

No. 843,655.

PATENTED FEB. 12, 1907.

J. A. ADELL & L. S. STARRETT.

AUTOMATIC PRICK PUNCH.

APPLICATION FILED MAR. 3, 1906.

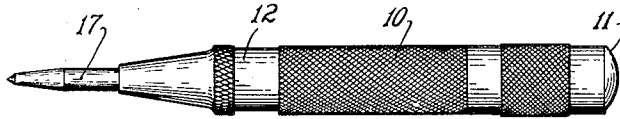


FIG. 1.

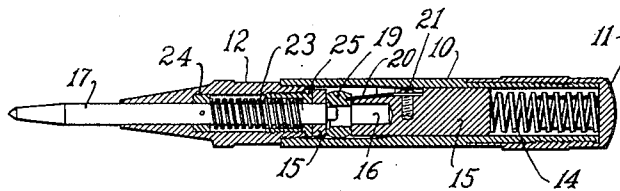


FIG. 2.

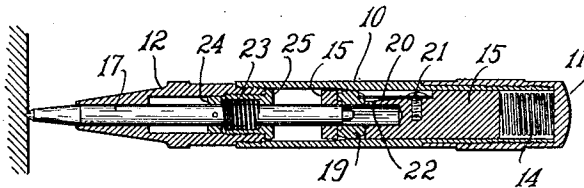


FIG. 3.

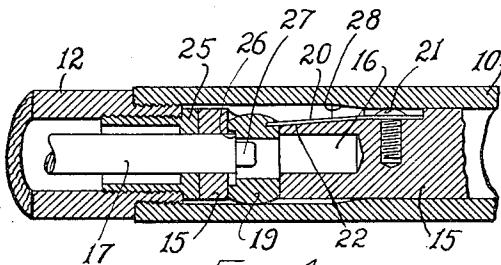


FIG. 4.

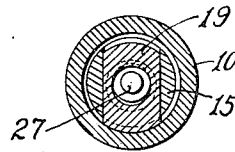


FIG. 5.

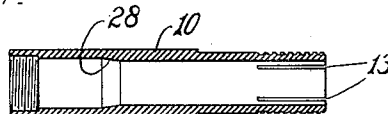


FIG. 6.

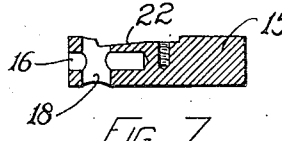


FIG. 7.

WITNESSES

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UNITED STATES PATENT OFFICE.

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AUTOMATIC PRICK-PUNCH.

No. 843,655.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed March 3, 1906. Serial No. 303,993.

To all whom it may concern:

Be it known that we, JOHN A. ADELL and LAROE S. STARRETT, both of Athol, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Automatic Prick-Punches, of which the following is a specification.

This invention is in the nature of improvement upon the automatic prick-punch shown in Letters Patent to John A. Adell and John L. Baltzer, No. 789,520, dated May 9, 1905, our object being to simplify and cheapen such punches and to provide a tool readily put together and not likely to get out of repair.

This tool, like the former one, is shown composed of three hollow metallic sections connected longitudinally by screw-threads, the middle section inclosing a reciprocating hammer and its releasing device, while the tip and butt sections contain, respectively, the reciprocating punch and its spring and the hammer-driving spring.

The new construction is hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a side view of the tool complete; Fig. 2, a longitudinal section; Fig. 3, a like section showing position of the parts at the instant the hammer-blow is to be delivered, the punch being retracted and springs compressed. Figs. 4 and 5 are enlarged sectional details. Figs. 6 and 7 are longitudinal sections of the body and hammer detached.

The chief feature of novelty is the construction and action of the hammer and the devices by which it is automatically released or permitted to strike its blow when the springs have been sufficiently compressed by retracting the punch.

The body 10 of the tool is a steel cylinder, coarsely threaded externally at one end to receive the end cap 11 and internally threaded at the opposite end to hold the tip-section 12 in place. At the cap end the body 10 is shown in Fig. 6 of slightly-reduced external diameter and having terminally a plurality of longitudinal slots 13, Fig. 6, giving a slight elastic action when cap 11 is screwed thereon. The cap has about mid-length a limited portion of its bore of slightly less diameter than elsewhere and threaded to engage the threads

of such slotted end, so as to adjust the tension of the inclosed hammer-spring 14.

The hammer 15 is movably located within body 10, its solid butt-end bearing against spring 14. Its opposite end has an axial perforation 16 to receive the butt of the punch 17 and a transverse perforation 18, in which is located the operating-stud 19. This stud is transversely perforated to permit the punch to work through it at the proper time and has a length about equal to the diameter of hammer 15 and normally protrudes slightly at one end under the influence of a flat spring 20, secured by a screw 21 to an obliquely-flattened side 22 of the hammer. (See Figs. 2, 3, and 4.) The free end of this flat spring engages in a slot in the side of said stud near its end, so that they move together.

The tip-section 12 is formed hollow and incloses the punch-spring 23 and part of the reciprocating punch 17, which works through it. Such spring is held under proper compression between punch-collar 24 and the hollow punch-bushing 25, which is externally threaded to screw into the larger end of tip-section 12 and is axially perforated to guide the punch in its reciprocation. The punch-collar is held in place against a shoulder on the punch frictionally or by this pressure, and any desired tension can be imparted to spring 23 by screwing in said bushing more or less.

The butt of the punch protrudes normally through bushing 25 and is formed with a shoulder 26 and a reduced terminal projection 27, which readily enter the axial perforation in hammer 15. When the punch is pressed against the work to be indented, it recedes largely into tip-section 12, its shoulder 26 bearing against the side of the operating-stud 19 adjacent to the transverse perforation therein. (See Fig. 4.) The rearward movement of the punch carries the hammer backward in body 10, as seen in Fig. 3, compressing hammer-spring 14 and punch-spring 23.

The inner wall of body 10 has at the proper point a tapering portion 28, where its bore is quickly reduced. Now when the punch and hammer recede the projecting convex head of operating-stud 19 bears against this tapering portion of the wall, and the stud is thereby moved longitudinally, as in Fig. 3,

just enough to bring its transverse perforation into the exact axial plane of the punch. This dislodges the stud from its rest on shoulder 26 of the punch, depriving the hammer of the support it previously had and permitting it to yield to the pressure of the spring 14. It instantly advances, striking the desired blow upon the punch-butt which it-surrounds, the point of impact being the inner terminus of the axial cavity 16. The indenting-blow is delivered by the hammer upon the reduced terminal projection 27 of the punch.

We hereby disclaim the construction shown, described, and claimed in United States Letters Patent No. 813,641, dated February 27, 1906, "automatic prick-punches."

We claim as our invention—

1. In automatic prick-punches, the external casing composed of a plurality of connected sections and, within them, a reciprocating hammer and its spring, and a spring-actuated punch protruding terminally from the tip-section, in combination with a releasing member having a slight reciprocating movement transversely through the hammer and with means for automatically actuating said member when the punch is sufficiently retracted, for the purpose set forth.

2. In automatic prick-punches, the external casing composed of a plurality of con-

nected sections, a spring-actuated hammer and punch adapted to reciprocate therein, the hammer having an axial perforation to receive the butt of the punch and a transverse perforation intersecting it, in combination with a spring-actuated stud movable in such transverse perforation and with an inclined shoulder or tapering portion within the body or casing, serving to move said stud when the punch is retracted, for the purpose set forth.

3. In automatic prick-punches, the casing formed of a plurality of connected sections, a spring-actuated punch therein, the tip-section having an adjustable bushing through which the punch reciprocates and the punch being shouldered and reduced terminally, in combination with the spring-actuated reciprocating hammer having intersecting axial and transverse perforations, the operating-stud located in such transverse perforation to engage the punch-shoulder, and perforated for passage of the punch transversely through it, and with the stud-spring and the inclined shoulder in the punch-body, serving to actuate the stud, for the purpose set forth.

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

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LARROY S. STARRETT.

Witnesses:

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