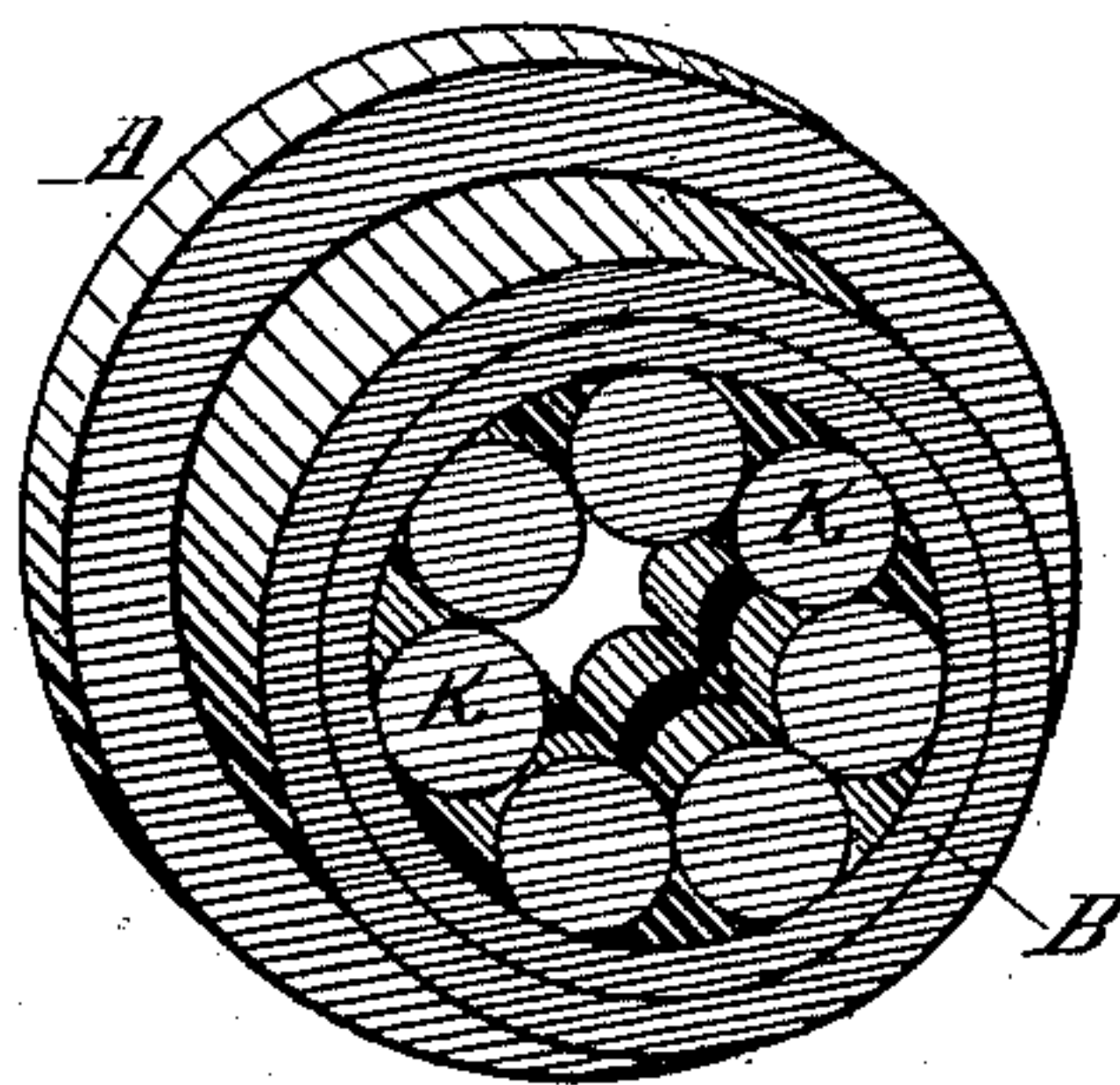


Fig. 1.

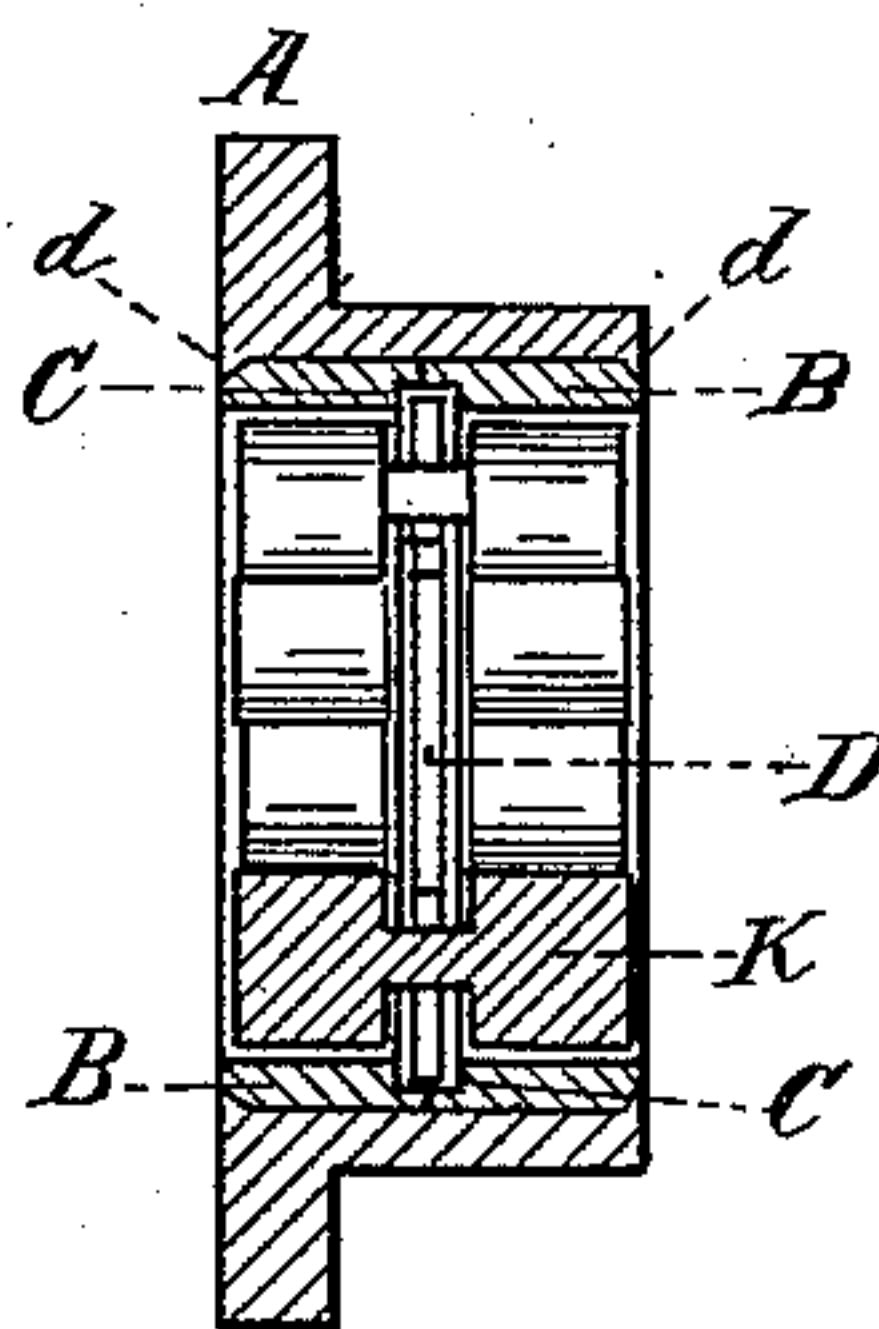


Fig. 2.

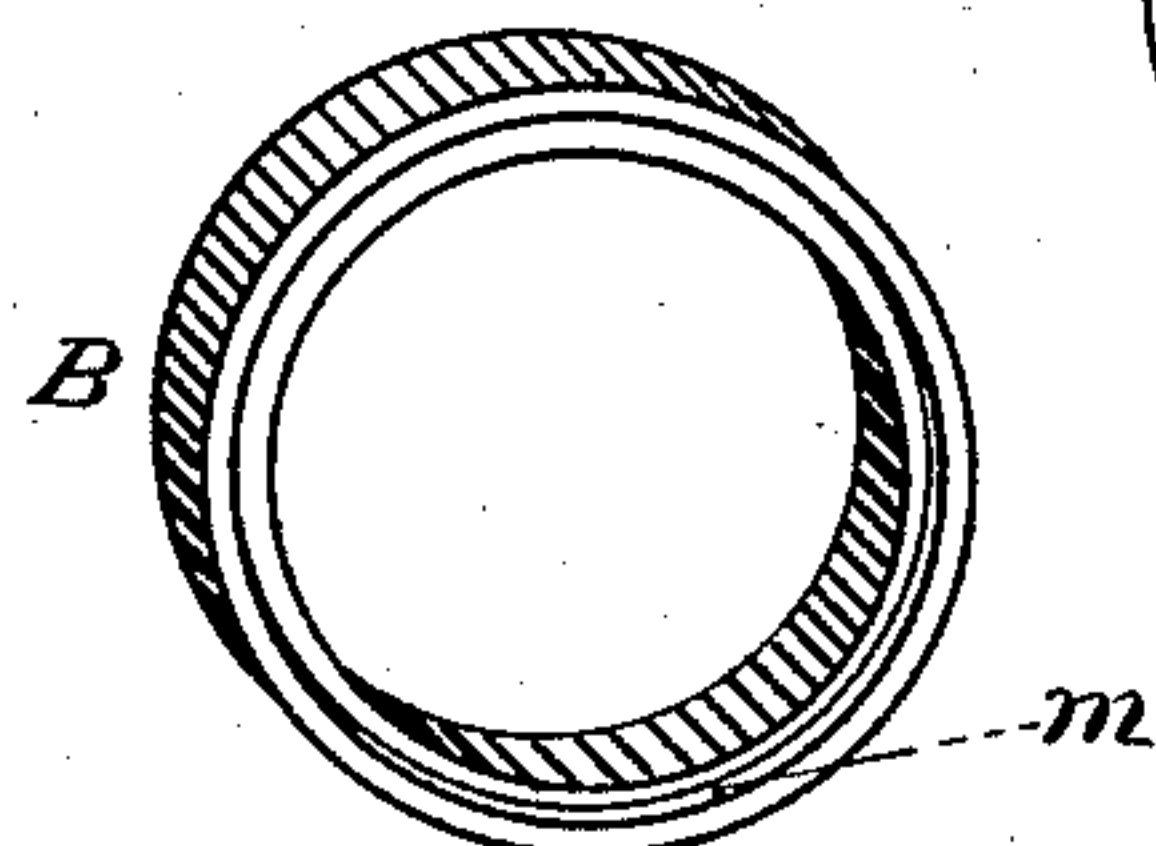


Fig. 3.

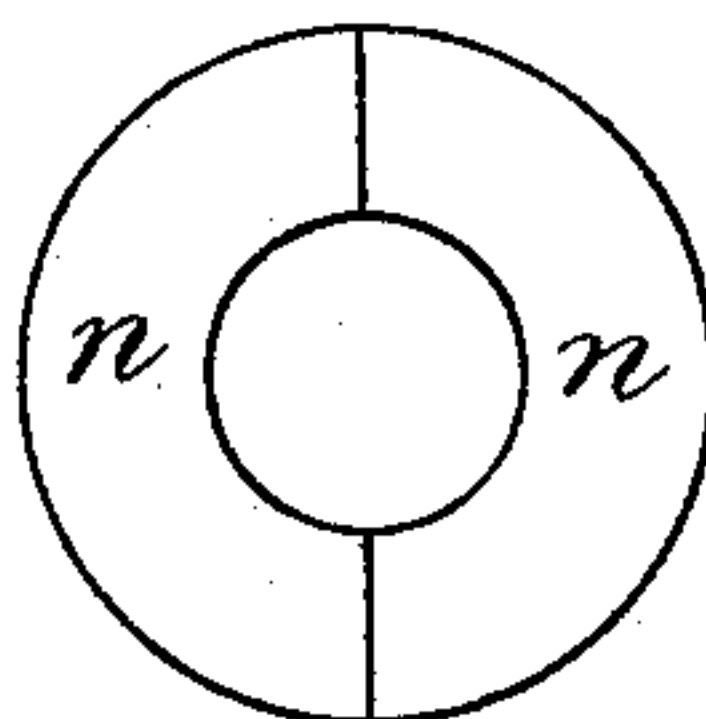


Fig. 7.

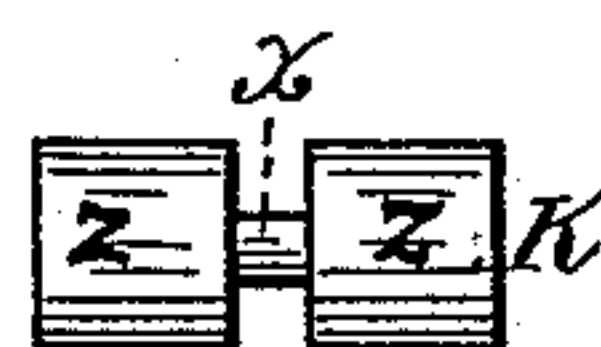


Fig. 4.

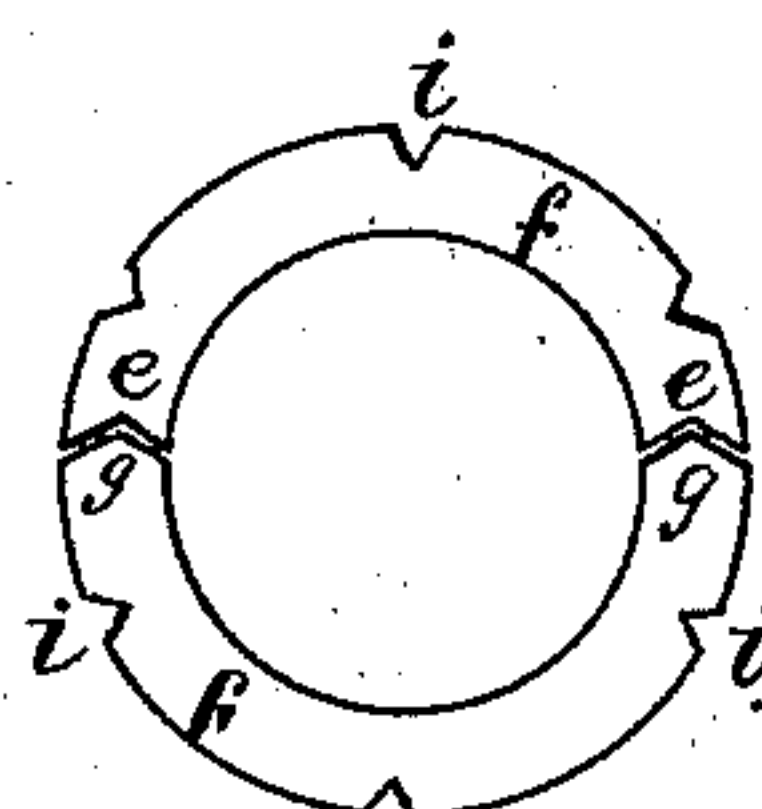


Fig. 8.

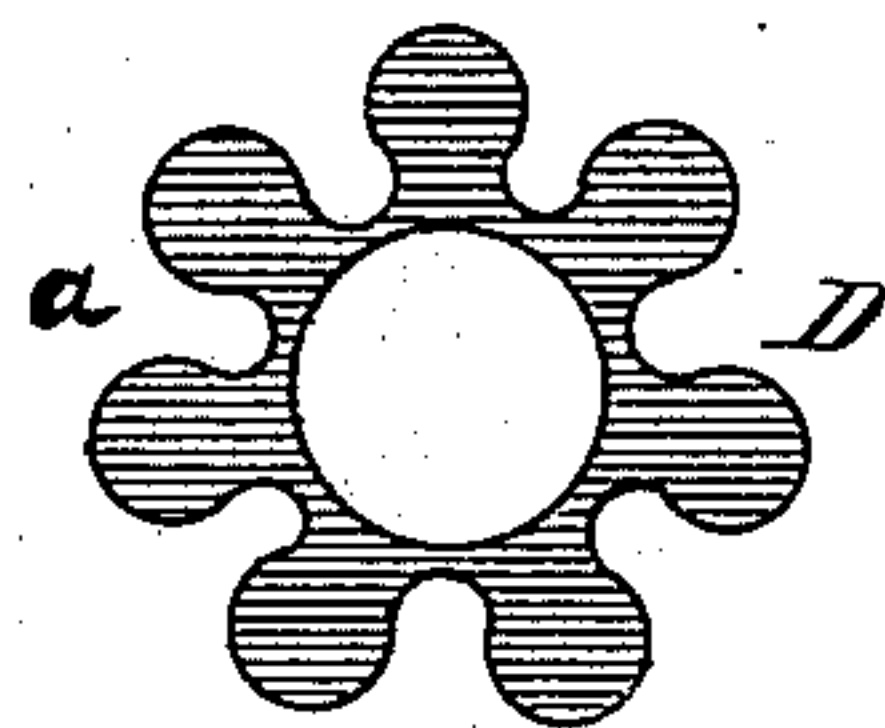


Fig. 5.

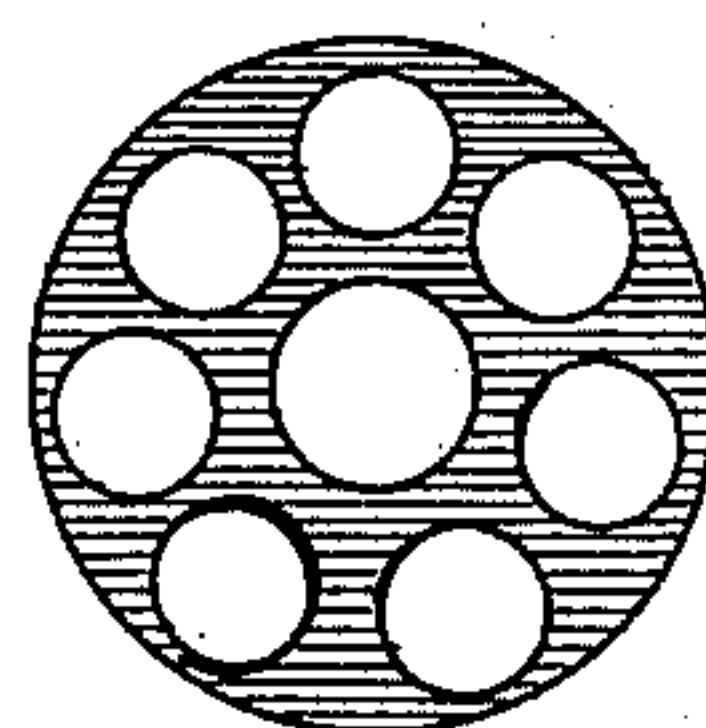


Fig. 6.

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# UNITED STATES PATENT OFFICE.

ELLIS D. DRAPER, OF NORWOOD, MASSACHUSETTS.

## SHEAVE.

SPECIFICATION forming part of Letters Patent No. 223,802, dated January 27, 1880.

Application filed December 22, 1879.

*To all whom it may concern:*

Be it known that I, ELLIS D. DRAPER, of Norwood, in the county of Norfolk, State of Massachusetts, have invented a certain new and useful Improvement in Sheaves, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which my invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view; Fig. 2, a vertical longitudinal section; Fig. 3, a view of one of the rings; Fig. 4, a view of one of the rollers; Fig. 5, a view of the web or diaphragm, and Figs. 6, 7, and 8 views showing alternate forms of constructing the web.

Like letters indicate corresponding parts in the different figures of the drawings.

My invention relates to that class of sheaves which are provided with anti-friction rollers; and it consists in a novel construction and arrangement of the parts, as hereinafter fully set forth and claimed, by which a simpler, stronger, and more durable device of this character is produced than is now in ordinary use.

In the drawings, A represents the body of the sheave; B B, the rings; K, the rollers, and D the web or diaphragm. The rings are countersunk or bored to form the rabbet or shoulder *m*, as seen in Fig. 3, and have their outer edges beveled or chamfered, as shown at *d d*. The rollers are duplex or double, as best seen in Fig. 4, the two sections *z z* being connected by the small journal or neck *x*, which is slightly longer than the thickness of the web D.

In constructing my improved sheave the rollers K are inserted in the notches *a* of the web D, each notch or serration being provided with a roller, thus forming a series of rollers arranged in a circle, as shown in Fig. 1. The rings B are then slipped on over the ends of the rollers, the rabbets or counterbored ends of the same being brought into contact, and uniting to form the annular groove C, which should be of sufficient depth and width to permit the web to move freely therein. The rollers, web, and rings thus arranged are then formed into a core, a print being used in the ordinary manner, and placed in a proper mold, after which the body A is cast around the

rings, as seen in Fig. 2, firmly securing all the parts in proper position.

The chamfered or beveled edges *d d* permit the metal in casting to flow slightly over the outer ends of the rings B, and thus keep them more securely fastened, although this feature is not absolutely essential.

The web shown in Fig. 7 consists of a flat ring made in two parts, to enable it to be inserted in the annular groove or spaces between the sections *z z* of the rollers K, when the rollers are arranged in a circle, as shown in Fig. 1, and before the rings B are slipped over the same.

I sometimes construct the rings B B without the rabbet *m*, in which case they are made slightly shorter, and webs, such as are shown in Figs. 6, 7, or 8, are used, the webs being enlarged in diameter to bring them flush with the rings, the body of the sheave being then cast around the rings, substantially as before described, in which case the annular groove C is dispensed with and the web does not revolve.

When the rings B are left plain, or are not provided with the rabbet *m*, and a web is employed which is equal in diameter to the rings, I prefer the form of web shown in Fig. 8, consisting of the two sections *f f*, having the notches *i i*, into which the metal flows in casting the body A, the ends of the sections being dovetailed together, as seen at *g e*, to prevent the sections from shunting or becoming displaced in molding or casting the body.

It will be obvious that where the body A is cast onto the rings, as described, the sheave will be much stronger, and all the parts will be retained in position with greater firmness and precision than is possible by ordinary methods of construction. It will also be obvious that when two rings are used having the rabbets *m* the web and rollers may be secured in the body of the sheave by pins or screws, or by other means than casting the same onto the rings, as described, if preferred.

I am aware that the rollers K and also the webs shown in Figs. 5 and 6 are in common use, and therefore do not claim the same, broadly; but,

Having thus explained my invention, what I claim is—

1. In a sheave, the rings B, provided with

the rabbet *m*, in combination with the web D and rollers K, substantially as and for the purpose specified.

2. In a sheave, a web consisting of a bisected ring, substantially such as shown in Fig. 7, in combination with the rollers K and rings B, as and for the purpose set forth.

3. In a sheave, a bisected web provided with the dovetailed ends *g e*, substantially as and for the purpose described.

4. In a sheave, a bisected web provided with the notches *i i*, as and for the purpose set forth.

5. In a sheave having the body A cast onto or around the rings for retaining the web, the bevel *d*, substantially as described and shown. 15

6. The improved sheave described, the same consisting of the rollers K, web D, rings B, and body A, the body being cast onto or around the web-retaining rings, substantially as and for the purpose specified.

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