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SURGICAL TOOL FOR CUTTING PLASTER CASTS

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Fig. 1.

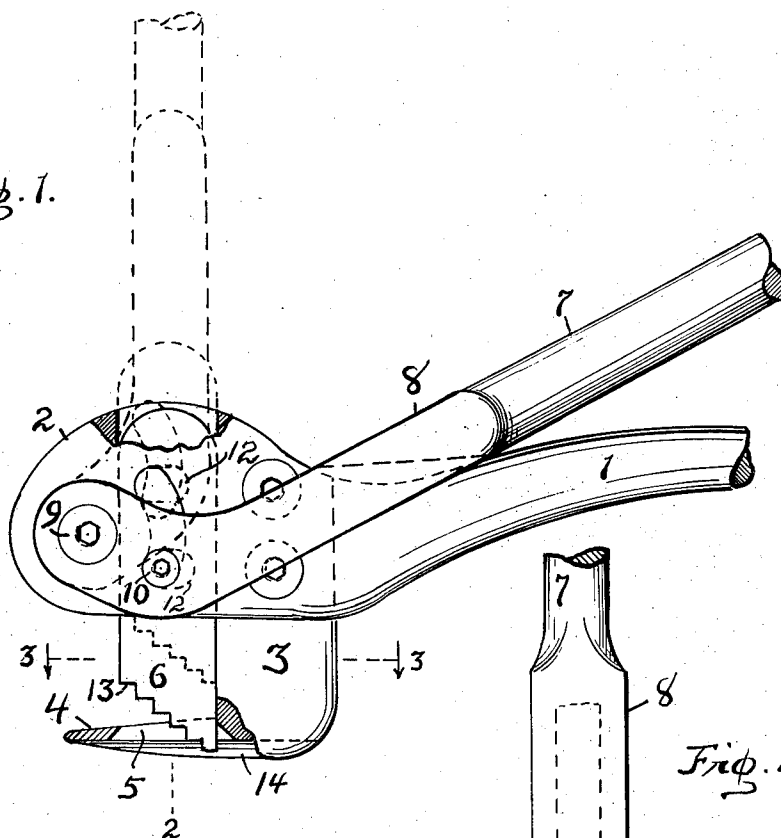


Fig. 3.

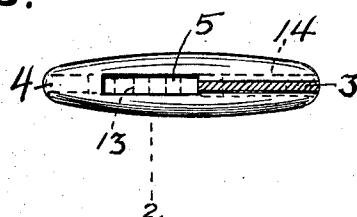
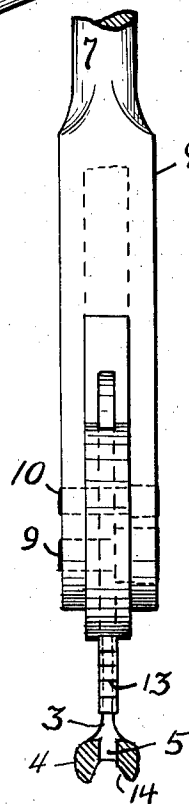


Fig. 2.



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SURGICAL TOOL FOR CUTTING PLASTER
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4 Claims. (Cl. 30—194)

This invention relates to surgical tools for cutting plaster casts while in place on a patient for the purpose of its removal.

An object of the invention is to provide a cutting instrument that is applied to a plaster cast by which an opening is made through the wall of the cast from one end to the other without liability of causing injury or discomfort to the patient.

Another object of the invention is to afford a cutting instrument for plaster casts that operates expeditiously and effectively wherefore removal of the cast is accomplished with dispatch and with but little exertion upon the part of the operator.

And a further object of the invention is to construct a tool capable of cutting through the wall of a plaster cast in such manner as to leave but little debris resulting from the kerf made by the tool.

Other objects and advantages of the invention appear in the following description.

An illustrative embodiment of the invention is shown in the accompanying drawing, in which—

Fig. 1 is a fragmentary side elevational view of a structure in which the invention is incorporated, a portion thereof being in section;

Fig. 2 is a fragmentary front elevational view of the structure shown in Fig. 1, with the operating lever in elevated position, and a portion in section in a vertical plane indicated in Fig. 1 by the dotted line 2—; and

Fig. 3 is a cross-sectional view projected from Fig. 1, the section being on the line 3—3 thereof.

The illustrative embodiment of the invention consists of a handle 1 having a head 2 at one end thereof provided with a rigid pendent jaw 3. A forwardly projecting extension 4 of the jaw has made therein a die opening 5 in which is received a punch 6 that extends up through the head 2 and has sliding movement therein.

An operating lever 7 is provided having a forked end 8 that is disposed astride of the head 2, and is connected therewith by a pivot 9 at a point therein ahead of the punch 6. A driving pin 10 is secured in the arms of the fork 8 and extends loosely through an arcuate slot 11 in the head and also through an elongated slot 12 in the punch so that when the operating lever 7 is raised or lowered corresponding movement thereby is imparted to the punch.

The lower end of the punch preferably is shaped to have a series of offsets 13 that extends from the front of the punch diagonally downward to the lowermost extremity thereof. The

end of the punch having the offsets is adapted to be projected partway through the die opening 5 in the jaw extension, and the back edge of the punch bears constantly against the adjacent edge of the jaw 3 upon which it has sliding movement. The bottom of the jaw has made therein a longitudinal groove constituting a throat 14 wherefore to permit discharge of material removed from the cast upon operation of the punch. The top, sides, bottom and the forward end of the jaw extension is smoothly rounded so as to facilitate its introduction between the cast and the body of the patient.

In using the tool, the lever 7 is raised so that the punch is elevated to its uppermost position, the projecting end of the extension 4 of the jaw is then inserted between the inner wall of the plaster cast to be removed (not shown) and the flesh of the patient adjacent thereto, and while thus positioned the operating lever is forced downwardly by the operator which causes the punch to bear upon the exterior wall of the cast with the effect that the immediate end portion of the cast is punched through the die opening 5 into the throat 14 of the jaw, and also that portion of the cast immediately ahead of the punched portion of the cast is broken down by pressure of the forward succession of offsets of the punch. The pendent rear portion of the jaw 3 preferably is of less lateral thickness than the punch so that upon each punching operation the tool may readily be advanced further into the cast without hindrance of the jaw. Upon elevation of the operating lever and consequent raising of the punch the tool is then advanced into a secondary position so that upon again moving the operating lever downward the punching and breaking down operations are repeated. As the tool is further advanced the punchings removed from the cast are left in the wake of the advancing jaw out of the way from interference with the progress of the tool. These operations are continued until the tool shall have traversed the entire length of the cast or about that portion thereof desired to be removed from place.

Upon each operation of the lever that portion of the cast that is disposed beneath the rear portion of the punch is completely severed and disposed of by the punch into the throat, and the immediate preceding adjacent portion of the cast is crushed down which permits subsequent movement thereof to position beneath the rear-most die-penetrating offsets of the punch as the tool is advanced and operated.

Variations from the particular construction above disclosed may readily be made by exercise of engineering skill without departure from the spirit or scope of the invention, and the following claims are intended to be inclusive of such variations.

What I claim is:

1. In a cutting tool for plaster casts, a handle having a head at one end thereof provided with a rigid pendent jaw, there being a die opening formed in a forwardly projecting extension of said jaw and a longitudinal throat in the bottom thereof, a punch having sliding movement in said head, its lower end being shaped to have a series of offsets extending from the front of the punch diagonally downward through said die opening when the punch is in lowermost position, an operating lever having a forked end disposed astride of said head and pivotally connected thereto, and a drive pin in connection with said lever extending through slots in said head and punch wherefore said punch is actuated upon operation of said lever.

2. A cutting tool for plaster casts having a handle provided with a head, a jaw in connection with the head having a forwardly projecting extension provided with a die opening therein and a longitudinal throat in its bottom, and a punch, provided with means to reciprocate it, movable in said head, and the lower end of which has offsets disposed in a series extending

diagonally downward from the front of the punch, a rearmost portion of said offsets having shearing relation with said extension upon movement thereof through said die opening.

3. A cutting tool for plaster casts consisting of a head including a jaw with a forwardly projecting extension having a die opening therein and a longitudinal throat in the bottom of said extension communicating with the die opening, and a punch provided with actuating means therefor and having a series of offsets in one end disposed diagonally downward from the front thereof, the rearmost of said offsets having shearing relation through said die opening with said extension and the forwardmost of said extensions having crushing relation with the wall of a plaster cast when said cast is inserted between said punch and said extension upon operation of said punch.

4. In a tool for removing surgical plaster casts, a head provided with a pendant jaw and extension thereof, said extension having a die opening therein, a punch having guided movement in said head, one end of said punch having a diagonal series of offsets the lowermost of which enter said die opening upon movement of the punch to the end of its downstroke, and an operating member pivoted on said head and having actuating engagement with said punch.

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