

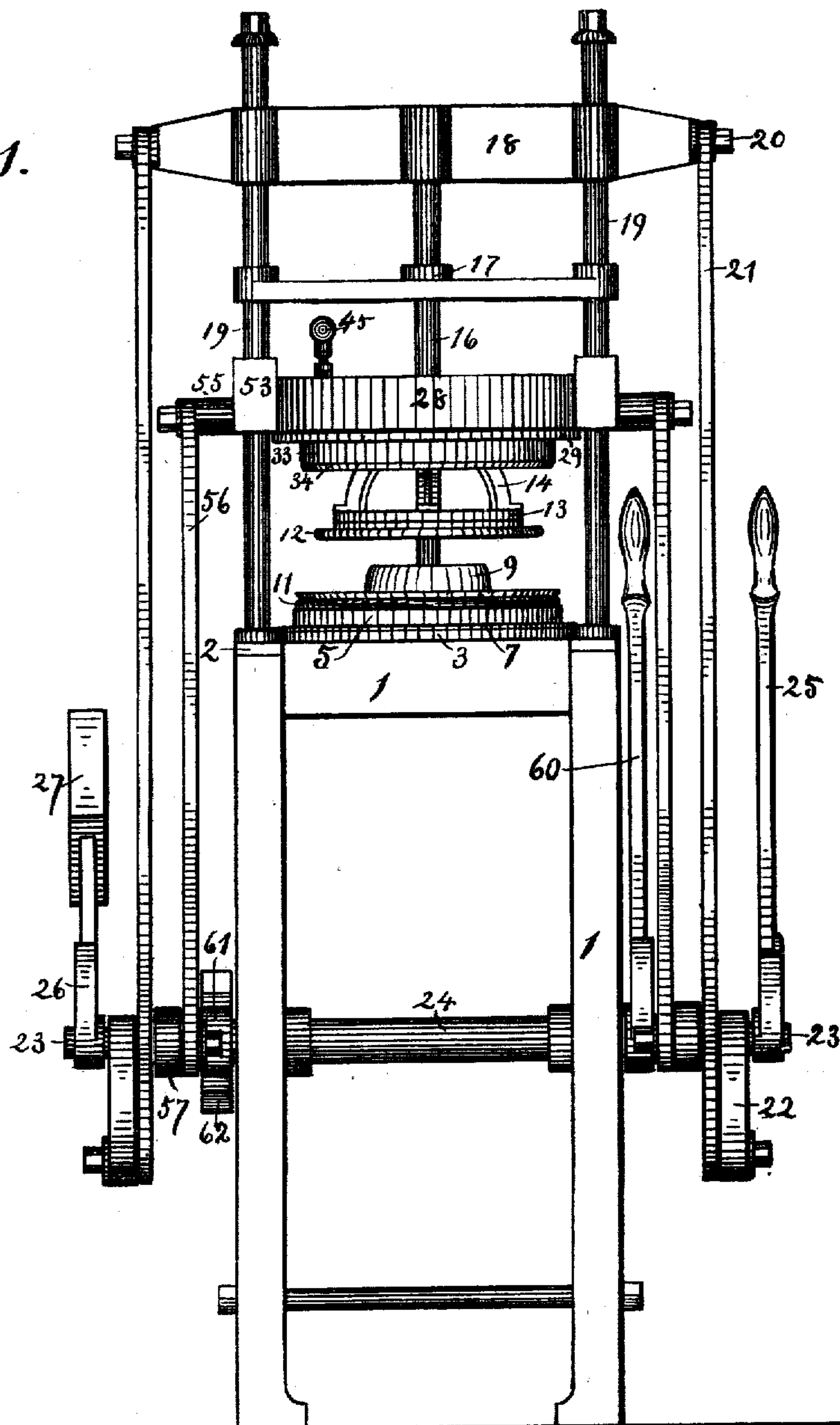
C. E. SACKETT.
HAT BRIM CURLING MACHINE.
APPLICATION FILED OCT. 30, 1908.

922,196.

Patented May 18, 1909.

6 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

James P. Wilson
Lyre Switzer

INVENTOR.

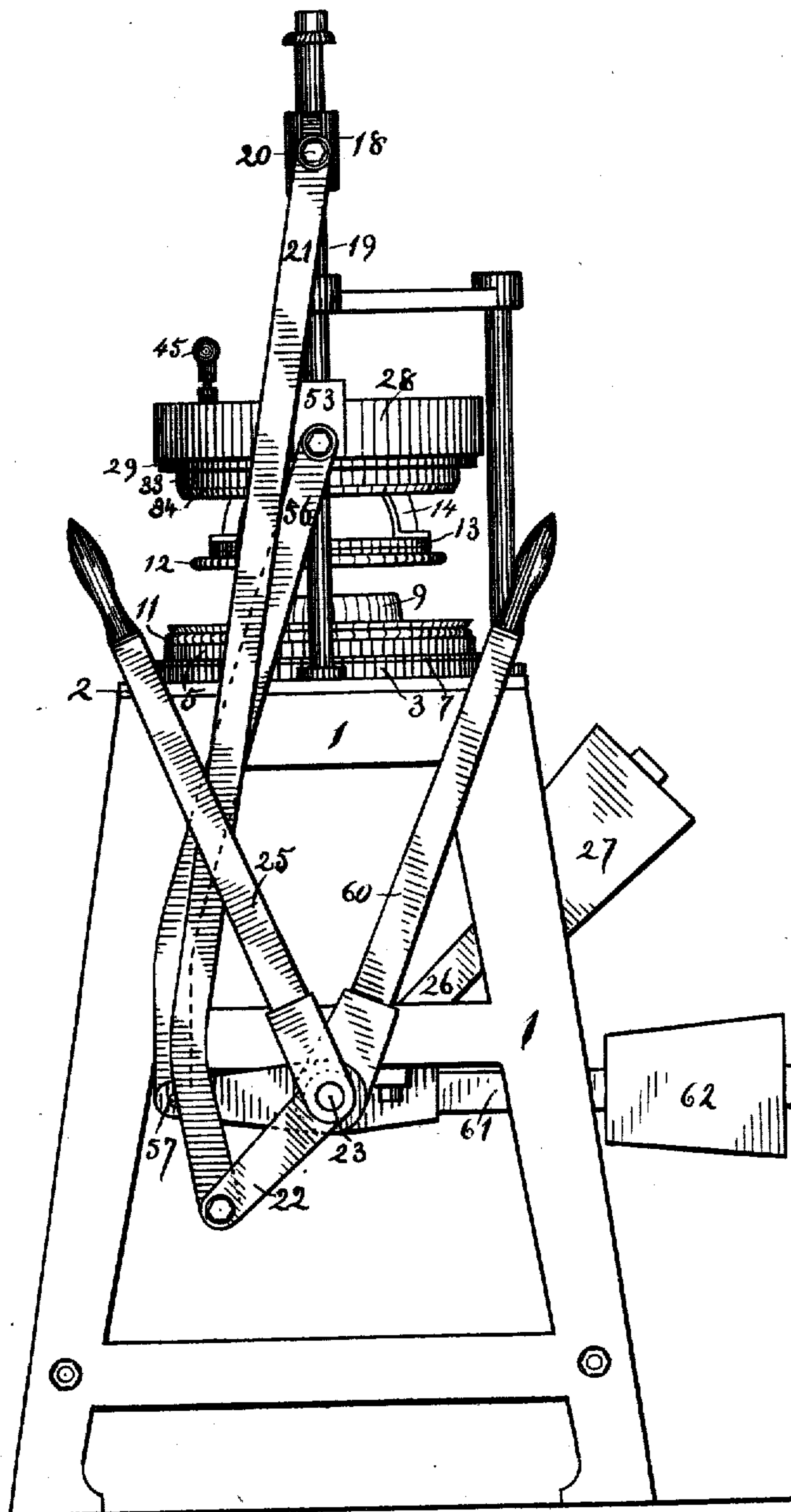
Chas. E. Sackett

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6 SHEETS—SHEET 2.

Fig. 2.



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6 SHEETS—SHEET 3.

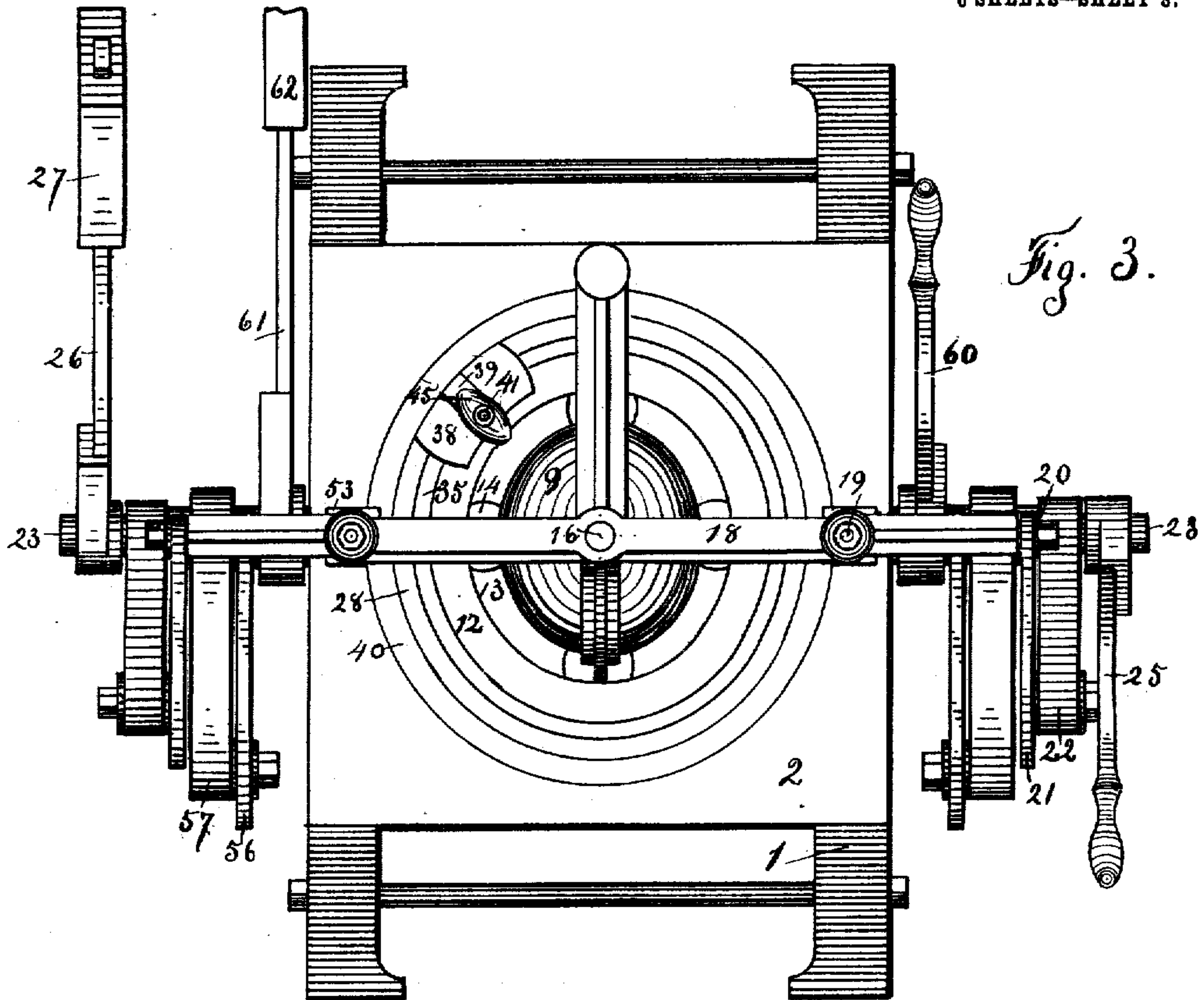


Fig. 3.

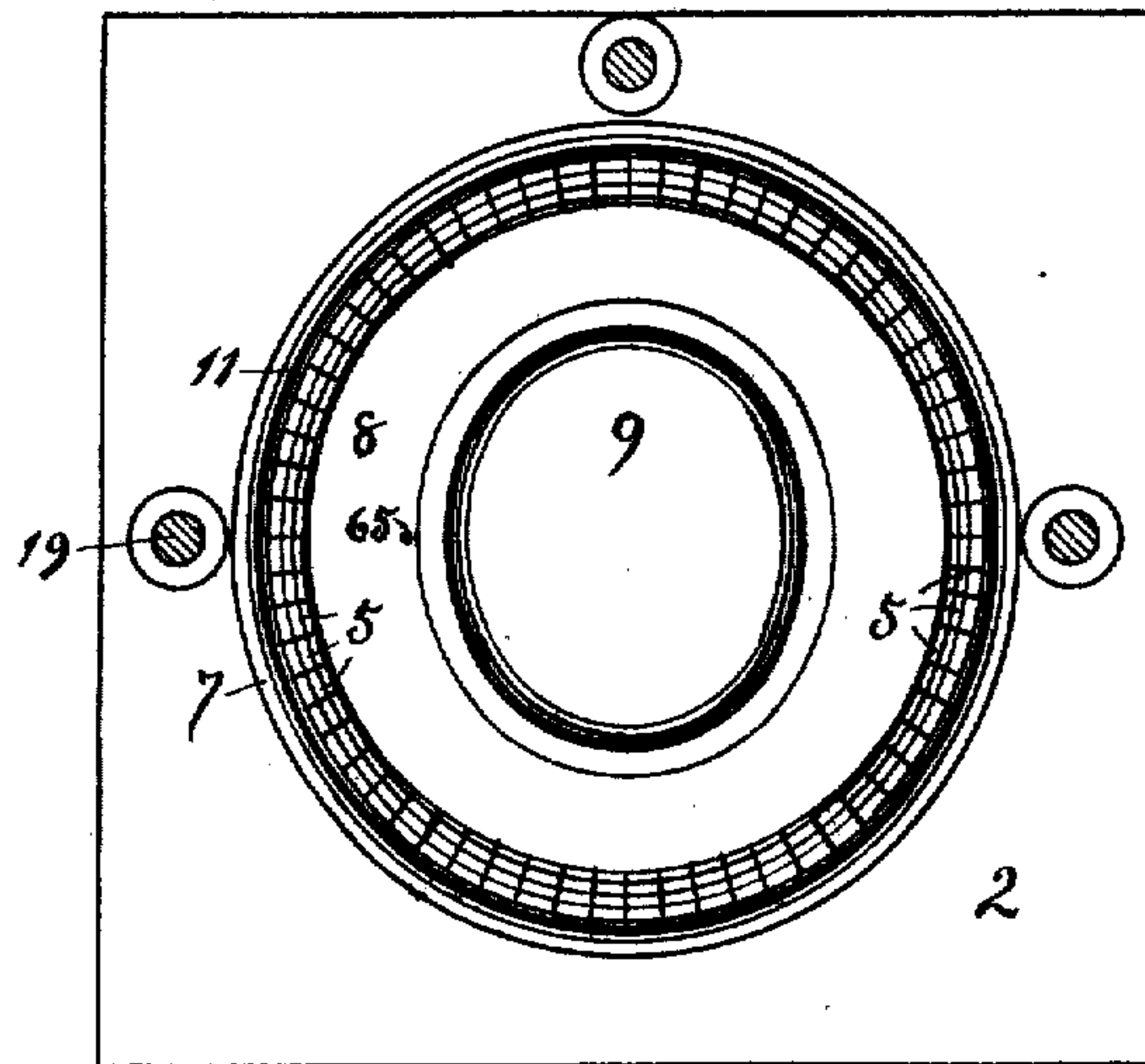


Fig. 4.

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6 SHEETS—SHEET 4.

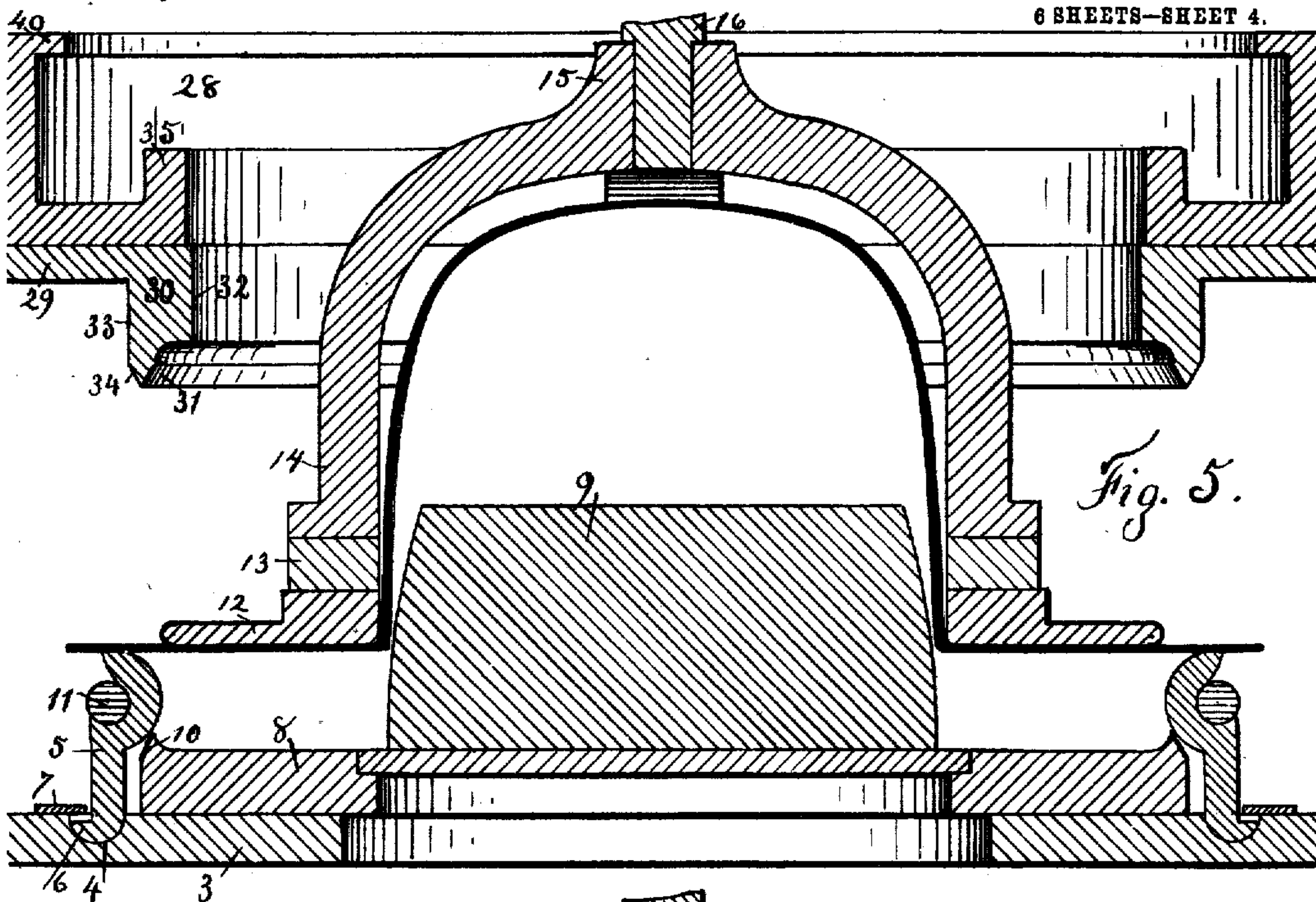


Fig. 5.

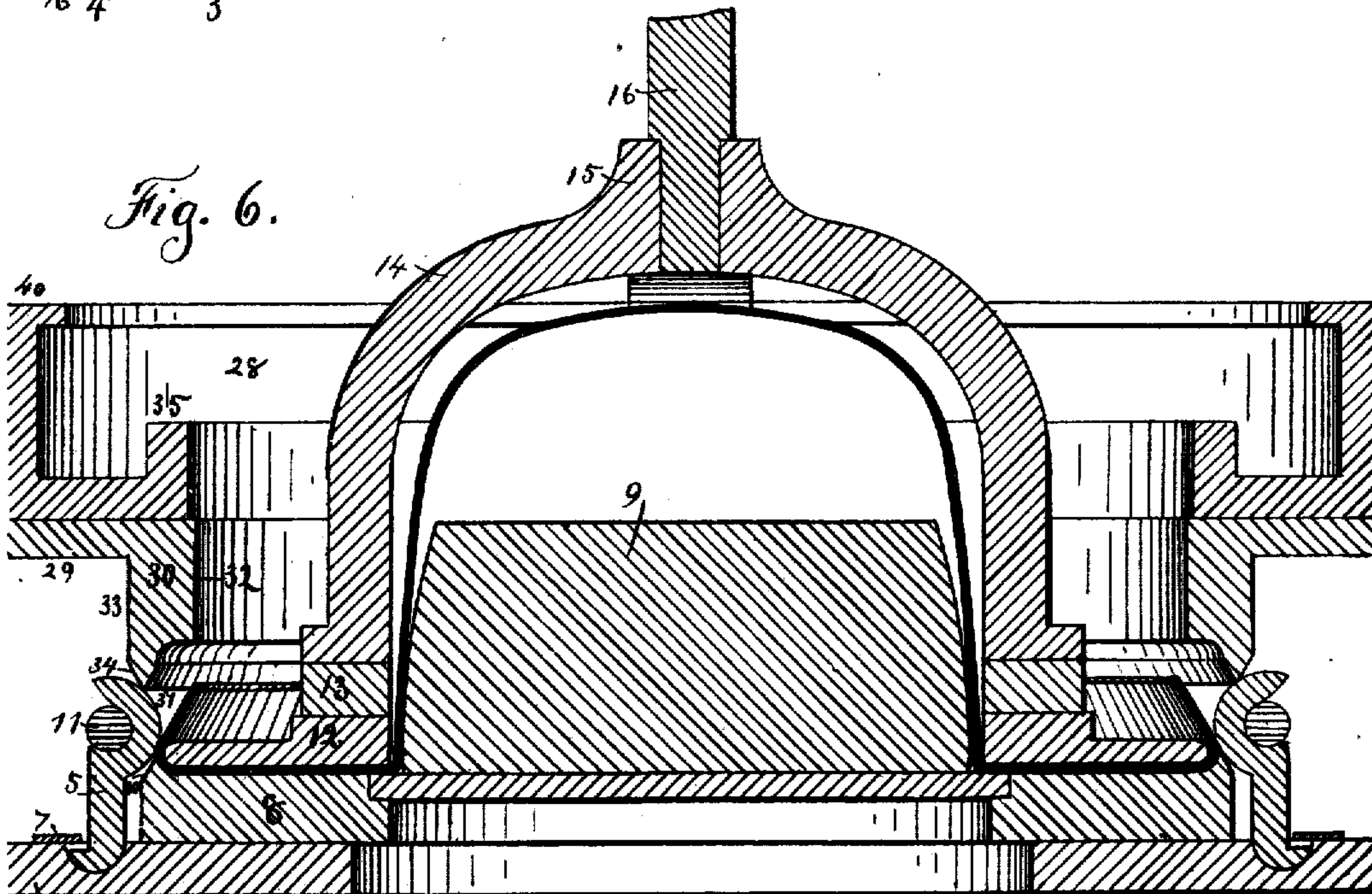


Fig. 6.

WITNESSES: INVENTOR.

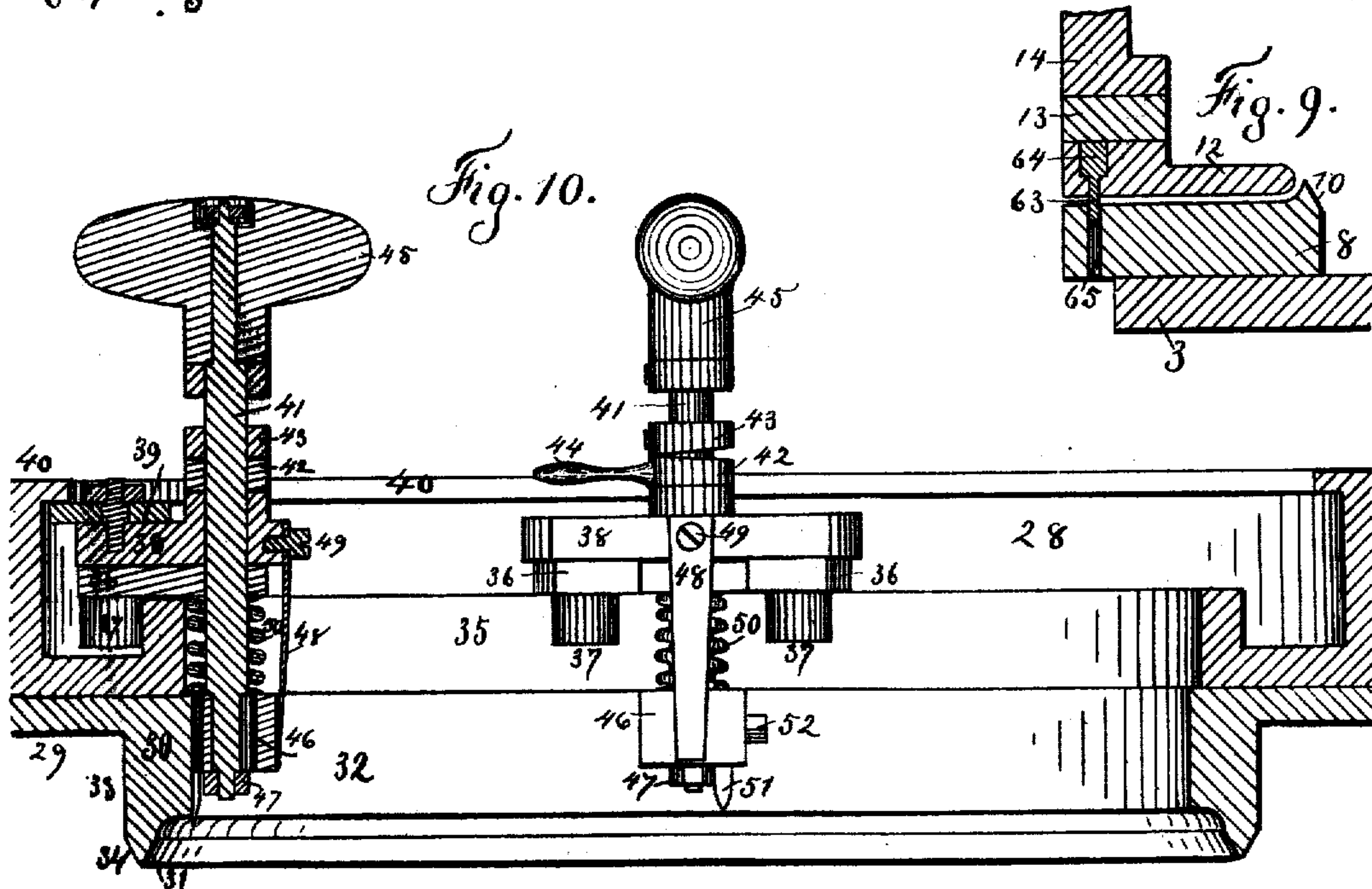
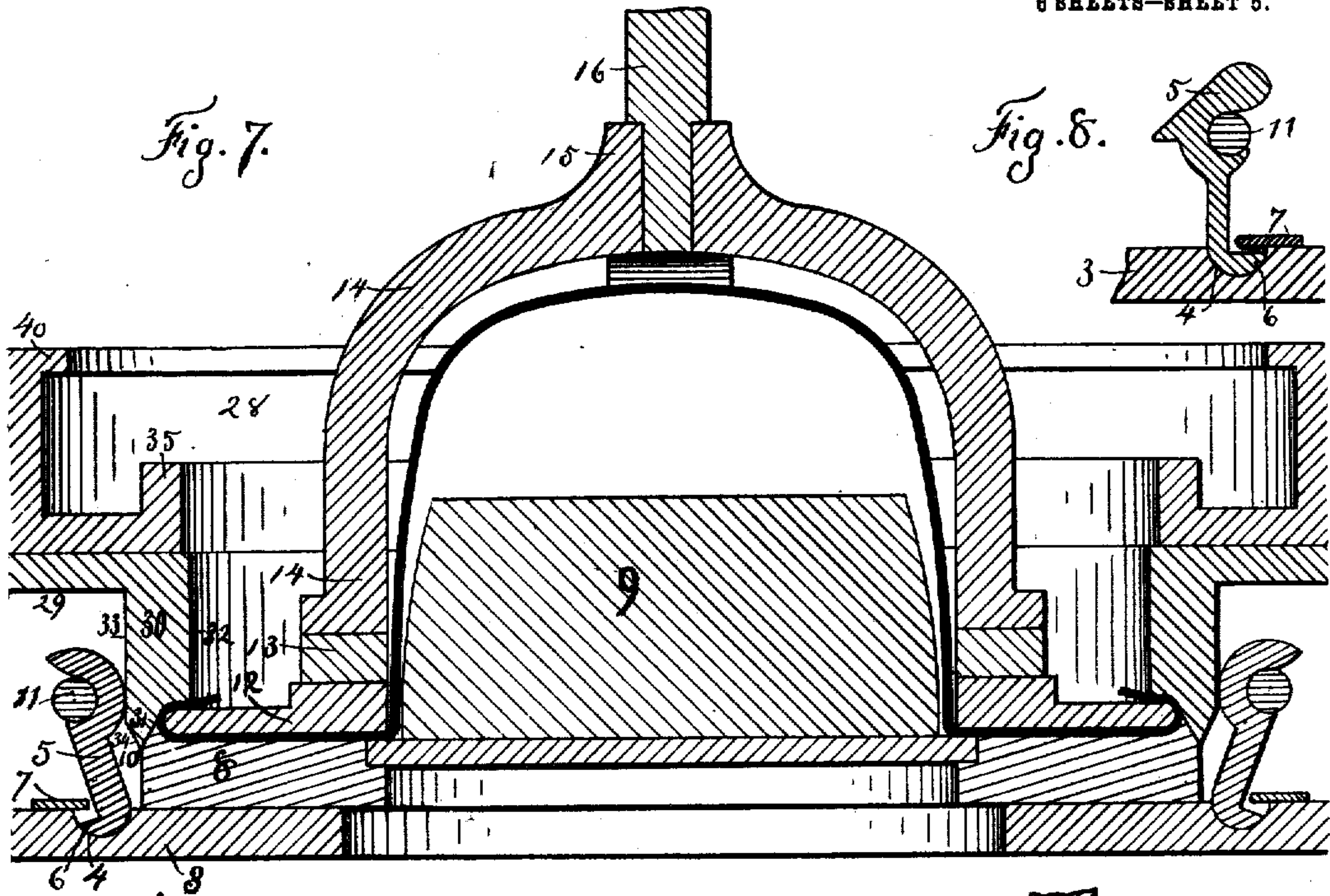
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HAT BRIM CURLING MACHINE.
APPLICATION FILED OCT. 30, 1908.

922,196.

Patented May 18, 1909.
6 SHEETS—SHEET 5.



WITNESSES:

INVENTOR.

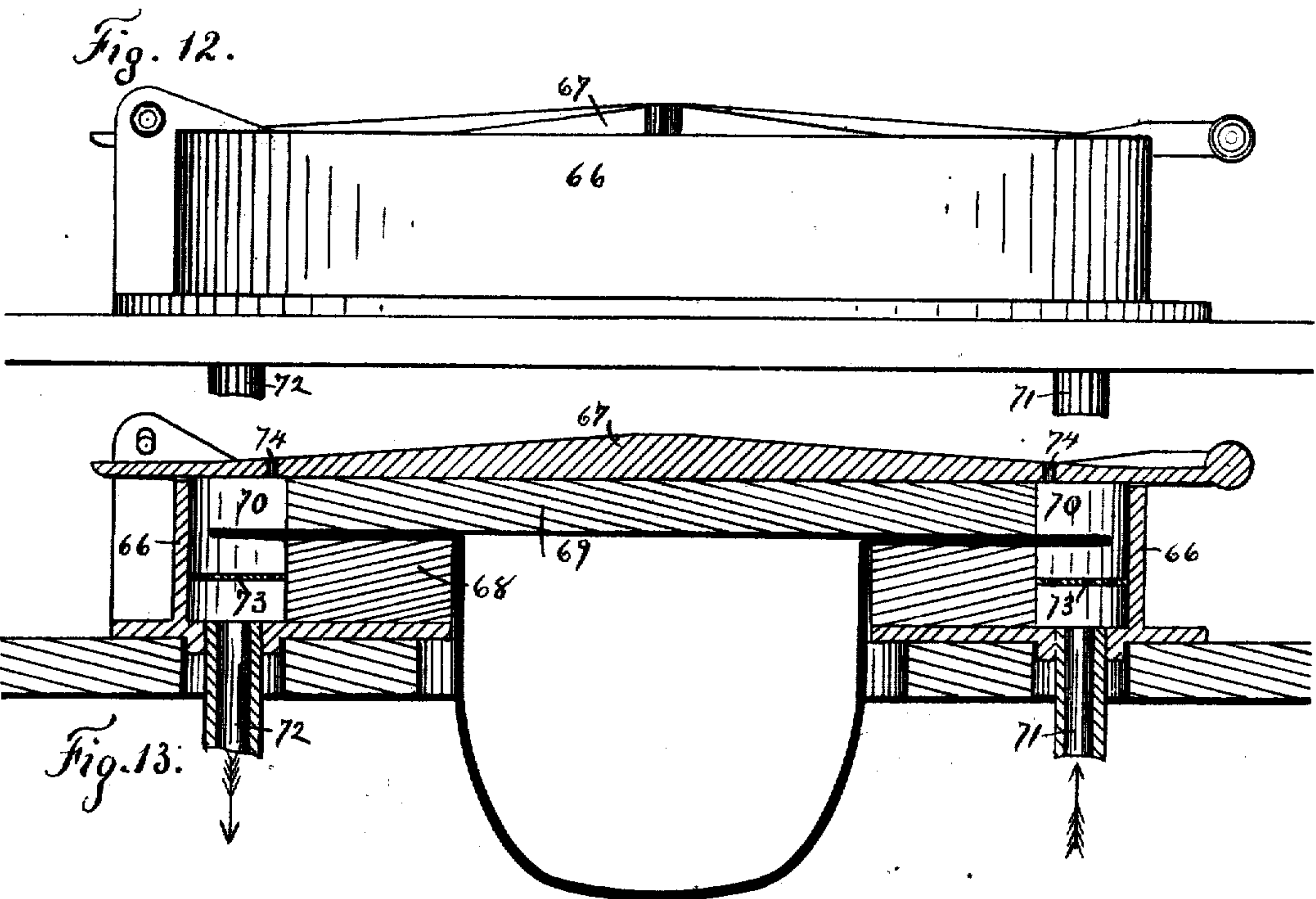
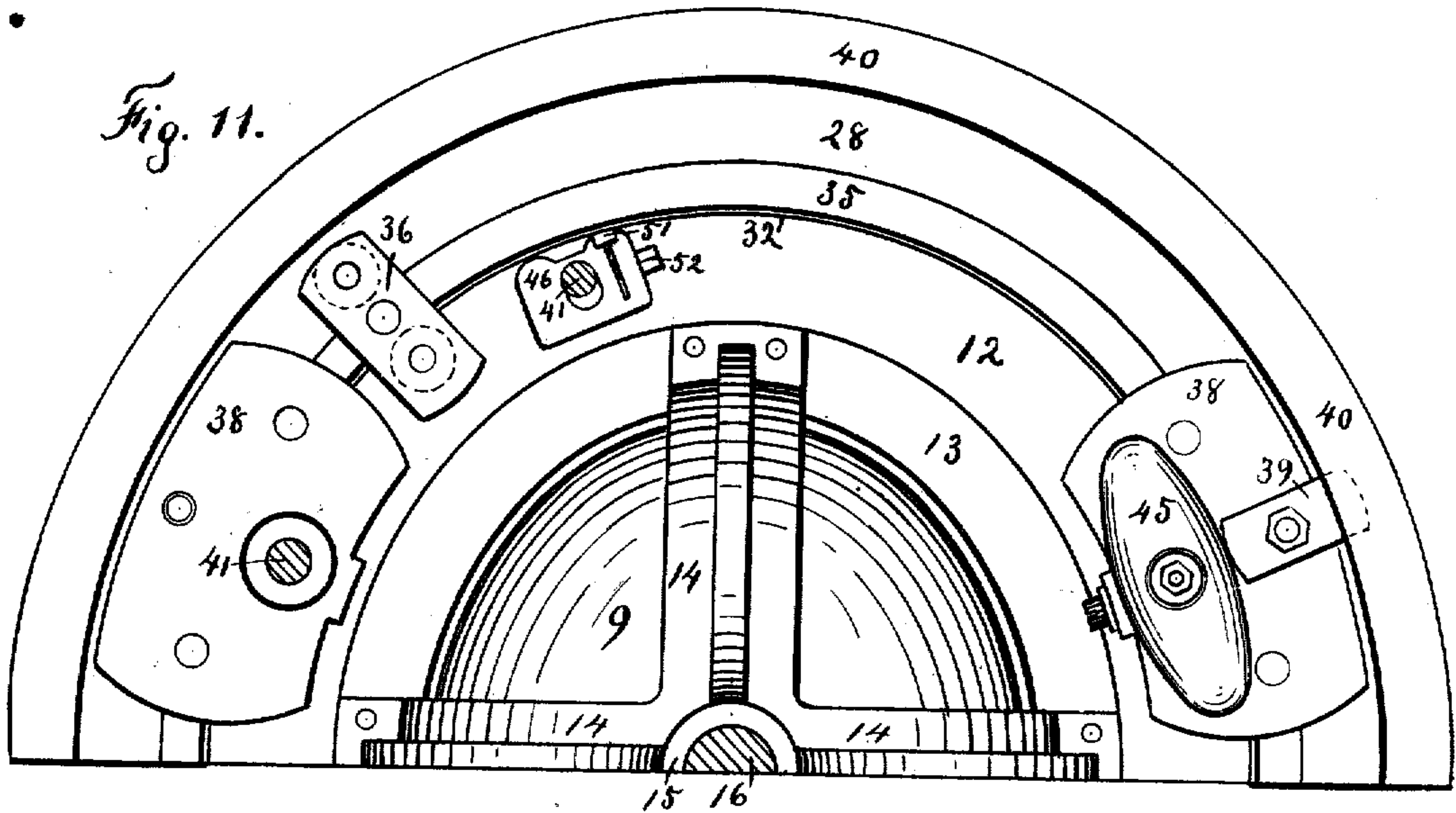
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APPLICATION FILED OCT. 30, 1908.

922,196.

Patented May 18, 1909.
6 SHEETS—SHEET 6.



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UNITED STATES PATENT OFFICE.

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HAT-BRIM-CURLING MACHINE.

No. 922,196.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed October 30, 1908. Serial No. 460,353.

To all whom it may concern:

Be it known that I, CHARLES E. SACKETT, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Hat-Brim-Curling Machines, of which the following is a specification.

This invention relates to a mechanism for first steaming a certain portion of the periphery of a hat brim which is designed to curl, while protecting the rest of the hat brim from the steam, and then subjecting the steamed portion to the operation of mechanism adapted to form the curl.

Steaming and curling hat brims has been performed heretofore in many ways, but I am not aware that there is any device in use for subjecting only the portion of the brim to be curled to the open direct action of steam, while protecting the rest of the stiffened hat brim from its softening effect as a preliminary process.

The mechanism for curling hat brims now in general use consists in revolving the brim through a gas or steam heater which heats a small section of the brim at a time, during which, by various means, the section is formed into a curl, and the brim is curled sectionally.

The distinctive object of this invention is to soften the whole periphery of the hat brim at once, and then to change the entire periphery from the flat to the curled state, in one operation by pressure in connection with heat, which action I believe to be novel.

On the 24th day of August, 1908, I filed Serial Application No. 450,043, for a machine having the same title and purpose; the present application is an improvement on that in the following particulars. In the former application, the two shafts actuating the movements of the formative matrices were placed one above the other; I now place one inside the other giving them a common center of motion. In the former application the matrices were provided with a series of stiff interlocking fingers, which were found objectionable in construction, as they had to be cast on every interchangeable pair of matrices. In this application the matrices are separated from the fingers, which are made independently conformatory to every interchangeable matrix, and are collectively automatically expansible and contractible. In the former application I trimmed the edge

of the hat brim curls by a pair of reciprocating ring shears. I now trim the edge of the curls by a device mounted upon a circular track and adapted to travel around the periphery of the hat brim.

These improvements are fully described in the following specification, and illustrated on the accompanying six sheets of drawings, in which—

Figure 1. is a front elevation. Fig. 2. is a side elevation. Fig. 3. is a plan view on a larger scale. Fig. 4. is a plan view of the platform showing the conformatory fingers surrounding a bed matrix. Fig. 5. is a sectional view on a still larger scale showing a flat hat brim in the first position to be acted upon by the machine. Fig. 6. is the same sectional view, a core platen having pressed the hat brim into the cavity of a bed matrix thereby completing the lower half of the curl. Fig. 7. is the same sectional view, an upper matrix having descended upon the core matrix, and completed the upper half of the curl. Fig. 8. is an alternate type of a conformatory finger. Fig. 9. is a detail section showing a punch inserted in the core platen, to punch holes in the hat brim. Fig. 10. is a view of the trimming device in elevation and section mounted upon its track. Fig. 11. is a half plan view of the trimming device and track with constructive details. Fig. 12. is a side elevation of the steaming device. Fig. 13. is a sectional view of the same, showing the exposed and protected portions of the hat while being steamed.

In all the views like numerals relate to like parts.

1, is a suitable machine frame; 2, a platform supported by it; 3, a flat circular plate attached to the platform (see sectional Figs. 5 to 7); 4, is a semicircular elliptical recess formed in the plate for the purpose of receiving and movably retaining the rounded base of a series of movable fingers 5, the fingers have a toe 6, at their base, and the plate is provided with a ring 7 projecting over the toe, which prevents the fingers rising out of their recess; a bed matrix 8, is centrally and interchangeably secured to the plate within the finger circle, by dowel pins and screws common to various other bed matrices; all of which are interchangeable with it; a hat block 9, is centrally secured upon the bed matrix, the upper surface of the bed matrix is shaped into a cavity having the sectional form of that portion of a hat brim curl which

lies below its lateral center line; the edge of said concavity limiting and shaping the periphery of the hat brim curl; outward from this edge is a sloped seat 10, on which a corresponding upper matrix seats itself; this slope also serves as a stop for the surrounding fingers which are held against it under elastic compression by an elastic band 11; this band may be of rubber or a close coiled metallic spring or any form of band that will exert a compressive force automatically against every finger independently. The fingers are arranged close together, and with the band form an expansible and contractible metallic ring as shown in Fig. 4, surrounding the bed matrix. Arranged centrally above this matrix, and interchangeably secured to a frame having a reciprocating movement to and from the bed matrix, is a core platen 12, the elliptical peripheral edge of this core platen is convex and is shaped to form the inside section of any desired curl to a hat brim; it acts both as a core and a platen, its function being to press the hat brim into the cavity of the bed matrix; it is interchangeably secured to a ring plate 13, by dowel pins and screws common to other core platens, rising from and secured to the upper side of this ring plate is a series of arched ribs 14, adapted to surround a hat crown without contact, and which unite above the crown in a common head 15, in which is solidly centered the guide rod 16, this rod passes through a guide box 17 (see Figs. 1 and 2), and terminates in a cross head 18, which has a reciprocal movement upon the vertical guide posts 19, rising from the platform and bedded in it; the ends of the cross head terminate in journals 20, which support the upper ends of the side bars 21, their lower ends are journaled to the extremities of cranks 22, made fast to the shaft 23, arranged centrally parallel with the cross head beneath the platform. The side bars are curved to allow their end bearings to come in a vertical line above and below the shaft center. This shaft passes through a hollow encircling shaft 24, journaled in boxes attached to the frame of the machine at a suitable height.

The shaft 23 is operated by a lever 25, made fast to one of its ends, at the other end is attached an arm 26 carrying a weight 27, by which the movement of the arched frame core platen mechanism is balanced. Arranged above the core platen and surrounding its arched carrying frame, is a ring plate 28; (see Figs. 5 to 7); it has a lower flat face to which is interchangeably attached by dowel pins and screws common to other matrices the flange 29 of an upper matrix 30, the lower surface of this matrix is shaped to form a cavity of the sectional form of that portion of a hat brim curl that lies above its lateral center line; the edge of said con-

cavity limiting and shaping the periphery of the hat brim curl; deflected outward from this edge is a sloped seat 31, which on the descent of the matrix seats itself upon the corresponding sloped seat 10, of the bed matrix, the object of these sloping seats being not only to confine the curl, but to guide the meeting edges of the matrices into their true positions, (see Fig. 7). The upper matrix 30, has on its upper side the form of an elliptical flanged ring having a depending inside vertical face 32; it also has an outer depending vertical face 33, terminating in a slope 34, which meets the point of slope 31; this outer slope 34, in its descent impinges upon the fingers of the expansible ring, and by its wedge like action expands the ring, and fills the space so vacated, with the body of the upper matrix, the sloping seats contributing to seat the cavity of the upper matrix in true position over the cavity of the lower bed matrix to form the hat brim curl; the inner vertical face 32 of the upper matrix forms the templet guide by which the edge of the curl is trimmed.

In a former application, Serial No. 442,789, filed July 9th, 1908, I described a trimming device for this purpose, in which a yielding cutter head carrying a knife bearing against an internal elliptical vertical face was shown; but that device was centrally pivoted upon a bridge centrally crossing the ellipse, and was adapted only to trimming the edges of welts formed upon the under side of hat brims, where the crowns pointed downward. In curled hat brims the crown points upward and a different construction was necessary as follows: The ring plate 28, to which the upper matrix is attached is provided on its inner circumference with a raised vertical track 35, which corresponds with the vertical elliptical face of the matrix (see sheets 5 and 6, Figs. 7, 10, 11), mounted on this track is a pair of bolsters 36, each provided with a pair of horizontal wheels 37, rolling upon the inside and outside vertical faces of the track, the bolsters are movably pivoted in a platform 38, which allows it to move freely around curves; at the back of the platform is a movable button 39, which can be turned beneath a projecting flange 40, which is part of the ring plate casting; the button retains or permits the removal of the trimming mechanism from the track. In the face of the platform projecting over the vertical templet face of the matrix is centered a vertical shaft 41, above the platform it is fitted with fast and loose collars 42 and 43 having sloped faces, the loose collar 42 is fitted with a handle 44, and when it is revolved it raises or lowers the shaft; above these collars the shaft terminates in a revolving handle 45, below the platform the shaft is continued downward in front of the templet face of the matrix, and passing through

a cutter head 46, terminates in a nut 47, supporting the cutter head which is slotted to fit the diameter of the shaft, and also to allow of a yielding movement to and from the vertical face of the templet in rounding curves; this movement is controlled by the flat spring 48, attached to the face of the platform by the screw 49, between the cutter head and the lower side of the platform is a spiral spring 50, surrounding the shaft; this exerts a resilient pressure upon the vertical knife 51, clamped in the cutter head by the clamp bolt 52. It is evident that within the limits of its taper the handle collar 42, will raise or lower the knife point upon the hat brim. The cutter head has rounded extremities, and a swivel movement that will always keep the knife edges bearing against the templet face.

I am aware that devices for trimming the edge of a hat brim curl are in use where the device is not permanently situated above the brim of the hat, and where the templet guide is located above the hat crown. I regard such devices as futile, for any degree of accuracy it is essential that the felt of the hat brim shall be clamped between two metallic surfaces, the upper one forming the templet guide, the lower one a resisting medium for the knife point to rest upon, and that the knife shall be firmly held against the templet face. On opposite sides of the ring plate supporting the upper matrix, and the trimming mechanism, are boxes 53, (see Figs. 1 and 2) moving vertically upon guide posts 19; outside of these boxes are bearings 55, on which are journaled the upper ends of the side bars 56, their lower ends are journaled to the extremities of cranks 57, made fast to the shaft 24, the side bars are curved to allow their end bearings to come in a vertical line above and below the shaft center which is hollow to allow another shaft 23 to pass through it; the shaft 24 is operated by a lever 60, made fast to it near one of its ends, and has attached near to its other end an arm 61, carrying a weight 62, which balances the movement of the ring frame mechanism controlled by the lever.

It will be seen that both operating levers have the same center of motion, and that the movement of each in turn will give a balanced reciprocal movement to or from the bed matrix of the core platen and the upper matrix, whereby the hat brim is curled. In finishing some hat brims, notably the U. S. Army hat, it is necessary to punch holes each side of the crown to receive a tying cord; these holes must be accurately positioned. In a former application heretofore referred to, I provided for this, by a pair of retroactive spring punches, supported upon the same bridge as carried the trimming mechanism, the points of the punches having to be lifted to allow the cutter arm to pass.

In this invention the punching is very much simplified, as shown in detail Fig. 9, a solid punch 63 is inserted in the core platen 12, in proper position at each side of the hat crown, the punch has an enlarged head 64, flush with the surface of the core platen, when the platen is secured under the ring 13 of the arched frame 14, it is immovably fixed, and whenever the platen descends to shape the hat brim the punching takes place; the lower bed matrix 8, has corresponding sockets 65, to receive the punch points.

In softening a previously stiffened hat brim by steam it is essential that only the portions to be curled be subjected to the action of the steam; to provide for this I have devised a steam pot to form part of the machine or to be arranged contiguous to it, which consists (see Figs. 12, 13), of a circular pot 66, with a hinged lid 67, the central portion of the bottom of the pot is open to allow the crown of a hat to drop through it; surrounding this opening is a wood ring 68 made wide enough to cover all of that section of the hat brim that it is not desired to soften; the inside of the lid is faced with a wood ring of the same peripheral shape 69, the faces of the two wood rings contact, and between them the hat brim is clamped while the projecting portion of the brim is being steamed in the steam space 70. The bottom of the pot is provided with steam inlet 71, and outlet 72, a perforated baffle ring 73 distributes the steam, and vents 74, in the lid provide for its escape. This steaming device is not claimed in this application.

Various departures might be made from the details of this invention as here described and shown without departing from its principles of action. The matrices might all be heated, the rounding mechanism while confined to a fixed circular track, might be carried on a single pair of wheels or rollers, or even on one wheel running in a groove. It is also to be noted that expansible and contractible conformatory rings for hat brims are not new, Eickemeyer No. 308,759 of December 2nd, 1884 being a notable reference, but in his case, as in all others, the sections are all mechanically manipulated by the operator. Eickemeyer's sections are interlocked, they are moved radially and vertically in slots arranged in the brim supporting bed by complicated mechanism attached to each section and operated by a foot treadle. My expansible and contractible ring is automatically manipulated in the operation of the machine, by the machine itself. It is elastically controlled, and each section is adapted to have a radial and independent movement.

Having thus described my invention; what I claim and desire to secure by Letters Patent is:

1. In a hat brim curling machine, the com-

combination of a frame supporting a platform, a bed matrix secured centrally thereon, said bed matrix being adapted to shape a flat hat brim when adjusted centrally thereon into the lower lateral half of a curled hat brim; said bed matrix being interchangeable with other bed matrices adapted to be secured to said platform, a metallic expansible and contractible ring surrounding said bed matrix, said ring being composed of sectional vertical fingers elastically controlled; said fingers conforming themselves independently and automatically to the periphery of said hat brim.

2. In a hat brim curling machine, the combination of a frame supporting a platform, a bed matrix removably centered thereon; an annular recess in said platform surrounding said matrix; a series of upright formative fingers pivoted in said recess; an elastic band surrounding said fingers automatically controlling their vibratory radial movement.

3. In a hat brim curling machine, the combination of a frame supporting a platform, a removable bed matrix centered thereon adapted to shape the lower lateral half of a hat brim curl; an expansible and contractible ring elastically controlled surrounding said bed matrix; a flat ring plate arranged centrally above said bed matrix, said ring plate being permanently attached to arched members adapted to surround the crown of a hat without contact; said arched members uniting above the hat crown in a common head in which a guide rod is centrally secured, with means to give said guide rod and said arched frame a vertical reciprocal movement to and from said bed matrix.

4. In a hat brim curling machine, the combination of a frame supporting a platform, a removable bed matrix centered thereon having a concave section adapted to shape the lower lateral half of a curled hat brim; an elastically controlled expansible and contractible ring composed of upwardly projecting fingers surrounding said bed matrix, a removable core matrix arranged centrally above said bed matrix, said core matrix having a convex periphery of the same contour as the concave section of said bed matrix; said core matrix having an open central space adapted to admit the crown of a hat, and being removably secured to a ring frame arranged centrally above it, by means common to other removable core matrices; said ring frame having a reciprocal vertical movement to and from said bed matrix, adapting said core matrix to descend upon said bed matrix, and to expand the sectional fingers composing said expansible ring in passing through them, said fingers automatically contracting around said core matrix after its passage.

5. In a hat brim curling machine, the combination of a frame supporting a platform,

a removable bed matrix centered thereon; an expansible and contractible ring surrounding said bed matrix elastically controlled; a core matrix supported by an arched frame having a reciprocal movement to and from said bed matrix arranged centrally above it, and a ring frame having a lower flat side adapted to surround said arched frame arranged centrally above said arched frame, with means to give said ring frame a vertical reciprocal movement to and from said bed matrix.

6. In a hat brim curling machine, the combination of a frame supporting a platform, a removable bed matrix centered thereon having a concave section adapted to shape the lower lateral half of a curled hat brim, an elastically controlled expansible and contractible ring surrounding said bed matrix; a core matrix supported by an arched frame arranged centrally above said bed matrix; a ring frame having a lower flat face and a reciprocal movement to and from said bed matrix surrounding said arched frame, and an upper matrix removably secured to the lower flat face of said ring frame, by means common to other removable upper matrices; said upper matrix having its lower face shaped to a concave section adapted to shape the upper lateral half of a hat brim curl; said cavity in conjunction with the cavity of the bed matrix being adapted to complete the outer semicircular curl of a hat brim; and to inclose between them a core matrix adapted to shape the inner section of said curl, with means to give said upper matrix, and said core matrix, a vertical reciprocal movement to and from said bed matrix.

7. In a hat brim curling machine, the combination of a frame supporting a platform; a removable bed matrix centered thereon, having a concave section adapted to shape the lower lateral half of a hat brim curl; said bed matrix having an elliptical conical seat sloping outward and downward from the edge of its concavity; said edge corresponding to the periphery of a predetermined hat brim curl; an upper removable matrix having a reciprocal movement to and from said bed matrix, and a concave section adapted to shape the upper lateral half of a hat brim curl; said matrix having an elliptical conical seat also sloping downward from the edge of its concavity, with means to give said upper matrix movement toward said bed matrix, thereby causing the upper conical seat to slide upon the lower conical seat and to bring the peripheral edges of said matrices into accurate conjunction to shape the periphery of said hat brim.

8. In a hat brim curling machine, the combination of a frame supporting a platform, a removable bed matrix centered thereon; an expansible and contractible ring composed of upwardly projecting fingers surrounding

said bed matrix elastically controlled, an upper removable matrix coinciding with said bed matrix to form a hat brim curl; said upper matrix being removably attached by a
 5 flange and suitable connections to the lower side of a ring plate, having a reciprocal movement to and from said bed matrix; said upper matrix having inner and outer vertical elliptical faces depending from said flange,
 10 the inner vertical face being of the same periphery as the inner trimmed edge of a predetermined curl to be formed on said hat brim; its lower bed face being of a concave section adapted to shape the upper lateral half of
 15 said hat brim curl; the outer edge of said concavity terminating in a downward slope which meets a similar slope from the outer vertical face of said matrix at its point; said slopes forming a conical elliptical wedge,
 20 with means to give said ring plate and upper matrix movement toward said bed matrix, whereby said wedge contacts with the vertical sectional fingers composing said expandible ring surrounding said bed matrix, and by
 25 its sliding action expands said ring, to permit the seating of said upper matrix upon said bed matrix, thereby conjunctively shaping said hat brim curl.

9. In a hat brim curling machine, the combination of a frame supporting a platform,
 30 a removable bed matrix centered thereon, having a concave section adapted to shape the lower lateral half of a hat brim curl, and an upper removable matrix having a reciprocal movement to and from said bed matrix,
 35 and adapted to be seated thereon; of a concavity arranged upon the lower face of said upper matrix, of the predetermined width and section of the upper lateral half of the curl to be formed upon said hat brim;
 40 the outer edge of said concavity determining the circumferential shape of said hat brim; the inner edge of said concavity determining the inner trimmed edge of said hat brim curl.

10. In a hat brim curling machine, the combination of a frame supporting a platform,
 45 a bed matrix centered thereon, an upper matrix adapted to pair with said bed matrix in shaping a curled hat brim from a flat hat brim; said upper matrix having an inner vertical elliptical face of the same periphery as the predetermined trimmed edge of said hat brim curl; said vertical face forming the
 50 templet guide for a cutter head mounted upon a track of the same contour as said vertical face forming said templet guide, said cutter head being a component part of the machine and carrying a knife by which the edge of said curl is trimmed.

11. In a hat brim curling machine, the combination of a frame supporting a platform,
 60 a bed matrix centered thereon, an upper matrix adapted to pair with said bed matrix in shaping said hat brim curl, said upper matrix having a central open space sur-

rounded by a vertical elliptical wall constituting its inner face; said upper matrix being removably attached to a ring plate having a reciprocal movement to and from said bed matrix; said ring plate being provided with a
 70 raised vertical track, having the same elliptical shape as the inner vertical face of said upper matrix; said track being adapted to support and guide a cutting mechanism mounted upon it, and carrying a knife with
 75 edges adapted to move around and to bear yieldingly against the vertical elliptical inner face of said upper matrix.

12. In a hat brim curling machine, the combination with a frame supporting a platform,
 80 a bed matrix centered thereon, a ring plate supporting an upper matrix having a reciprocal movement to and from said bed matrix; said ring plate having a central open space surrounded by a vertical track forming
 85 the inner elliptical face of said ring plate; a cutting mechanism mounted upon said track adapted to trim the inner edge of said hat brim curl; and an upper horizontal flange forming the outer circumference of said ring
 90 plate, adapted to restrain said cutting mechanism from leaving said track, with means to form an adjustable connection between said flange; said cutting mechanism, and said track, whereby it may be removed from or
 95 retained on said track.

13. In a hat brim curling machine, the combination with a machine frame and mechanism adapted to shape the curl of a hat
 100 brim; of a mechanism adapted to trim the edge of said curl, located on said machine frame, said mechanism consisting of a horizontal elliptical track with vertical sides composing part of said frame; bolsters
 105 mounted on said track having depending horizontal wheels bearing against both vertical sides of said track; a platform mounted on said bolsters in which they are rotatively pivoted; said platform supporting a vertical
 110 shaft passing through it, its lower section supporting a cutter head having a sliding movement to and from a templet guide against which said cutter head bears; a spring holding said cutter head yieldingly
 115 against said templet guide; a knife clamped in said cutter head with edges arranged parallel with said templet guide; a spiral spring surrounding said shaft between said cutter head and the lower side of said platform; a
 120 fast collar holding said shaft in position above said platform; a loose collar with means to rotate it; said collars being adapted to give a vertical reciprocatory movement to said shaft, whereby said knife point is raised or
 125 lowered upon said hat brim to trim the edge of said curl, said shaft terminating in a revolving handle, whereby said cutting mechanism is propelled around said track.

14. In a hat brim curling machine, the combination with a frame supporting a platform
 130

form, a bed matrix centered thereon, a ring frame to which is attached an upper matrix arranged centrally above said bed matrix; said upper matrix having a vertical reciprocal motion to and from said bed matrix, and adapted in conjunction with it to shape the curled edge of the hat brim, and a trimming mechanism mounted upon said ring frame adapted to trim the edge of said curl, with means to give said trimming mechanism a vertical reciprocal movement to and from said bed matrix.

15. In a hat brim curling machine, in combination, two matrices composing a pair adapted to shape a hat brim curl between them, the upper matrix having a lower concave surface adapted to shape the upper half of said hat brim curl, the lower matrix having an upper concave surface, adapted to shape the lower half of said hat brim curl, a core matrix having a semi circular edge interposed between them, space being left between the core and the inner surfaces of said matrices to clamp a hat brim curl between them under pressure, the upper matrix having an edge contour constituting a templet guide by which the inner edge of said hat brim curl may be trimmed, a coinciding rotary cutting mechanism mounted above said matrices, said mechanism being provided with a knife having a blunt point and sharp side cutting edges adapted to follow mechanically the contour of said templet guide to trim the edge of any material clamped between the said matrices, the core matrix furnishing a resisting surface upon which the blunt point of the knife rests yieldingly, thereby limiting the cutting action of said knife to the depth and edge contour of the said materials clamped between the said matrices.

16. In a hat brim curling machine, the combination of a machine frame supporting a platform, a bed matrix centered thereon, an upper matrix arranged centrally above it having a reciprocal movement to and from said bed matrix, a ring carrying frame to which said upper matrix is removably secured; bearings on opposite sides of said ring frame, vertical guide posts rising from said platform on which the bearings of said ring frame are made movable; a hollow shaft journaled in boxes attached to the sides of said machine frame below said platform; cranks made fast to said shaft, bearings at their extremities by which said cranks are connected by side bars to the bearings of said ring frame; a core matrix arranged between said upper and lower matrices, a ring carrying frame with arched members to which said core matrix is removably secured; a guide rod connecting said arched ring frame to a cross head having outer bearings also made movable upon said vertical posts above said platform; a shaft journaled within

said hollow shaft having projecting extremities; cranks made fast to said extremities, said cranks forming collars for positioning said shaft; bearings at the extremities of said cranks, side bars connecting said bearings with the bearings of said cross head; a lever made fast to the extremity of said inner shaft, a second lever made fast to the extremity of said hollow shaft, said levers having a common center of motion; arms carrying weights made fast to the opposite extremities of said shafts, the movement of said levers and weights giving a balanced reciprocal movement to said frames supporting said matrices, to and from said bed matrix.

17. In a hat brim curling machine, the combination of a frame supporting a platform; a bed matrix centered thereon; a core matrix arranged centrally above it, having a reciprocal movement to and from said bed matrix; die punches arranged in said core matrix, corresponding with die sockets arranged in said bed matrix, and means to give movement to said core matrix to force said die punches into said sockets.

18. In a hat brim curling machine, the combination of a machine frame supporting a platform, a bed matrix centered thereon, a core matrix arranged centrally above it, said core matrix having a vertical movement upon said machine frame to and from said bed matrix, a shaft arranged centrally below said platform upon said machine frame, a lever attached to one of its extremities controlling the movement of said shaft, an upper matrix arranged centrally above said core matrix also having a vertical movement upon said machine frame to and from said bed matrix, said upper and bed matrices being adapted to inclose said core matrix between them, said upper matrix being made movable upon said machine frame to and from said bed matrix a hollow shaft surrounding the shaft by which said core matrix is controlled, a lever attached to one end of said hollow shaft controlling its movements, said shafts and said levers having a common center of motion whereby the lever controlling the core matrix also serves to raise the upper matrix in parting the matrices, and controls the upward movement of both upper and core matrices independent of the lever attached to the hollow shaft or the mechanism by which it is connected to the upper matrix.

19. In a hat brim curling machine, the combination of a machine frame supporting a platform, a bed matrix centered thereon, a core matrix arranged centrally above it, having a reciprocal vertical movement to and from said bed matrix, a ring carrying frame supported by a cross head to which said core matrix is removably secured, bearings at the opposite extremities of said cross head, curved side bars connecting said bearings with bearing pins at the extremities of

cranks having their fulcrum center supported
by a shaft arranged parallel with said cross
head bearings, a lever made fast to said shaft
adapted to bring the fulcrum center of said
5 cranks in a vertical line between the end
bearings of said curved bars thereby obtain-
ing the pressure of a toggle joint, and an
automatic lock to said matrices under pres-
sure, with a single movement of the lever.
10 20. In a hat brim curling machine, the
combination with a machine frame of a plat-
form, a stationary bed matrix supported
thereon, a series of conformatory fingers
elastically controlled surrounding said bed

matrix, a core matrix adapted to expand 15
said fingers and seat itself upon said bed
matrix, an upper matrix adapted to expand
said fingers and seat itself upon said core
matrix and means to bring the said elements
into conjunctive compressive action. 20

In testimony whereof, I have signed my
name to this specification in the presence of
two subscribing witnesses this 23d day of
October 1908.

CHARLES E. SACKETT.

Witnesses:

JAMES P. WILSON,
PERRY WILSON.