A. M. SMITH.

SHEAVES FOR PULLEY-BLOCKS.

No. 194,478. Patented Aug. 21, 1877.

Fig. 1

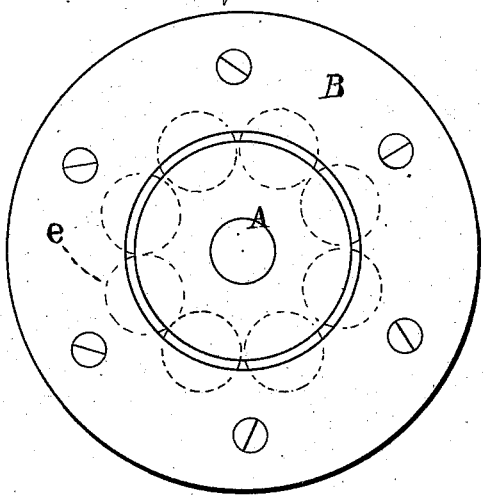
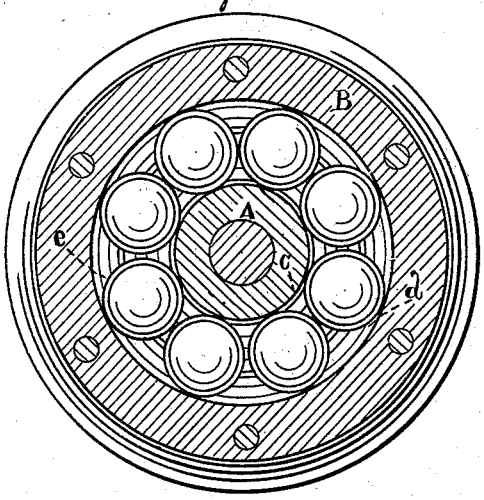


Fig. 2.



Witnesses:

Charles S. Mooney.

Frederick A. Tompson.

Inventor:

Abiel M. Smith

by

Henry T. Carter

his attorney

UNITED STATES PATENT OFFICE.

ABIEL M. SMITH, OF PORTLAND, MAINE.

IMPROVEMENT IN SHEAVES FOR PULLEY-BLOCKS.

Specification forming part of Letters Patent No. **194,478**, dated August 21, 1877; application filed June 16, 1877.

To all whom it may concern:

Be it known that I, ABIEL M. SMITH, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Sheaves; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 represents a side view of my invention, and Fig. 2 a longitudinal section of the same.

The object of my invention is to produce a stronger, and, at the same time, an easier-working, sheave under great strain than now in use.

It consists of constructing a sheave with a solid hub or center-piece, (shown at A, Figs. 1 and 2,) which is channeled longitudinally on its periphery for a purpose hereinafter stated.

C, Fig. 2, the rim or outer portion of the sheave, (shown at B in both figures,) in which is the groove to receive the rope, is constructed of two halves or plates.

These plates, when together, have also a channel, *d*, Fig. 2, in the inside rim, the same in its concavity, but the reverse of the channel in the hub. When in position to the hub, and ready for service, these plates are held firmly together by means of rivets, screws, or any other known device.

This outer portion is constructed in two halves for the purpose of admitting into the channeled hub a series of spheres or balls, *e*, Figs. 1 and 2, constructed of some hard metal or any known material. The two circular plates or sides are then placed over the balls, and, being secured firmly together, complete my invention.

The advantages of my invention are, that all the strain is on one rolling ball quickly succeeded by another. The balls, being made of chilled iron, are almost impossible to crush. For the top-sail halyards of ships, for runner-blocks, and for all purposes where an iron sheave is required, and where great strain is produced, it will outwear the ordinary sheave, and will run easier by means of the rolling balls, and, in proportion to the strain applied, there is less friction than ordinary to overcome.

I do not claim to be the first inventor of a sheave supplied with balls or spheres, as that is anticipated by the Letters Patent granted Joseph M. Drake, March 10, 1863; neither do I claim, broadly, a sheave having plates or sides to guard and hold spheres or balls, as that is anticipated by the Letters Patent granted Alvin Matthew, November 15, 1870.

What I do claim as new, and desire to secure by Letters Patent, is—

A sheave having a solid grooved hub, A, and split grooved rim B, in combination with spheres or balls *e* and the ordinary pin-bearing of a pulley-block, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ABIEL M. SMITH.

Witnesses:
HENRY T. CARTER,
FREDERICK A. TOMPSON.