(No Model.) 2 Sheets—Sheet 1.

W. J. MUNCASTER.

PULLEY CHUCK.

No. 409,483. Patented Aug. 20, 1889.

Fig. 1.

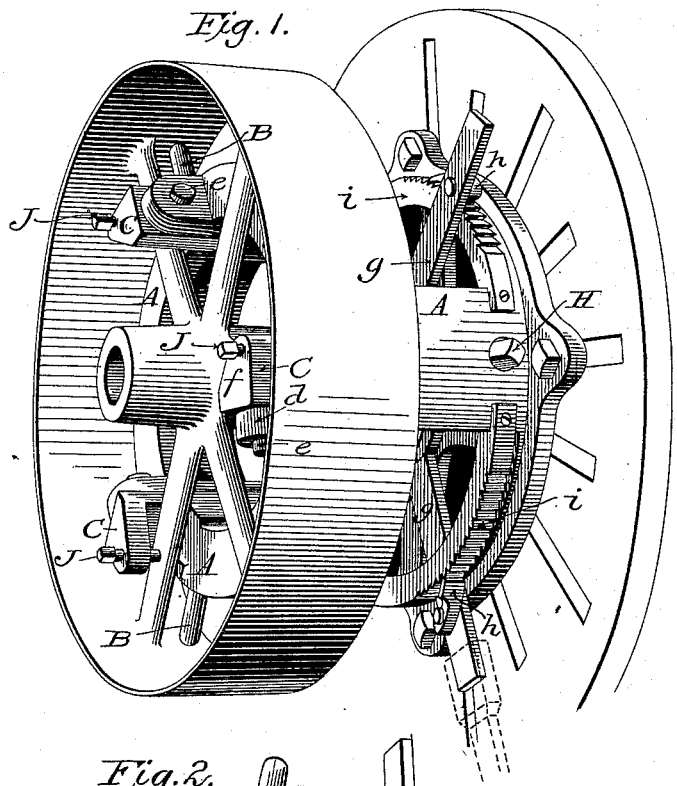
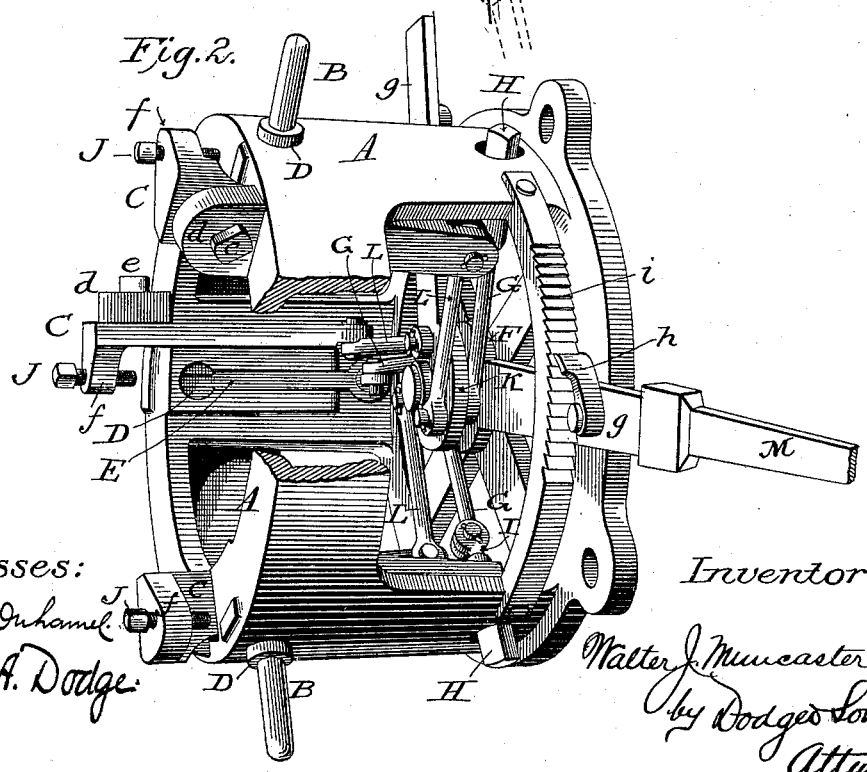


Fig. 2.



Witnesses:

James F. Duhamel

Horace A. Dodge

Inventor:

Walter J. Muncaster,

by Dodges & Sons,

Attys.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

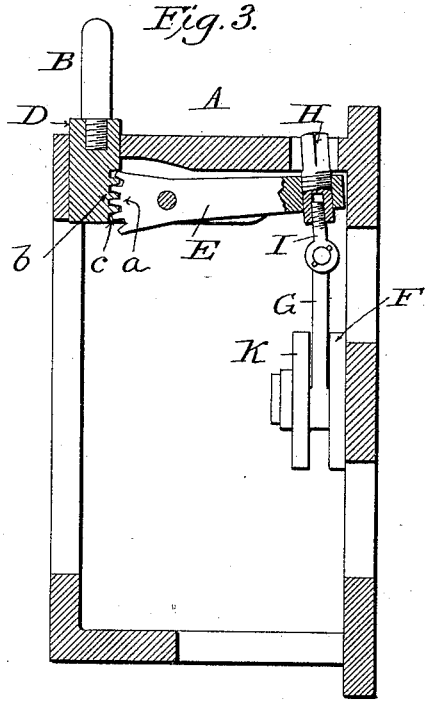
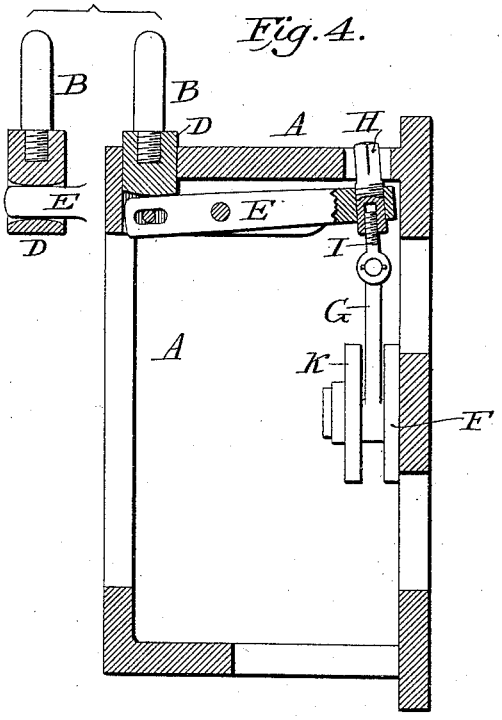


Fig. 4.



Witnesses:
James F. Dinhamel
Horace A. Dodge.

Inventor:
Walter J. Muncaster,
by Dodges Sons,
Attys.

UNITED STATES PATENT OFFICE.

WALTER J. MUNCASTER, OF CUMBERLAND, MARYLAND, ASSIGNOR OF ONE-HALF TO MERWIN McKAIG, OF SAME PLACE.

PULLEY-CHUCK.

SPECIFICATION forming part of Letters Patent No. 409,483, dated August 20, 1889.

Application filed June 6, 1889. Serial No. 313,356. (No model.)

To all whom it may concern:

Be it known that I, WALTER J. MUNCASTER, a citizen of the United States, residing at Cumberland, in the county of Alleghany and State of Maryland, have invented certain new and useful Improvements in Pulley-Chucks, of which the following is a specification.

My invention consists in a novel chuck or centering and holding device for use in turning, boring, and finishing band-wheels, pulleys, &c., the construction of which will be hereinafter explained.

In the accompanying drawings, Figure 1 is a perspective view of my improved chuck or work-holder with a band-wheel centered and held in place upon it; Fig. 2, a perspective view of the same without the wheel; Figs. 3 and 4, sectional detail views.

It has hitherto been the general practice in finishing band-wheels and pulleys to first bore the hub, then mount the wheel or pulley upon a mandrel, place it in a lathe, and turn and finish the rim and hub. Such plan is objectionable for various reasons, among which may be mentioned the time consumed in centering and clamping the work preparatory to boring, removing the work from the holder and securing upon the mandrel, the difficulty of properly centering upon such mandrel, and the comparatively light feed necessarily adopted with work supported only at the center or hub. My invention is designed to overcome these difficulties or objections and to enable the workman to quickly center the wheel or pulley and to clamp or lock the same in such manner that both the rim and the hub shall be exposed and ready for the operation of the turning and the boring tools, and so also that a heavy feed may be applied.

The construction may be readily understood upon referring to the drawings, wherein—

A indicates a shell or casing, which may be conveniently made in the form of a hollow cylinder; B B B, centering pins or stems, and C C C clamping-levers.

I have represented three centering pins or stems and three clamping-levers in the drawings as the number most suitable, because being the smallest number that will effect proper centering and give a firm bearing; but I do not mean to be understood as confining myself to any particular number. Beneficial results may be secured with two centering-stems or with two clamping-levers, or the number of either or both may be increased beyond three; but, as stated, I prefer three.

The centering-pins B are inserted into blocks or carriers D, arranged to slide or move radially in ways or openings in the shell, and are actuated by levers E, which in turn are connected with an oscillating or partially-rotating disk or head F, the pivot or bearing of which is concentric with shell A.

The mode of connecting the blocks or carriers D with the levers E may vary. For instance, a pin connection with sufficient play to compensate for the curved path of the lever, or a forked arm on the lever playing between shoulders on the block or carrier, may be used, or the end of the lever may be carried through an opening in the block or carrier, these being common and well-known expedients for connecting such parts, and illustrated in Fig. 4. I prefer, however, to form the lever with a sector-pinion *a* to mesh with the teeth of a rack *b*, formed in the lower face of the block or carrier D, as in Fig. 3. Said blocks or carriers D may be of any desired form in cross-section; but owing to the greater ease of fitting I prefer a cylindrical form, and to prevent rotation of the carriers they may have the rack *b* formed at the base of a longitudinal groove *c*, as indicated. From the other end of each lever E—that is, from the end opposite to that at which the sector-pinion is formed—a rod or bar G extends to the disk F, being pin-jointed to the lever and to the disk, as shown in Figs. 2 and 3.

The several points of connection of the rods G with the disk F are equidistant from the center of the latter and from each other; hence, if the disk be turned in one or the other direction, the rods will draw or push equally upon the levers and cause them to project or to retract the centering pins or stems B.

A rack and pinion may be substituted for the pin connection with the disk F, teeth being in such case formed upon the periphery of the disk to take into teeth formed in one face of the bars or rods G; but I prefer the construction described and shown.

To provide for accurate adjustment of the pins or stems B, so that they shall perfectly center a wheel or pulley, I enlarge the end of each lever E and tap or bore and thread the same to receive a large bolt or screw H, which is similarly tapped to receive a smaller bolt or screw I, threaded either in the same direction, but with a thread of different pitch, or in a reverse direction, according to the delicacy of adjustment to be attained. This arrangement is common in micrometer-gages, but is believed to be new in the combination herein set forth. It is desirable that the same chuck or holder be capable of centering pulleys or wheels of varying diameters, and it is for this reason, mainly, that the stems B are made separate from and screwed into the carriers D. By providing different sets of pins, those of one set having the same length, but those of each set being of a different length from those of the other sets, I am enabled by substitution of one set for another to quickly and perfectly adapt the holder or chuck to pulleys of varying sizes, the clamping-jaws acting alike on pulleys of different dimensions without special adjustment or adaptation.

As shown in Fig. 3, the heads of bolts H are carried into or through openings in the shell A, where they are readily accessible and may be turned by a wrench or key.

The clamping-levers C are each pivoted to a substantial lug *d* by a heavy bolt or pin *e*, and each is formed with a jaw *f* projecting outward beyond the pivot *e* both radially and laterally, as shown in Figs. 1 and 2.

Through the jaw *f* of each lever is passed a screw J, as shown, designed to be turned down by the fingers or with a light wrench until it bears upon one of the arms or spokes of the wheel or pulley to be centered and held, so that each shall gain a fair bearing preparatory to the movement which causes them to simultaneously press the spokes down upon the face of the shell A. To effect this simultaneous movement of the several levers and their jaws, I connect the longer arm of each lever with a disk K by means of rods or bars L, as shown in Figs. 1, 2, and 3, the disk being arranged to receive a partial rotation whereby to move the rods and actuate the levers. These disks F and K have each a radial arm *g*, to which is applied a suitable lever M when the disk is to be moved, the same lever answering for both. So, too, each arm *g* carries a dog or pawl *h*, which, engaging with the teeth of a rack *i*, formed upon the shell A, serves to hold the disk, and consequently the levers connected with it, at any desired adjustment.

The shell A may be secured to the face-plate or to the mandrel of a lathe or of a pulley boring and dressing machine, or otherwise mounted and employed, though I prefer ordinarily to apply it to a lathe.

It is manifest that the connection between the disks and the levers may be varied and any common connecting device employed, that grooved or slotted cams may be substituted for the disks or either of them, and that like modifications within the province of the mechanic may be made.

The operation of the device is as follows: A pulley to be dressed, turned, or bored is placed upon the shell A, with its spokes or arms resting against the face of the latter, and is then turned far enough to carry said spokes beneath the jaws *f*, whereupon disk F is turned and the pins or stems B caused to project or protrude and to bear against the inner face of the rim of the pulley at three equidistant points, at once centering the same. The screws J are then turned down to bear upon the spokes of the pulley, and, after an even bearing is thus secured, the disk K is turned and the spokes are firmly clamped to the face of the shell. The pulley being thus held near the rim and at three separate points, a much heavier feed may be given the cutting or boring tools than would otherwise be possible.

Having thus described my invention, what I claim is—

1. The herein-described pulley chuck or holder, consisting of shell or body A, centering pins or stems B, carriers D for said pins, clamping-levers C, disks F K, and rods connecting the carriers D and the levers C with the disks F K, respectively.

2. In combination with the shell of a pulley chuck or holder, a centering device consisting of a series of radially-movable slides or stems, levers connected at one end with said slides, a disk mounted and arranged to turn about a pivot equidistant from the outer ends of the several slides or stems, and rods connecting the levers with the disk.

3. In combination with shell A, radial slides or carriers D, pins B, carried by said slides, levers E, for moving said slides, disk F, and rods G, connecting the levers E and the disk F, substantially as described and shown.

4. In combination with shell A, slides D, levers E, disk F, and connecting-rods G, removable pins B.

5. In a pulley chuck or holder, a series of radially-movable slides or carriers and removable pins applied to said carriers and serving to center a pulley or wheel applied to the holder.

6. In combination with shell A, having rack *i*, slides D, levers E, rods G, and disk F, provided with pawl *h* to engage with rack *i*.

7. In combination with shell A, a series of levers C, pivoted thereto and provided with jaws overhanging the face of the shell, substantially as described and shown, whereby they are adapted to clamp the spokes of a pulley or wheel between them and the face of the shell.

8. In combination with shell A, carriers D, levers E, disk F, and rods G, connecting the levers and the disk, said rods being adjustable as to length, substantially as set forth.

9. In combination with shell A, levers E, blocks or carriers D, disk F, rods G, connecting the disk and the levers, and the adjustable connection H I between the levers and the rod, whereby the carriers may be brought to proper position.

10. In combination with shell A, levers C, pivoted thereto and formed with jaws *f*, disk K, and connecting rods or bars L, extending from the levers to the disk.

11. In combination with shell A, levers C, pivoted thereto and provided with jaws *f*, screws J, passing through said jaws, and mechanism, substantially such as described, for moving the levers toward or from a common center.

12. In combination with shell A, provided with rack *i*, levers C, rods L, and disk K, provided with dog *h*, and serving, through the medium of the rods L, to actuate the levers C.

In witness whereof I hereunto set my hand in the presence of two witnesses.

WALTER J. MUNCASTER.

Witnesses:

MERWIN MCKAIG,

C. SMITH, Jr.