

No. 701,715.

Patented June 3, 1902.

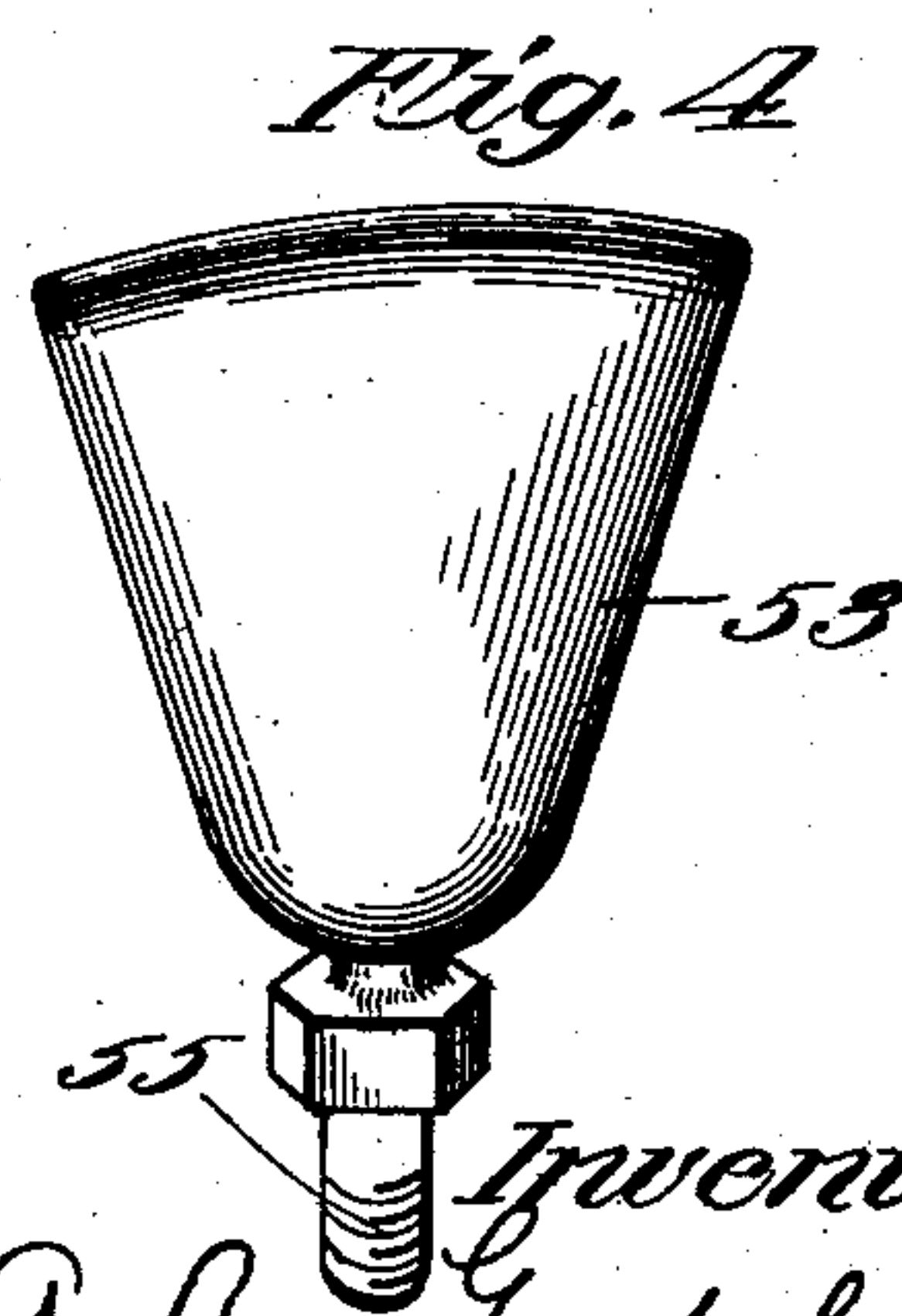
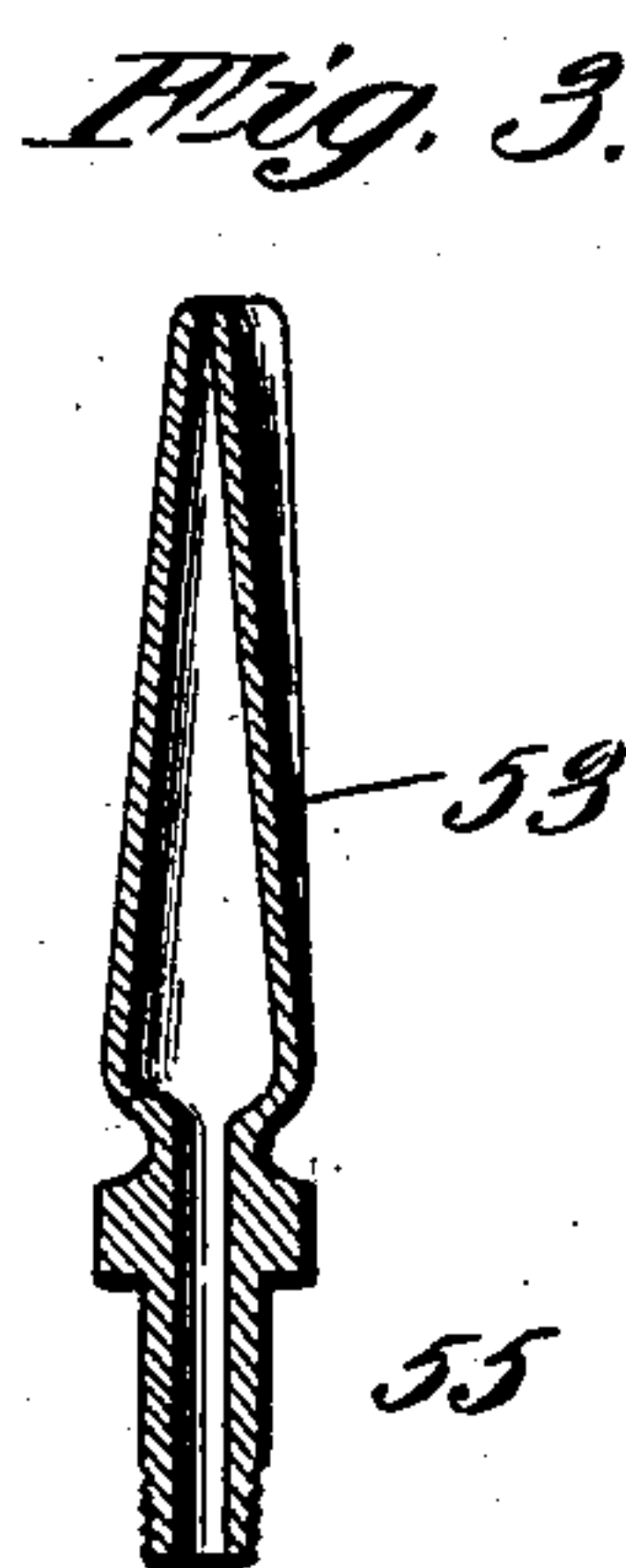
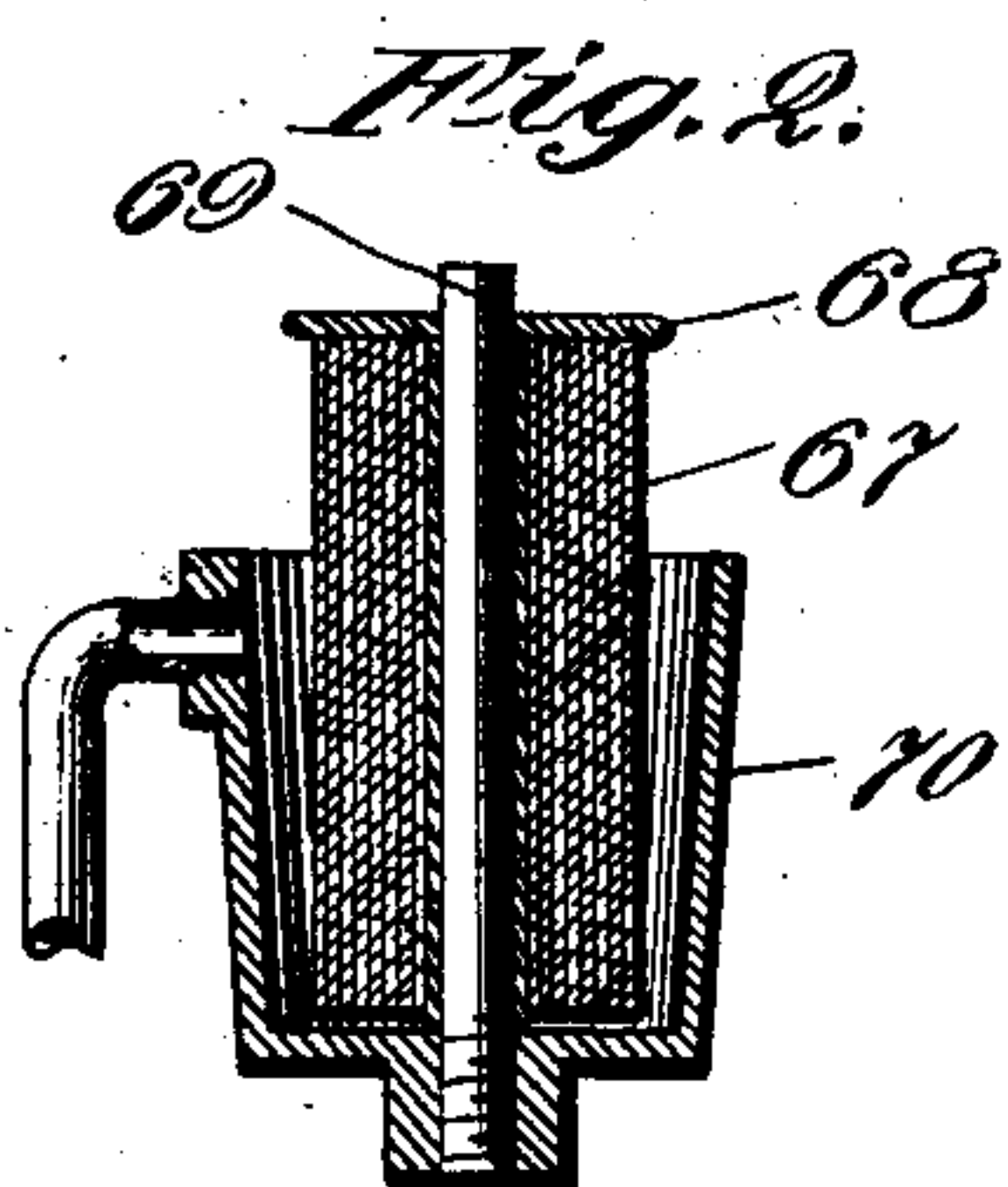
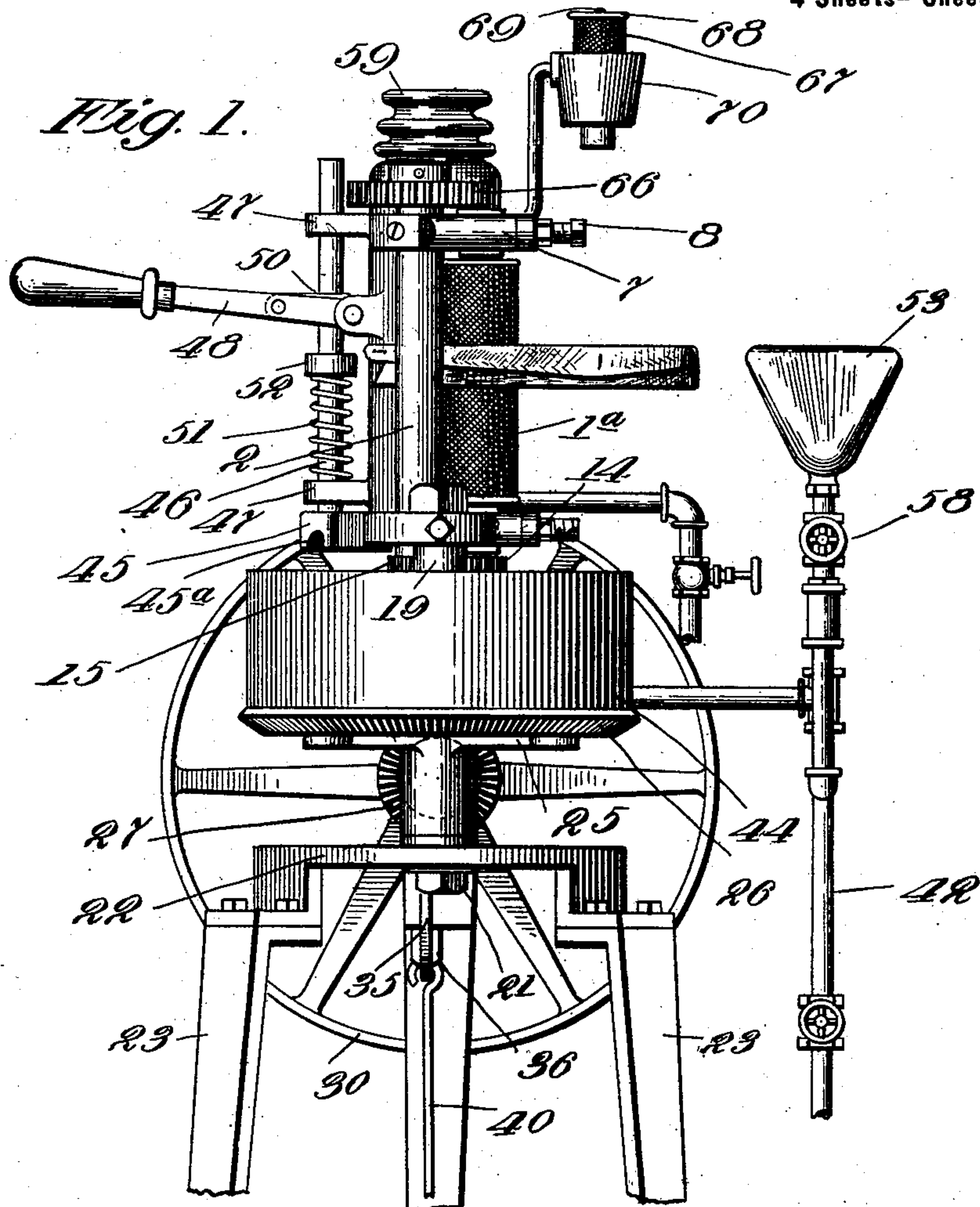
A. R. GUSTAFSON.

MACHINE FOR SHAPING AND SMOOTHING COLLARS OR LIKE ARTICLES.

(Application filed Oct. 15, 1900.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses:
J. B. Weir
Ora D. Perry

Inventor:
A. R. Gustafson
by E. C. Smith & Co. Attys

No. 701,715.

Patented June 3, 1902.

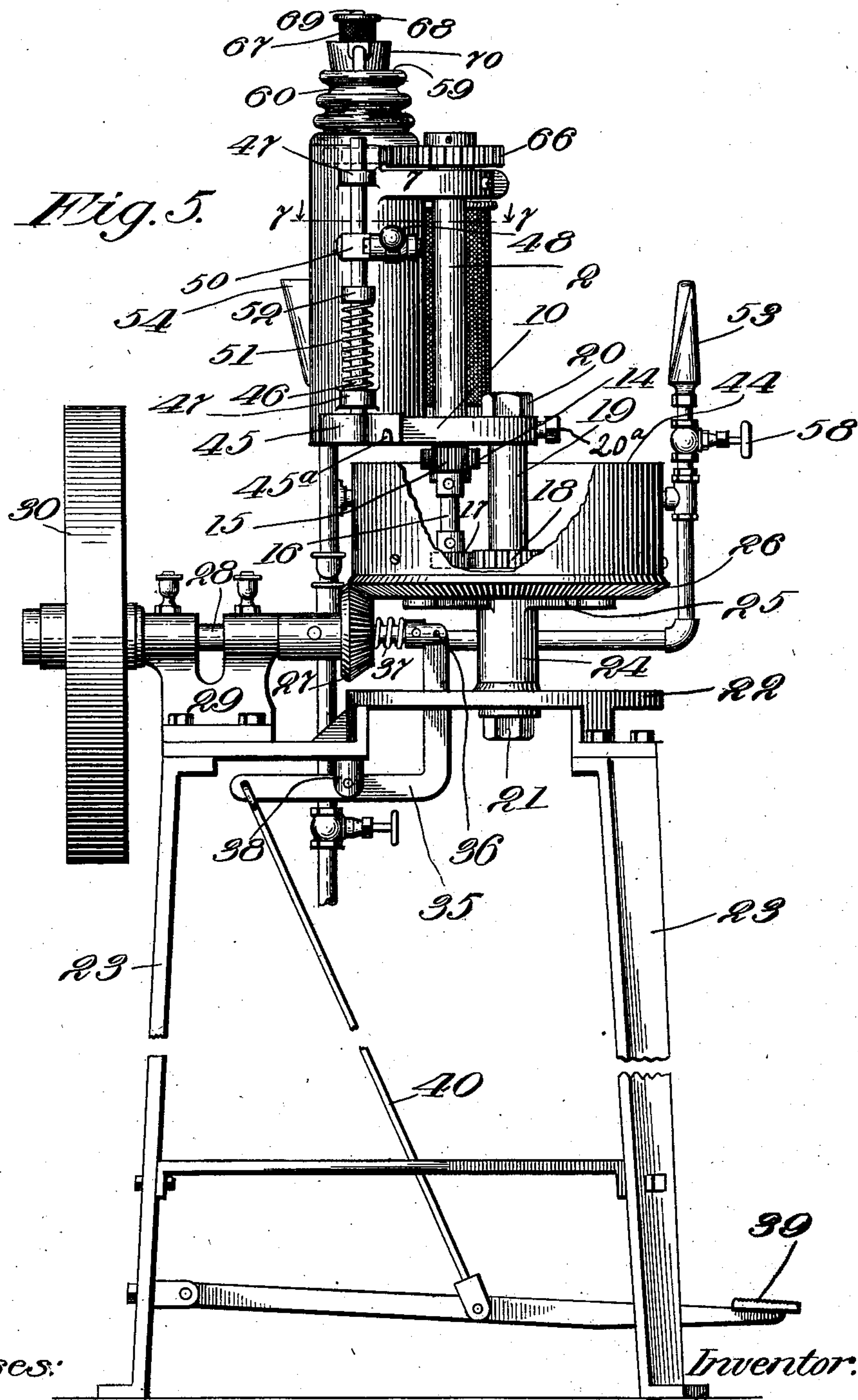
A. R. GUSTAFSON.

MACHINE FOR SHAPING AND SMOOTHING COLLARS OR LIKE ARTICLES.

(Application filed Oct. 15, 1900.)

(No Model.)

4 Sheets—Sheet 2.



Witnesses:

B. Weir
Ora D. Perry

Inventor:

A. R. Gustafson
by Elliott Hopkins
attys.

No. 701,715.

Patented June 3, 1902.

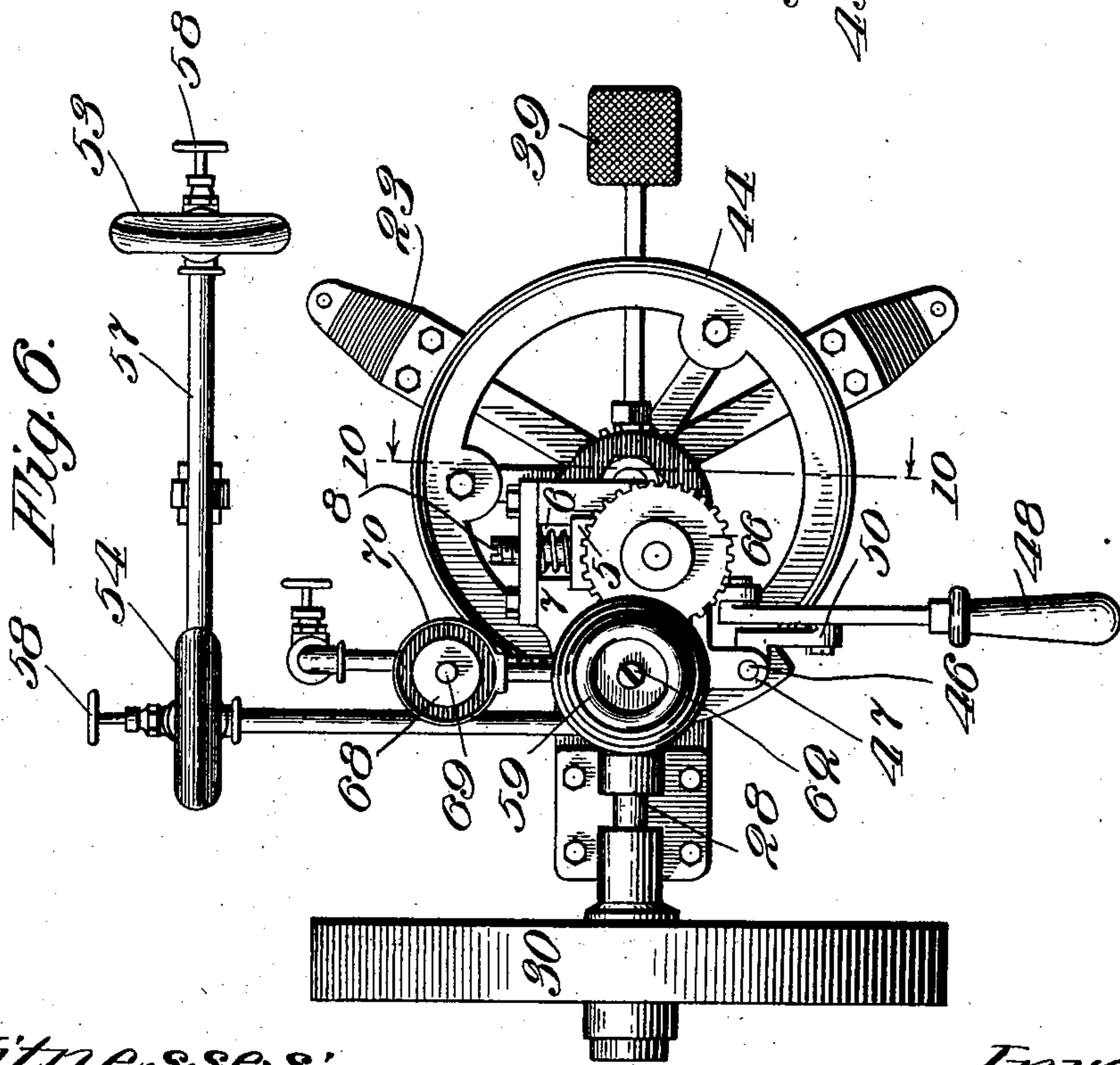
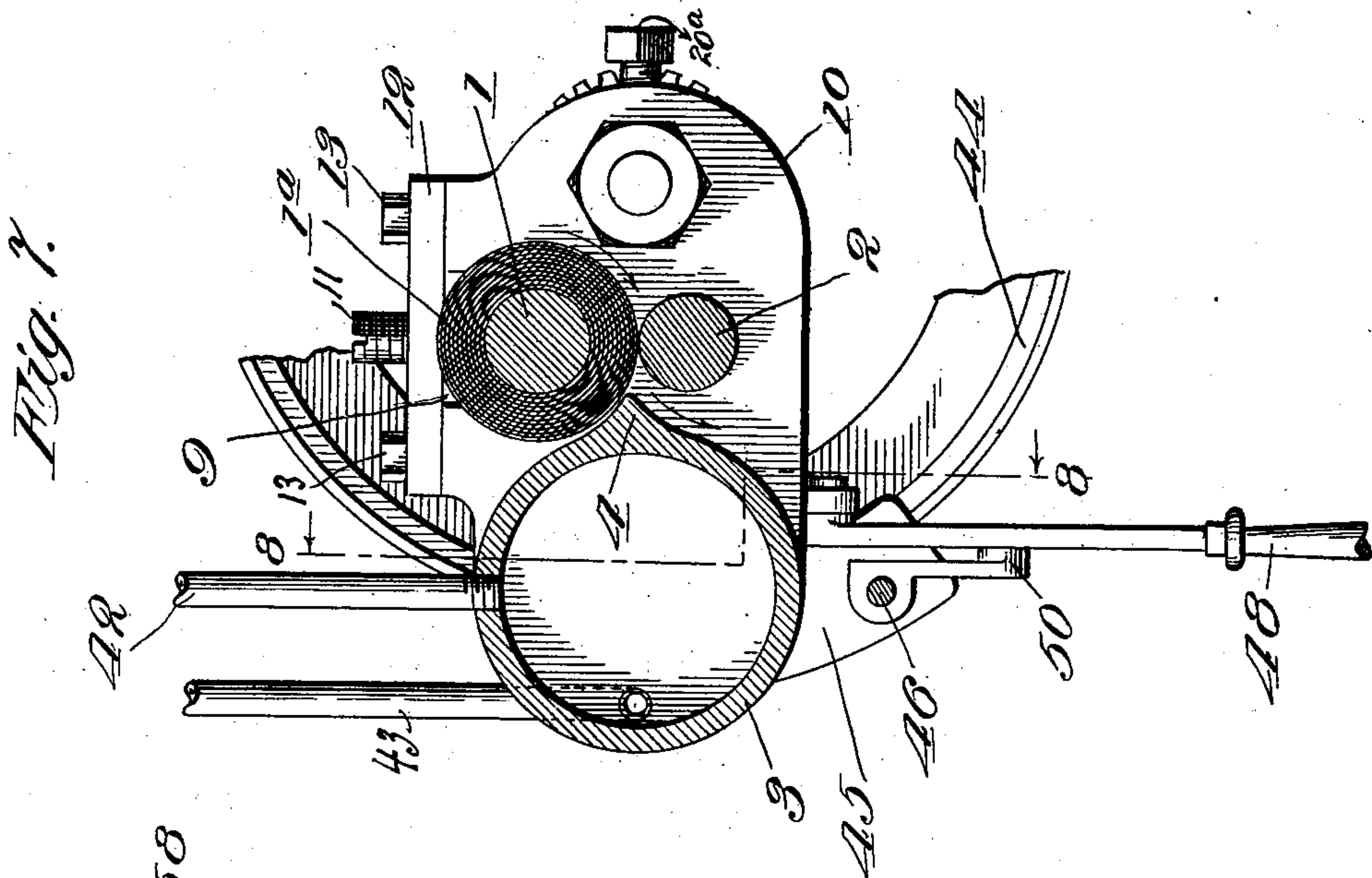
A. R. GUSTAFSON.

MACHINE FOR SHAPING AND SMOOTHING COLLARS OR LIKE ARTICLES.

(Application filed Oct. 15, 1900.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses:
J. B. Stein
Ora D. Perry

Inventor:
A. R. Gustafson
by Elliott & Hopkins
attys

No. 701,715.

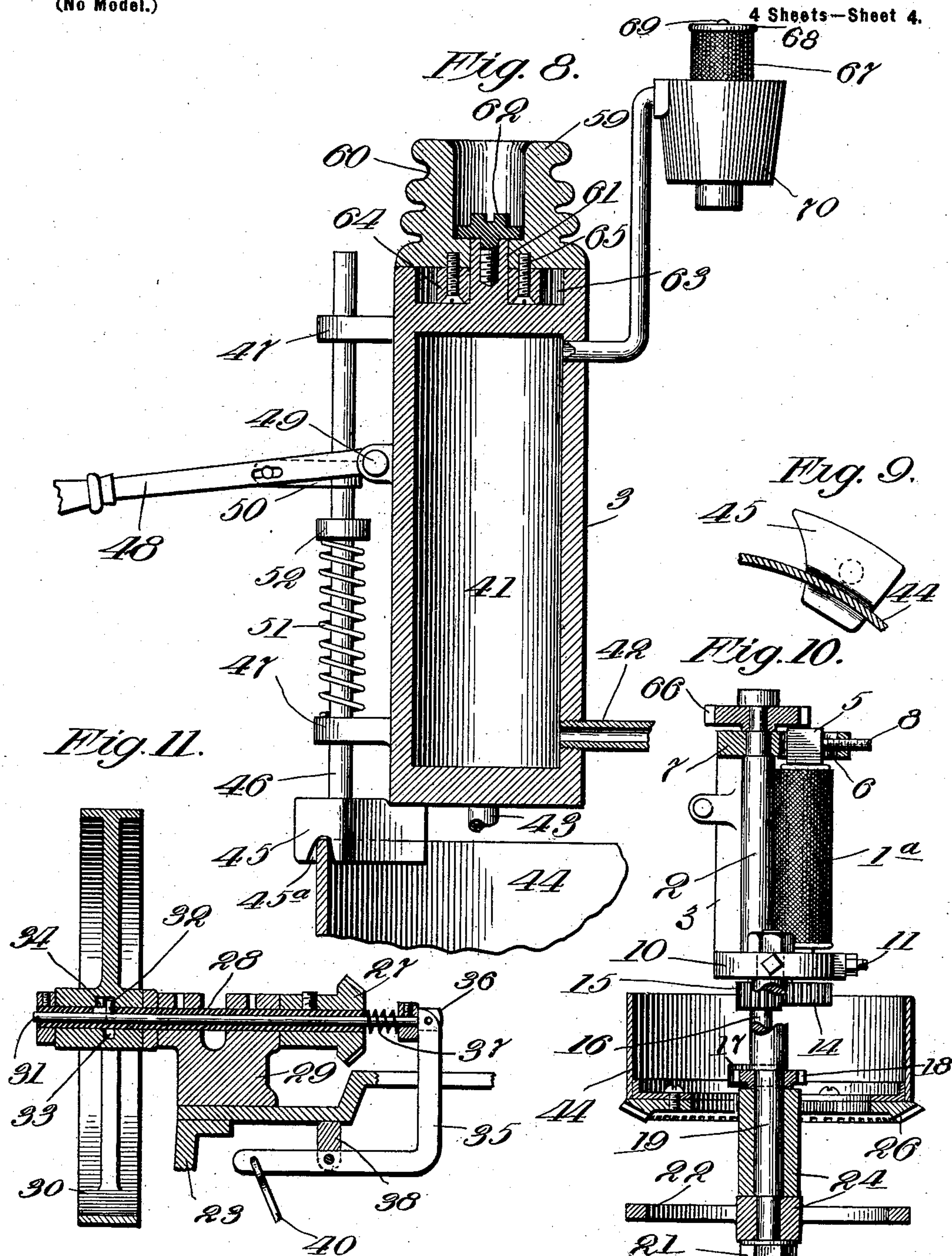
Patented June 3, 1902.

A. R. GUSTAFSON.
MACHINE FOR SHAPING AND SMOOTHING COLLARS OR LIKE ARTICLES.

(Application filed Oct. 15, 1900.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses:
J. B. Weir
Ira D. Perry

Inventor:
A. R. Gustafson
by Elliott & Hoopes
Attys

UNITED STATES PATENT OFFICE.

AXEL R. GUSTAFSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO ELECTRIC
LAUNDRY MACHINERY CO., OF CHICAGO, ILLINOIS, A CORPORA-
TION OF ILLINOIS.

MACHINE FOR SHAPING AND SMOOTHING COLLARS OR LIKE ARTICLES.

SPECIFICATION forming part of Letters Patent No. 701,715, dated June 3, 1902.

Application filed October 15, 1900. Serial No. 33,033. (No model.)

To all whom it may concern:

Be it known that I, AXEL R. GUSTAFSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Shaping and Smoothing Collars or Like Articles, of which the following is a full, clear, and exact specification.

My invention relates more particularly to and has for its primary object to provide a machine for smoothing the edges of collars and other like articles where frayed or roughened and for imparting to the collar the desired shape or curvature, a further object being to fold or crease turned-down collars without bending them so abruptly as to make them unsightly and strain or break the linen.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a front elevation of my improved machine. Fig. 2 is an enlarged vertical sectional view of the moistener, hereinafter described, for moistening the edge of the collar, cuff, or other like article to be smoothed. Fig. 3 is a detail vertical sectional view of the steam-moistener hereinafter described. Fig. 4 is a side elevation thereof. Fig. 5 is a side elevation of the machine looking at right angles to the view presented in Fig. 1. Fig. 6 is a plan view thereof. Fig. 7 is an enlarged transverse sectional view taken on the line 7 7, Fig. 5. Fig. 8 is a vertical section taken on the line 8 8, Fig. 7. Fig. 9 is a detail view of the under side of the grooved smoothing-iron, hereinafter described, showing the edge of the collar-support in section. Fig. 10 is a vertical sectional view taken on the line 10 10, Fig. 6; and Fig. 11 is a vertical longitudinal sectional view of the driving-shaft and clutch mechanism hereinafter described.

In the machine which constitutes an em-

bodiment of my invention I have provided means for shaping turn-down collars so as to give them the desired crease and curvature without bending the same so abruptly as to make them unsightly or injure the fabric and at the same time to impart to the edge of the collar a smooth and, if desired, glossy appearance, this part of my invention being especially useful in smoothing rough places where the collar is frayed or the linen broken on the edge.

The machine also embodies means for dampening the edge of the collar, so as to remoisten the starch preparatory to this treatment without deteriorating the appearance of other parts of the surface which have been previously ironed.

My invention also embodies means for subjecting the extreme upper edges of standing collars and the outer edges of cuffs as well, if desired, and the lower edges of turn-down collars to an ironing operation, whereby they may be relieved of the saw-edge condition commonly occurring after laundering a cuff or collar which has been worn, and the machine also embodies means for imparting the desired curvature to both standing and turn-down collars, as well as to cuffs and other like articles.

It is well understood that after a turn-down collar has been folded it is desirable to curve it to approximately fit the neck, and it is also desirable that standing collars be likewise treated after they have been ironed flat. In Fig. 1 of the drawings I have shown a turn-down collar in the act of having imparted to it this curvature, which is produced by passing its end between a friction feed-roller 1 and a plain roller 2, arranged adjacent to a heated member 3, which is provided on one side contiguous to the rollers 1 2 with an outwardly-extending concaved projection 4, which extends vertically or longitudinally of the rollers 1 2 and projects approximately between them a little closer to the roller 1 than the roller 2, so that as the end of the collar emerges from between the rollers when passing in the direction of the arrows shown in Fig. 7 it will strike the concaved face of the

projection 4, adjacent to the roller 2, and will be thereby deflected outwardly or approximately around the inner side of the roller 2 and will be thus given the desired curvature, as will be understood. The surface of the friction-roller 1 is rendered frictional in any suitable manner. I have shown it provided with one or more thicknesses of a fabric 1^a, wound thereon, so as to afford sufficient pressure and friction against the collar to impel it through the rollers. The upper end of the roller 1 is journaled in a sliding block or bearing 5, which slides in a slot 6, formed in a plate or bracket 7, the latter being provided with a set-screw 8, which impinges the block 5 and is adapted to adjust the roller 1 with reference to the roller 2, the lower end of the roller 1 being journaled in a block similar to the block 5, mounted in a slot 9 in a support or bracket 10 and capable of adjustment by means of set-screw 11, suitably secured to the bracket 10 by means of plate 12 and screw-bolts 13. The lower end of the roller 1 passes downwardly below the bracket 10 and has secured thereto a gear-wheel 14, which meshes with a pinion 15, secured to the shaft 16 of roller 2, and the shaft 16 is provided with pinion 17, (see Fig. 5,) meshing with a gear 18 on an axle 19, the upper end of which latter is secured by nut 20 in bracket 10, while its lower end is secured by nut 21 in a horizontal portion 22 of the supporting-frame 23. The gear-wheel 18 is loose on the axle 19, but is secured to or formed on a sleeve 24, journaled on axle 19 and having lateral arms or a spider 25, connecting the sleeve with an annular bevel-gear 26, meshing with a bevel-pinion 27, secured to the driving-shaft 28, which is mounted in a suitable bearing 29 on the frame 23, and has journaled loosely on its outer end a belt-pulley or other suitable driver 30, capable of being connected to the shaft 28 by means of a clutch, which is shown as consisting of a rod 31, passing axially through the shaft 28 (see Fig. 11) and having a transversely-projecting pin 32, which when it is desired to permit the pulley to run freely is drawn backwardly into an annular opening 33, formed in the hub of the pulley, so that the pulley may revolve around the pin 32 without obstruction; but when it is desired that the shaft turn with the pulley the rod 31 is pushed outwardly, forcing the pin 32 into a notch 34. The rod 31 may be manipulated by a bell-crank lever 35, to the upper arm of which the rod is connected by a fork 36, a coil-spring 37 being sleeved on the rod between said fork and the pinion 27 for holding the clutch normally out of engagement. The bell-crank 35 is pivoted in a suitable hanger 38 and is operated by a treadle 39, connected to the lower arm of the bell-crank by a rod 40.

By the means described it will be seen that when desired rotative movement may be imparted to the rollers 1 2 for feeding the collar or other article to be operated on between

them and imparting thereto the desired curvature by impingement against the heated member 3.

The member 3 may be heated in any desired way. I have shown it provided with a steam-chamber 41, to which are connected steam inlet and outlet pipes 42 43, which will supply the requisite heat and conduct away the waters of condensation.

The upper side of the annular gear 26 is provided with an annular band 44, which is adapted to fit between the folds of a turn-down collar or other like article and constitute a support therefor, while the upper or folded edge of the collar is being ironed or is having the roughened portions smoothed off, which is done by a smoothing-iron 45, mounted over the band 44 and having a groove 45^a in its under side curved complementary in shape to the band 44 and adapted to fit over the collar and press it down against the band. This smoothing-iron, as shown in Figs. 7 and 8, has one side curved, so as to fit and slide against the outer side of the heated member 3, which imparts its heat thereto and keeps the iron at the requisite temperature at all times, and the iron is mounted on a vertical stem 46, guided by keepers 47, projecting from the side of the member 3. The iron is forced downwardly upon the collar by means of a handle or lever 48, having one end pivoted at 49 to the side of the member 3 and connected by an arm 50 to the stem 46. When pressure on the lever 48 is relieved, the iron 45 is returned to its upper normal position by means of a spring 51, sleeved on the stem 46 and bearing between the lower keeper 47 and a collar 52 on the stem. After the collar has been put in place over the upper edge of the annular supporting-band 44 the foot-treadle 39 is depressed and revolving motion imparted to the band 44, causing the collar to drag through the groove of the smoothing-iron 45 as the collar passes under such iron one or more times until the desired result is accomplished. Before subjecting the edge of the collar to this operation, however, it is desirable to remoisten the starch, and in order that this may be accomplished without spoiling the finish of the collar at other places which cannot be reached and refinished by the iron 45 I provide one or more steam-nozzles, such as shown in Figs. 3 and 4. These nozzles consist of flattened fan-shaped chambers 53 54, provided with threaded nipples 55, respectively, adapted to be screwed into a branch 57 of the steam-supply pipe 42, the upper attenuated edges of the nozzles being provided with narrow slits, which will permit the steam to escape in a more or less condensed condition. The collar to be moistened is placed over one of these nozzles in its folded condition, so that the upper narrower edge of the nozzle will bear along the fold of the collar, and as the collar is drawn back and forth thereon the escaping steam will re-

moisten the starch at this fold without dis-
figuring the balance of the finish. The col-
lar may then be placed on the annular sup-
porting-band 44 and ironed by the iron 45, as
5 before described. As is apparent from Fig.
6, one of these nozzles (the nozzle 53) is curved
in plan view—that is, transversely—so as to
conform to the shape of the collar after it has
been once curved, the other nozzle, 54, being
10 straight to accommodate collars that have not
been curved. Both nozzles, however, are
straight across the top, as shown in Fig. 1.
Each nozzle is also provided with a regulat-
ing-cock 58, whereby the steam may be turned
15 on as desired. At the upper end of the heated
member 3 I have shown an annular revolving
iron 59, having one or more peripheral grooves
60 for the purpose of smoothing the single
edges of the collars, cuffs, and other like ar-
20 ticles where frayed or roughened. This iron
59 rests upon the upper end of the heated
member 3 and is journaled on a stud-shaft 61,
projecting from the top thereof, the iron be-
ing held in place by a screw 62, screwed in
25 the end of said shaft, and mounted in a cavity
63 in the upper end of the member 3 is a gear-
wheel 64, which is secured by screws 65 to the
bottom of the iron 59, the gear-wheel being
journaled on the shaft 61. The side of the
30 cavity 63 is open, as indicated in Figs. 5 and
6, for the admission of the edge of a driving-
pinion 66, secured to the upper end of the
shaft of roller 2, which passes through the
bracket 7, as shown in Fig. 10, so that the
35 motion of roller 2 will be imparted to the iron
59. Preparatory to holding the edge of the
collar or cuff or other article in either of the
grooves 60 for the purpose described it is first
drawn across a dampening-roller 67, which is
40 in the form of a spool 68, journaled on a pin
69, mounted in a cup 70 for water or other
solution, the surface of the roller 67 being
composed of some suitable absorbent, such as
cloth, for taking up the water. Thus it will
45 be seen that by depressing the treadle 39 all
of the revolving parts of the machine may be
set in motion ready for use, as desired.

It will be seen that the base or plate 10,
which supports the heated member or mem-
50 ber 3, is pivoted concentrically with the an-
nular supporting ring or band 44 by being
mounted directly upon the upper end of the
standard 19, which also constitutes the center
of the gear-wheel 18. Hence it will be seen
55 that the smoothing-iron 45 may be adjusted
with reference to the circumference of the
support 44 by simply turning the base-plate
10, together with the parts supported thereon,
until the desired position is attained. The
60 base-plate 10 may then be firmly locked by
means of a set-screw 20^a, projecting through
the end of the plate 10 and impinging the up-
per end of the standard 19. This construction
enables me to set the machine in the most ad-
65 vantageous position for the power-belt, which
drives the wheel 30, and then set the super-

structure or parts carried by the base-plate
10 in the position which will be most conven-
ient to the operator, enabling him to avoid
the driving-belt. At the same time, it will 70
be seen, the train of gears 27 26, 18 17, 14 15,
66 and 64, which drives the annular iron 59,
will be unbroken, and such iron, as well as
the rollers 1 2, will remain in operative con-
nection with the driving-shaft at all points 75
of the adjustment of the base 10 by reason of
one of said gears—to wit, the gear 18—being
concentric with the pivot of the base 10.

Having thus described my invention, what
I claim as new therein, and desire to secure by 80
Letters Patent, is—

1. In a machine for the purpose described
the combination of a heated member, a fric-
tion-roller and a guide-roller arranged con-
tiguous to said heated member and adapted to 85
press the article to be treated against said
heated member and advance said article past
the same, an annular support adapted to fit
within the folds of the article to be treated, a
shaft upon which said support is mounted op- 90
eratively connected with said rollers, means
for rotating said support and a smoothing-iron
having a groove adapted to fit over the edge
of said support, substantially as set forth.

2. In a machine for the purpose described 95
the combination of a revoluble ring or sup-
port for the article to be ironed, a heated
member pivoted concentrically with said ring
or support, an iron supported in connection
with said heated member and having a groove 100
adapted to be depressed over said ring, a
revoluble iron having a groove for smooth-
ing the edge of the article to be treated, ar-
ranged contiguous to so as to receive the
heat from said heated member, revoluble roll- 105
ers arranged contiguous to said heated mem-
ber for guiding the article to be treated there-
against, a driving-shaft and a train of gears
connecting together said revoluble iron, roll-
ers and revoluble ring, having one of its gear- 110
wheels arranged concentrically with said ring
and the pivot of said heated member, where-
by said heated member may be adjusted
around said ring without disconnecting the
gears, substantially as set forth. 115

3. In a machine for the purpose described
the combination of a rotating iron, a friction-
roller, a guide-roller arranged adjacent to
said friction-roller and a heated member pre-
senting a smoothing surface to said guide and 120
friction rollers and also arranged contiguous
to and heating said rotary iron so that the
one heated member will be common to both
said iron and rollers and serve the twofold
function of acting as a heating and smooth- 125
ing-surface for said rollers and a heater for
said rotary iron, and means for rotating said
iron while in operative relation to said heated
member, substantially as set forth.

4. In a machine for the purpose described 130
the combination of a heated member, two roll-
ers arranged adjacent thereto and adapted to

press the article to be treated thereagainst, means for driving one of said rollers, a rotary iron arranged adjacent to and heated by said heated member and means for operatively
5 connecting one of said rollers with said rotary iron whereby said roller will serve the twofold purpose of a shaft for rotating said iron and

pressing the article to be treated against said heated member, substantially as set forth.

AXEL R. GUSTAFSON.

Witnesses:

EDNA B. JOHNSON,
JNO. G. ELLIOTT.