

Sheet 1-3, Sheets.

R.R. Gray,
Collar Machine,

No 13,087,

Patented June 19, 1855.

Fig. 1.

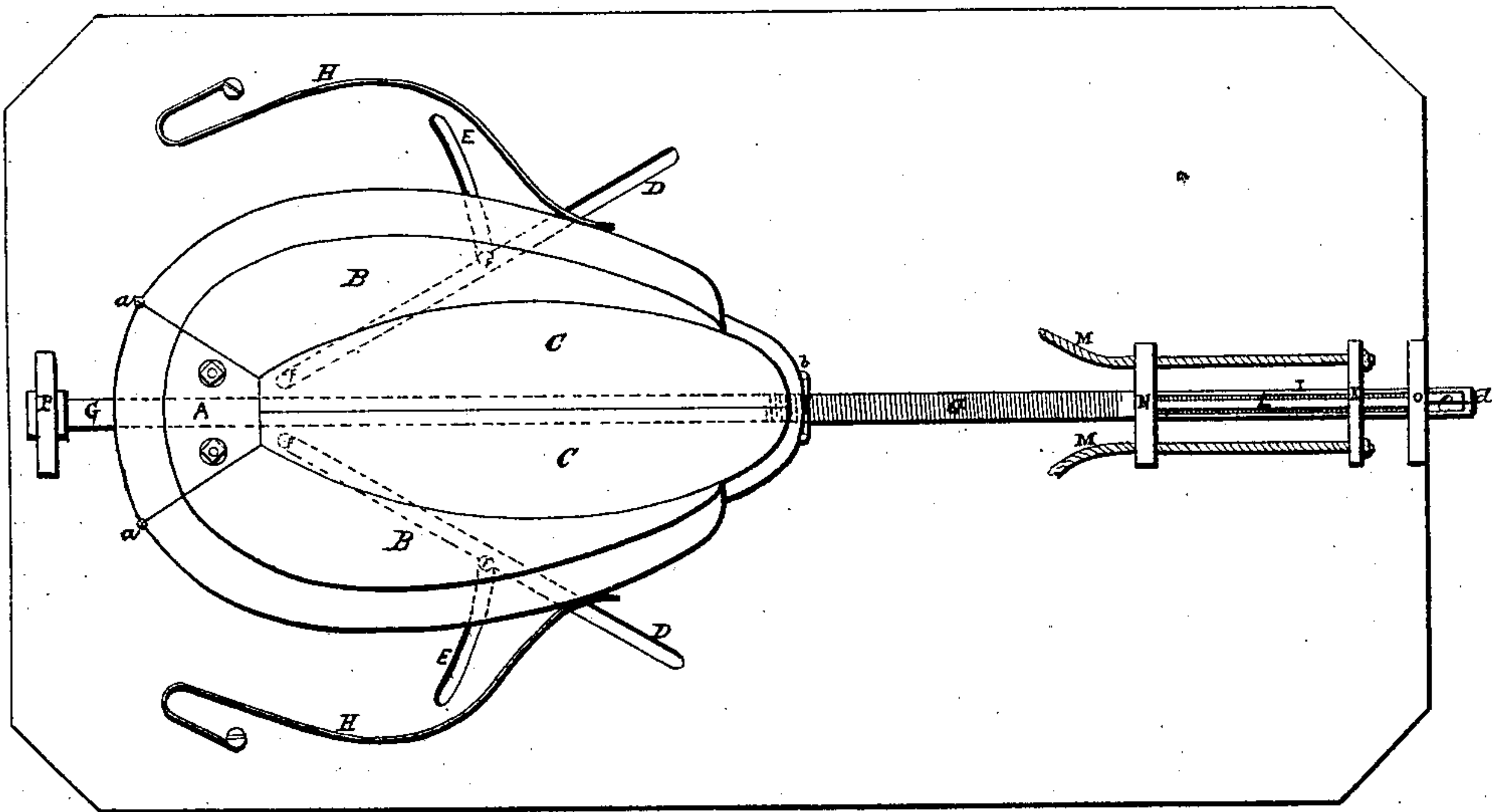
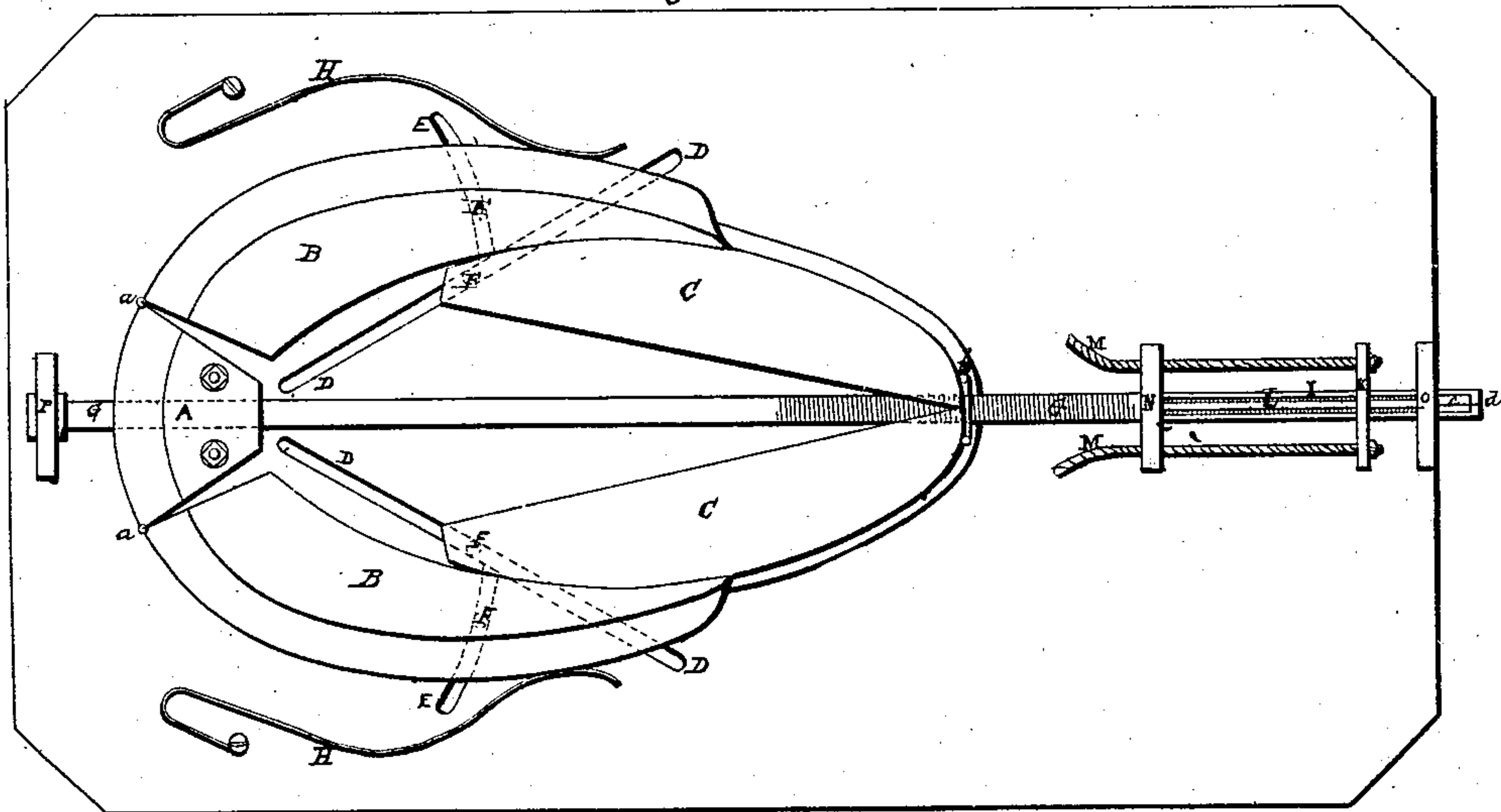


Fig. 2.



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Inventor:

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By
George D. Hurley Atty

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Fig. 3.

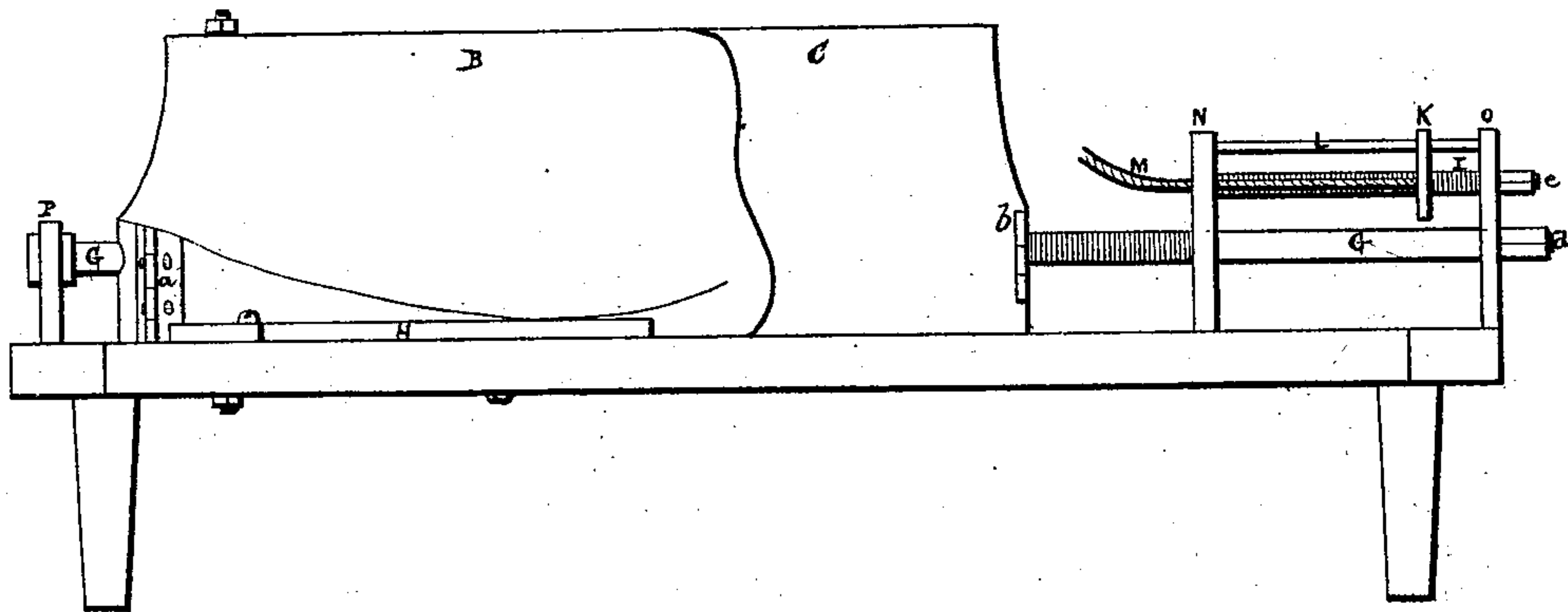
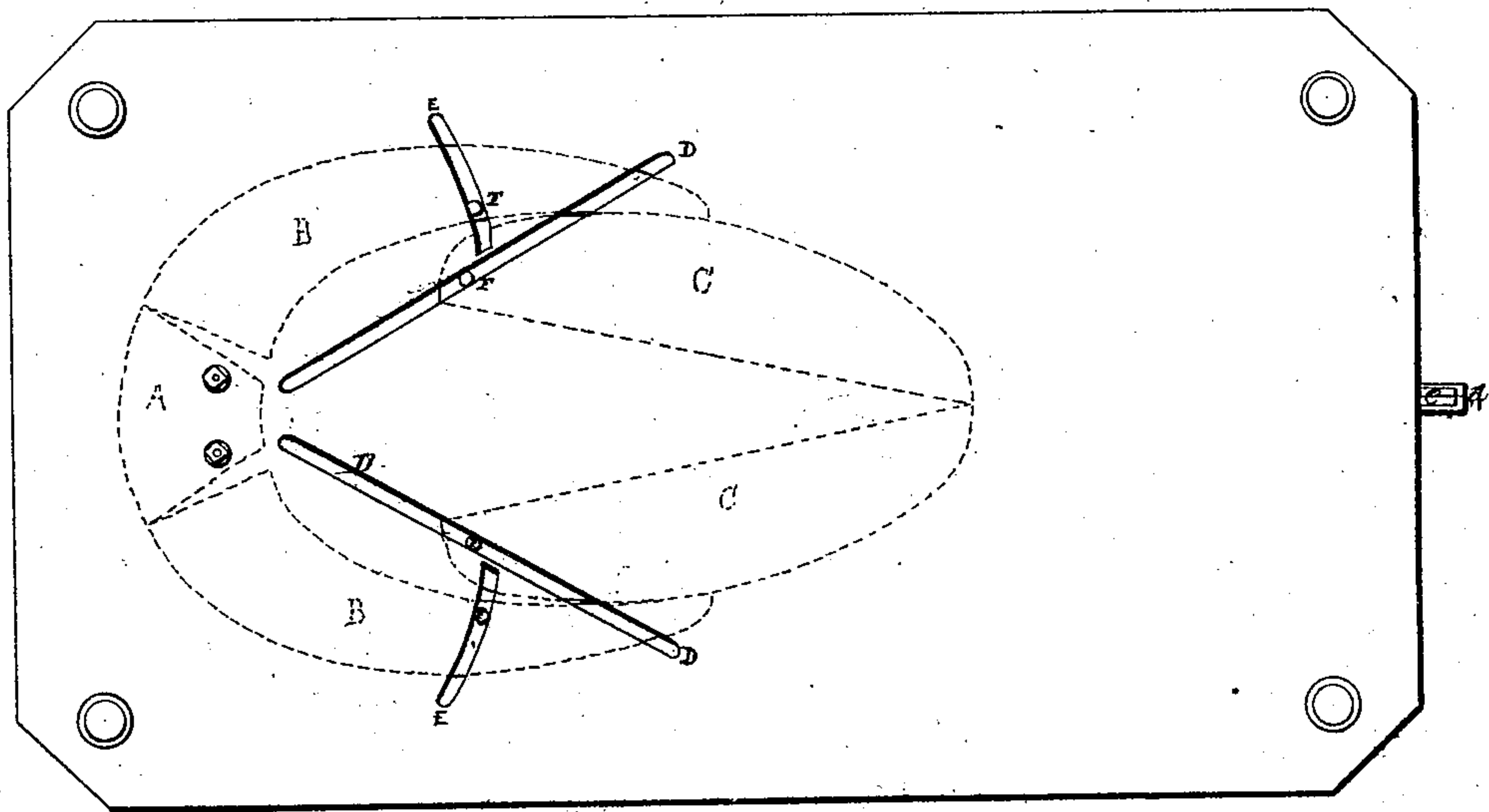


Fig. 4.



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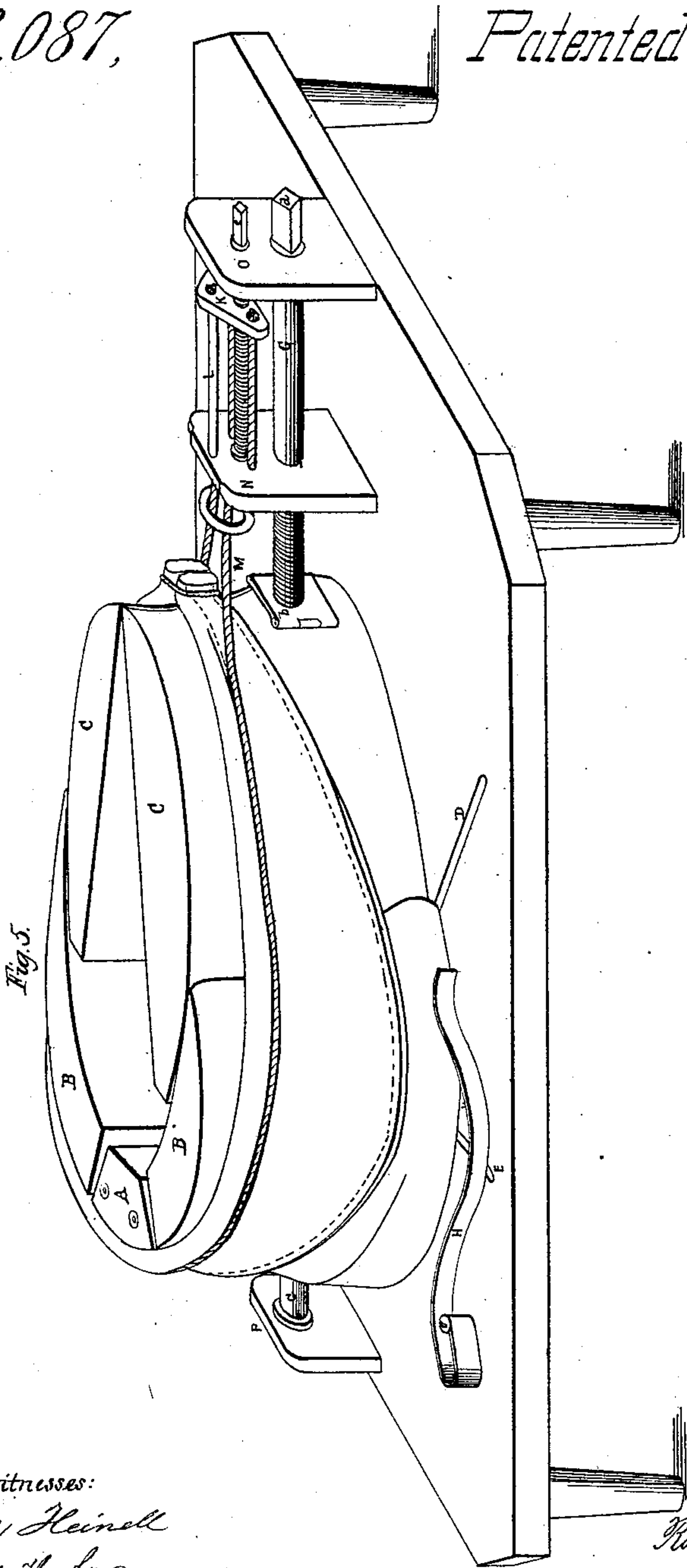
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Sheet 3-3 Sheets.

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Inventor:
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UNITED STATES PATENT OFFICE.

ROBERT R. GRAY, OF CRAWFORDSVILLE, INDIANA.

EXPANDING-BLOCK FOR HORSE-COLLARS.

Specification of Letters Patent No. 13,087, dated June 19, 1855.

To all whom it may concern:

Be it known that I, ROBERT R. GRAY, of Crawfordsville, Montgomery county, State of Indiana, have invented a new and Improved Expanding-Block for Shaping Horse-Collars; and I hereby declare the following a full and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, and to the letters of reference marked thereon.

My invention consists of a block, formed of several pieces, arranged for expansion, so as to lengthen and widen a horse collar, and, at the same time, give the collar, from the external form of the block while expanding, its proper and perfect shape.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1, Plate I, of the drawings, represents a ground plan of the block in its unexpanded state. Fig. 2, same plate, is a ground plan representing its shape when expanded. Fig. 3, Plate II, represents a side view of the block when expanded. Fig. 4, Plate II, is a view of the under side of the table, with the slots in which the pins of the jaws move while the block is in operation. Fig. 5, Plate III, is a perspective view of the whole machine with a collar thereon.

I construct my table, as represented in Fig. 4, Plate II, about 3 feet, 3 inches long, and 15 inches wide, with slots D, D,—E, E, in the top for the purpose of guiding the pins F, F, of the jaws B, B, and C, C. The slots E, E, are parts of circles, the respective centers of which are in the hinges a, a.

A, is a piece of wood or iron shaped as in Fig. 1, Plate I, made stationary by being bolted to the table; the screw-rod G, passes through its center, an inch and a half above the table; on the outer side it is chamfered out concavely to shape the collar, and it also serves as a post to which the jaws B, B, are hinged at the points a, a, close to the surface of the table.

B, B, are jaws, as in Fig. 1, Plate I, hinged, as above described, to the stationary piece A; on their under side there are pins F, F, to work in the slots E, E; the pins are placed about two thirds of the way from the hinges to the points of the jaws, which on the outer sides are chamfered concavely out wider at the bottom than the top;

inside they are oval to correspond with the outsides of the jaws C, C, which are chamfered out so as to be three quarters of an inch wider at the bottom than the top. From the hinge to the opposite point the jaws B, B, are fourteen inches long.

The jaws C, C, are thirteen inches long, and shaped as in Fig. 1, Plate I; they are connected by the hinge b (Fig. 5, Plate III), which also answers for a nut to the screw G; under each is a pin F, to move in the slots D, D; outside they are chamfered out to correspond, as already described, with the oval inner surface of the jaws B, B, while inside they are grooved to fit the screw-rod G. The nut B, I construct with a square in the center large enough for screw G, to pass through it, as shown in Fig. 5, Plate III, and at the same time make it serve as a base for a hinge on each side of it for connecting the jaws C, C. When arranged, as in the last figure shown, the jaws B, B—C, C, together with the stationary piece A, compose my expanding block.

The slots E, E, shown in Fig. 1, Plate I, and the slots D, D, in the same figure containing the pins F, F, of jaws, control the motion of the jaws while expanding or contracting, and also relieve the hinges a, a, of a part of the strain occasioned by the operation of the screw rod G.

G, is a rod of iron three feet in length, one inch thick, and with a screw cut on it to about 18 inches from the top; it penetrates the plates O, and N, the nut b, and, after passing between the jaws C, C, the stationary piece A; and ends by passing through the brace P, against which it works protected by a shoulder on the inside, and a key on the outside.

H, H, as shown in Fig. 1, Plate I, are steel springs screwed to the table, and pressing against the jaws B, B, for the purpose of closing them when the screw is operated to contract the block.

I, is an iron screw $\frac{5}{8}$ of an inch thick, and 9 inches long placed between the two plates O, and N, as shown in Fig. 5, Plate III; it penetrates the nut K, as in the same figure shown, and is for loosening or tightening the rope M.

K, is a nut penetrated by the screw I, and having holes in each side to receive the ends of the rope M.

L, is a guide rod of iron, secured between the plates O, and N, to keep the nut K, from

turning while the rope is being tightened or loosened by the screw I.

M, is a rope (or its equivalent) $\frac{5}{8}$ of an inch thick, and long enough to inclose the block, and after passing through the plate N, on each side of the screw I, to permit fastening on the outer side of the nut K; the purpose of the rope is for forming the crease of the hames.

N, is an iron-plate of about 3 inches wide and $5\frac{1}{2}$ inches high, screwed to the table, serving to hold the screw I, and the guide rod L, to their places, and receive the rope M, through it as before described.

O, is an iron plate $5\frac{1}{2}$ inches high and an inch and a half wide; the screws G, and I, pass through, and the guide rod L, is firmly attached to it, as in Fig. 1, Plate 1.

P, is an iron bar one inch square, through the center of which is a half-inch hole to receive the end of the screw-rod G; on each side of the screw rod it is bent so as to reach the table where it is firmly attached by screws; it should be high enough to hold the end of the rod G, an inch and a half above the surface of the table, and while thus keeping the rod in its proper place, it also withstands the force of the screw G, while the machine is being expanded. The block, when expanded, or otherwise, should not be larger than $6\frac{1}{2}$ inches in height, and about $15\frac{1}{2}$ long on top.

I operate the machine, with a collar on it, or otherwise, as follows: Turn the screw G, by a crank placed on the square-head *d*; the screw I, may be turned by the same crank on the square head *e*; the screw G, turned to the right draws the nut *b* toward the square head, and the jaws C, C, hinged to the nut *b*, as before described, are neces-

sarily drawn up with the nut, lengthening the block; and the pins F, F, of the jaws C, C, moving in the slots D, D, are guided slowly outward, thus expanding the jaws C, C, by the same movement of the screw G. The jaws B, B, partly inclosing those C, C, as in Fig. 1, Plate 1, and guided by their pins F, F, in the slots E, E, are actuated by the expansion of the jaws C, C, and thus in the same degree expanded, although the screw G, directly actuates the latter alone. When the screw G, is turned to diminish the length and width of the block the jaws B, B, close by the actuating pressure of the springs H, H. The rope M, or its equivalent, encircling the collar on the block, as shown in Fig. 5, Plate III, for the purpose above described, is tightened to the required degree by turning the screw I, to the right, and so longitudinally moving the nut-plate K, to which the ends of the rope are secured. To loosen or relax the rope turn the screw I, to the left.

I do not claim any device in the machine separately and alone considered, but

I do claim—

The arrangement of the two sets of jaws (B, B—C, C,) by which the inner jaws (C, C,) alone are actuated directly by the screw G, while the outer B, B, are actuated by the expansion of the inner C, C, and the pressure of the springs H, H, both jaws being guided by the slots D, D—E, E, in the manner and for the purposes set forth and described in the specification.

ROBT. R. GRAY.

Attest:

LEW. WALLACE,
JOSEPH MCCOLLOUGH.