M. A. CUMING.

HAT PRESSING MACHINE.

No. 178,740. Patented June 13, 1876.

Fig. 1

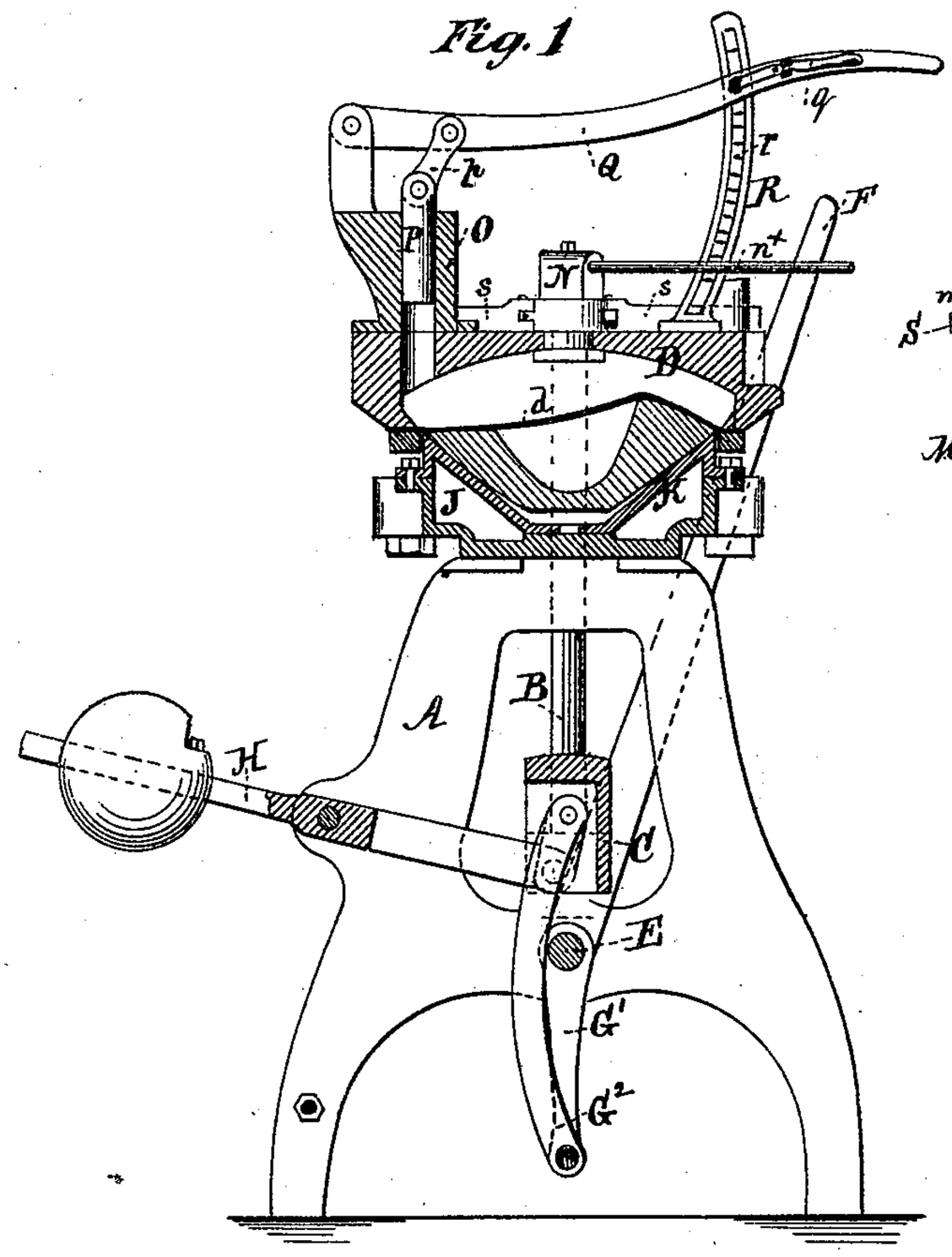


Fig. 2

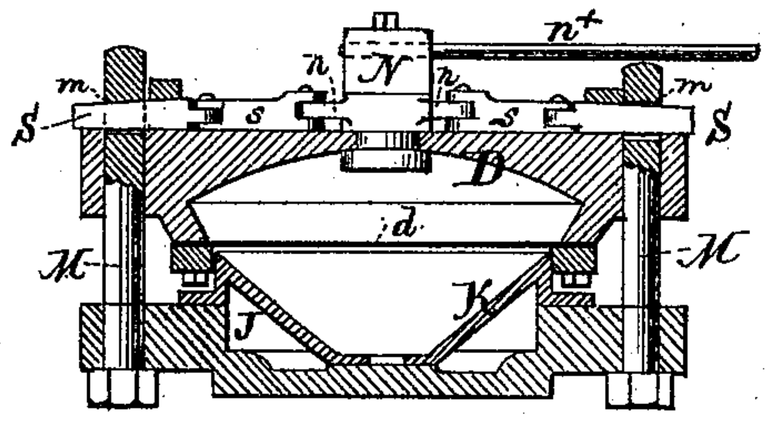


Fig. 3

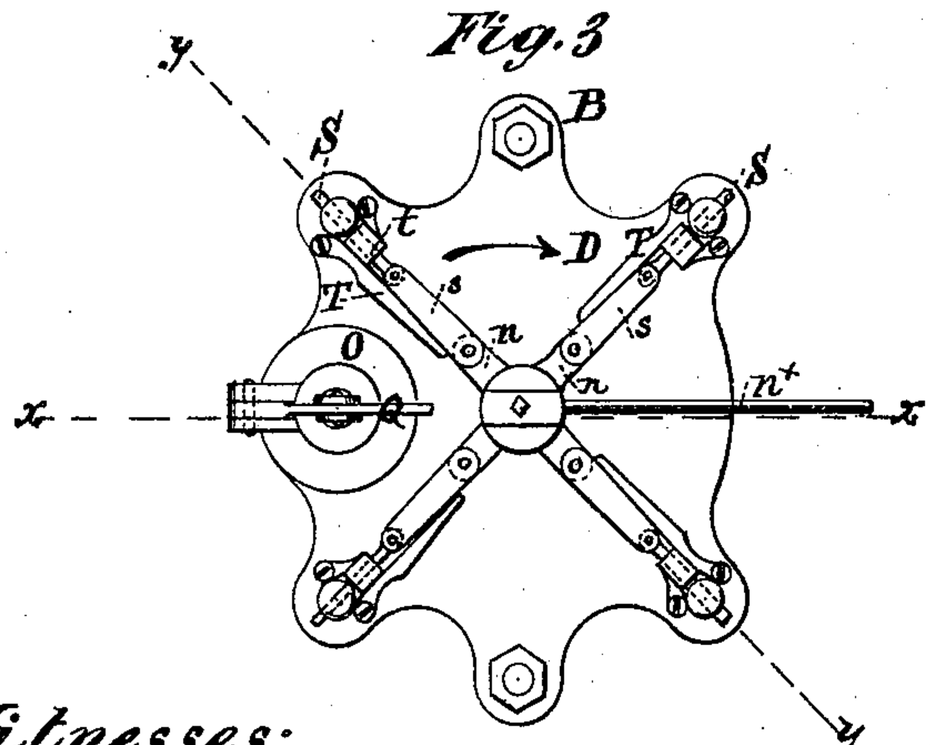
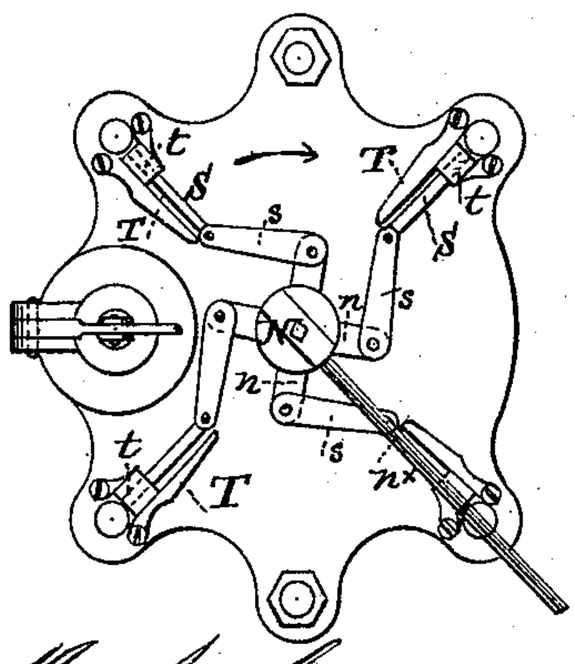


Fig. 4



Witnesses:
Michael Ryan
Fred. Haynes

M. A. Cuming
by his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

MARI A. CUMING, OF NEW YORK, N. Y.

IMPROVEMENT IN HAT-PRESSING MACHINES.

Specification forming part of Letters Patent No. **178,740**, dated June 13, 1876; application filed April 4, 1876.

To all whom it may concern:

Be it known that I, MARI A. CUMING, of New York, in the county and State of New York, have invented certain Improvements in Hydraulic Hat-Pressing Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates, more particularly, to certain improvements in machines similar to the one for which Letters Patent No. 167,506, dated September 7, 1875, were heretofore granted to me; and it consists in a novel construction of the locking device for securing the dome when lowered to its seat, whereby the locking is accomplished in a more uniform manner, and a greater amount of initiatory pressure is acquired.

In my patent of September 7, 1875, aforesaid, the locking device consists of a lever arranged to oscillate in a horizontal plane underneath the mold, said lever being provided with lips or tongues entering slots in sliding rods which carry the dome, when said slots are below the bearings in which said sliding rods work, and said locking-lever is operated by the lever which serves to raise and lower the dome.

In my present invention the locking device is arranged above or on the top of the dome, and consists of a series of sliding bolts or keys connected by links to a central pivot having a reciprocating rotary motion, and provided with a lever or other means for operating it. The bolts or keys engage with slots in stationary rods attached to the frame of the machine, and extending through openings near the edges of the dome. Said bolts or keys are tapering or wedge-shaped, and the further they enter the slots the greater is the pressure upon the dome.

This invention is applicable to machines of various descriptions, but is here shown as applied to a machine similar to the one described in my patent aforesaid.

The accompanying drawing represents such a machine provided with my improved locking device.

Figure 1 is a central vertical sectional view of the entire machine, taken in the line *x x* of Fig. 3. Fig. 2 is a detail sectional view taken in the line *y y*. Fig. 3 is a top view, showing the locking device in one position; and Fig. 4 is a similar view, showing it in another position.

The stand or frame-work A, for supporting the working parts, may be of any suitable construction, and is provided with lugs, forming bearings for sliding rods B, the lower ends of which are attached to a cross-head, C, and the upper ends to the dome D. Under the cross-head C is a rock-shaft, E, having its bearings in the frame A, and provided with a handle or lever, F. The rock-shaft E is connected with the cross-head C by an arm, G^1, and link G^2. The handle F, rock-shaft E, and arm G^1, combined, operate as a lever of the first order, and the link G^2 and arm G^1, combined, operate as a toggle-joint. The cross-head C is connected with a lever, H, provided with an adjustable counterbalance-weight, *h*. The mold K is arranged in the upper part of the frame A, resting upon or over a chamber, J, for holding steam or hot water.

The parts above described are of substantially the same construction as those of a similar character shown in my patent of September 7, 1875, aforesaid; and the dome D is raised and lowered by the operation of the handle F and its connections, in the same manner as described in said patent.

The dome D carries a flexible diaphragm, *d*, and is supplied with water in any suitable manner. It may also be provided with a reservoir for holding water, and with a gage for determining the pressure of water in the dome.

On the top of the dome is a cylinder, O, in which works a piston or plunger, P, connected by a link, *p*, with a handle or lever, Q, provided with a spring-dog, *q*, arranged to engage with the notches *r* in an arm, R, instead of the holes in said arm shown in my patent aforesaid.

The mold K may be constructed to serve as a die for giving the external form to the hat, or it may serve as a seat for a block or die.

The work is placed in the mold K, and the dome is lowered in the manner before described, so as to bring the diaphragm *d* in contact with the work.

Instead of the lever L, operated by the handle F, for locking the dome, as described in my patent aforesaid, I employ a locking

device constructed and operated as follows: At points equidistant from each other, near the periphery of the dome and mold, are upright posts or rods M, the lower ends of which are rigidly attached to the frame A or mold K, and the upper portions pass through openings in the dome. There may be any suitable number of these posts or rods; but the four shown herein are deemed sufficient for illustration. In each rod M, near its upper end, is a slot, *m*, and when the dome is lowered to its seat on the mold the slots *m* are above the portion of the dome in which are the openings through which the rods pass. In the center of the top of the dome is a pivot, N, provided with a number of radial lugs or short arms, *n*, corresponding with the number of rods or posts M. The lugs or arms *n* are connected by links *s* with bolts or keys S, each of which is constructed for engagement with one of the slots *m*, and passes through a guide-block, *t*, which prevents any deviation from a rectilineal motion. When the parts are in the position shown in Figs. 2 and 3, the bolts or keys S are engaged with the slots *m*, and the dome is securely locked in place on its seat, and prevented from rising.

When the central pivot N is turned in the direction indicated by the arrow the bolts or keys S are withdrawn from the slots *m* by the links *s*, the parts assuming the positions shown in Fig. 4, and the dome may then be raised. By turning the pivot in the opposite direction the parts are brought to the first position to lock the dome; and they are prevented from moving too far in said opposite direction by means of shoulders or projections T on the top of the dome, serving as stops, and arresting the further motion of the parts, after each link reaches a position in a straight line with the bolt or key and its corresponding lug or arm.

The central pivot N may be turned by any suitable means. It is here represented as provided with a handle, $n^{\times}$, for turning it. The bolts or keys S are tapered or inclined toward their outer ends, so that as they enter the slots *m* they operate after the manner of wedges. When the dome is lowered to its seat an initiatory pressure is produced, as described in my patent aforesaid. This initiatory pressure is increased when the keys S are forced into the slots, in consequence of the tapering or wedge-like form of said keys, as the farther they enter the slots the greater is the downward pressure exerted on the dome, and the more closely is the dome held in contact with its seat.

By the construction and arrangement of the locking device herein described, the locking of the dome is accomplished in a uniform manner, as the force is evenly distributed around the edges of the dome; and as the locking force is mostly exerted in a downward direction, with a tendency to hold the machine more steadily on its feet, the liability of displacing the machine is not so great as in the former mode of constructing and operating the locking device.

The bolts or keys S need not be confined to a straight form and rectilineal motion, as they may be of curved form, and operate with a curvilineal motion, and accomplish the same result as above described; but by the construction and arrangement herein described, the keys and their connections partake of the character of toggle-joints, and I am thereby enabled to gain more power to force the keys home in the slots.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the dome and slotted posts or rods of a hat-pressing machine, the sliding bolts or keys S, connecting-links *s*, and central reciprocally-rotating pivot or spindle N, arranged and operating substantially as and for the purpose herein described.

2. The bolts or keys S, of tapering or wedge-like form, in combination with the dome D and the posts or rods M, having slots *m*, substantially as and for the purpose herein described.

M. A. CUMING.

Witnesses:
E. R. BROWN,
FRED. HAYNES.