

(No Model.)

3 Sheets—Sheet 1.

J. MANNING & J. R. S. HAYES.
SMOOTHING AND PRESSING IRON.

No. 604,060.

Patented May 17, 1898.

Fig. 1.

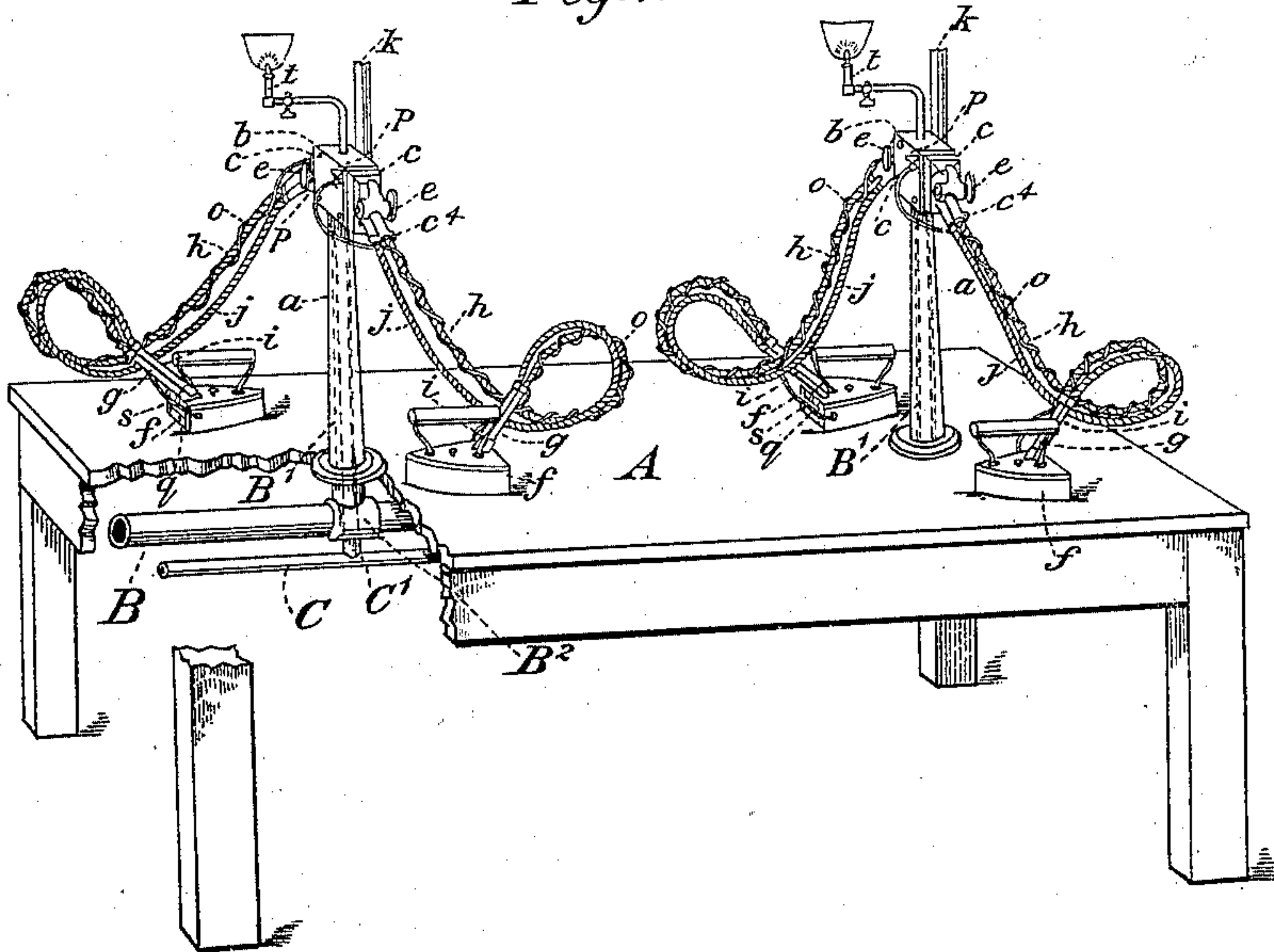
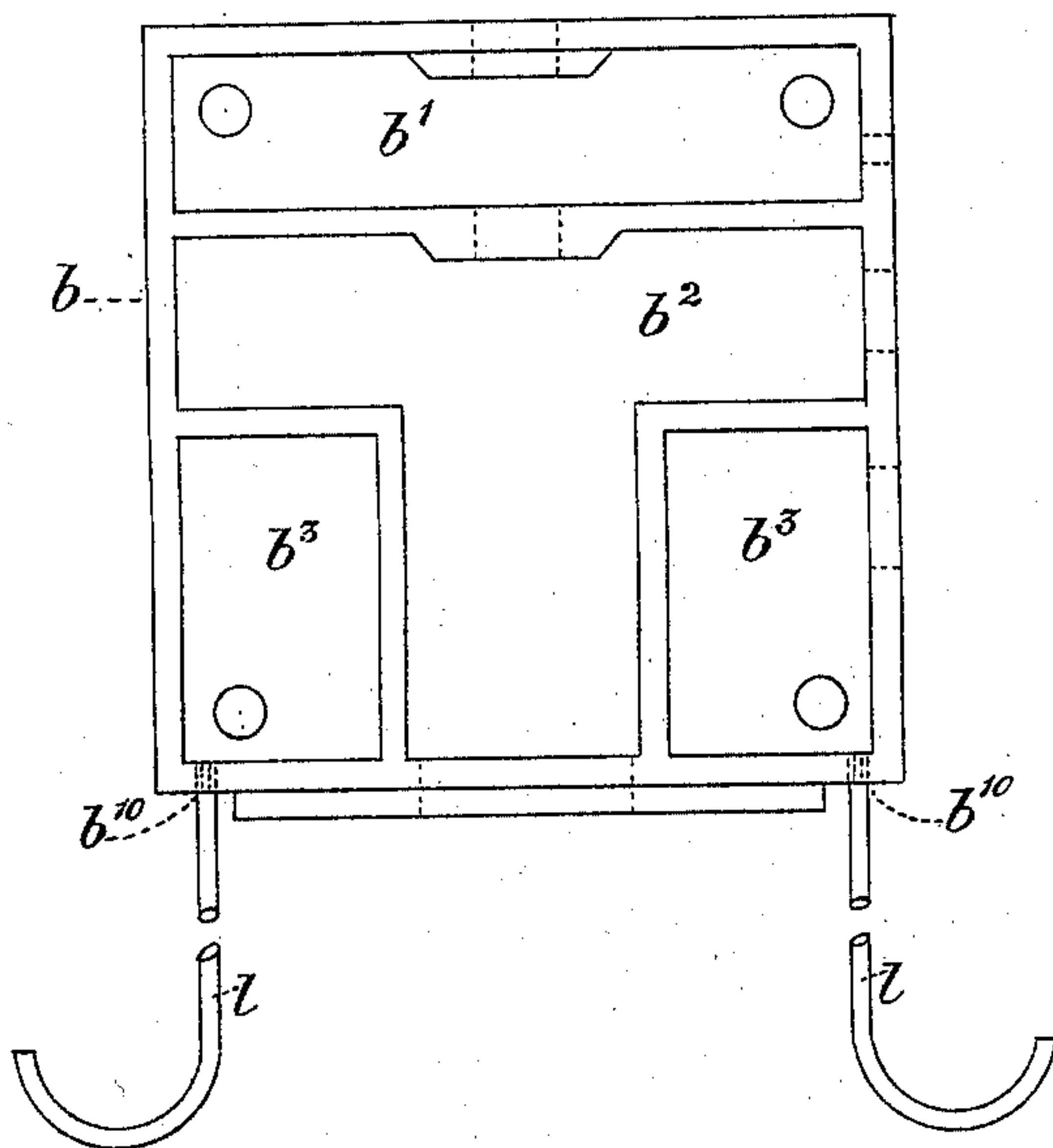
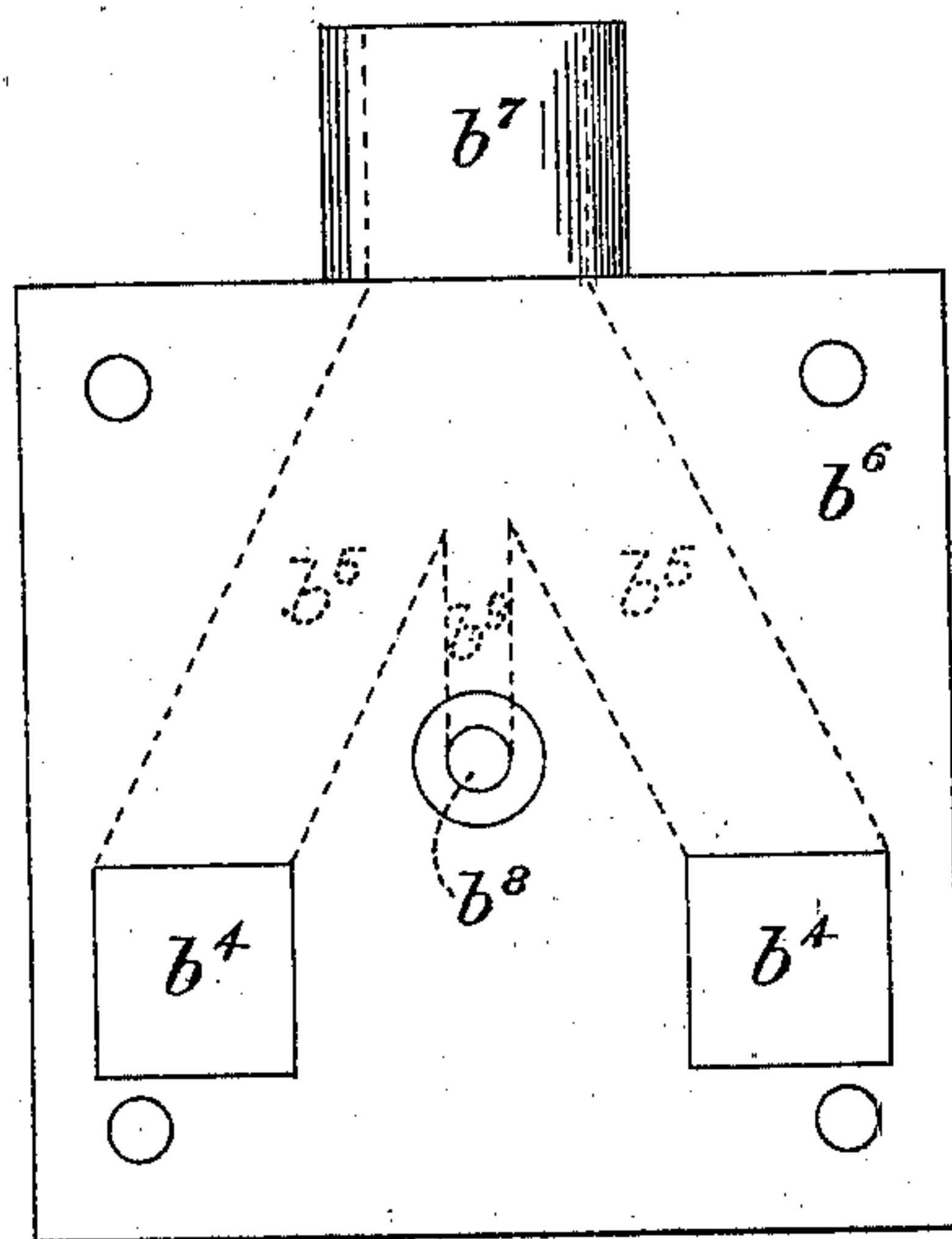


Fig. 2.



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Fig. 3.



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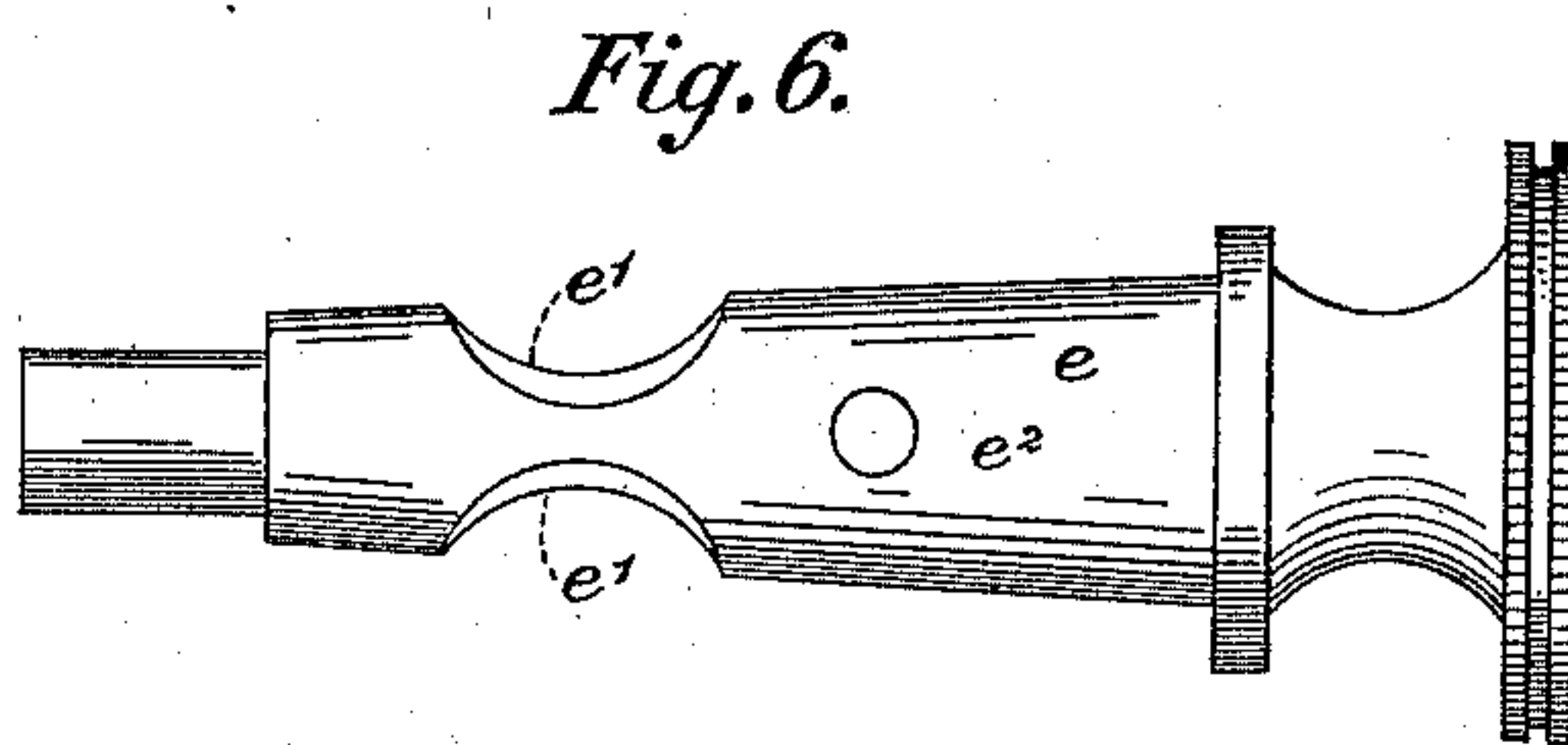
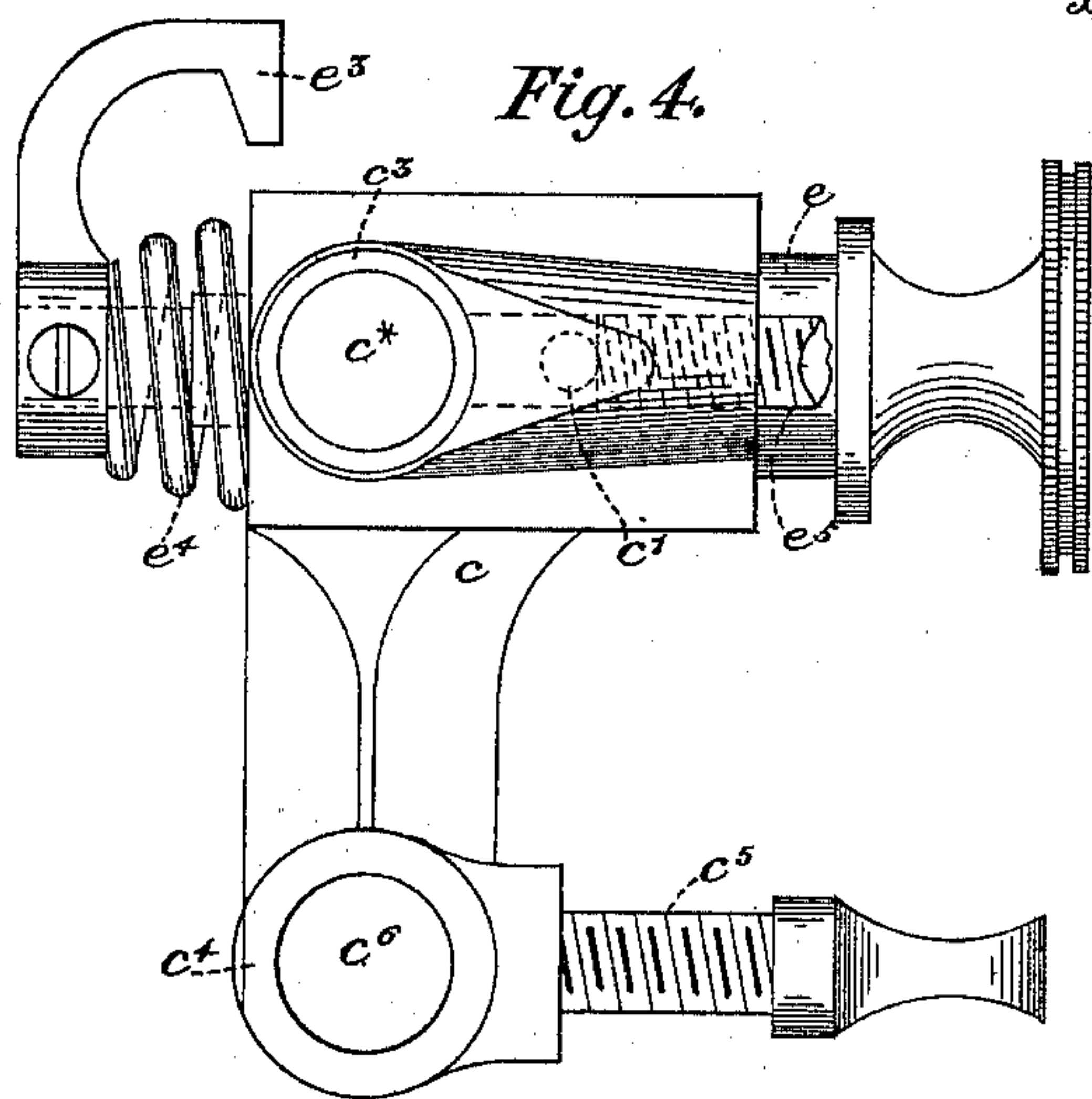
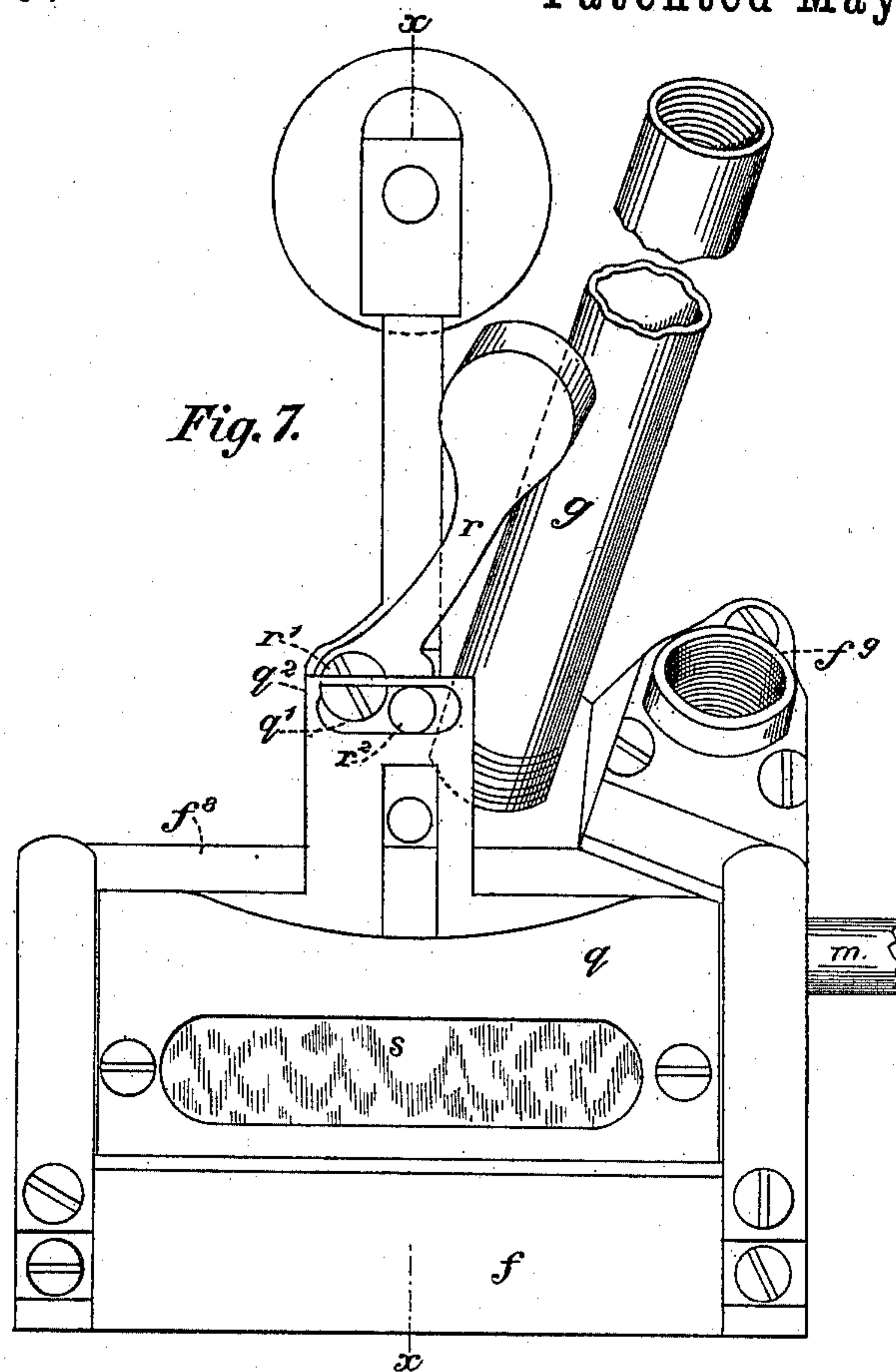
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SMOOTHING AND PRESSING IRON.

No. 604,060.

Patented May 17, 1898.



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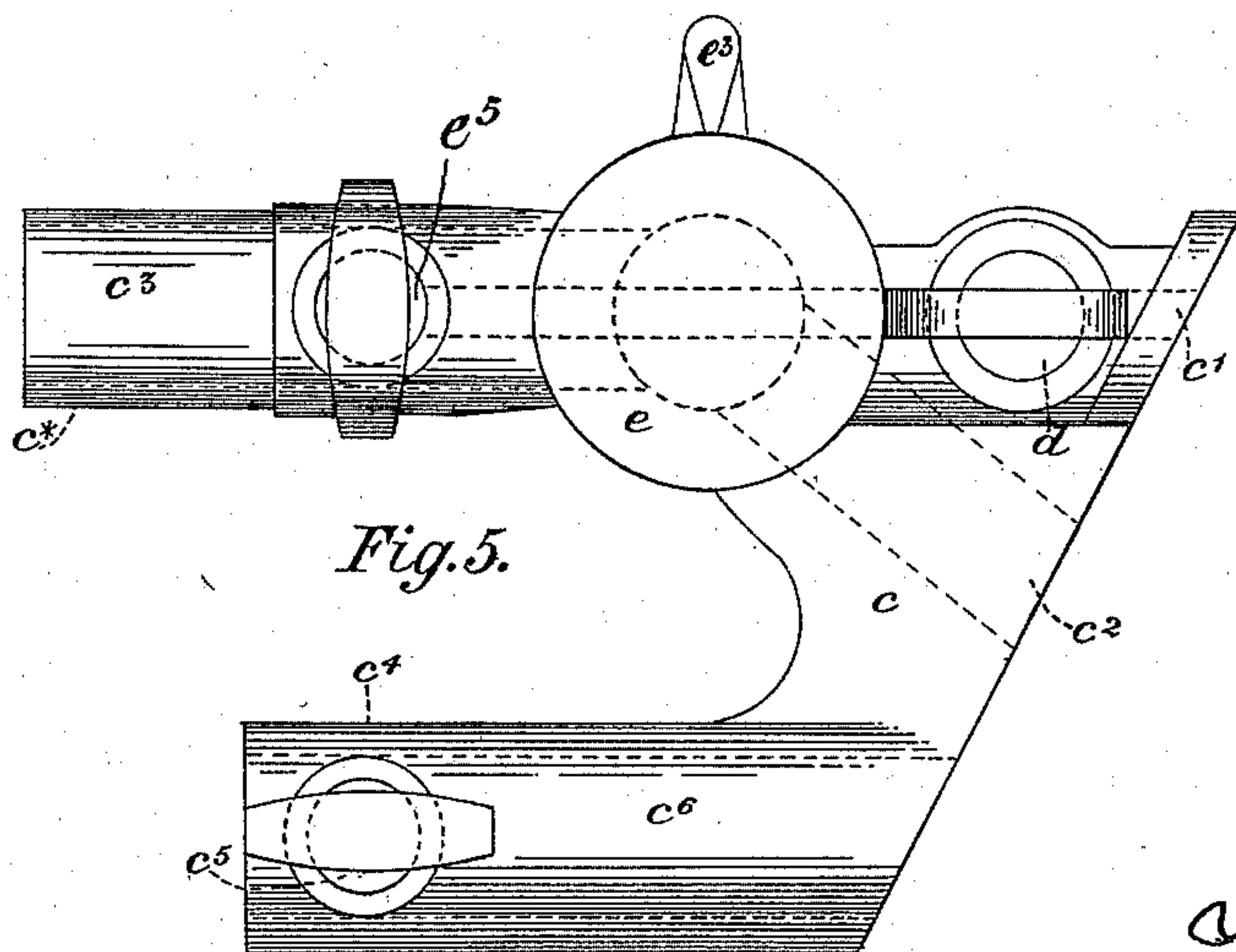
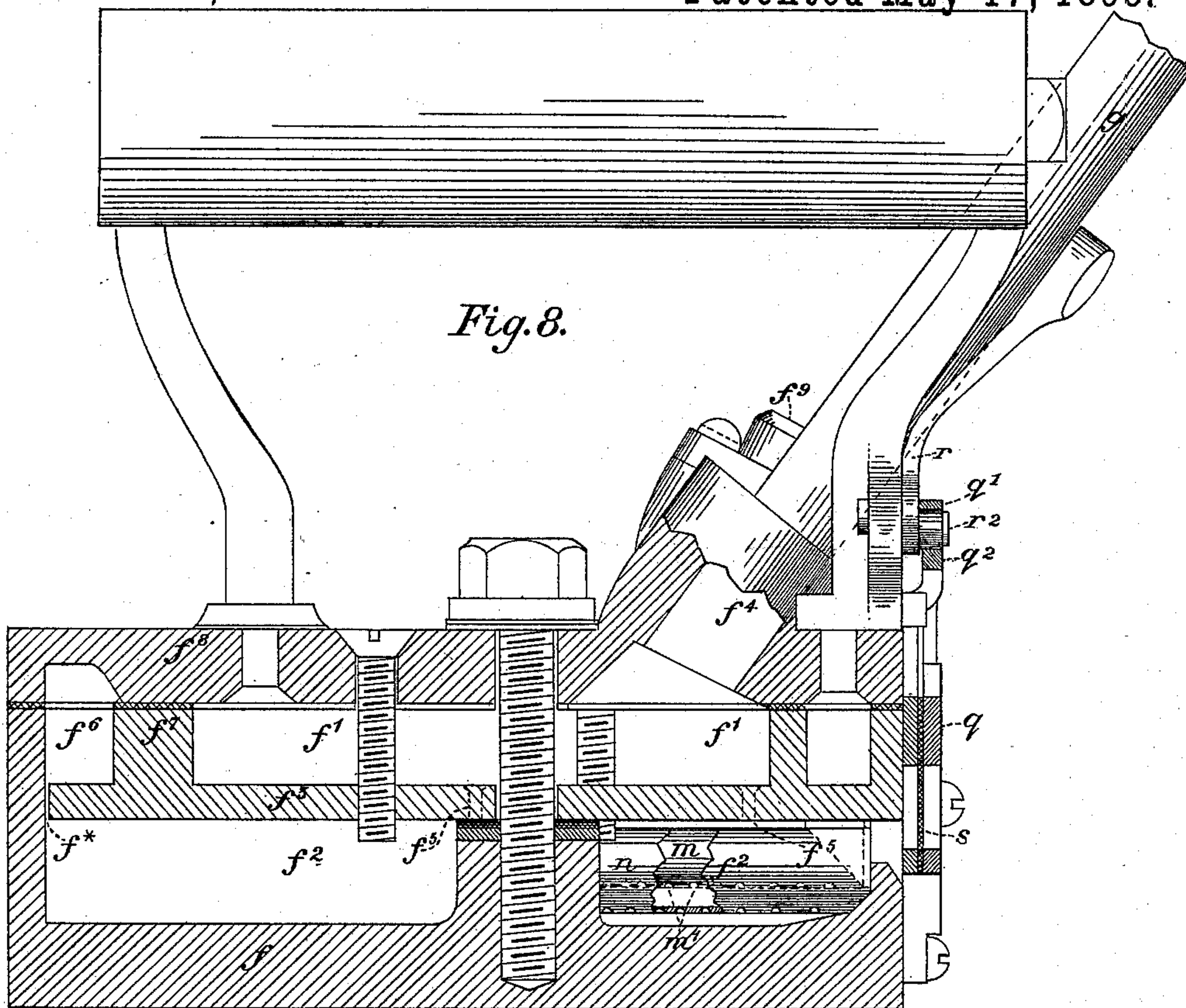
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UNITED STATES PATENT OFFICE.

JOHN MANNING AND JAMES R. S. HAYES, OF LONDON, ENGLAND.

SMOOTHING AND PRESSING IRON.

SPECIFICATION forming part of Letters Patent No. 604,060, dated May 17, 1898.

Application filed December 24, 1897. Serial No. 663,308. (No model.) Patented in England January 14, 1896, No. 954.

To all whom it may concern:

Be it known that we, JOHN MANNING and JAMES ROBERT SLADE HAYES, subjects of the Queen of Great Britain and Ireland, residing at London, in the county of Middlesex, England, have invented certain new and useful Improvements in Smoothing and Pressing Irons and other Like Articles, (for which we have obtained a patent in Great Britain, No. 954, bearing date January 14, 1896,) of which the following is a specification.

Our invention relates to apparatus more especially designed for heating the combustion-chambers of smoothing and pressing irons, but which is also applicable to other combustion-chambers—such as those of japanning-ovens, steam boilers or generators, gold-blocking presses, and coppers—and to heat radiators generally.

One important feature of our said invention is the improved means for directing or converging a mixture of gas and air to the combustion-chamber to be heated.

Another important feature of our said invention is the improved means employed for the complete and automatic evacuation of the waste products of combustion from the combustion-chamber, thereby obviating the unpleasantness and danger to health consequent upon the discharge or leakage of the said noxious gases into the work-room or other apartment.

A further important feature of our said invention consists in providing within the said combustion-chamber (which, being supplied with a mixture of gas and air under pressure, does not require a permanent opening between it and the atmosphere, and is therefore normally kept closed) a pilot-light, whereby the opening of the door or shutter each time the apparatus is ignited is avoided.

In the accompanying drawings, Figure 1 is a perspective view showing an application of our said invention to smoothing-irons. Fig. 2 is a view of an air, gas, and exhaust box hereinafter described, with the cover removed and drawn to a greatly-enlarged scale. Fig. 3 is a view drawn to the same scale as Fig. 2, showing the said cover. Fig. 4 is a front view, and Fig. 5 is a side view, both drawn to a still further enlarged scale, show-

ing the improved converger or mixer hereinafter described. Fig. 6 is a side view, drawn to the same scale as Figs. 4 and 5, showing the gas and air regulating plug. Fig. 7 is an end view, and Fig. 8 is a vertical central section on the line xx , Fig. 7, both drawn to the same scale as Figs. 4 to 6, showing the improved smoothing-iron.

Like letters indicate corresponding parts throughout the drawings.

A is an ironing or operating table.

B is a pipe connected with a small air compressor or blower or other source of supply of air under pressure.

C is a pipe communicating with the gas-main or any available source of gas-supply.

$a a$ are hollow columns secured at their bases to the upper surface of the table A. Each of the columns a has mounted upon its upper extremity an air, gas, and exhaust box b , which box is divided, as shown in Fig. 2, into compartments—that is to say, a gas-compartment b' , a compressed-air compartment b^2 , and an exhaust-compartment b^3 . Two exhaust-compartments b^3 are shown in the drawings, one in connection with each iron f . The compressed-air compartment b^2 communicates, through a branch pipe B' , passing up through the hollow column a , with the compressed-air pipe B, and the gas-compartment b' communicates with the gas-supply pipe C through a branch pipe C' , which latter passes through the connecting-piece B^2 on the compressed-air pipe B and inside the branch pipe B' .

c is a converger or mixer, one of which is attached at each end of the box b , so as to communicate with the compartments therein, and serves for supplying the mixture of gas and air to the combustion-chamber, as hereinafter described. The converger c communicates with the gas-chamber b' through a way or passage c' , governed or controlled by a stop-cock or valve d , Fig. 5, and with the compressed-air compartment b^2 through a way or passage c^2 . The ways or passages c' c^2 are both governed by a plug or valve e for regulating the supply of air and gas to the combustion-chamber. The regulating plug or valve e is cut away, as shown at e' , Fig. 6, to allow of the passage of the air and is also pro-

vided with a hole e^2 to admit of the passage of the gas. The ways or passages c' c^2 both terminate in a way or passage c^x in a nozzle c^3 .

e^5 (shown broken off in Fig. 4) is a set-screw entering the way or passage c' and serving for the further regulation of the gas-supply, if desired.

f f' are smoothing-irons, each of which is divided internally into two compartments f' f^2 by a partition or diaphragm f^3 . The uppermost compartment f' communicates with the gas and air supply nozzle c^3 through an aperture f^4 , short length of metal pipe g , and a sufficient length of flexible metallic or other pipe h , as shown in Fig. 1.

f^5 f^5 are small holes or perforations (shown in dotted lines in Fig. 8) for admitting of the mixture of gas and air passing from the upper compartment f' to the lower compartment or combustion-chamber f^2 , wherein it is ignited to heat the iron. The waste products of combustion from the compartment f^2 pass up through a slight space or clearance provided between the partition or diaphragm f^3 and the side walls of the iron, as indicated at f^* , into a way or passage f^6 , formed partly by an upwardly-extending rib or flange f^7 upon the said partition or diaphragm f^3 and partly by a recess formed in the cover f^8 of the iron. The way or passage f^6 communicates, through an aperture f^9 , short length of metal pipe i , Fig. 1, a sufficient length of flexible metallic or other pipe j , connected to a nozzle c^4 of the converger c by a set-screw c^5 , and a passage or way c^6 , with one of the exhaust-compartments b^3 of the box b . The exhaust-compartments b^3 communicate, through apertures b^4 and ways or passages b^5 in the cover b^6 of the box b , with an outlet b^7 , from whence the waste products of combustion are removed through an exhaust-pipe k , Fig. 1, and are discharged at any convenient point.

b^8 is an aperture communicating with the compressed-air compartment b^2 and admitting a sufficient supply of the said air to the exhaust-pipe k through the way or passage b^9 to form an induced current and suck out or facilitate the escape of the waste products of combustion and prevent undue condensation thereof taking place in the said chambers or compartments and ways or passages.

b^{10} b^{10} are small holes or apertures formed in the exhaust-compartment b^3 , to which are connected pipes l to remove any products of condensation therefrom.

For the purpose of indicating the position of the cock e , and thus to gage the amount of gas and air capable of passing therethrough, a pointer e^3 is attached to the stem of the said plug, and such pointer may pass over a suitable scale.

e^4 is a spring for maintaining the plug e firmly upon its seating, while at the same time permitting the free rotation thereof.

m is a small pipe having a row of holes or perforations m' and fitted with a perforated guard or shield n . The pipe m is located in

the combustion-chamber f^2 of the iron f and communicates, through a small flexible pipe o , wound around the gas and air supply pipe h , as shown in Fig. 1, and stop-cock p , with the pure-gas compartment b' of the box. The pipe m forms a pilot-light which can be left lighted in the combustion-chamber f^2 after the supply of mixed gas and air to the latter has been cut off by closing the cock d and which allows of the ignition of the mixture of gas and air in the said combustion-chamber f^2 upon the opening of the said cock d . The guard or shield n prevents the pilot-light from being blown out by the current of compressed air which constantly passes through the said combustion-chamber f^2 . To admit of access to the combustion-chamber f^2 for lighting purposes, we provide at the rear of the iron f a sliding door q , which as mixed gas and air is supplied to the combustion-chamber through the pipe g is normally kept closed, but is capable of being raised or lowered by means of a crank-lever r , pivoted at r' , through a pin r^2 upon the short arm of the said lever working in a transverse slot q' , formed in an extension q^2 upon the said sliding door q .

s is a window formed of mica or other transparent heat-resisting material which admits of the gas-flame within the combustion-chamber f^2 being seen and the admission of the mixture of gas and air thereto regulated as may seem to be required.

t t are ordinary gas-burners for affording light to the operators at the table A when required and which burners draw their supply of gas from the gas-compartments b' of the boxes b .

It will be seen that the boxes b are each arranged to supply gas and air and receive the exhaust from two irons; but it is obvious that they might be so arranged as to be capable of supplying four or other number of irons.

Although we have described our improvements as applied more especially to a smoothing-iron, it will be readily understood that they are also readily applicable to other combustion-chambers.

What we claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, in an apparatus for heating a combustion-chamber, of a gas-supply pipe, an air-supply pipe, means to supply air under pressure to such last-mentioned pipe, a box connected to said pipes, compartments in said box for gas, air and exhaust respectively, a regulating plug and valve connected to both the gas and air compartments, means to convey the mixed gas and air under pressure to the combustion-chamber and means to connect the combustion-chamber to the exhaust-compartment in said box.

2. In an apparatus for heating a combustion-chamber, the combination, with a box having compartments respectively for gas, air under pressure and exhaust, the air and gas chamber connecting through a mixing valve or regulator with the combustion-cham-

ber which chamber is connected with the said exhaust-compartment, of a way or passage between said air and exhaust compartments serving to produce in the latter an induced air-current substantially as and for the purposes set forth.

3. The combination, in an apparatus for heating a combustion-chamber, of a box divided into compartments for gas, air under pressure and exhaust, means to connect and mix in the proportions desired the said gas and air under pressure and to convey such mixture to the combustion-chamber, means

to connect the combustion-chamber to the exhaust-compartment and means to connect said gas-compartment direct to said combustion-chamber for the purpose of providing a pilot-light in said last-mentioned chamber substantially as set forth.

In testimony whereof we have hereunto subscribed our names.

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Witnesses:

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