No. 733,408. PATENTED JULY 14, 1903.

P. H. MACK.

COUPLING.

APPLICATION FILED MAR. 6, 1903.

NO MODEL.

Fig. 1.

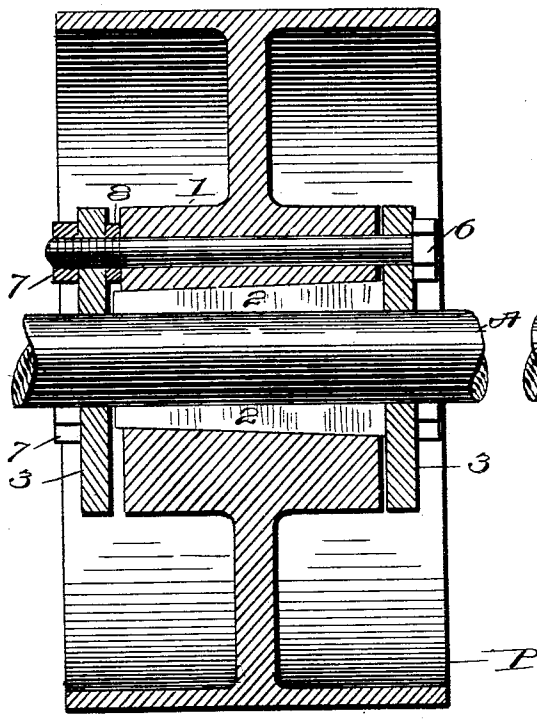


Fig. 2.

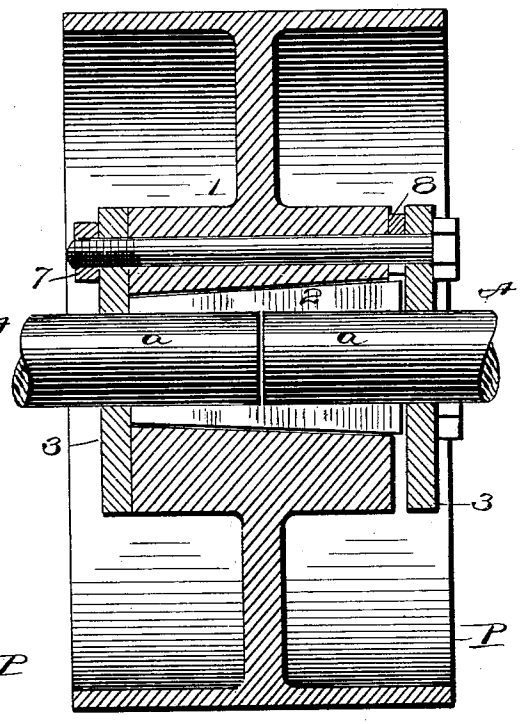


Fig. 3.

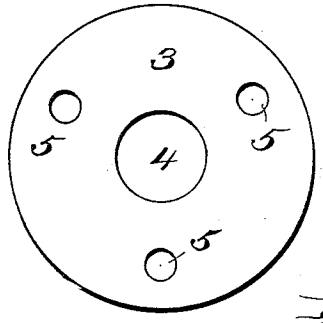


Fig. 4.

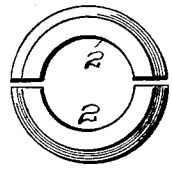


Fig. 5.

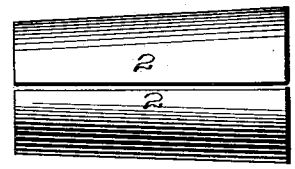


Fig. 6.



Fig. 7.



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No. 733,408. Patented July 14, 1903.

UNITED STATES PATENT OFFICE.

PATRICK H. MACK, OF BRADFORD, PENNSYLVANIA, ASSIGNOR TO OIL WELL SUPPLY COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

COUPLING.

SPECIFICATION forming part of Letters Patent No. 733,408, dated July 14, 1903.

Application filed March 6, 1903. Serial No. 146,521. (No model.)

To all whom it may concern:

Be it known that I, PATRICK H. MACK, a citizen of the United States, residing at Bradford, county of McKean, State of Pennsylvania, have invented certain new and useful Improvements in Couplings; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of a coupling embodying my invention, the same shown in connection with a pulley and shafting and in the operative or coupled position. Fig. 2 is a section similar to Fig. 1, the parts being in the released position or in condition to be shifted or separated and applied to connect the contiguous ends of sections of shafting. Fig. 3 is a detached view of one of the disks which receive the through-bolts. Fig. 4 is an end view of the taper sleeve-sections which wedge the parts together. Fig. 5 is a side elevation of the taper sleeve-sections. Fig. 6 is a view of one form of distance block or liner which separates the disks from the hub and sleeve sections. Fig. 7 is a view of another form of distance block or liner.

Like symbols refer to like parts wherever they occur.

My invention relates generally to that class of devices employed for detachably attaching pulleys to shafting or for connecting up the contiguous ends of shafting, and more especially to that class wherein are combined a ring or hub and wedges, and has for its object such a construction and relative arrangement of the combining elements that the coupling may be applied to and removed from the shafting by the coöperation of its combining elements and without liability to defacement or injury of the shafting or the parts of the coupling devices.

To obtain a coupling embodying within itself means for applying or removing it, I combine an internally-tapered sleeve or hub, included externally-tapered sleeve-sections whose length slightly exceeds that of the including hub or sleeve, end disks, and through-bolts or equivalents for the last-named elements, whereby the relative longitudinal movement of the including and included sleeves required to apply or remove the coupling may be effected, and such a combination embodies the main feature of my invention.

There are other minor features of invention, all as will hereinafter more fully appear.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A indicates the shafting to which the coupling or combined pulley and coupling is to be applied. This shafting may be continuous, as shown in full line in the drawings, Fig. 1, or comprised of alined sections *a a*, Fig. 2, the point of separation being within the hub of the pulley or including sleeve being indicated by dotted lines.

The coupling proper comprises the outer or including sleeve 1, which in this instance constitutes the hub of the pulley P, said outer sleeve having its bore tapered more or less to coact with the included sleeve-sections 2 2 and in one direction only. The interior walls of the sleeve-sections 2 2 will be parallel, or, in other words, the bore thereof will be straight from end to end to correspond with the shafting A, with which the coupling is to be used; but the outer face or exterior of the sleeve-sections 2 2 will be tapered to correspond with the interior of the hub or including sleeve 1. The transverse section of the two sleeve-sections 2 2 will constitute something less than a full circle, and their length will be slightly greater than the length of the including sleeve 1 in order that when the parts are in position on the shaft A the included elements 2 2 shall project slightly beyond the end of the including element 1.

At each end of the sleeves 1 2 2 are loose disks 3, having a central opening 4 for the passage of the shaft A and laterally-disposed bolt-holes 5 5 for the passage of through-bolts 6 6, provided with nuts 7 7, by means of which the disks 3 3 may be forced toward and against the ends of the hub or outer sleeve 1.

Interposed between one of the disks 3 and the end of hub or sleeve 1 is a distance block or liner or a series of distance blocks or liners 8 8, the function of which depends upon their relation to the bore of the outer sleeve 1. In

Fig. 1 of the drawings these distance blocks or liners are disposed on that end of the hub or sleeve 1 where the diameter of the bore is the least, so that when the disks 3 3 are drawn toward each other by means of the bolts 6 and nuts 7 the taper sections 2 2 (or wedges) are jammed between the interior of the sleeve 1 and the shaft A to clamp the shaft and effect the coupling. This locks the parts in operative position, and the blocks or liners 8 8 preserve the distance between disk 3 and the end of hub or sleeve 1, which permits the necessary projection of the ends of the taper sleeve-sections 2 2.

When it is desired to remove the pulley, (or uncouple the sections *a a* of shafting,) the nuts 7 are turned back to release the disks 3 3 and the distance blocks or liners 8 8 are shifted to the opposite end of the sleeve 1, (see Fig. 2,) whereupon the tightening of the nuts 7 on the rods 6 will first force the opposite disk 3 in contact with the ends of sleeve-sections 2 2, and then by the continued movement of the disk toward the end of sleeve 1 the sleeve-sections 2 2 will be forced in the other direction (to the right) and unseated, so as to release the shaft A, after which the device may be drawn from the shaft.

It is evident that the distance blocks or liners may, if desired, be of any character which will hold one of the disks 3 away from the end of the hub or sleeve 1 when it is desired to force the taper sleeve-sections 2 2 into or out of clamping engagement with the outer sleeve 1 and shaft A; but for some purposes I prefer to make them in the form of washers, Fig. 6, and string them on the bolts 6, as this will prevent them from being accidentally displaced or lost, while in other instances I prefer to make them of U shape, Fig. 7, as when so shaped they can be changed from end to end of the sleeve 1 as required where the location of the pulley or coupling is such as to prevent the ready removal of one or the other of the disks 3, and, further, while I prefer to leave the distance-blocks in position when the coupling or pulley is in position on the shaft, as shown in Figs. 1 and 2 of the drawings, the same is not essential, as they can be removed, if desired.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a coupling of the character described, the combination with including and included wedging elements of different lengths, of end disks, and means for forcing the end disks toward the ends of the including element, substantially as and for the purposes specified.

2. In a coupling of the character described, the combination with including and included wedging elements, of end disks, means for forcing the end disks toward the ends of the including element, and distance-blocks interposed between one of the end disks and one end of the including element, substantially as and for the purposes specified.

3. In a coupling of the character described, the combination of including and included wedging elements each tapered in but one direction, said elements being of different lengths, end disks, and means for forcing the end disks toward the ends of the including element, substantially as and for the purposes specified.

4. In a coupling of the character described, the combination with including and included wedging elements, each tapered in but one direction, the included elements being longer than the including element, of end disks, means for forcing the end disks toward the ends of the including element, and distance-blocks interposed between one of the end disks and the end of the including element, substantially as and for the purposes specified.

5. In a coupling of the character described, the combination with a sleeve having a bore tapered in but one direction, of included sleeve-sections tapered in but one direction, the included sleeve-sections being longer than the including sleeve, end disks, and through-bolts provided with nuts, substantially as and for the purposes specified.

6. In a coupling of the character described, the combination with a sleeve having a bore tapered in but one direction, of included sleeve-sections tapered in but one direction, the included sleeve-sections being longer than the including sleeve, end disks, distance-blocks between one end disk and the end of the sleeve, through-bolts, and nuts therefor, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 5th day of March, 1903.

PATRICK H. MACK.

Witnesses:
G. P. RITTER,
HUGH M. STERLING.