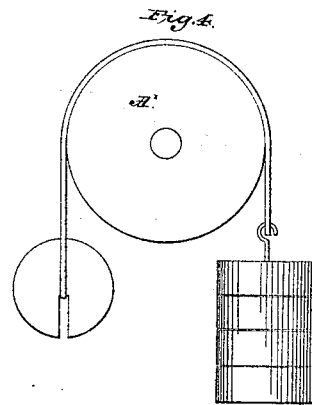
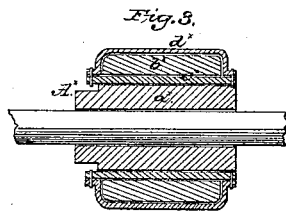
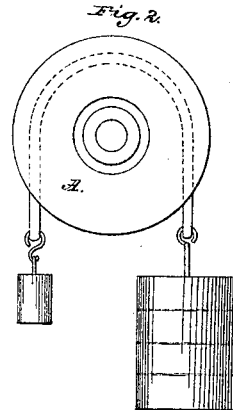
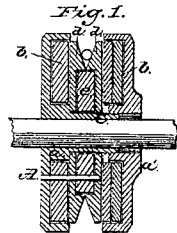


*A. Warth,*  
*Band Pulley.*

*N<sup>o</sup> 53,711.*

*Patented Apr. 3, 1866.*



*Attest:*  
*M. M. Winston*  
*Alex. F. Roberts*

*Inventor:*  
*Alvin Warth*

# UNITED STATES PATENT OFFICE.

A. WARTH, OF STAPLETON, NEW YORK.

## IMPROVEMENT IN THE CONSTRUCTION OF PULLEYS.

Specification forming part of Letters Patent No. 53,711, dated April 3, 1866.

*To all whom it may concern:*

Be it known that I, A. WARTH, of Stapleton, in the county of Richmond and State of New York, have invented a new and useful Improvement in the Construction of Pulleys; 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 make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a transverse section of a grooved pulley constructed according to this invention. Fig. 2 is a side elevation of the same. Fig. 3 is a longitudinal central section of a flat pulley constructed according to this invention. Fig. 4 is a side elevation of the same.

Similar letters of reference indicate like parts.

This invention consists in constructing or forming the working face or faces of a pulley of one or more layers of india-rubber or other elastic material in combination with a protecting layer of leather, felt, or other flexible material, in such a manner that a friction-surface is obtained which effectually prevents the belt from slipping; it consists, further, in the construction of a grooved-pulley, which is composed of three parts—viz., two disks with suitable recesses to receive the india-rubber or other elastic material, and united by a screw which serves to adjust the working-faces of the pulley, in combination with an intervening plate of metal or other rigid material, in such a manner that by means of the regulating-screw the pulley can be adjusted for bolts of various diameter, and by the intervening plate the leather faces of the pulley are kept in position and the two disks are prevented from being set too close.

A represents a grooved pulley, which is composed of two disks, *a a'*, each of which is provided with an annular recess on its inner surface to receive the plates *b* of india-rubber or

other soft and elastic material. The two disks *a a'* are united by a screw-thread, *c*, which allows of adjusting the same closer together or farther apart, according to the thickness of the bolt which is to be used on the pulley. The india-rubber plates *b* are protected each by a layer, *d*, of leather, felt, or other flexible material, and these layers are held in place by a plate, *e*, of metal or other rigid material, which is fitted between the two disks *a a'*.

In applying my invention to a flat-faced pulley, *A\**, I take a core, *a\**, of wood or metal, cover the same with a layer, *b\**, of india-rubber or other soft and elastic material, and this layer I finally cover by a jacket, *b\* d\**, of leather or other flexible material, as shown in Fig. 3, the leather being riveted to a metal thimble, *e\**, which is firmly secured to the core *a\**. By these means grooved or flat-faced pulleys can be constructed which effectually prevent a belt from slipping, or which enable a belt to draw five or more times as much as pulleys of the ordinary construction, according to the tension applied to the belt.

This statement can be substantiated by a simple trial with weights, as indicated in Figs. 2 and 4, where the small weights represent the tension of the belts, and the large weights the power required to make the belt slip.

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

1. Constructing the working-face or faces of a pulley of one or more layers of india-rubber or other soft and elastic material covered with leather or other flexible material, substantially as and for the purpose described.

2. The combination and arrangement of the adjustable disks *a a'*, india-rubber plates *b*, leather faces *d*, and intervening metal plate *e*, all constructed and operating substantially as and for the purpose described.

ALBIN WARTH.

Witnesses:

M. M. LIVINGSTON,  
ALEX. F. ROBERTS.