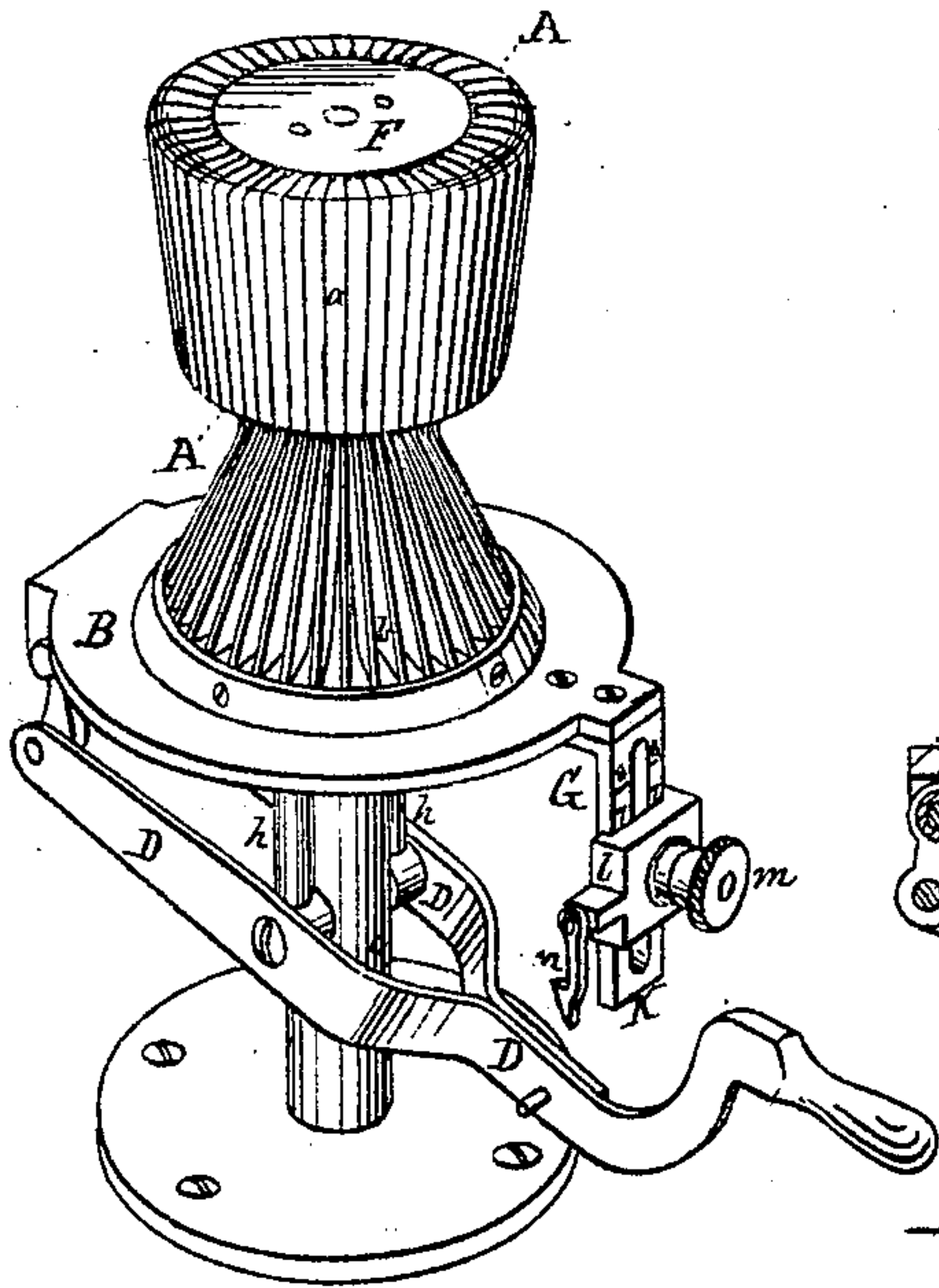


**R. EICKEMEYER.**  
**Expansible Hat-Blocks.**

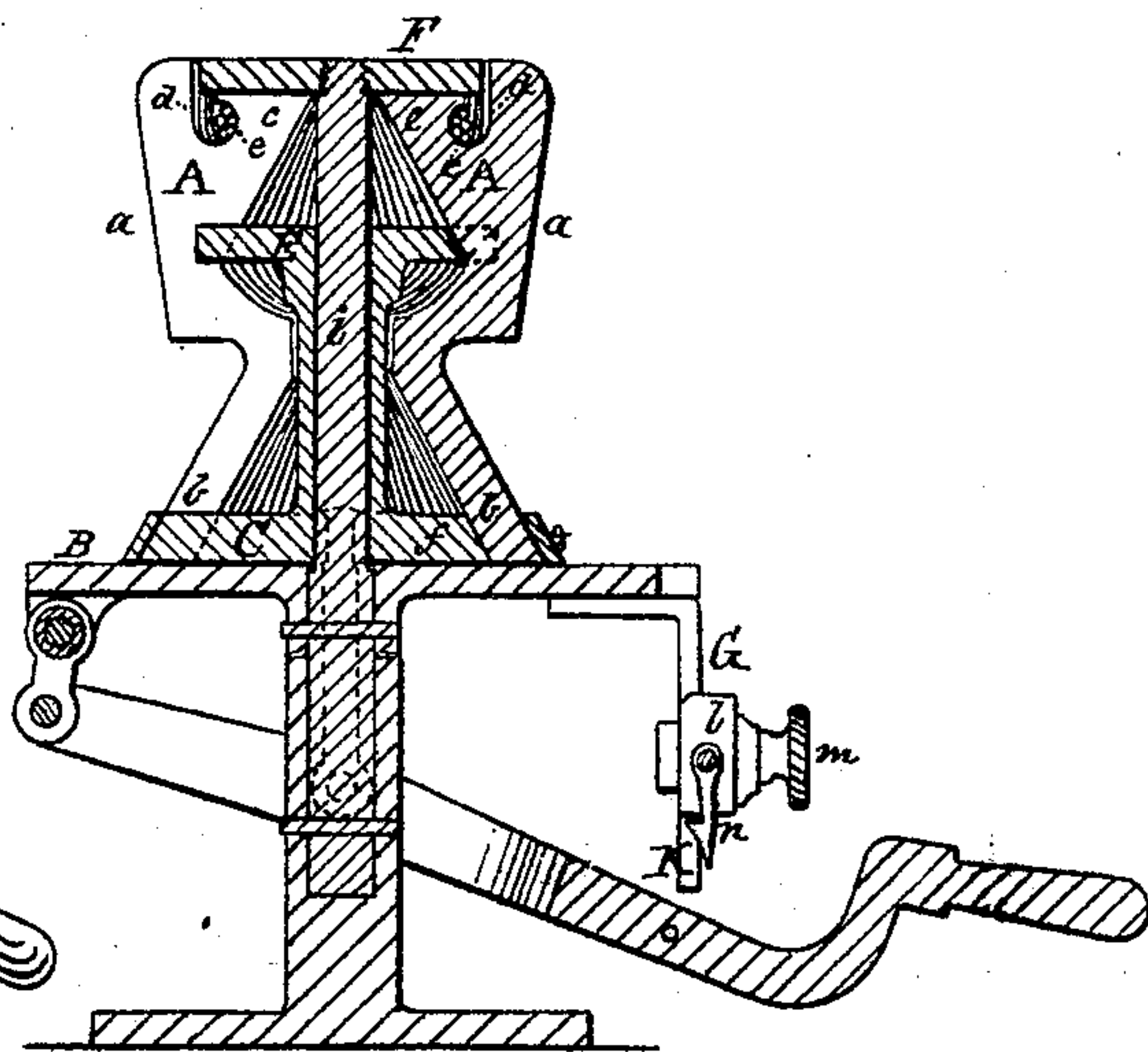
No. 141,338.

Patented July 29 1873.

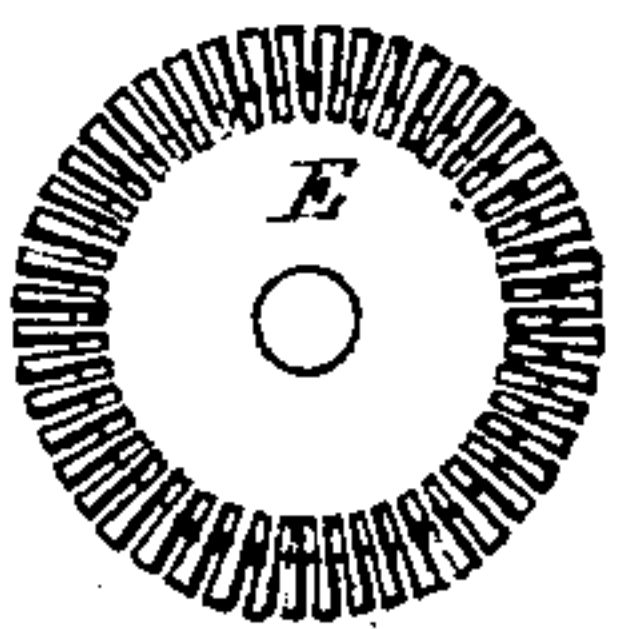
*Fig. 1.*



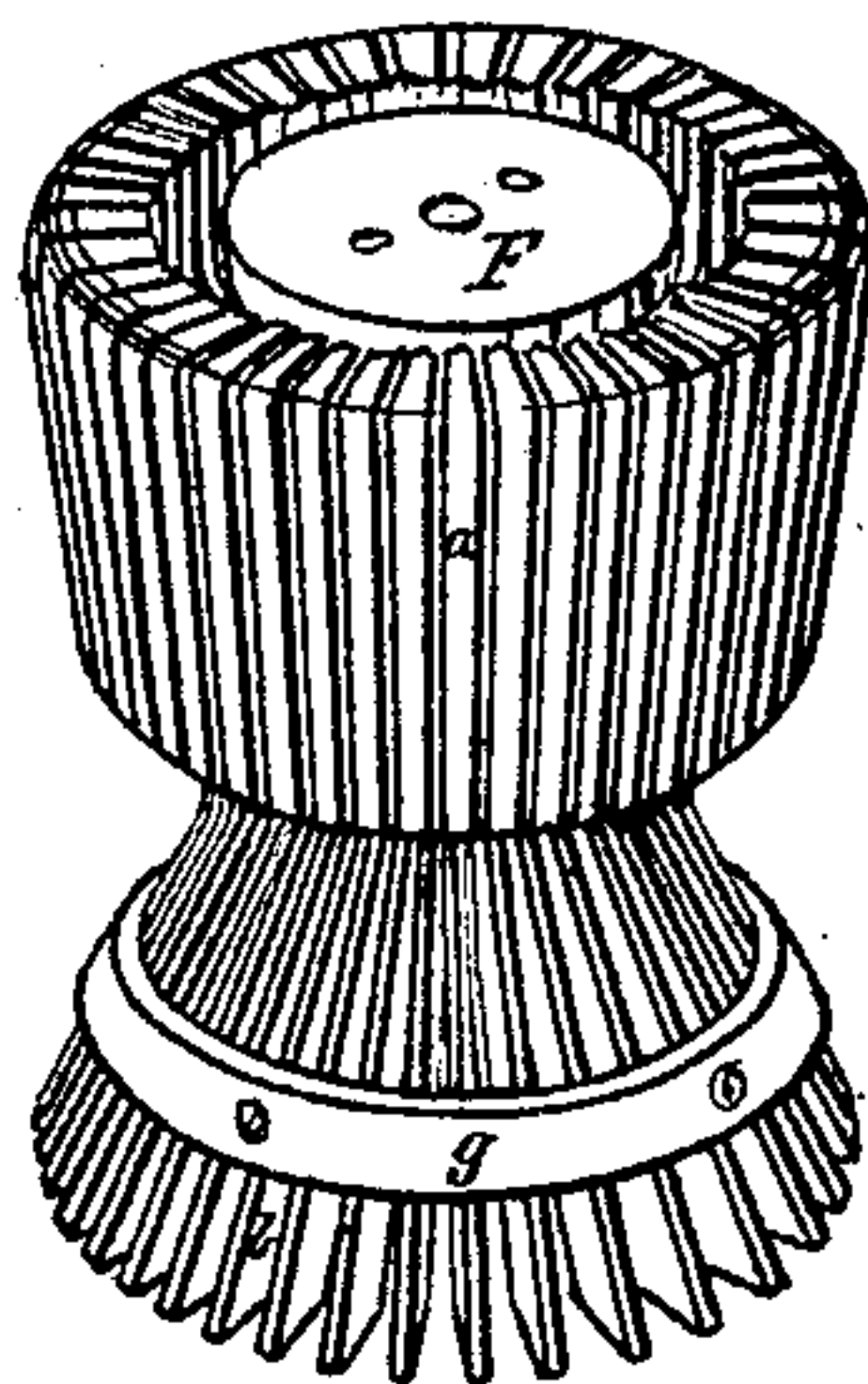
*Fig. 2.*



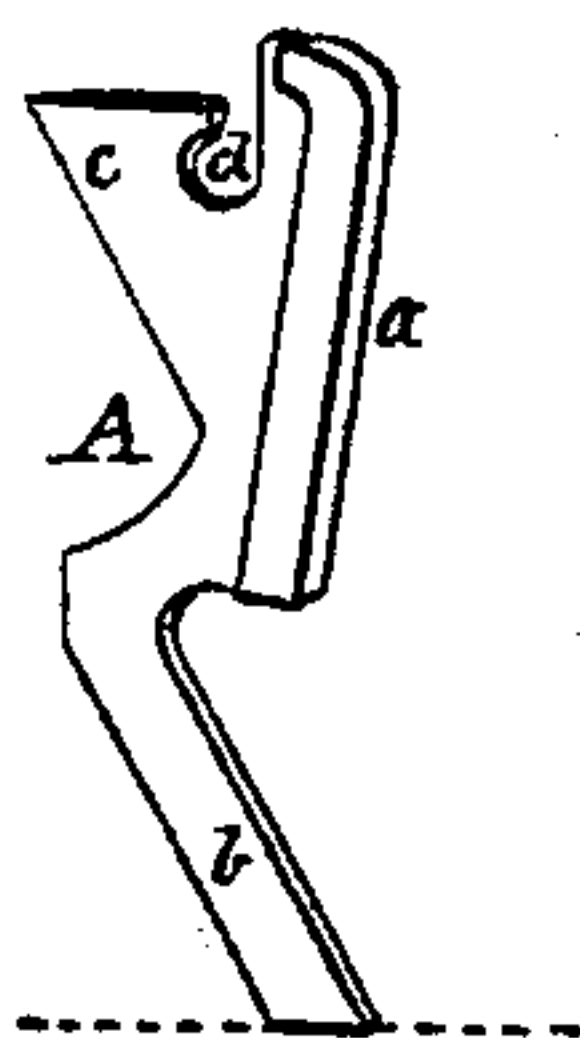
*Fig. 3.*



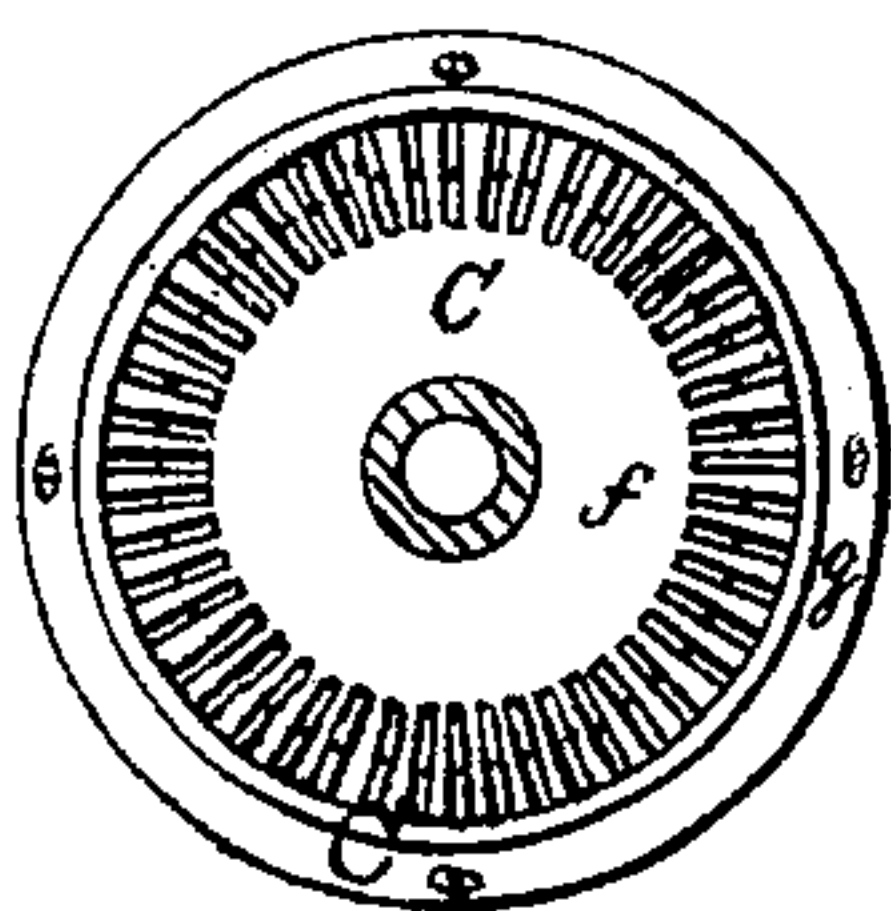
*Fig. 6.*



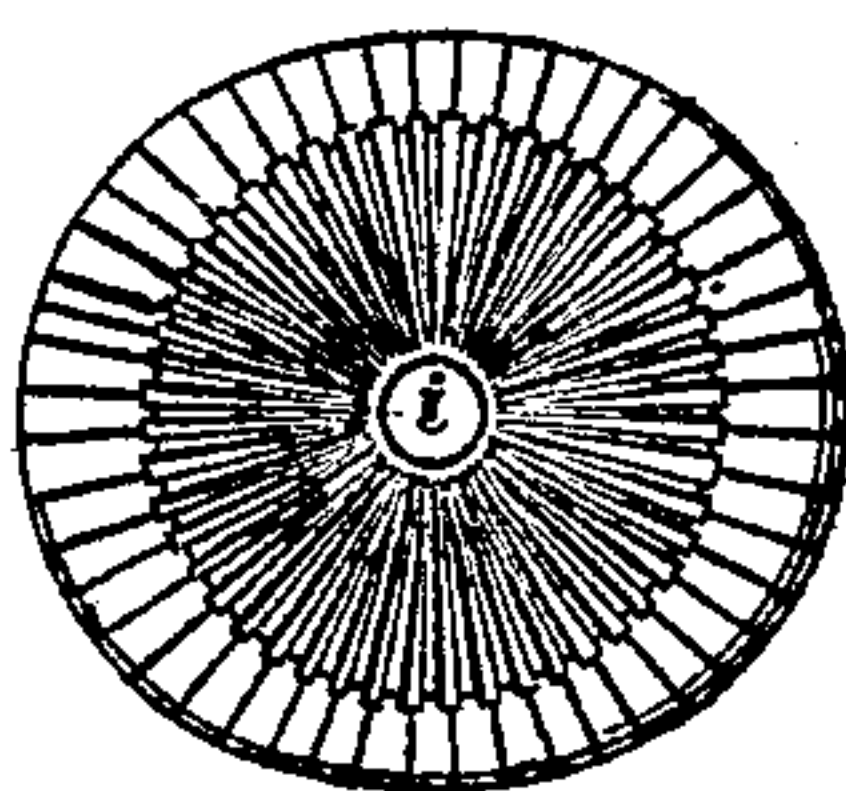
*Fig. 5.*



*Fig. 4.*



*Fig. 7.*



Witnesses  
*Phil. A. Garner*  
*G. F. Stenz*

Inventor.  
*Rudolf Eickemeyer*  
 By *Wm. Wood*  
 Attorney.



# UNITED STATES PATENT OFFICE.

RUDOLF EICKEMEYER, OF YONKERS, NEW YORK.

## IMPROVEMENT IN EXPANSIBLE HAT-BLOCKS.

Specification forming part of Letters Patent No. 141,338, dated July 29, 1873; application filed June 28, 1873.

*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 Expansible Hat-Blocks for Hat-Blocking 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 and true description thereof.

My invention consists in constructing the hat-block in numerous sections of a peculiar form, and in combining the same with movable inclined planes, whereby all of the said sections can be simultaneously driven outward radially, and have an equal extent of movement at both ends of the stretching-surface of each section; and also in combining with an expansible hat-block an adjustable gage and a holding device, whereby the block may be set at any required size, and held in position as long as may be desirable.

Expansible hat-blocks have heretofore been made in sections, but they have been combined with actuating devices of such a character as would not admit of the employment of any very large number of sections. When such blocks are contracted to receive the smallest-sized hat which they are capable of stretching the side edges of the several sections are in close contact, and the whole in a measure resembles a solid block; but when the block is expanded to its greatest capacity the spaces between the sections are widened so much that the side crown of a hat at each point between the sections will be stretched flat or straight, which would give to the exterior surface of the side crown of the hat a semi-ribbed appearance. To obviate this latter effect in a measure, elastic-rubber jackets have been used as an exterior surface for the block. These rubber jackets, being continually subjected to mechanical expansion and contraction, and the immediately-alternating contact with hot and cold water, soon get cracked and incapable of presenting a proper surface. In expansible blocks as heretofore constructed, each of these several sections have in many cases been pivoted at their bases to a bed-plate common to them all, and their outer or upper ends only have been actuated outward radially, and therefore hats of different sizes stretched there-

on would have their side crowns inclined inward from square to band at different angles.

With my improved block no elastic jacket is needed, and the incline of side crown is uniform in all sizes of hats stretched thereon; but more particularly to describe my invention I will refer to the accompanying drawings, in which—

Figure 1 represents, in perspective, one of my improved hat-blocks. Fig. 2 represents the same in vertical section. Figs. 3 and 4 represents, in top view, respectively, the head-block and the base-block. Fig. 5 represents one of the movable sections detached. Fig. 6 represents, in perspective, a hat-block expanded. Fig. 7 represents the hat-block in top view with the top plate removed.

The hat-block is represented in this instance as mounted on a table, B, which is secured to a platform. The hat-block is composed in this instance of forty-eight metallic sections, A, all of which have a corresponding form, illustrated in Fig. 5. The stretching-surface *a* is well finished, and slightly rounded laterally, and has a length somewhat greater than the height of the highest-crowned hat the block is intended to stretch. The foot *b* of each section is of uniform width. Throughout its length its two edges are parallel and inclined at an angle of about sixty degrees. The head *c* of the section has an interior edge, which is also inclined on a line parallel with the inclined edges of the foot *b*. Assuming that a section is standing erect with its base on the dotted line shown in Fig. 5, the longitudinal stretching-surface *a* will incline inward from the top to a degree corresponding with the desired angle of the side crown of the finished hat. Each section has a rounded recess, as at *d*, and when in the block these several recesses constitute an annular recess for the reception of a retractile spring, *e*. C denotes a foot-plate, which, near its periphery, is provided with radial slots or openings, with inclined ends corresponding with the inclined edges of the feet *b* of the sections. The sides of these slots serve as guides for maintaining the sections in their proper relative positions, while the ends of the slots serve as inclined planes for controlling and actuating the bases of the sections in their outward and inward movements. The foot-plate will preferably be constructed in two



parts, a central plate, *f*, and a band or ring, *g*. In the central plate the slots are cut, and extend inward from its periphery, while the band *g* constitutes, with its interior surface, the outer inclined end of each and every slot or recess. The ring and plate, being properly bolted together, will, of course, operate as one plate. The foot-plate *C* is mounted on the upper ends of two lifting-rods, *h*, which are pivoted to the two arms of a lifting-lever, *D*, which is suspended from one side of the table by a double link. *E* denotes the head-plate. It is circular in form, and radially recessed or slotted at its periphery in a manner corresponding with the central plate *f* of the foot-plate. The inner ends of the recesses in the head-plate are inclined, to correspond with the inclined edges of the head *c* of each of the sections *A*. The head-plate is connected with the foot-plate by a tubular standard, which incloses a vertical stationary post, *i*, which extends upward through the center of the table *B*. *F* denotes a top plate, which screws upon the top of the post *i*. Its under surface is in contact with the tops of the sections during their outward movement, and, owing to the extended radial bearing therewith, the sections are firmly guided, for the under side of the top plate and the top of the table are parallel, as is the case with the top of the interior portion of the heads *c*, and the base line of the feet *b*. As will be seen in Fig. 7, the inner ends of the heads *c* touch, or nearly so, and at that point constitute a continuous annulus of metal to such an extent as to prevent the practical introduction of any additional sections with the same thickness of head in the rear of the stretching-surface.

It will be obvious that the metal at the incline of the head at *c* should be of sufficient bulk, not only to withstand the radial strain of the inclined planes against them, but also to afford ample wearing-surface to give the block a practicable degree of utility.

In practice, it will be difficult to employ more than forty-eight sections in one block.

*G* denotes a holding-gage. It consists of a slotted frame, *K*, which extends downward from the outer edge of the table to which it is attached adjacent to the lever *D*. The face of the frame is graduated with scale-marks to indicate the different sizes of hats which the block is intended to stretch. The gage-block *l* is fitted to the frame *K* and provided with a thumb-screw, *m*, so that it may slide vertically on the frame, and be fixedly adjusted with its upper edge coincident with any one of the scale-marks. Attached to one side of the gage-block *l* is a holding-hook, *n*, which can engage with a pin in the side of the lever *D* when elevated within its reach. This hook may, if desired, be provided with a latch-face, which will enable the hook to engage automatically with the pin; or the connecting and disconnecting of the hook from the pin may be wholly controlled by the operator.

The operation of the block will be readily

comprehended. The raising of the lever simultaneously lifts the foot-plate and the head-plate, which, by the action of the several inclined planes thereon in contact with the corresponding inclines on the sections, causes them all to be bodily carried outward simultaneously.

I am aware that the retractile movement of the upper ends of the sections may be wholly effected by positive mechanism, as it is now effected at their feet by the outer inclined ends of the recesses in the foot-plate; but the spring *e* may be composed of a simple inexpensive rubber band; or a more complex spring may be used, composed of an interior spiral spring incased in rubber, and in both cases they will be afforded at such low first cost, are quite durable, and are so readily applied when it is necessary to renew them, that it is hardly desirable to dispense with them by the employment of positive mechanism.

As heretofore constructed I am not aware that more than twelve sections have ever been successfully combined with interior actuating-levers in one block. The limited interior space will not admit of a greater number of pin-joint connections, and the levers themselves must be of sufficient bulk of metal to afford the requisite strength. Assuming that a No. 6 sectional oval hat-block prior to expansion has a circumference of, say, 18.8+ inches, then each section will be, say, 1.56+ inches in width. Should such a block be expanded to, say, a No. 9 size, its circumferential line would measure about 28.269+ inches. Divide this sum by 12, the number of sections, and it will show that each section occupies a space of, say, 2.355+ inches, from which deduct the solid section 1.5 inch, and each open space between the sections is shown to be .85+ inch.

In my improved block there can be, say, forty-eight sections. In a block so constructed each section in an unexpanded No. 6 block will occupy in inches one-forty-eighth of 18.8— inches or .39+ inch. When expanded to fill a No. 9 hat with a circumference of 28.269 inches, each section will occupy about .58 inch, from which, if we deduct the width of the sections, .39, a space of but .19 inch remains as an opening between each two sections, showing a diminution as compared with the twelve-section block of about .66 inch in each and every space between the sections.

I am well aware that approximate results may be attained by having the head-plate of a conical form, but with greater length and provided with inclined grooves corresponding in length and character with the inclined edges on the heads *c* of the sections, and fitted to receive a finger projecting inward from each section; and I do not, therefore, limit myself to the precise arrangement of the inclined planes and sections. With the arrangement shown, however, a greater number of sections can be practically combined and operated than with any other arrangement of inclined planes known to me.



My improved block may be employed in blocking-machines of all kinds. It is applicable to machines in which solid plates are used to clamp the brims, and shells are employed to form the band, as well as to machines which employ clamping-tongs, and in which the band is formed with a pumping-ring. The height of the block with relation to the banding shell or ring may be adjusted by having either the block or the banding shell or ring capable of independent movement and of fixed adjustment. The interior cones may be operated by a great variety of mechanical devices, and made to perform their movement automatically or be arranged to be operated by hand.

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

1. An expansible hat-block composed of

non-pivoted sections, which are actuated radially by one or more interior inclined planes, substantially as described.

2. The combination of the several sections of an expansible hat-block with an inclined plane, which not only advances but withdraws the sections in radial lines.

3. The combination, in an expansible hat-block, of the several sections, the foot-plate, head-plate, and operative lever, substantially as described.

4. The combination, with the size-gage, of a lever holding-hook which maintains a fixed relation to the gage-block, substantially as described.

R. EICKEMEYER.

Witnesses:

E. W. KUSTER,

JAS. G. WOODWORTH.