

(No Model.)

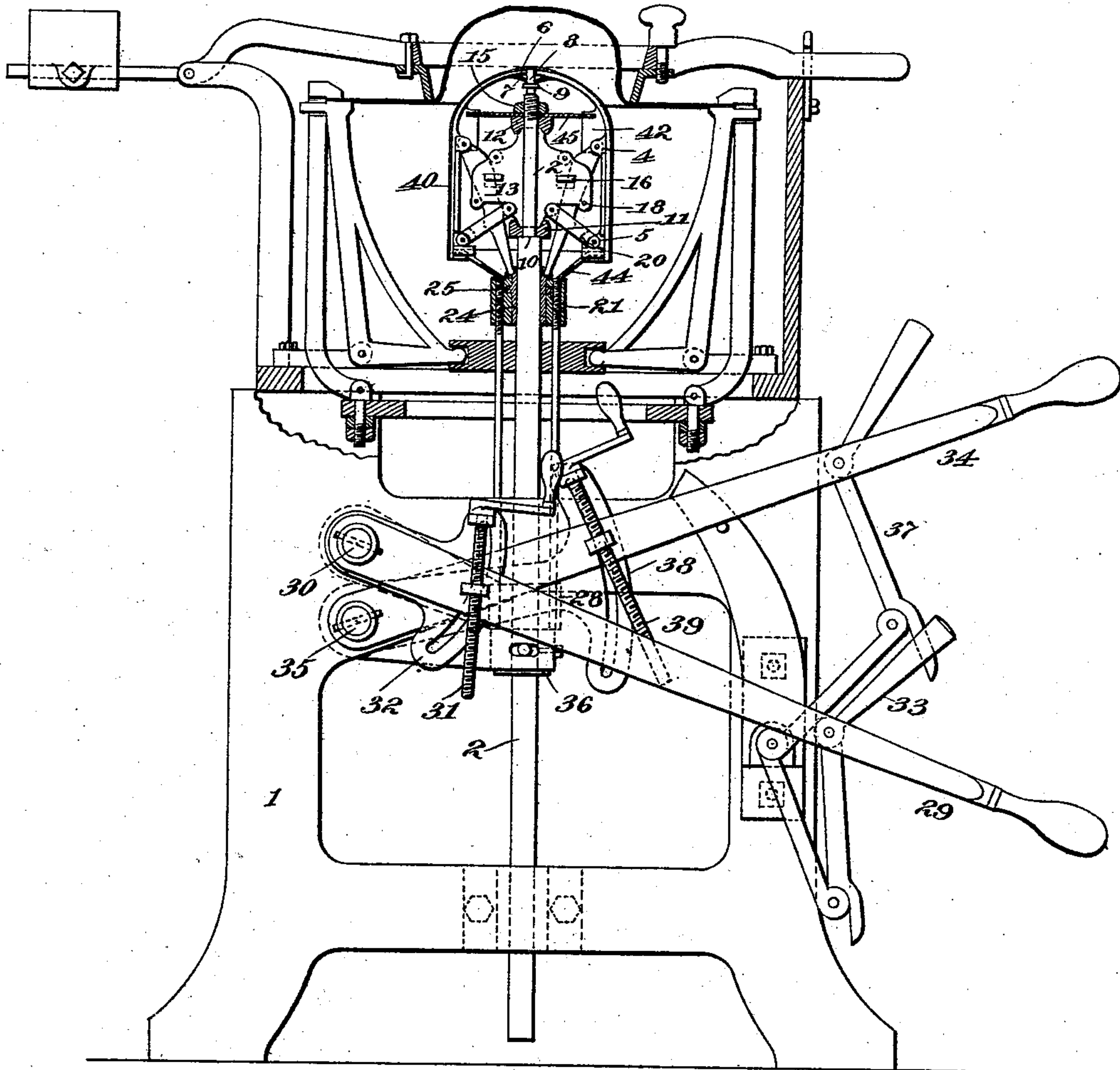
3 Sheets—Sheet 1.

S. E. DUNHAM.
EXPANDING HAT BLOCK.

No. 531,518.

Patented Dec. 25, 1894.

Fig. 1



Witnesses,
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Inventor
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his atty.

(No Model.)

3 Sheets—Sheet 2.

S. E. DUNHAM.
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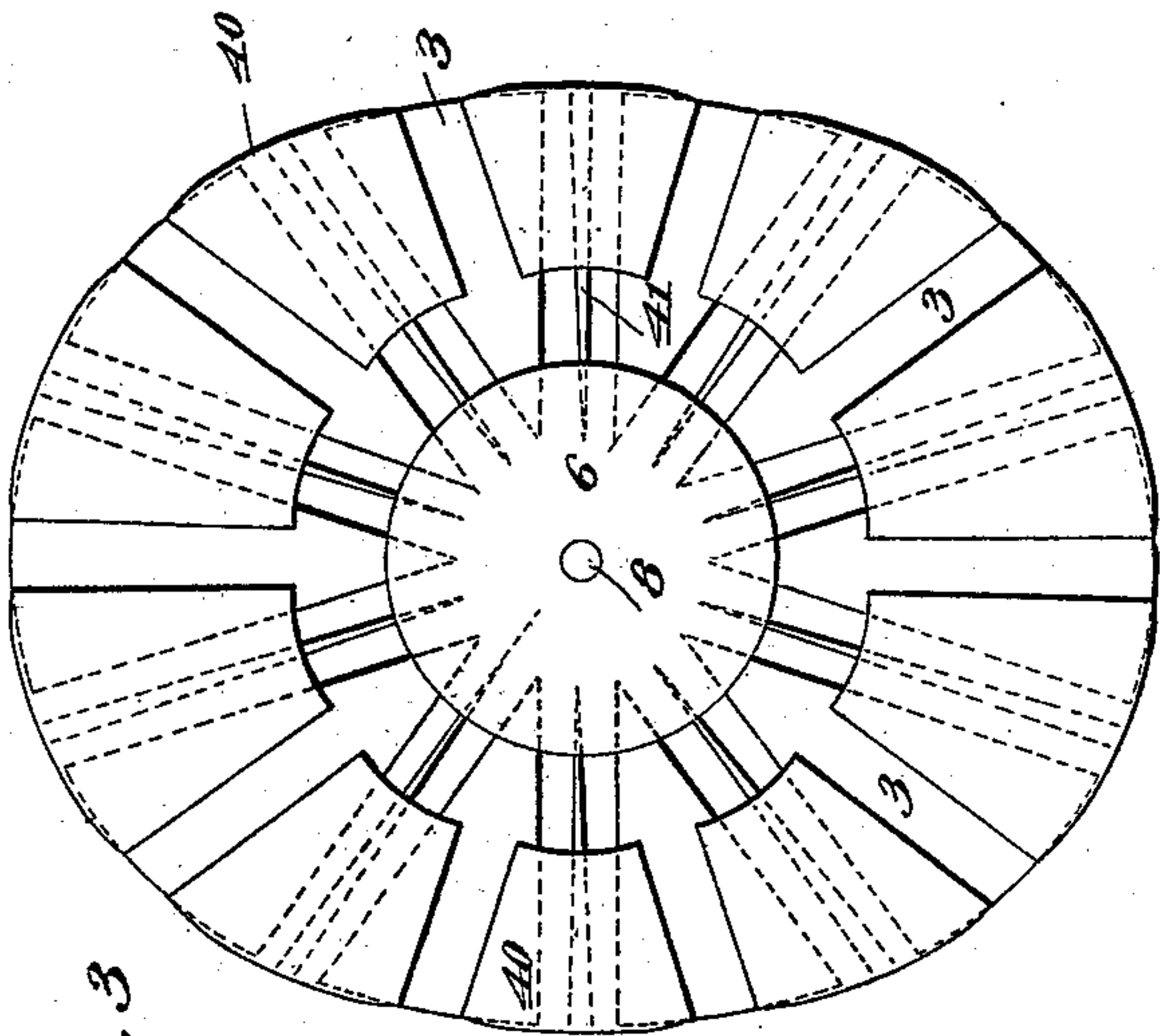


Fig. 3

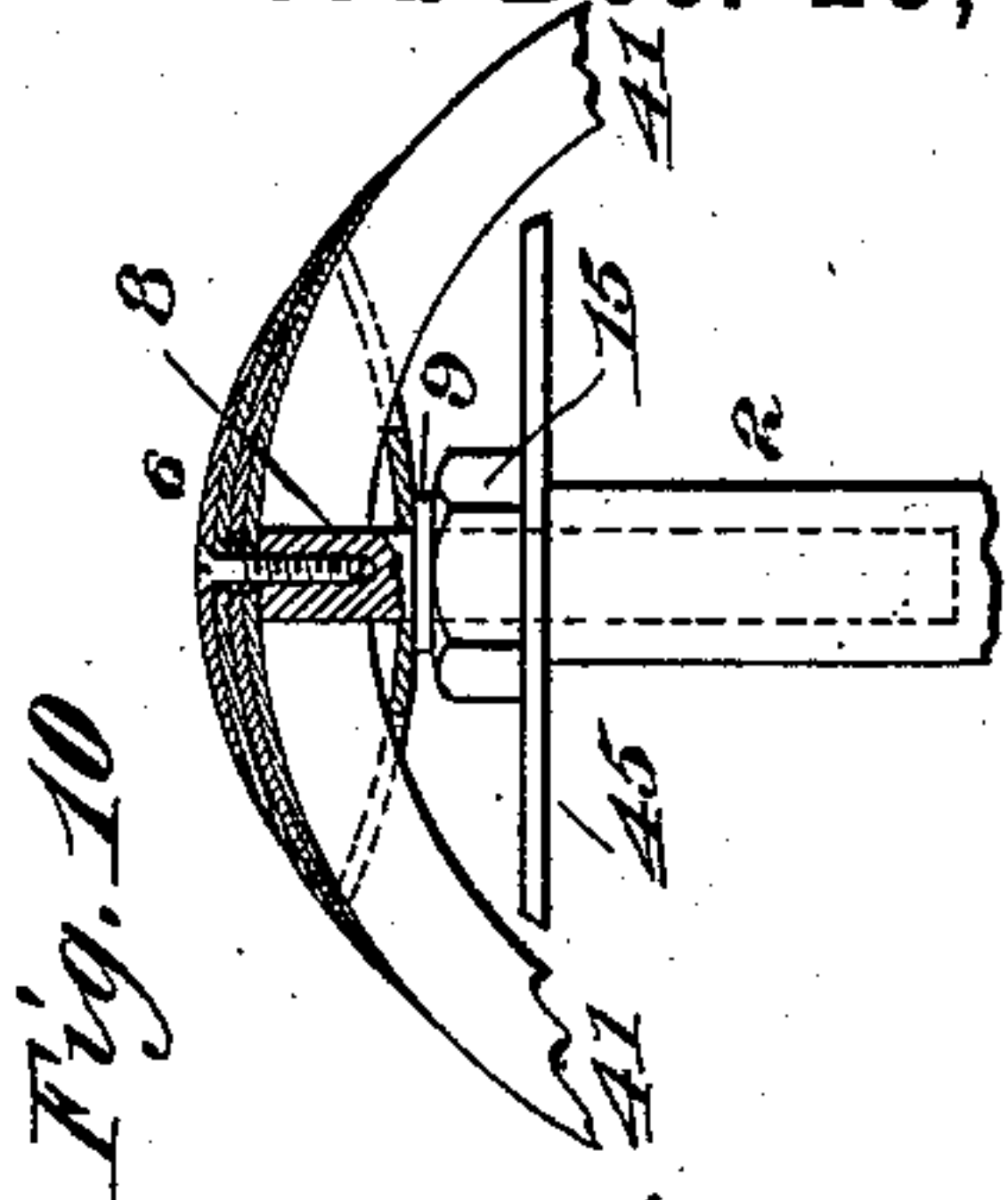


Fig. 10

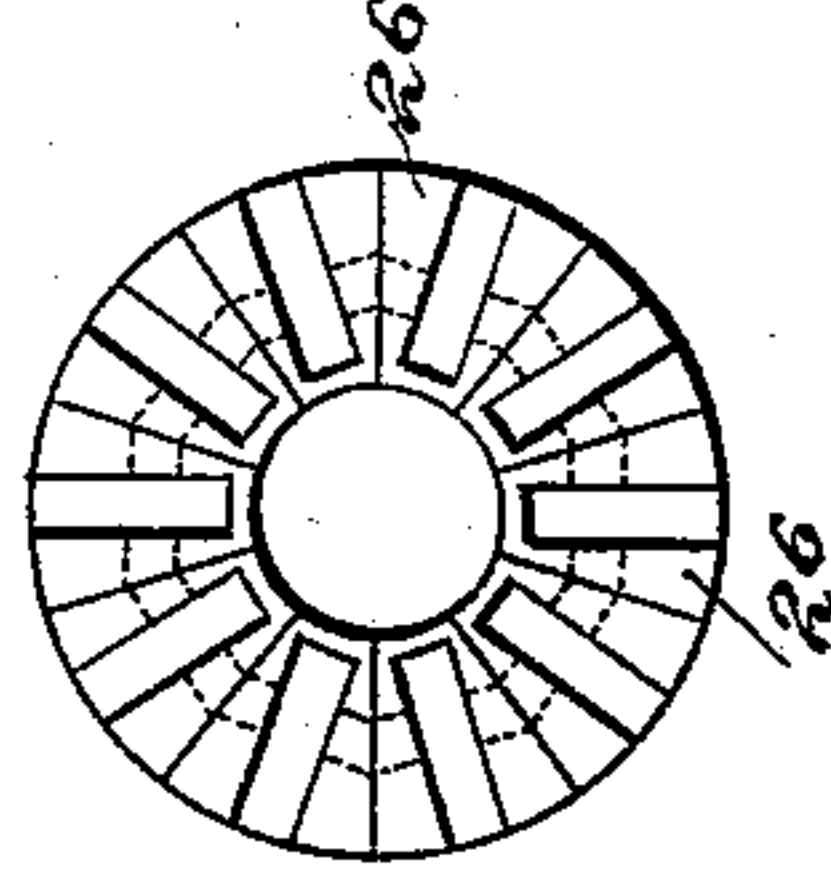


Fig. 4

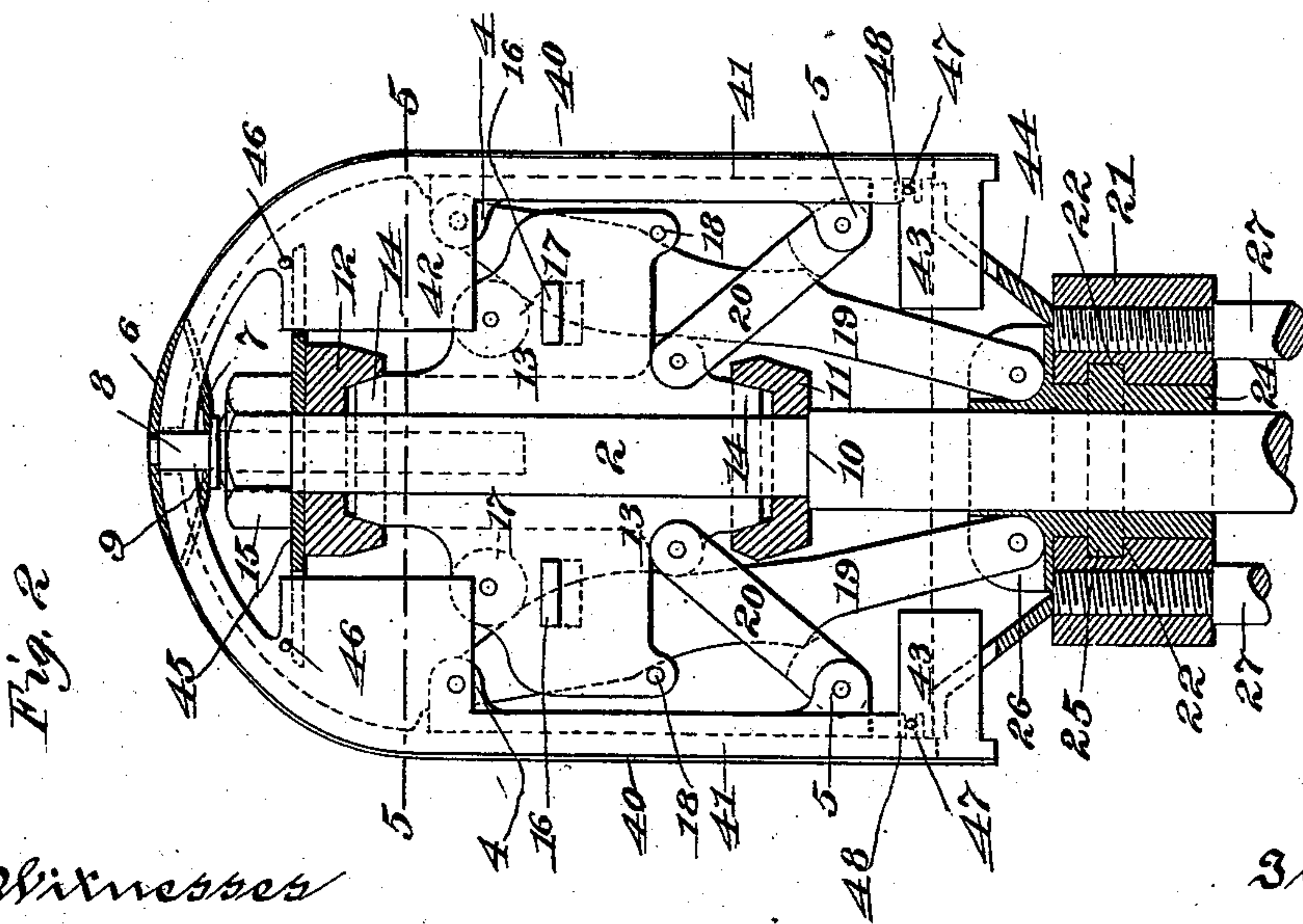


Fig. 2

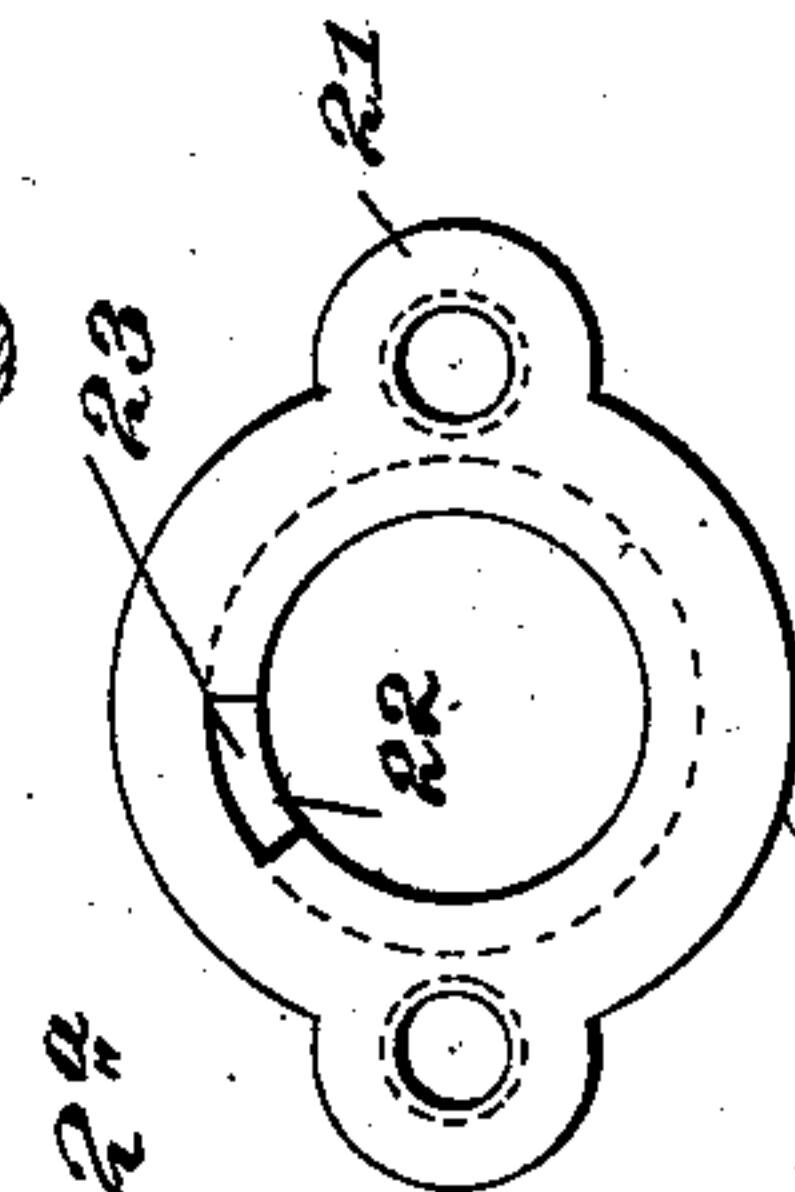


Fig. 2a

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UNITED STATES PATENT OFFICE.

SAMUEL E. DUNHAM, OF DANBURY, CONNECTICUT.

EXPANDING HAT-BLOCK.

SPECIFICATION forming part of Letters Patent No. 531,518, dated December 25, 1894.

Application filed March 19, 1894. Serial No. 504,307. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL E. DUNHAM, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improvement in Expanding Hat-Blocks, of which the following is a full, clear, and exact description.

This invention relates to machines for blocking hats, and the object of the invention is to provide for the ready expansion and contraction of the block.

In my invention the several segments or sections composing the block of appropriate shape are assembled about a central standard or spindle and are made movable toward and upwardly and outwardly from such standard or spindle by means of individual supporting mediums, such as levers all of which are connected to a common lifting device which is slidable up and down the standard or spindle and adapted to be held in any given position by a suitable actuator. I apply to the sections or segments of the block plates and leaves, which overlap the adjacent edges of adjacent segments so as to cover the spaces between the segments when the said segments are moved away from each other laterally, the said plates and leaves preserving the surface of the block in uninterrupted continuity.

Having thus stated the principle of my invention, I will proceed now to describe the best mode in which I have contemplated applying that principle, and then will particularly point out and distinctly claim the part or improvement which I claim as my invention.

In the accompanying drawings illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a sectional elevation of a machine embodying my invention. Fig. 2 is a vertical sectional elevation, taken in the plane of line 2—2 Fig. 5, of the block detached. Fig. 2^a is a plan of the operating collar. Fig. 3 is a top plan view of the block. Fig. 4 is a plan of the assembled lever supports. Fig. 5 is a horizontal cross-section of the block, on a still larger scale, the section being taken substantially in the plane of line 5—5 of Fig. 2. Fig. 6 is an inside elevation of one of the segments, and Fig. 7 is a longitudinal section

thereof. Fig. 8 is an inside elevation of one of the covering leaves, and Fig. 9 is a longitudinal section thereof. Fig. 10 is a sectional elevation of a modification.

In Fig. 1, I have shown my invention as applied in connection with some of the mechanism of the well-known Eickemeyer hat blocking machine, but I wish to be understood at the outset as not limiting my invention to its application to any particular kind of hat blocking machine.

The frame 1 may be of appropriate construction and have mounted upon it a hat clamping mechanism of substantially the construction shown in Fig. 1.

2 is a vertical standard or spindle, on which the hat block is mounted, as I will proceed now to describe. This hat block is composed of a number of segments or sections 3, each of which is provided with the double-eared sockets 4, 5, near the top and bottom. When these segments are assembled their upper ends are embraced between an inverted saucer-shaped plate 6 and a radially slotted spring plate 7, which plates are mounted upon a spindle 8, which is secured in a socket in the upper end of the spindle 2, as clearly shown in Fig. 2, the plate 7 resting upon a shoulder or collar 9 on the said spindle 8.

The spindle 2 is shouldered at 10, and upon this shoulder is mounted a plate 11, having an internal flaring or beveled or wedge shaped cavity, and above this plate is mounted a similarly recessed plate 12, and between these two plates 11 and 12, are secured a series of brackets 13, equal in number to the number of segments or sections composing the block. The ends 14, 14, of these brackets are beveled to correspond with the bevel in the plates 11 and 12, so that when the several brackets 13 are assembled between the plates 11 and 12 and the upper plate 12 is pressed home by means, for example, of a set nut or other device, 15, the beveled ends 14 of the brackets will be crowded in the beveled cavities of the respective plates 11 and 12, and thereby be securely held in position between the said plates. The several brackets 13 are provided with lateral ears 16, which overlap one another, as clearly indicated in Figs. 1 and 5, and are pinned together, or otherwise secured, in order to stay the several brackets laterally.

It will be understood that the outwardly-projecting portions of the brackets are made in two parallel parts, and in the space between these parts, at the upper ends thereof, is journaled in each bracket a friction roller 17, and at their lower ends is secured a roller or pin 18. The supporting medium for each segment or section 3 is shown as a lever 19 which is passed between the parallel ears of the brackets 13 and secured at one end between the ears 4 of the respective block segments. Opposite the roller 17 this lever 19 is swelled out into a projecting or bulging cam, and opposite the roller or pin 18 the lever is concaved, for a purpose presently appearing. The segments are secured at their lower ends to the brackets 13 by means of links 20 pivoted to the segments in the ears 5 and to the lower portions of the brackets.

21 is a collar or annulus surrounding the spindle or standard 2 and provided with an internal groove 22 and an opening 23 from the outside leading to said groove.

24 are segments of a cylinder, each provided with a curved projection 25 which is adapted to pass downwardly through the opening 23 in the collar 21, and thereafter to be turned into the groove 22, until as many of these cylindrical segments are arranged within the collar as there are levers 19. Each of these cylindrical segments is provided with a socket 26 at its upper end and in the socket of each segment is pivoted the lower end of one of the levers 19. These cylindrical segments constitute supports for the levers 19, and will be hereinafter referred to as lever supports and collectively they constitute with the collar 21, a lifting device for the levers.

The collar 21 is mounted upon parallel rods 27, and these rods in turn are secured to a collar 28 which surrounds the spindle or standard 2 and is freely movable thereon longitudinally.

One means for moving the collar 28 and thereby moving the collar 21, and so expanding or contracting the block, consists of a lever 29, pivoted to the frame at 30 and connected in any suitable manner with the collar 28, so that by raising or lowering the lever the collar 21 may be raised or lowered correspondingly. This lever 29 is provided with adjusting mechanism 31, 32, of any usual or approved construction, and it is also provided with an adjustment-locking lever 33. A lever 34 pivoted at 35 to the frame is connected with a collar or strap 36, made fast to the standard or spindle 2, so that by raising or lowering the said lever 34, the standard or spindle 2, and hence the block, may be raised and lowered as desired. Any adjustment of the block made by means of the lever 34 is secured by means of the adjustment-locking levers 37, and the throw of the lever 34 is regulated by the ordinary regulating mechanism 38, 39. Thus it will be seen that the block as a whole may be raised or lowered as desired independently of any expansion or contraction of

the said block, and so also, the said block may be expanded or contracted at will, quite independently of the vertical movement of the block as a whole.

In order to cover the spaces between the adjacent edges of the segments composing the block, I provide thin metallic leaves 40, having their edges reduced in thickness so as not to break the contour of the block, and in order to show these leaves plainly in the drawings, I have exaggerated their proportions considerably, particularly in Figs. 3 and 5. Each leaf is provided with a rib 41 having an upper projection 42 and a lower projection 43. On the top of the collar 21 is arranged an outwardly flaring rim or socket-piece 44, slotted radially to receive projections 43 of the ribs 41. Between the nut 15 and the plate 12, or otherwise, I arrange a radially slotted plate 45, in the slots of which the projections 42 of the leaves play and the leaves thus have provision for guidance at top and bottom, and they are sustained at the top by a cross-pin 46 overlying the slotted plate 45, and they are connected at the bottom with the sections by means of cross-pins 47, which engage slitted ears 48 on said sections. Obviously the leaves are free to move back and forth with the block sections and cover the openings between said sections as the block is expanded, so that at all times the surface of the block is preserved in unbroken continuity.

The operation has been sufficiently indicated by the foregoing description, but it may be observed that in preparing the hat body for the blocking machine, it is taken from the kettle in its conoidal form, to the tip stretcher where its tip is stretched out laterally, and thence it is removed to the brim stretcher where its lower open end is spread out in horizontal curves to start the brim, when it is in condition to be applied to the blocking machine, as indicated by the solid black lines in Fig. 1. The hat body in the rough being clamped in the machine, the block is then moved bodily, by means of its spindle 2, up into the hat body a distance sufficient to enable the operator to block a hat of the desired size. The further movement of the spindle being stopped, the collar 21 is then given its independent upward movement and as the collar 21 is moved upwardly the levers 19 also are moved with it and carry upwardly with them the block segments, and said levers are forced outwardly by their cam surfaces riding against the friction rollers 17, thereby simultaneously also moving outwardly the block segments and so expanding the block. By this compound, simultaneous upward and outward movement of the block sections, the hat body is stretched uniformly throughout its quarters to the band, insuring a practically uniform distribution of the fibers, without thinning and thereby weakening any part of the crown. In the old style block where the block sections are moved outwardly only, the hat body is thinned out and weak-

ened in places and this objection is wholly avoided by my construction whereby the stretch is applied upwardly and outwardly at the same time, by a sort of rolling action.

5 During this upward and outward movement of the block sections, the spindle 8 is free to rise in its socket in spindle 2 to permit the sections to rise without becoming detached from spindle 2, and the upper ends of such
10 sections may move laterally within the confines of the plates 6 and 7 without escaping therefrom, the plates 6 and the leaves 40 covering the spaces between the expanded sections and preserving the continuity of the
15 block's surface. On the return movement, the pins or rollers 18, acting against the levers, cause the said levers to withdraw the segments toward one another and thereby contract the block. The links 20 in the move-
20 ments of the levers 19 cause the lower ends of the segments to follow the movement of their upper ends.

As shown in Fig. 10, in order to get different shaped hats with the same block, I may add
25 any number of different sizes or different shaped plates 6, and secure them by a counter-sunk screw or other convenient fastening.

What I claim is—

1. In a hat blocking machine, a hat block
30 comprising a number of longitudinally and laterally movable sections or segments, a supporting medium for each of such sections movably connected therewith and having a longi-
35 tudinally and laterally defined path of movement, a lifting device common to all of such supporting mediums, and an actuator for such lifting device, whereby upon the upward
40 movement of the lifting device the said supporting mediums are caused to move upwardly and outwardly simultaneously and to transmit corresponding motions to their re-
spective block-sections, substantially as de-
scribed.

2. The combination of a vertical standard or
45 spindle, a hat block comprising a number of sections or segments assembled about the said spindle, a series of brackets corresponding in number to the number of sections or segments constituting the block and assembled about
50 the said spindle radially and clamped thereto, a series of levers corresponding in number to the number of brackets and segments passed through and guided in their movements by the said brackets and connected at one end
55 with the said segments, and a movable collar slidable upon the said spindle or standard and provided with lever-supports in which the lower ends of the levers are arranged, sub-
stantially as and for the purpose described.

3. The combination with a hat block com-
60 prising a number of segments, a spindle or standard about which the said segments are assembled and to which they are secured, levers, and a lifting device for such levers for
65 operating the said segments, the said lifting device consisting of a series of cylindrical seg-
ments and an annular collar provided with

an internal groove and an external entrance to such groove, the said cylindrical segments being provided with external projections
70 adapted to be entered into the internal groove of the said collar through its external opening, and means to raise and lower the said lifting device, substantially as described.

4. The combination with a vertical spindle
75 or standard, of a hat block composed of a series of segments, brackets clamped to said spindle and containing rollers or pins arranged at obliquely opposite points, and cam-like levers connecting the said brackets
80 and segments and engaging the rollers in said brackets, a collar slidable upon the said spindle and containing supports for such levers and means to move the spindle bodily, and independent means to move the collar
85 containing the lever supports independently, substantially as described.

5. The combination with a spindle or stand-
ard, of a hat block comprising a series of seg-
90 ments or sections assembled about the said spindle or standard, a second spindle arranged in a socket in the upper end of the first-named spindle and provided with an external in-
verted cap-plate and a slotted internal spring
95 plate, between which plates the upper ends of the segments are arranged, and means to connect the segments with the spindle and to expand and contract them relatively to the
spindle, substantially as described.

6. The combination with a spindle or stand-
100 ard provided with a shoulder 10, of a number of brackets having their upper and lower ends beveled, a correspondingly beveled recessed plate situated upon the shoulder of the spin-
105 dle to receive one of the ends of the said brackets and a similarly beveled and recessed plate applied to the upper ends of the brackets and about the spindle and fastened to the
spindle and block sections or segments, and
110 levers for connecting the said sections or segments and the said brackets, substantially as described.

7. The combination with a hat block com-
prising a number of segments or sections and means to expand and contract the said block,
115 of thin metallic leaves overlapping adjacent sections in substantially the external plane of the sections and without materially increasing the circumference of the block, and made
120 as separate structures from the said block sections, and interlocking connections between the leaves and block-sections affording a support for the said leaves and to cause
them to move with the sections as the said
125 sections are moved to expand or contract the block, substantially as described.

8. The combination with a hat block com-
prising a series of segments or sections and means to expand and contract the block, of
130 leaves having ribs interposed between the adjacent edges of the said segments, the leaves themselves overlapping the block seg-
ments or sections externally so as to preserve the continuity of the block practically un-

broken, inward projections on said ribs at top and bottom, a block spindle, and supports on such spindle for receiving the said projections and sustaining said leaves, and
5 an interlocking connection between the leaves and the block-sections causing the leaves to move with the block-sections, substantially as and for the purpose described.

9. The combination with a spindle or stand-
10 ard, of a series of segments or sections assembled about said spindle or standard, means to connect the segments with the spindle and to expand and contract them collectively relatively to the spindle, a removable plate
15 applied to the spindle to cover the openings between the segments when they are expanded, and a number of similar plates of different size applicable to the end of the spindle to permit the use of one block for a
20 number of differently shaped hats, substantially as described.

10. In a hat blocking machine, a hat block

comprising a number of longitudinally and laterally movable sections or segments, a supporting medium for each of such sections 25 movably connected therewith and having a longitudinally and laterally defined path of movement, connectors movably joining the lower portions of the sections to a fixed portion of the apparatus, a lifting device common 30 to all of such supporting mediums, and an actuator for such lifting device, whereby upon the upward movement of the lifting device the said supporting mediums are caused to move upwardly and outwardly simultane- 35 ously and to transmit corresponding motions to their respective block-sections, substantially as described.

In testimony whereof I have hereunto set my hand this 10th day of January, A. D. 1894.

SAMUEL E. DUNHAM.

Witnesses:

L. LEGRAND HOPKINS,
NORMAN HODGE.