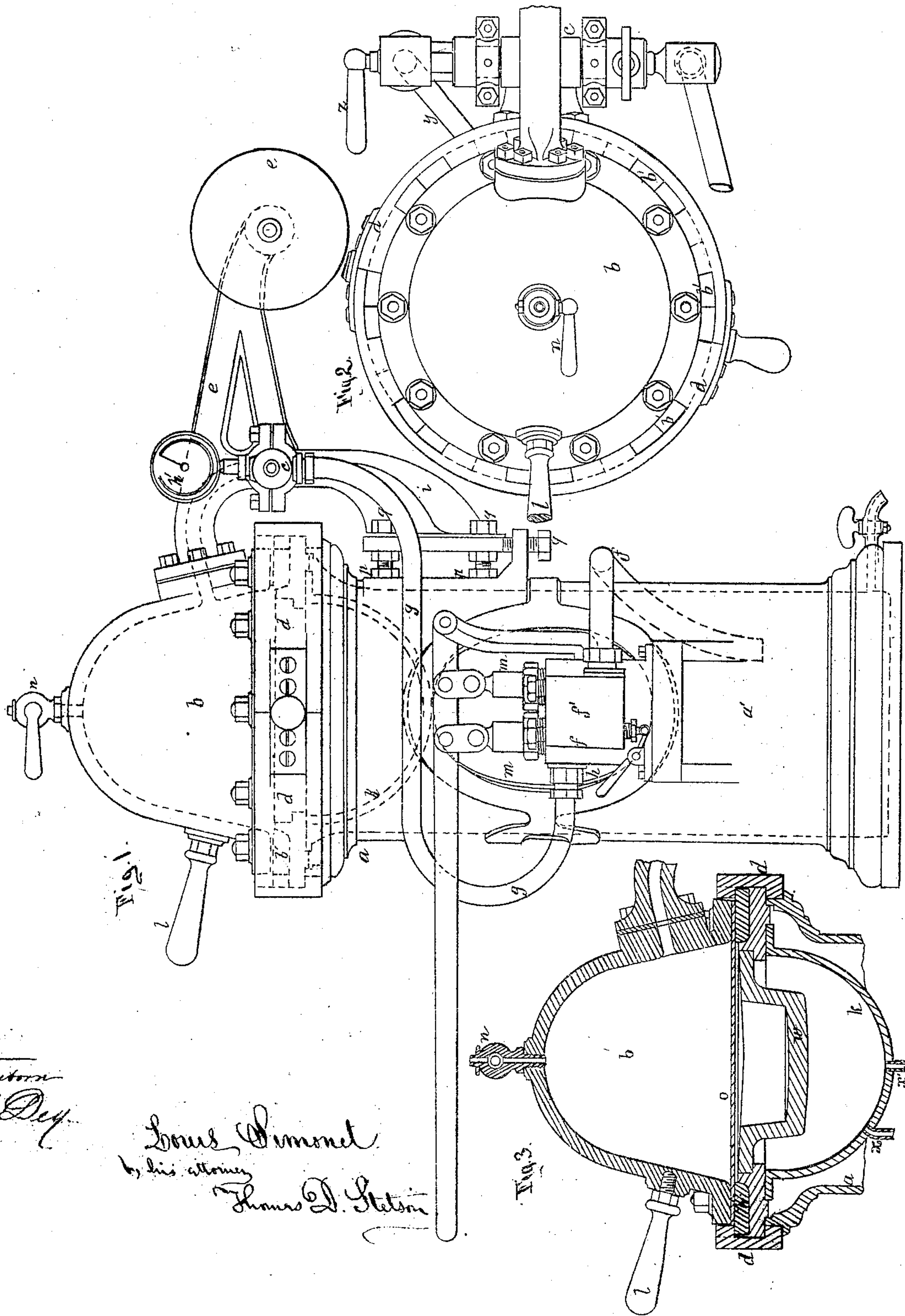


*L. Simonet,  
Pressing.*

*No. 63435.*

*Patented April 2, 1867.*



*Witnesses*

*L. L. Truitt  
Wm. C. Day*

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by his attorney  
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# United States Patent Office.

LOUIS SIMONET, OF PARIS, FRANCE.

Letters Patent No. 63,435, dated April 2, 1867.

## IMPROVEMENT IN APPARATUS FOR FORMING HATS.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, LOUIS SIMONET, manufacturer, residing in Paris, France, have invented a new or improved Apparatus for Forming, Setting, and Fashioning Hats of all descriptions; and I do hereby declare that the following is a full and exact description of the same, reference being had to the annexed sheet of drawing making a part of the same.

My invention refers to an apparatus for fashioning, pressing, and setting hats of every description, straw hats, sham straw hats, beaver hats, or hats made of any filaments, etc., etc. The hat is placed on a mould of suitable form, which is heated by hot air or steam, or by burners. I employ steam by preference. On the hat placed and supported on the said mould is made to fit a hollow cupola shell or dome, having at its lower part a flexible film of rubber, or other suitable material, which exactly assumes the form and shape of the hat. In the interior of the said cupola water is forced, which, acting on the India-rubber film, causes the same to act upon the hat so as to press, set, and fashion it in the shape required. In the annexed drawing—

Figure 1 is a side elevation of this apparatus entire.

Figure 2 is a plan view of the upper portion thereof.

Figure 3 is a central vertical section through the upper portion.

Similar letters of reference indicate like parts in all the figures.

A is a hollow cast-iron frame, which supports the whole apparatus. At its lower part is a reservoir for water, as indicated by *a'*. *b* is a dome, the lower part of which has a flexible film or diaphragm, O, adapted to be applied to the interior of the hat, and to assume the form thereof. This dome is made to rotate on the bearing *c*, through which is forced in, by a pump, the water which by swelling the flexible film causes it to assume the shape of the interior of the hat and to press this upon the mould *w*. *d* is a crown ring, bayonet-joint ring, or circular box, connecting the cupola *b* to the frame *a* during the period while pressure is exerted on the hat. When the pressure exerted on the hat is released the dome *b* is liberated from the column *a* by the crown *d* being partially turned. The construction and operation of this joint are very plainly shown in the figures. The lower edge of the dome *b* is formed by a separate ring, *b'*, which is strongly bolted thereto and holds the rubber diaphragm O by its edges. The outer face of the ring *b'* is notched or provided with a series of strong segmental projections and recesses, as represented. The inner face of the bayonet ring *d* has an internal flange at its upper edge and another at its lower edge. The lower flange is plain; the upper one is notched to match the projections on the ring *b'* before described. By partially turning the bayonet ring *d* the dome *b* may be confined or released at pleasure. *e* is a counter-weight lever to aid in lifting up the dome *b* and allowing it to rock. *ff'* is a two-chambered pump, taking its water from the reservoir beneath, or at the lower part of the column *a*, and forcing it into the dome *b* through the tube *g*, which water, being raised to forty or more or less atmospheres, swells up the flexible film and forces it into the hat for the purpose explained. The pump is, as already said, double chambered, and toward the end of the operation, in order to increase the pressure, I work with one chamber, *f'*, only, which shifting is operated by the valve *h*. Opening this valve allows the water to flow idly back from the larger pump *f*, and allows the whole force to be concentrated on the small pump *f'*. *h'* manometer for indicating the pressure. *j* sucking tube of the pump *ff'* for elevating water from the reservoir below. *k* void space for admitting the steam, whereby is heated the mould *w*, upon which is placed and rests the hat to be worked. Steam is supplied for heating the mould *w*, from a boiler not-represented, through the pipe *x*. The water produced by condensing of the steam is conveyed down into the reservoir *a'* below through the tube *x'*. When the pressure has been given during the required time the water, which was forced up by the pumps into the dome *b*, is allowed to run down again into the reservoir *a'* through the tube *y* provided with the cock *z*. When the hat is completed it is to be taken out from the apparatus and another substituted and the operations repeated. *l* is a handle for lifting the cupola *b*. The bearing *c* is provided with a stuffing-box. *i* is a bracket for holding the hollow axis C. Its position is adjusted by screws *o o*, and nuts *p p*, arranged as represented, so that it may be raised and lowered and moved outward and inward to adjust it accurately to different moulds, *w*, and to different thicknesses of the rubber diaphragm O. *m* is an opening formed in the upper part of the framing *a*, both for diminishing the weight thereof and for the passage of water into the reservoir *a'* below. *n* is a discharge-cock of cupola *b*, which allows air to enter and be discharged as desired.



In the apparatus, as described, the hat to be dressed is placed on a solid mould heated by the steam in the space *k*. The cupola *b* is then depressed so as to fit thereon, and after being strongly and tightly locked by partially turning the bayonet ring *d* the pump *f f'* is worked, and the water forced into the dome *b* causes the elastic film to fit all the sinuosities in the heated hat. Then the cock or valve *h* is turned to render the pump *f'* ineffective, and the action is continued, throwing an immense hydraulic pressure into the dome *b*, and thus upon the hat, which is thus acted upon and compressed and fashioned completely, every portion of it. Two or three minutes will usually suffice for the operation, the duration of which depends on the nature of the hat, after which the cock *z* is opened, the circular coupling box or bayonet ring *d* is turned, and the cupola *b*, being disconnected, is made to rock by means of its handle *l* and the counter-weight lever *e*, and the hat is withdrawn ready fashioned and set.

Many or all parts of my machine are susceptible of many variations in form and material without departing from the principle of my invention. I do not confine myself to the precise forms shown. Thus, for example, it is not essential that the part *b* shall be exactly dome-shaped, although I esteem that the strongest form of the construction. Again, it is not necessary that the diaphragm *O* be plain or nearly plain. It is preferable to have it made in a form very nearly like the interior of the hat to be treated; and again, it is not necessary to heat the mould *w* by steam, as it may be heated from below by gas flames. These are but a few of the modifications which may be made by any good mechanic.

Having now fully described my invention, what I claim as new in machines for treating hats, and desire to secure by Letters Patent, is as follows:

1. I claim locking and unlocking the dome *b b'*, carrying the diaphragm *O* and the several connections by a bayonet joint, constructed and arranged substantially as and for the purposes herein set forth.
2. I claim, in combination with the turning dome *b*, and its connections, the fixed frame *a* and its connections, and the forcing means *f*, etc., the adjustable bracket *i*, supporting the water-carrying joint *c*, so that it can be moved horizontally and vertically, substantially as and for the purpose herein set forth.
3. I claim, in combination with the dome *b*, diaphragm *O*, water joint or hinge *c*, mould *w*, and locking and unlocking means, as herein specified, the fluid reservoir *a'*, constructed in and forming a part of the framing *a*, substantially as and for the purposes herein set forth.

L. SIMONET.

Witnesses:

C. DEMOT,  
A. GUIONN.