

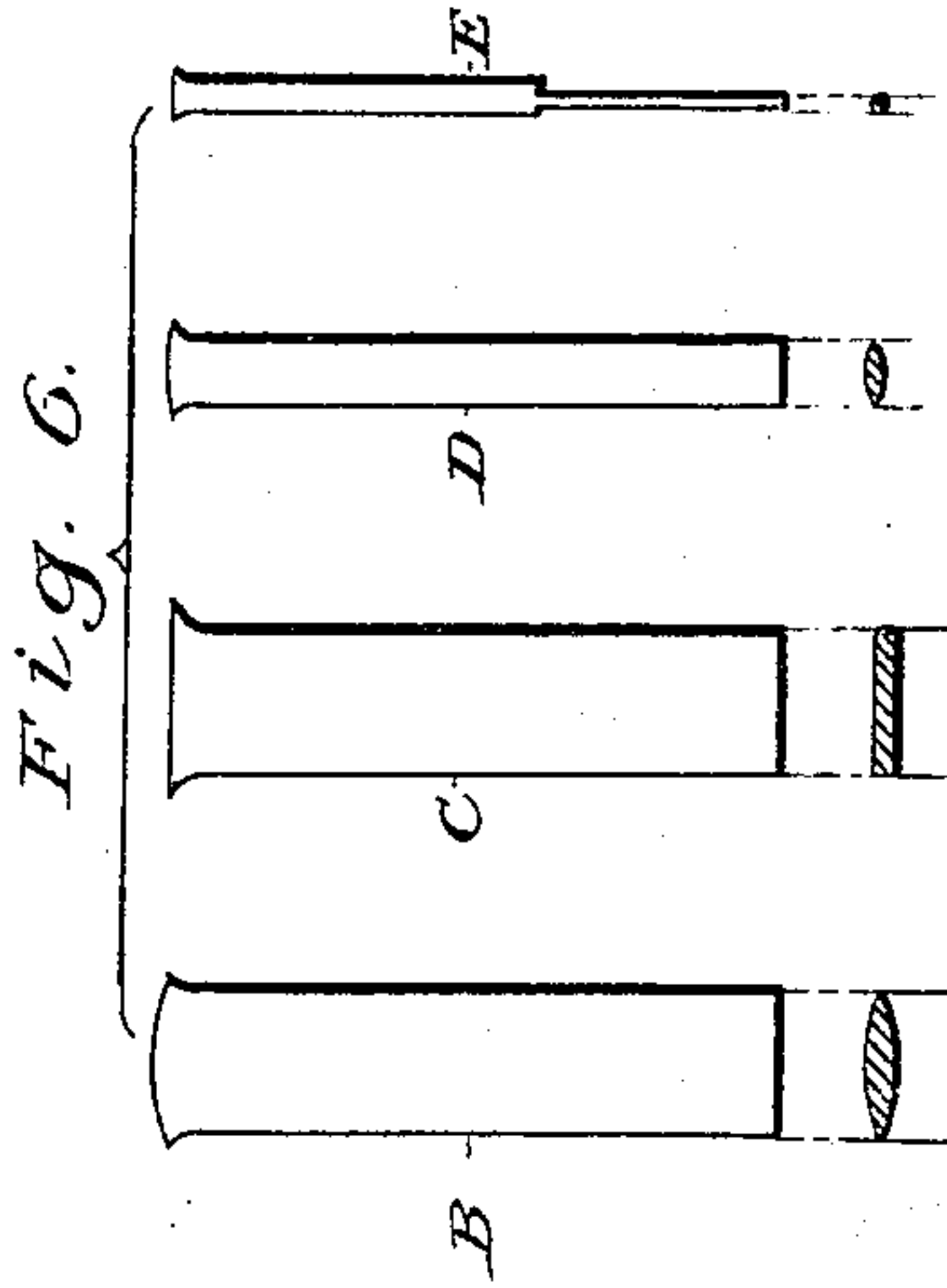
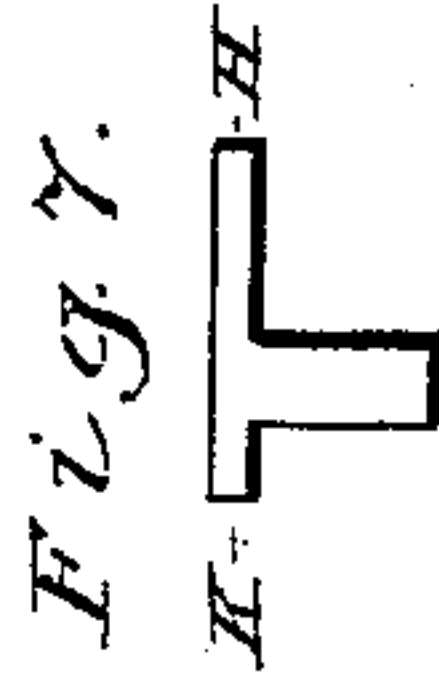
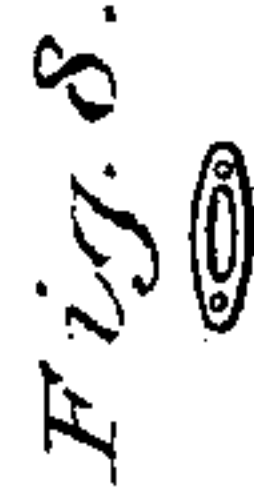
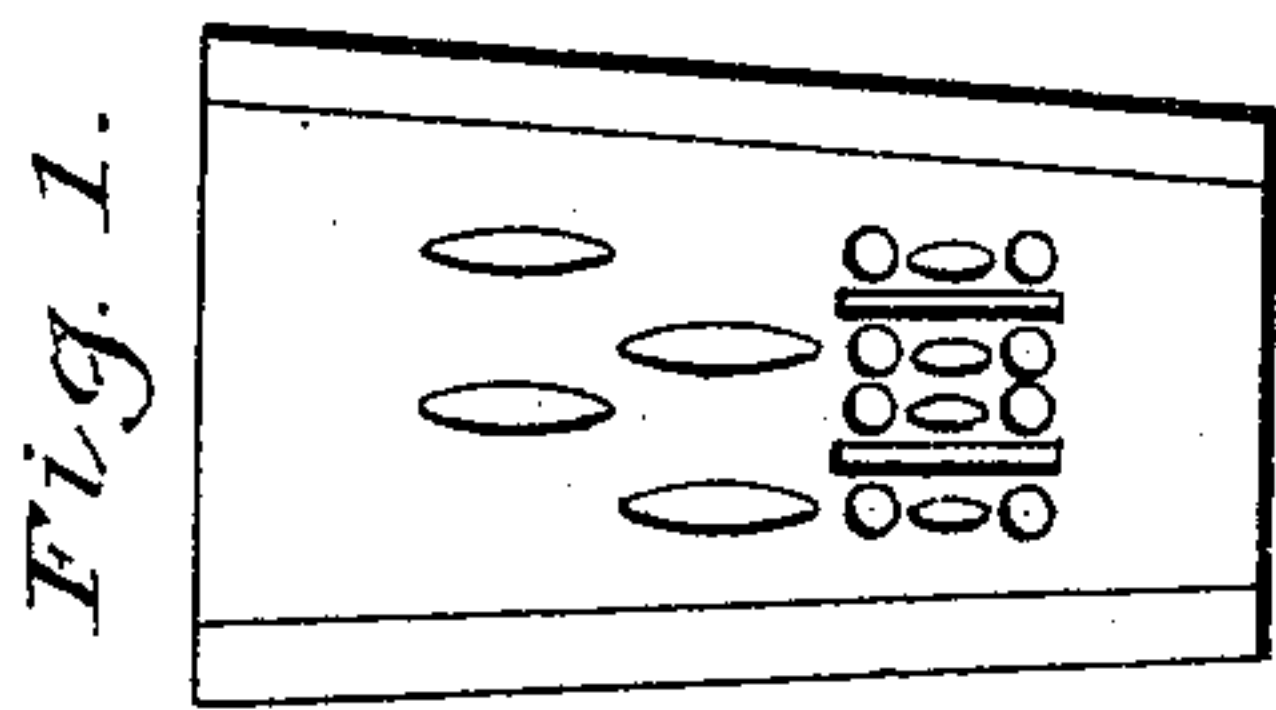
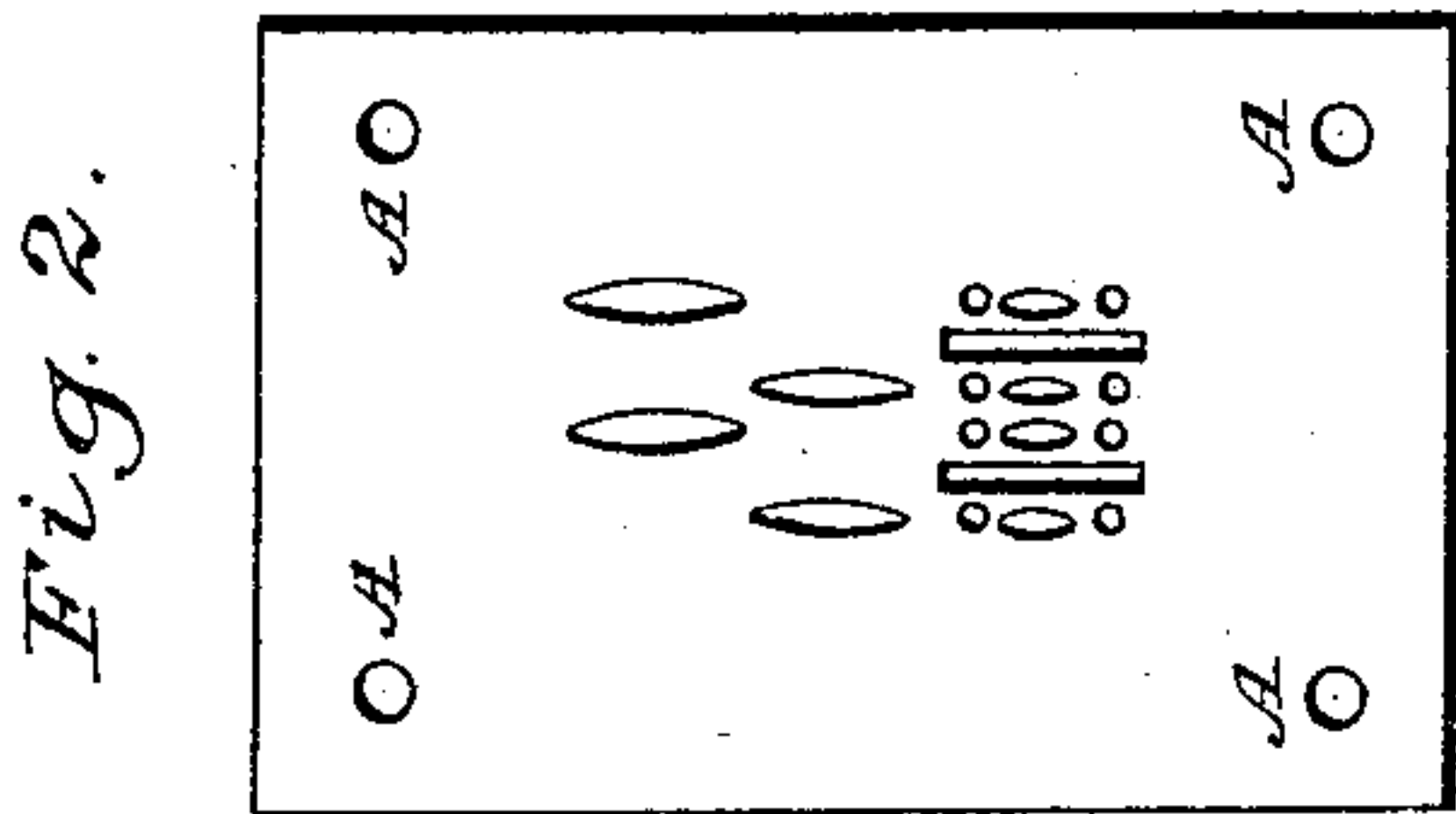
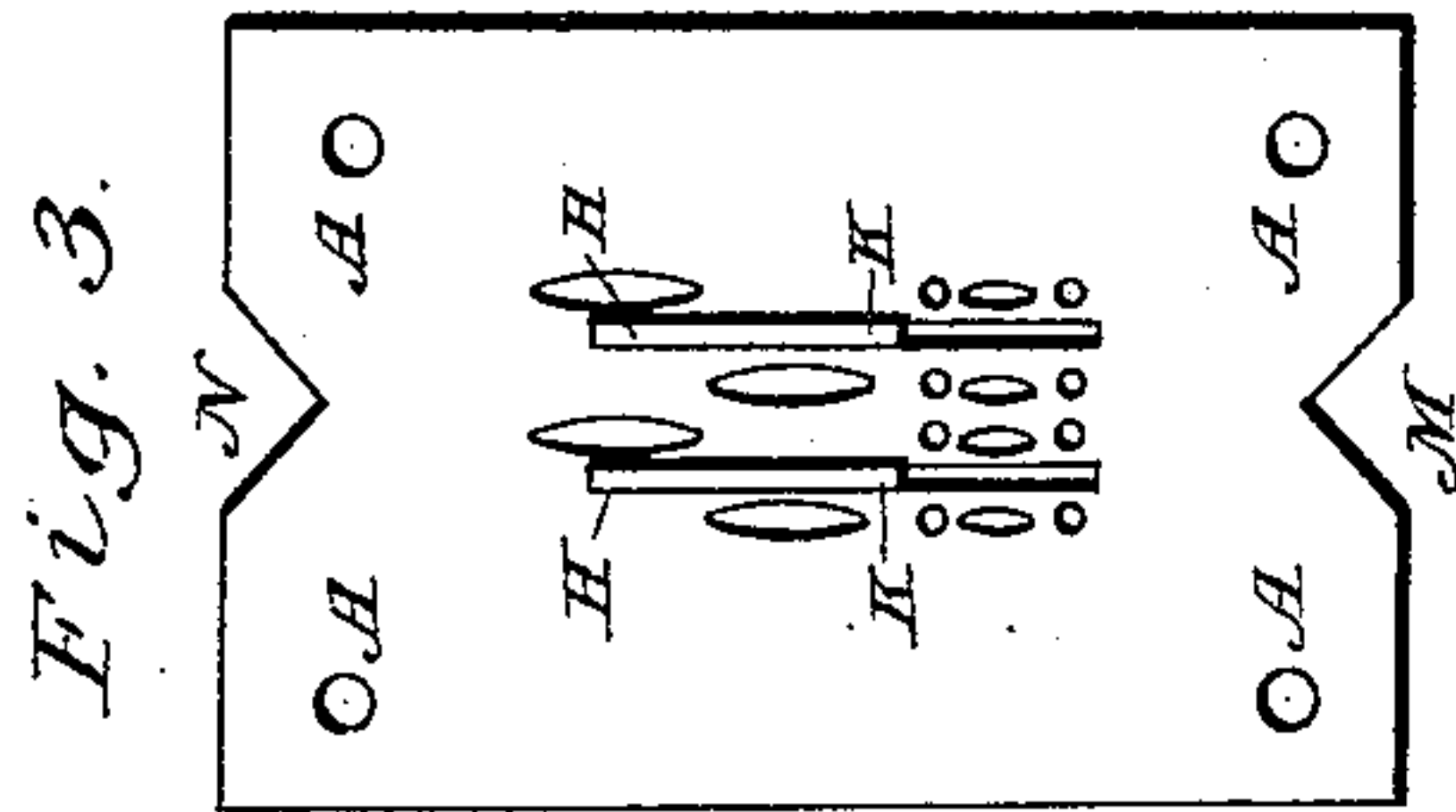
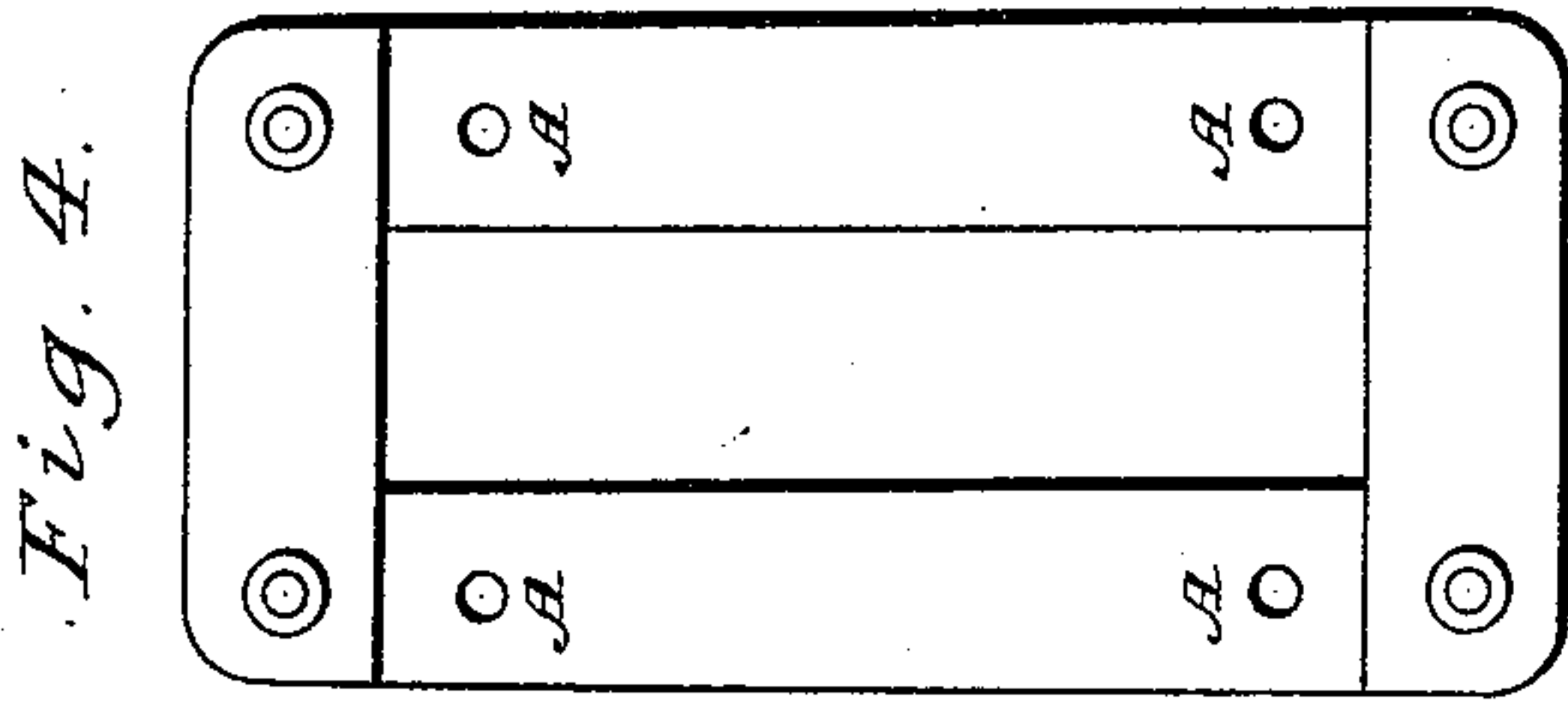
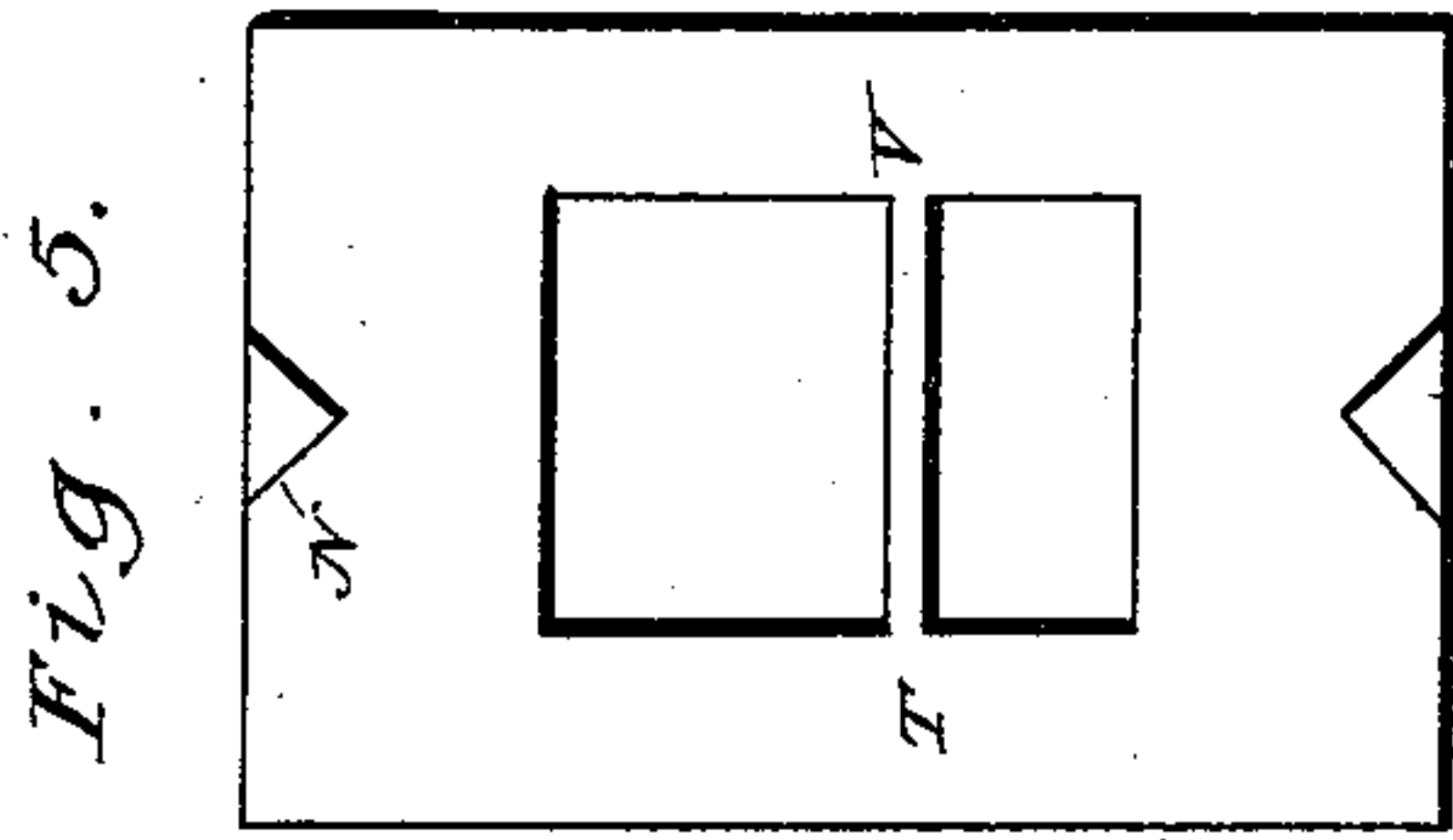
(No Model.)

E. ABSOUS.

APPARATUS FOR MAKING MAIIS FOR HEDDLES.

No. 426,898.

Patented Apr. 29, 1890.



WITNESSES:

E. B. Bolton

C. L. Richards

INVENTOR:

Ernest Absous

BY

Richardson
his Attorneys.

UNITED STATES PATENT OFFICE.

ERNEST ABSOUS, OF SEDAN, FRANCE.

APPARATUS FOR MAKING MAILS FOR HEDDLES.

SPECIFICATION forming part of Letters Patent No. 426,898, dated April 29, 1890.

Application filed May 25, 1889. Serial No. 312,179. (No model.) Patented in France October 21, 1886, No. 179,123; in England April 13, 1887, No. 5,391; in Belgium April 14, 1887, No. 77,071; in Austria-Hungary April 16, 1887, No. 15,253; in Germany April 20, 1887, No. 42,206; in Spain May 27, 1887, No. 10,904, and in Italy March 31, 1888, No. 23,143.

To all whom it may concern:

Be it known that I, ERNEST ABSOUS, a citizen of the French Republic, residing at Sedan, France, have invented a new and useful
5 Apparatus for the Manufacture of Loops or Mails for Heddles, (for which I have obtained Letters Patent, as follows: in France, October 21, 1886, No. 179,123; in Great Britain, April 13, 1887, No. 5,391; in Belgium, April 14, 1887,
10 No. 77,071; in Germany, April 20, 1887, No. 42,206; in Austria-Hungary, April 16, 1887, No. 15,253; in Spain, May 27, 1887, No. 10,904; and in Italy, March 31, 1888, No. 23,143,) of which the following is a full, clear, and exact
15 specification.

In several industries, and especially in weaving, a large number of small metallic loops or mails are used, and consequently it is advantageous to manufacture them in large
20 quantities and at low prices. Such is the purpose of the apparatus which is the object of the present invention.

The apparatus is composed of metallic pieces, preferably of steel or iron, according
25 to the requirements, and which are separately shown in the annexed drawings, wherein—

Figure 1 is a view of the punch-carrier, taken from beneath. Fig. 2 is a view showing the punch-guide. Fig. 3 is a plan view of the
30 die-plate, also showing the rails H K in position. Fig. 4 is a plan view of the guide for the band or strip from which the mails are punched. Fig. 5 is plan view of the plate for separating and discharging the finished mail
35 and the cuttings. Fig. 6 illustrates the several punches used in my apparatus with plan views of their cutting-edges. Fig. 7 shows a side elevation of one of the rails H K, which not only serve as guides for the metal bands
40 or strips, but regulate the feed of same when the apparatus is in operation. Fig. 8 is a plan view of one of the finished mails.

I construct my punch-carrier in wedge shape and with beveled edges, so that it may
45 be readily attached to the piston of a machine. Four of the oval punches B are inserted in the four large oval holes arranged in the punch-carrier, four smaller oval punches D are inserted in the small oval holes, eight

small round punches E are inserted in the
50 round small holes, and two oblong punches C are inserted in the two oblong holes. The die-plate and the punch-guider, Figs. 2 and 3, have both four small oval holes, eight small round holes, and two oblong holes,
55 all exactly corresponding with the punches arranged in the carrier.

H K are two rails arranged to rest upon the face of the die-plate and held in position thereon by medium of their shoulders *h*, (see
60 Fig. 7,) exactly in the line of the oblong holes.

The punch-guide must be made sufficiently thick to guide the punches in a uniform way
65 in their up-and-down motion.

The band or strip guide consists of two lateral guide-pieces connected at their ends by two cross-pieces and forms in this manner a
70 conduit for the band or strip from which the mails are to be cut.

The device shown in Fig. 5 is in the shape of a frame, the opening of which is divided by a cross-beam T V into two parts of unequal size. On the frame are arranged two
75 spurs or projections N and M, exactly corresponding with two notches in the die-plate, and fitting and engaging therein when these two parts are superposed.

The apparatus works in the following manner. The parts are superposed as follows:
80 The frame, Fig. 5, at the bottom, then the die-plate, Fig. 3, then the band-guide, Fig. 4, and on the top the punch-guide, Fig. 2. The three parts last mentioned are connected by means of four bolts or pins passing through corresponding holes A, which register in all the
85 parts. The metal band is conducted in the guide-plate, Fig. 4, and then abuts against the rails K H. In coming down the punches will make eight small round holes, four oval
90 holes, and two oblong slits. When the punches move upward, the band is pushed forward the exact length of the oblong slits, a further movement being of course prevented by the rails. In again coming down the
95 punches will make once more twelve holes and two oblong slits, and at the same time the lower pair of large punches will punch

out two completed mails. The punches being raised again, the metal band will again be moved forward for the length of the oblong slits, which follow the preceding slits without any interspace. In the succeeding punching four complete mails will be punched out, while of course the twelve holes and the two slits are also made. From now every succeeding stroke will yield four ready mails and of course the preparatory twelve holes and two slits for the mails to be completed in the next stroke. The ready mails fall under the die-plate in the larger of the two openings formed by the cross-beam T V in the discharged plate, Fig. 5, and are in this manner separated from all cuttings which fall in the small opening. The metal band will come out separated and cut in three longitudinal strips.

It is well understood, as I have already mentioned, that the punch-carrier may be attached to the piston of any ordinary or desired cutting-machine, balance, or the like, which will impart to it the necessary up-and-down movement for the punching. For the purpose of making this description plainer I have described an apparatus making four mails at one time. After the same principle any number (six, eight, ten) may be manufactured by using a metal band of a sufficient width and an appropriate apparatus.

For making, for instance, six mails at a time the punches must be placed as follows: First group: Eighteen perforating-punches, whereof twelve are small and six large, with two cutting-punches for the purpose of cutting the band, so that it can always be moved forward for the desired length. Second group: Six punches to punch out the ready mails and arranged in two rows in quincunx, three in each row.

It is of course understood that the punch-guide and the die-plate must be perforated in a corresponding manner. The band-guide and the plate for separating the ready mails from the clippings must also be modified as necessary; but the working of the apparatus remains unchanged.

Having fully described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the frame, the die-plate, the band-guide, and punch-guide, superposed, respectively, one above the other, the last three parts being connected by bolts or pins and having corresponding holes for the reception of said bolts or pins, substantially as and for the purposes set forth.

2. The combination of the punch-carrier, the punches for producing the mail secured thereto, a separate punch for dividing the plate to permit of the feeding of the same, a die-plate having cutting-holes corresponding with said punches, and guides situated between the carrier and die-plate and in line with said dividing-punch for directing and determining the distance of feed, substantially as set forth.

3. The die-plate with its two rails and the guide, which is placed on its top to convey the metal band in such a manner that the punches of oblong form cut out parts of this band, forming a continuous channel, which allows the band to move forward at each stroke for the length of one loop or mail, so that the large oval punches can punch out the mails, the holes of which are perforated in the preceding stroke, substantially as set forth.

4. The plate divided in two parts, one for the reception of the clippings and the other for the ready mails, which in this manner are completely separated, substantially as heretofore described and set forth.

5. The combination of the punch-carrier, the round and small oval punches secured thereto, the large oval punches in line with the former punches, the oblong punches situated at one side of the former punches, a die-plate having openings corresponding with said punches, and the guides K K in line with the oblong punches, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of February, 1889.

ERNEST ABSOUS.

Witnesses:

A. CHIRIOR,
M. PULL.