(Model.)

J. C. KEEFE.

PURCHASE BLOCK SHEAVE.

No. 492,208. Patented Feb. 21, 1893.

Fig. 1.

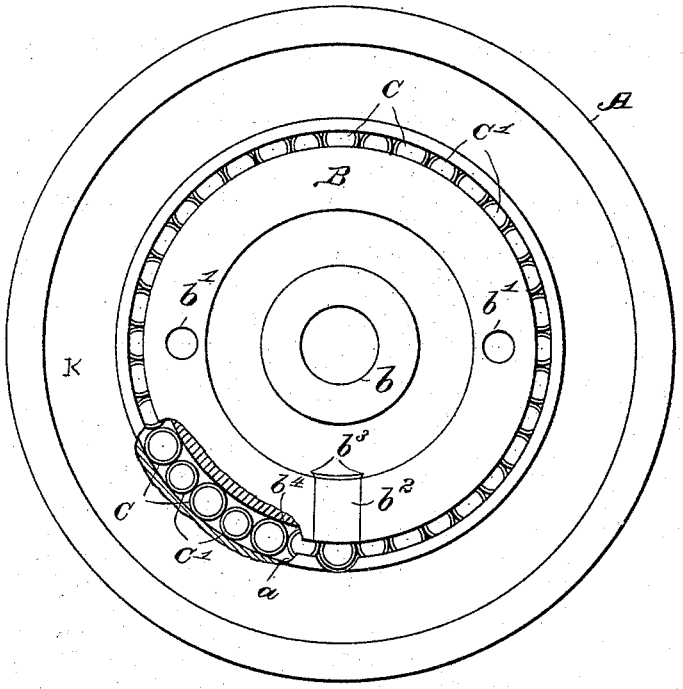


Fig. 2.

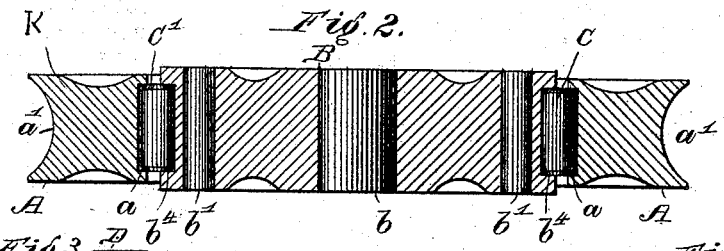


Fig. 3.

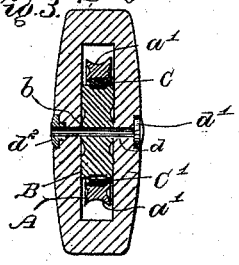
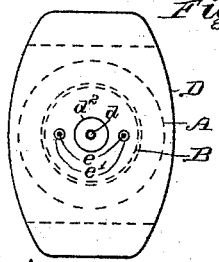


Fig. 4.



Witnesses_

Hinkley & Dyde.
W. A. Dempsey

Inventor_

John Charles Keefe

UNITED STATES PATENT OFFICE.

JOHN CHARLES KEEFE, OF LOWELL, MASSACHUSETTS.

PURCHASE-BLOCK SHEAVE.

SPECIFICATION forming part of Letters Patent No. 492,208, dated February 21, 1893.

Application filed June 3, 1891. Serial No. 394,983. (Model.)

To all whom it may concern:

Be it known that I, JOHN CHARLES KEEFE, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Purchase-Block Sheaves, of which the following is a specification.

This invention relates to sheaves for purchase blocks, the object being to provide a sheave of improved construction and a suitable block therefor, and the invention consists in the peculiar construction and arrangement of the parts of said sheave, all as hereinafter fully set forth, and more particularly referred to in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a sheave for a purchase block, constructed according to my invention, in which one side is shown partly broken away. Fig. 2 is a horizontal central section of the sheave shown in Fig. 1. Fig. 3 is a central vertical section of the purchase block and sheave. Fig. 4 is a side elevation of said block, the position of the sheave therein being indicated by dotted lines thereon.

In the construction of sheaves for blocks of the class herein described, it has heretofore been the practice to make the hub, and the surrounding rim thereof, one or both, in two parts for convenience in assembling the same upon a series of metallic balls whereby the latter become loosely inclosed in an annular groove between the adjoining parts of said hub and rim. This construction requires quite a number of parts, and consequently suitable means for securing them together to form the rim and the hub. Moreover, the use of such a number of parts in a construction which is subjected to such great strain as is a purchase block sheave, tends to weakness, and necessitates frequent repairs or replacement of parts.

In my improved sheave construction herein described, the number of operative parts in the hub and rim are essentially reduced, and additional strength and durability are the result, as well as reduced cost.

In the drawings B is the hub, and K is the rim of the sheave, A. Said hub is generally of disk form, and is preferably made of cast iron, and has an annular or peripheral groove, b^4, therein. Said groove may be formed when the hub is cast, or may be turned therein. The hub has also a central bolt-hole, b, and other bolt-holes, b', therethrough to receive bolts for bolting the hub and the block, D, solidly together. The said groove, having its sides at right angles to the base, thereby adapting said groove, in connection with a similar one in the adjoining part of the rim, K, (whereby a recess or chamber, a, is formed) to receive a series of cylindrical anti-friction rolls as below described, and to maintain the latter in proper operative positions between the hub and rim, and to prevent endwise movements thereof. The hub is of greater thickness than said rim in order to leave the latter free to rotate around the hub when both of said parts are inclosed in the block, D. The said rim, K, is made preferably of cast iron, and is, in effect, a thick, metallic ring having in its periphery a rope-groove, a', and in its opposite or inner border a groove, substantially the same as to form and dimensions, as that above described, in the periphery of the hub, B. The diameter of the said hub is less than the internal diameter of said ring, as shown, so that the latter may rotate freely around the hub. The said grooves in the ring, K, may be formed in the casting or turned therein, as may be preferred. The said cylindrical rolls consist of two groups, of varying diameters, C, indicating those of the larger diameter, and C', those of the smaller. These rolls are most cheaply produced by cutting them in a lathe, from bars of round steel or iron of proper hardness, and of such length as adapts them to lie freely within the said recess, a, between the hub and the ring, formed by the groove, b^4, in the hub and the adjoining groove in said ring, as shown. The axes of said rolls are substantially parallel with that of the bolt-hole, b, in the hub, and the larger rolls, C, constitute roller bearings on which the rim, K, is supported and has its requisite rotary movement. The smaller rolls, C', act as separators of the larger rolls, and as lubricators thereof when a lubricant is supplied to said recess, a.

To provide means whereby said rolls are placed in their recess, between the hub and the rim of the sheave, an opening of suitable size and form is made, preferably in the side of the hub, whereby such portion of the border

of one of said roll-grooves is removed as will permit one of said rolls to be pushed endwise into said recess, *a*, between the hub and rim, and thus, one by one, the full complement of rolls is placed therein. The borders, b^3, of said opening in the side of the hub are of common dove-tail form and are adapted to receive a slide-gate, b^2, to close the said opening in the border of the hub-groove and retain the rolls therein.

The sheave, constructed as described, is placed in any suitable block, D, and the hub of the sheave is therein firmly secured by a central bolt, *d*, having a head, *d'*, and a nut, d^2, both preferably flush with the outer sides of the block. The nut, d^2, may be provided with the usual sockets to receive a fork-wrench, whereby it is turned on and off. Other bolts, *e*, are also passed through the hub and block, having washers, *e'*, on their outer ends, and having said ends riveted against said washers.

What I claim as my invention is—

1. A sheave comprising an annular rim having an internal groove, a peripherally-grooved hub, anti-friction rollers interposed between the rim and hub and having bearings in said grooves, said hub being provided with an opening for the introduction of the rollers, and a dove-tailed slide to close said opening.

2. A sheave comprising a peripherally grooved hub, an annular rim having an internal groove, anti-friction rolls of varying diameters interposed between the rim and hub, and having bearings in said grooves, said hub being provided with an opening for the introduction of the rollers, and a dove-tailed slide to close the opening, substantially as set forth.

3. A sheave comprising an integrally constructed annular rim having an internal roller-groove having its sides standing at right angles to its base, an integrally constructed hub having a peripheral roller-groove having its sides standing at right angles to its base, said two roller-grooves constituting, unitedly, a bearing-roll chamber, anti-friction rollers placed in said chamber between the rim and the hub, said hub being provided with an opening for the introduction of said rollers, and a dove-tailed slide to close said opening, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 25th day of May, A. D. 1891.

JOHN CHARLES KEEFE.

Witnesses:
FRANCIS P. RIVET,
JOSEPH S. LAPIERRE.