

June 19, 1923.

S. T. WILLIAMS

1,458,961

TOOL

Filed March 10, 1921

FIG. I.

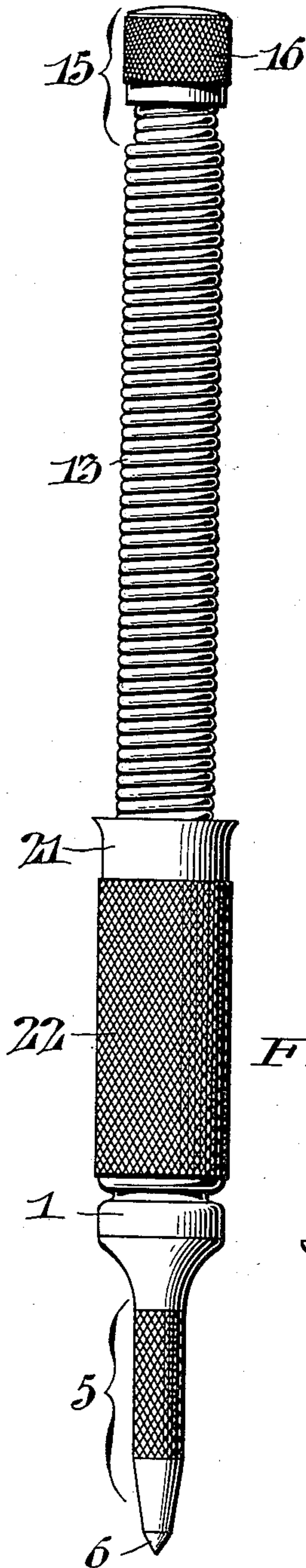


FIG. II.

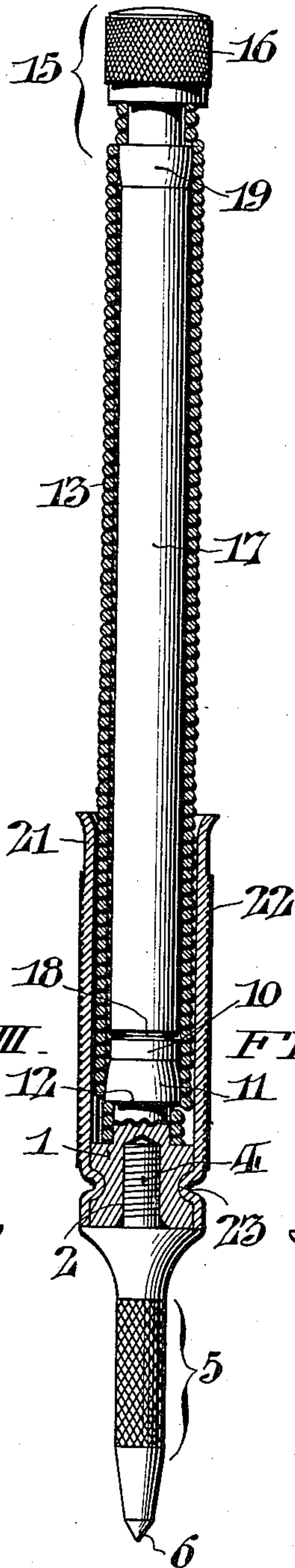


FIG. III.

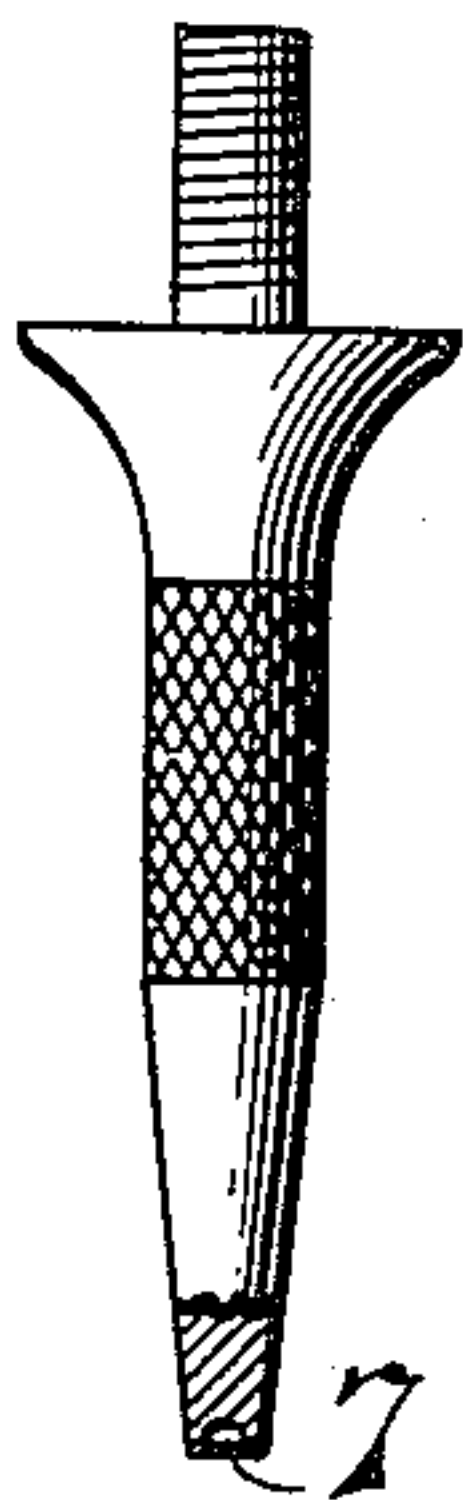


FIG. IV.

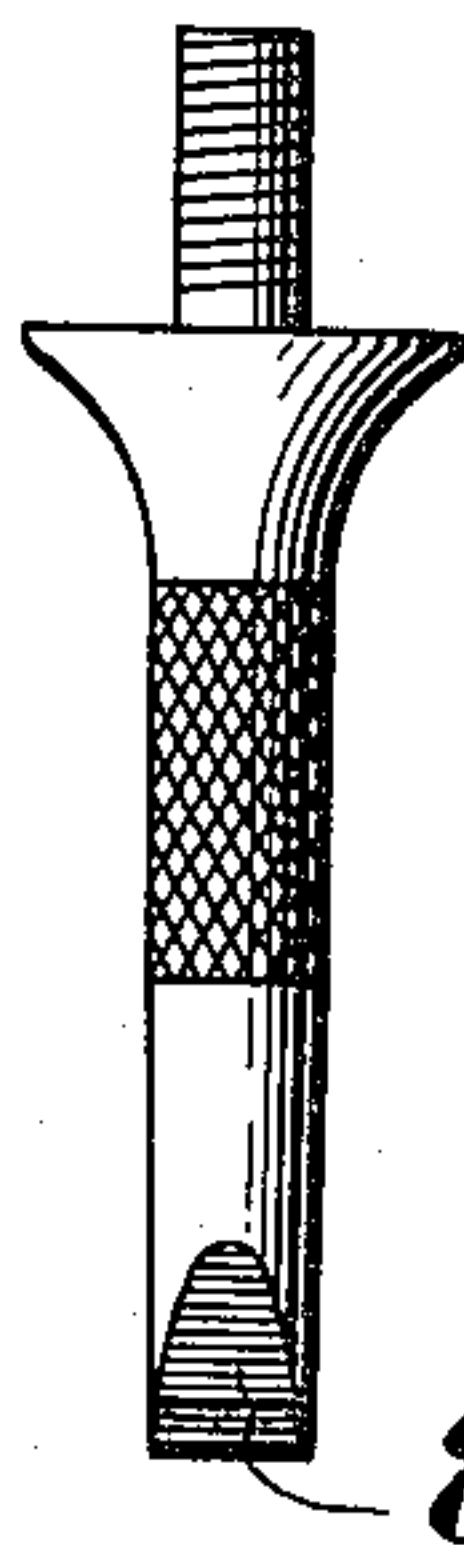
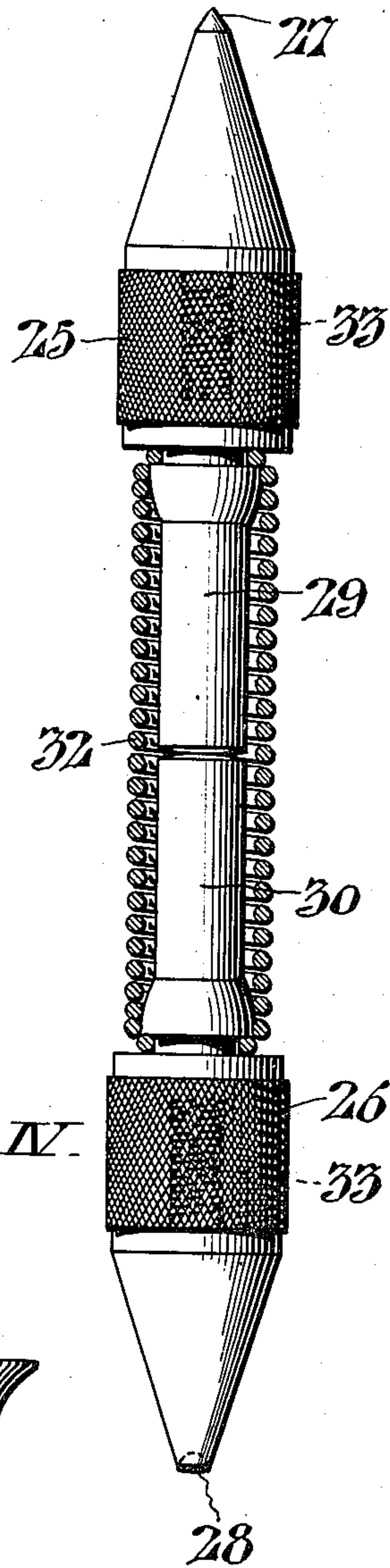


FIG. V.



WITNESSES:

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UNITED STATES PATENT OFFICE.

SELDON T. WILLIAMS, OF PHILADELPHIA, PENNSYLVANIA.

TOOL.

Application filed March 10, 1921. Serial No. 451,336.

To all whom it may concern:

Be it known that I, SELDON T. WILLIAMS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Tools, whereof the following is a specification, reference being had to the accompanying drawings.

The invention relates to hand tools useful in center punching, nail setting, chiseling and analogous operations.

The primary object of my invention is to simplify or render less tedious than heretofore possible such operations as above cited; and a further object of my invention is to effect driving of tools adapted for these purposes without the aid of hammers or analogous instrumentalities.

These objects, I attain by incorporating directly in the tool structure, means from which may be derived the force necessary to impart a forcible blow to the tool point in effecting the work which it is desired to accomplish.

The advantages of my invention will become readily apparent from the detailed description which follows:

In the drawings, Fig. I is an elevation of a tool conveniently embodying my invention.

Fig. II is an axial, sectional view of the same.

Figs. III and IV are views of different types of tool ends which may be employed in connection with the tool illustrated in Figs. I and II, and Fig. V is a modified form of my invention.

Referring first to the type of tool illustrated in Figs. I to VI inclusive, the device therein represented comprises a tool carrying element 1, which is generally cylindrical in form, and bored axially as indicated at 2, to receive the threaded stem 4 of a tool end 5. In Figs. I and II, the tool end 5 is illustrated as being in the form of a center punch and accordingly provided with a conical point as shown at 6, but when desired, the tool end 5 may be removed and tool ends for other purposes may be substituted in its place. For convenience of illustration, I have shown two other interchangeable tools, the one in Fig. III having its end 7 shaped to serve as a nail set, while the type shown in Fig. IV has its end

chamfered as shown at 8 to serve as a chisel.

Referring again to the tool carrying element 1, it will be observed to comprise, at its upper end, a shank extension 10, having formed upon it, a protuberance 11, which affords a shoulder 12 behind which are locked the reduced terminal ends of a coiled spring 13. The protuberance 11 is appropriately tapered so as to afford an easy approach in attaching the spring end to the shank initially.

Coaxially aligned with the tool carrying element 1 is an impact element 15 comprising a knurled head 16, and an intergral shank 17 which opposes the shank 10 of the element 1. The shank 17 normally abuts against the shank 10 as shown at 18 under the drawing action of the spring 13, which is secured directly beneath the head 16 of the element 15 behind a protuberance 19 in a manner similar to that described in connection with its attachment to the element 1.

Encircling the organization at the region of the abutment of the shanks 10 and 17 is a guard in the form of a coaxial sleeve 21, which is knurled upon its exterior surface as shown at 22, and secured at its lower end to the element 1 by being contracted within a circumferential groove 23 of the latter.

In operation the tool point is spotted according to the marks on the work which is to be center punched for example, by grasping the sleeve 21 in one hand and the knurled head 16 in the other, and then drawing the latter to place spring 13 under tension thus storing within the same sufficient power so that when suddenly released, the shank 17 of the impact element is caused to strike the top of the tool carrying element 1 a forcible blow which is transmitted directly to the tool end and thus drives the latter home. The knurling upon the head 16 of the impact element and the guard sleeve 21 which is attached to the tool carrying element, it will be seen, allows these elements to be firmly gripped in placing the spring 13 under tension, while said guard prevents axial displacement between said elements, and incidently, side flexure of the spring.

Referring now to the form of my inven-

tion shown in Fig. V, it will be noted that the same general characteristics are embodied here as in the first described form. In this case, however, the elements 25 and 26 corresponding to the elements 1 and 15 of the first embodiment, both take the form of tool carrying elements, and either may be used as an impact member for the other. In order to broaden the scope of this tool, I prefer to form the tool points of the elements 25 and 26 respectively with a center punch point 27 and a nail set point 28. The element 25 has an integral shank 29, which normally abuts with the corresponding shank 30 of the element 26 at 31, and a coil spring 32 connects the two in axial alignment. Attachment of the ends of the spring 32 to the respective elements 25 and 26 is effected in a manner already understood.

If desired, the tool ends 27 and 28 may be made interchangeable as in the first described form of my invention, by providing them, as suggested in dotted lines, with threaded stems 33 capable of being received in appropriate sockets in the elements 25 and 26.

Tools constructed as herein set forth are highly efficient on account of the simplicity of operation and may be advantageously used in comparatively inaccessible places where, with ordinary tools, it has proven extremely tedious to perform such operations as hereinbefore cited.

Having thus described my invention, I claim:

1. An impact tool, including a tool carrying element, a striking element, and a helical spring having closely spaced convolutions enclosing said elements and connected thereto at its ends, whereby to forcibly direct the striking element against the tool carrying element when the spring is tensioned and released, and to function as a guide and enclosure for the striking element.

2. An impact tool, including a tool carrying element, a relatively long striking element, and a helical spring of closely spaced convolutions enclosing said elements and having one end connected to the tool carrying element and the other end connected to the remote end of the striking element, whereby the latter is guided in its movement toward the tool carrying element when the spring is tensioned and released.

3. A device of the character described comprising in combination, a tool element; a cooperative impact element disposed in axial alignment with said tool element; a coiled spring connecting said tool and impact elements; and coaxial guard sleeve surrounding said elements at the region of their abutment to prevent axial disalignment of said elements when the spring is placed under tension.

4. A device of the character described comprising in combination, a tool element provided with an axial shank; a cooperative headed impact element having an axial shank disposed in opposition to the shank of said tool element; and a coiled connecting spring encircling the shanks of said elements, said spring having a number of its terminal turns at each end anchored behind protuberances formed on the respective shanks of said tool element and impact elements.

In testimony whereof, I have hereunto signed my name, at Philadelphia, Pennsylvania, this 7th day of March, 1921.

SELDON T. WILLIAMS.

Witnesses:

JAMES H. BELL,
E. L. FULLERTON.