No. 810,230. PATENTED JAN. 16, 1906.

W. B. SWAN.

BIT EXTENDER.

APPLICATION FILED AUG. 18, 1905.

Fig. 1.

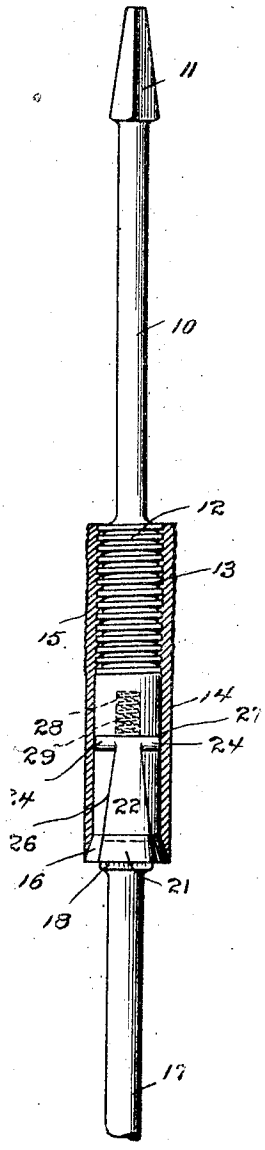


Fig. 3.

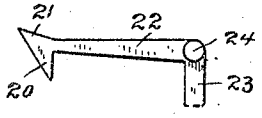


Fig. 4.

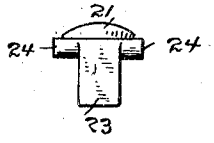


Fig. 5.

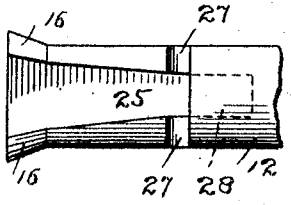


Fig. 6.

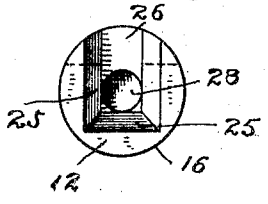
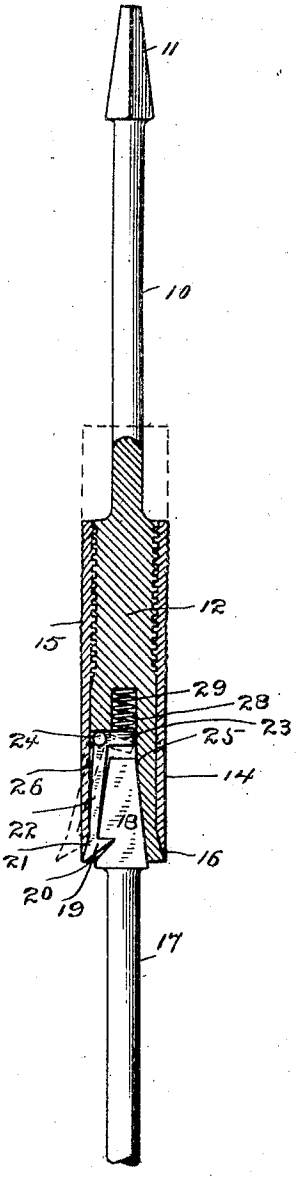


Fig. 2.



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BIT-EXTENDER.

No. 810,230. Specification of Letters Patent. Patented Jan. 16, 1906.

Application filed August 18, 1905. Serial No. 274,813.

To all whom it may concern:

Be it known that I, WILLIAM B. SWAN, a citizen of the United States, residing at Seymour, county of New Haven, State of Connecticut, have invented a new and useful Bit-Extender, of which the following is a specification.

This invention relates to the class of bit-extenders illustrated and described in my former Letters Patent, No. 759,042, dated May 3, 1904, and has for its object to still further simplify and cheapen the construction of this class of implements and to improve their operation in use.

The device is adapted to be carried in a tool-chest with bits and a brace and provides an intermediate implement to which a bit may be attached and which may itself be attached to a brace or to another extender and will enable the operator to use an ordinary bit in places that would be wholly out of reach with an ordinary brace. I thus at slight expense provide a convenient means for extending every bit in a set without to the slightest degree impairing their efficiency or affecting their convenience in ordinary use, and, furthermore, enable the operator to obtain all the results that can be obtained by a set of extra long bits, while avoiding the serious expense of a set of long bits and the inconvenience of carrying them about.

In order to accomplish the desired result in the simplest and most inexpensive manner possible and at the same time to provide a thoroughly practical and durable implement which is wholly free from complications and will not get out of repair, I have devised the novel structure, of which the following description, in connection with the accompanying drawings, is a specification, reference characters being used to indicate the several parts.

Figure 1 is an elevation illustrating my novel extender as in use, the sleeve being in section; Fig. 2, a similar view, the implement having been given a quarter-turn, both sleeve and chuck being in section and the unlocking position of the sleeve being indicated by dotted lines; Fig. 3, a side view, and Fig. 4 a rear view, of the locking-catch detached; and Fig. 5 is a plan view, and Fig. 6 an end view, of the chuck.

10 denotes the shank of the extender, which is provided with the usual tang 11, by which it may be connected to a brace. At the other end of the tang is a chuck 12, which is externally threaded, as at 13, for engagement with an internally-threaded sleeve 14. The sleeve is preferably knurled or roughened, as at 15, for convenience in manipulation. The outer end or head of the chuck is shown as tapering outward, forming an incline 16, with which the lower end of the sleeve preferably corresponds.

17 denotes the shank of the bit, which is provided with a tang 18, by which it may be connected either to a brace or to an extender. Tang 18 is provided with a locking-recess 19, which is adapted to be engaged by a locking-catch 20, the rear face of which is provided with an outward incline 21, which corresponds with incline 16 on the head of the chuck. The general shape of the locking-catch is that of a bell-crank lever.

22 denotes the shank of the locking-catch, and 23 an arm extending at substantially a right angle to the shank. At the intersection of the shank and the arm are trunnions 24. At the outer end of the chuck is an inwardly-tapering socket 25, which is adapted to receive the tang of a bit and which is cut away at one side to form a recess 26, which receives the locking-catch. At the base of the recess are bearings 27, which receive the trunnions, and at the base of socket 25 is a socket 28, which receives a spring 29, the outer end of which bears against arm 23 of the locking-catch and normally acts to throw the locking-catch to the unlocking position.

The operation will be readily understood from Fig. 2. When the sleeve is turned backward, as indicated by dotted lines, the spring will act to throw the locking-catch outward toward the position indicated by dotted lines and will permit the insertion of the tang of a bit into the socket or will release a bit-tang should the implement have been in use. To lock a bit-tang in place in the socket, the sleeve is simply turned down on the chuck to the position shown in full lines in Figs. 1 and 2. As the sleeve moves downward the end of the sleeve will engage incline 21 on the back of the locking-catch and will move said catch into engagement with locking-recess 19 in the bit-tang against the power of the spring, as clearly shown in Fig. 2.

Having thus described my invention, I claim—

In a bit-extender, an externally-threaded chuck provided with a tapering socket at its lower portion terminating in a centrally-lo-

cated recess extending longitudinally into the body of the chuck, said body being formed with horizontal recesses adjacent to said longitudinal recess, a coil-spring in said recess, a bell-crank locking-lever having bearings in said horizontal recesses, said locking-lever comprising a long arm provided with a latch and a short arm extending transverse of the axis of the chuck, said short arm being arranged whereby it will be acted upon by the said spring to force the long arm to an unlocked position, and an internally-threaded sleeve for said chuck adapted to retain the locking-lever in a locked position.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM B. SWAN

Witnesses:

FREDERICK N. EARLEY,

L. C. LATTRICH.