J. B. HASTY.

CHUCK FOR STAYBOLTS.

APPLICATION FILED JULY 26, 1915.

1,375,456. Patented Apr. 19, 1921.

Fig. 1

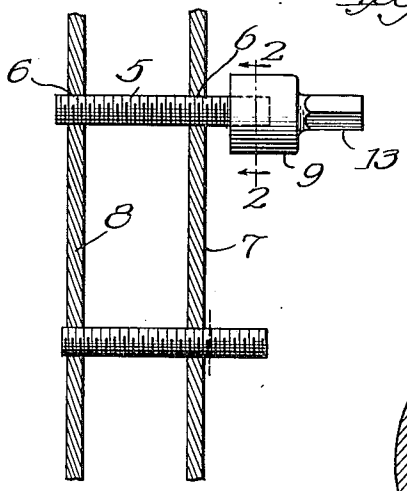


Fig. 2

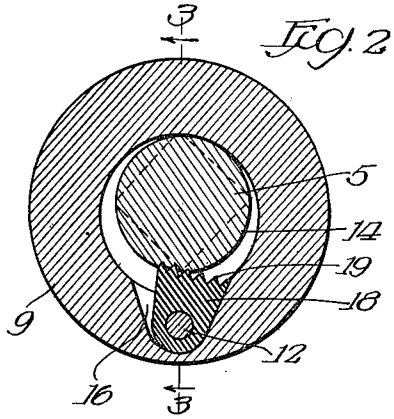


Fig. 3

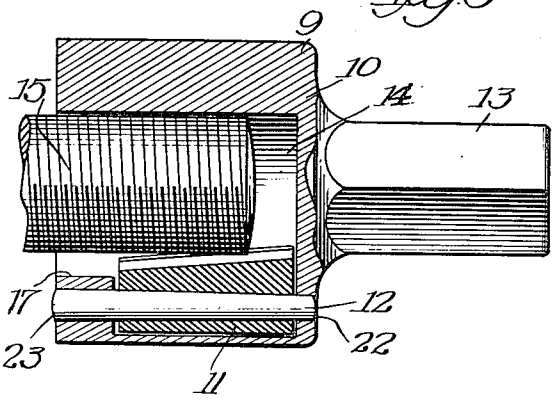
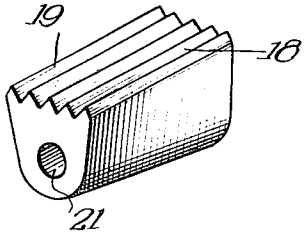


Fig. 4



Witnesses:

S. R. Barrett

J. Carpenter

Inventor:

John B. Hasty

By Munday, Evarts, Adcock & Clarke Atty's

UNITED STATES PATENT OFFICE.

JOHN B. HASTY, OF SAN BERNARDINO, CALIFORNIA, ASSIGNOR TO TOM BROWN, OF CHICAGO, ILLINOIS.

CHUCK FOR STAYBOLTS.

1,375,456. Specification of Letters Patent. Patented Apr. 19, 1921.

Application filed July 26, 1915. Serial No. 41,818.

To all whom it may concern:

Be it known that I, JOHN B. HASTY, a citizen of the United States, residing in San Bernardino, in the county of San Bernardino and State of California, have invented a new and useful Improvement in Chucks for Staybolts, of which the following is a specification.

This invention relates in general to chucks and has more particular reference to chucks provided for positioning stay-bolts in locomotive engines and the like, although it will be manifest as the invention is better understood that it may be effective for other and different use.

A principal object of this invention is the provision of a chuck for stay-bolts and the like which, while being of extremely simple and durable construction, can be used with equal facility for turning a stay-bolt or other member held in it in either direction, reversing being possible without removing the chuck from the stay-bolt.

A further object of the invention is the provision of a chuck of the character described in which the body or head can be constructed of a single casting ready for the reception of the other parts without machine or other operation than merely the boring of a single hole or aperture.

Another and very important object of the invention is the provision of a chuck of the character described which will be adapted to operate upon stay-bolts and the like of different dimensions without substitution or adjustment of the parts.

A further object of the invention is the construction of such a chuck which may readily be made available for use in operating upon stay-bolts and other members of dimension without its normal range through a simple and ready effected substitution of parts.

A further object of the invention is the provision of a chuck of the character described of smooth, outer cylindrical form on which will be provided no protuberances which might catch in or injure the person or clothing of the operator.

Another object of the invention is the provision of a chuck adapted to receive stay-bolts and the like of different diameter and rotate them about axes nearly coincident with the axis of rotation of the chuck.

Another object of the invention is the provision of a chuck of the character described of few and simple parts capable of being cheaply manufactured and yet strong and durable in operation.

Other objects and advantages of the invention will be apparent as it is better understood from the following description when considered in connection with the accompanying drawing illustrating a preferred embodiment thereof.

Referring to the drawing,

Figure 1 is a side elevation of a chuck embodying my invention and showing the same in operation;

Fig. 2 is an enlarged section taken substantially on the line 2—2 of Fig. 1;

Fig. 3 is a section taken substantially on the line 3—3 of Fig. 2; and

Fig. 4 is a perspective view of the clutching element or dog incorporated in the clutch shown in the other views.

The stay-bolts used in locomotive engines frequently consist of a single threaded rod 5 of length materially greater than the length of the finished and operatively positioned stay-bolt. The stay-bolts are engaged through threaded apertures 6 in the two sheet metal walls 7 and 8 defining the water space. In positioning them it is desirable that they be inserted first through one wall 7 and then through the other wall 8 to extend through the second wall only sufficiently for the protruding end to be upset or riveted down upon the wall face. The amount which this end must extend beyond the wall 8 is well determined, and it is necessary that the positioning of each bolt be accurate in order that a perfect holding of the stay-bolt end may be effected. After the stay-bolt is in position it is cut off beyond the outer face of the wall 7 to provide an extension of like amount, which is riveted down to secure the outer end in place, finishing the positioning of the stay-bolt. These bolts are positioned by inserting them in the nearer threaded aperture 6 and then turning the bolts until they are in the desired accurate position. The mechanic inserting the bolt is not in a position to view its free end as it passes out of the sheet 8, an attendant usually being stationed where he can observe its exit from the sheet 8, and by pounding upon one of the plates or otherwise signaling the operator cause the rotation of the bolt to cease. It frequently

happens that the bolt is not stopped soon enough and it becomes necessary to reverse its direction of rotation to bring it back to desired position.

In accordance with my invention I provide a chuck generally designated at 9 for rotating the stay-bolts accurately into place, said chuck being adapted to turn the stay-bolt in a positive rotation to cause it to enter successively the plates 7 and 8 and to give it a negative rotation should occasion require that the bolt be retracted to bring it to accurate position. The chuck shown on the drawing and illustrating a preferred embodiment of my invention, consists of a one-piece casting forming the head 10, a clutching element or dog 11 and a pivot and holding pin 12 for the dog. The head 10, in the present instance, is provided with a flat sided shank 13 adapted to be gripped for driving by an air motor or other suitable source of energy. The head 10 is provided with a large central cylindrical opening 14 in line with the shank 13 and into which an end 15 of a stay-bolt may be inserted. It is also provided with an internal pocket 16 communicating with the opening 14. This pocket is located well inwardly of the front of the head so that a partition wall 17 is provided in front of the pocket. The clutching element or dog 11 in the present instance is preferably constructed of tool steel and has an operative face 18 composed of a plurality of longitudinally extending relatively sharp serrations 19 lying in a substantially flat plane to dispose them at different distances from the pivotal axis of the dog. Beneath the operative face an aperture 21 extending lengthwise of and through the dog is provided. When the dog is in position this aperture is in registration with an aperture 22 disposed through the head from the rear of the pocket and an aperture 23 disposed through the wall 17 at the front of the pocket, and through these apertures extends the pivot pin 12 which secures the dog in place. The pivot pin and the apertures through which it extends are tapered in order that it may tightly engage in place without providing protuberance on the front and rear faces of the head. The operative face of the dog is angularly disposed with respect to its pivotal axis and is higher at the rear than at the front so that stay-bolts of different dimension may be engaged without requiring adjustment of the clutch, the diameter of the stay-bolt determining its exact engagement with the dog when thrust into the head. Stay-bolts ordinarily vary in diameter from fifteen-sixteenths of an inch to an inch and one-sixteenth and a single dog within the chuck head can readily take care of this range. The pin 12 may be easily removed and a dog of larger or smaller dimension substituted for the one in place should it be desirable to use the chuck for stay-bolts of less or greater diameter.

It will be manifest that a chuck embodying my invention is wholly devoid of any outwardly extending parts or protuberances that might catch in the clothing or in the person of the operator.

The shank 13 of the chuck is placed slightly off center in order to position it nearly in line with the axes of stay-bolts of varying diameter. It is placed substantially at the center of the locus of positions of the stay-bolts normally to be turned by the chuck. In a chuck constructed as described for operating upon stay-bolts of diameters ranging from fifteen-sixteenths to an inch and one-sixteenth the center of the shank should be positioned over about three-thirty-seconds of an inch.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing any of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A chuck for stay-bolts and the like comprising a hollow head in which the end of a stay-bolt may be inserted, and a rocking clutching element inserted in said head and held in place by a pin extending through the head.

2. A chuck for stay-bolts and the like, comprising three members,—one a hollow head into which the end of the stay-bolt may be inserted and provided with a pocket at one side; another, a clutching element in said recess; and a third, a pin through the head and the element in said recess.

3. A chuck for stay-bolts and the like comprising a hollow head into which the end of the stay-bolt may be inserted and having an internal recess communicating with the hollow of said head, a clutching element inserted into said recess through the hollow of said head and adapted to engage the end of said stay-bolt, and a pin disposed through said head for holding said stay-bolt in position.

In testimony whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN B. HASTY.

Witnesses:
J. C. CARPENTER,
W. H. DANGEL.