

No. 619,874.

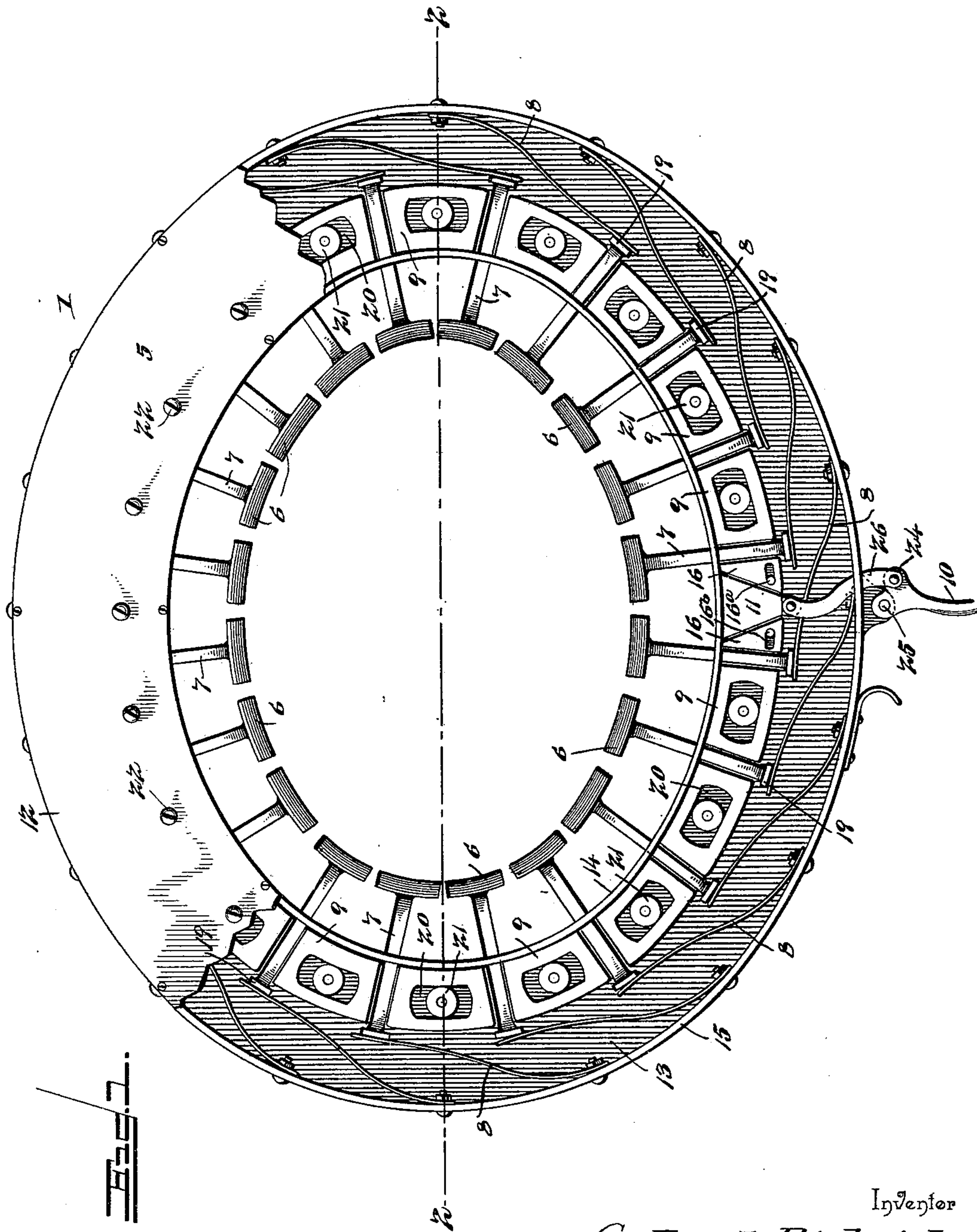
Patented Feb. 21, 1899.

C. J. DIETRICH.
HAT CONFORMATOR.

(Application filed Sept. 15, 1897.)

(No Model.)

4 Sheets—Sheet 1.



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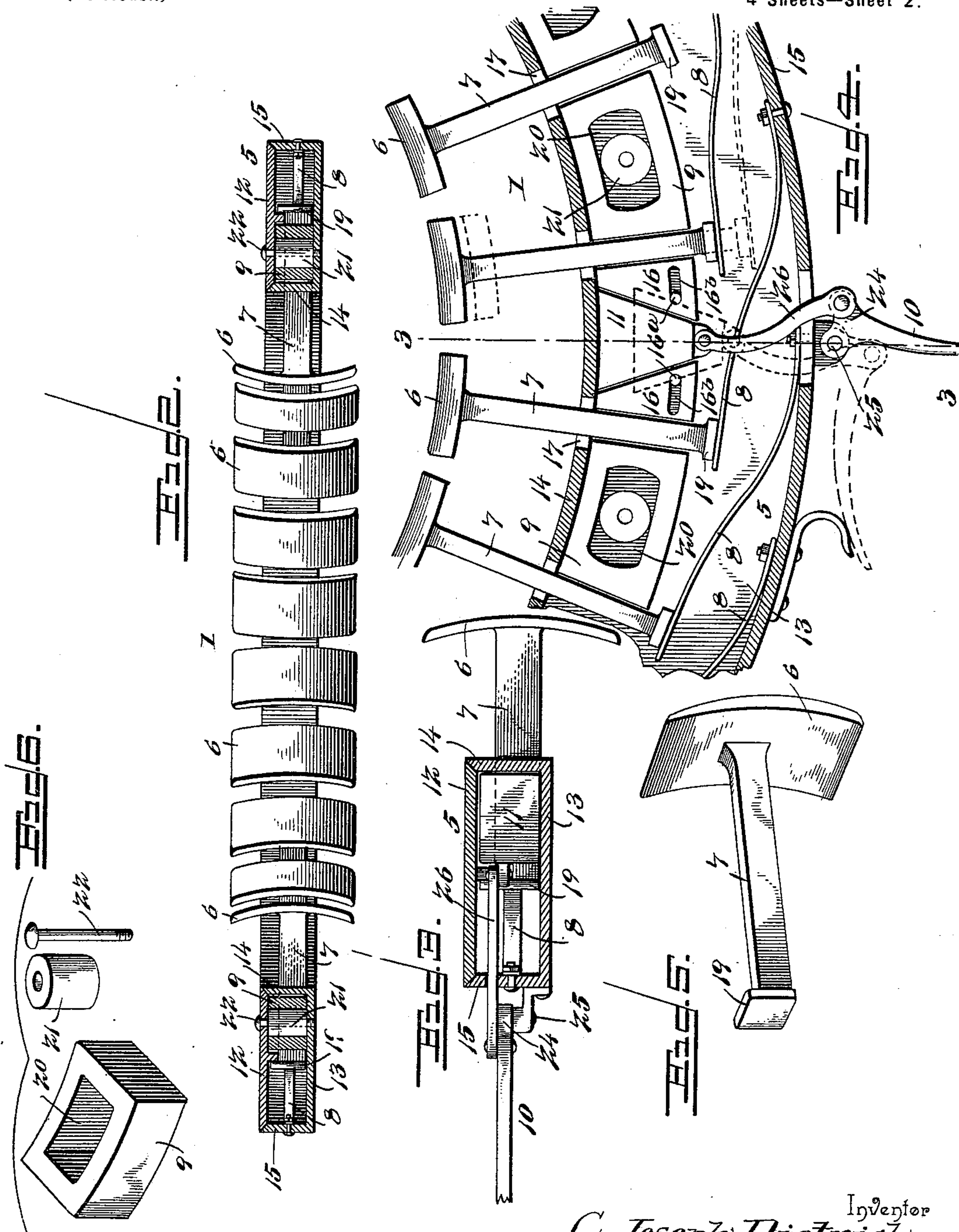
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4 Sheets—Sheet 2.



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4 Sheets—Sheet 3.

Fig. 8.

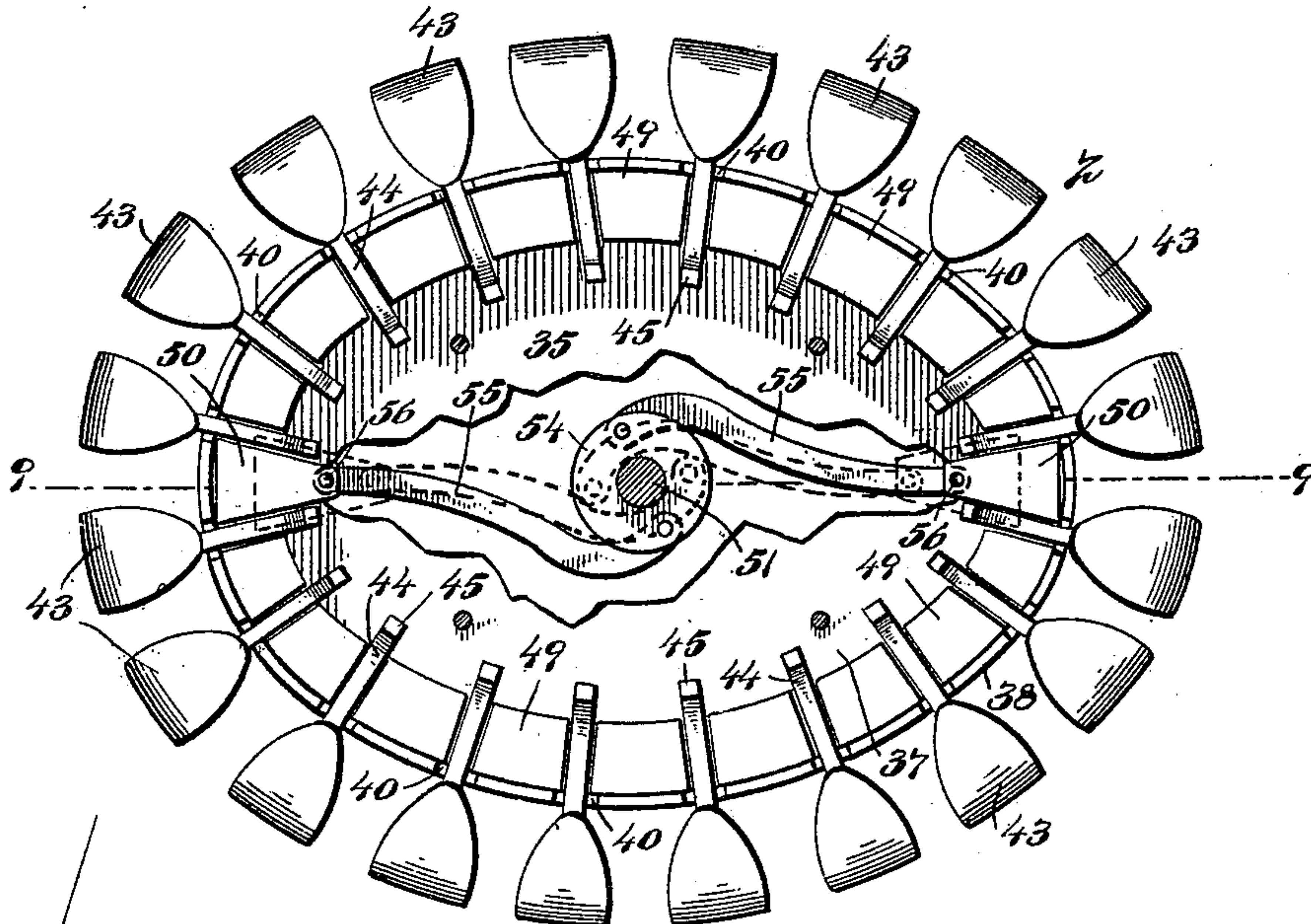
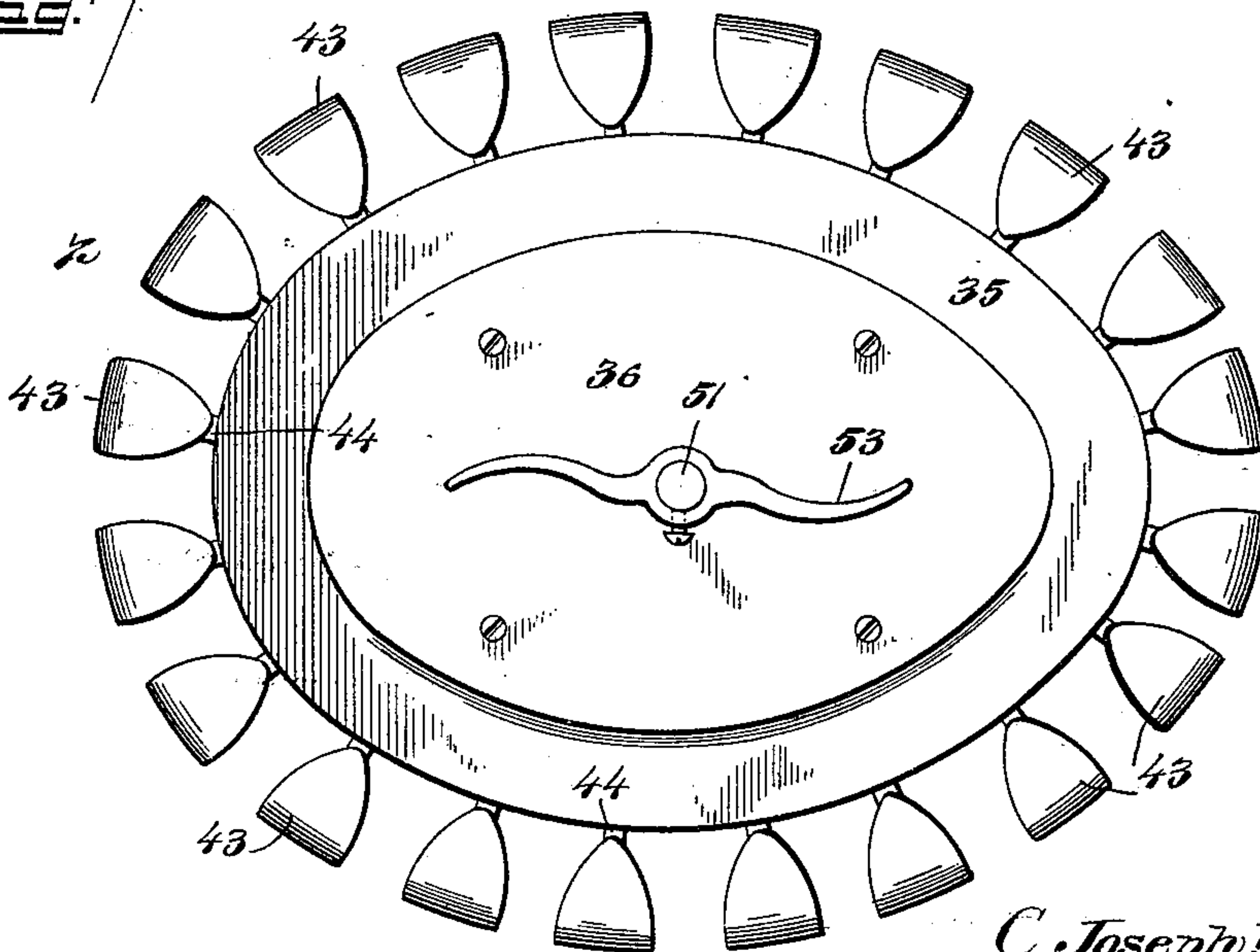


Fig. 7.



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4 Sheets—Sheet 4.

Fig. 9.

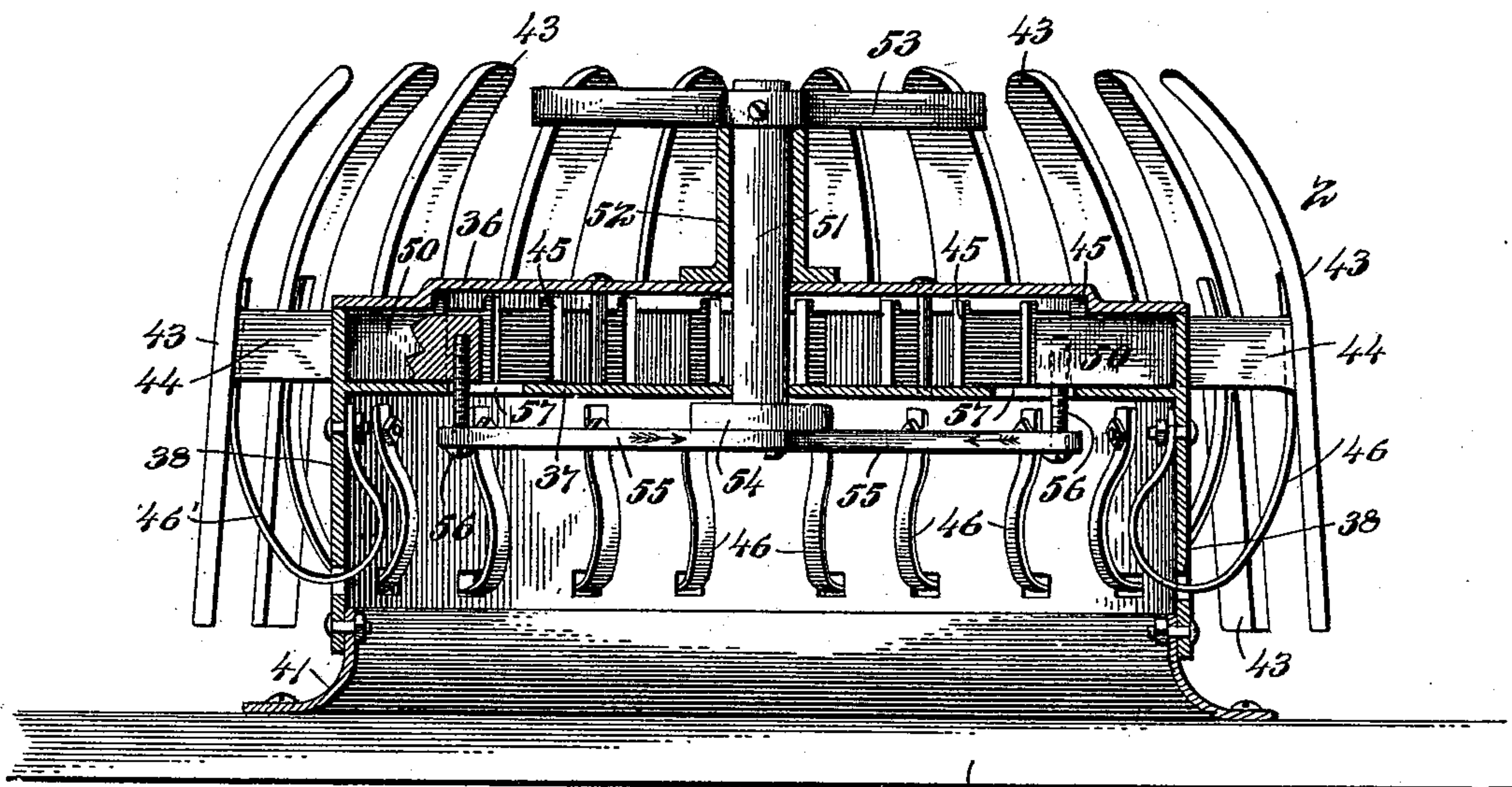


Fig. 10.

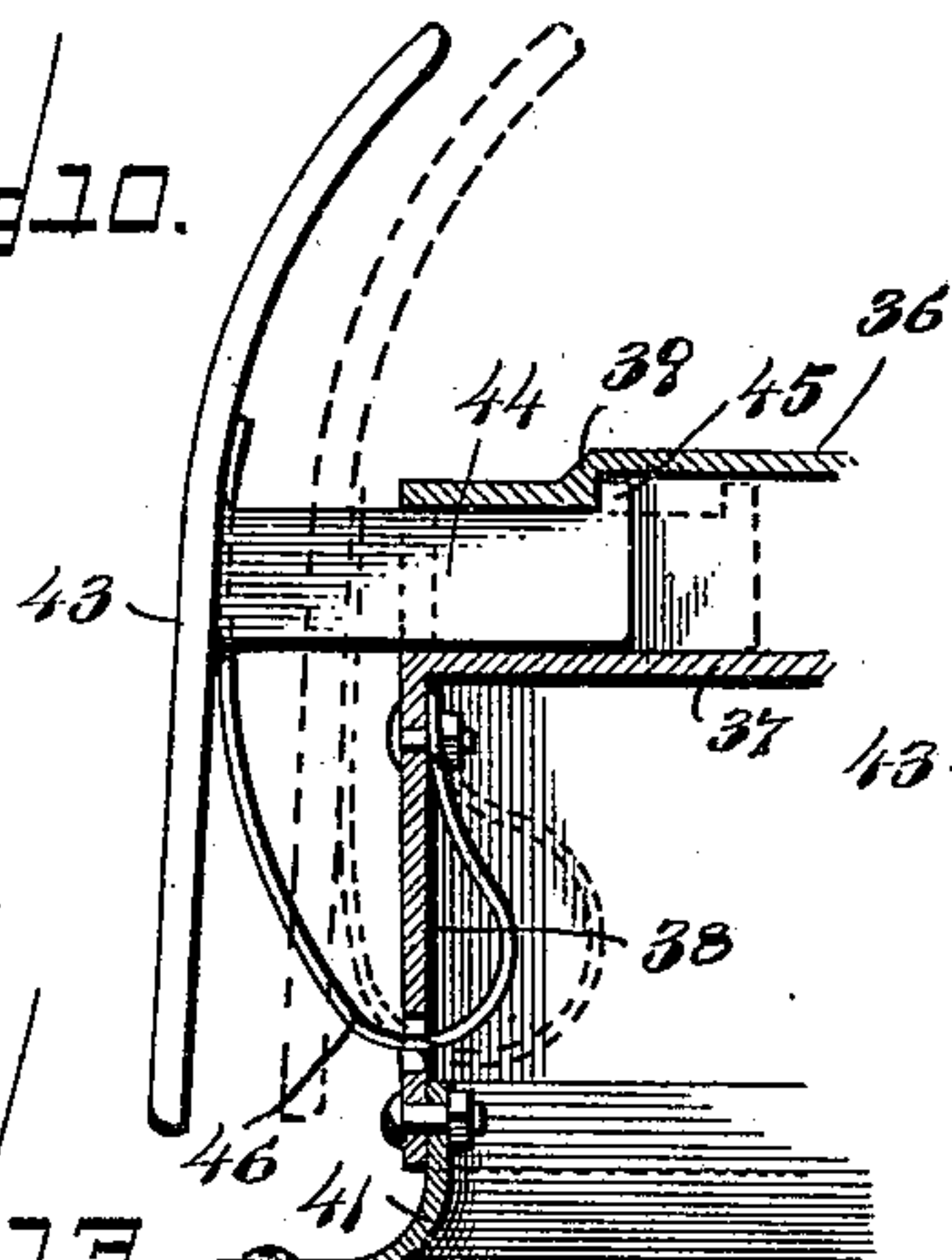


Fig. 14.

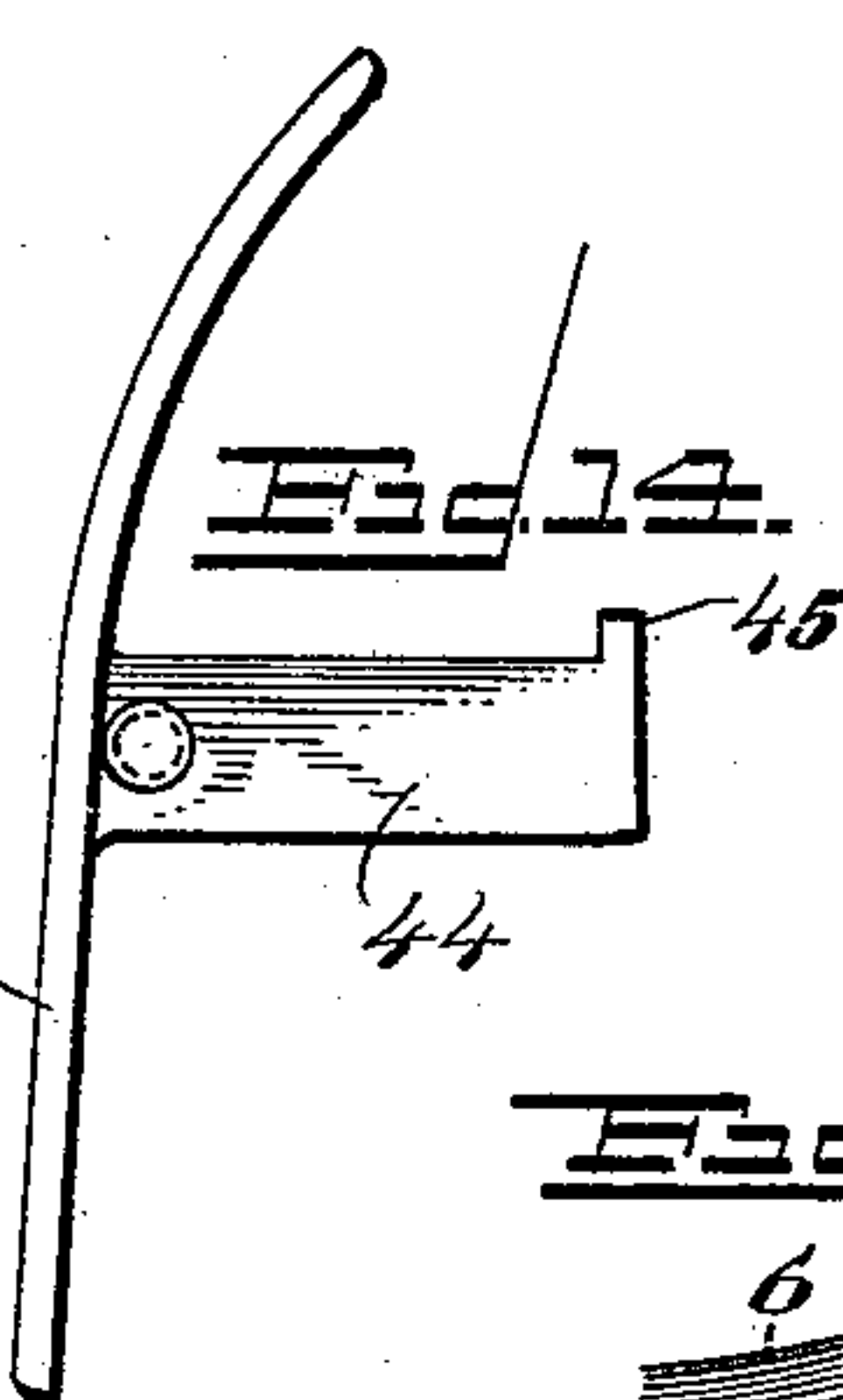


Fig. 12.

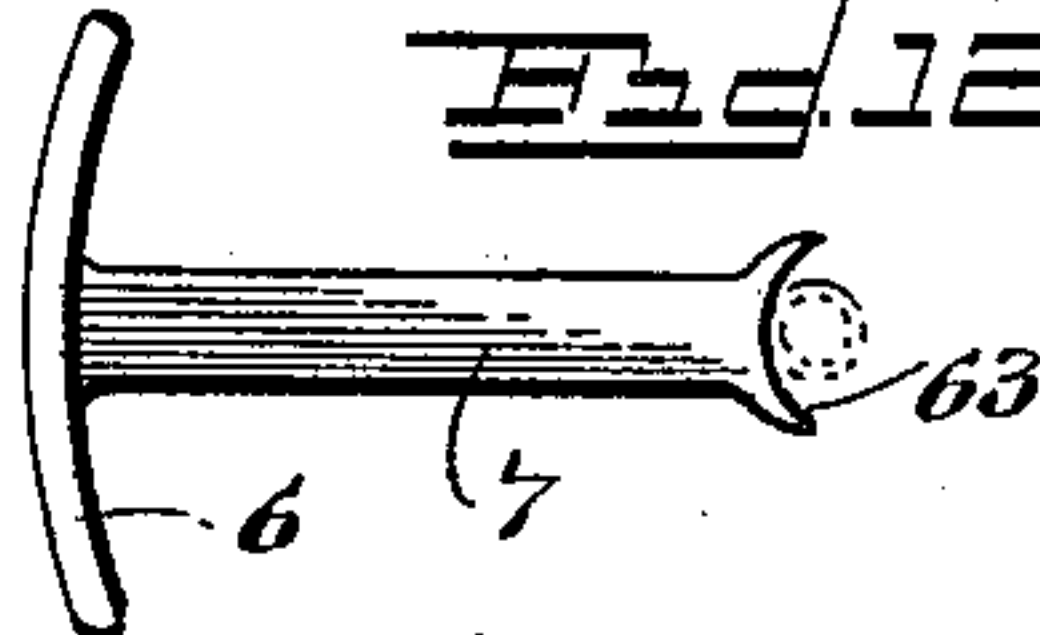
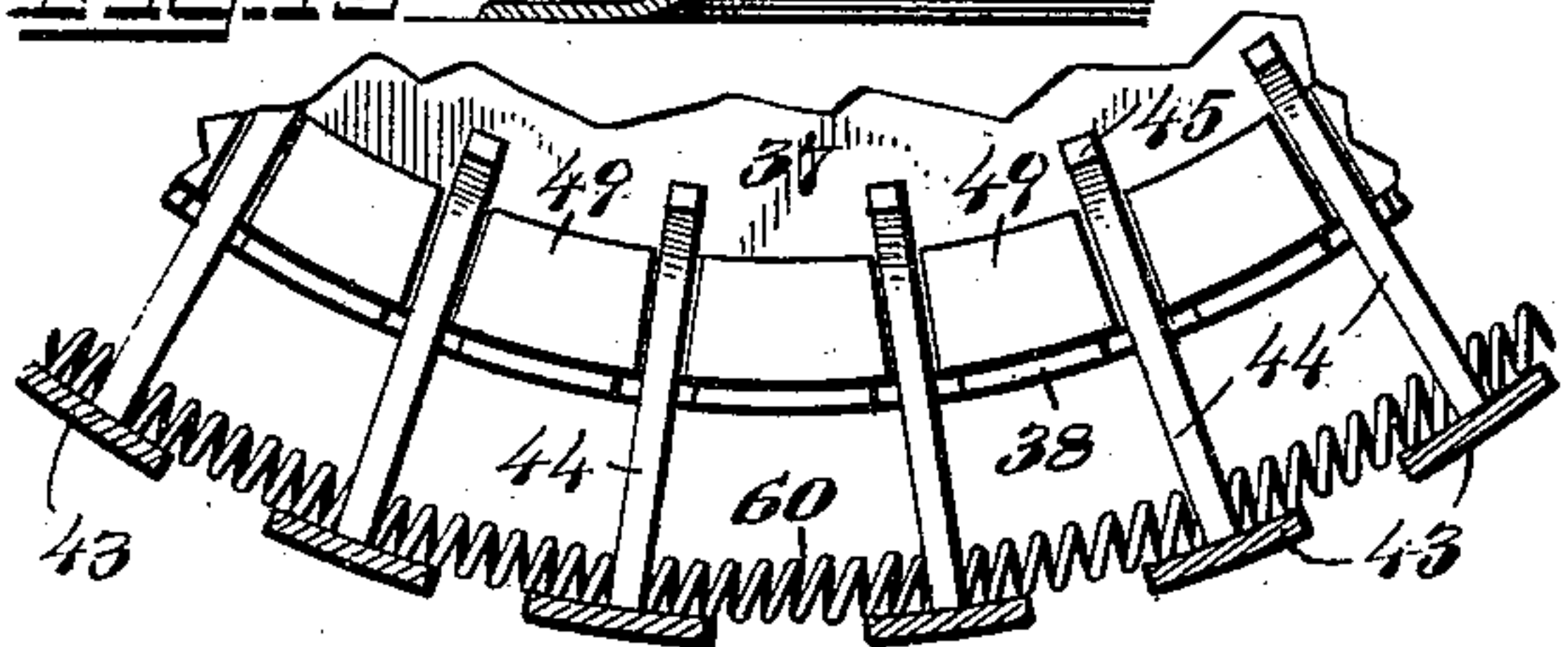
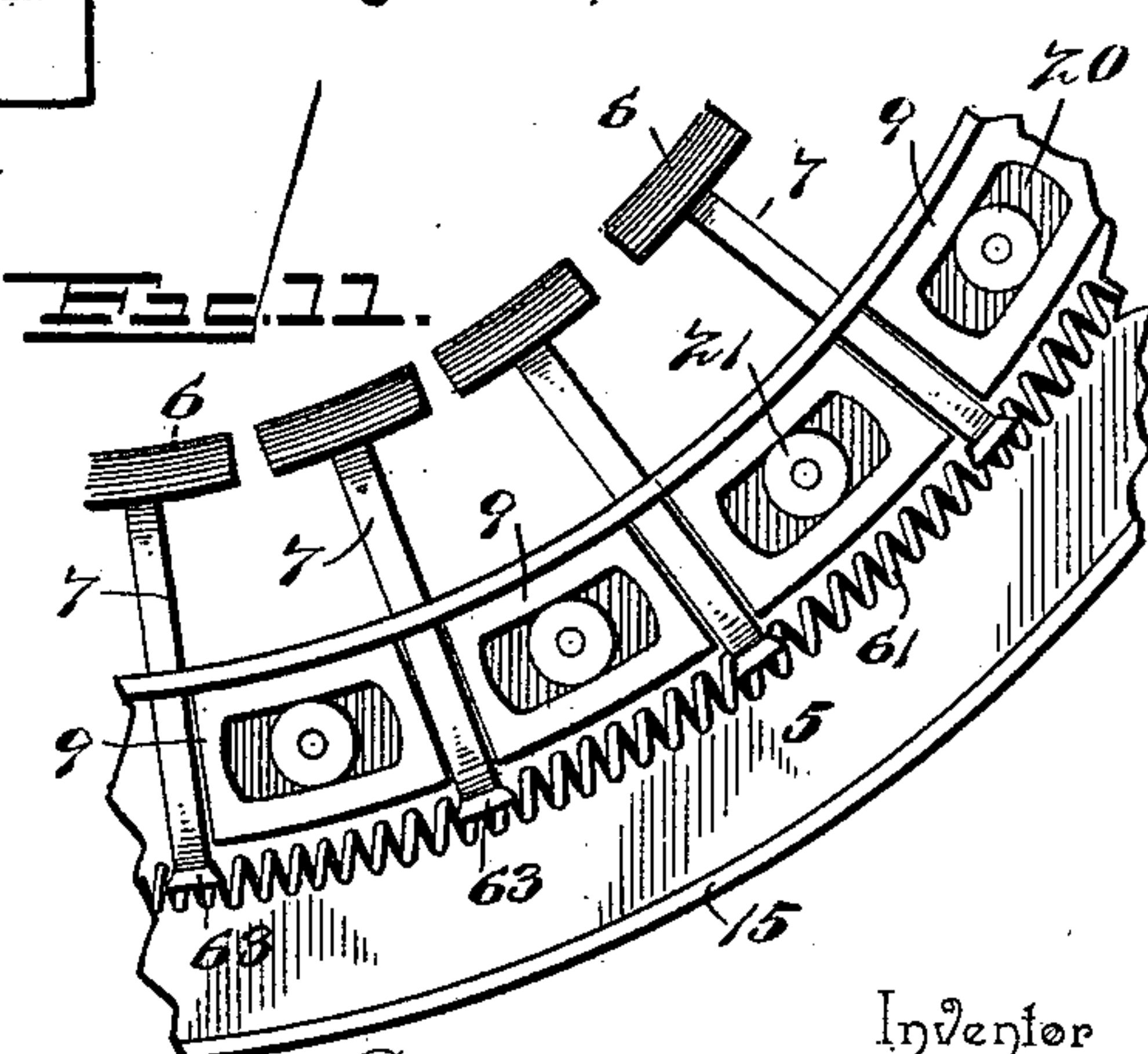


Fig. 11.



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UNITED STATES PATENT OFFICE.

C JOSEPH DIETRICH, OF LA GRANGE, ILLINOIS, ASSIGNOR OF ONE-HALF TO
FRANK HAMILTON MITCHELL, OF CHICAGO, ILLINOIS.

HAT-CONFORMATOR.

SPECIFICATION forming part of Letters Patent No. 619,874, dated February 21, 1899.

Application filed September 15, 1897. Serial No. 651,743. (No model.)

To all whom it may concern:

Be it known that I, C JOSEPH DIETRICH, a citizen of the United States, residing at La Grange, in the county of Cook and State of Illinois, have invented a new and useful Hat-Conformator, of which the following is a specification.

My invention relates to improvements in a device for accurately shaping the hat to the head of the wearer, termed a "conformator," in which I employ two principal parts or members, one of which constitutes the conformator proper from the fact that it is designed to be fitted to the wearer's head to accurately obtain the shape and all irregularities of the head, while the other part or member is the conform or hat-shaper, designed to be adjusted by engagement with the conformator proper to accurately take therefrom the shape of the head and to constitute a pattern on which the hat is to be blocked.

The primary object of my invention is to provide a simple construction in which the parts move easily and freely to adjust and accommodate themselves to the shape of the head, thus enabling the instrument to be used without cramping the head and causing inconvenience to the person during the operation of obtaining in an accurate manner the exact shape of the head.

Another object of the invention is to provide an improved locking mechanism in which all the movable elements are fixed and locked by the operation of single adjusting devices in the conformator and the conform or hat-shaper, thus effecting a saving of time in the operation of the device and preventing accidental displacement of the parts. This rigid locking of the movable elements in my invention is especially desirable in the construction of the conform or the pattern-block on which the hat is placed and by which it is subjected to pressure for the purpose of making the hat conform to the shape of the head.

Another object of the invention is to improve the instrument with a view to simplifying its construction, promoting its efficiency and durability, cheapening its manufacture, and facilitating the adjustment of the movable elements.

With these ends in view the first part of my

invention relates to the conformator proper by which the shape of the head is obtained and which consists in a suitable framework, a series of independently-movable plates carried by said framework and arranged thereon to present nearly or substantially a continuous surface, a locking device for each of the multiplicity of plates, and a single operating device arranged to move the series of locking devices to cause them to bind on the slides of said plates and lock all the plates simultaneously and in like manner release all the locking devices to permit the plates to freely and independently adjust themselves to the shape of the head of the person to be fitted.

The second part of the invention relates to the conform or the pattern-block by which the hat is to be given the shape obtained by the conformator, and which consists in a suitable framework, a series of independently-movable plates controlled by springs and adapted to be moved inwardly against the tension of its springs by engaging with the plates of the conformator, a series of locking or binding blocks to be forced into close or tight frictional engagement with the slides for carrying said plates of the conform or hat-pattern block, and a single adjusting device for simultaneously moving all the locking or binding blocks to grip the plate-carriers or to release the same; and the invention further consists in the novel combination of elements and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of the conformator proper with the top plate of its casing or frame partly broken away to show part of the mechanism by which the series of independently-movable plates are carried, adjusted, and locked. Fig. 2 is a vertical sectional view through the same on the plane indicated by the dotted line 2 2 of Fig. 1. Fig. 3 is a transverse section on the plane indicated by the dotted line 3 3 of Fig. 4, looking in the direction of the

arrow. Fig. 4 is an enlarged fragmentary view of part of the conformator to show the single operating device. Fig. 5 is a detail view of one of the plates and slides of the conformator. Fig. 6 is a detail view of one of the locking-blocks and its guide means. Fig. 7 is a top plan view of the conform or hat-pattern block adapted for use in connection with the conformator to obtain from the latter the shape of the head, which shape is to be imparted to the hat to be blocked on the conform. Fig. 8 is a top view with the top plate removed and certain parts broken away. Fig. 9 is a vertical sectional view taken through the major axis of the conform or hat-pattern block on the plane indicated by the dotted line 9-9 of Fig. 8. Fig. 10 is a detail view showing one of the plates, its slide, and the spring, and illustrating by dotted and full lines the position of said parts. Figs. 11, 12, and 13 are views of modified forms of springs to actuate the slides and plates of the conformator and the conform. Fig. 14 is a detail view of the plate and slide for the conform shown by Figs. 9 and 10.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

The conformator is designated in its entirety by the numeral 1, and the conform or the hat-pattern block is indicated in its entirety by the numeral 2.

I will first proceed to describe the construction of the conformator shown by Figs. 1 to 6, inclusive, of the drawings. It consists of a suitable framework 5, a plurality of independent plates 6, a series of slides or stems 7, by which the plates are movably fitted in the framework 5, a series of springs 8, mounted in the framework and engaging with said stems of the movable plates, a series of locking-blocks 9, and a single operating device 10. The framework 5 is of general elliptical or oval form of a size sufficient to contain within itself all of the plates 6 and allow the movement thereof to adjust themselves to heads of different sizes and shapes. The framework in the preferred embodiment of the invention consists of a top plate 12, a bottom plate 13, an inner rim 14, and an outer rim 15. The bottom plate, with the inner and outer rims, may be cast in a single piece of metal for simplicity and strength of construction, or said parts may be otherwise made and suitably united together; but the top plate 12 should be detachably fastened in place on the framework to provide for its ready removal and to enable access to be easily had to the interior working parts of the conformator for inspection, adjustment, or repairs. I prefer to make this framework of aluminium, as well as other parts of the conformator, thus rendering the device strong and light in weight to enable it to be handled to good advantage. The described construction of the framework provides a casing in which are housed or contained the springs 8, the locking devices 9,

and the inner ends of the slides or stems 7, thus protecting and concealing the major portion of the working devices of the conformator. The inner rim of the casing has slots or openings 17 to receive the stems or slides of the plates. Each plate 6 is of concavo-convex shape, and it is made integral with the slide or stem 7, which projects centrally from the neutral face or side of the plate; but the shape of the plate and the particular method of making it with the stem are non-essentials and may be changed without departing from the invention. The stem 7 of each plate 6 passes through the openings 17 of the casing or framework 5; but this stem does not extend to or through the outer rim of the casing or framework, which outer rim thus serves to protect the ends of the stems. I provide a number of these plates 6 within the oval-shaped or elliptical casing or framework 5, and the plates are arranged and proportioned to present nearly a continuous surface within the elliptical casing or framework, whereby the conformator is adapted to fit properly to the head to have its plates 6 conform to the shape of and partake of any irregularities in the head of the person to whom the hat is to be fitted. The slidable stems of the plates are free to move endwise in the openings of the casing or framework 5, so as to serve as guides for holding the plates 6 in proper positions, and these plates are all independent of each other to enable each plate to move or play without respect to the other plates. The inward movement of the plate and stem within the elliptical casing or framework is arrested by means of a stop 19 on the stem 7, which stop abuts against the inner rim of said casing, and the stems and plates are all forced inward until arrested by the stops on the stems by employing a series of springs.

The number of springs 8 employed is equal to the number of the plates and the stems, and one spring is devoted to each stem and plate to enable each plate to act independently of all the other plates. I prefer to employ flat spring metal in making the springs, and these springs are arranged across the interior of the casing or framework 5, substantially as shown by Fig. 1, the outer ends of the springs being fastened to the outer rim of the casing, while the other free ends of the springs are arranged to abut or bear against the stops 19 on the stems of the movable plates 6.

With the stem of each movable plate 6 is combined a locking device 9, and these locking devices for all the series of stems of the plates are independent of each other; but they are controlled by the single operating device to be operated in a manner to simultaneously adjust all the locking devices to make them hold the stems or release the series of stems or slides, as desired. The locking devices for the slides or stems of the plates 6 consist of the blocks 9, which are slidably mounted in the framework or casing

5 to have a limited endwise movement therein sufficient to cause the blocks to bind against the stems or slides of the plates 6. These endwise-movable blocks 9 are arranged to bind against the stems 7 to enable the blocks to be moved by the impingement of one block through the intermediate stem against the next adjacent block and so on throughout the series of blocks up to a certain point. The movement of the blocks is effected by means of an operating-wedge 11, which acts in conjunction with other wedges 16, (see Fig. 4,) and this operating-wedge is controlled by a lever 10. The wedges and the lever constitute what I term the "single" operating device for the purpose of adjusting all the clamping-blocks for holding the series of stems or slides 7 in their adjusted positions.

The clamping or locking blocks may be guided within the casing or framework in any suitable manner to limit them to endwise movement between the stems or slides; but in the drawings I have shown each locking-block as provided with a slot 20, in which plays an antifriction-roller 21, that is held in position within the frame or casing by a screw 22. The described construction provides a simple and efficient means for slidably holding the locking-block in operative relation to two adjacent slides of the head-plates 6. The wedges 16 are slidably held in place on opposite sides of the operating-wedge 11 by pins 16^a, which pass through slots 16^b in the wedges, to enable the wedges 16 to have the necessary movement to act against the adjacent stems or slides and to move the same against the next adjacent blocks. The operating-wedge 11 thus forces the stems and locking-blocks in opposite directions around the framework or casing of the conformator until a point is reached on the structure diametrically opposite to the controlling-wedge, and thus the single operating device is arranged to control all the locking-blocks and the stems of the device. The lever 10 has an eccentric head 24, which is fulcrumed at 25 to a lug on the framework or casing 5, and to this eccentric head is pivoted one end of the link 26, the other end of said link being attached to the operating-wedge 11, as shown. When the lever is turned to the position shown by full lines in Figs. 1 and 4, the operating-wedge 11 is forced inward to release all the blocks and stems; but by turning the lever to the position indicated by dotted lines in Fig. 4 the operating-wedge 11 is drawn outward to adjust all the blocks against the stems or slides in order to hold the stems and the head-plates firmly in position. To provide for this endwise movement of the locking-blocks, it is necessary to mount the slides or stems in the inner rim of the casing or framework to permit certain of the stems to have a limited lateral play. When the eccentric lever is turned to the position shown by dotted lines in Fig. 4, it is thrown off its center and locked in place, thus holding the operating-wedge and the lock-

ing-blocks in the positions to which they have been adjusted.

In using the conformator it is placed upon and around the head to have the plates 6 impinge against the head and to be moved inwardly independently of each other, so as to conform to the shape and irregularities in the contour of the head. The conformator may be used without gripping the head and causing inconvenience to the person, because it is comparatively light and its plates 6 move freely in the casing against the tension of the holding-springs 8. Previous to removing the conformator from the head the operator moves the lever 10 to adjust the wedge 11 and move the locking-blocks and stems, and thus the stems of the plates 6 are held rigidly in place within the casing 5 of the conformator. The conformator may now be removed from the head without any danger of the plates 6 slipping out of place, because the plates are locked by the locking devices engaging the stems 7 and by the lever 10 being thrown off its center. The conformator thus has its plates 6 adjusted to conform to the shape and irregularities of the head, and said conformator is now in position to be used in connection with the conform or the hat-shaper block 2 to impart to the latter the shape and irregularities of the head previous to blocking the hat thereon.

I will now proceed to describe the conform or the hat-shaper block 2. (Shown by Figs. 7 to 10, inclusive, and by Fig. 14 of the drawings.) In the construction of the conform 2 I provide a frame 35, composed of a flat continuous top 36, a bottom plate 37, and a continuous rim or boundary-wall 38. The bottom plate and rim may be cast in a single piece of metal, and they are of the oval or elliptical form to correspond to the conformator 1 in contour and dimensions. The frame 35 is provided with the pendent feet or brackets 41, which are suitably fastened to the frame 35, and said feet are also fastened in a suitable way to a bed or table 42, which has its upper face shaped or curved to conform to the contour of the rim of a hat which is to be blocked on the conform 2, whereby the hat-brim is prevented from getting out of shape when the hat is blocked on the conform 2. The conform has a series of independent movable plates 43, which correspond in number to the plates 6 of the conformator 1, and these plates 43 of the conform are adapted to be adjusted by the plates 6 of the conformator to partake of the adjustment or position of said conformator-plates, and thereby give to the working surface of the conform 2 a contour which corresponds to the shape and irregularities of the head. The plates 43 of the conform are curved substantially as shown by the drawings, so as to present long working surfaces adapted to act to good advantage in shaping the hat adjusted on the conform. Each plate 43 is carried by or provided with a slide or stem 44, which is

made integral with the plate or which may be made separate therefrom and be attached rigidly thereto. The stem of each plate is slidably fitted in a slot 40 in the rim 38 of the frame 35, and this rim or boundary-wall 38 of the frame 35 is projected or extended below the plate 37 to form a pendent flange. The stems 44 are thus supported loosely in the described flanges to sustain the movable plates 43 in proper relation to the face of the frame 35 continuously around the same, as shown. The inner end of the stem 44 of each movable conform-plate 43 is provided with a suitable lug or shoulder 45, which abuts against the shoulder or ledge 39 of the top plate 36 to limit or arrest the outward movement of the plate 43 with respect to the frame 35. The plates and their stems are normally forced or pressed outward by the series of springs 46, one of which is provided for each plate 43 to enable it to act independently of all the other plates of the series or plurality provided on the frame 35 of the conform 2. The flat springs 46 are of curved or bowed form, (see Figs. 9 and 10,) and the outer ends of said springs bear against the plates 43, while the inner ends thereof are fastened to the inside of the boundary-wall 38 of the frame 35.

The series of plates 43 of the conform are all movable independently in the frame 35 to be adjusted in accordance with the positions of the plates 6 of the conformator; but these independent movable plates 43 are designed to be held rigidly in position when once adjusted within the frame 35 of the conform in order to block the hat thereon.

The means which I employ for locking the stems 44 of the adjustable plates 43 of the conform or hat-block consists of a series of movable locking-blocks 49, oppositely arranged wedges 50, disposed at diametrically opposite sides of the conform-frame, an eccentric shaft 51, and connections between said shaft and the locking-wedges 50. These locking-blocks 49 are suitably supported and guided within the frame 35, between the stems of the adjustable plates 43. If desired, I may provide the locking-blocks with slots and with the guide rollers or pins, as in the construction of the conformator shown by Figs. 1 and 4; but any suitable means for guiding these blocks 49 may be employed. The shaft 51 is journaled in suitable openings in the top and bottom plates of the frame 35 and in a sleeve-like bearing 52 attached to and extending upwardly from the top plate. The upper protruding end of this shaft carries a suitable hand or operating piece 53, by which the shaft may be conveniently turned. To the lower end of this shaft 51 is rigidly fastened the disk or plate 54, and between the disk or plate and the wedges 50 are arranged the links 55. The outer ends of the links are pivoted to the wedges 50 by means of pins or screws 56, which pass through and play in slots 57 in the lower plate 37 of the frame. The inner ends of the links are curved or bowed, and

they are attached by pins or screws to the disk or plate at diametrically opposite points, such attachment of the links to the disk or plate constituting the eccentric connection between the shaft and the wedges 50. When the shaft is operated to turn the disk in one direction, the links are forced outward and the wedges 50 moved radially in an outward direction to release the locking-blocks; but a reverse movement of the shaft draws the links inward and moves the bowed parts thereof around the shaft, as shown by dotted lines in Fig. 7, thus drawing inward the wedges 50 and causing them to adjust the locking-blocks 49 and the stems 44 to lock all the parts firmly in place. Such inward movement of the links draws their curved ends around the shaft to move the links and eccentric disk into a position where the links are held in locked positions, and thus all the movable parts of the conform or hat-block.

To use the conform or hat-shaper block, it is necessary first to adjust the eccentric shaft to release the locking-wedges 50 and the locking-blocks, thus making free the stems 44 of the movable plates, and these plates are now forced outward by their springs to the positions shown by Fig. 9. The conformator having been previously adjusted to the head to position the plates 6 thereof and the device 10 having been operated to lock the parts in their adjusted positions, the conformator is adjusted upon the conform 2 to bring the conformator-plates 6 in contact with the conform-plates 43, whereby the conform-plates 43 are moved to positions to correspond to the positions of the conformator-plates 6. The locking-eccentric is now turned to draw the clamping-plates upon the stems of the plates 43 of the conform, and the conformator may now be removed without disturbing the position of the plates 43, which are locked in positions to which they have been adjusted by the movable plates 6 of the conformator. Previous to applying the hat to the conform it is heated somewhat over a gas-jet or other source of heat, and the hat is now placed with care over the plates 43 of the conform or hat-shaper block 2, after which the hat is allowed to cool and set on the conform in order to acquire the proper shape. After the shaping of the hat has been effected it may be removed, and the locking-eccentric may then be released to loosen the clamp and free the plates 43 to place the conform in condition for service again.

My invention enables a salesman to quickly use the conformator, to adjust the conform, and to shape the hat according to the contour secured by the employment of the conformator. This saving of time is of great importance when a salesman is busy in waiting on two or more customers. This invention also enables the shape of the head to be obtained with great accuracy, because the slides present nearly a continuous surface about the head. They move freely in the frame, and they may be locked firmly in place previous to

removing the conformator, all of which may be effected without inconvenience to the person.

I am aware that changes in the form and proportion of parts and in the details of construction may be made without departing from the spirit or sacrificing the advantages of the invention, and I therefore reserve the right to make such modifications as fairly fall within the scope of the invention.

10 In lieu of an independent spring for each stem or slide of the conformator or the stem of the hat-block I may employ a continuous spiral spring 60 to actuate all of the stems of the series used in either the conformator or
15 the hat-block. In Fig. 13 I have shown a part of the hat-block or conform with a series of plates and stems and a single coiled spring operatively arranged or connected to control all the stems and plates. In Fig. 11 I have
20 shown a part of the conformator with its plates, the stems or slides therefor, the locking-blocks, and a continuous coiled spring 61, which is arranged in operative relation to the entire series of stems. In this construction (shown by Fig. 11) the coiled spring is
25 housed within the frame or casing 5 of the conformator, and the inner ends of the stems or slides are provided with the seats 63 to accommodate the continuous spiral spring.
30 The continuous spiral spring may be used to control the stems and their plates on the contraction principle; but this is not necessary, as said continuous spiral spring may operate the stems endwise when said spring is ex-
35 panded.

In lieu of a wedge for locking the series of blocks or slides in the conform and the conformator I may use an eccentric as a locking means for said blocks or slides. In the event
40 of employment of a locking-eccentric it is placed between two adjacent slides or blocks, and it is provided with a handle extending outwardly a suitable distance to be conveniently grasped by hand.

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

1. A hat-conformator comprising a ring-like chambered frame, a series of slides arranged in substantially radial positions in
50 said frame to move therein independently one of the other, and each provided at its end, within the large opening of the frame, with a contact-plate adapted to rest on the head
55 and to thrust the slide outwardly, two series of locking-blocks slidably confined in the chamber of the frame to engage individually with the independently-operated slides, and a single cam-lever arranged externally on the
60 ring-like frame, and having operative connections with the two series of locking-blocks to simultaneously force the said two series of blocks in opposite directions and move each block individually into locking engagement
65 with one of the slides, whereby the operating device is accessible readily at all times and

it operates by a single movement to force the locking-blocks simultaneously into firm engagement with all the slides, substantially as described.

70 2. A hat-conformator comprising a ring-like chambered frame, a series of slides arranged in substantially radial positions within the frame for movement therein independently one of the other, and provided, at their
75 ends within the central opening of the frame, with the central plates arranged to bear against the head and to thrust the slide outwardly, springs within the chamber of the frame to normally impel the slides into the
80 central opening therein, two series of locking-blocks slidably confined within the chamber of the frame in the intervals between the slides for engagement individually there-
85 with and with the contiguous end blocks beveled reversely, a single adjusting-wedge fitted between the reversely-beveled end blocks, and a cam-lever arranged externally on the frame and connected with the adjusting-
90 wedge to move the latter into or out of engagement with the end blocks of the two series of locking-blocks, as set forth.

3. A hat-conformator comprising a ring-like chambered frame, a series of independent radially-movable slides fitted in said
95 frame, the series of contact-plates fast with the inner ends of the slides and lying within the large central opening of the frame to present a substantially continuous surface therein, the slotted locking-blocks fitted in said
100 chamber of the frame in the intervals between the slides and each confined in place by a fixed guide which occupies the slot therein, and a single operating device mounted on the frame externally thereto, independently
105 of the slides, and having operative connections with the locking-blocks to move the latter simultaneously into firm engagement with the slides, substantially as described.

4. A hat-conformator comprising a ring-
110 like chambered frame, the series of independent, spring-controlled, radial slides fitted therein, two series of slidable locking-blocks confined within the chamber of the frame out of the path of the spring or springs therein
115 and with adjacent end blocks of the two series beveled in opposite directions, a cam-lever fulcrumed on the frame externally thereto, a single adjusting-block interposed between the end blocks of the series, and a link
120 connection between the cam-lever and the adjusting-block, substantially as described.

5. A conformator comprising a chambered casing having a central opening, a series of independent slides projecting into said open-
125 ing of the casing and carrying a series of plates which present a substantially continuous surface within the casing, a series of slotted blocks fitted within the chamber of said casing to have movement transversely to and
130 in locking engagement with the slides, fixed guide devices playing in the slots of said

blocks, and a single operating device connected to said slotted blocks, substantially as described.

6. The combination with a framework, of a
5 series of slides or stems carrying the plates,
a series of locking-blocks, oppositely-disposed
wedges arranged at diametrically opposite
points on the framework and between said
blocks, a shaft, and connections between the
10 shaft and said wedges, for the purposes described,
substantially as set forth.

7. The combination with a series of slidable
stems carrying the plates, of a series of locking-
15 blocks disposed between said stems, oppositely-
arranged wedges between adjacent
blocks, an operating-shaft, and eccentric connections
between the shaft and the wedge, as
and for the purposes described.

8. The combination with a framework, and
20 slides mounted therein to carry the plates, of
a series of locking-blocks between the slides,

oppositely-arranged wedges, a shaft having a
disk, and links pivoted to the wedges and eccentrically
connected by the disk to the shaft,
as and for the purposes described.

9. The combination of a frame having a
25 slotted boundary-rim and a shouldered top
plate, of a series of slides fitted in the slotted
rim of the frame and provided with lugs
to engage the shouldered top plate, a series
30 of locking-blocks, a wedge or wedges, a shaft,
and means connecting the wedge or wedges
with said shaft, as and for the purposes described.

In testimony that I claim the foregoing as
35 my own I have hereto affixed my signature in
the presence of two witnesses.

C JOSEPH DIETRICH.

Witnesses:

WILLIS M. DIETRICH,

W. CLARENCE HUNTER.