Dec. 10, 1940. C. A. GRATIOT 2,224,384

TWEEZERS

Filed Sept. 6, 1938

Fig. 1

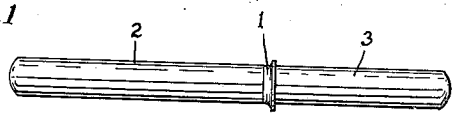


Fig. 2

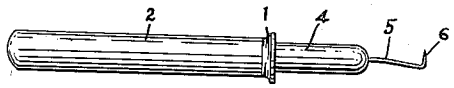


Fig. 3

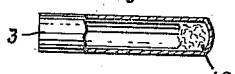
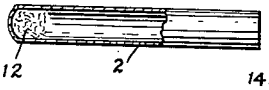




Fig. 4

Fig. 6



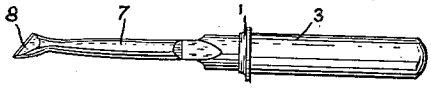


Fig. 5

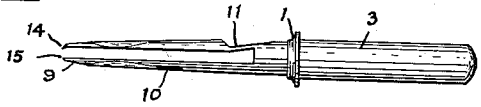


Fig. 7

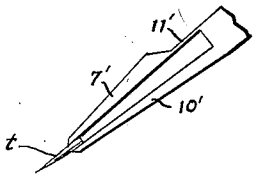


Fig. 8

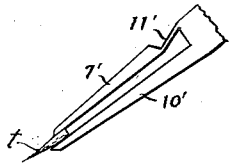


Fig 9

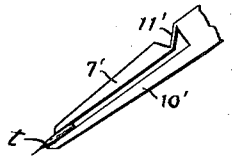


Fig. 10

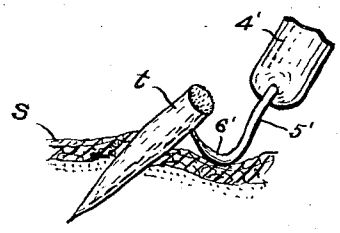


Fig. 11

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UNITED STATES PATENT OFFICE

2,224,384

TWEEZERS

Chester A. Gratiot, Portland, Oreg.

Application September 6, 1938, Serial No. 228,620

3 Claims. (Cl. 128—354)

My invention relates to tweezers of the general type employed by surgeons and beauty-culturists for the removal of slivers, hair, and other like minute particles from the skin.

The principal object of my invention is to provide in such an instrument a finely critical operation thereof of great value.

A second object of my invention is the provision for extreme portability in the form of a pocket-piece.

A third object is the provision of certain auxiliary elements in cooperative conjunction to provide for asepsis of the operative portions of the instrument and the immediate availability thereof for use in accordance with best antiseptic practices.

Other objects and advantages of my invention will be apparent in the following discourse wherein the significance of the reference characters in the accompanying drawing, details of construction and manner of use of a typical instrument embodying my invention, and the particular advantages thereof are explained.

Figure 1 represents a view of the complete instrument as carried in the pocket.

Figure 2 represents a view of the instrument from which one cap has been removed to expose for use an auxiliary needle-point or prod.

Figure 3 represents a view of the cap removed from the instrument as shown in Figure 2, partly in longitudinal section to reveal an antiseptic packing.

Figure 4 represents a view of the end of the instrument as shown in Figure 2.

Figure 5 represents a view of the instrument from which the opposite cap has been removed to reveal the tweezers as viewed in one direction.

Figure 6 represents a view of the cap which has been removed from the instrument as shown in Figure 5 partly in longitudinal section to reveal an antiseptic packing.

Figure 7 represents a view of the instrument as shown in Figure 5 but of the lateral aspect thereof.

Figures 8, 9, and 10, are diagrams illustrative of the manner of operation of the tweezers.

Figure 11 is a diagram illustrative of the manner of use of the auxiliary prod in the removal of slivers.

The instrument consists of a body 1 integral with a pair of tweezers 7 and a rigid extension 4 supporting a prod 5 formed with an angularly disposed and curved point 6. A cap 3 containing an antiseptic packing 13 encases the prod 5 and is retained by friction with the body-extension 4. The cap 2, similarly encasing the tweezers 7 is retained in the closed position by friction with the legs of the tweezers which normally expand when the cap 2 is removed.

The tweezers are formed in detail with a rigid leg 10 between which and the body 1 no flexure is contemplated, and a spring supported leg 7 joined to the body by means of the spring portion 11. The portions of the tweezer-legs 7 and 8 are comparatively rigid and are fashioned with bevels 8 and 9 forming the edges 14 and 15 inclined with the axis of the instrument to provide an initial contact of the edges at the most extreme points thereof. The point 14 is ground with a slight "feather" as indicated in the Figure 7. Both points of the tweezers become embedded in the antiseptic packing 12 when the cap 2 is replaced.

The use and operation of the instrument with its auxiliary elements comprising the prod 5, the caps 2 and 3 and the antiseptic packings contained therein are peculiarly cooperative in the practice of asepsis in emergency use.

The instrument being a pocket-piece is readily available for use. The caps provide protection against mechanical damage to the operative elements and serve as sterilizing chambers normally in operative conjunction and provide against contamination when opposite ends of the instrument are used.

A sliver, for example is first located, revealed, or loosened with the prod 5 and the cap 3 whose interior is in a sterile condition is replaced with the remaining hand of the operator. The instrument is then turned in the fingers grasping the body 1 to extend the cap 2 which is in turn removed to reveal the tweezers in a sterile condition.

The point 15 is placed under the protruding end of the sliver and the leg 7 is pressed into opposite engagement. Depending upon where the operator's finger is placed upon the leg 7, the force applied will be divided between two resolved movements of the point 14. First, the point 14, with its feather edge, will contact the sliver and grip the same in cooperation with the point 15, and, second, the point 14 will recede upon the point 15 as shown in the diagrams 8, 9, and 10.

In the diagrams, the sliver is represented by *t* which in Figure 8 has been grasped between the points of the tweezers. Pressure upon the leg 7' causes a flexure of the spring portion 11' as shown in Figure 9 resulting in a foreshortening of the leg 7' with reference to the leg 10'. In Figure

10, this action is depicted as having reached a final stage when the sliver has been completely and automatically extracted without disturbing the point of the leg 10' with reference to the site of operation. This action is an effective preventative of vibration normally caused by tensed finger muscles necessary to the operation of tweezers.

In Figure 11 is shown the use of the bent prod 5' in effectively bracing the instrument against vibration by resting the prod upon the skin while the point 6' is manipulated by a rotary movement of the body-part 4' to extract the sliver by a force reacting against the skin *s* in minutely gaged degrees as required.

Having described my invention, what I claim is:

1. Tweezers consisting of two rigid legs formed with apposed points and complementary grips one of which is formed with a reduced section adjacent the juncture of said legs capable of simple and compound flexure to normally hold the points apart and guide the same into transversely approached contact when impelled together by pressure on said grips and by further and increased pressure to retract the movable point upon the stationary point.

2. Tweezers consisting of two rigid legs joined at one end in apposed and spaced relationship formed with points and complementary grips medially of the ends and one of which legs adjacent the juncture with the other is characterized by a transverse section of reduced dimensions to form a spring element capable of simple and compound flexure to provide lateral and longitudinal movement of one point successively upon the use of increased pressures upon the said grips.

3. Tweezers consisting of two apposed rigid legs joined at one end in spaced relationship, formed with points, grips medially of the ends, and one of which legs is formed with a spring segment adjacent the juncture thereof with the other leg.

CHESTER A. GRATIOT.