

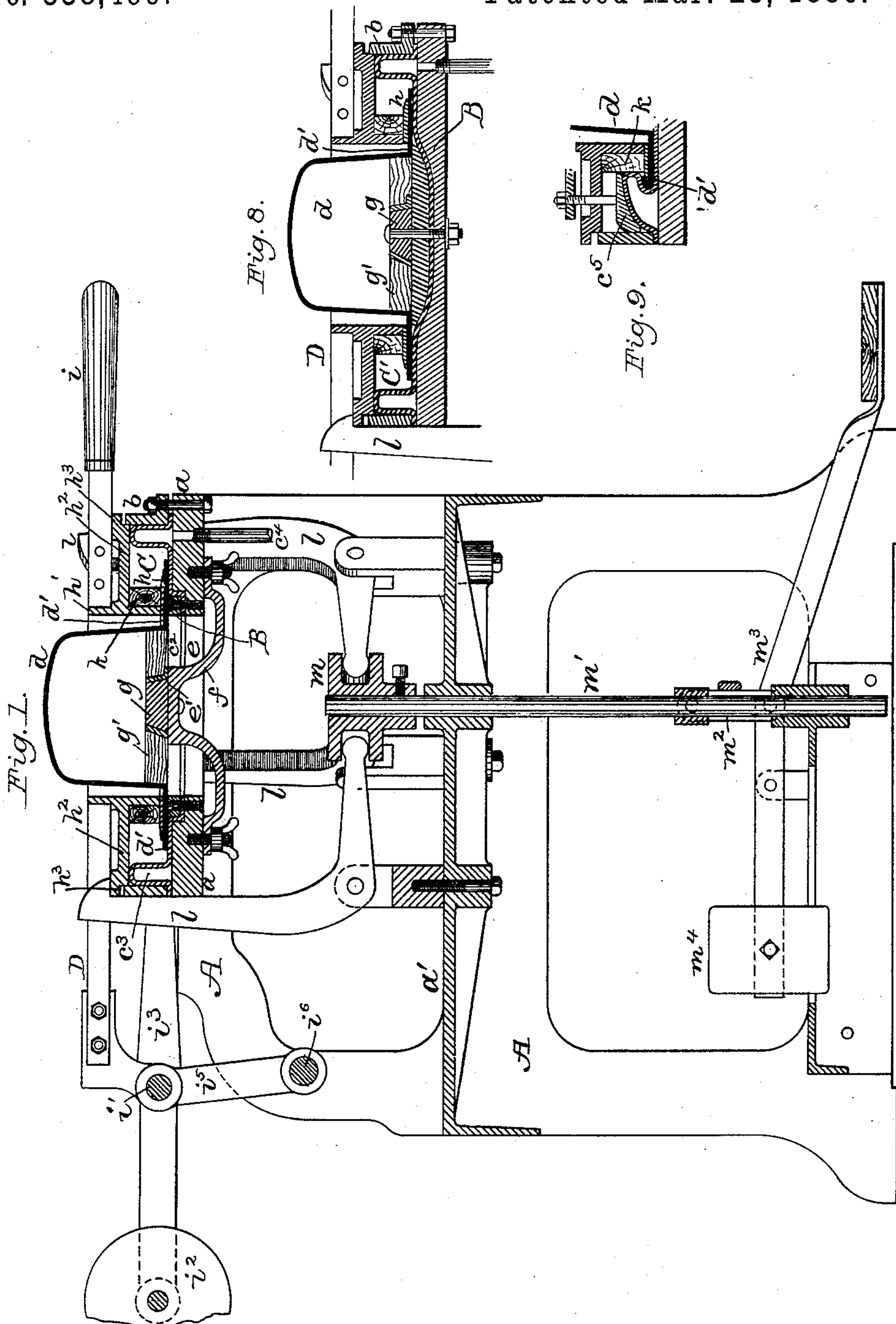
(No Model.)

4 Sheets—Sheet 1.

R. EICKEMEYER.
HAT BRIM CURLING MACHINE.

No. 338,499.

Patented Mar. 23, 1886.



Attest:
Philip F. Larnier,
Lowell Barth

Inventor:
Rudolf Eickemeyer,
By *Wm. C. Mott*
Attorney.

(No Model.)

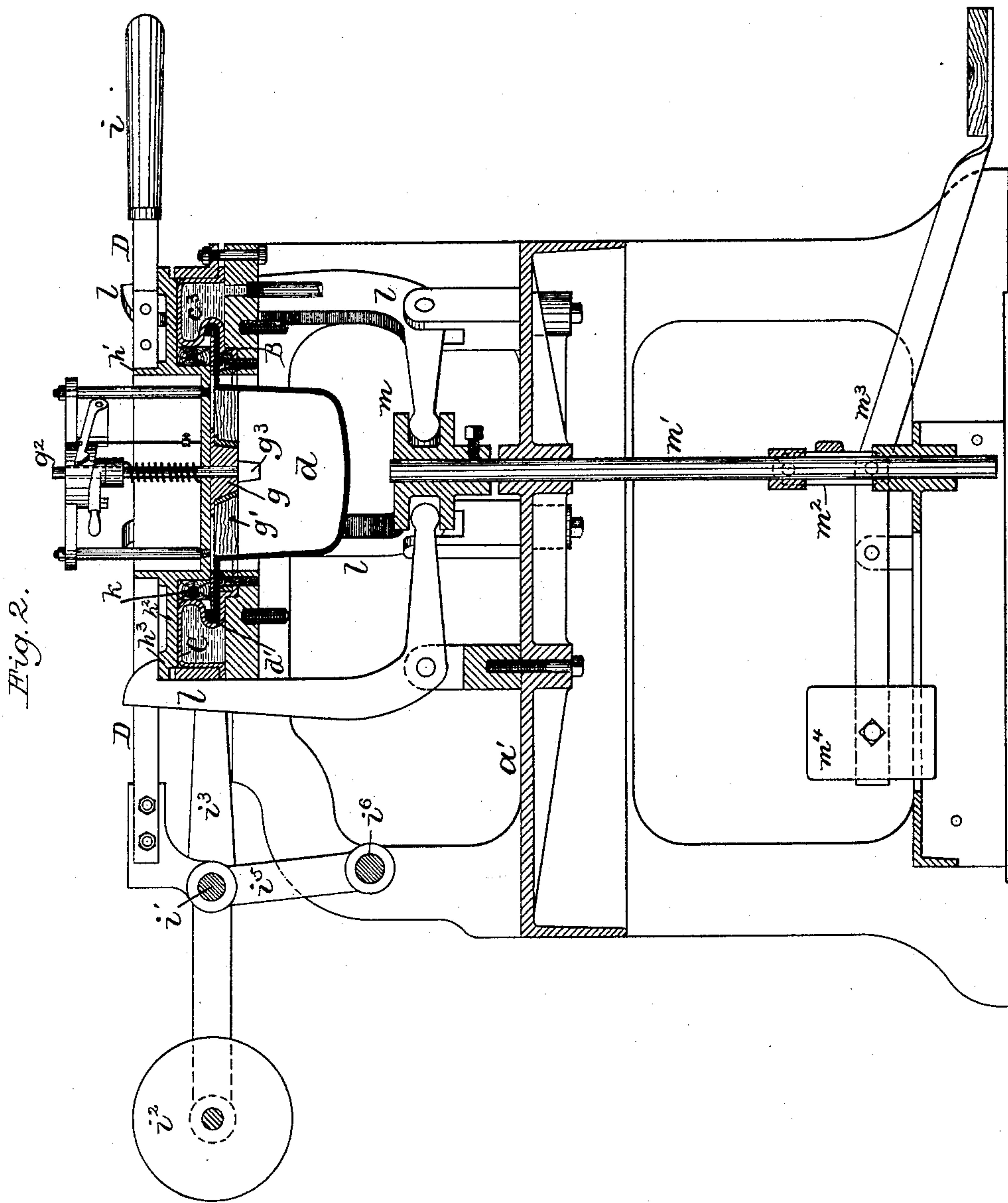
4 Sheets—Sheet 2.

R. EICKEMEYER.

HAT BRIM CURLING MACHINE.

No. 338,499.

Patented Mar. 23, 1886.



Attest:

Philip F. Larnier.
Howell Bartle

Inventor:

Rudolf Eickemeyer,

By Mrs. Wood

Attorney.

(No Model.)

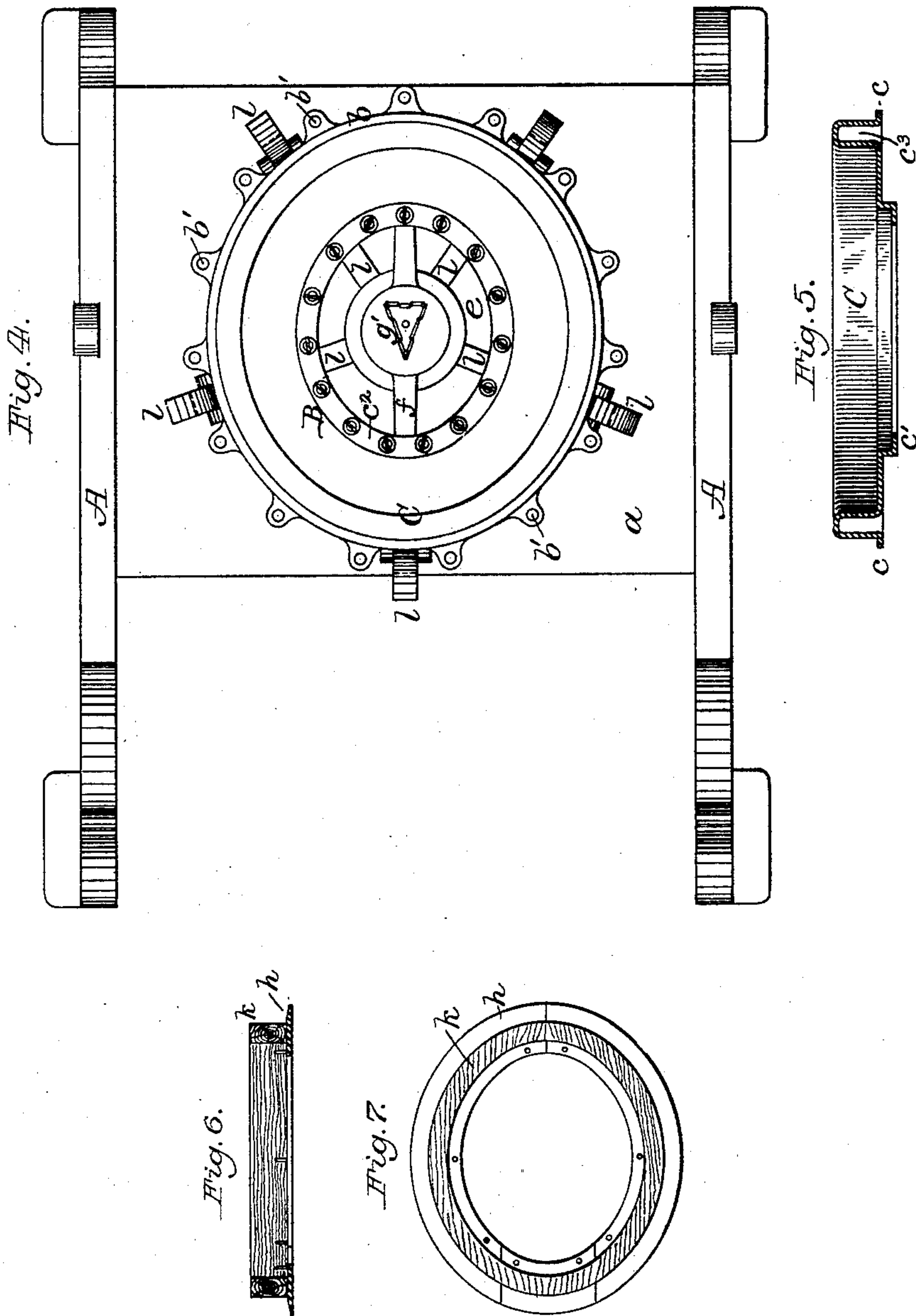
4 Sheets—Sheet 3.

R. EICKEMEYER.

HAT BRIM CURLING MACHINE.

No. 338,499.

Patented Mar. 23, 1886.



Attest:
Philip F. Larner,
Notary Public.

Inventor
Rudolf Eickemeyer,
By *McMurd*
Attorney.

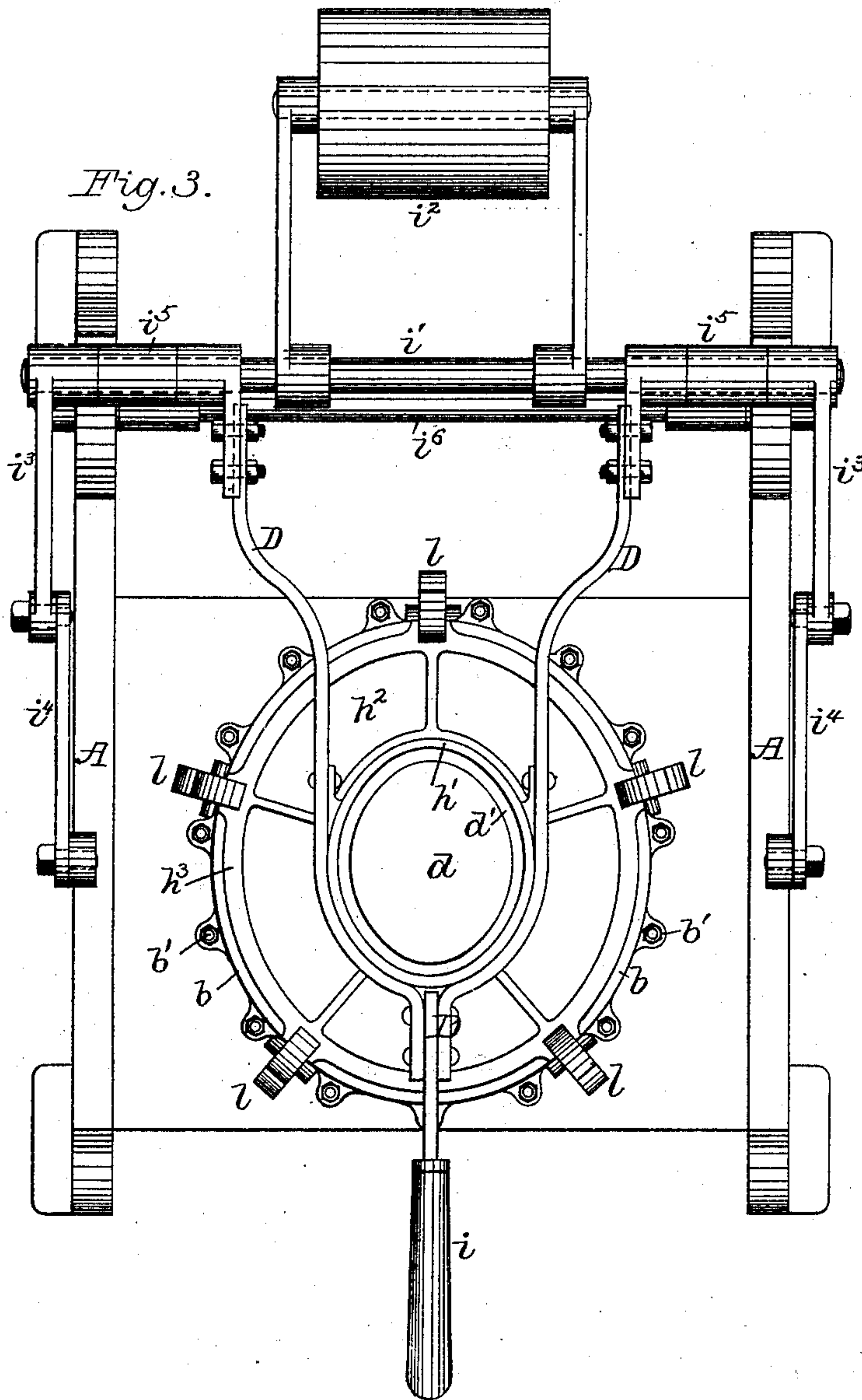
(No Model.)

4 Sheets—Sheet 4.

R. EICKEMEYER.
HAT BRIM CURLING MACHINE.

No. 338,499.

Patented Mar. 23, 1886.



Attest:
Philip F. Larner.
Lawell Baitb.

Inventor:
Rudolf Eickemeyer,
By *Wm. M. Mord*
Attorney.

UNITED STATES PATENT OFFICE.

RUDOLF EICKEMEYER, OF YONKERS, NEW YORK.

HAT-BRIM-CURLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 338,499, dated March 23, 1886.

Application filed December 31, 1885. Serial No. 187,235. (No model.)

To all whom it may concern:

Be it known that I, RUDOLF EICKEMEYER, of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Hat-Brim-Curling Machines; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of the several features of my invention.

Certain improvements in brim folding or curling machines heretofore devised by me were disclosed in my Letters Patent Nos. 308,758 and 308,759, dated December 2, 1884, and certain additional improvements have been set forth in an application for Letters Patent, Serial No. 167,579.

A prominent and characteristic feature in machines embodying the main portions of my aforesaid patented improvements is an expansible and contractible brim-folding ring, mechanically operated by means of a system of levers and co-operating with a guide-plate, over the edge of which the brim is folded by said ring during its contractile movements. Said guide-plate also either co-operated with said brim-folding ring or with an annular lifting-plate (according to the particular construction and arrangement of said folding-ring) for initially turning the portion of the felt to be folded sufficiently at right angles to the plane occupied by the brim, and also by said ring, to enable the latter to readily and accurately engage with the portion of the felt to be folded. In my aforesaid Letters Patent a variety of expansible and contractible brim-folding rings were disclosed; but they were composed of numerous segmental metallic sections, either provided with an unbroken elastic ring of vulcanized rubber to operate as a facing or without such a facing.

One object of my present invention is to provide a machine which, although not quite so rapid and economical in its operation as my aforesaid prior machines, will be somewhat more reliable in folding scant edges, and will operate somewhat more smoothly on the felt or other material of which the hat-brim is composed. Another object sought is to lessen manual labor in working the machine. In accomplishing these ends I now employ a

flexible diaphragm, which is caused to assume various forms and dimensions by any suitable fluid applied at its back under pressure, said forms and dimensions being varied according to the shapes of curls or folds desired and the peripheral lines of brims at their folded edges. In other words, I have embodied many if not all of the desirable features of my prior machines with an expansible and contractible brim-folding ring, which is operated by hydraulic or other fluid pressure after the manner of what are known as "bag-presses," which have heretofore been more or less employed in the manufacture of hats. In this connection it should be understood that I have heretofore devised bag-presses with which a brim-curling operation was performed—as, for instance, such as were disclosed by me in Letters Patent dated June 24, 1873, No. 140,335; but said presses as therein shown were adapted to also press the crown simultaneously with the curling of the brims, and it should also be distinctly understood that presses embodying many of the principal features of invention disclosed in said Letters Patent were long ago constructed by me and specially adapted for operating solely upon the brims of hats.

Inasmuch as machines embodying my present invention necessarily involve the use of fluid under pressure at the rear of a flexible diaphragm, which engages with that portion of a hat-brim which is to be folded or curled upon itself, my machines may be termed "bag-presses," and for enabling persons skilled in the art to readily distinguish them from all others I will state that, so far as my knowledge extends, my present machines are the first wherein fluid-pressure is employed, in which the diaphragm and the adjacent portions of the machine are so organized that hat-brims can be curled or folded either upon the upper side, as heretofore, or upon the lower or underside of the brim, this latter operation being impossible in any other bag-press of which I have cognizance; also, the first in which a hat is not supported either by its brim or the exterior of the crown when in position for curling, thus obviating all liability of distortion of the hat at the band or junction of side crown and brim; also, the first in which pressure exerted by the diaphragm is limited to that portion of the brim which is to

be curled, thus obviating such injury to other portions of the brim or band of the hat as would be liable if exposed to said pressure; also, the first in which hats mounted upon brow or
 5 other blocks can be placed with their blocks in the machine, accurately centered and positioned, and removed while still on the block, after the folding or curling operation, thus obviating liability of distortion in handling;
 10 also, the first in which the brims of hats of all sizes and various widths of brim can be folded or curled without variations in adjustment, and wherein variations in sizes of brims involve merely the shifting of one cheap, simple, metal guide-plate for another of different
 15 peripheral dimensions, any one of said plates serving for brims of various widths and for all sizes of hats, thus obviating numerous special molds or forms heretofore required in bag-
 20 presses.

In all bag-presses heretofore known to me hats are centered by having the band of a hat in close contact with the interior annular surface or edge of that portion of the mold over the periphery of which the edge of the brim is folded,
 25 whereas in my machines the hat is centered wholly independently of the outer surface of the crown, and hence the latter is never, or need never be, in actual contact with any portion of the machine, and this is due to the fact that I have for the first time in a brim-folding machine combined a brim-folding diaphragm, a chamber by which it is controlled,
 30 a guide-plate which defines the line of fold, and means for centering a hat independently of the contact of the exterior of the crown with any portion of the machine.

Another feature is the absence in my machine of a heavy movable head or platen which must be lifted vertically, as in
 40 prior presses, because in my machine the diaphragm is coupled to a stationary brim-bed, and a pivoted hand-lever frame carries a light clamping-ring surrounded by a strong but light annular plate which overlies the diaphragm, a light thin guide-plate, a block-chuck, and a hat mounted on a block for co-
 45 operating with said diaphragm and brim-bed, thus enabling the accurate insertion and removal of hats to be accomplished more easily and rapidly than heretofore in bag-presses. The diaphragm as devised by me is also, when in its best form, radically unlike any heretofore known to me, in that it is truly annular,
 55 and when coupled to the annular metallic portions of the machine, which afford the rigid walls of the chamber of which the diaphragm serves as the flexible, expansible, and contractible wall, said diaphragm affords an oval opening for the advance of a hat, either side up, toward a wholly-unobstructed brim-bed. The ordinary cup-shaped diaphragm—such, for instance, as have long since been used by
 60 me in bag-presses and adapted only to curling brims—can, however, also be employed in my machine without departure from certain portions of my invention; but in this case brims

can be curled or folded on their upper sides only.

Having thus indicated the positions in the state of the art occupied by machines embodying more or less of my improvements, I will now particularly describe the machine illustrated in the drawings, and in which all of said improvements are embodied, and thereafter the several features deemed novel will be duly specified in the several clauses of claims hereunto annexed.

Referring to the four sheets of drawings, Figure 1 in central vertical section illustrates one of my machines as arranged for curling brims upon their upper sides. Fig. 2 is a similar view of the same as arranged for curling brims upon the lower or under side. Fig. 3 is a top or plan view of the machine when arranged as in Fig. 1, and it is equally applicable to Fig. 2, except so far as relates to the device for mounting a hat, while on its block, in an inverted position. Fig. 4 is a top view of the main frame of the machine, with the top frame removed for showing the brim-bed and diaphragm as arranged in Fig. 1. Fig. 5 is a sectional view of the flexible diaphragm detached from the machine. Figs. 6 and 7 illustrate, respectively, in section and in top view the sectional guide-plate detached from the machine, and an annular block which overlies said plate, but is not necessarily attached thereto. Fig. 8 is a sectional view of the upper portion of a machine showing a diaphragm applied therein, having no central opening for receiving the crowns of hats when in an inverted position. Fig. 9 in section illustrates a portion of an annular compressing-block, for causing the diaphragm to assume working positions in lieu of fluid introduced under pressure or co-operating therewith.

The frame A may be widely varied in form and construction, due provision being made for mounting thereon the several active and passive portions of the machine, all of which are clearly indicated, and will be fully described.

The top plate, *a*, of the frame in this machine affords, around an annular central portion of its surface, an oval brim-bed at B. Surrounding said brim-bed there is a vertical-sided annular oval ring, *b*, provided with a series of radially-projecting flanges or ears at its base, through which bolts *b'* pass for firmly securing said ring to the top plate, *a*, and enabling it to also serve as a peripheral clamp for the flexible diaphragm C, usually composed of vulcanized rubber, as shown in Figs. 1 and 5. Said diaphragm has not only a peripheral flange, *c*, but also an interior annular rabbeted flange, *c'*, and this latter is also clamped to the bed, as clearly shown in Fig. 1, by means of an annular oval ring, *c''*, and bolts. This clamping-ring *c''* is of the same peripheral dimensions as those of the smallest hat-brim, and its interior or central opening is a little larger than the crowns of hats of the largest sizes, and hence its upper surface

constitutes in this case the brim-bed B. The upper surface of a portion of the top plate, *a*, serves as an inflexible wall to the chamber *c*³, the flexible diaphragm serving as the rest of the wall or walls of said chamber, and suitable fluid, whether steam, air, or water, is introduced to said chamber under available pressure by way of the pipe *c*⁴ passing through the top plate. Separate pipes may serve for induction and eduction, or one pipe serve for both, suitable and well-known cocks (not shown) being provided in the usual way for enabling desirable control of the compressing medium. It must not be understood, however, that I limit myself to this mode of inducing pressure within said chamber, it being obvious that approximately desirable results will accrue if said chamber be so filled with liquid that it will normally maintain the position indicated in Fig. 1, and then be so varied in form under vertical exterior compression by means of an annular block, *c*⁵, as illustrated in Fig. 9, as to cause the working portion of the diaphragm to be advanced, and to operate substantially as described in my aforesaid Letters Patent No. 140,335.

In the form of machine shown in Fig. 1 the brim-bed and diaphragm are organized so that they can be used with a hat, *d*, either side up, and so that a brim, *d'*, may be folded or curled at its edge upon either its under or its upper side.

Fig. 1 illustrates the machine as arranged for receiving a hat right side up, and to fold an edge upon the usual or upper side of the brim. The annular oval space *e* within the brim-bed is, therefore, occupied by a spider, *f*, bolted to the under side of the bed or top plate, but readily detachable therefrom. This spider or bracket serves as a hat-block support, and it may be provided centrally, as at *e*, with any of the well-known devices—such as an expansible hat-block, or even threaded or plain pins or dowels—for enabling a hat-block to be properly seated, and held thereon against horizontal displacement; but the best results will accrue from the use thereon of a hat-block chuck, *g*, of the character devised by me, and disclosed in my Letters Patent No. 317,104, May 5, 1885. This form of chuck assures the accurate centering of the hat, firmly holds the hat and its block *g'* against horizontal displacement, a block with a hat thereon is readily applied and removed, and a hat must always be properly positioned, because its block cannot be mounted on the chuck except when the front of the hat occupies its proper position.

In this machine I employ a thin annular oval sectional guide-plate, *h*, which is coincident with the brim-bed, but detachably mounted at the under side of an oval guide-ring, *h'*, and is carried thereby. This guide-plate is one of a series of plates differing in peripheral dimensions and having edges of any desired form, as, for instance, as shown in my aforesaid Letters Patent No. 308,759, and having out-

lines either circular or of any desired oval pattern. These guide-plates, as in my machines having other forms of brim-folding rings, serve as guides to the action of the diaphragm and accurately define the line of the fold or curl which said diaphragm is to develop. The guide-ring *h'* is surrounded by a close cover, *h*², having radial webs on top and an outer solid rim, *h*³, and said ring and its cover are securely mounted in a top frame, D, provided with a handle, *i*, at its front end and secured at its rear end to a rock-shaft, *i'*, having a counter-weight, *i*². Said rock-shaft is coupled by means of arms *i*³ and loosely pivoted links *i*⁴ to the upper edges of the side plates of the frame A, whereby the upward movement of the frame D and guide-ring is guided and limited. The rock-shaft *i'* is not mounted in fixed bearings, but at and upon the upper ends of two links, *i*⁵, pivoted upon a transverse rod or shaft, *i*⁶, thus providing for a specially-desirable vertical movement of the guide-ring and guide-plate. This particular method of mounting the frame on pivoted links will constitute in part the subject of a separate application for Letters Patent. Considering the frame D, the guide-ring, and the guide-plate (without the close cover *h*²) as a concrete portion of the machine, it is similar to the corresponding portions of the machines disclosed in my aforesaid prior Letters Patent, No. 308,759, and the thin sectional guide-plate, in combination with the guide-ring, is as disclosed in my aforesaid application Serial No. 167,579. It should now be understood that the central openings in the brim-bed and in the guide-ring *h'*, and also in the guide-plate *h*, are larger than the crowns of the largest sizes of hats, and they are therefore adapted to receive all sizes of crowns down to the smallest. It will also be understood that any hat will be supported wholly independently of the contact of its brim with the brim-bed. Now, if a full series of hats, one of each size, have brims of the same width, an equal number of guide-plates will be required. If, however, a small hat has an unusually wide brim of peripheral dimensions equal to the widest brim of the largest-sized hat, it will be seen that a guide-plate suited to the latter will also serve for the small hat having a much wider brim, and this instance serves to illustrate the wide range of service of a single set or series of these inexpensive guide-plates.

As a means for restricting the space between the working face of the diaphragm and the coincident periphery of the guide-ring *h'*, I employ a light detachable annular oval block or ring, *k*, preferably composed of wood. When said ring-block *k* is of proper height, as shown, it also serves as a backing or abutment for the thin metal guide-plate *h* during its pressure upon a hat-brim.

As thus far described, it will be readily understood that a hat on a brow-block, *g'*, (adapted to engage with the chuck *g* or other suitable centering device,) is to be properly

mounted, with the brim of the hat occupying the brim-bed. The frame D is then swung downward so as to locate the guide-plate h on top of the brim, and leave exposed only such portions at the edge thereof as are to be folded. In my prior machines there was no necessity for mechanically confining the frame D when thus closed down upon a hat-brim; but in my present machine a positive lifting tendency is obviously apparent, through the operation of the diaphragm, and hence I here introduce locking devices, by which the frame is firmly clamped when in its depressed position. It will be apparent that the particular character of said locking devices is immaterial, although I have devised such, with special reference to convenience in use, and have arranged them so that their locking movement may be automatic or otherwise, and their releasing movement placed under the control of the foot of the operator.

In this form of machine the locking devices are a series of vertical hooks, l , annularly arranged so as to engage with suitable lugs on the top of the outer rim, h^3 , at various points, and their tips can be rounded or inclined downwardly toward the ring if properly controlled by springs or weights, so that they will operate as latches, and be thrown out of their normal position by contact with the ring h^3 when moved downward; but as here shown said latches are normally thrown rearward, and are brought forward by the foot of the operator. As will be readily seen, each hook l is in the form of a bell-crank lever, pivoted at its elbow to vertical studs or posts on a middle plate, a' , of the machine, and that the short ends of said levers occupy with their tips an annular groove in a block, m , adjustably mounted upon a sliding rod, m' , which is coupled by one or two links, m^2 , and a pivot and collar to a treadle-lever, m^3 , provided with a counter-weight, m^4 .

As thus far described, the machine, when arranged as shown in Fig. 1, can only fold brims at their upper sides, and it will be obvious that with parts as shown in Fig. 1 fluid under pressure need only be admitted for causing the diaphragm to fold the edge of the brim, as is illustrated in Fig. 2, although in said Fig. 2 the machine is arranged to operate in folding the edge of a brim upon its under side, because the hat is therein inverted, all as will next be particularly described. It will now be seen that the detachable spider f , previously described, has been removed, thus affording a central space surrounded by the brim-bed, for the free reception of the crown of the inverted hat d , so that its brim d' will be bottom up on said brim-bed. In my prior application for Letters Patent, hereinbefore referred to, Serial No. 167,579, I show, describe, and claim this arrangement of brim-bed, with means for suspending a hat in an inverted position, as described; but I here show novel means for suspending a hat and its block,

which will constitute the subject of a separate application for Letters Patent.

For the purposes of this specification I need only state that the hat-block chuck g is mounted on the under side of a plate or a cross-bar, readily applied to and within the guide-ring h' , (or the entire ring may be shifted,) and said plate or bar centrally guides a rotative rod, g^2 , having at its lower end a key-block, g^3 , which in outline conforms to the outline of the end of the chuck, so that after a block, g' , has been put on said chuck said key-block g^3 is turned half around, thus confining the block to the chuck; and, as said key-block rod g^2 is provided at its upper end with a hand-lever and is encircled by an expansive and torsional spring, the hat-block is firmly clamped to the chuck and can only be released therefrom by a partial rotation of said rod and key-block.

The letters of reference applied to said Fig. 2 other than to those parts which relate to controlling the hat in an inverted position, are the same as have been referred to in connection with Fig. 1, and hence need not be further considered.

It is to be distinctly understood that all of my present improvements do not depend upon having an immovable brim-bed and a guiding and guide-plate movable toward and from said bed, nor upon having the brim-bed always below and the said ring and plate above, although for convenience, ease in operation, and obtaining fully satisfactory results, I deem it best to always observe said condition.

As a rule, if not always, prior bag-presses have had their diaphragms coupled to the superimposed and movable portion of the press, instead of to an immovable portion, as now devised by me.

For the purpose of pointing out some of the novel features existing in my machine, even if inverted in position, as compared with prior bag-presses, Fig. 1 should be turned bottom up, and attention given to the brim-bed, diaphragm, guide-ring and guide-plate, and the immediately adjacent portions of the machine. It should be understood, however, that when the diaphragm is thus inverted in position the usual provision is to be made for relieving it from all or a proper portion of the fluid by which it is operated. Now, considering the diaphragm alone, it is the first known to me which does not extend with more or less of its central portion over the entire face of a hat-brim, or, what amounts to the same thing, over a plate which is attached to and is moved by said diaphragm and is in contact with the entire face of the brim; hence in all prior presses the entire brim is compressed and liable to be unduly and injuriously solidified, whereas in mine the working force of the diaphragm is practically limited to the portion of the felt which is to be folded or curled.

In many prior presses the diaphragm occupies the entire central space within the an-

nular line of the brim-bed and exerts more or less pressure at all points, especially at the junction of the side crown and brim, and to correct this in some cases a metallic or wooden brow has been attached to and moved with said diaphragm toward and from a hat resting on a brim-bed, substantially as the corresponding portion of an expansible block was used by me with a mold, as shown in the press disclosed in my Letters Patent No. 138,871, May 13, 1873, and also for performing a portion of the same duty as was performed by the corresponding portion of the diaphragm shown in my Letters Patent No. 140,335, June 24, 1873.

Returning to Fig. 1, when viewed in an inverted position it will be seen that regardless of the manner in which the working parts may be operated a hat can be mounted therein while on its block either side up, and that it will only involve the shifting of the block-chucks, as already described. The advantages of the use of the detachable guide-plates would also be available; and in this connection it should be observed that in my aforesaid Letters Patent No. 140,335 I describe and claim in connection with a diaphragm a mold having a separable brim part, and also said brim part made in sections, and also a diaphragm adapted by its shape to surround a brim and to form a curl without stretching. Broadly considered, these features are embodied in my present machines; but these latter embody improvements in those connections whereby no portion of the brim, except at or near its edges, can be acted upon by the diaphragm, and the brim at a proper point between the part to be folded or curled and the side crown is mechanically clamped between a guide-plate and a brim-bed, and hence said guide-plate performs a function in addition to that portion of its duty which corresponds to that performed by the brim-curling support of said Letters Patent.

It is further to be understood, as hereinbefore indicated, that portions of my invention will be involved, even if the diaphragm be not so arranged, that it can fold or curl brims upon the under side of a brim. As, for instance, I show in Fig. 8 a cup-shaped diaphragm, C', having no central opening to receive the crown of a hat, and a brim-bed, B, also without such an opening, but having the central block-chuck, g. The radical difference between the parts thus constructed and arranged, when compared with prior presses, is that the hat can be thereon supported independently of the brim. The diaphragm has no possible capacity for movement within the peripheral line of the brim-bed, which is large enough for brims having the least peripheral dimensions, said diaphragm being firmly clamped by said bed in lieu of being clamped by the ring c², before described, and, as in that case, when a hat is in position the brim is clamped mechanically by the guide-plate h and the bed at points between the working portion of the diaphragm and the side crown

of the hat, and a further and equally radical difference is that a hat is properly centered without the contact of the exterior of its crown with any portion of the machine, because my guide-ring and the guide-plate have central openings larger than the crowns of hats of the largest sizes.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a machine for folding or curling the edges of hat-brims, the combination, substantially as hereinbefore described, of a brim-bed, a brim-folding flexible diaphragm backed by fluid under pressure, and having its working and movable portion wholly outside of and surrounding said bed, a guide-ring and a guide-plate attached thereto, affording a central opening for the reception of a hat-crown, and adapted to annularly confine the brim of a hat between said plate and brim-bed, and to limit the folding and compressing action of the diaphragm to portions of the brim which extend beyond the peripheries of said plate and bed.

2. In a machine for folding or curling the edges of hat-brims, the combination, substantially as hereinbefore described, of a brim-bed, a central hat-support for receiving hats mounted on blocks, and for supporting a hat independently of the contact of its brim with said bed, a flexible brim-folding diaphragm surrounding said bed, a guide-ring, and a guide-plate attached thereto, affording a central opening for the reception of the crown of a hat when on a block and mounted on said support.

3. In a machine for folding or curling the edges of hat-brims, the combination, substantially as hereinbefore described, of an annular brim-bed having a central opening for the free reception of hat-crowns, and an annular brim-folding diaphragm connected to said bed and having a central opening for the free reception of the crowns of hats, whereby brims may be folded at their upper or at their under sides, as may be desired.

4. In a machine for folding or curling the edges of hat-brims, the combination, substantially as hereinbefore described, of an annular brim-bed affording a central space for the reception of hat-crowns, an annular brim-folding diaphragm affording a similar central space, and a detachable hat-support mounted centrally with relation to said bed and diaphragm, as and for the purposes specified.

5. In a machine for folding or curling the edges of hat-brims, the combination, substantially as hereinbefore described, of the flexible brim-folding diaphragm, the brim-bed annually surrounded by said diaphragm, and a central hat-block chuck, whereby a hat mounted on a block can be readily applied in an accurate position with relation to said bed and as readily removed with its block.

6. In a machine for folding or curling the edges of hat-brims, the combination, substan-

tially as hereinbefore described, of a stationary brim-bed, a flexible brim-folding diaphragm annularly surrounding said bed, a guide-plate for clamping a brim between it and said bed and for defining the line of a fold or curl in a brim, and a guide-ring which is movable toward and from said bed and on which said plate is mounted.

7. In a machine for folding or curling the edges of hat-brims, the combination, substantially as hereinbefore described, of a flexible brim-folding diaphragm adapted to operate solely upon the outer portions of a hat-brim, an annular guide-plate which co-operates with said diaphragm and defines the line of fold, and a central support for receiving a hat-block and centering it, whereby a hat on its block can be accurately centered without contact of its crown with said guide-plate.

8. In a machine for folding or curling the edges of hat-brims, the combination, as hereinbefore described, of a brim-bed, a flexible brim-folding diaphragm surrounding said bed, a guide-ring coincident with said bed and having a central opening larger than the

largest hat-crowns and a series of annular guide-plates of various peripheral dimensions, each of which is adapted to be attached to and carried by said ring for defining the line of a fold or curl to be developed by said diaphragm.

9. In a machine for folding or curling the edges of hat-brims, the combination, substantially as hereinbefore described, of the brim-bed, the brim-folding diaphragm, the guide-plate, the guide-ring and clamps by which the guide-plate is confined in contact with a brim during the operation of the diaphragm.

10. In a machine for folding or curling the edges of hat-brims, the combination, substantially as hereinbefore described, of the brim-bed, the flexible brim-folding diaphragm, the guide-plate, its ring, the clamps for confining said plate upon a brim during the operation of the diaphragm, and the treadle for controlling said clamps.

RUDOLF EICKEMEYER.

Witnesses:

JAMES S. FITCH,
R. EICKEMEYER, Jr.