W. F. RICE.

BUSH HAMMER.

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1,115,024. **Patented Oct. 27, 1914.**

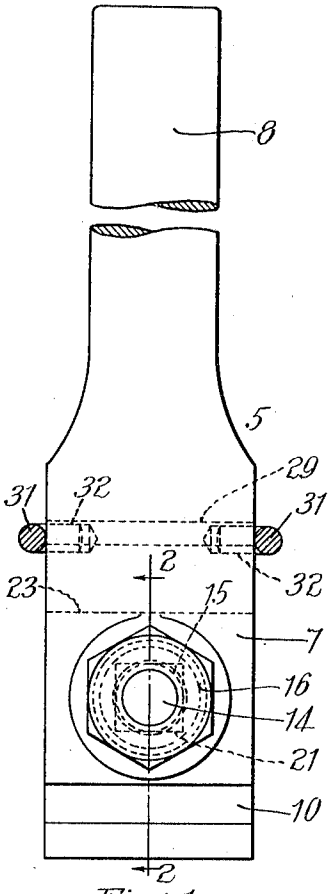


Fig. 1.

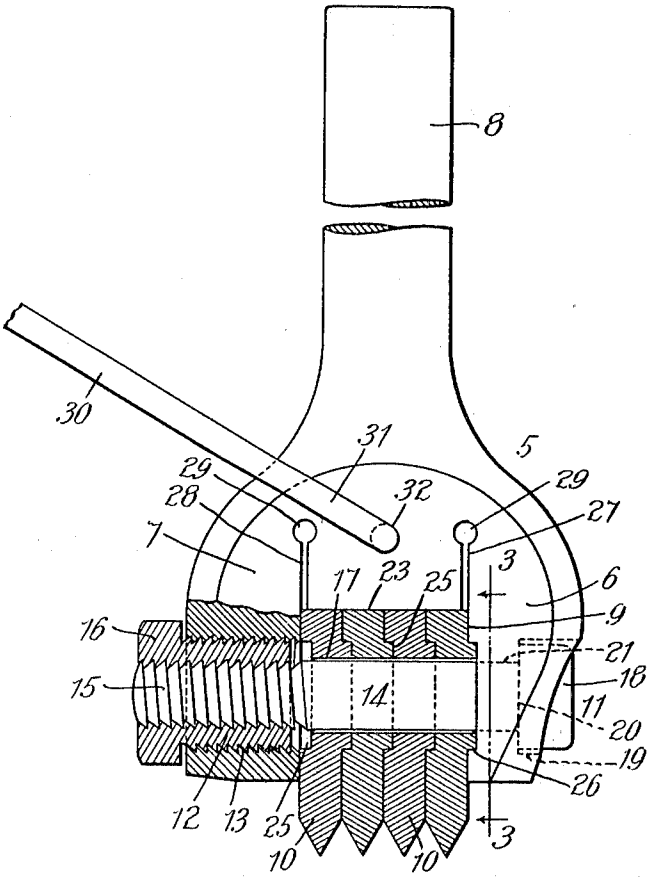


Fig. 2.

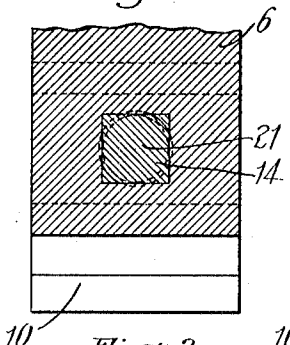


Fig. 3.

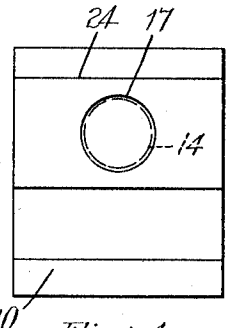


Fig. 4.

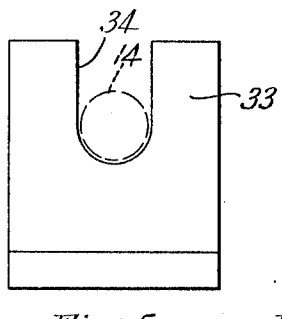


Fig. 5.

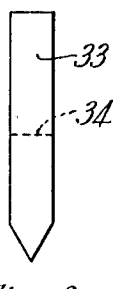


Fig. 6.

Witnesses.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WALTER F. RICE, OF QUINCY, MASSACHUSETTS.

BUSH-HAMMER.

1,115,024. Specification of Letters Patent. Patented Oct. 27, 1914.

Application filed July 11, 1912. Serial No. 708,861.

To all whom it may concern:

Be it known that I, WALTER F. RICE, a citizen of the United States, residing at Quincy, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Bush-Hammers, of which the following is a specification.

This invention relates to an improved bush hammer such as is used in finishing stone work, marble and the like.

The object of the invention is to provide a bush hammer in which the cutters are firmly held in a holder without any danger of becoming accidentally loosened or becoming detached therefrom, and further the object is to provide a device of the character set forth in which the cutters may be readily removed or placed in said bush hammer and securely locked thereto. Said bush hammers may be used for finishing the face of the stone by hand or they may be used in connection with power and the device hereinafter described is particularly adapted to be used in connection with a power machine.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a side elevation of a bush hammer constructed in accordance with my invention, the shank of the holder being broken away to save space in the drawings. Fig. 2 is a front elevation of the same, partly in section on line 2—2 of Fig. 1, also broken away. Fig. 3 is a detail section taken on line 3—3 of Fig. 2. Fig. 4 is a front elevation of one of the cutters. Fig. 5 is a front elevation of a modified form of cutter. Fig. 6 is a side elevation of the modified form of cutter illustrated in Fig. 5.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, referring to Figs. 1 to 4 inclusive, 5 is a tool holder with a pair of jaws 6, 7 at one end thereof, the same having a shank 8 integral therewith and adapted to be inserted in the driver of a power machine. A slot 9 is provided between the two jaws 6 and 7 and in this slot 9 the cutters 10 are inserted. The cutters 10 are locked in the slot 9 by a two-part clamping member 11. One of the parts of said clamping member consists of a sleeve 12 screw-threaded exteriorly at 13 to engage a corresponding screw-thread provided in the jaw 7. Said part 12 extends transversely of the jaw 7. The other part of said two-part clamp consists of a bolt 14 screw-threaded at 15 to engage a similar screw-thread formed upon the interior of the sleeve 12. The sleeve 12 has a hexagonal head 16, whereby it may be rotated by means of a wrench. The bolt 14 projects from the sleeve 12 through holes 17 provided in the cutters 10 and through the jaw 6, terminating in a head 18 which enters a recess 19 in the jaw 6, and bears against the outer side 20 of said jaw at the bottom of said recess. A portion 21 of said bolt is square and fits a similar shaped hole in the jaw 6, so that the bolt 14 cannot rotate when the sleeve 12 is rotated. The cutters 10 are adapted to abut against the tool holder 5 at the closed end 23 of the slot 9 and on each of said cutters is a rectangular projection 24 adapted to project into a similar shaped recess 25 formed in the cutter adjacent thereto, said projection 24 on the cutter at the extreme right (Fig. 2) being adapted to project into a similar recess 26 formed in the inner face of the jaw 6. The screw-threads 15 are of greater pitch than the screw-threads 13, as for instance the screw-threads 15 might be seven to an inch, while the screw-threads 13 might be eight to an inch. The screw-threads 13 and 15 are also preferably formed with one face of each thread substantially at right angles to the median axial line of the sleeve 12, while the other face of said thread forms an acute angle thereto. The tool holder 5 is provided with two slits 27 and 28 which extend longitudinally of said holder from the inner end of the slot 9 adjacent to the inner faces of the jaws 6 and 7, respectively, and these slits each terminates at its closed end in a semi-cylindrical groove 29. The object of these slits, arranged in the location indicated, is to allow the jaws 6 and 7 to be drawn toward each other without cramping on the clamp-bolt 14, and the semi-cylindrical grooves 29 are for the purpose of preventing the jaws from being broken or cracked from the ends of said slits outwardly at an angle to the outer edges of said jaws, as would probably be the case if the slits ended in a square corner. In order to move the bush hammer around to different locations a handle 30 is utilized, the same being forked at its front end at 31 to straddle the holder 5, the front ends of the forks 30 being provided with bent portions 32

which extend into holes provided in the holder 5, and thus the handle 30 is pivotally attached to said holder and by means of said handle the holder with the cutters thereon can be moved about to different locations for the finishing of the stone.

In Fig. 5 a modified form of cutter 33 is illustrated, the bolt 14 of the clamp member being shown in dotted lines in its relative position with relation thereto. Said cutter, it will be noted, instead of having a cylindrical hole therein is provided with a slot 34. By thus slotting the cutters, the same may be readily removed from the tool holder by loosening the clamp member without removing the bolt from the holder.

The general operation of the device hereinbefore specifically described is as follows: The projections 24 on the cutters 10 are inserted in the slots 25 in the cutter adjacent thereto. Then said cutters are slipped into the slots 9 laterally of the holder, the projection 24 on one of said cutters entering a slot 26 in the inner face of the jaw 6. Then the bolt 14 of the clamp member is inserted through the hole 22 in the jaw 6 and through the holes 17 in the cutters 10 and screwed into the sleeve 12. When the parts finally assume the relative position illustrated in Fig. 2, a slight turn upon the sleeve 12 will cause the jaws 6 and 7 to be forced toward each other and the cutters will then be clamped between said jaws. The last part of the operation is accomplished by rotating the sleeve 12 of the two-part member by a suitable wrench applied to the head 16 thereof, and as the bolt cannot turn, by reason of the rectangular portion 21 thereof located in the square hole 22 in the jaw 6, the result of rotating the member 12 in one direction will be to force the head 18 of the bolt against the jaw 6 and thus force the jaws 6 and 7 toward each other and clamp the cutters between said jaws. By reversing the rotation of the member 12, the clamping of the jaws against the cutters will be released and the bolt can be removed from the holder and the cutters also removed therefrom.

When the particular form of cutter illustrated in Fig. 5 is employed, it is only necessary to loosen the clamp-bolt and the cutters can then be slipped out by reason of the slots 34 provided therein.

By means of the clamping member described great power can be obtained and it has also been demonstrated by the practical use of this tool that the jarring of the tool, which is very great and sustained for a long period of time, will not in the least loosen or displace either of the parts of the two-part clamp, so that the cutters are clamped between the jaws 6 and 7 with great power and will not become accidentally detached therefrom.

Assuming the screw-threads 13 and 15 to be of the pitch hereinbefore described, the screw-threads 13 having eight threads to the inch and the screw 15 having seven threads to the inch, it will be seen that by a complete rotation of the sleeve 12 the head of the bolt 14 will be moved toward the sleeve 12 one fifty-sixth of an inch, so that the power of a screw having fifty-six threads to an inch can be obtained with a strength against stripping of a screw-thread having seven threads to an inch, and the combination of the two makes a very powerful holder for the cutters.

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

1. As an article of manufacture, a clamping device having, in combination, two members movable toward and away from each other, each adapted to receive a bolt, a bolt connecting said members provided with a shoulder adapted to limit the longtudinal motion thereof, the end of said bolt opposite said shoulder being screw-threaded, means on one of said members to prevent rotation of said bolt, a sleeve having threads on the interior thereof adapted to engage the threads on said bolt, and threads on the exterior of said sleeve of less pitch than the threads on the interior of said sleeve and screw-threads on the other of said members adapted to engage the threads on the exterior of said sleeve.

2. As an article of manufacture, a clamping device having, in combination, two members movable toward and away from each other, each adapted to receive a bolt, means to prevent relative rotation of said members, a bolt connecting said members provided with a shoulder adapted to limit the longitudinal motion thereof, the end of said bolt opposite said shoulder being screw-threaded, means on one of said members to prevent rotation of said bolt, a sleeve having threads on the interior thereof adapted to engage the threads on said bolt, and threads on the exterior of said sleeve of a less pitch than the threads on the interior of said sleeve and screw-threads on the other of said members adapted to engage the threads on the exterior of said sleeve.

3. As an article of manufacture, a clamping device having, in combnation, two members movable toward and away from each other, each adapted to receive a bolt, a bolt connecting said members provided with a head having different transverse diameters adapted to limit the longitudinal motion and prevent rotation thereof, the end of said bolt opposite said head being screw-threaded, one of said members being provided with a recess adapted to receive the head of said bolt, a sleeve having threads on the interior thereof adapted to engage

the threads on said bolt, and threads on the exterior of said sleeve of a less pitch than the threads on the interior of said sleeve and screw-threads on the other of said members adapted to engage the threads on the exterior of said sleeve.

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

WALTER F. RICE.

Witnesses:
CHARLES S. GOODING,
SYDNEY E. TAFT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."