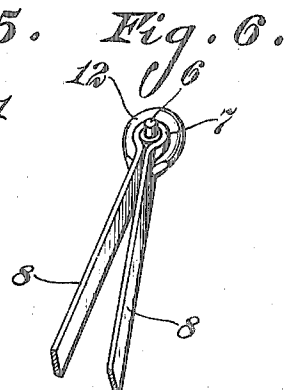
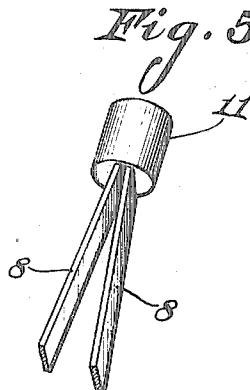
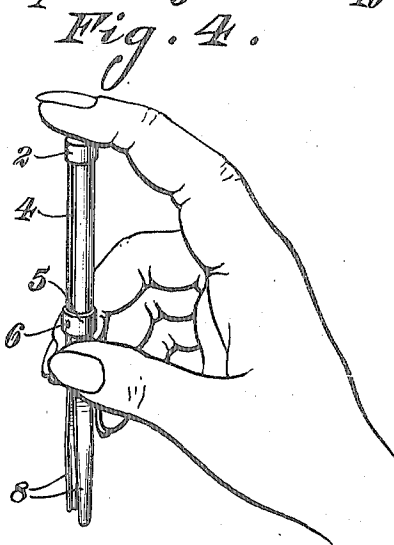
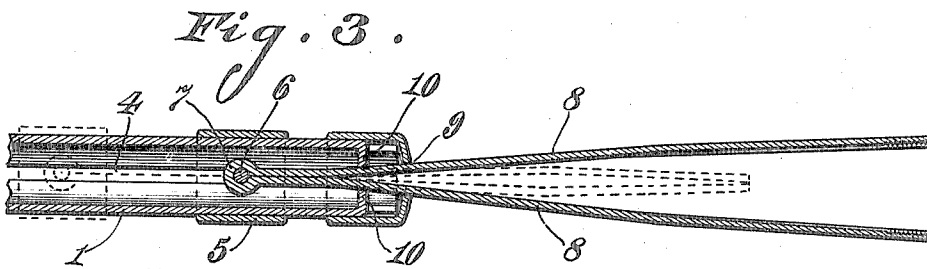
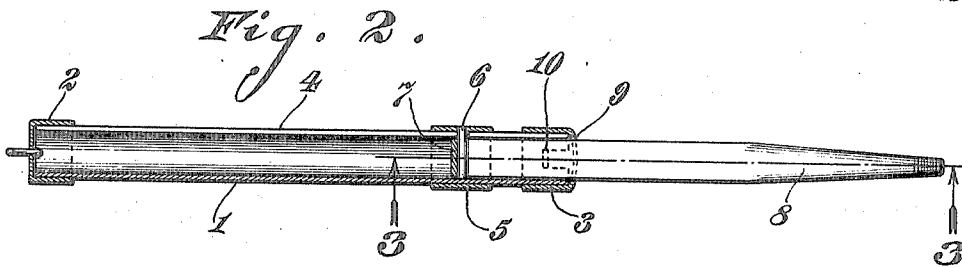
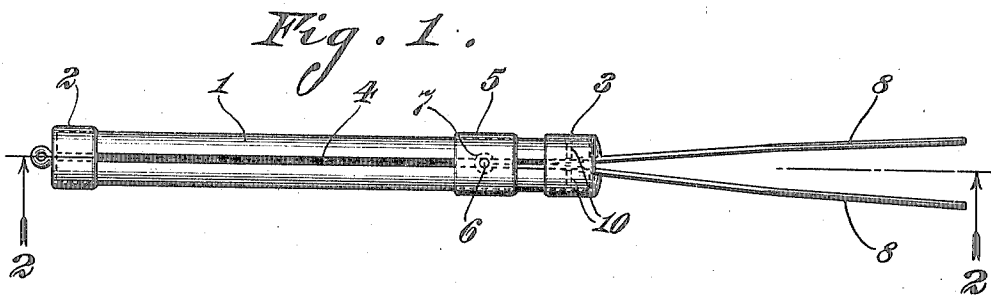


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TWEEZERS.

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1,284,060.

Patented Nov. 5, 1918.



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UNITED STATES PATENT OFFICE.

CARL CULMAN, OF ST. LOUIS, MISSOURI.

TWEEZERS.

1,284,060.

Specification of Letters Patent.

Patented Nov. 5, 1918.

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To all whom it may concern:

Be it known that I, CARL CULMAN, a citizen of the United States, and residing at St. Louis, Missouri, have invented a new and useful Improvement in Tweezers, of which the following is a specification.

This invention relates to watchmakers' instruments and more particularly to watchmakers' tweezers of the type embodying a pair of spring tweezer jaws and means for moving said jaws into coöperative engagement with an object to be grasped thereby.

Such devices have, heretofore, not only embodied a rather complicated and expensive organization of structural elements but, in operation, the act of closing the tweezer jaws on the object, has involved a bodily longitudinal movement of the said jaws, tending to lift them away from the object, which condition seriously interferes with and renders exceedingly difficult, the grasping of minute objects by the tweezers.

The present invention has among its objects, therefore, to provide comparatively simple, inexpensive tweezers wherein the jaws in closing will, in so far as bodily longitudinal movement is concerned, remain stationary, thereby insuring ready engagement of the tweezers with the object to be grasped.

With the above and other objects in view, the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings,

Figure 1 is a side elevation of an instrument embodying the invention;

Fig. 2 is a central longitudinal section taken on the line 2—2, of Fig. 1;

Fig. 3 is a detail section taken on the line 3—3, of Fig. 2, and showing the parts on an enlarged scale;

Fig. 4 is a perspective view illustrating the manner of grasping the instrument in the operation of closing the tweezer jaws;

Fig. 5 is a detail perspective view showing another embodiment of the bearing head applied to the tweezer jaws; and,

Fig. 6 is a similar view showing still another embodiment of the bearing head.

Referring to the drawing, 1 designates an elongated tubular sheath or casing, equipped with end caps 2 and 3 and provided with a longitudinal slot 4, there being mounted on, and for sliding movement longitudinally of, said casing, a spring sleeve or collar 5 fixed

by means of a pin 6 to the head 7 of a pair of coöperating spring tweezer jaws 8, adapted to be normally housed within the casing 1, while provided in the forward end cap 3 is a slot or opening 9 through which the tweezer-jaws may be projected forwardly beyond the casing, as shown and as will be readily understood. During the movement of the sleeve 5 on the casing 1, in the operation of projecting or retracting the tweezer jaws, the pin 6 will travel in the slot 4 and guide the sleeve and tweezers in their movement. The tweezers are made from a length of sheet metal folded upon itself, to provide the pair of jaws 8 which, when projected beyond the casing, are adapted to open automatically through their inherent spring action, while for closing the jaws, there is provided, a pair of bearing fingers 10 preferably struck from the body of the casing 1 at the forward end thereof, and turned inwardly at right angles to the axis of said casing in position to bear on the other side faces of the jaws, as seen more clearly in Fig. 3, for pressing the jaws to closed position, as the casing moves forwardly over the jaws.

In practice, the tweezer jaws are normally housed within the casing and may be projected therebeyond and to open position, by sliding the collar 5 forwardly along the casing to the position shown in Fig. 1. With the tweezers proper thus projected beyond the casing, the instrument will be grasped, as in Fig. 4, and the open jaws positioned for their forward ends to straddle the object to be grasped, whereupon pressure applied by the finger of the operator upon the rear or upper end of the casing, serves to move the casing bodily downward on the jaws, which, during this operation, remain fixed against relative bodily movement and, therefore, partake of only such movement as will cause them to close upon and grasp the object, this closing movement of the jaws being caused by the bearings 10 riding downward over the outer side faces of the jaws, as will be readily understood. It is to be particularly noted that the construction embodying my invention dispenses with the use of a spring or springs for retracting the tweezers into the casing, and that the opening and closing movements of the jaws are affected wholly through a positive manual movement of the casing and tweezers relatively. It will be noted further that the resultant device in-

volves a minimum of structural parts, which are of simplified form and may, therefore, be inexpensively made, and furthermore, that in the operation of the device, when the tweezers are projected beyond the casing, they remain passive while being positioned over the object to be grasped, as above explained, and during the movement of the casing downward thereon for causing them to close upon the object. As a result, the jaws may be allowed to open to their fullest extent, even when the object to be grasped is of minute size, and will under such conditions, close properly on the object without being lifted away therefrom during their closing movement.

In Fig. 5 the tweezer jaws 8 are provided at their rear meeting ends with a head 11 molded thereon and of a form (and of suitable size) to fit within the casing 1, and form a bearing for guiding the parts during relative movement of the casing and jaws. This head may be molded to fit special or odd shaped casings.

In Fig. 6 there is applied around the head 7 of the jaws 8, a bearing-piece 12, adapted to engage the inner face of the casing 1 at diametrically opposite points at right angles to the slot 4, and to cooperate with the pin 6 for guiding the parts during movement of the tweezers into and out of the casing.

From the foregoing, it is apparent that the device accomplishes the stated objects of the invention, it being understood that in attaining these ends, various minor changes may be made in the details herein set forth without departing from the spirit or scope of the invention.

Having thus described the invention, what is claimed is:

1. An instrument of the type described, comprising a pair of cooperating spring tweezer jaws, a casing constructed and arranged to normally house said jaws, and for relative movement longitudinally thereof, said jaws and casing being adapted for posi-

tive, manual movement relatively to project the jaws beyond, or retract them into, the casing, said casing provided with a longitudinally extending guiding slot, means mounted in said slot and supporting said tweezer jaws, and means acting through relative movement of said last-mentioned means and the casing to move the jaws to closed position.

2. An instrument of the type described, comprising a pair of cooperating spring tweezer jaws, a casing constructed and arranged to normally house said jaws, and for relative movement longitudinally thereof, said jaws and casing being adapted for positive, manual movement relatively to project the jaws beyond, or retract them into, the casing, said casing being provided with a longitudinally extending guiding slot, a collar mounted on the casing, a pin carried by the collar and extending through said slot, said tweezer jaws being suspended from and supported by said pin, and means acting through relative movement of said sleeve and casing to move the jaws to closed position.

3. An instrument of the type described, comprising a pair of cooperating spring tweezer jaws, a casing constructed and arranged to normally house said jaws, and for relative movement longitudinally thereof, said jaws and casing being adapted for positive, manual movement relatively to project the jaws beyond, or retract them into, the casing, said casing being provided with a longitudinally extending guiding slot, a collar mounted on the casing, a pin carried by the collar and extending through said slot, said tweezer jaws being suspended from and supported by said pin, said casing having inward turned bearing fingers at its lower end disposed to act upon the outer faces of said jaws and move said jaws to closed position.

In testimony whereof I affix my signature this 18th day of November, 1916.

CARL CULMAN.