

(No Model.)

2 Sheets—Sheet 1.

J. DUCHESNE.

APPARATUS FOR THE MANUFACTURE OF BASES FOR ARTIFICIAL TEETH.

No. 244,989.

Patented Aug. 2, 1881.

Fig. 2.

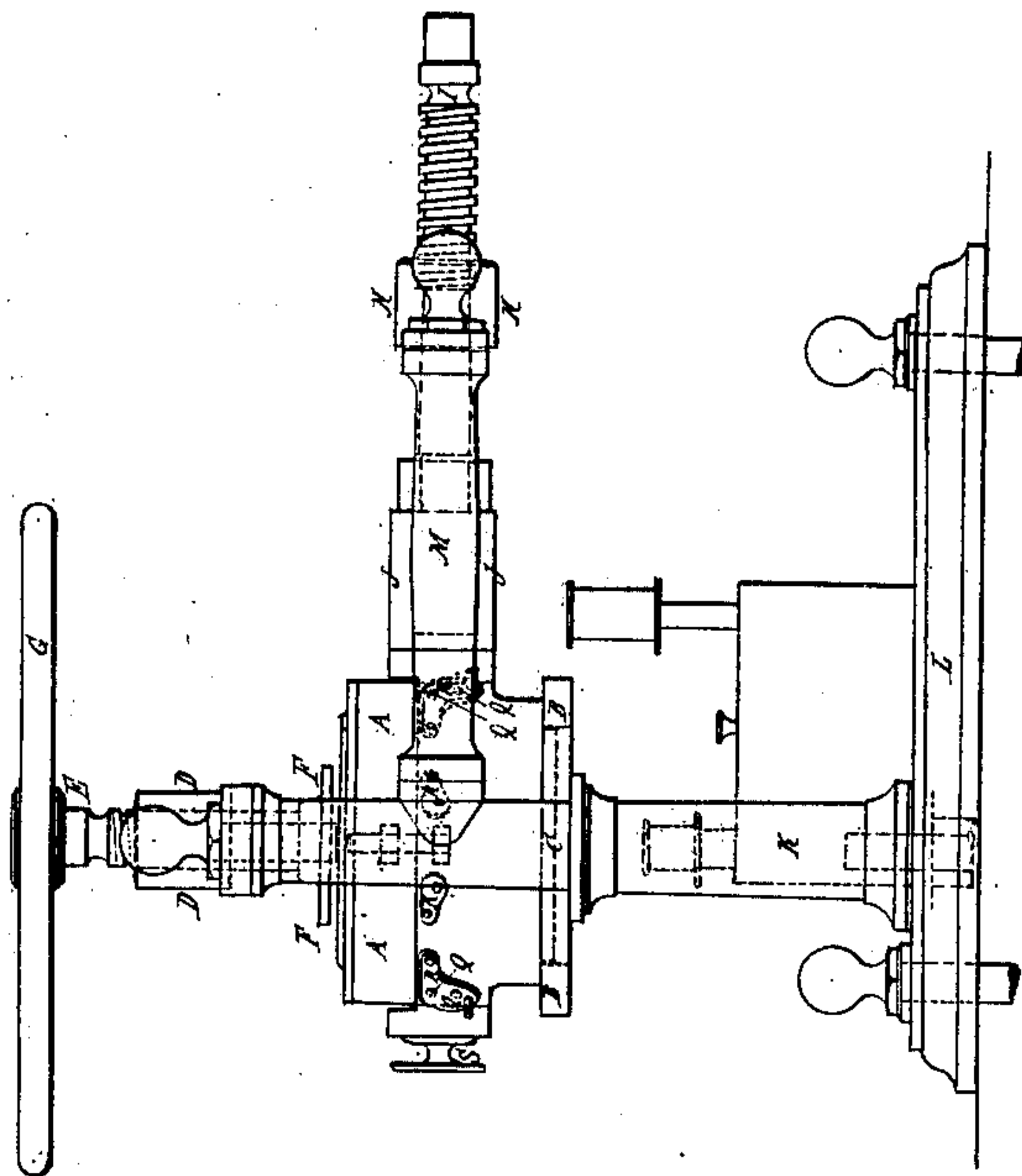
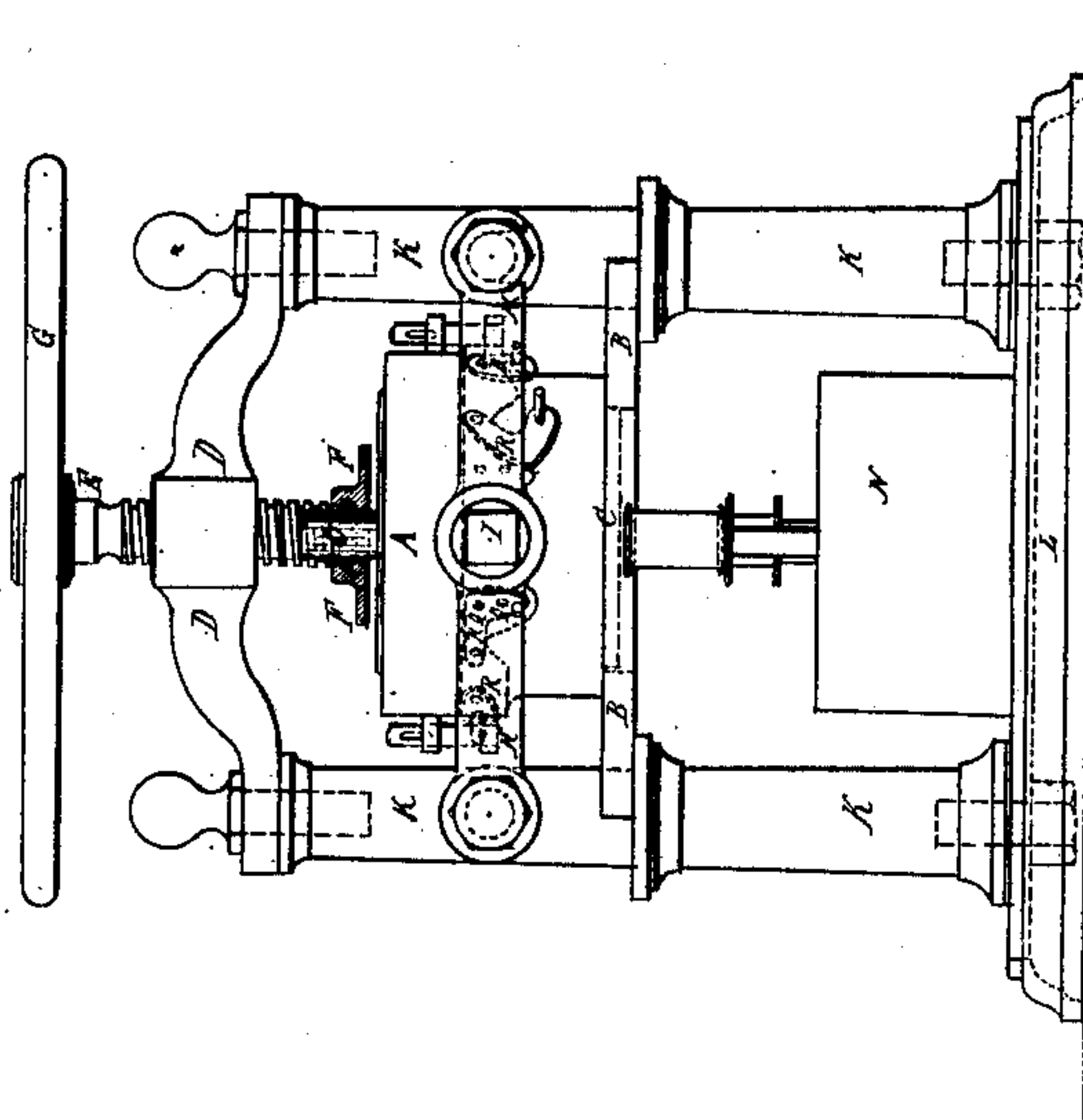


Fig. 1.



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(No Model.)

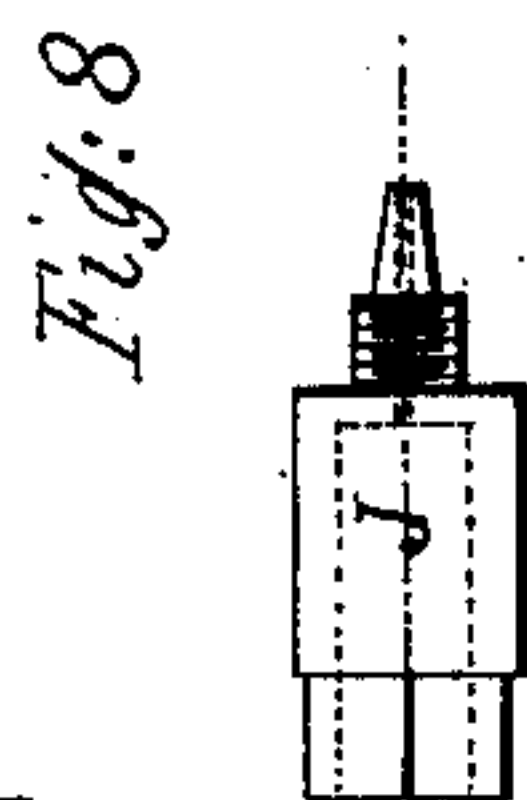
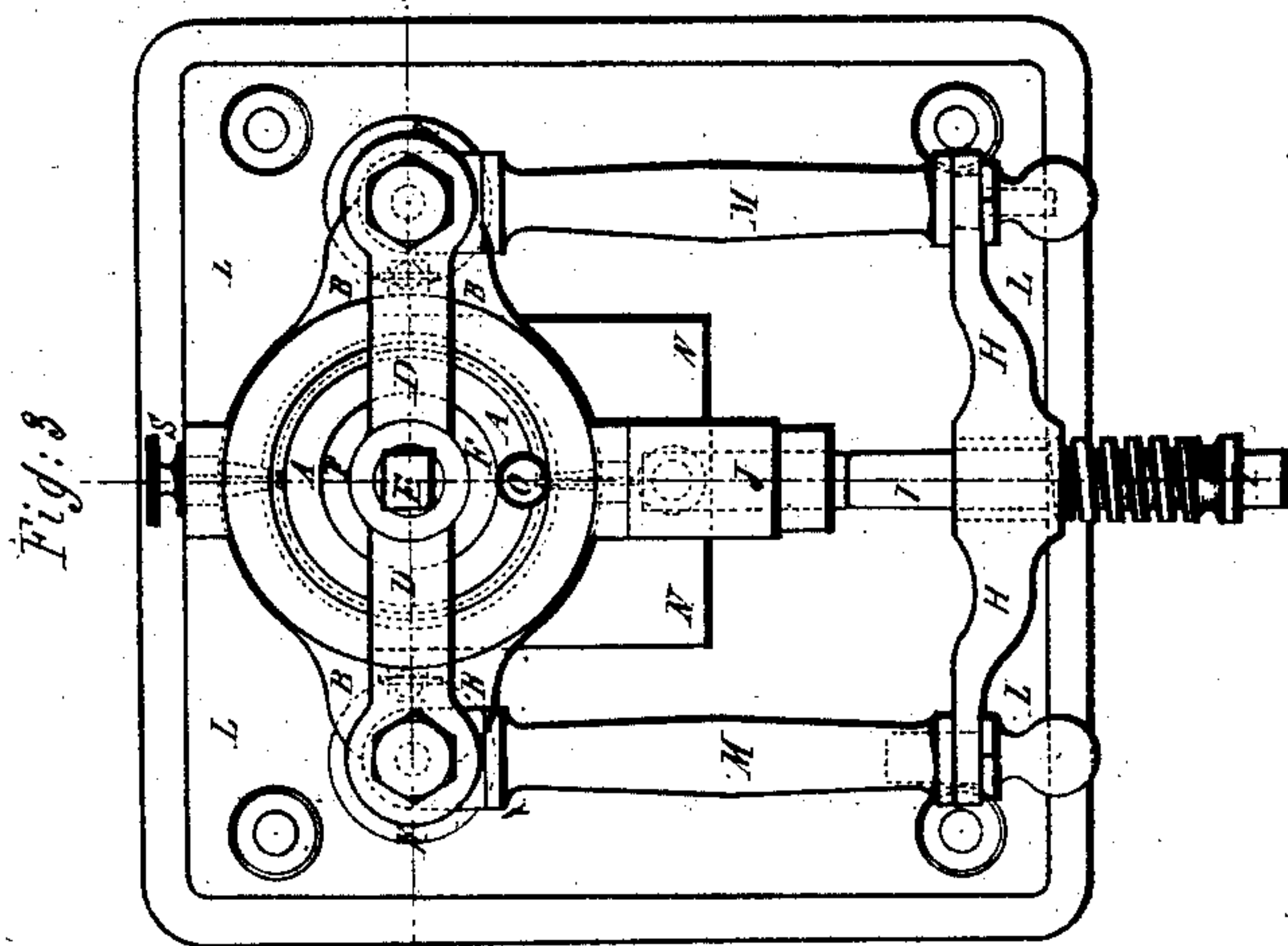
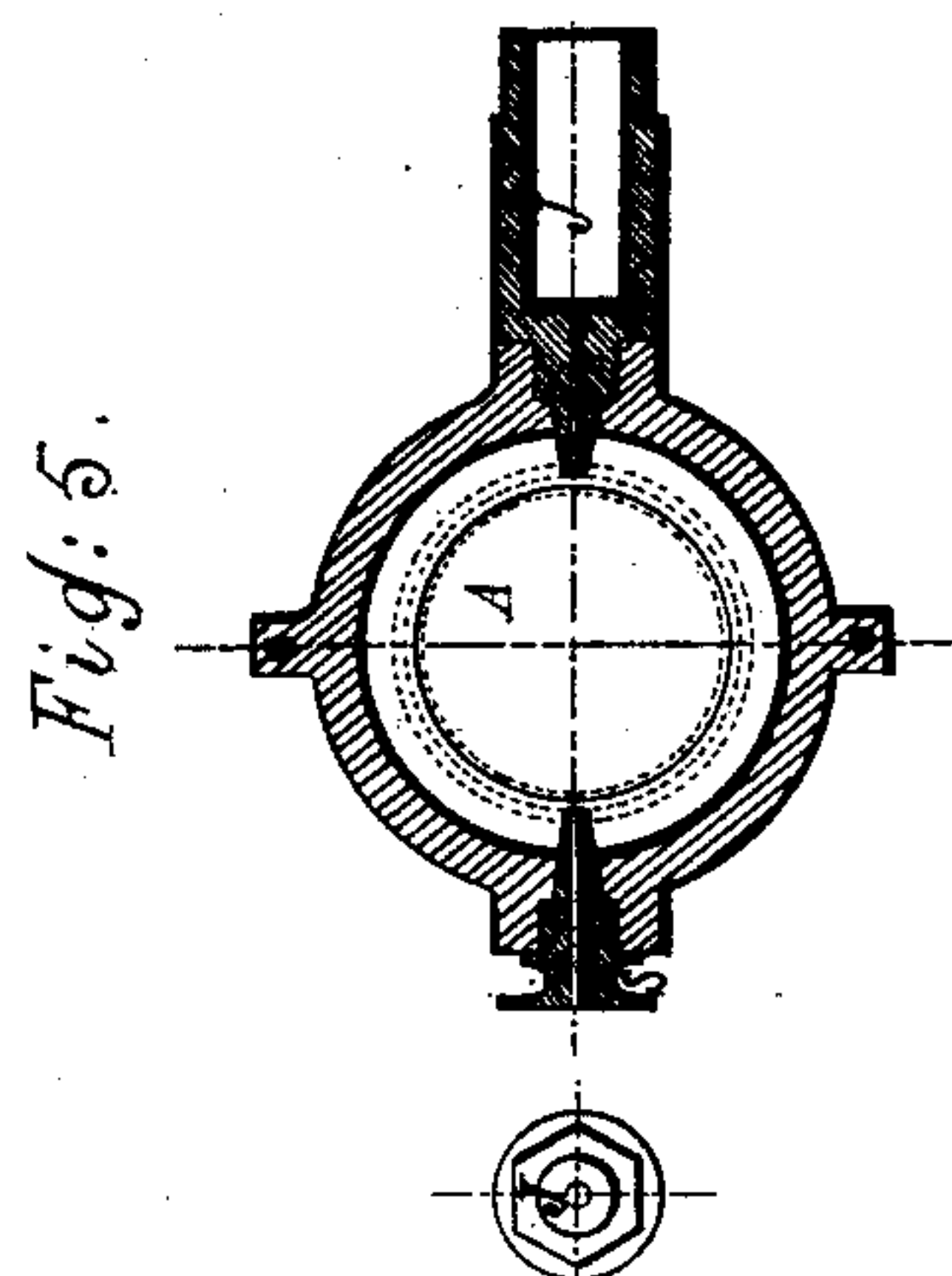
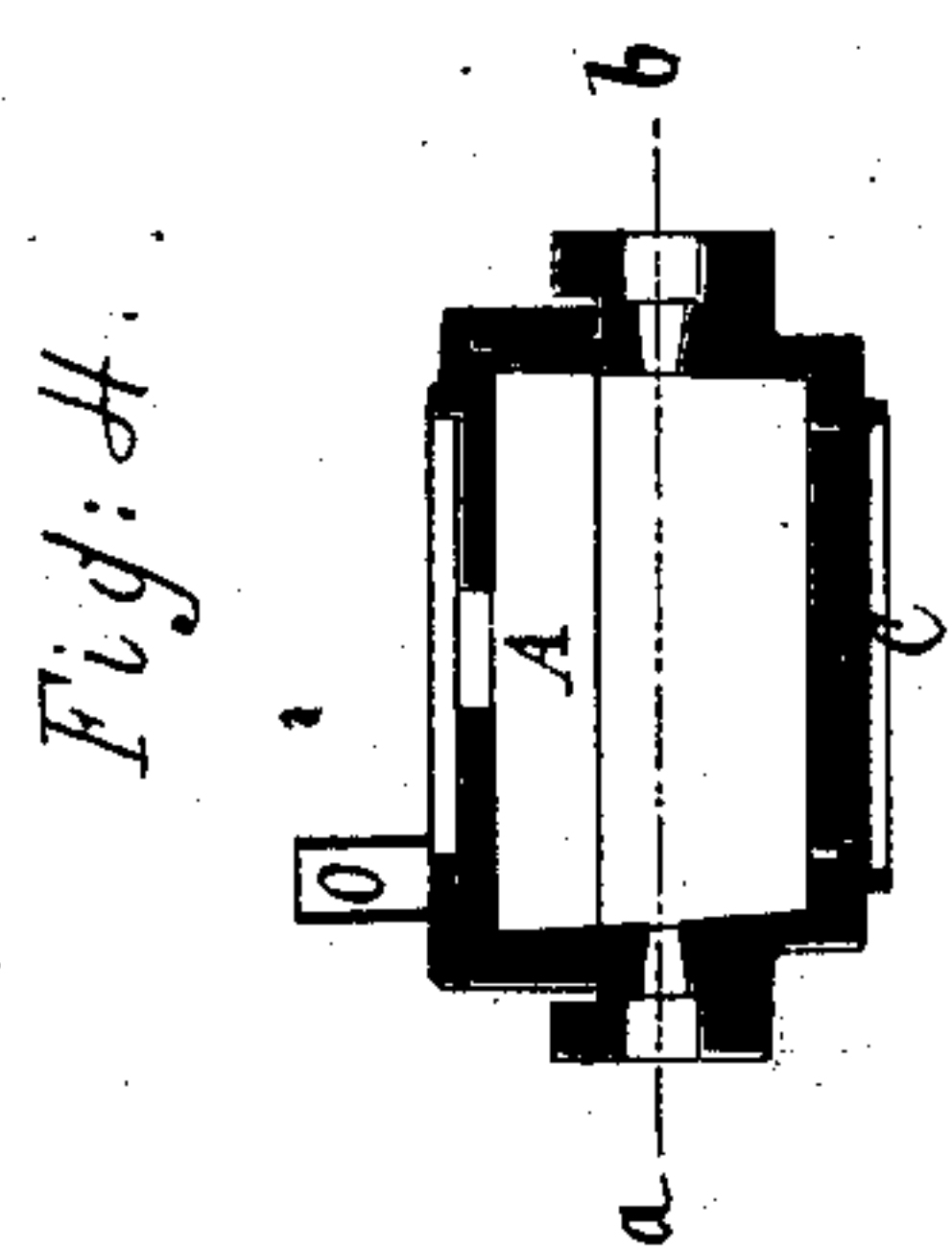
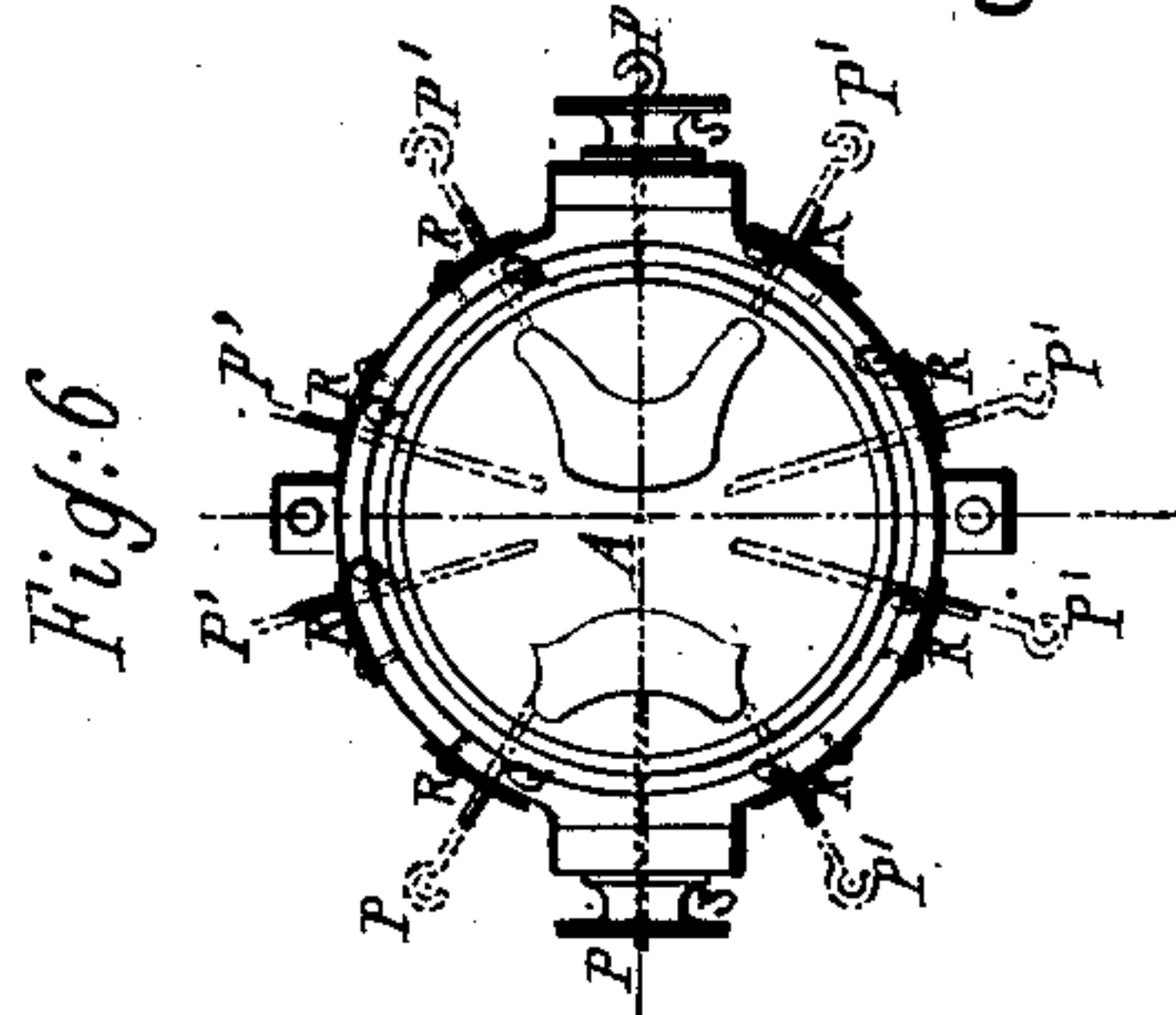
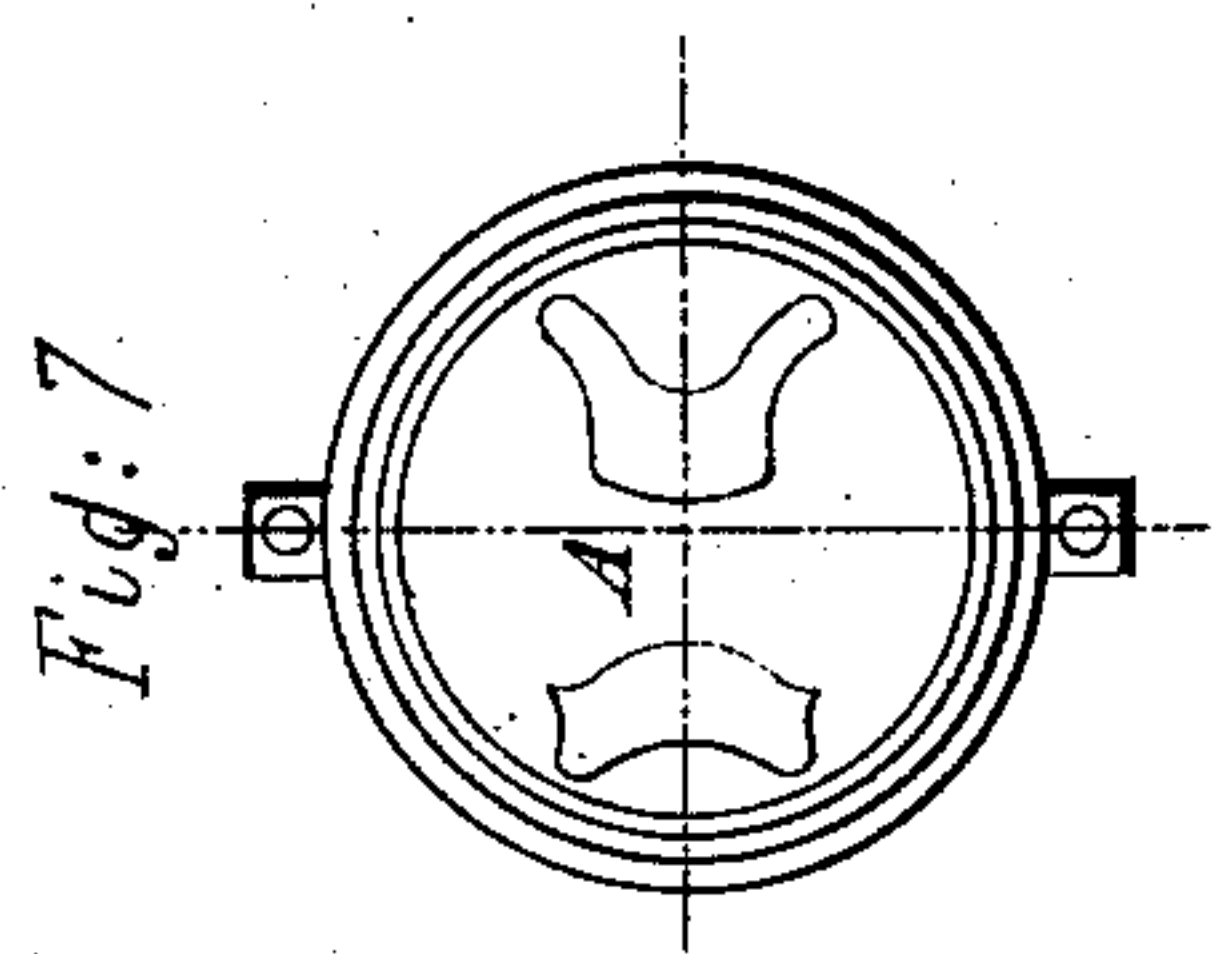
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Henry A. Parker.

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# UNITED STATES PATENT OFFICE.

JOSEPH DUCHESNE, OF MARSEILLES, FRANCE.

APPARATUS FOR THE MANUFACTURE OF BASES FOR ARTIFICIAL TEETH.

SPECIFICATION forming part of Letters Patent No. 244,989, dated August 2, 1881.

Application filed May 14, 1881. (No model.) Patented in France February 4, 1881.

*To all whom it may concern:*

Be it known that I, JOSEPH DUCHESNE, surgeon dentist, of Marseilles, France, have invented Improvements in Apparatus for the Manufacture of Bases for Artificial Teeth; (for which I have obtained French Letters Patent for fifteen years, dated February 4, 1881, No. 141,031;) and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed sheet of drawings, making a part of the same.

This invention relates to improved apparatus for the manufacture of bases for artificial teeth, of celluloid and india-rubber, whereby such articles may be quickly, accurately, and cheaply made, several at a time in the same flask and of the same or different materials, (india-rubber or celluloid). Moreover, by the apparatus of this invention, the same piece may be lined with red, white, brown, or black india-rubber, according to the purpose required, without opening the flask or allowing it to cool. The flask is made in two parts, fitting together with a tongue-and-groove joint, the lower part having a loose bottom fitting in a rabbeted opening, and on the other side a circular flange, which fits in a corresponding seat in the table of the press and permits of the flask being turned round on its axis. The upper part of the flask has a loose cover with a central opening in it. The flask is thus made in four main parts altogether, which may be quickly fitted together and taken apart, the two halves being locked together by cotter-bolts. The lower half of the flask is provided with screw-sockets or openings in the sides, in which to fix the nozzle of the injecting-cylinder, and also has holes, in which are inserted pins, hereinafter referred to, the said holes being provided with pivoted covers. Similar openings may also be made in the upper half of the flask, if desired, for the same purpose.

The invention is illustrated in the accompanying drawings, in which Figure 1 is a front elevation, Fig. 2 a side elevation, and Fig. 3 a plan, of the improved apparatus for molding dental plates. Fig. 4 is a vertical section, and Fig. 5 a horizontal section on line *a b*, Fig. 4, of the flask to contain the mold. Fig. 6 is a plan of the lower half of the flask, containing

the plaster mold and two patterns of dental plates in wax. Fig. 7 is a plan of the upper half of the flask, face uppermost. Fig. 8 shows side, end, and sectional views of the injector-cylinder. Fig. 9 represents a screw-plug, and Fig. 10 one of the pins, hereinafter referred to.

A is a flask, made in two halves, with loose bottom and cover; B, table of the press on which the flask is placed; C, circular rim on the bottom of the flask, which fits in a corresponding seat in table B, to enable the flask to be turned round on its axis.

D is the cross-head of the press, and E is a clamping-screw working through a nut in the cross-head; F, follower of screw E; G, hand-wheel; H, cross-head, through which works the screw I. The inner end of the screw is plain, and acts as a plunger for the injector-cylinder J, which is screwed into a socket at the side of the flask A.

K represents the pillars of the press, rising from bed-plate L; M, arms fixed to pillars K, to carry the cross-head H; N, spirit-lamp, for heating the flask; O, tube screwing into the top of the flask for the reception of a thermometer, which may, however, be attached directly to the injecting-cylinder by means of a screw-ring; P, pins inserted in holes in the side of the flask when running in the plaster to form channels therein for the injection of the material into the cavities of the mold; P', other pins, also inserted at the time of running in the plaster, to form vents for the escape of the surplus material injected.

Q are vent-holes in the lower half of the flask, for the escape of surplus material when other dental bases are being molded; R, pivoted covers for closing holes Q Q when the excess of injected material begins to escape; S, screw-plugs, screwing into sockets at opposite sides of the lower half of the mold, and each perforated to receive one of the pins above referred to, the said plugs being removable for fixing the injector-cylinder J in their place.

The action of the apparatus is as follows: The lower half of the flask is first filled with plaster, in which are placed one or more wax patterns of dental plates, care being taken that the points of the pins abut against the base and center of the patterns, as shown in Fig. 6. The top half of the flask is then placed upon the



lower one, and also filled with plaster and the cover applied, and, the two halves being locked together, the flask is placed in the press and clamped down by the screw E. When the plaster is set sufficiently the two halves of the flask are separated, the wax patterns are removed by means of boiling water, and the pins P P' and plugs S are withdrawn, leaving holes in the plaster for the injection and escape of the material. The two halves of the flask are then again united and placed in the press, the nozzle of the injector-cylinder is screwed into the socket in place of one of the plugs S, the flask is clamped down, the spirit-lamp being lighted for the purpose of heating the flask. Either caoutchouc or celluloid is now placed in the injector-cylinder and slightly compressed by means of the screw-plunger I. When the flask and injector-cylinder are both heated to about 130° centigrade the plunger I is screwed slowly into the injector-cylinder, thereby forcing the caoutchouc or celluloid gradually and continuously into the cavity of the mold. When the whole of the material contained in the injector-cylinder J has been forced into the mold, and the plunger has reached the bottom of the chamber, the material in excess will flow through the channels and out at the sides of the lower half of the flask, and the operation is terminated. The injector cylinder is then unscrewed, and the flask, while still hot, is turned partly round in its seat, and the injector-cylinder is screwed into the other socket, and, after being heated, more caoutchouc or celluloid is injected into the other cavity of the mold. Several dental plates may thus be produced at once at a single molding and heating operation, and the said plates may, moreover, be made of different materials, introduced either separately or together or successively into the same cavity.

With this improved system of injector, press,

and flask the preliminary heating of the flask in the case of india-rubber is avoided, and several subsequent operations upon the molded articles hitherto required are rendered unnecessary, the articles being produced with perfect accuracy in every respect, and without liability of the teeth-fastenings or plates becoming loose or deviating from their proper position. Moreover, by the employment of the flask herein described, the union of new with old caoutchouc is perfect, and the use of several different tools is rendered unnecessary for obliterating the traces of junction or repair.

The above advantages are also obtained in the case of celluloid, as well as a considerable saving in labor and material, more particularly in the case of small plates and in the repair of old plates and the addition of new teeth thereto. Another advantage is that the apparatus may be used by unskilled operators.

I am aware that it is not new to combine a flask with a clamp-screw for holding it closed and with a charging-screw analogous to the screw I; but I regard it to be new to swivel a flask having two openings that are provided with plugs S, and combine it with the screws E and I, so that by merely turning it its opposite sides can be brought in line with the charging-cylinder.

I claim—

The combination of the sectional swivel-flask A, having circular rim C, with the table B, screw E, screw-plugs S S, injector-cylinder J, and screw I, all constructed, combined, and operating substantially as herein shown and described.

JOSEPH DUCHESNE.

Witnesses:

A. DELFE,  
A. OOSTE.