

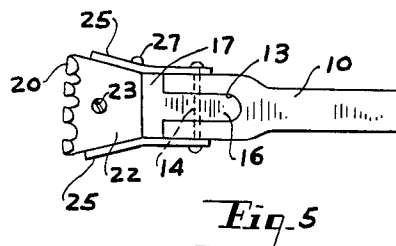
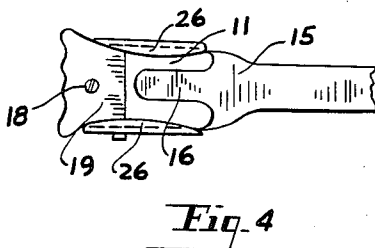
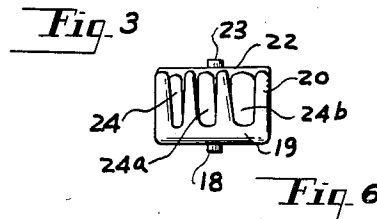
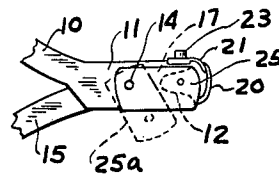
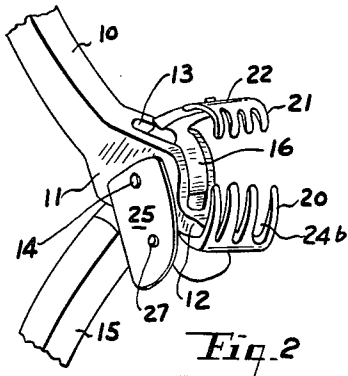
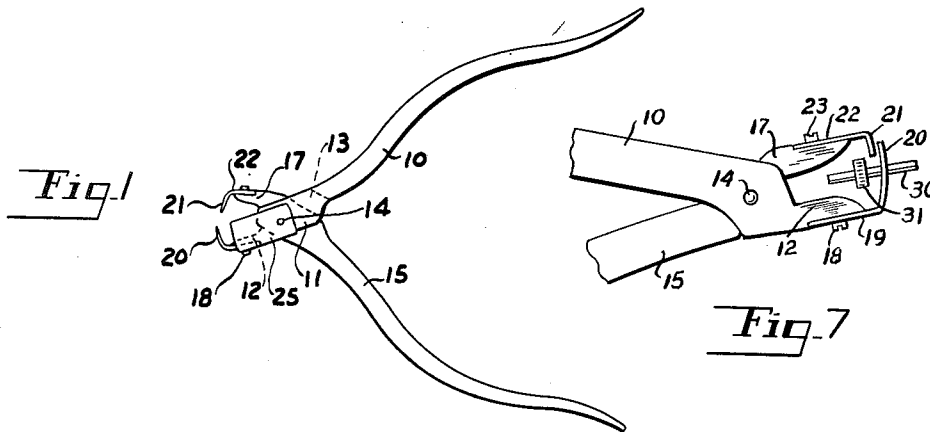
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I. FILIP

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JEWELER'S PLIERS WITH JAWS HAVING PIVOTED SIDE PLATES

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JEWELER'S PLIERS WITH JAWS HAVING
PIVOTED SIDE PLATES

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2 Claims. (Cl. 81—6)

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The purpose of my improvement is to provide a tool by means of which it will be possible not only to remove a small item from a given mechanism but to have the item automatically retained within the tool for removal on completion of the operation.

I wish now to describe my improvement with respect to the accompanying drawing in which:

Fig. 1 is a side elevational view of my pliers;

Fig. 2 is a perspective view of the operative end of said pliers, the view including two jaws in their open position and parts of handles to manipulate said jaws;

Fig. 3 is a side elevational view of the operative end of my pliers, the view including a pivoted side guard which is a part of my improvement;

Fig. 4 is a bottom view of the operative part of the pliers;

Fig. 5 is a top elevational view of said operative part of my pliers;

Fig. 6 is a front view of two jaws of the pliers in their closed or clamped positions.

Fig. 7 is an enlarged side elevational view of the jaw end of the pliers with the side guards removed, the view including an object clamped by the teeth thereof.

Similar numerals refer to similar parts throughout the several views.

The pliers comprise two members in a scissor-like arrangement, one of the members including a handle 10, a portion 11 for a pivotal arrangement with the other member, and a stub 12 at the front or the operative end of said member. Within its portion 11 the member is provided with a slot 13 for reception of the opposite member in a crosswise position, the two members being held together by a crosspin 14.

The opposite member includes a handle 15, a portion 16 fitting into said slot 13, and a short stub 17 at the front or the operative end of said member.

Affixed to the stubs are the jaws of the pliers, these being made of sheet steel or some other suitable material. Specifically, mounted on stub 12 and secured thereto by means of a screw 18 is a jaw including a flat plate 19 and a plurality of teeth 20 disposed substantially at right angle to said plate and extending in the direction of teeth 21 of the opposite jaw which similarly includes a mounting plate 22 secured to the respective stub by screw 23, as best shown in Fig. 5. Said plate 19 and teeth 20 form what will be regarded as the lower jaw of the pliers, while plate 22 and teeth 21 form the upper jaw thereof.

It will be noted that the spacing between indi-

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vidual teeth of either jaw is not even and that it is graduated in width, as best shown in Figs. 2 and 6. The teeth of the lower jaw are considerably longer than those of the upper jaw. When the jaws are in a clamped position, as shown in Fig. 6, the teeth of the lower jaw will overlap the teeth of the upper jaw, but the spacing between the teeth will remain unaffected, the spaces of gradually increasing width being marked 24, 24a, and 24b, respectively.

Associated with the jaws are two side plates 25. The plates are mounted on the above-said crosspin 14, one plate being mounted upon one end thereof and the other plate being mounted on the opposite end of said pin. The arrangement is such that the plates and the pin form a unit so that the plates rotate with said pin and not upon said pin. Normally the plates serve as side walls of a chamber formed by the clamped jaws and the stubs 12 and 17 which are spaced from each other. The chamber serves as a temporary retaining receptacle for small parts lifted by the pliers during their operative use. This is shown in Fig. 7 where the pliers are shown without the side plates 25 in order that the manner of use of said pliers may be more clearly disclosed. The jaws of the pliers in this figure are shown in a closed position, the teeth of one jaw overlapping the teeth of the other jaw. Now, for an example, it will be assumed that a small arbor 30 supporting a pinion 31 is to be removed from a mechanism such as a clock-work. To effect this, the jaws of the pliers are spread apart and then brought into a closed position, the arbor fitting into a spacing between the teeth of one jaw and the aligned spacing between the teeth of the opposite jaw, while the pinion would fit into the chamber partly bounded by the teeth, the stubs 16 and 17, and also by the side plates as shown in solid lines in Fig. 3.

Upon removal of the arbor from the mechanism, the arbor would remain in the chamber without any danger of being lost while being transferred from said mechanism to another place. Incidentally, the teeth bearing against the face of the pinion, transversely to the axis of the arbor, would serve as means of extracting the arbor or a similar item from its location in a particular mechanism.

The chamber would be even more serviceable in transferring small nuts, washers, etc., which articles are difficult to handle by open end tweezers and which often slip out therefrom, leading sometimes to a long search for the lost item.

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To remove the items from the chamber, the side plates are simply swung down and the pliers are turned to one side to permit the items to drop out by gravity. To limit the upward swing of the guards each of them is provided with a flange 26, as shown in Fig. 4. A small knob or protuberance 27 on the side of one plate 25 serves as a means against which the tip of a finger may be applied in order to swing both plates to open or to close said chamber between the jaws of the pliers.

The operation of the pliers is quite obvious. When the pliers are to be used to remove a small object within a watch, a small clock, or any other delicate mechanism, the side guards are in their normal position, forming with the jaws of the pliers a scoop or a receptacle. The teeth of the lower jaw are applied to the object to be removed so as to straddle it, whereupon the teeth of the upper jaw are brought down where they will be overlapped by the teeth of the lower jaw. The object to be pulled up from its position, especially when it is provided with something like a shoulder, will be retained within the pliers by said side guards until said guards are swung down and the object is made to drop out by a side flip of the pliers.

It will be understood that some changes may be made in the structure of my pliers, the changes pertaining to such features as the number of teeth, the spacing therebetween, the manner in which the jaws are made, etc. All these features are but minor details of construction.

What I wish to claim is as follows:

1. In jeweler's pliers, in combination, a pair of handles pivotally connected in a scissor-like arrangement, each handle terminating at its operative end with a stub, the two stubs being in spaced relation to each other, a jaw mounted on each stub, each jaw comprising a flat plate secured to the respective stub and including a plurality of teeth disposed at right angles to said plate and extending in the direction of the teeth

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of the opposite jaw, the teeth of one jaw being opposed to the teeth of the other jaw so that the teeth of the two jaws can overlap leaving open spaces of graduated width therebetween, and a pair of side plates at one end pivotally connected to the stub of one of the handles, the plates straddling said stubs and enclosing from the sides the space back of the teeth for retention within said space of items removed by the jaws during the operational use of the pliers, the plates being adapted to be swung from the pivotal connections to a position opening said space.

2. A pair of levers pivotally connected in a scissor-like arrangement, one end of each lever serving as a handle, the other end, being the operative end of the lever and terminating in a stub, the stubs when brought closest to each other being in a spaced relation, a jaw mounted on one stub, the jaw including a plurality of teeth disposed at right angles to the stub, a similar teeth including jaw mounted on the other stub, the teeth of one jaw being opposed to the teeth of the other jaw so that the teeth of the two jaws can overlap leaving open spaces therebetween, and two side plates, at one end pivotally connected to the stub of one of the levers, the plates normally straddling said stubs and enclosing from the sides the space back of the teeth for retention within said space of items removed by the jaws during the operational use of the pliers, the plates being adapted to be swung from the pivotal connection to a position opening said space.

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