

E. B. HASTINGS & J. DESPER.

Hat Pressing-Machines.

No. 135,428.

Patented Feb. 4, 1873.

Fig. 1.

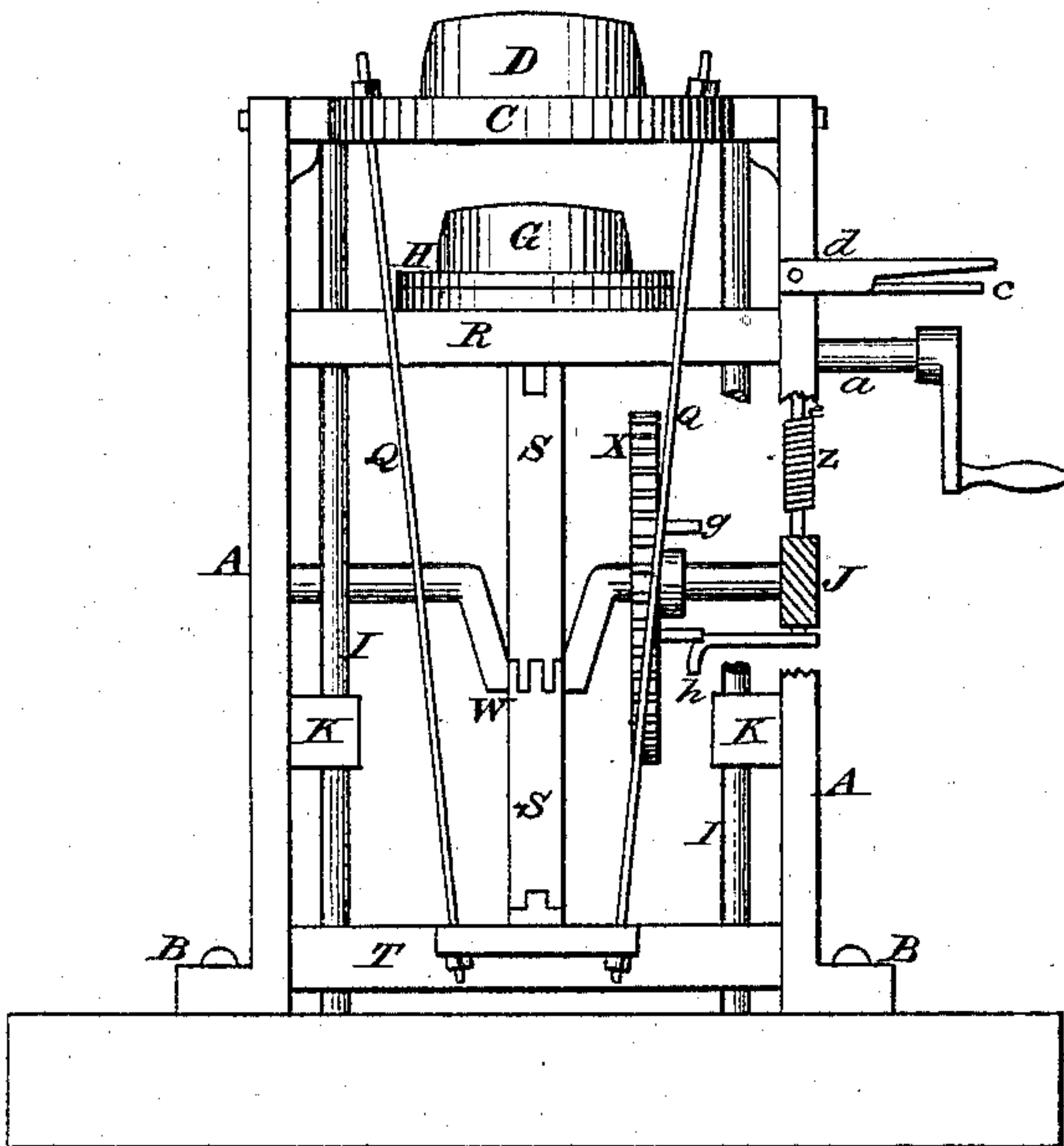


Fig. 3.

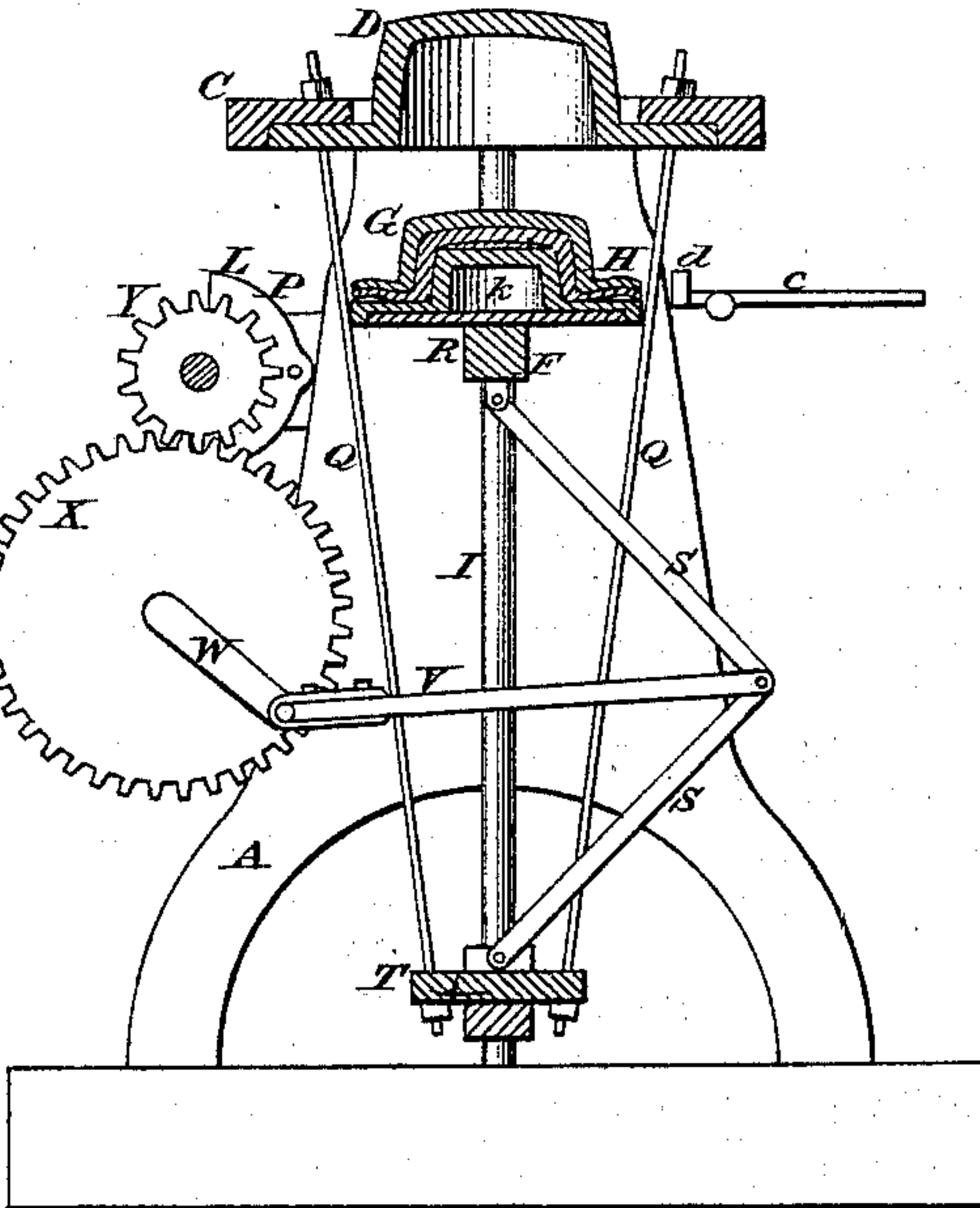


Fig. 2.

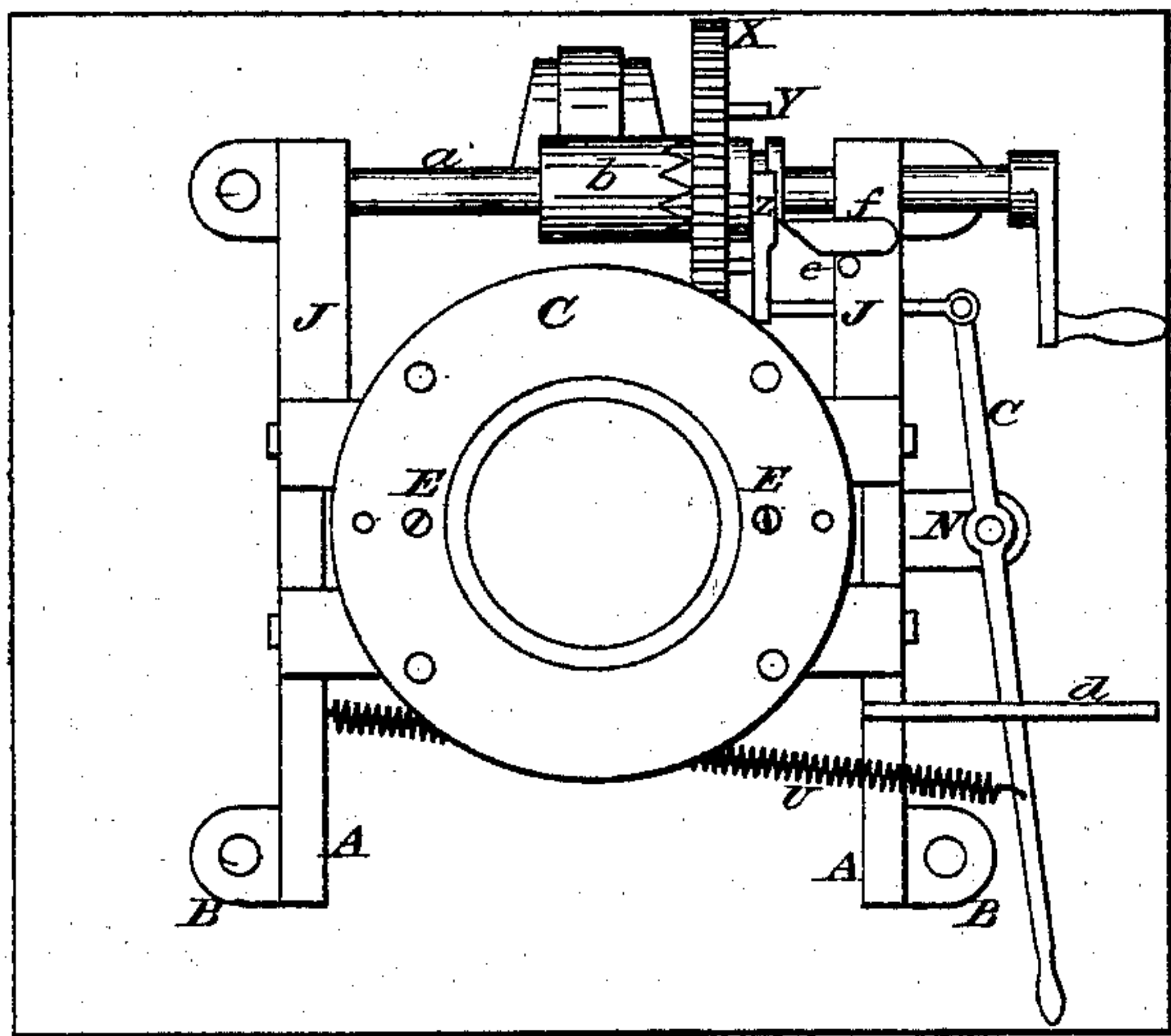
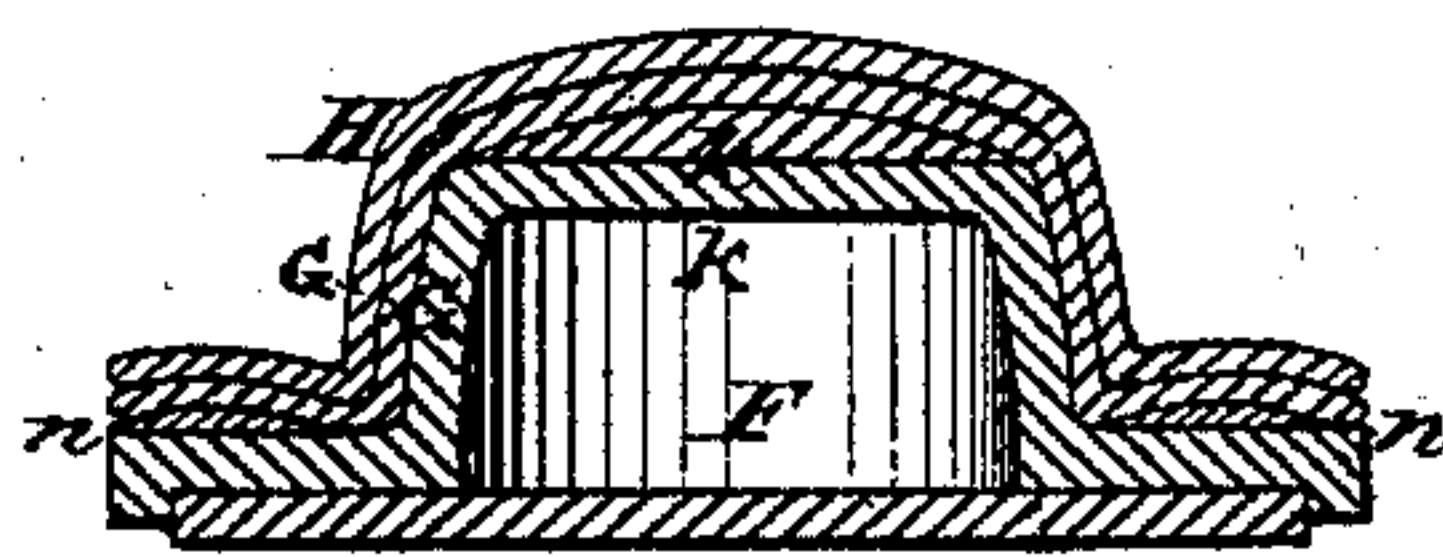


Fig. 4.



Inventors:

Emory B. Hastings & Jason Desper,

by  
James L. Norris.  
Attorney.

Witnesses:

A. Moon  
Jno. D. Patten



# UNITED STATES PATENT OFFICE.

EMORY B. HASTINGS, OF PALMER, AND JASON DESPER, OF BARRE, MASS.

## IMPROVEMENT IN HAT-PRESSING MACHINES.

Specification forming part of Letters Patent No. 135,428, dated February 4, 1873.

*To all whom it may concern:*

Be it known that we, EMORY B. HASTINGS, of Palmer, in the county of Hampden, and JASON DESPER, of Barre, in the county of Worcester, both of the State of Massachusetts, have invented a new and useful Improved Machine for Pressing Hats, of which the following is a specification:

The invention consists in the provision of a power-shaft, possessing a pinion and clutch for actuating the crank or toggle-lever-operating shaft and in the combination therewith of a pinion-shifting device, automatically operated by projections on the transmitting-gearing to effect the disengagement of the driving-pinion at the end of the upward stroke of the forming-die. The invention also consists in covering the male or reciprocating die with one or more layers of India rubber or other elastic material for equalizing the pressure on the hat being formed. The invention finally consists in interposing patches between the elastic covering and rigid die, for removing any inequalities in the elastic covering formed in the process of vulcanization.

In the drawing, Figure 1 represents a front elevation of a machine embracing my invention. Fig. 2 is a plan or top view of the same. Fig. 3 is a vertical section of Fig. 1. Fig. 4 represents an enlarged sectional view of the male die and covering.

The vertical frame A, in which the entire operative mechanism is mounted, possesses lower lateral flanges B for securing it to the floor, and an upper platform or plate, C, as shown. Said plate C is provided with a central opening for the insertion of the female die D, which is detachably secured to the plate C by screws or bolts so as to enable dies of various forms and sizes to be interchangeably used according to the work to be performed. Said female die D is generally constructed with double walls, forming a chamber for the reception of steam as a heating medium; or the die may be heated by jets of gas issuing from a pipe coiled around the same. At the sides of the frame A are located vertical rods I I, which are attached to the platform C and lugs K, said rods forming ways or guides for a reciprocating cross-head, R, and tail or lower transverse bar T, constituting the gate or frame of the male die. To the

cross-head R is attached a disk, F, forming a supporting-plate for the male die G, which is also detachably secured in position, so as to enable the same to be removed when different-shaped dies are to be used. The die G is covered with one or more layers of India rubber, H, or other elastic material, and is made sufficiently smaller than the female die to enable the covering and hat-blank to pass easily into the same.

The hat-blank, after having been moistened, is applied to the die G, which is then forced into the female die by means of the toggle-levers S S, pivoted, respectively, to the cross-head R and cross-tail T, so that when the toggle-links are brought to a straight line the requisite pressure will be caused to bear upon the hat for shaping or pressing the same. The toggle-levers are operated through the medium of the rod or pitman V, which is connected to the center joint of the levers and to a horizontal crank-shaft, W, which is journaled in suitable brackets J J attached to the frame A. On the shaft W is mounted a large spur-wheel, X, meshing into a pinion, Y, located on the main or driving shaft *a*, which is journaled in the brackets P, and connected with a suitable prime power. The pinion Y is fitted loosely on the shaft *a*, and possesses a sleeve or hub embraced by a forked arm, L, which is connected with an angular lever, *c*. A stationary clutch, *b*, is arranged in juxtaposition to the pinion Y on the shaft *a* for connecting the pinion to the shaft when power is to be transmitted to the shaft W. The pinion is maintained in contact with the clutch during the proper interval by means of a button or arm, *f*, applied to the upper end of a vertical rock-shaft, *e*, which is journaled in the side standard of the frame A. A coiled spring, *z*, the ends of which are attached to the rock-shaft and frame, encompasses the former and acts in such a manner as to exert a pressure on the shifting device L through the medium of the arm *f*, for preventing the disengagement of the parts when the die is in operation. To the lower end of the rock-shaft *e* is applied a horizontal extension or arm, *h*, which is so arranged in juxtaposition to the spur-wheel X that when the male die has entered the female die, or has reached the limit of its upward stroke, a projecting stud,



*c*, on the spur-wheel *X* will come in contact with the arm *h* of the rock-shaft *e*, partially turning the same and thus disengaging the upper arm or head from the pinion-shipper *L*. The pressure upon the pinion being removed, it is immediately disengaged from the clutch *b* by means of a spiral spring, *U*, attached to the main frame and rear end of the lever *c*, which is thus turned upon its fulcrum, for carrying the pinion-shipper in an outward direction. A latch, *d*, is applied to the frame near the rear end of the lever *c* for securing the same in a stationary position, so as to render the pinion-shifting mechanism inoperative when it is not desired to maintain the dies in contact with each other for a prolonged length of time. The latch, when connected to the lever, locks the pinion to the clutch, thus transmitting a continuous movement to the crank-shaft *W* and an ascending and descending movement to the die *G*, through the medium of the pitman *V* and toggle-levers *S S*. The male die is thus systematically and successively caused to enter the female die with the hat-blank, for pressing the same in repeated operations.

The steam evolved by the contact of the wet blank with the heated female die is permitted to escape for facilitating the drying of the hat by the descent of the male die a brief time after its entrance into the female die.

For regulating the degree of pressure to be exerted upon the hat-blank we attach vertical rods *Q* to the stationary plate *C* and cross-tail *T*, which, in connection with screw-threads and nuts applied to their ends, serve as a medium for vertically adjusting the cross-tail *T* for diminishing or increasing the distance the male die is to enter the female die.

To increase the pressure on the top of the

crown or top of the hat, to press what is technically termed the button in palm-leaf hats, we interpose a cushion of India rubber or other material under or between the elastic covering of the metal die, as shown at *k*, Fig. 4.

In vulcanizing the rubber coverings for the male die they are found to shrink unequally, and are also liable to be formed with porous or spongy places, which will prevent the formation of a hat of an equal or uniform finish. To remedy these defects we apply patches *n n*, Fig. 4, of rubber or other suitable material, under or between the rubber coverings on the male die, to make the pressure uniform for finishing the hat.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the cross-head *R*, cross-tail *T*, rods *Q*, toggle-levers *S S*, pitman *V* with the rods or ways *I I*, crank-shaft *W*, gear-wheel *X*, clutch-collar *b*, pinion *Y*, and pinion-shaft *a*, for transmitting motion and pressure to the reciprocating die *G*, as shown and described.

2. The rigid male die *G*, having its entire surface covered with one or more thicknesses of India rubber, *H*, or other elastic material, for equalizing the pressure upon the hat, for operation in connection with a female die, *D*, substantially as set forth.

3. In combination with a female die, *D*, and the rigid die *G* with its elastic covering *H*, the patches *k n*, substantially as and for the purpose set forth.

EMORY B. HASTINGS.  
JASON DESPER.

Witnesses:

E. W. BULLARD,  
J. OTIS HALE.