

No. 713,545.

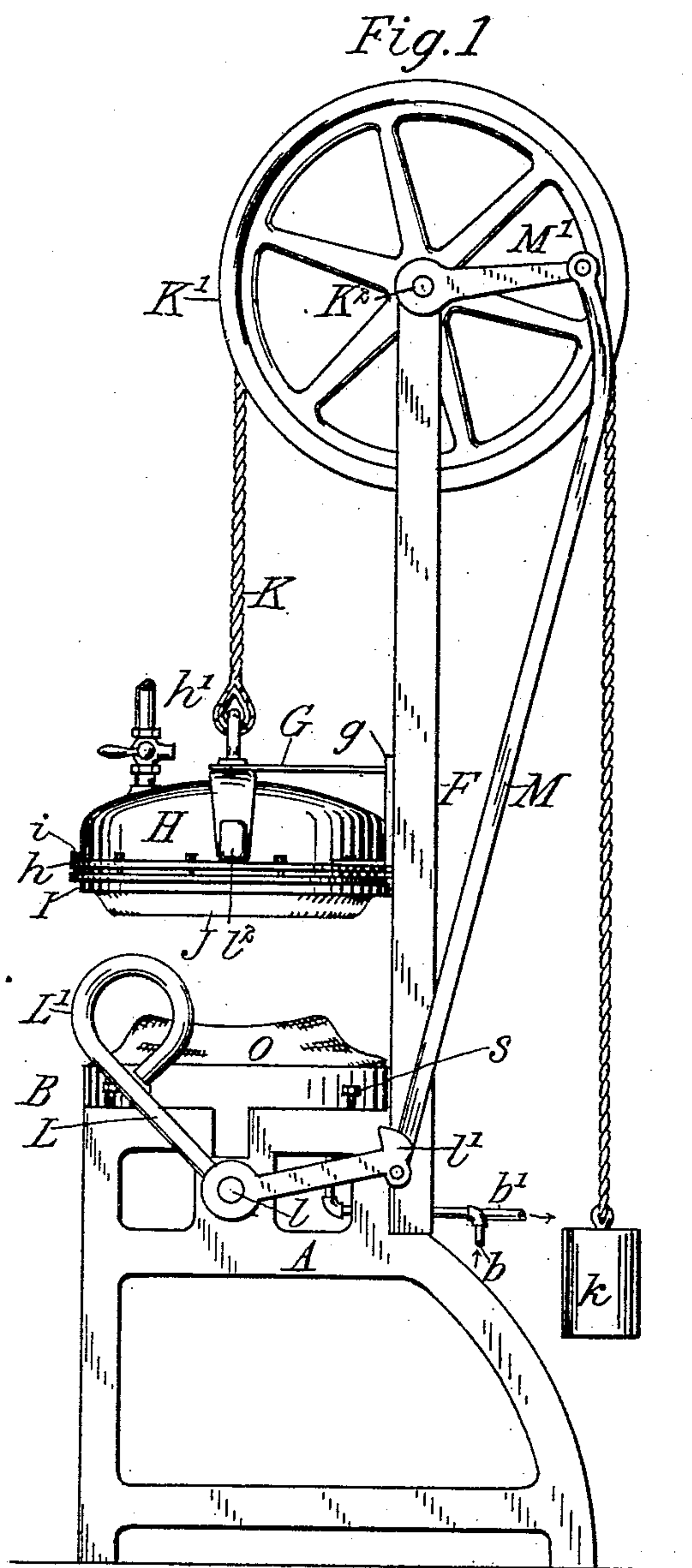
Patented Nov. 11, 1902.

A. B. WARING.
MACHINE FOR FLANGING HAT BRIMS.

(Application filed Apr. 8, 1902.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses:

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Geo. L. Wheelock.

Inventor:

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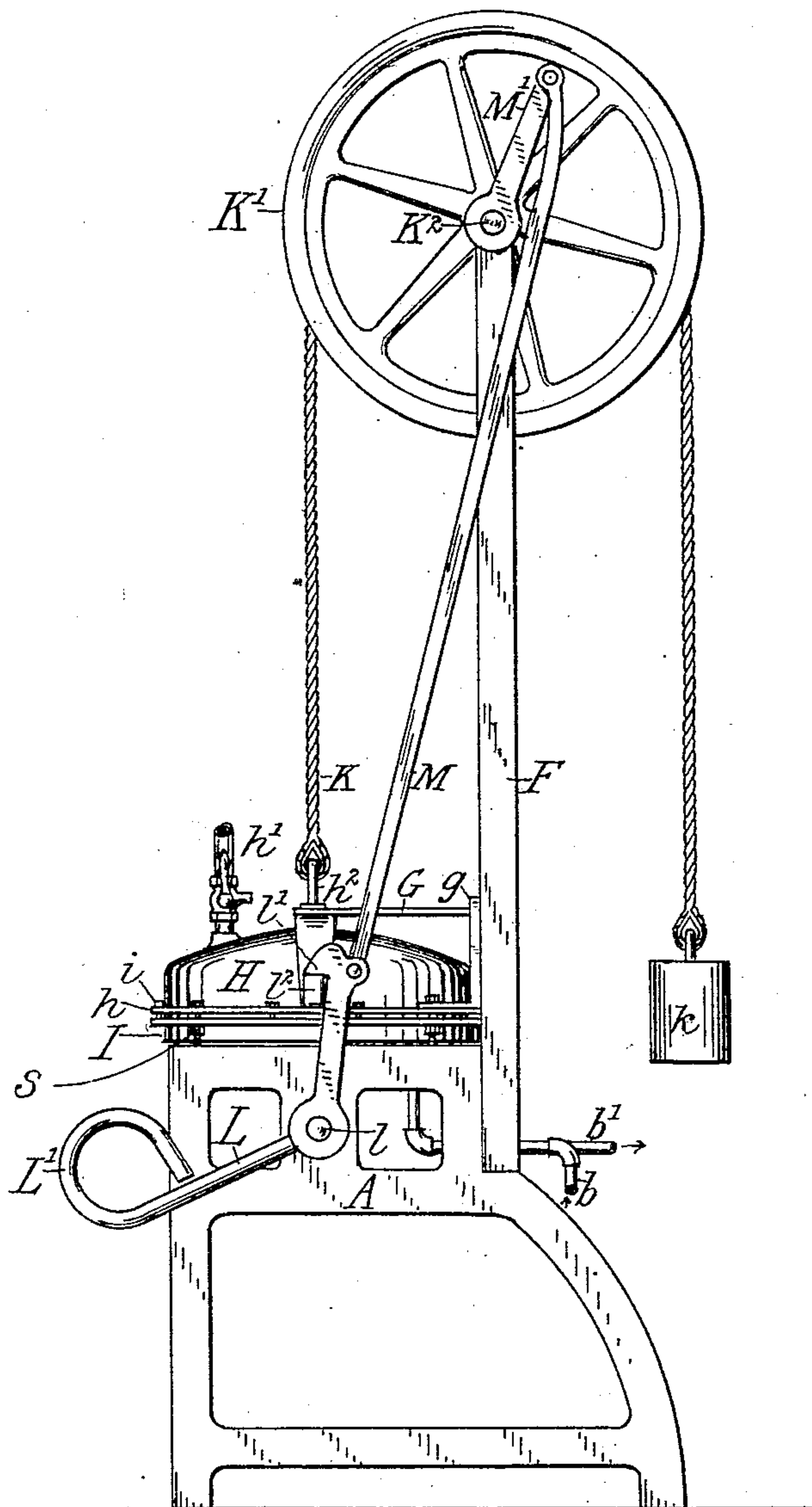
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Fig. 2



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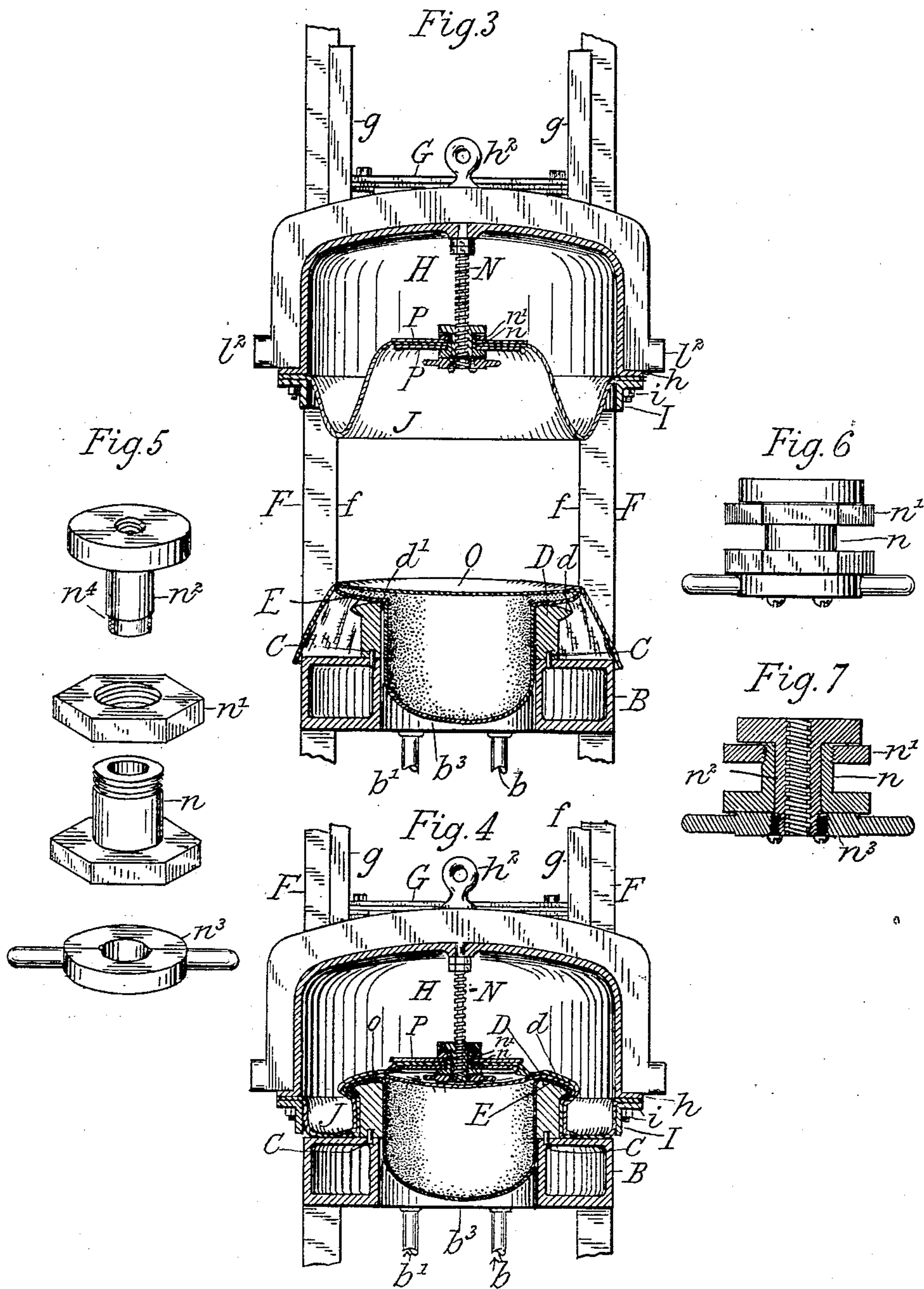
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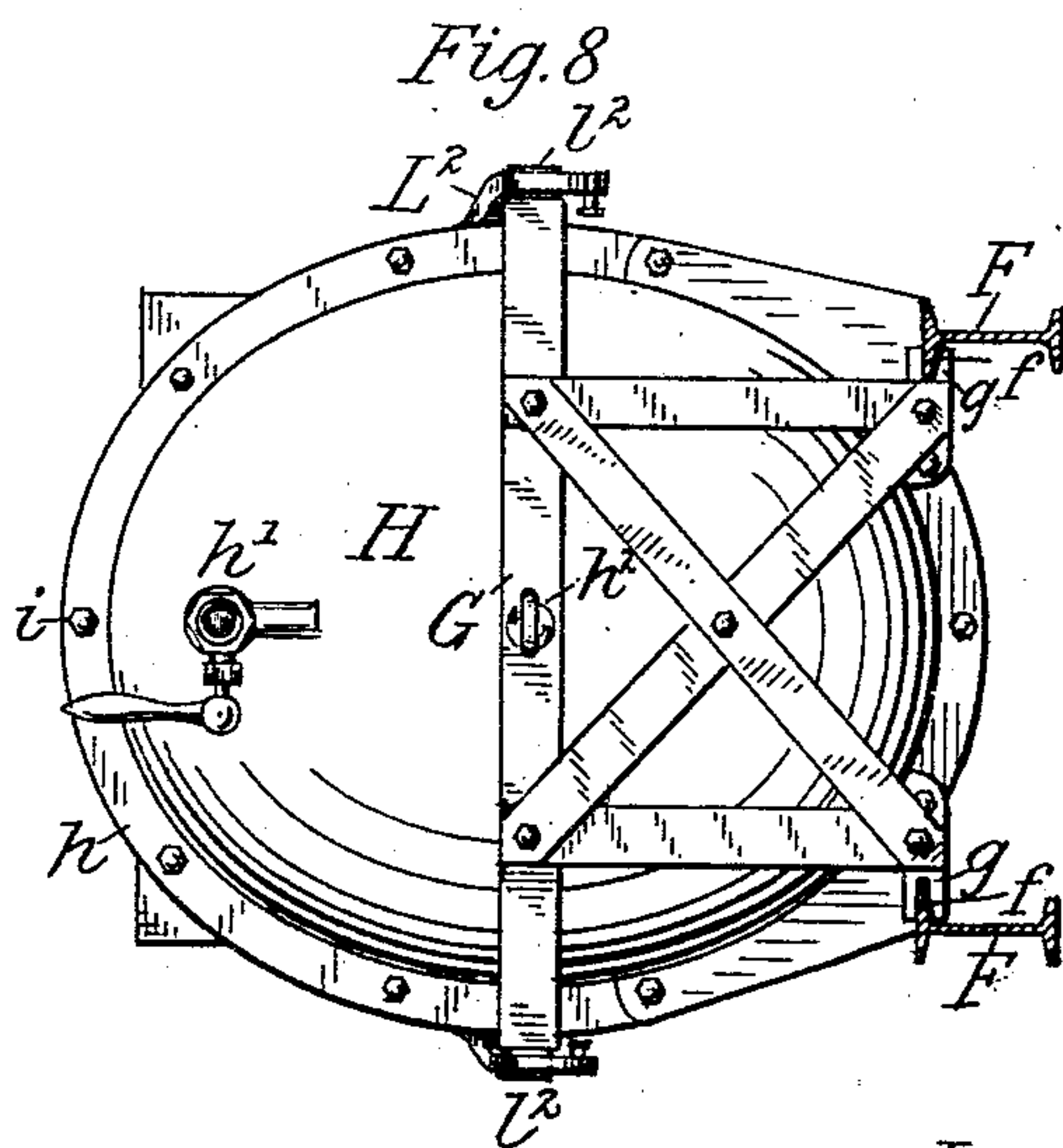
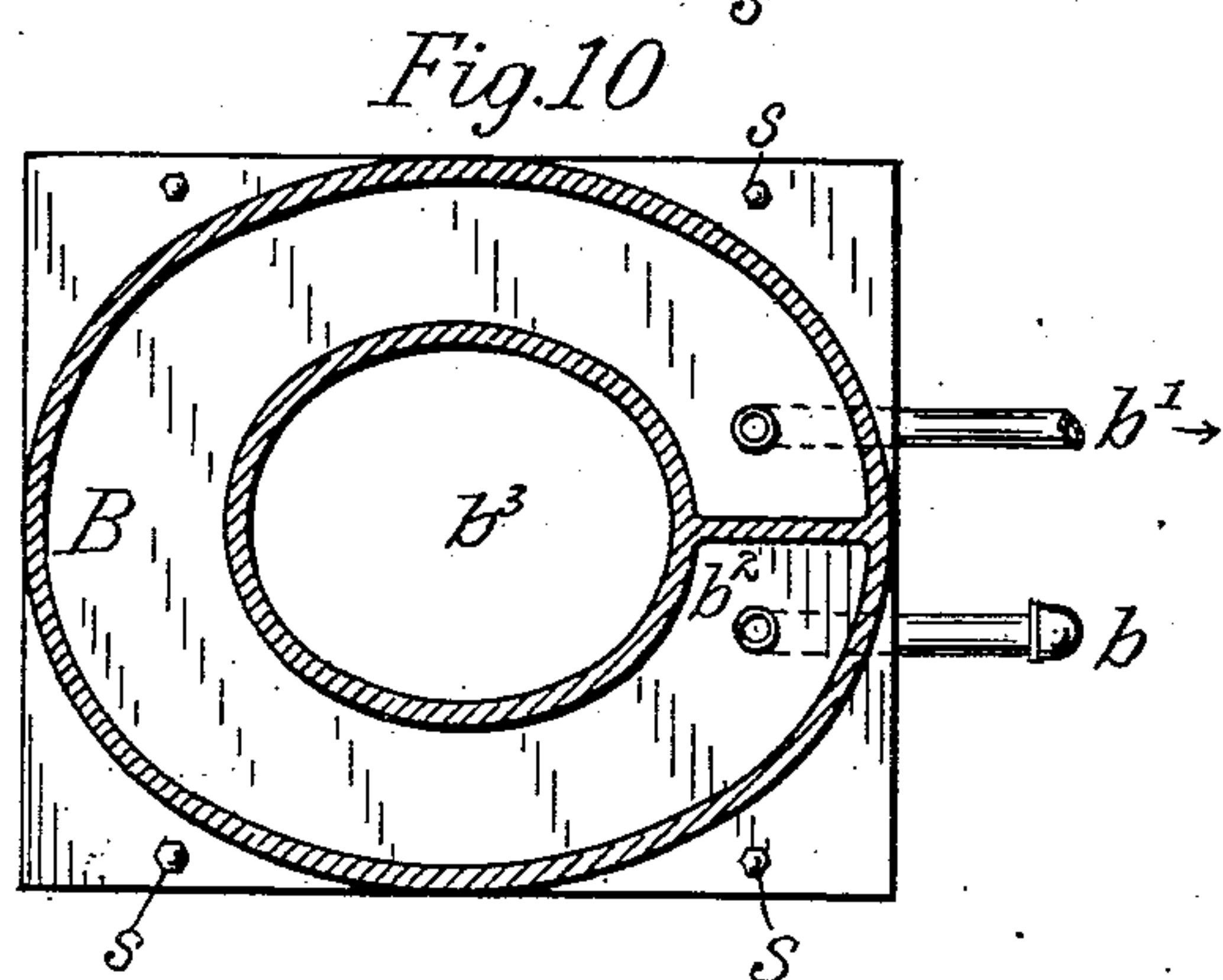
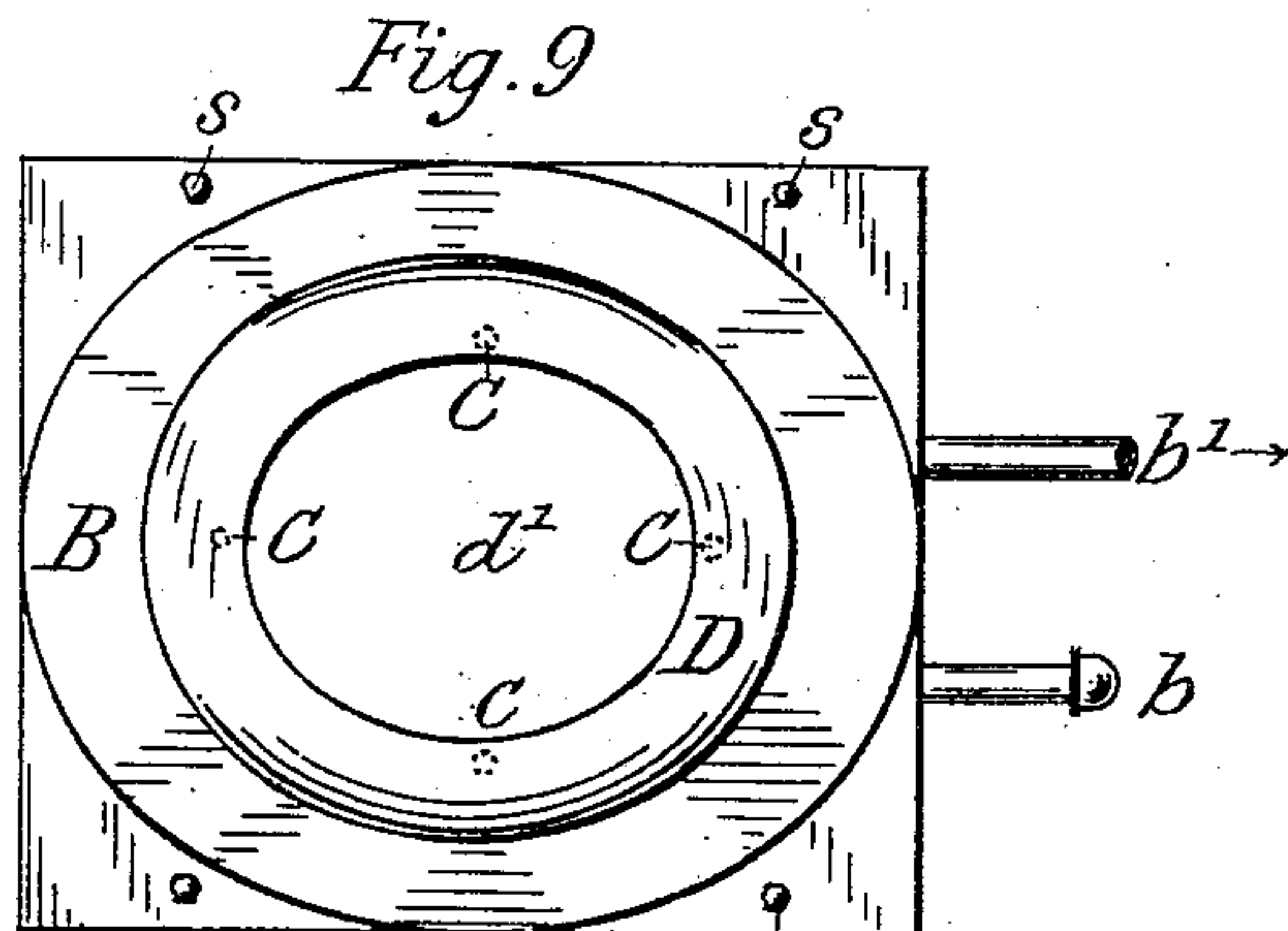
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UNITED STATES PATENT OFFICE.

ARTHUR B. WARING, OF YONKERS, NEW YORK.

MACHINE FOR FLANGING HAT-BRIMS.

SPECIFICATION forming part of Letters Patent No. 713,545, dated November 11, 1902.

Application filed April 8, 1902. Serial No. 101,911. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR B. WARING, a citizen of the United States of America, and a resident of Yonkers, Westchester county, New York, have invented certain new and useful Improvements in Machines for Flanging Hat-Brims, of which the following is a specification.

This invention relates to hat-machines of that class which are used for flanging hat-brims in which the brims are subjected to pressure and heat and in some instances ironing the edge of the brim, so that the same will have the proper set. This is now done almost universally by a crude apparatus consisting of a heated and loosely-swinging sand-bag, which is the pressure medium and on many shapes of brims necessitates hand-ironing after the sand-bag is removed. This process is slow and satisfactory results depend on skilled workmanship, as the sand-bag is not sufficiently flexible to adjust itself to all portions of the brim-forms.

The object of the present invention is to flange the brims of hats of various shapes and sizes by the use of a pressure medium, which not only presses the brim to the brim-form and heats and irons down the same, but also turns the edge of the brim under the flange of the brim-form, so as to heat and iron the same at one operation without the necessity of using male and female forming-blocks.

In place of the heated sand-bag usually employed my invention contemplates the use of a compressed-air dome provided with a flexible diaphragm and which dome is adapted to be lowered onto and removed from the flange which supports the hat, so that compressed air when let into the dome will fill the chamber within the dome, and thereby place the air-pressure upon and expand the diaphragm, causing the diaphragm to press around and conform to the shape of the brim-form, and thereby impart the desired shape to the brim of the hat.

The invention consists of certain features of construction and combinations of parts to be hereinafter described and then particularly claimed.

In the accompanying drawings, Figure 1 is a side elevation of my improved machine for flanging hat-brims, the same being ready to

receive and operate on a hat. Fig. 2 is also a side elevation showing the machine in using position. Fig. 3 is an enlarged vertical central section, partly in elevation, showing the steam-chest, the brim-form supported thereon, the hat with a brim to be flanged, and the compressed-air dome. Fig. 4 is a similar section showing the same parts acting to flange the brim of a hat. Fig. 5 is a perspective view showing the parts of the nut for adjusting the diaphragm ready to be assembled. Fig. 6 is a side elevation of the said nut. Fig. 7 is a section of the nut. Fig. 8 is a plan view showing the compressed-air dome and the means for guiding the same up and down. Fig. 9 is a plan view of the steam-chest and brim-form, and Fig. 10 is a horizontal section through the steam-chest.

Referring to the drawings, the frame A of the machine supports an annular or oval steam-chest B, which is provided with a steam-inlet pipe *b* and an outlet-pipe *b'*, between the openings of which pipes the steam-chest is provided with a transverse partition *b²*, which causes the steam to pass around the steam-chest before issuing therefrom. In this way the steam-chest is caused to be highly heated. Supported on the steam-chest, as by dowel-pins C, is a brim-form D of oval form, provided with an exterior flange *d*, over which the brim of a hat, such as E, is adapted to be flanged, while the crown of the hat fits in the central openings *d'* and *b³* of the brim-form and steam-chest, respectively.

The uprights F are supported on the frame A of the machine, and these uprights are provided with guideways *f* for runners *g* of a frame G of suitable construction, which supports a cast-metal dome H, which may be oval or circular in form. The dome H is provided at its lower edge with an exterior flange *h*, between which and a flanged clamping-ring I there is secured, by means of rivets or other suitable fastenings *i*, the outer edge of a suitable flexible diaphragm J. The diaphragm J is not taut, but is loose and flabby, so that it may be caused by compressed air introduced into the dome H by a pipe *h'* to conform to the flange of the brim-form supporting the hat. The center of the flexible diaphragm J is attached to the top of the chamber of the dome by a suitable adjustable fas-

tening to be described later, thereby permitting the sides of the loose diaphragm to hang down. At the upper central part of the dome H is an eye h^2 , to which is attached a cable or rope K, that is guided over a large pulley K', the shaft K² of which is journaled in suitable bearings at the upper ends of the up-rights F, the other end of the cable or rope K passing behind the machine and being provided with a weight k . The parts are so counterbalanced that the weight k tends to elevate the compressed-air dome H into the open position of the machine shown in Fig. 1.

For lowering the compressed-air dome onto the brim-form and for locking the same automatically in position a hand-lever L is mounted on a rock-shaft l , journaled in the frame of the machine, one end of the lever at the front of the machine being provided with a large circular or loop-shaped portion L', which forms a handle or grip, while the other end of the lever at the rear of the machine is pivotally connected with a connecting-rod M, that is in turn pivotally connected to a crank M', keyed on the pulley-shaft K², so that by raising or lowering the handle L' of the lever the compressed-air dome is lowered or raised also. The loop shape of the handle L is preferable, for the reason that the operator does not have to stoop as much as if a plain or straight handle were used, inasmuch as the hand grasping the handle may follow along and take another grasp upon the handle when the lever is being lowered. The lever L and a portion L² thereof on the other end of shaft l are provided with hooks l' , that are adapted to automatically lock into engagement with lugs l^2 on each side of the compressed-air dome H when the latter is in its lowermost position. The raising of the handle L' disengages the hooks l' from the lugs or keepers l^2 of the dome.

Screw-threaded pins s , forming stops, are screwed into the top of the steam-chest B. These stops s are ranged around the brim-form so as to provide abutments for limiting the extent of downward movement of the dome H. As these stops are screw-threaded, they may be adjusted so that the dome will stop true when it strikes them.

In Figs. 5, 6, and 7 the means for adjusting the diaphragm according to requirements is shown in detail. A screw-spindle N projects down from the top of the dome and receives an adjusting-nut composed of parts which secure the diaphragm and permit its adjustment. The nut is composed in part of a flanged neck n , which passes through a pair of clamping-plates P, one on each side of the diaphragm, and a secondary nut n' , screwed onto the neck and clamping the plates onto the diaphragm, and in part of a flanged neck n^2 , screw-threaded to screw onto the spindle N and receiving a secondary nut n^3 , which sets against a shoulder n^4 on the neck n^2 , so that the neck n^2 is swiveled in the neck n .

By turning the neck n^2 and its nut the diaphragm will be adjusted up or down according to requirements.

In operating my hat-brim-flanging machine a hat is placed therein in inverted position, (shown in Fig. 3,) the brim of the hat resting upon the flange of the brim-form, a canvas or felt protector O being then placed over the hat, as shown, so that the flexible diaphragm of the compressed-air dome will not directly contact with the hat when the same is lowered into the position shown in Fig. 4 and compressed air is let into the dome, so as to cause the flexible diaphragm to conform to the flange of the brim-form and bend the brim around and form the flange thereon. A sufficient air-pressure being supplied to the dome, the flexible diaphragm J will not only press the main body of the brim against the flange of the highly-heated brim-form D, but will turn the flange of the brim under the flange of the brim-form, and this closed position of the parts is maintained for a sufficient length of time, so that the brim may be properly heated and set against resuming its original flat shape. As soon as a sufficient length of time has elapsed the operator raises the handle L', thereby elevating the compressed-air dome, so that the hat with its flanged brim may be removed and another one inserted, thus doing away with the practice usually resorted to of removing the hat on its brim-form, so as to iron down the flange to be formed on the brim under the flange of the brim-form by hand.

One of the advantages of compressed air is that in case of breakage no damage will result either to the operator, machine, or hat; but while compressed air is ordinarily preferred as the pressure medium some of the features of the invention will be claimed irrespective of the medium of pressure.

What I claim as new and of my invention is—

1. In a machine for flanging hat-brims, the combination, with a suitably-heated brim-form, of a compressed-air dome provided with a flexible diaphragm hanging loosely below the dome, and means for moving the dome toward the brim-form, whereby the compressed air is adapted to conform the diaphragm to the brim-form, substantially as described.

2. In a machine for flanging hat-brims, the combination, with a steam-chest and a brim-form, of a compressed-air dome provided with a flexible diaphragm hanging loosely below the dome, and means for moving the dome toward the brim-form, whereby the compressed air is adapted to conform the diaphragm to the brim-form, substantially as described.

3. In a machine for flanging hat-brims, the combination, with a suitably-heated brim-form, of a compressed-air dome provided with a flexible diaphragm, means for moving the dome toward the brim-form, and separate independent stops arranged around the brim-

form for limiting the downward movement of the compressed-air dome, substantially as described.

4. In a machine for flanging hat-brims, the
5 combination, with a suitably-heated brim-form, of a compressed-air dome, a flexible diaphragm, attached at its outer portion to the dome, and at its center being supported from the top of the compressed-air dome, the said
10 diaphragm hanging below its outer portion and center, and means for moving the dome toward the brim-form, substantially as described.

5. In a machine for flanging hat-brims, the
15 combination, with a suitably-heated brim-form, of a compressed-air dome provided with a flexible diaphragm, upright guides at the back of the dome only, means for guiding the dome thereon, and means for raising or lowering the dome, substantially as described.
20

6. In a machine for flanging hat-brims, the combination, with a suitably-heated brim-form, of a compressed-air dome provided with a flexible diaphragm, upright guides, a guide-
25 pulley, a counterweighted rope or cable trained over the pulley, and supporting the dome guided upon said upright guides, lock-

ing means for retaining the dome in lowered position and means for operating the locking means and turning the pulley to raise or lower
30 the dome, substantially as described.

7. In a machine for flanging hat-brims, the combination, with a suitably-heated brim-form, of a dome provided with a flexible diaphragm, means for moving the dome toward
35 the brim-form, and an automatic lock for locking the dome the moment it closes upon the brim-form, substantially as described.

8. In a machine for flanging hat-brims, the combination, with a suitably-heated brim-
40 form, of a dome provided with a flexible diaphragm, and a hand-lever operating to move the dome to and from the brim-form and provided with a hook or catch, said dome being provided with a lug or keeper adapted to be
45 engaged by the hook when the dome is lowered, substantially as described.

Signed at Yonkers, New York, this 4th day of April, 1902.

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