

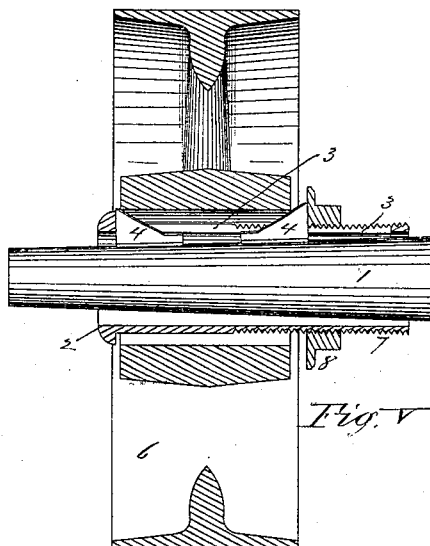
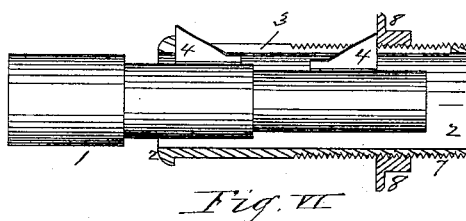
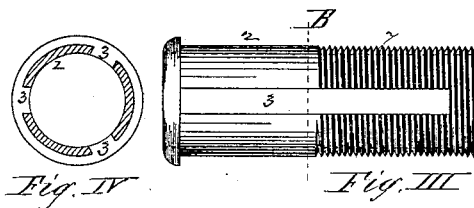
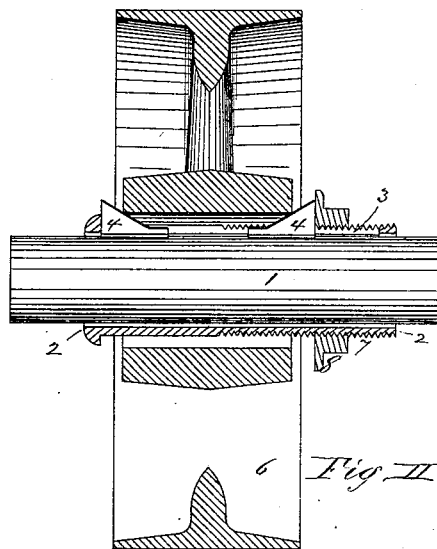
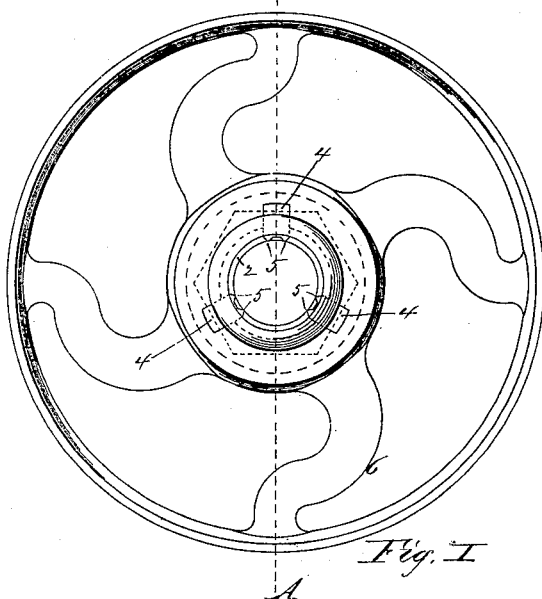
(No Model.)

J. EMERSON.

CHUCK FOR CENTERING AND SECURING PULLEYS TO SHAFTS.

No. 262,211.

Patented Aug. 8, 1882.



Witnesses.

Chas H. Wood,  
N. E. Davismell.

Inventor.

James Emerson,  
By T. A. Lewis,  
his atty.

# UNITED STATES PATENT OFFICE.

JAMES EMERSON, OF WILLIMANSETT, MASSACHUSETTS.

## CHUCK FOR CENTERING AND SECURING PULLEYS TO SHAFTS.

SPECIFICATION forming part of Letters Patent No. 262,211, dated August 8, 1882.

Application filed June 2, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES EMERSON, of Willimansett, in the county of Hampden and State of Massachusetts, have invented a new and useful Improved Chuck for Centering and  
5 Securing Pulleys to Shafts, of which the following is a specification and description.

The object of my invention is to provide a chuck or device by means of which a pulley  
10 may be secured firmly to shafts or mandrels of different sizes and of different shapes in their longitudinal section, so that the periphery or face of the pulley will remain concentric with the axis of the shaft or mandrel;  
15 and I accomplish this by the mechanism substantially as hereinafter described, and illustrated in the accompanying drawings, in which—

Figure I is an end view of my invention, showing a pulley secured to a shaft thereby.  
20 Fig. II is a vertical section of the same at line A of Fig. I. Fig. III is a side view of the slotted sleeve. Fig. IV is a transverse section of the same at line B of Fig. III. Fig. V is a vertical  
25 section of a pulley at its axis, showing the same secured to a tapered shaft by my invention; and Fig. VI is a vertical section of my invention, showing its application in securing a pulley to a shaft having offsets.

30 In the drawings, 1 represents a shaft, which, as shown in Fig. I, is of the same diameter throughout; and 2 represents a sleeve provided with, say, three longitudinal slots or openings, as 3; and this sleeve is open at both  
35 ends, and is provided with an exterior screw-thread, as shown in Figs. II and III, so that a nut may be turned thereon.

4 represents a key the inner edge of which is preferably provided with teeth or some-  
40 what sharp ribs extending lengthwise the key, and its outer edge is inclined, as shown clearly in Figs. II and V, so that one end of the key is much wider than the other.

If it is desired to secure an ordinary pulley, as 6, to a mandrel for the purpose of turning up the pulley, the latter is bored out, and a key, as 4, is placed in each slot, as 3, of the sleeve 2, with the wide end of the key against the end of the slot, and the sleeve with the  
50 mandrel, as 1, inside is inserted in the bore of the pulley until the hub at one end bears against the incline on each key in the slots or openings of the sleeve. Another key, as 4, is then inserted in each slot or opening of the  
55 sleeve at the opposite end of the hub, and the

nut, as 8, is then turned onto the threaded end of the sleeve, and, with a wrench, up firmly against the keys 4, last inserted in the slots, forcing the keys into the bore of the pulley, and wedging them tightly between the interior of the bore of the pulley and the mandrel. The pulley will then be firmly secured to the mandrel, and the pulley may then be turned off in a lathe with its face concentric with its axis and with the axis of the mandrel. When thus secured to the mandrel the teeth or ribs on the inner edges of the key will prevent the latter from slipping around the mandrel, and the slots or openings in the sleeve hold the keys in their proper position, and the bearing of the inclined edges of the keys against the interior of the hub of the pulley holds the latter in its proper relative position with the mandrel and concentric with its axis.

By this device a pulley may be secured to any shaft much too small to fit the bore of its hub, and with its face concentric with the axis of the shaft, and it is immaterial whether the shaft to which the pulley is thus secured be of the same diameter throughout or not, as the pulley will always assume a position with its face concentric with the axis of the shaft, whether the latter be tapered, as shown in Fig. V, or provided with offsets, as shown in Fig. VI, or straight and of the same diameter throughout, as shown in Fig. II.

The device will be operative if the keys, as 4, are not provided with teeth or longitudinal ribs on their inner edge, as they may be forced against the shaft or mandrel by the nut, as 8, with sufficient power to retain their position against the shaft by friction; but I prefer to use the keys with the ribs or teeth made thereon.

Having thus described my invention, what I claim as new is—

A chuck or device for centering and securing pulleys upon shafts or mandrels, consisting of a tubular sleeve provided with slots or openings and an exterior screw-thread, a series of keys, each having its outer edge inclined to its inner edge, and a nut adapted to be turned upon the threaded sleeve and force said keys to a firm bearing in the hub of the pulley, and against a shaft or mandrel placed within said sleeve.

Witnesses: JAMES EMERSON.

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CHAS. H. WOOD.