

(No Model.)

F. L. VONHAUS & H. BECKER.
PARALLEL PLIERS.

No. 491,231.

Patented Feb. 7, 1893.

Fig. 1.

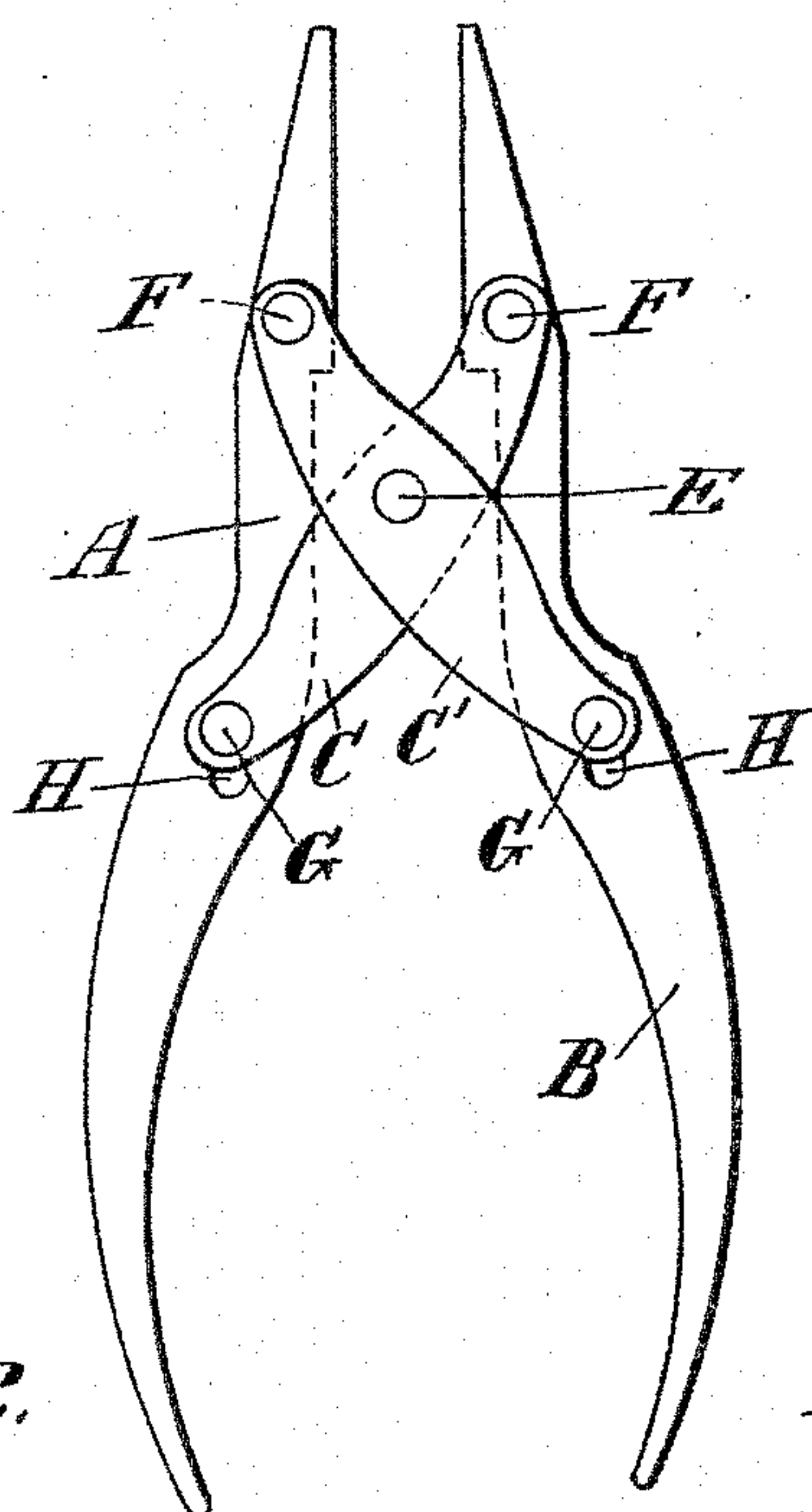


Fig. 2.

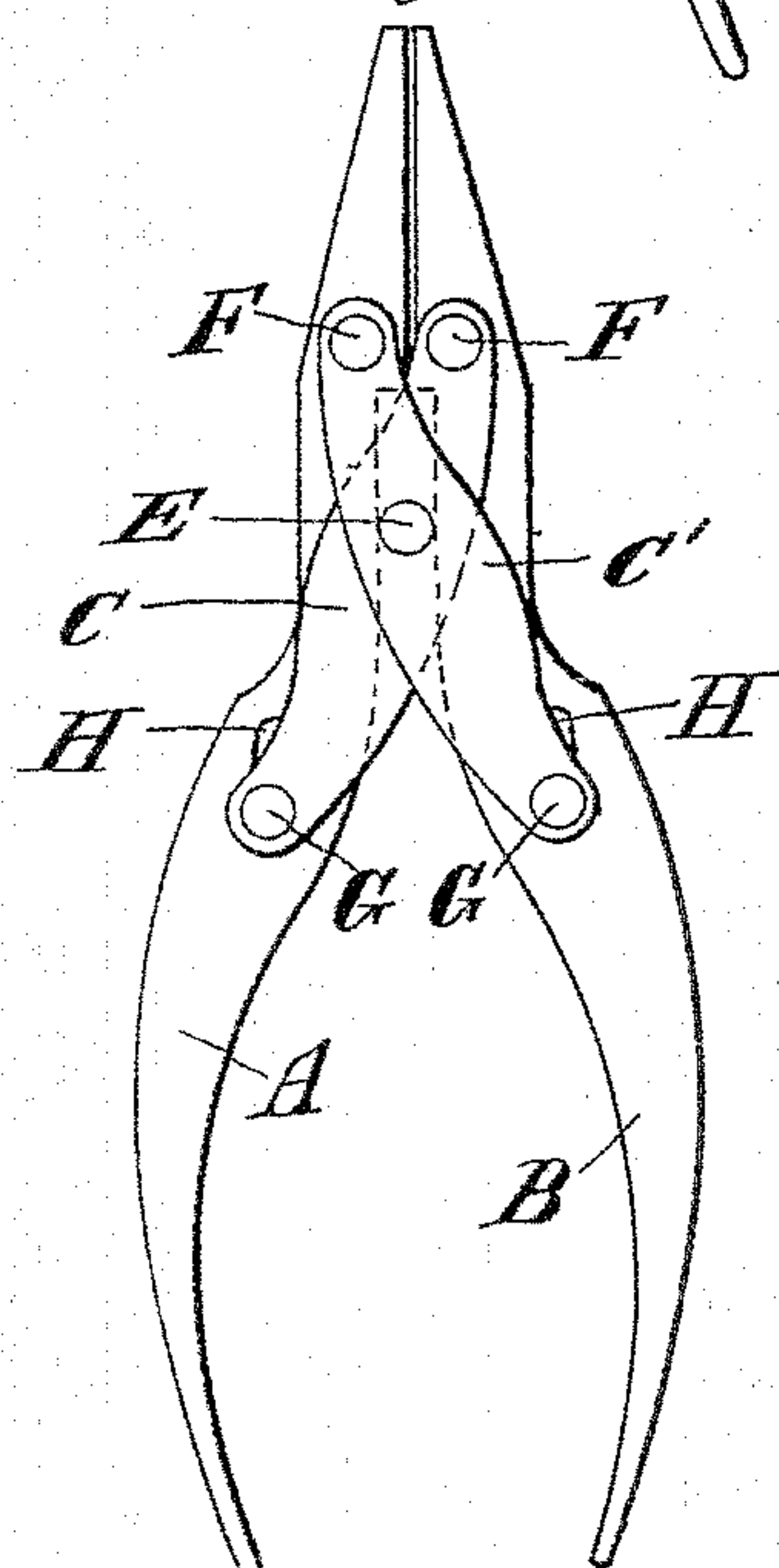
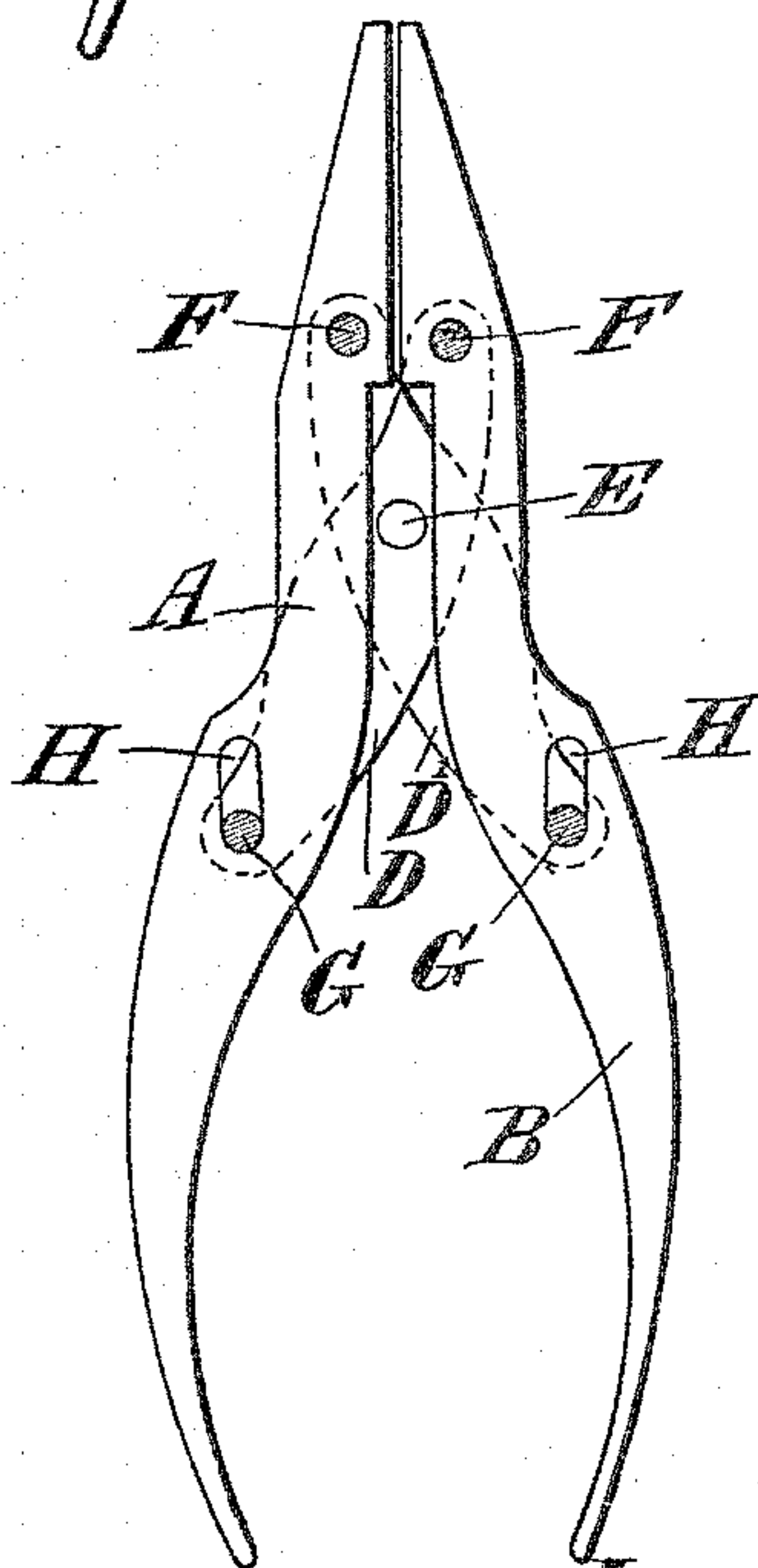


Fig. 3.



Witnesses:-

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UNITED STATES PATENT OFFICE.

FRIEDRICH LORENZ VONHAUS AND HEINRICH BECKER, OF FRANKFORT-ON-THE-MAIN, GERMANY, ASSIGNORS TO SPOHR & KRÄMER, OF SAME PLACE.

PARALLEL PLIERS.

SPECIFICATION forming part of Letters Patent No. 491,231, dated February 7, 1893.

Application filed November 7, 1892. Serial No. 451,262. (No model.)

To all whom it may concern:

Be it known that we, FRIEDRICH LORENZ VONHAUS and HEINRICH BECKER, subjects of the German Emperor, and residents of Frankfort-on-the-Main, Germany, (assignors to the firm of SPOHR & KRÄMER, in the said city of Frankfort-on-the-Main,) have invented new and useful Improvements in Parallel Pliers, Nippers, and the Like, of which the following is a specification.

This invention relates to an improvement in pinchers, pliers, nippers and the like and consists in making the two legs of such tools in one piece with the jaws thereof, such jaws being kept parallel in every position by means of a special cross joint applied to the legs. In all forms of parallel pinchers at present in existence the parallel motion of the jaws is effected by the legs of the pinchers, by the method of making the legs of shaped metal or of curved plate and superposing the one upon the other as in scissors, the specially constructed jaws being then guided parallel by rods or slots. This method of construction has however several disadvantages. In the first place the parallel motion is confined to the jaws and the legs do not share in it. It follows also from the construction of the pinchers that their grasp is confined to very narrow limits, since the legs of the pinchers must execute a movement of considerable extent relatively to the grasp of the jaws. For the same reason moreover, the expenditure of force required in using the pinchers of the present form is relatively very much greater, for since the legs have to open very widely the proportionate power of the lever on the other side of the fulcrum is much restricted. A further disadvantage lies in the fact that in pinchers of the present form the jaws execute a forward movement as they are being closed. This disadvantage makes itself especially felt in minute work, such as that of makers of delicate machinery and watchmakers, so that no little practice is required in working with pinchers of the present form. All the objections above referred to are obviated by the present invention, in which the two legs of the pinchers and their jaws consist of two parts so connected with

one another by a cross joint that the grasp of the jaws is equal to that of the legs. The amount of leverage is thus altogether in the hands of the maker since it can be made as great as desired according to the purpose for which the pinchers are intended. Herein lies a very special advantage of the new form of pinchers since they can be constructed as wire pliers, as well as for gripping or seizing, while the old form of pinchers could only be used for wire since as has already been mentioned, the amount of leverage and therefore the force which could be exercised by means of the pinchers was confined within narrow limits. On the other hand the new pinchers can easily be made so strong that they will even serve to cut fairly thick rods of iron or other metal such as rivets, screws, &c. The new pinchers may also be used with the same advantage as shears for cutting sheet metal, for which purpose only a very simple alteration in the form of the jaws is required. Moreover, in the new pinchers the objectionable shifting of the parts of the jaws relative to each other is obviated, since the legs of the pinchers, and also the jaws are firmly connected together and only move toward or away from each other in the direction of the pressure exercised upon them.

In order to enable our invention to be fully understood we will describe the same by reference to the accompanying drawings in which,

Figure 1 is a side view of a pair of pliers constructed according to our invention and showing the pliers in the open position, Fig. 2 is a similar view showing the pliers in the closed position, and, Fig. 3 is a similar view to Fig. 2 but with the cross links removed.

A, B are the two legs and C, C' and D, D' are cross joints connected on both sides to the legs A, B. Each of these cross joints consists of two links C and C' and D and D' respectively. These links overlies each other at about their middle point and are jointed together by a pin E in such a way that each of the cross joints forms two pairs of legs of about equal length. The ends of one of each of these two pairs of legs are connected with the jaws by the pins F on which they turn with the two legs A, B of the pliers. The

ends of the other pair of legs of the cross joints C, C' and D, D' are guided by pins G working in slots H of the legs A, B of the pliers. When the pliers are opened or closed, the pins G move along the slots H of the legs A, B of the pliers.

In the method of construction now being referred to the new pinchers are formed to act as wire pliers, they can, however, without departing from the principle of the invention be constructed to act as pulling, grasping, or pinching instruments.

What we claim as our invention and desire to secure by Letters Patent is:

1. In pinchers, and similar instruments, the combination with two jaws and legs each jaw and leg being in one piece which is situated entirely on one side of the instrument, of two pairs of crossed links one pair on each side of the legs, the links of each pair being pivoted together at their intersection and being connected each at one end with the jaws by pins on which they turn and at the other end

by pins which work in slots in the legs, substantially as herein set forth.

2. In parallel pinchers, and the like, the combination with legs A B each made in one solid piece with one of the jaws, of cross links C, C' and D, D' applied on both sides of the legs and adapted to move parallel to each other, the ends of such links being connected to the legs A, B of the pinchers on one side of the joint by pins F on which they turn and on the other side by pins G which work in slots H in the legs so that the cross links can both rotate and slide, substantially as hereinbefore described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRIEDRICH LORENZ VONHAUS.
HEINRICH BECKER.

Witnesses:

FRANZ HASSLACHER,
FRIEDRICH CÖRRELL.