No. 648,676. Patented May 1, 1900.

W. H. YOUNG.

CHUCK.

(Application filed Mar. 6, 1899.)

No Model.)

Fig. 1.

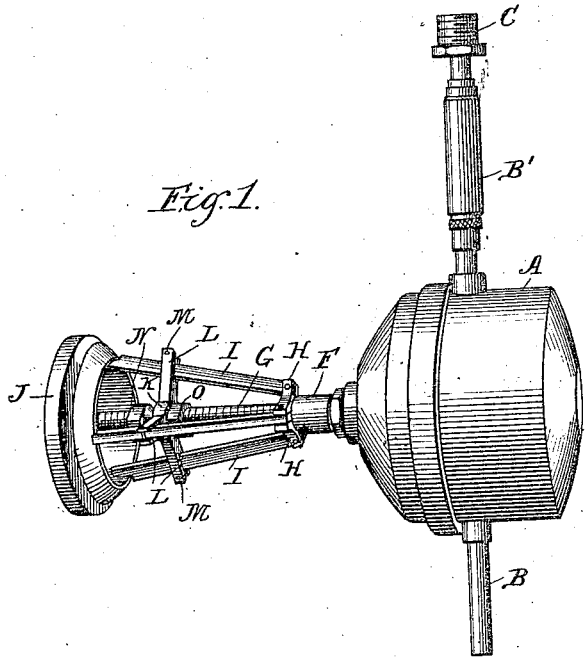
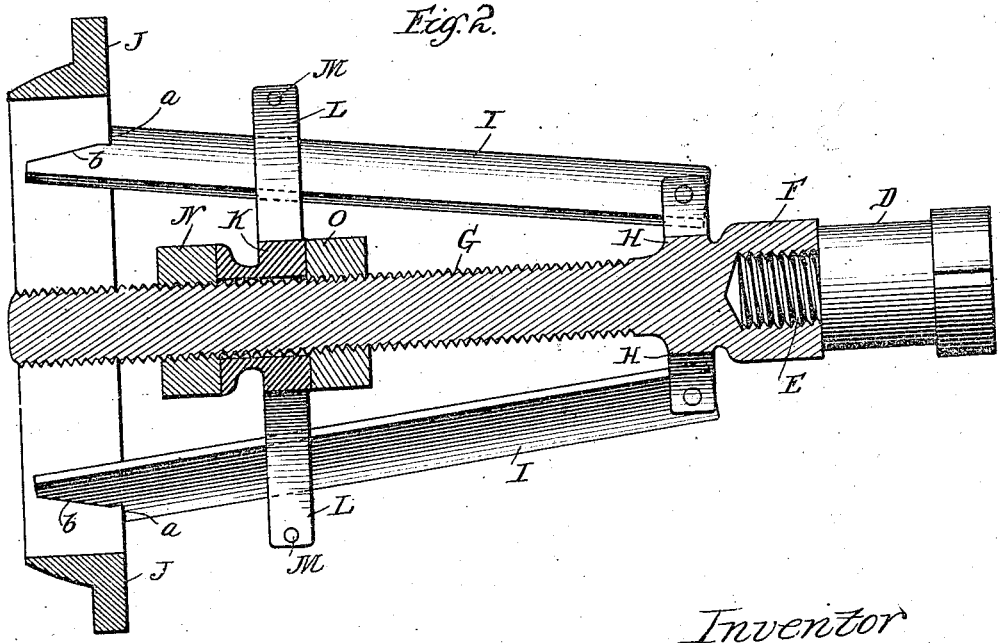


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM H. YOUNG, OF HOWELL, INDIANA.

CHUCK.

SPECIFICATION forming part of Letters Patent No. 648,676, dated May 1, 1900.

Application filed March 6, 1899. Serial No. 708,027. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. YOUNG, a citizen of the United States, residing at Howell, in the county of Vanderburg and State of Indiana, have invented a certain new and useful chuck for holding steam-pipe rings during the operation of grinding steam-pipe joints in locomotives, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

My invention consists in a novel chuck for holding the rings interposed in the joints of the "dry pipe" of a locomotive during the operation of grinding said joints with the ring. Heretofore the common practice has been to either fit a block tightly in the ring and use it as a handle by which to turn the ring by hand as the latter is pressed firmly against the joint-surface of the steam-pipe to grind the joint or else the ring has been secured in some manner to the bit end of an ordinary carpenter's brace and turned by hand in that manner. My novel chuck is intended to take the place of these crude and exceedingly-slow hand methods now in vogue by enabling the ring to be readily connected to a device driven by power—such, for instance, as one of the pneumatic motors now in common use in railroad-shops. My novel chuck is made readily attachable to and detachable from such device and is constructed to have the ring to be ground readily attached to and detached from it and has also such construction as to adapt it to receive and hold rings of different diameters, all as will be hereinafter more fully explained in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of a pneumatic motor of familiar type having my novel chuck connected to it, with the ring mounted upon the chuck in position for grinding the flat side of the ring. Fig. 2 is a longitudinal vertical section of the chuck, with the ring mounted upon it in reverse position for the grinding of its convex surface.

The same letters of reference are used to indicate identical parts in the two views.

A represents a rotary pneumatic motor of a well-known type, provided upon its opposite sides with handles B B', the latter of which operates the throttle-valve, which controls the admission of motive fluid to the motor from the inlet connection at C. The spindle of the motor has secured to it a suitable connecting member D for the attachment of my new chuck, such connecting member in the present instance terminating in an exteriorly-threaded end E, adapted to screw into the interiorly-threaded bore of the head or socket member F of the chuck. This head F is formed upon one end of an exteriorly-threaded spindle G. Projecting radially from the spindle G, adjacent its end F, are three slotted jaws H, equally distant from each other around the spindle and having pivoted on them the rear ends of three longitudinally-extending blades or arms I, whose opposite ends are shaped, as shown, to form shoulders *a*, adapted to abut against the rear edge of the ring J when mounted upon the chuck and, with contact-surfaces *b*, adapted to bear against the inner surface of the ring. Mounted upon the spindle G is a device which I term the "spreader," consisting of a central hub member K and three radially-projecting slotted arms L, corresponding to the three jaws H, in which the rear ends of the blades I are pivoted. These blades pass through the slots in the arms L of the spreader and in the present instance are confined therein by transverse pins M, passed through the outer ends of the arms L and closing the outer ends of the slots therein. The arms L brace the outer ends of the blades I and prevent any twisting strain thereon, as well as also holding the same from either inward or outward movement. The central bore of the hub member K of the spreader, through which the spindle G passes, is not threaded and is of sufficient diameter to slide freely over the threads of the spindle longitudinally of the latter. When the spreader is moved rearward along the spindle, the forward or left-hand ends of the three blades I will be forced outward and away from the spindle, and when moved in the opposite direction they will be permitted to move or be moved inward to-

ward the spindle. Threaded upon the spindle G immediately in front (to the left in the drawings) of the hub K is an adjusting-nut N and upon the opposite side of the hub member K a lock-nut O.

Under the above-described construction and arrangement of parts the mode of use and operation of my novel chuck are as follows: The chuck being connected to the motor, as in Fig. 1, the ring J to be ground is placed over the forward ends of the blades I with its rear edge abutting against their shoulders *a*. The nut N is then turned upon the spindle G and the spreader K forced rearward (the lock-nut O being slackened sufficiently to permit the movement) until the surfaces *b* on the ends of the blades I are forced tightly against the inner surfaces of the ring J. The nut O is then tightened up securely against the rear face of the hub K of the spreader, thereby firmly clamping the latter between the nuts N and O and at the same time locking the parts securely to the spindle G. The ring is then ready to be ground, and its forward face is pressed against the joint-surface of the steam-pipe and the motive fluid turned onto the motor. When one face of the ring and abutting joint-surface of the steam-pipe have thus been ground, the nut N will be slackened sufficiently to release the ring and permit it to be removed from the chuck and replaced thereon in reverse position, whereupon the nut will be tightened up again to grip the ring upon the chuck and the second face of the ring and corresponding joint-surface of the steam-pipe be ground. In this manner and by these means the steam-pipe joints in which these rings are employed may be ground very much more expeditiously and cheaply than has heretofore been possible with the hand methods referred to, and rings varying in diameter through a considerable range may be handled by the same chuck, owing to the adjustment of the latter effected by movement of the spreader longitudinally of the spindle.

I have illustrated and described my new chuck in what I believe to be its most perfect form and one in which I have successfully used it in actual shop practice; but its details may be varied to some extent while maintaining its main advantages. The same adjustment of the blades I of the chuck might be effected by the employment of a spreader secured in fixed position upon the spindle B and by pivoting the rear ends of said blades in jaws H, longitudinally adjustable of the spindle and adapted to be secured thereon in different adjusted positions by nuts corresponding to the nuts N and O, the spreader thus becoming the fixed member of the chuck and the pivoting jaws the movable member; but I very much prefer to employ the arrangement in this respect which has been illustrated and described.

While my new chuck has been designed for the specific purpose above described, my invention of course contemplates its use for any other purpose to which it is adapted.

Having thus fully described my invention, I claim—

1. The herein-described chuck, composed of the central spindle, the blades or arms pivoted at one end to said spindle and movable toward and from the spindle at their opposite ends, a device slidably mounted on said spindle for forcing the free ends of said arms away from the spindle and having a part engaging and bracing each blade, and means movable along said spindle and adapted to lock said forcing device in adjusted positions, substantially as described.

2. The herein-described chuck comprising a central spindle, blades or arms pivoted at one end to said spindle and at their opposite ends movable toward and from the spindle and provided with shoulders and contact-surfaces to engage the ring, a device slidably mounted on the spindle for forcing the free ends of said arms outwardly against the inner surface of the ring and having a part engaging and bracing each arm, and means movable along said spindle and adapted to lock said forcing means in adjusted positions, substantially as described.

3. The herein-described chuck, composed of the central spindle having a screw-threaded portion, the blades or arms pivoted at one end thereto and movable toward and from the spindle at their opposite ends, means mounted upon and freely slidable longitudinally of the screw-threaded portion of the spindle for forcing the free ends of the arms outward, and locking means detached from the said forcing means and having threaded engagement with the said spindle coöperating therewith and mounted upon the spindle for locking the free ends of the arms in outer position.

4. The herein-described chuck, composed of the central spindle, the blades or arms having fixed pivot connections with the spindle at their rear ends and movable toward and from the spindle at their opposite ends, the spreader slidably mounted upon the spindle and engaging the arms, and the adjusting and locking nuts one on each side of the spreader and threaded upon the spindle and coöperating with the spreader.

5. The herein-described chuck, composed of the central spindle G, the blades or arms I pivoted at their rear ends to said spindle, the spreader composed of the hub member K slidably mounted upon the spindle G and having the radial arms L engaging the blades I, and the nuts N O detached from and one on each side of and coöperating with the hub member K of the spreader.

6. The herein-described chuck, composed of the central spindle G provided near one

end with the radial jaws H, the blades I pivoted at their rear ends in the jaws H and at their opposite ends shaped to form the shoulders *a* and contact-surfaces *b*, the spreader composed of the central hub member K mounted upon and movable longitudinally of the spindle G and having the radial slotted arms L through which pass the blades I, and the adjusting and locking nuts N O coöperating with the hub K of said spreader.

WILLIAM H. YOUNG.

Witnesses:
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