No. 864,668. PATENTED AUG. 27, 1907.

D. G. MORGAN & J. T. PORTER.

DRILL CHUCK.

APPLICATION FILED OCT. 10, 1906.

Fig. 2.

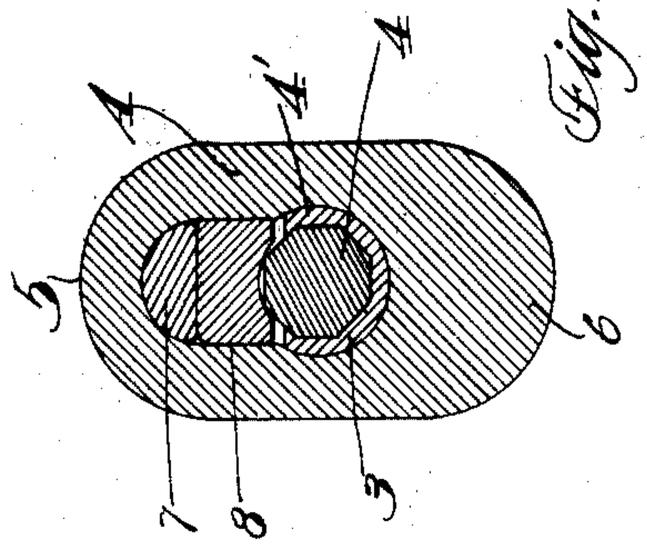


Fig. 1.

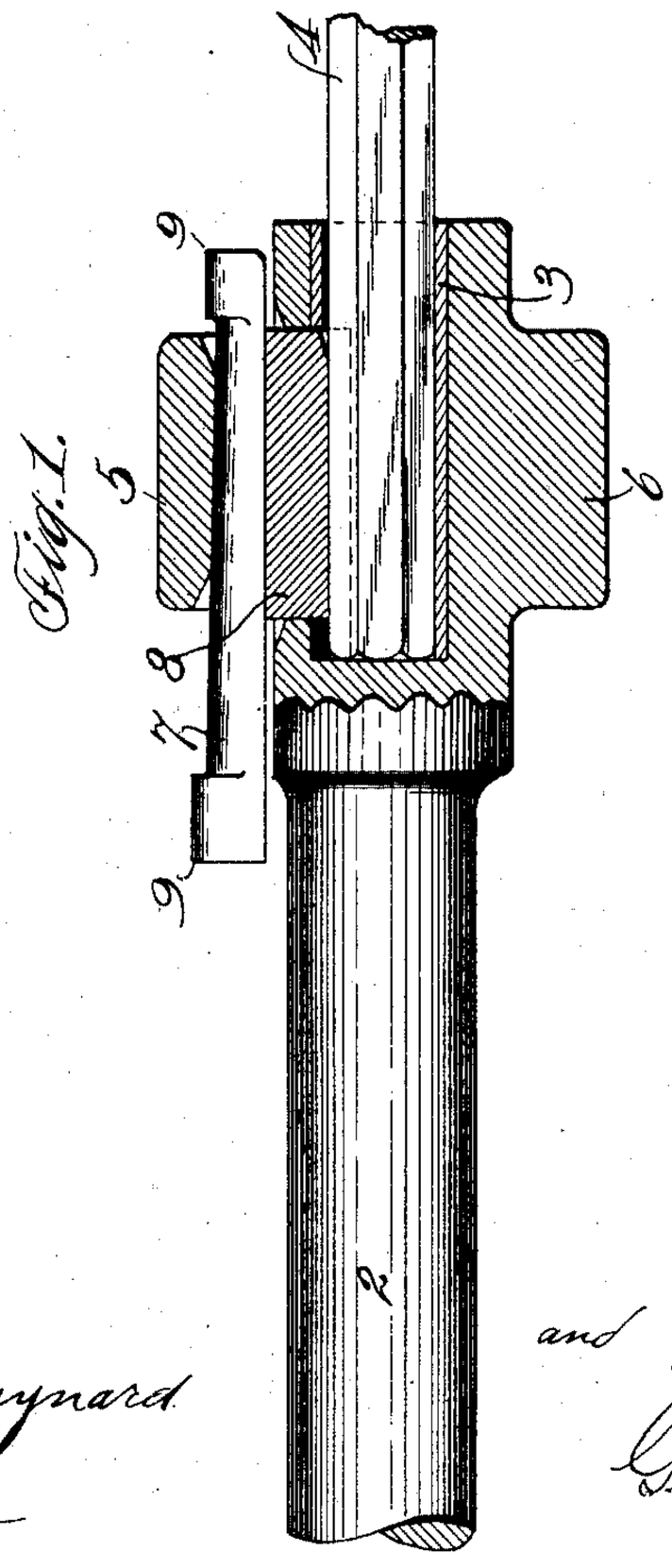
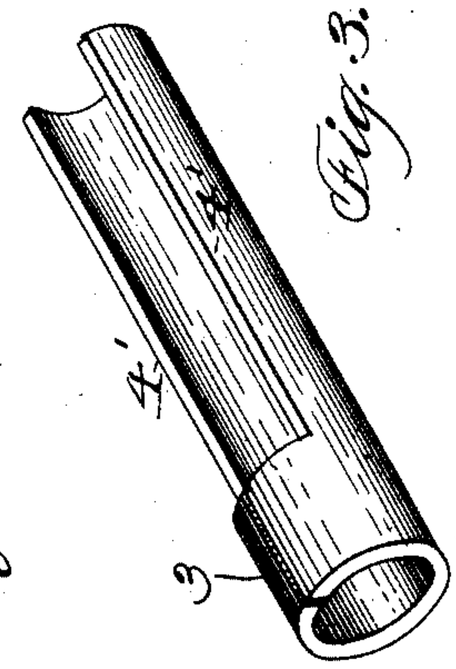


Fig. 3.



WITNESSES:

Frederick C. Maynard

L. B. Howe

INVENTORS.

and David G. Morgan
John T. Porter,

BY

Geo. H. Strong

ATTORNEY

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DAVID G. MORGAN AND JOHN T. PORTER, OF JAMESTOWN, CALIFORNIA.

DRILL-CHUCK.

No. 864,668. Specification of Letters Patent. Patented Aug. 27, 1907.

Application filed October 10, 1906. Serial No. 338,291.

To all whom it may concern:

Be it known that DAVID G. MORGAN and JOHN T. PORTER, citizens of United States, residing at Jamestown, in the county of Tuolumne and State of California, have invented new and useful Improvements in Drill-Chucks, of which the following is a specification.

Our invention relates to improvements in drill chucks, and especially chucks for use on rock drilling machines. Its object is to provide a simpler, cheaper and stronger construction than is now common in rock drills; in which the use of cotter keys U-bolts and loose parts will be obviated, and which will permit long drills to be put in without moving the machine.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a sectional view longitudinally of the chuck. Fig. 2 is a transverse section, centrally of the chuck. Fig. 3 is a perspective of the bushing.

A represents a chuck head attached to or forming part of the usual piston rod 2. The head has a central longitudinal socket to receive a removable bushing 3, into which latter the drill rod 4 is inserted and adapted to be locked in the machine. The head is enlarged laterally as shown at 5—6, and one of these enlargements or projections as 5, is provided with a key-way extending lengthwise with the head to receive a tapered key 7. The key-way is in communication with the socket in the head, and in the radial opening thus formed between the key-way and the socket, the gib 8 is located.

The bushing 3 is cut out sufficiently to accommodate the inner end of the gib and to allow the bushing to be inserted in position or withdrawn. When the bushing is in position, the walls 4′ of the cut-away portions of the bushing form stops to limit the radial movement of the gib, at the same time allowing for sufficient clearance for the gib to clamp the drill in proper manner. This gib is adapted to have its back engaged by the key 7 and is movable radially with respect to the drill rod so as to be made to impinge with greater or less pressure on the drill rod according to the direction in which the key is moved.

The key-way in the boss 5 of the head, and the passage-way which connects this key-way with the socket are of such dimensions, and the size and shape of the gib are such with respect to the socket in the head and the slot in the bushing, that when the bushing is removed the gib will drop into the socket and can be taken from the chuck, and the key itself can likewise be removed.

In assembling the parts the key is first placed in position; the gib is then inserted into its seat through the socket in the head, after which the bushing 3 is inserted. The bushing thus holds the gib and key in place and neither of the latter can be removed without first taking out the bushing; the key having the bosses 9 at the end, which are too large to pass through the key-way so long as the gib is in place.

By backing up the key so as to allow the gib to move outward, a drill rod can be quickly inserted or taken out. A blow with a hammer either loosens or tightens the drill in the chuck.

This construction is comparatively cheap and simple and does away with the use of cotter keys, U-bolts and wrenches. The chuck is not weakened by having holes bored for U-bolts; also it allows the putting in of long drills without moving the machine as is necessary where chuck nuts and U-bolts protrude from the chuck's side.

The construction provides an evenly balanced chuck, and by having the key extending lengthwise of the head with the smaller end of the key toward the front end of the chuck, the impact of the drill against the rock tends to drive the key in tighter and more firmly grip the drill at each successive blow.

By the use of the removable slotted bushing the chuck is saved from wear by the drill rod; the wear all being taken by the bushing. When the latter is worn so as not to hold the drill sufficiently snug, it may be discarded and a new one substituted at small expense.

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

1. An improved chuck having in combination a piston rod formed with a head, said head being enlarged laterally and having a longitudinal socket, and provided with a longitudinally extending key-way, said head having, also, a radial opening which communicates with said key-way, a gib fitting said opening and insertible into position through the socket, means within the socket for limiting the longitudinal movement therein of said gib, and a longitudinally extending key passing through the key-way and engaging said gib.

2. A chuck comprising a head-portion having a socket to receive the drill, and provided with a lateral projection, said projection having a key-way, and said key-way being connected with the socket by a gib-seat, a gib fitting said seat and insertible into position through the socket and having a limited movement radially of the latter, and a slotted bushing fitting said socket and providing a stop to the inward radial movement of said gib.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

DAVID G. MORGAN.
JOHN T. PORTER.

Witnesses:
JOHN KEMPSTON,
M. ARENDT.