A. KOCH.

PLATE PUNCH.

APPLICATION FILED AUG. 24, 1909.

956,368. Patented Apr. 26, 1910.

FIG. I.

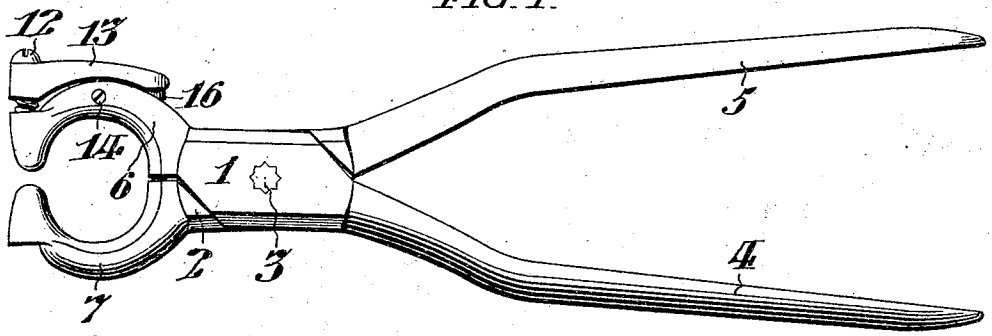


FIG. II.

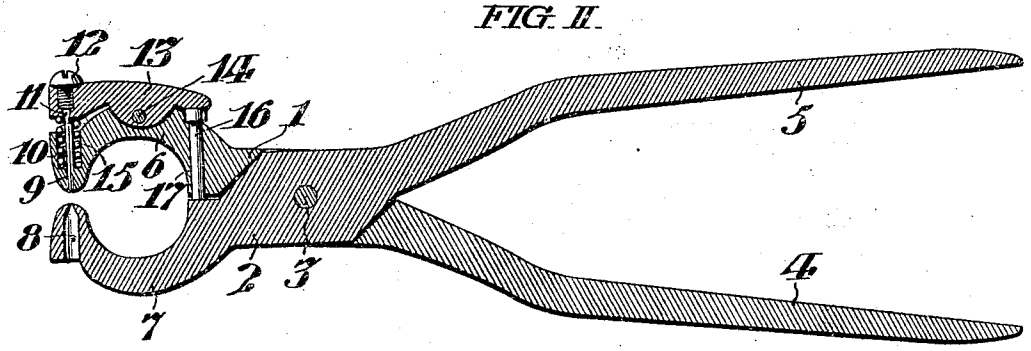


FIG. III.

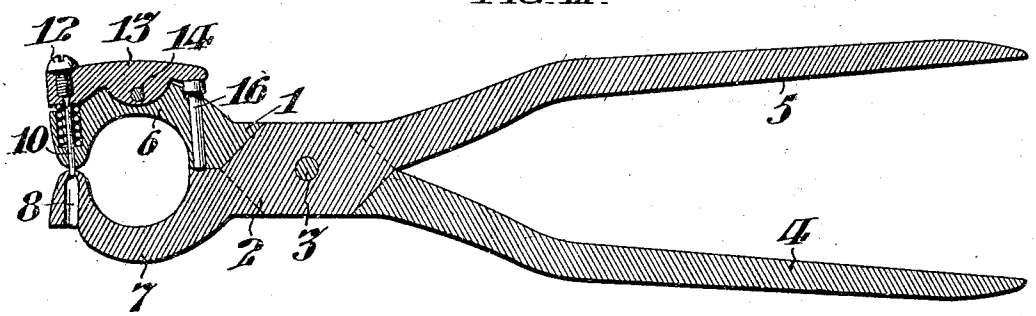
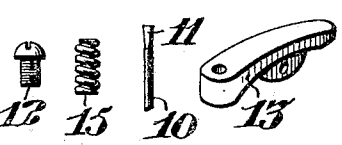
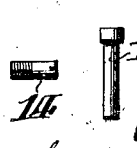


FIG. IV.





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UNITED STATES PATENT OFFICE.

ALFRED KOCH, OF REMSCHEID, GERMANY, ASSIGNOR TO THE S. S. WHITE DENTAL MFG. CO., OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

PLATE-PUNCH.

956,368. Specification of Letters Patent. **Patented Apr. 26, 1910.**

Application filed August 24, 1909. Serial No. 514,385.

To all whom it may concern:

Be it known that I, ALFRED KOCH, a subject of the Emperor of Germany, residing at Remscheid, in the Rhine Province, Germany, have invented a certain new and useful Improvement in Plate-Punches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to hand plate-punches for punching or perforating sheet metal or metal plates; the improvement being applicable to hand punches of plier-like form, designed particularly for the use of dentists.

The object of my invention is to so construct an implement of this nature that the punch, after punching or perforating the metal plate, will be quickly and easily freed or "stripped" from said plate, without the employment of a supplemental "stripper" which is usually located between the two jaws of the implement.

The invention, which will be fully described in the following specification with the aid of the accompanying drawing, and pointed out in the claims at the conclusion of said specification, consists of a plier-like implement having two pivoted jaws capable of being moved toward and away from each other, and a punch or perforator supported upon one of said jaws; the implement being so constructed that when the jaws are open the punch or perforator is retracted and when the jaws are closed said punch or perforator is projected.

In said drawing Figure I is a view in side elevation of an implement illustrating a suitable embodiment of my invention. Fig. II is a view thereof in longitudinal central section, showing the implement open. Fig. III is a similar view showing the implement closed. Fig. IV is a view in side elevation of some of the parts of the improved implement detached.

The plier-like implement consists of two members 1 and 2 pivoted together at 3 and provided with handles 4 and 5 and also with jaws 6 and 7, which for convenience are bowed or curved. One of the jaws 7 is formed in its head with the usual socket or hole 8 for the entrance of the punch or perforator and for the escape of the punchings. The other jaw 6 is formed in its head with an opening 9 in alinement with the socket 8 in the jaw 7, a punch or perforator 10 loosely passing through said opening 9. At one end the punch or perforator 10 is secured, as by a head 11 and screw 12, to the forward end of a lever 13 pivoted midway its length at 14 to the jaw 6. A coiled spring 15 seated in an enlargement of the opening 9 in the jaw 6 and surrounding the punch 10, bears at one end against said jaw 6 and at its other end against the lever 13, tending to force the forward end of said lever away from said jaw. The rear end of the lever 13 bears upon a push-rod 16 loosely seated in an opening 17 extending through the jaw 6, the opposite end of said push-rod 16 resting upon the other jaw 7.

Normally the parts of the implement are in the position shown in Fig. 2 in which the jaws and handles are open, the forward end of the lever 13 distended, and the punch or perforator 10 withdrawn into the jaw 6. Closing the handles simultaneously closes the jaws and projects the punch beyond the head of jaw 6, so that by the time the jaws are brought together, or to bear upon the opposite sides of the plate being perforated, the punch is made to first pass through said plate and then enter the opening 8 in the jaw 7. This action is occasioned by the jaw 6 forcing up the push-rod 16 which in turn rocks the lever 13 forcing the punch downwardly against the stress of the spring 15, and causing said punch to project beyond the jaw 6. Upon relieving the handles of pressure the spring 15, acting through the lever 13 and push-rod 16, simultaneously opens the jaws and retracts the punch within the head of the jaw 6.

By means of this construction the implement may be used with extreme facility, the punch or perforator being quickly freed or stripped from the plate. No stripper is located between the jaws of the implement to be in the way or obstruct the view. The jaw through which the punch passes, while serving as a guide for said punch, acts itself as the stripper, and at the same time is capable of being moved toward and away from the other jaw. Therefore it may be said that the particular advantage of my improvement is that while the effect of a stripper is secured, there is no stripper interposed between the two jaws.

It should be observed that the spring 15 holds the jaws open only to the extent indicated in Figs. 1 and 2, but that said jaws are capable of being opened to a much wider extent. In the usual operation of the implement, however, the jaws will not be opened wider than shown, which is what might be termed the operative position of the jaws.

I claim as my invention:—

1. In a hand plate-punch of plier-like form, the combination of two pivoted jaws capable of being moved toward and away from each other, a punch supported upon one of said jaws, connections between said punch, said jaw upon which it is supported, and the opposite jaw, for normally holding said jaws open and said punch retracted, and for projecting said punch when said jaws are closed.

2. In a hand plate-punch of plier-like form, the combination of two pivoted jaws capable of being moved toward and away from each other, a lever pivoted to one of said jaws, a punch secured to the forward end of said lever and passing freely through an opening in said jaw to which said lever is pivoted, a push-rod loosely seated in an opening in said jaw and bearing at one end upon the opposite jaw and at its other end upon the rear end of said lever, and a spring for normally holding said jaws open and the punch retracted.

In testimony whereof I hereunto set my signature in the presence of two witnesses.

ALFRED KOCH.

Witnesses:

ARTHUR GEDUHN,

FRIEDRICH MARIENFELD.