C. A. BARRY.

STUD DRIVER.

APPLICATION FILED DEC. 21, 1920.

1,425,359. Patented Aug. 8, 1922.

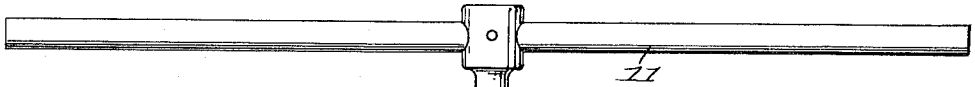



Fig. 1.

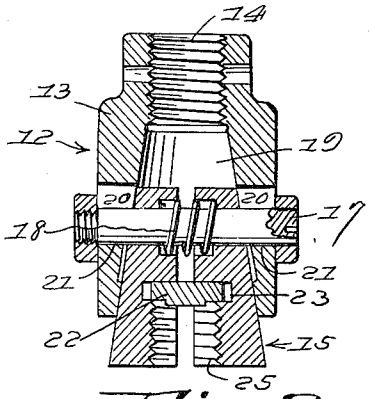



Fig. 2.

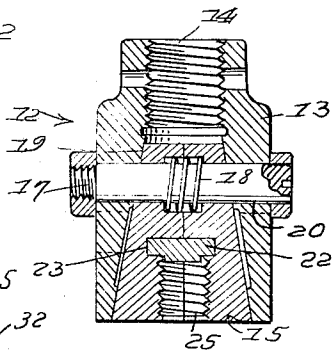



Fig. 3.

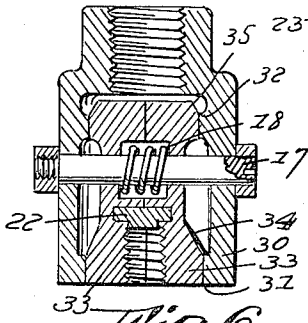



Fig. 6.

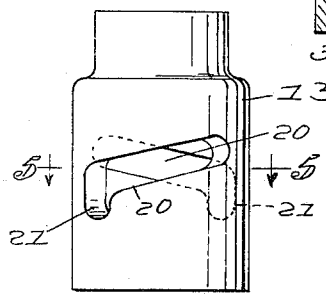



Fig. 4.

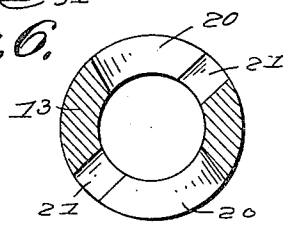



Fig. 5.

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# UNITED STATES PATENT OFFICE.

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## STUD DRIVER.

1,425,359. Specification of Letters Patent. Patented Aug. 8, 1922.

Application filed December 21, 1920. Serial No. 432,249.

*To all whom it may concern:*

Be it known that I, CHARLES ARTHUR BARRY, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Stud Drivers, of which the following is a specification.

The object of the invention is to provide a simple and efficient tool for driving or seating threaded studs under conditions serving to avoid the crossing or mutilation of the threads thereof while insuring the proper and forcible seating of the same in the structure to which they are to be applied; and with this object in view the invention consists in a construction and combination of parts of which a preferred embodiment is shown in the drawing, wherein:

Figure 1 is a side view of the tool applied in the operative position to a stud in the act of driving the same.

Fig. 2 is a sectional view of the chuck in its inoperative position, prior to engagement with the stud.

Fig. 3 is a similar view of the chuck in its operative or stud engaging position.

Fig. 4 is a side view of the chuck sleeve.

Fig. 5 is a cross-section on the plane indicated by the line 5—5 of Fig. 4.

Figure 6 is a sectional view of a modified form of the invention, this view being similar to Figure 3 in showing the relation of the parts.

The tool consists essentially of a shank 10 adapted to be turned by any suitable means as for example a brace or the equivalent thereof but shown in the drawing as fitted with a cross bar or handle 11 to indicate the function thereof, and a chuck 12 consisting of a sleeve 13 internally threaded at its upper end as shown at 14 for engagement with the lower end of the shank 10 and a core 15 fitted in the sleeve, said core and sleeve having complemental cored contacting surfaces and the core being split or of sectional construction to the end that when the core is moved axially in the sleeve it is diametrically expanded or contracted.

The chuck sleeve is preferably secured against rotary movement with relation to the shank by means of a transverse taper pin or key 16, and disengagement of the core from the sleeve of the chuck is prevented by a transverse pin 17 carrying an expansion spring 18 which serves to effect the spreading movement of the members of the chuck core when the latter is moved downwardly in the conical seat 19 of the sleeve.

The cross pin 17 is terminally fitted in cam slots 20 located in diametrically opposite positions in the wall of the sleeve and having at their lower ends the seats or depressions 21 for the reception of the extremity of the cross pin when the latter reaches the limit of its stud releasing movement. Also a bearing disk 22 is fitted in registering complemental seats 23 in the facing surfaces of the sections of the core, and the stud engaging faces of the latter are threaded as shown at 25 to conform to the threads of the stud to avoid the mutilation thereof while obtaining a sufficiently firm grip when the core is contracted, to insure the proper turning of the stud into position as indicated in Figure 1. In the normal or inoperative position the core is spread as shown in Figure 2 with the extremities of the cross or guide pin 17 in the seats or depressions 21 at the lower ends of the cam slots 20, and when the tool is applied to a stud and the upper end of the studs comes in contact with the bearing disk 22, the first action is to force the core inward to remove the ends of the pin 17 from the seats or depressions 21. This movement enables the threads in the engaging faces of the core members to properly seat themselves in the threads of the stud, after which the turning movement of the stem 10 by the action of the extremities of the cross pin in the cam slots 20 serves to force the core sections together in opposition to the tension of the spring 18 to firmly grip the stud and rotate it into engagement with the object to which it is to be applied.

The modification shown in section in Figure 6 is similar to the preferred form of the invention illustrated and differs from the latter only in the shape of the interior of the sleeve and the exterior contour of the members of the chuck core. In the modified form the sleeve 30 is formed on the interior with the two annular seats 31 and 32, the former being at the lower end of the sleeve, but the sleeve is, nevertheless, formed with cam slots identical with the cam slots 20 and having the seats 21 for the reception of the transverse pin 17, as shown. The chuck

core in the modification comprises the complemental members 33 which are mounted on the pin 17 as in the case of the preferred form and enclose the spring 18 which tends normally to separate them. The core, however, instead of being made conical as is the case with the core 15, is formed with the lower tapering shoulder 34 and the upper tapering shoulder 35 and with annular seats adjacent these shoulders, the shoulders tending to guide the seats on the core into contact with the annular seats 31 and 32 in the sleeve. The manner of operation of the modification is precisely the same as in the preferred form but revision of the shoulders 34 and 35 and the manner in which they coact with the annular seats to guide the core members into clamping position makes for a quicker action in the operation of the device.

Having described the invention, what is claimed as new and useful is:—

1. A stud driver having a chuck consisting of a sleeve provided with cam slots and a conical bearing surface and a core provided with complemental conical bearing surfaces co-acting with that of the sleeve, said core being of transversely sectional construction, and a cross pin carrying the sections of the core and engaged with the cam slots in the sleeve.

2. A stud driver having a chuck consisting of a sleeve provided with cam slots and a conical bearing surface and a core provided with complemental conical bearing surfaces co-acting with that of the sleeve, said core being of transversely sectional construction, and a cross pin carrying the sections of the core and engaged with the cam slots in the sleeve, the cam slots being provided at their lower ends with depressions or seats for the reception of said cross pin when the core is expanded.

3. A stud driver having a chuck consisting of a sleeve provided with cam slots and a conical bearing surface and a core provided with complemental conical bearing surfaces co-acting with that of the sleeve, said core being of transversely sectional construction, and a cross pin carrying the sections of the core and engaged with the cam slots in the sleeve, an expansion spring being interposed between the sections of the core.

4. A stud driver having a chuck consisting of a sleeve provided with cam slots and a conical bearing surface and a core provided with complemental conical bearing surfaces co-acting with that of the sleeve, said core being of transversely sectional construction, and a cross pin carrying the sections of the core and engaged with the cam slots in the sleeve, said cam slots being provided with terminal longitudinally extended seats or depressions for the reception of said cross pin, and a bearing head arranged at the inner end of the socket of said core.

5. A stud driver having a chuck consisting of a sleeve provided with cam slots and a conical bearing surface and a core provided with complemental conical bearing surfaces co-acting with that of the sleeve, said core being of transversely sectional construction, and a cross pin carrying the sections of the core and engaged with the cam slots in the sleeve, the core having an axial threaded stud receiving socket and a bearing head arranged at the inner end of the socket and peripherally threaded in registering seats in the core members.

In testimony whereof he affixes his signature.

CHARLES ARTHUR BARRY.