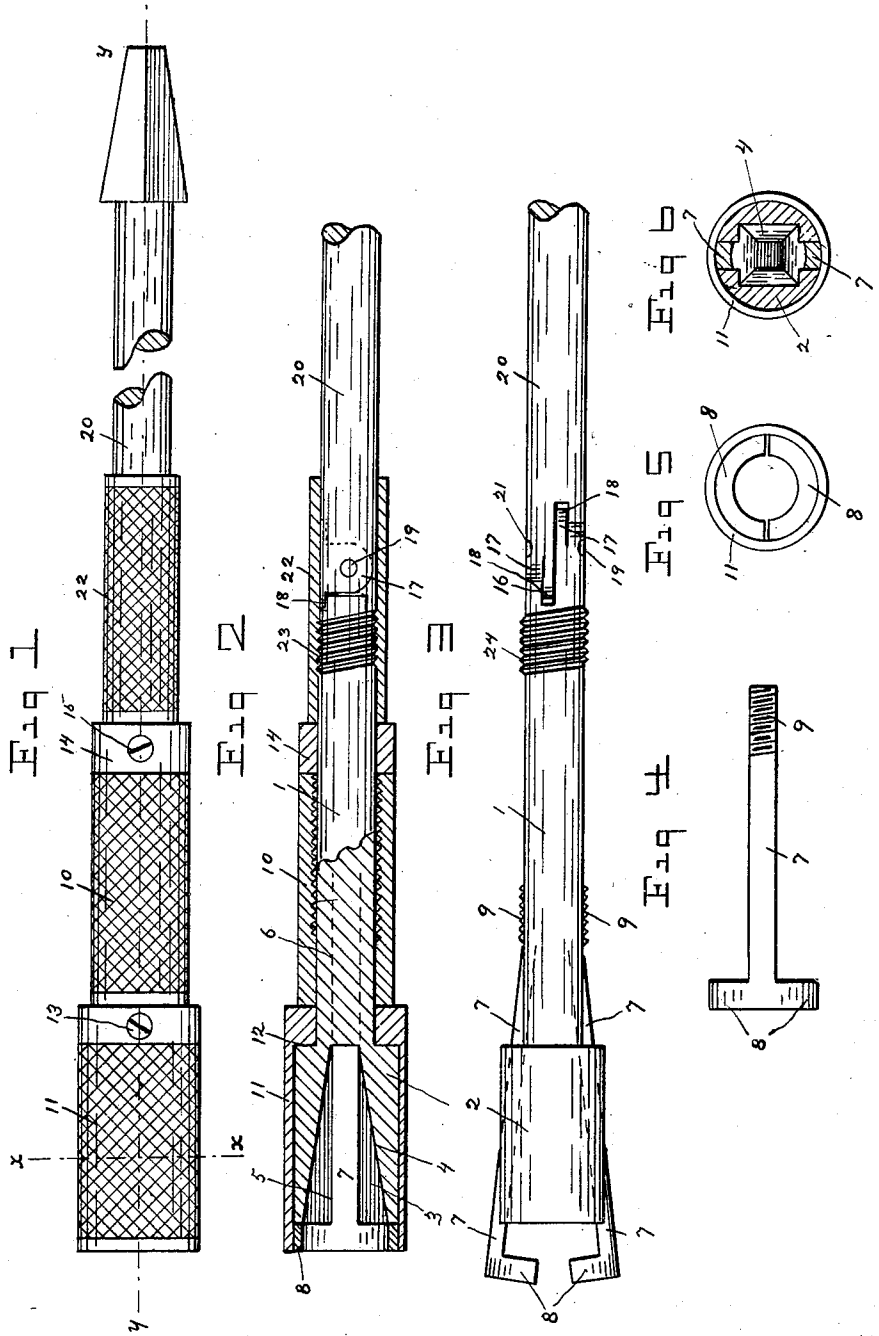
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BIT EXTENDER.

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BIT-EXTENDER.

No. 890,894. Specification of Letters Patent. Patented June 16, 1908.

Application filed February 11, 1908. Serial No. 415,285.

To all whom it may concern:

Be it known that we, WILLIAM H. EHRHART and GEORGE W. LEONARD, citizens of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Bit-Extenders, of which the following is a specification, reference being had therein to the accompanying drawing.

Our invention relates to a bit extender, of that class which is intended to extend or lengthen the ordinary bit used in hand boring braces to a greater length for boring holes of greater length than the capacity of the bit, and as required by electricians.

The objects of our invention are to provide a handy and efficient splice or extender for bits, which can be quickly, easily and rigidly secured to the shank of any ordinary bit, and which is adapted by its own shank to be rigidly secured by the jaws of any ordinary bit-brace, and which by its detachable shank-extension will allow a great adjustment of length by the use of shanks of varying lengths.

While we have herewith described our device as illustrated, we do not confine ourselves to the exact design as shown, as slight changes may be made in the construction without departing from the spirit of the invention.

Similar reference figures indicate corresponding parts in all the figures of the drawings.

In the drawings:—Figure 1, is a side elevation of our bit extender, showing the jaws closed and sleeves in place. Fig. 2, is a sectional view on the line Y—Y of Fig. 1, showing the jaw socket and shank coupling. Fig. 3, is a side elevation with all the sleeves removed, and the jaws extended. Fig. 4, is a detail view of one of the jaws. Fig. 5, is an end view of the jaws and casing. Fig. 6, is a sectional view on the line *x*—*x* of Fig. 1.

1 indicates a main rod, formed with the enlargement 2, which is provided with the end recess or jaw socket 3, formed with the tapered sides 4, and having upon its outer surface the longitudinal slots 5, which extend for a short distance down the sides of the rod 1, in the form of the longitudinal grooves 6. While upon and encircling the enlargement 2, is placed the jaw casing 11, which is formed with the rear flange 12, adapted to embrace the rod 1, and secured thereto by a pin or set-screw 13. Slidably mounted within said longitudinal slots 5, with their rear ends extending into the grooves 6, are the jaws 7, which are made in the form of a T, with their arms 8, curved inwardly to form the arc of a circle, and the end of said jaws provided with the screw-threads 9, on their outer surface, which when placed in the grooves 6, have their teeth extending beyond the surface of the rod 1, and are adapted to be engaged by the internal screw-threaded sleeve 10, which just fits upon the rod 1, having one of its ends in contact with the jaw casing 11, and its other end being retained in place by the collar 14, which is secured to said rod 1, by the set-screw 15, and in this manner said sleeve 10, is held from any lateral motion upon said rod 1, but may be freely rotated upon said rod 1, while its threads being in engagement with the threaded ends of the jaws 7, said jaws will be moved in and out of the jaw socket 3, by rotating said sleeve 10, and the natural spring of said jaws 7, opening them or forcing them away from each other as they are thus extended, thus allowing for the reception of the bit shank.

The rear end of the rod 1, at a point a short distance beyond the sleeve 10, is formed with the slot 16, and the tongue 17, terminating in the lip 18, while at right angles from said tongue extends the pin 19.

The forward end of the shank 20, is formed in exactly the same way with the exception that in place of the pin 19, there is a hole 21, so that it will readily be seen that by placing the shank member 20, at right angles to the member 1, with the pin 19, inserted in the hole 21, and then by moving said shank 20, and rod 1, into alinement with each other the tongue 17, and lip 18, will enter the slots 16, and thus be retained from sliding off the pin 19, while a firm joint is secured by embracing the whole by the sleeve 22, which is formed with the internal screw-thread 23, which engages the screw-thread 24, formed on the rod 1, adjacent to said joint.

The operation of my device is as follows:—The sleeve 10, being turned in the proper direction the jaws are pushed out and opened, and the bit-shank having been inserted they are then pulled in and retained in a closed position by revolving the sleeve in the opposite direction, thus gripping and holding the bit in a firm and rigid manner.

If it is desired to change the shank for one

of another length the sleeve is unscrewed and slid past the coupling which is then uncoupled and the desired shank attached and secured by the replacing of the sleeve over said coupling.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is:—

1. A bit-extender of the class described, comprising a bar, an enlargement formed upon one end of said bar, a tapered socket formed within said enlargement and pierced by longitudinal slots extending through the walls of said socket, the outer surface of said bar provided with grooves extending longitudinally upon opposite sides thereof, and communicating with said slots, gripping jaws screw-threaded upon their rear ends and formed with semi-circular arms, slidably mounted within said slots and grooves, a circular flanged casing embracing the enlargement of said rod and retaining said jaws therein, and means for operating said jaws.

2. A bit-extender of the class described, comprising a bar, an enlargement formed upon one end of said bar, a tapered socket formed within said enlargement open on its larger end, said enlargement pierced transversely by longitudinal slots in the walls of said socket, recesses extending longitudinally upon the surface of opposite sides of said enlargement and communicating with said slots, gripping jaws formed with screw-threads upon their rear ends and formed with semi-circular arms, said gripping jaws slidably mounted within said slots and grooves, a circular flanged casing embracing the enlargement of said rod and retaining said jaws therein, an internal screw-threaded sleeve embracing said rod with its teeth in engagement with the teeth of said jaws, a collar surrounding said rod and retained therein in close contact with said sleeve, for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM H. EHRHART.
GEORGE W. LEONARD.

Witnesses:
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