United States Patent [19]

Vornberger

[11] E **Re. 29,120**

[45] Reissued **Jan. 25, 1977**

[54] **CEMENT LASTING THE SIDE AND HEEL PORTIONS OF A SHOE ASSEMBLY**

[75] Inventor: **Walter Vornberger,** Tewksbury, Mass.

[73] Assignee: **International Shoe Machine Corporation,** Nashua, N.H.

[22] Filed: **May 24, 1976**

[21] Appl. No.: **689,392**

Related U.S. Patent Documents

Reissue of:

[64] Patent No.: **3,945,075**
Issued: **Mar. 23, 1976**
Appl. No.: **578,682**
Filed: **May 19, 1975**

U.S. Applications:

[62] Division of Ser. No. 467,522, May 6, 1974.

[52] **U.S. Cl.** **12/145;** 12/10.5
[51] **Int. Cl.²** **A43D 21/00**
[58] **Field of Search** 12/10.1, 10.5, 10.8, 12/12.4, 14.2, 127, 145

[56] **References Cited**

UNITED STATES PATENTS

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3,397,417	8/1968	Kamborian	12/145
3,579,695	5/1971	Boot et al.	12/127

FOREIGN PATENTS OR APPLICATIONS

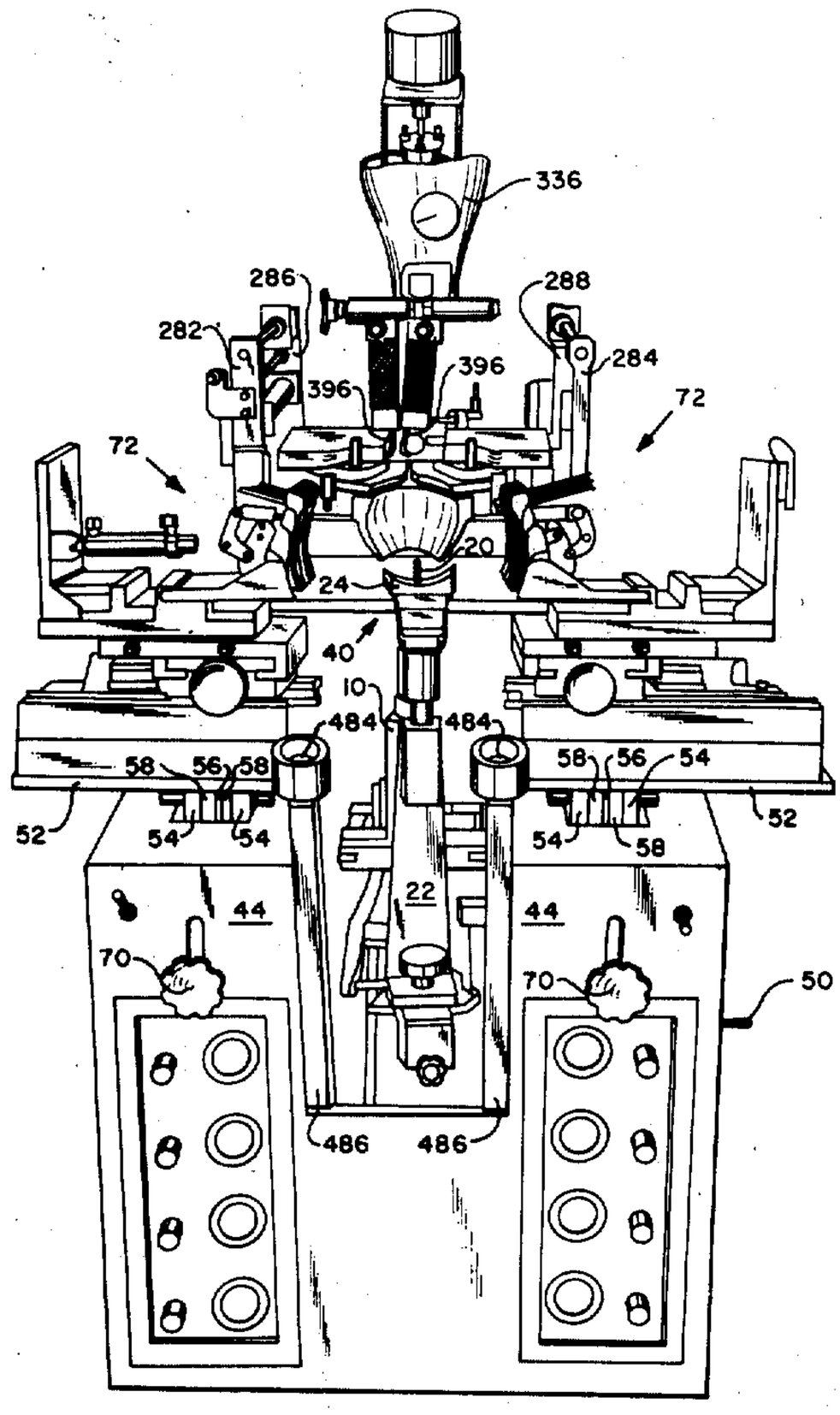
1,222,707	2/1971	United Kingdom	12/10.5

Primary Examiner—Patrick D. Lawson
Attorney, Agent, or Firm—Albert Gordon

[57] **ABSTRACT**

A machine that includes nozzles that move along and apply cement in the corners between the side and heel portions of an upper mounted on a last and the corresponding portions of an insole located on the last bottom and that also includes side wipers and heel wipers that respectively wipe the side and heel portions of the upper margin against the insole and attach the wiped margin portions of the insole by means of the cement.

5 Claims, 35 Drawing Figures



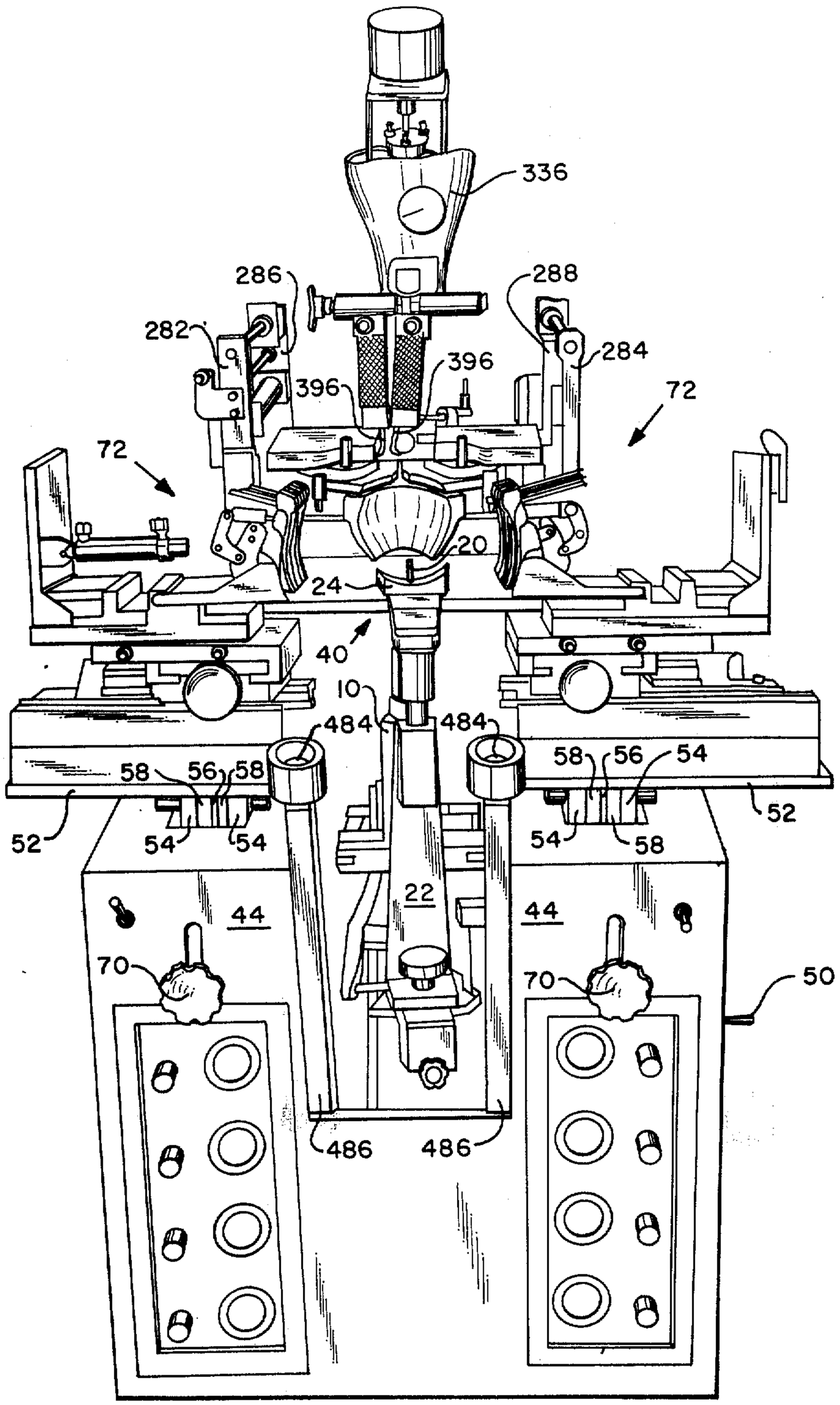

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FIG. 1

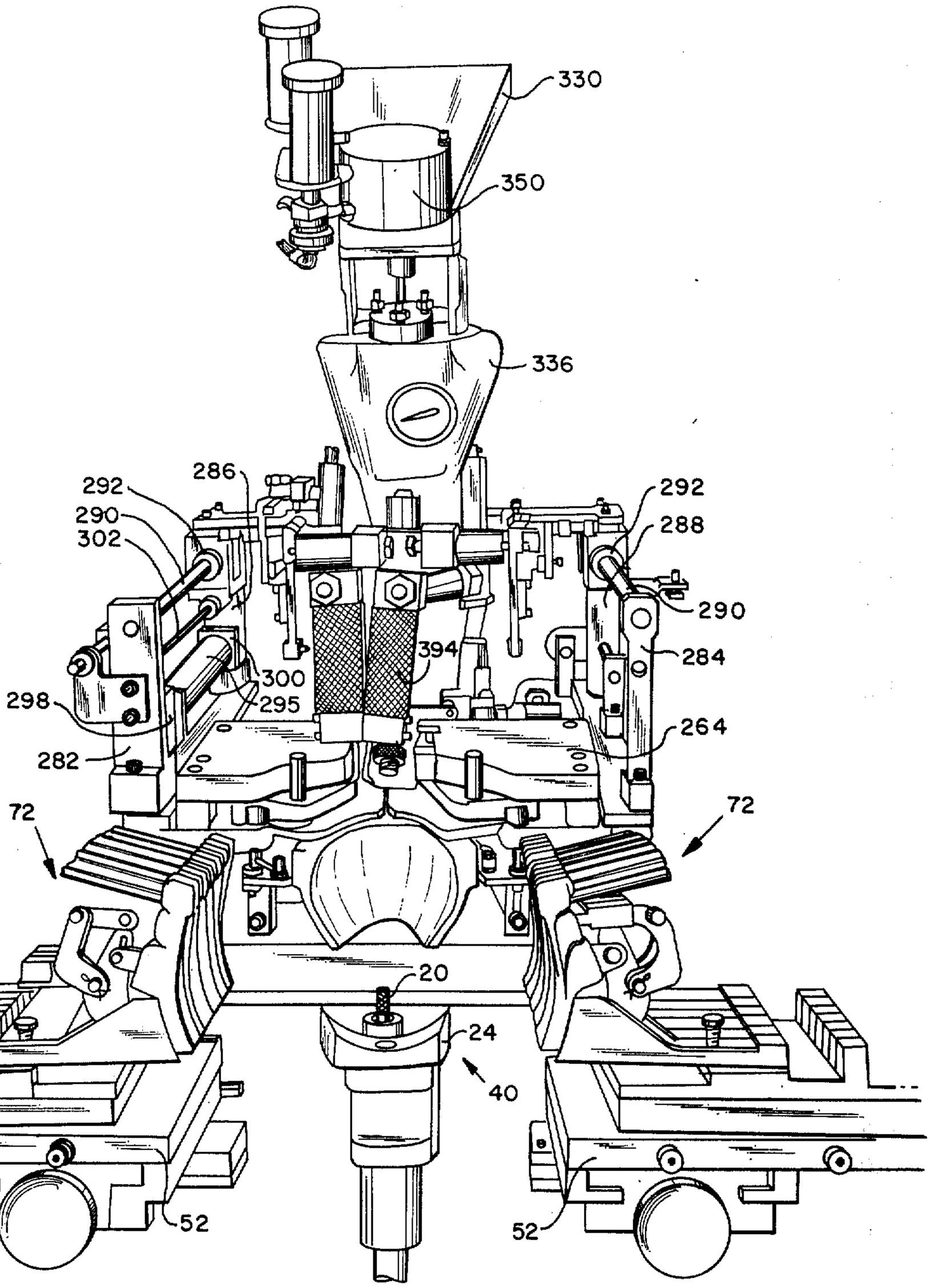
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FIG. 2

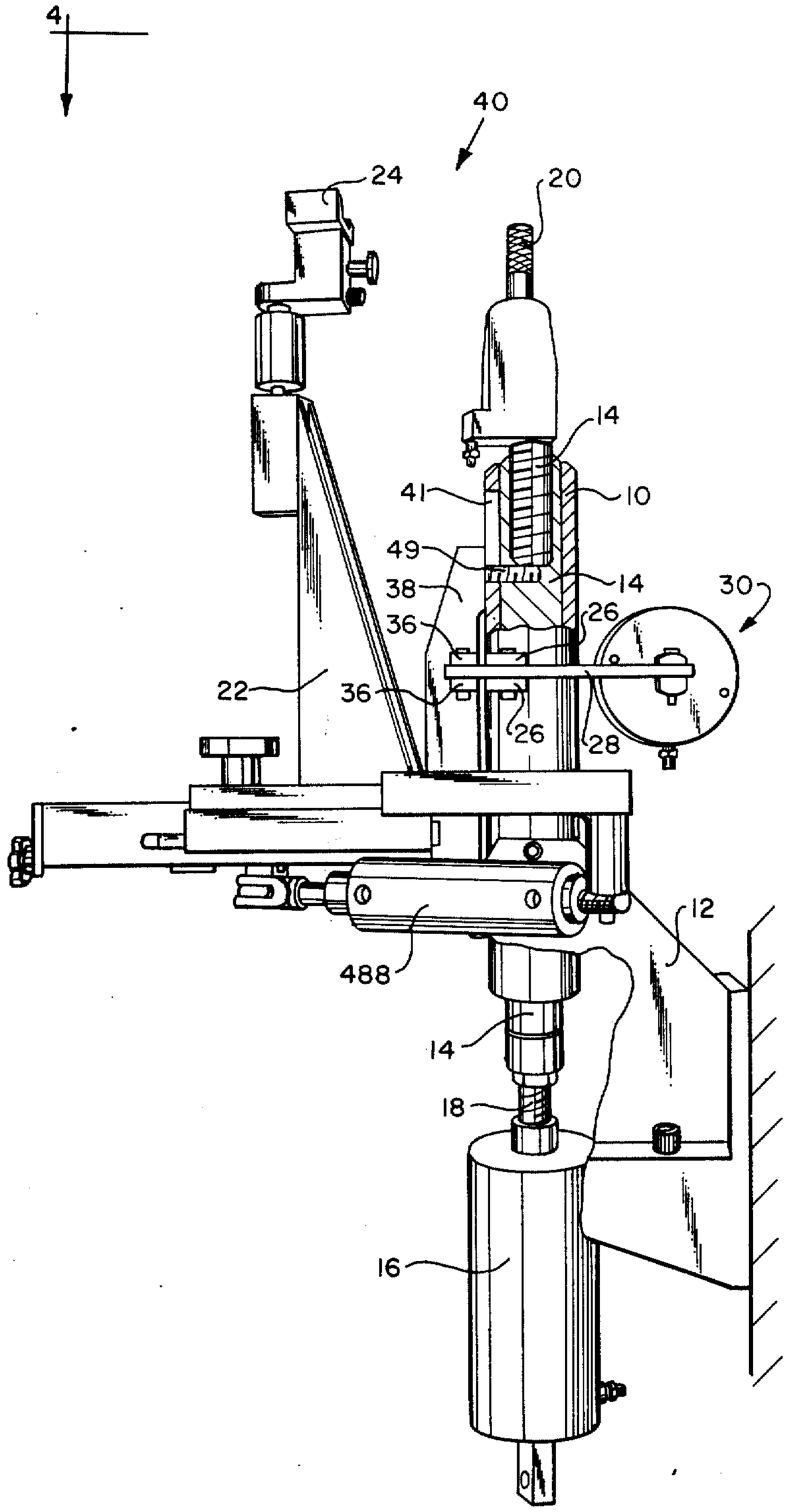
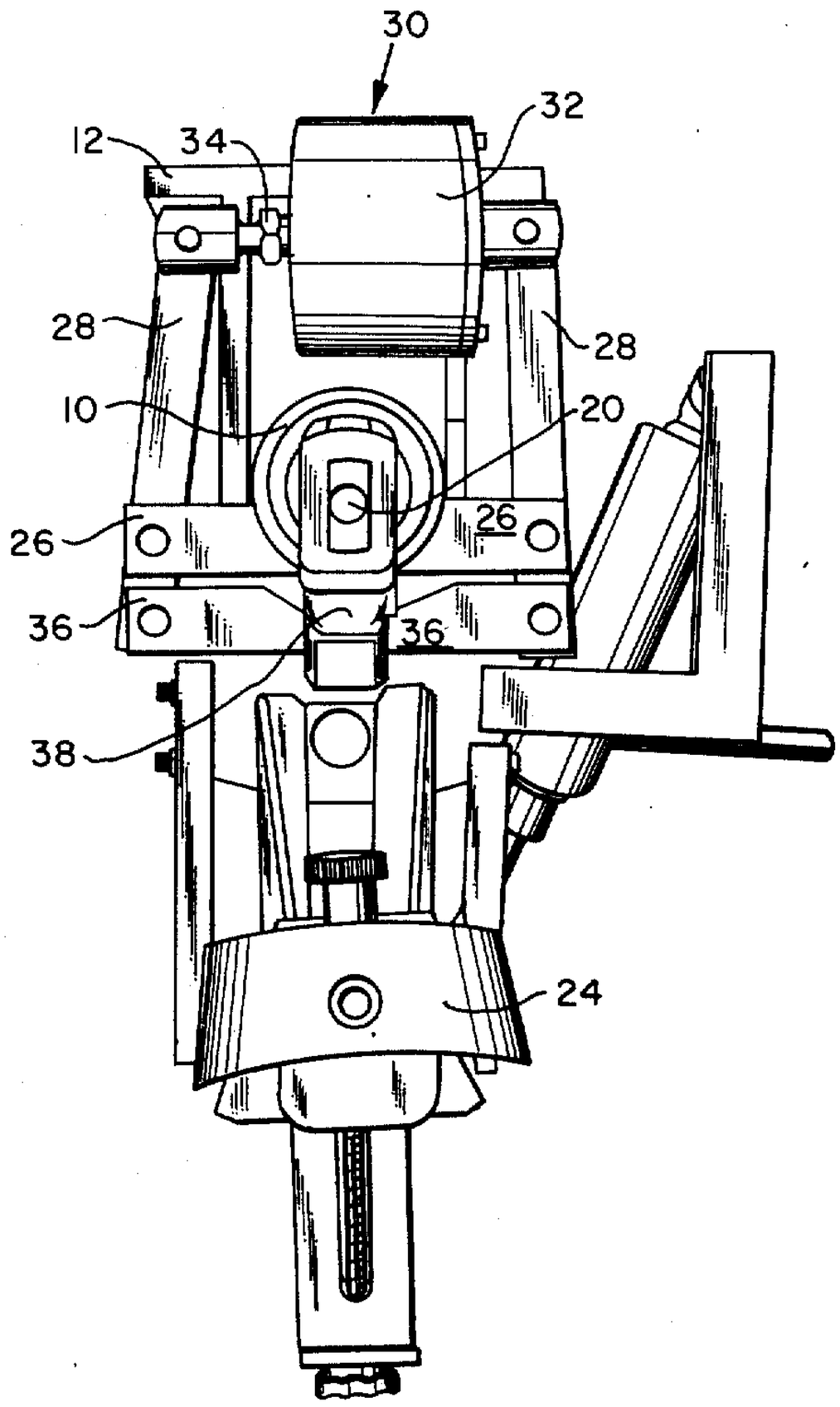


FIG. 3



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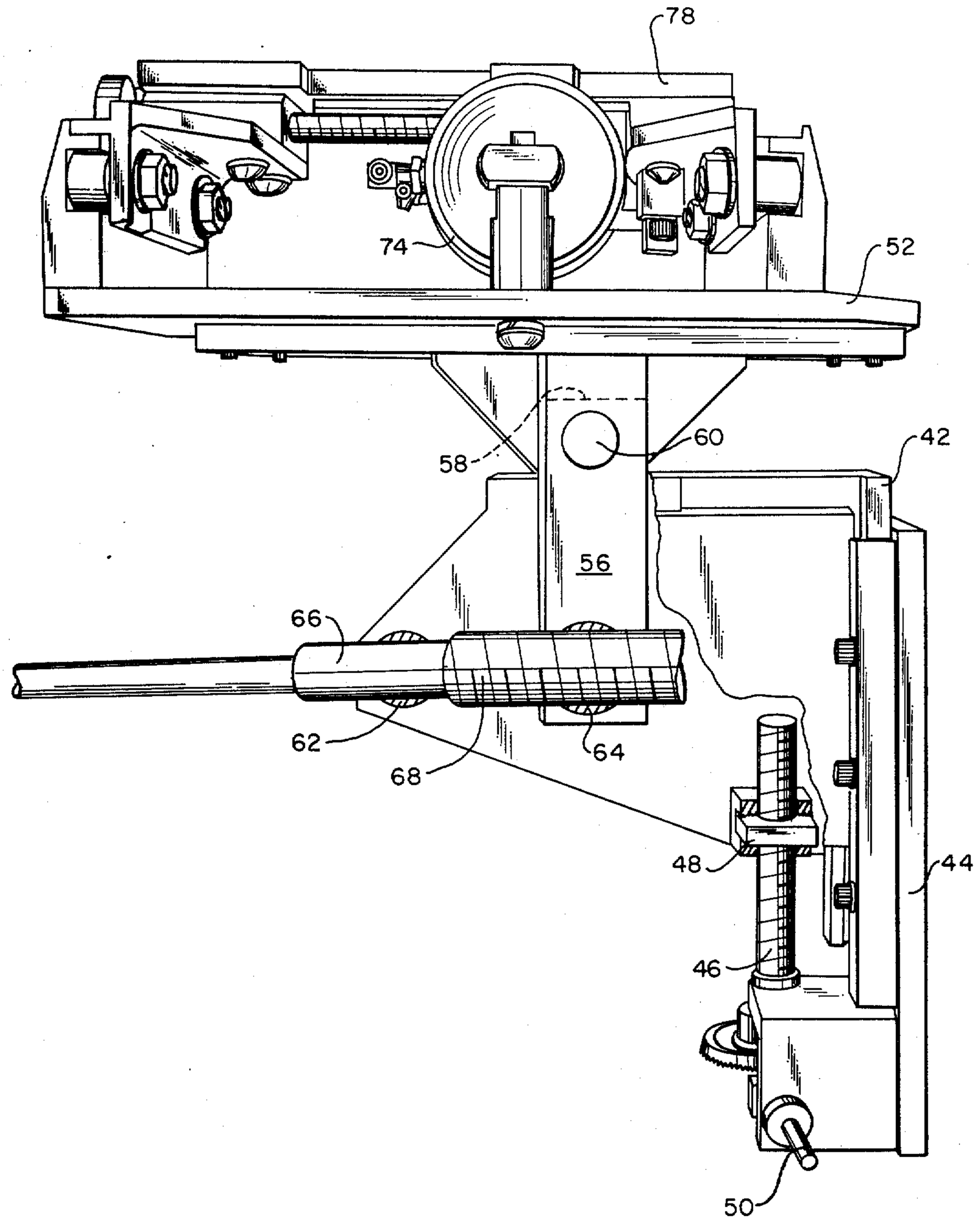

FIG. 5

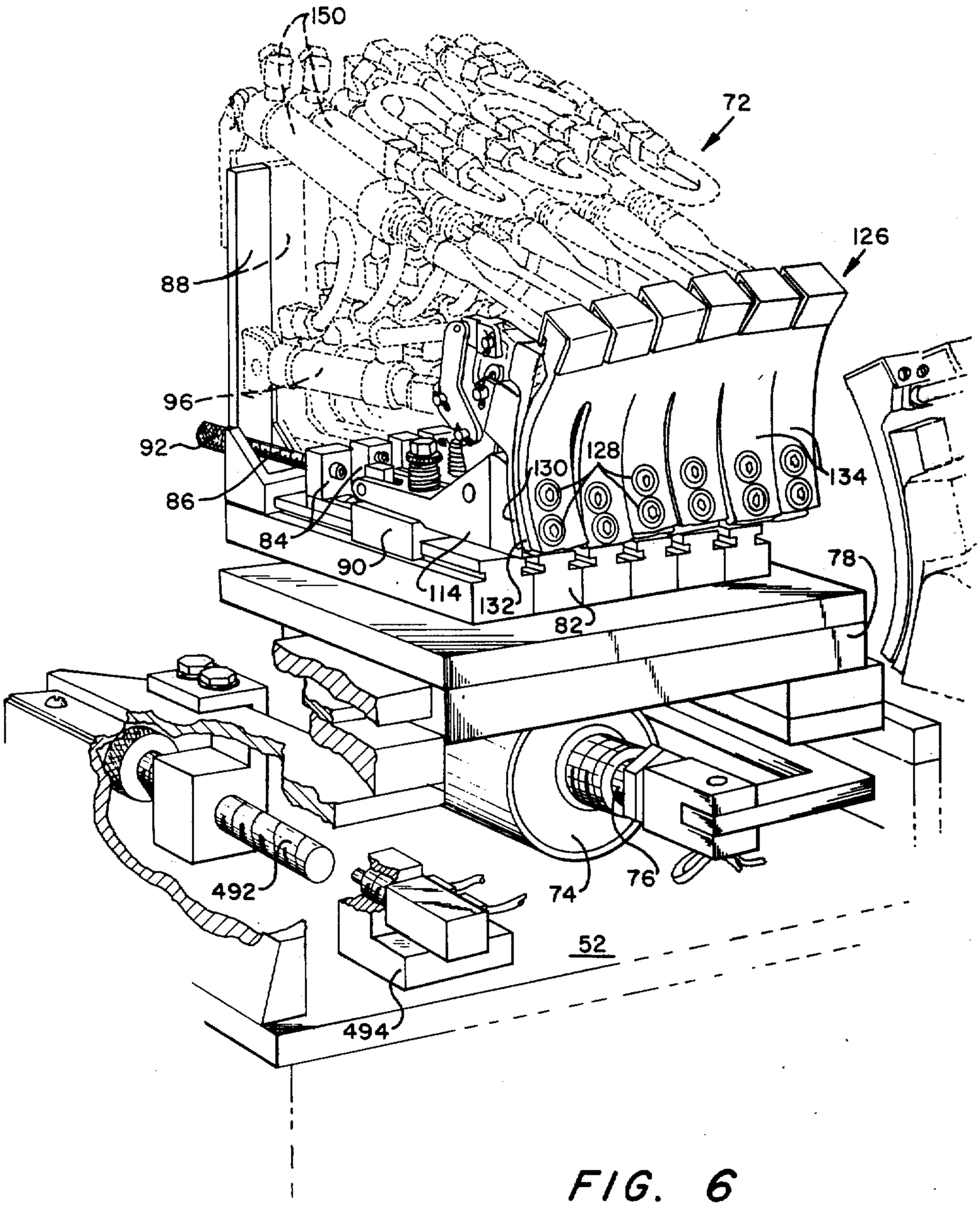
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FIG. 6

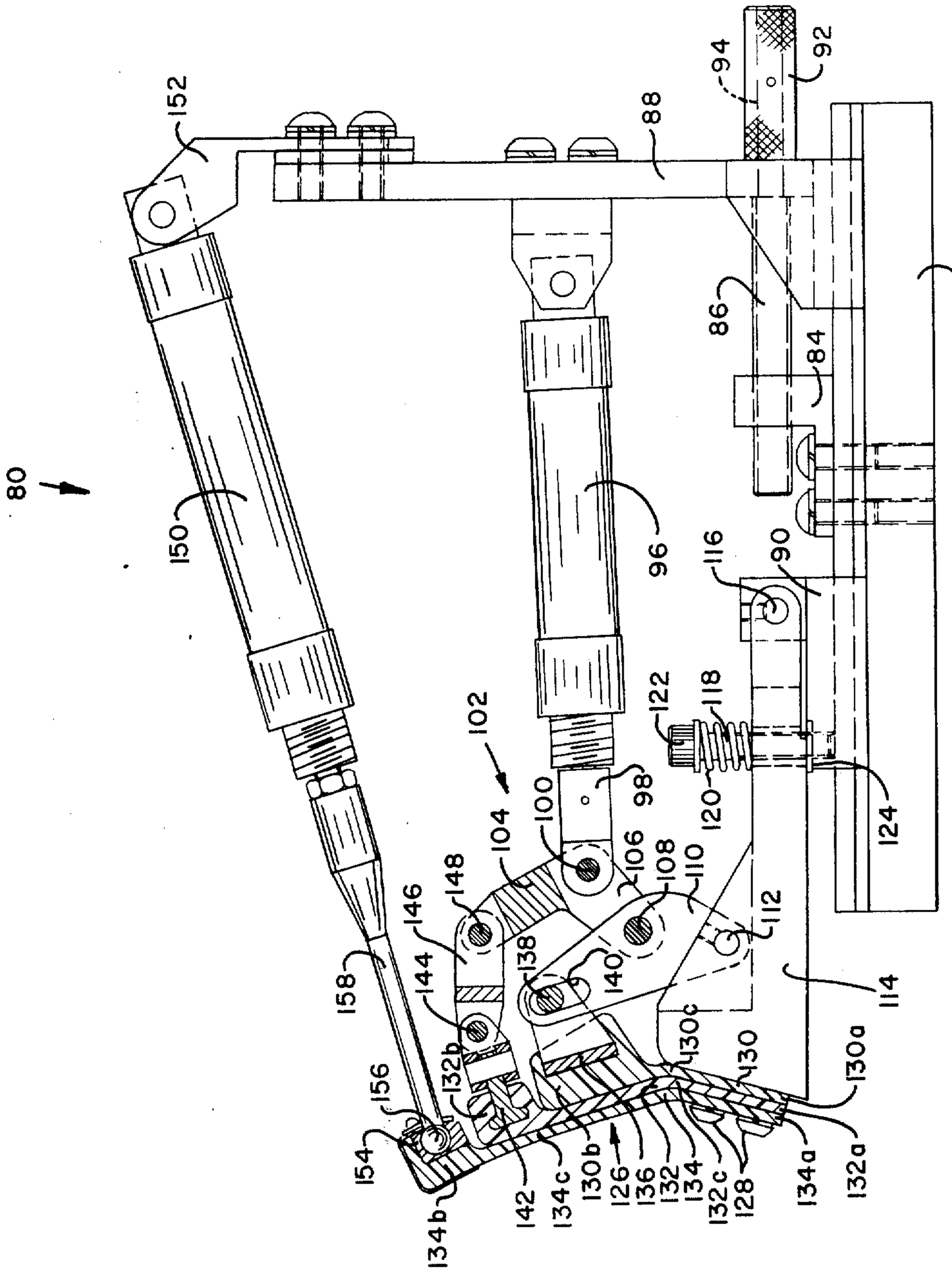
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FIG. 7

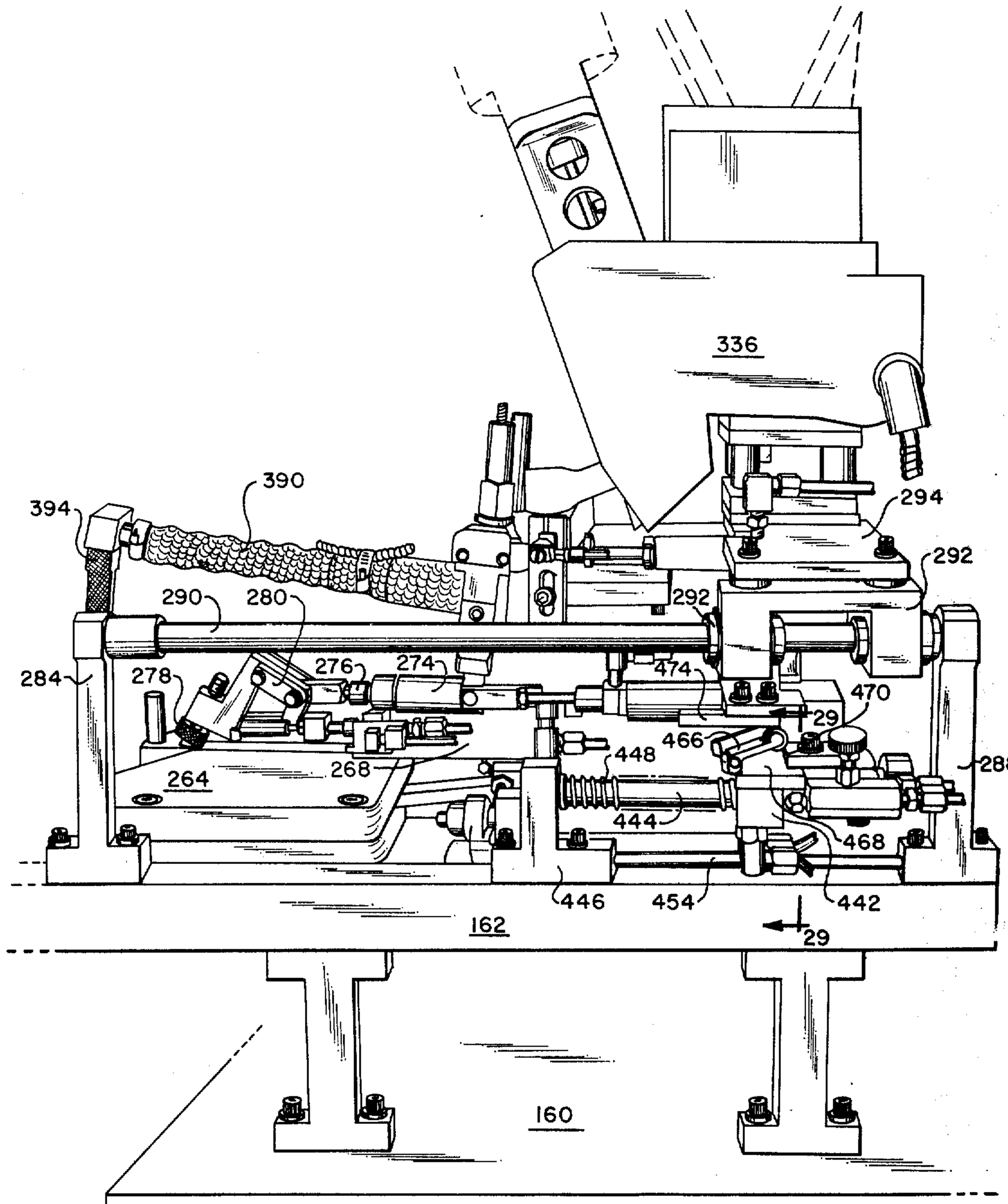
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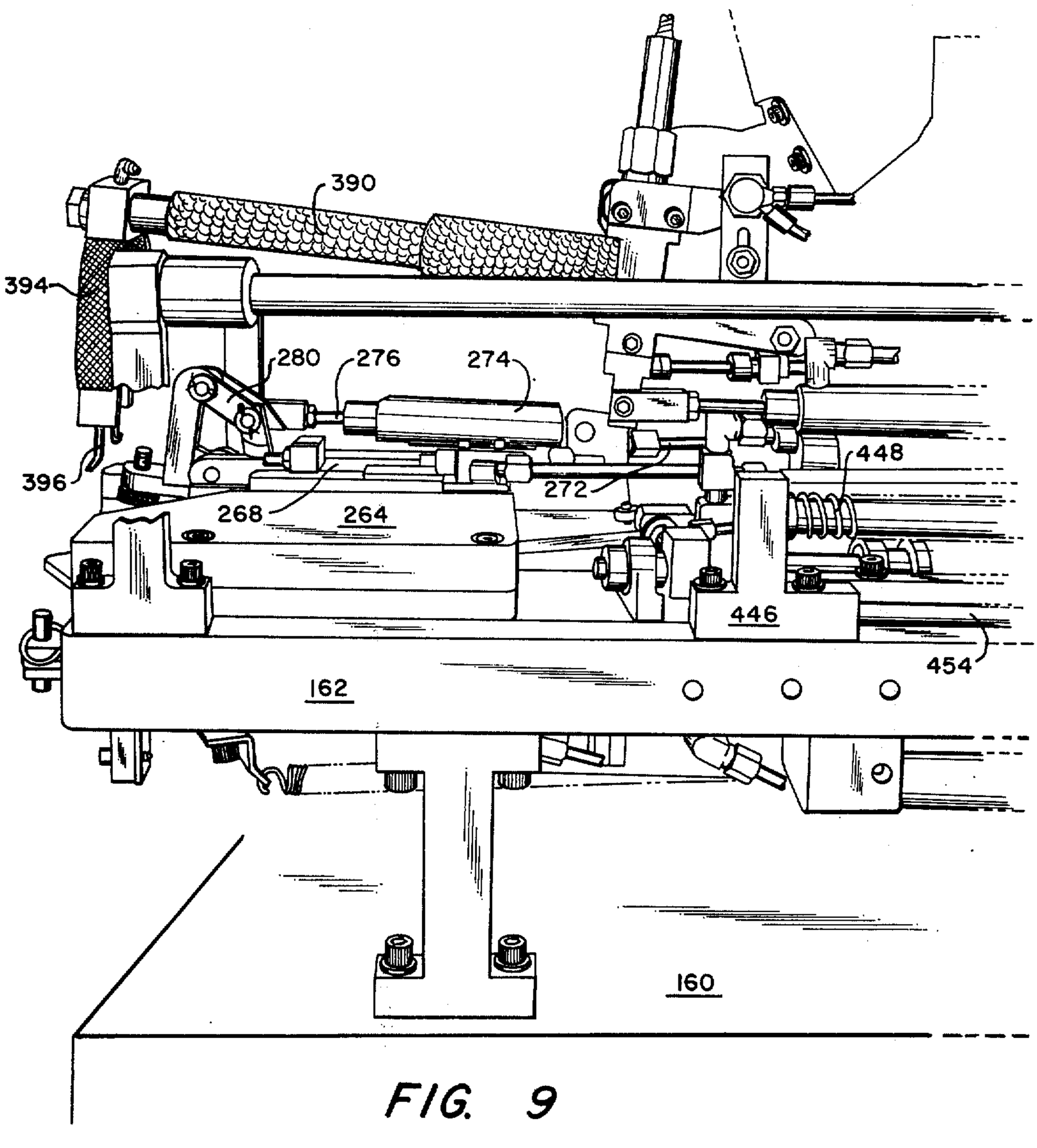
FIG. 8



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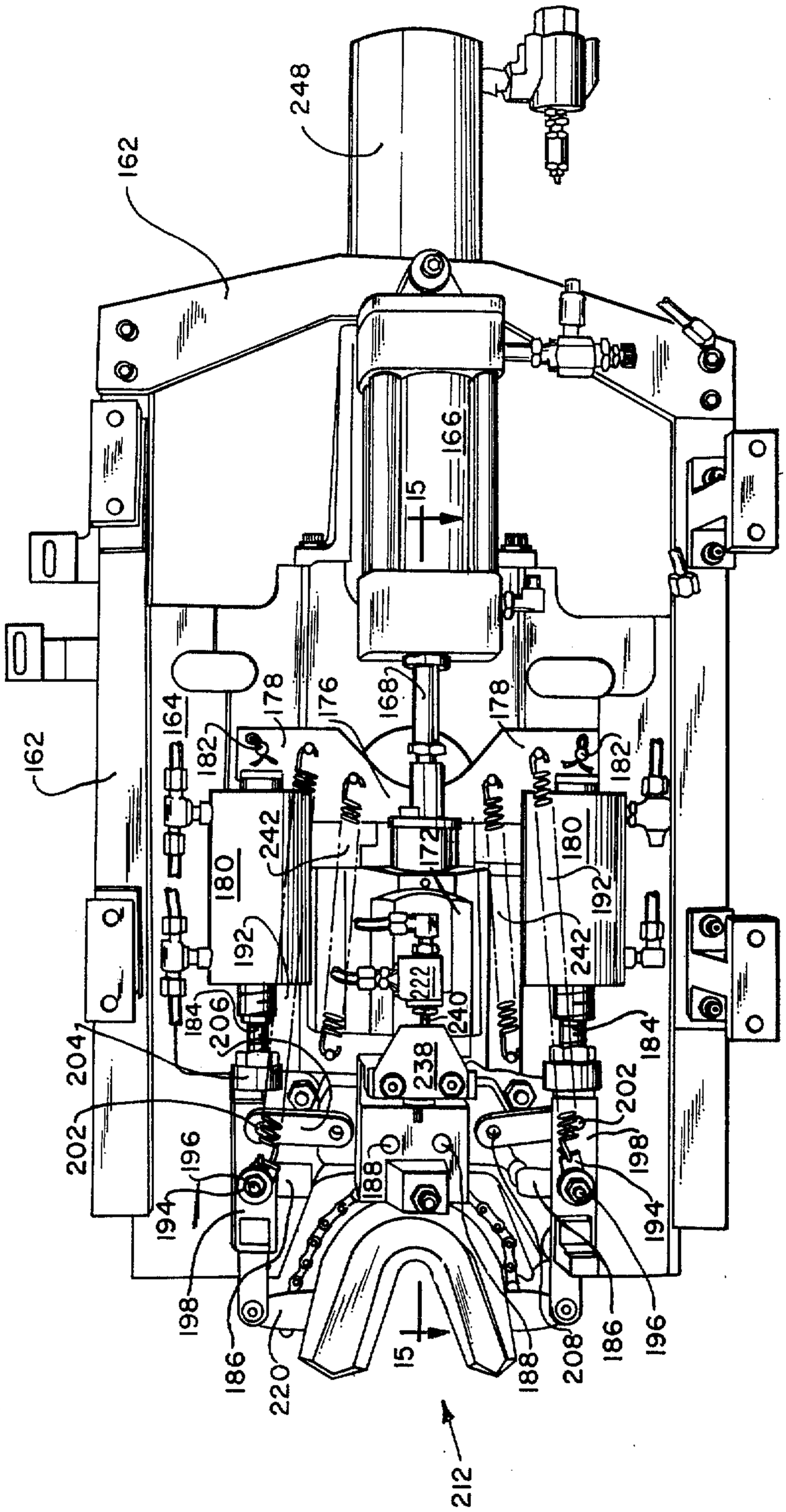
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FIG. 10

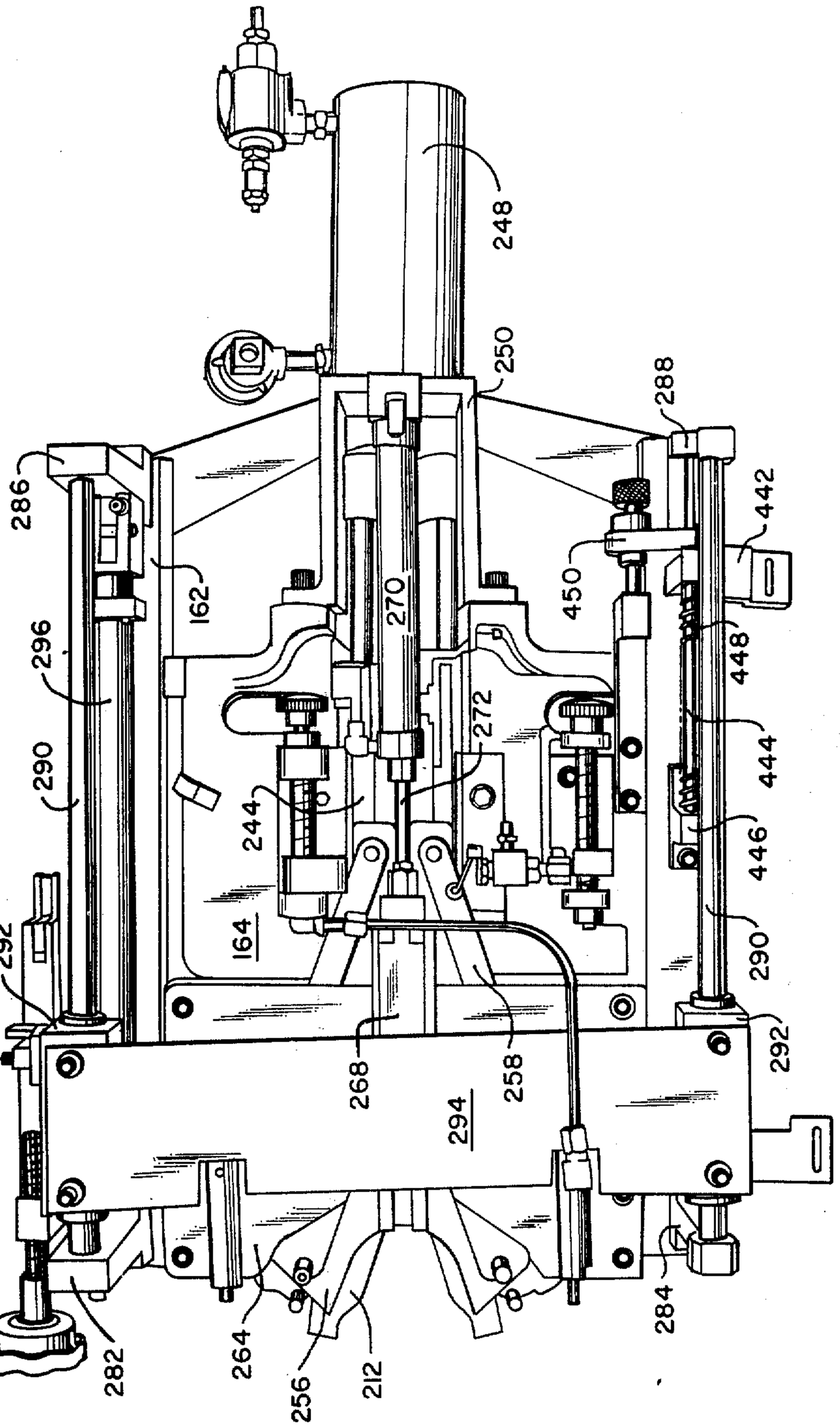
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FIG. 11

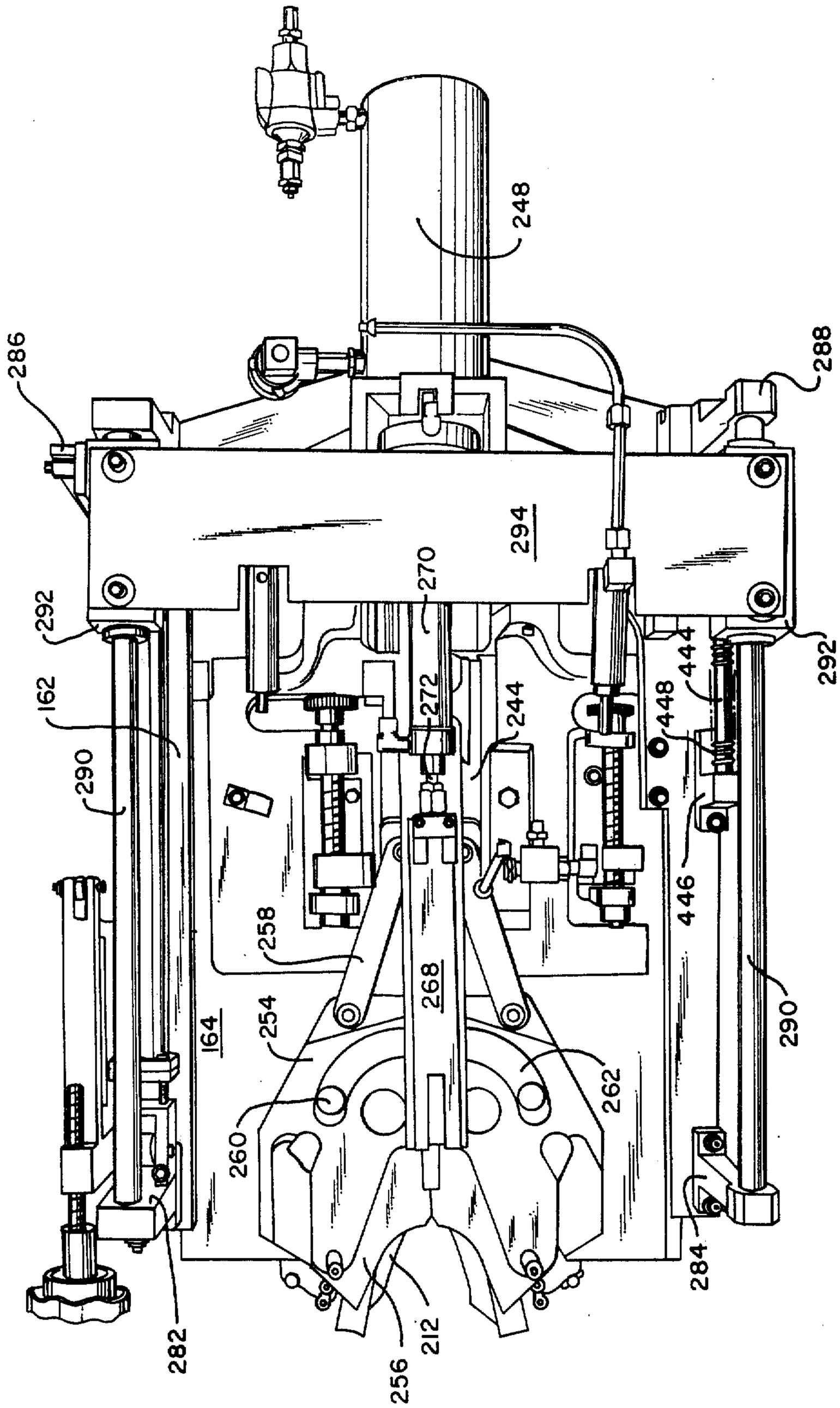
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FIG. 12

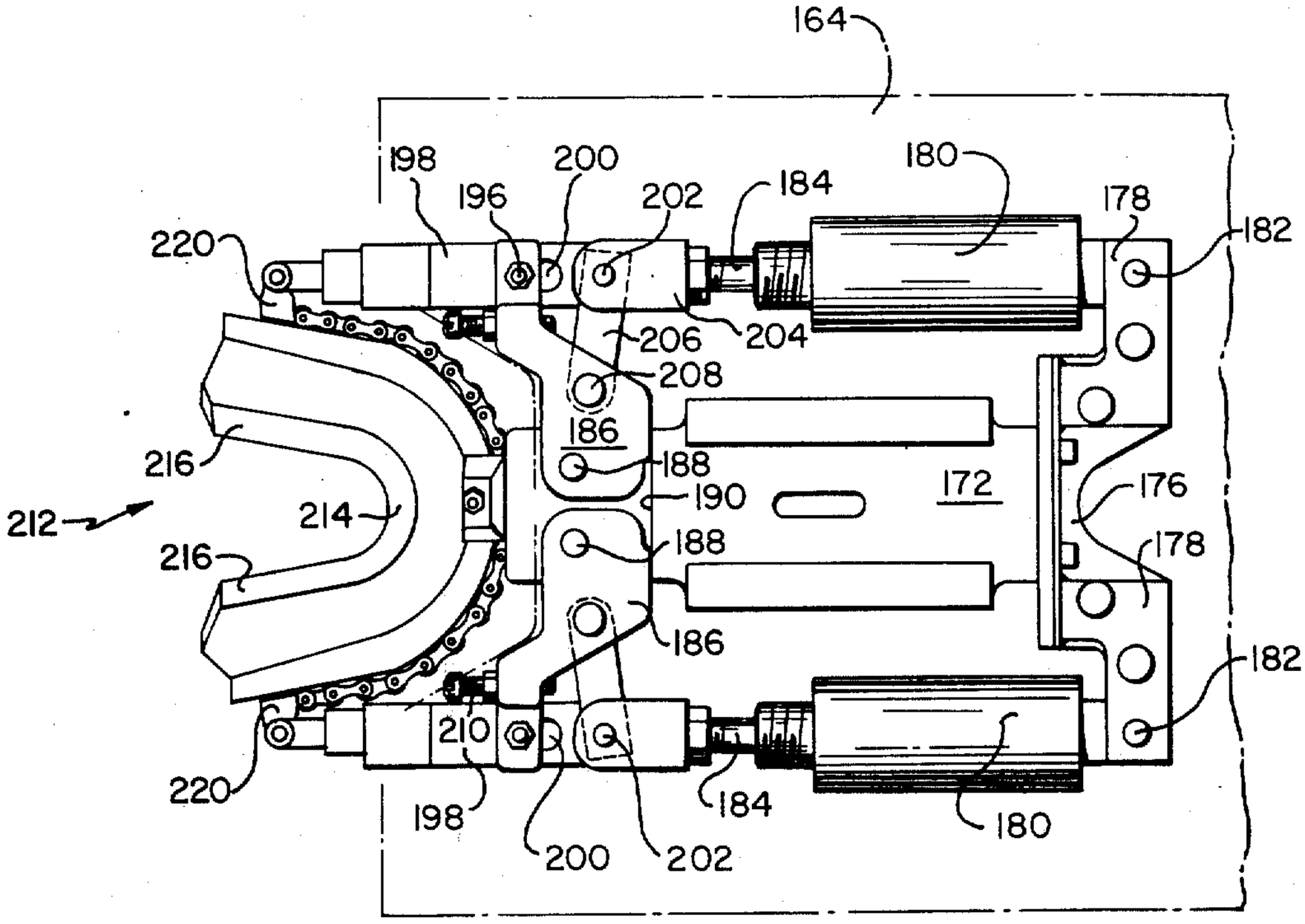
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FIG. 13

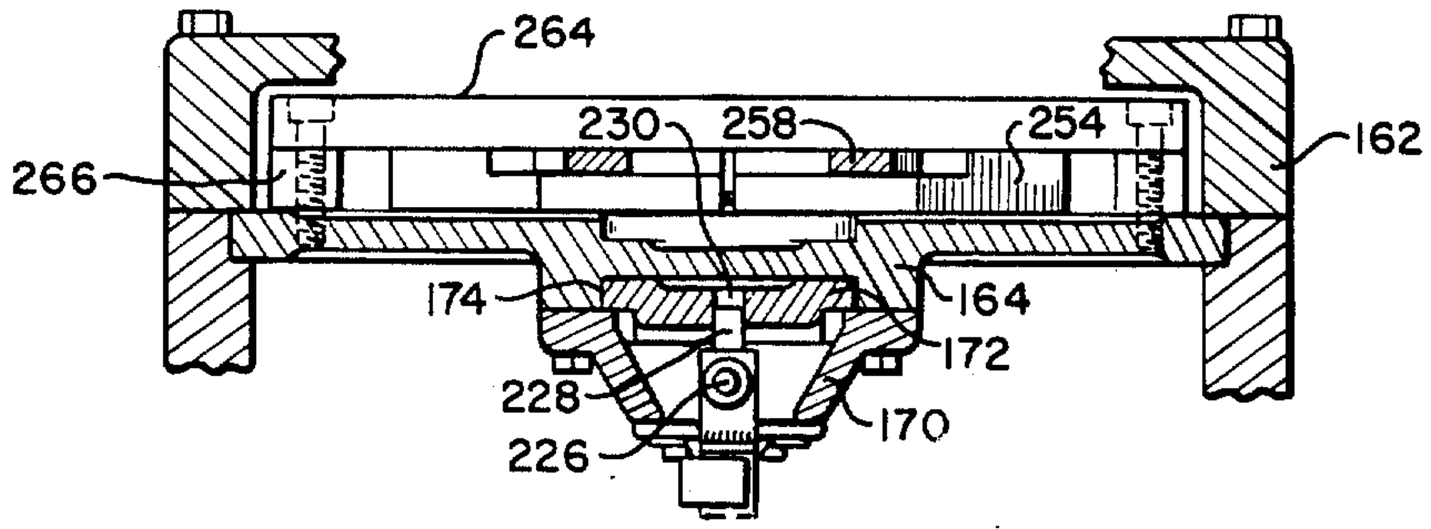
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FIG. 14

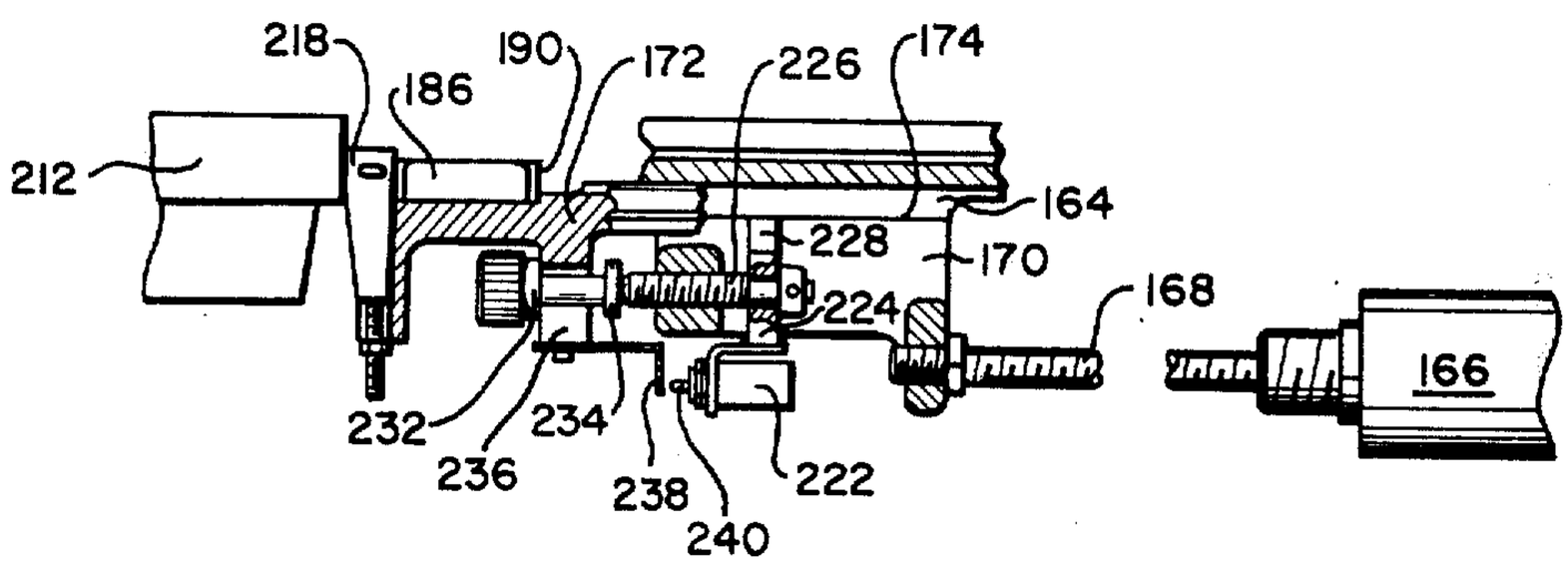
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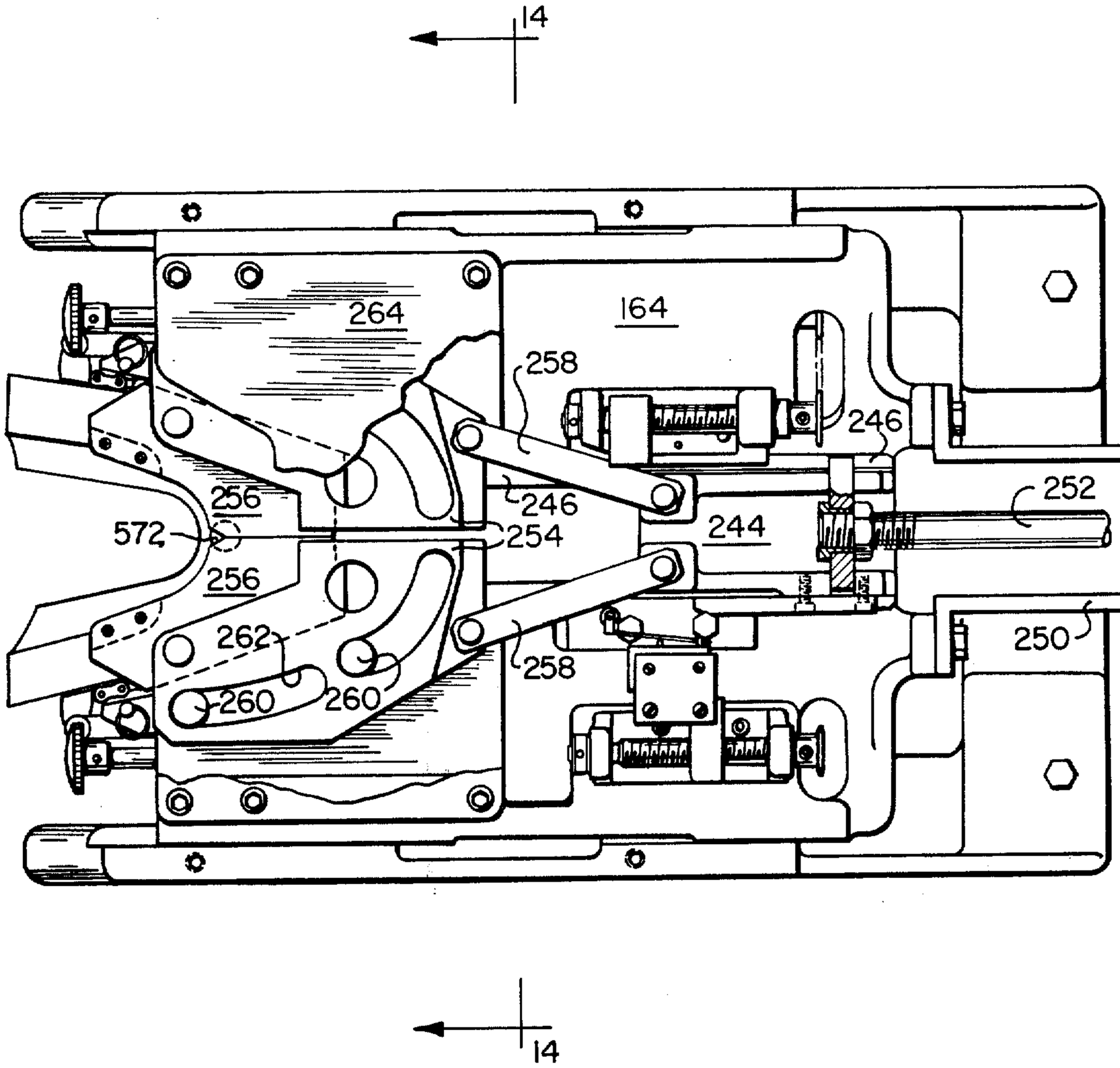
FIG. 15



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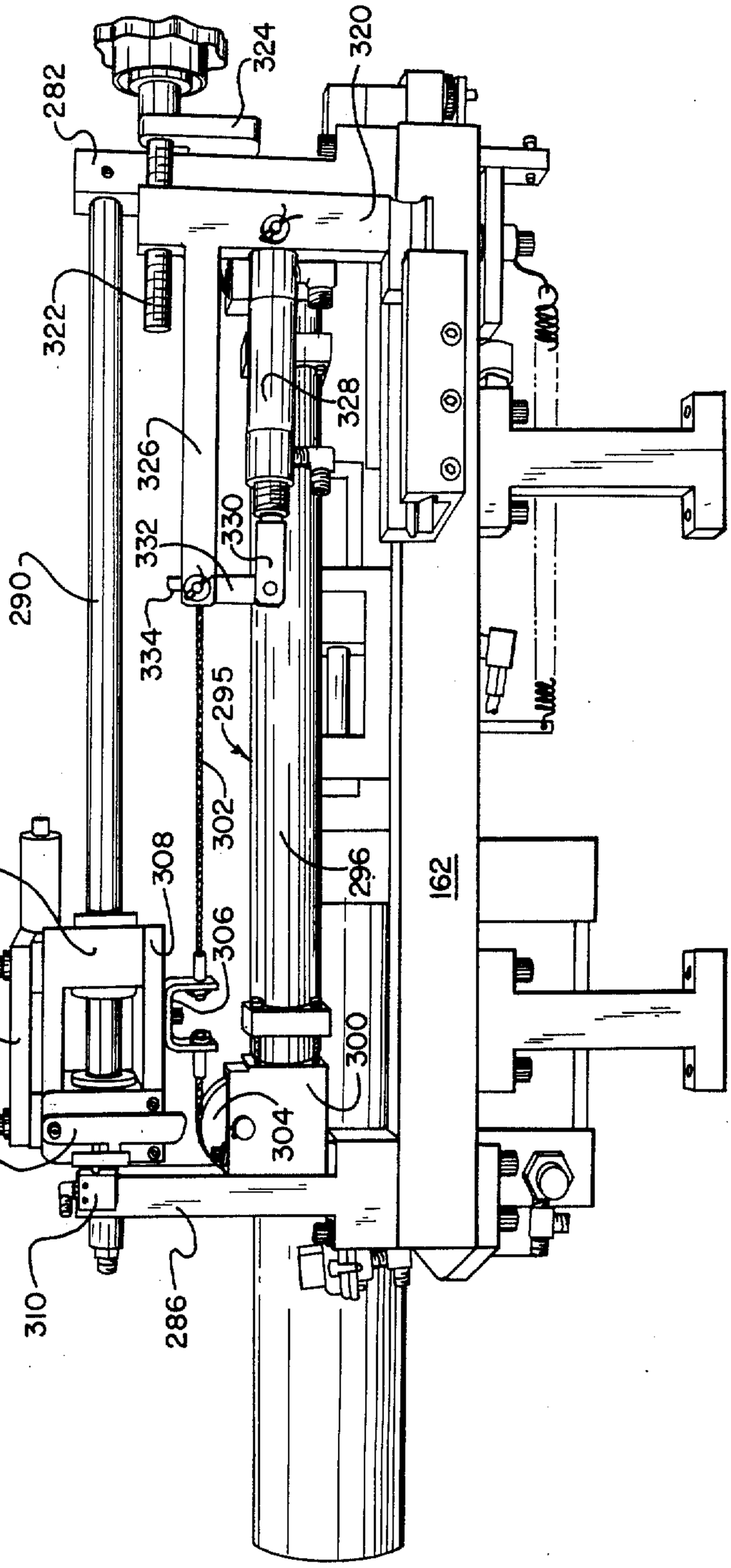
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FIG. 17

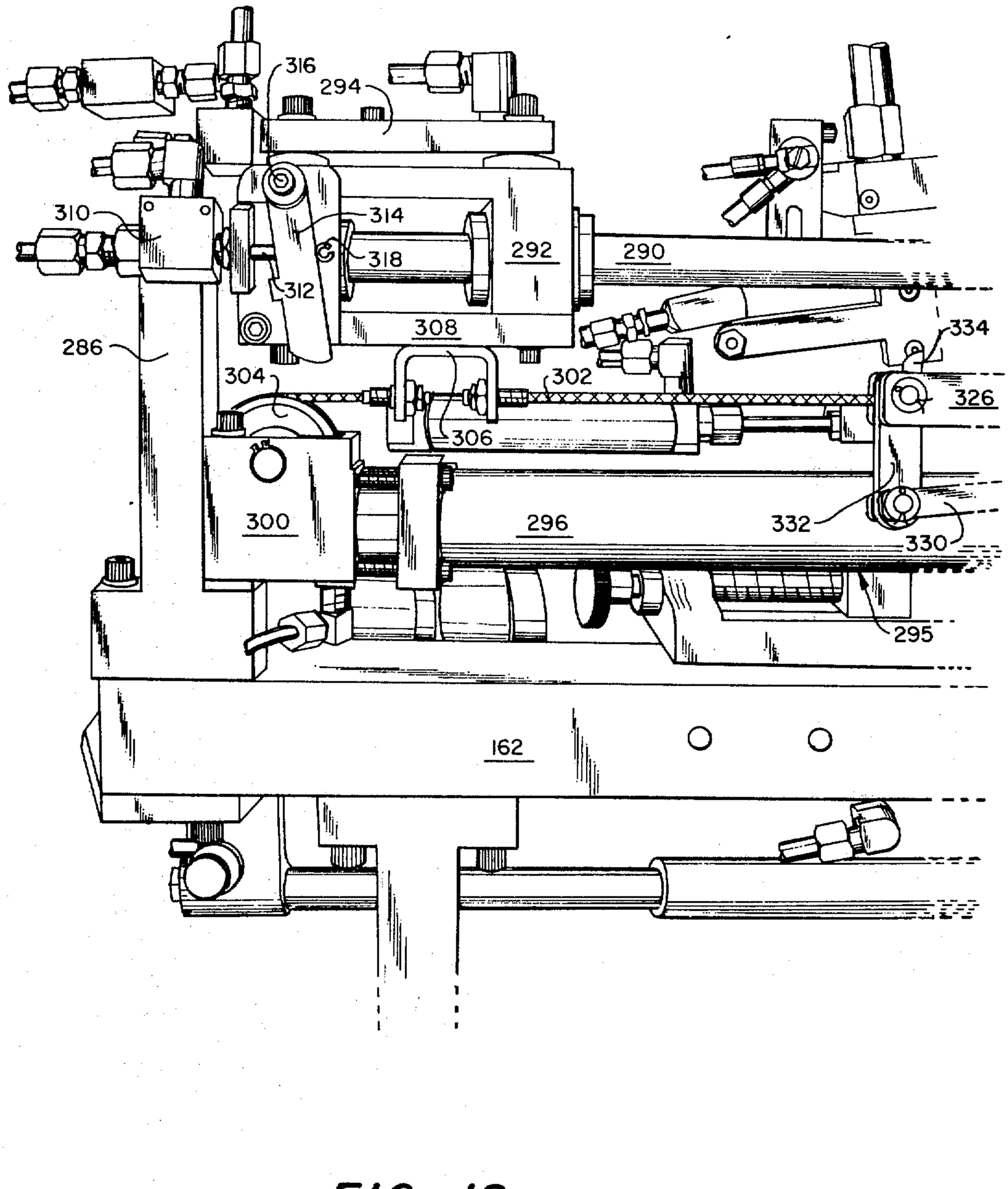
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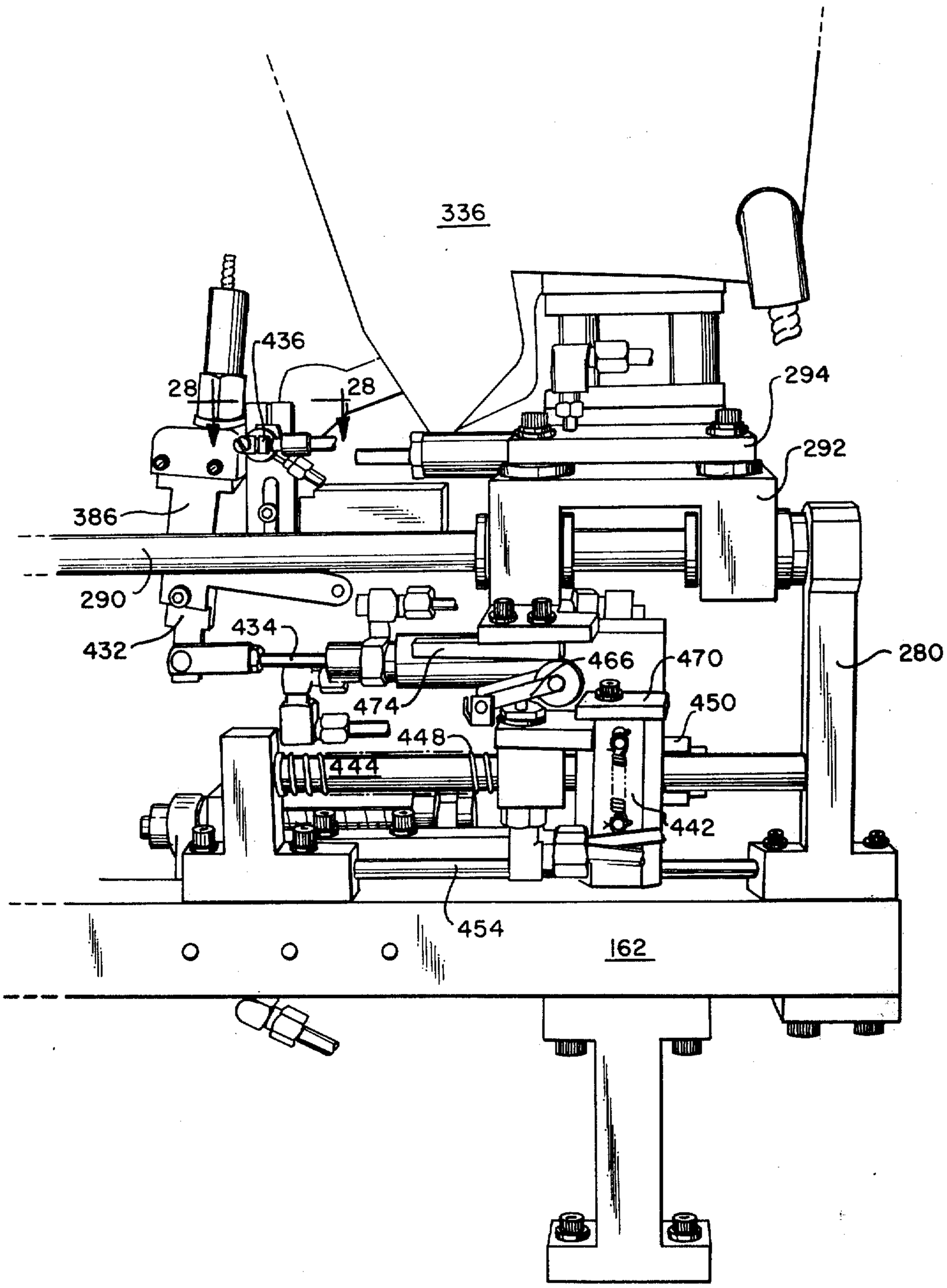
FIG. 18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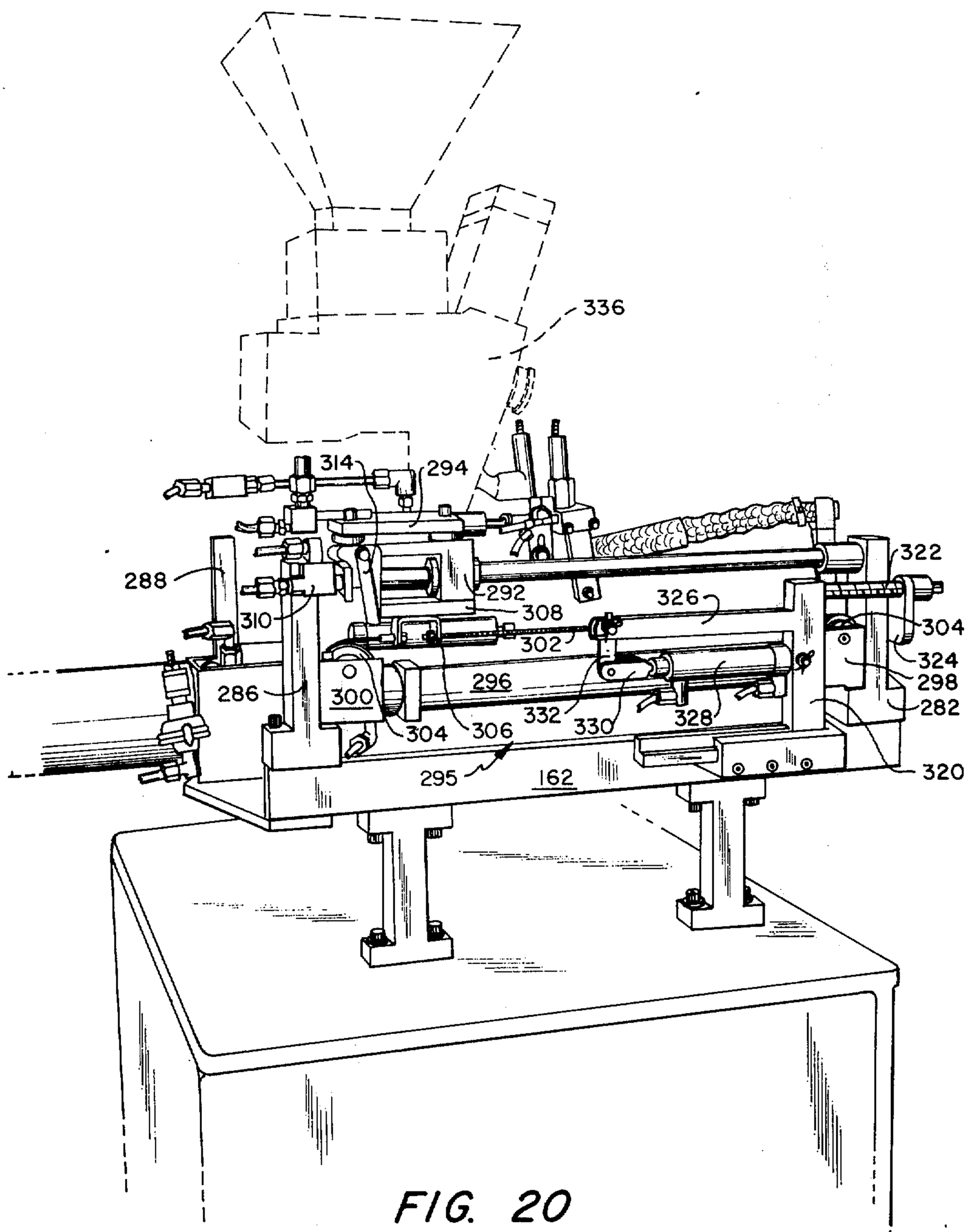
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FIG. 20

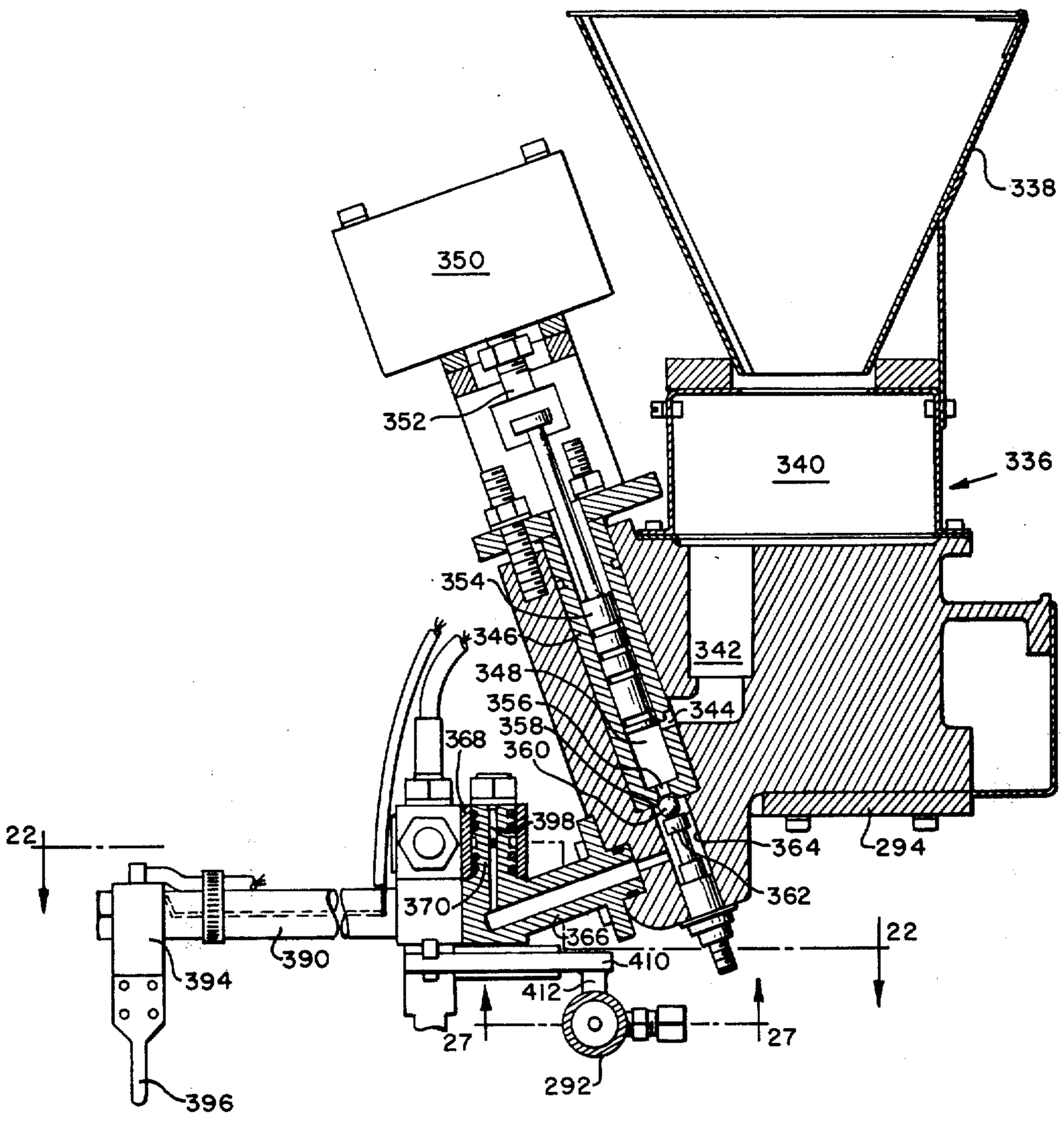
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FIG. 21

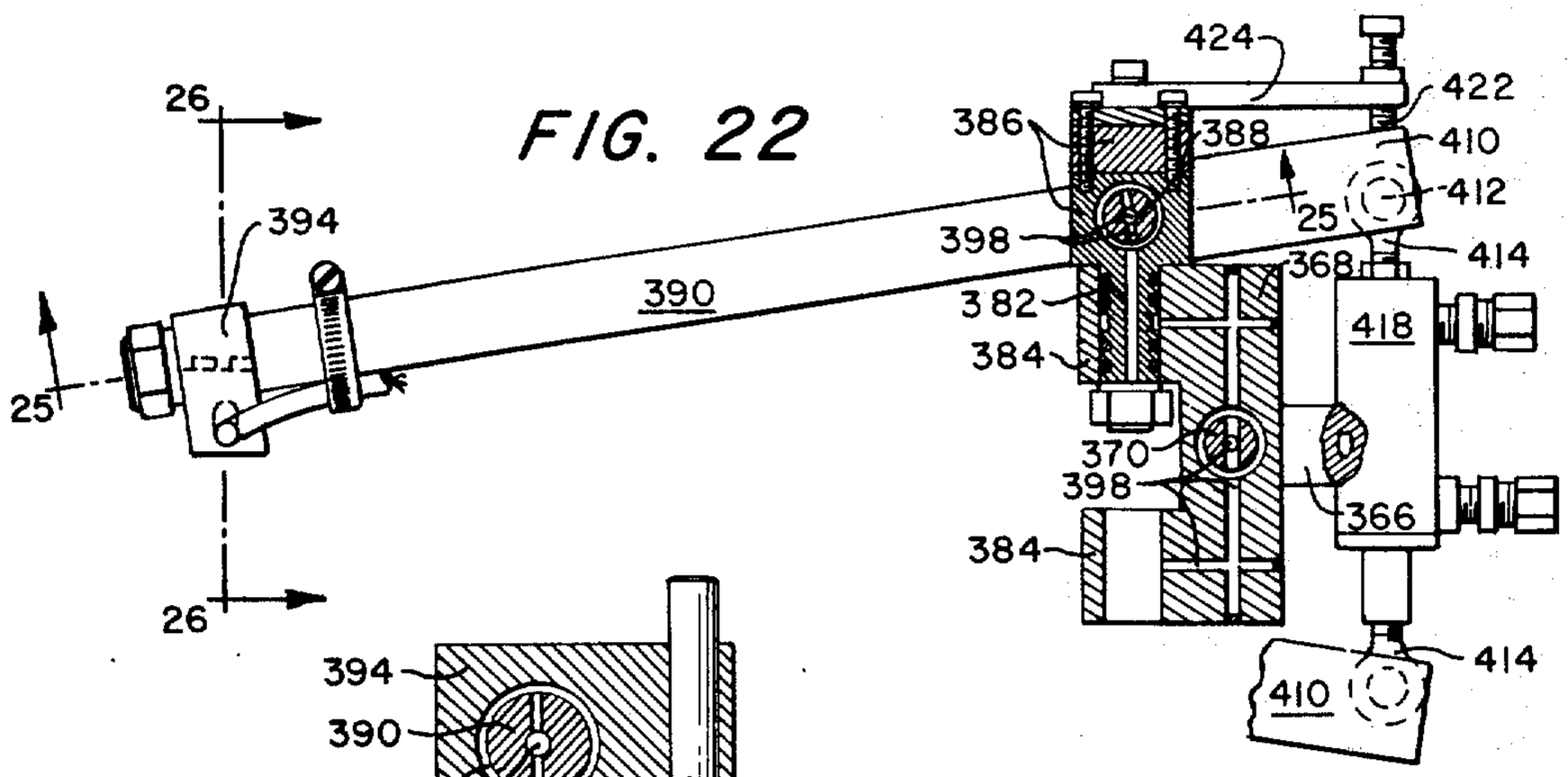
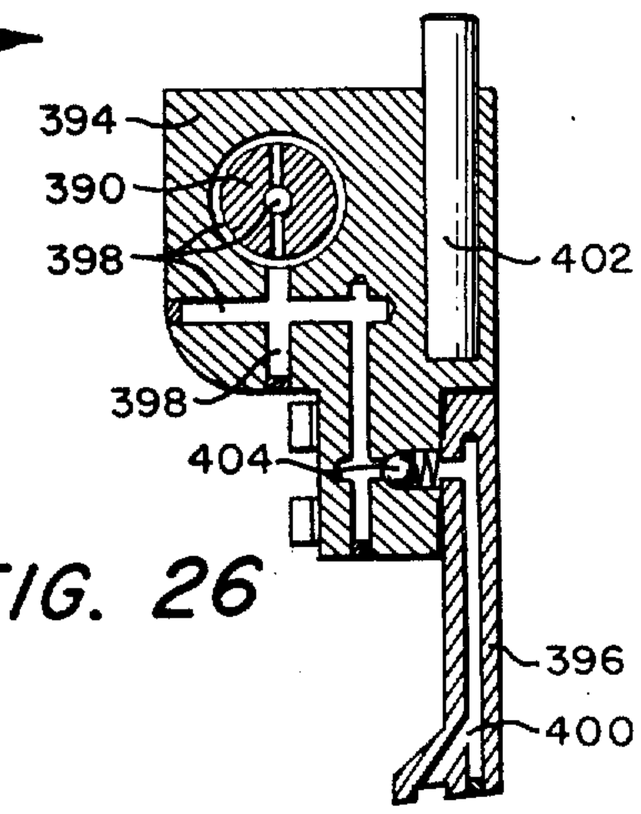


FIG. 22



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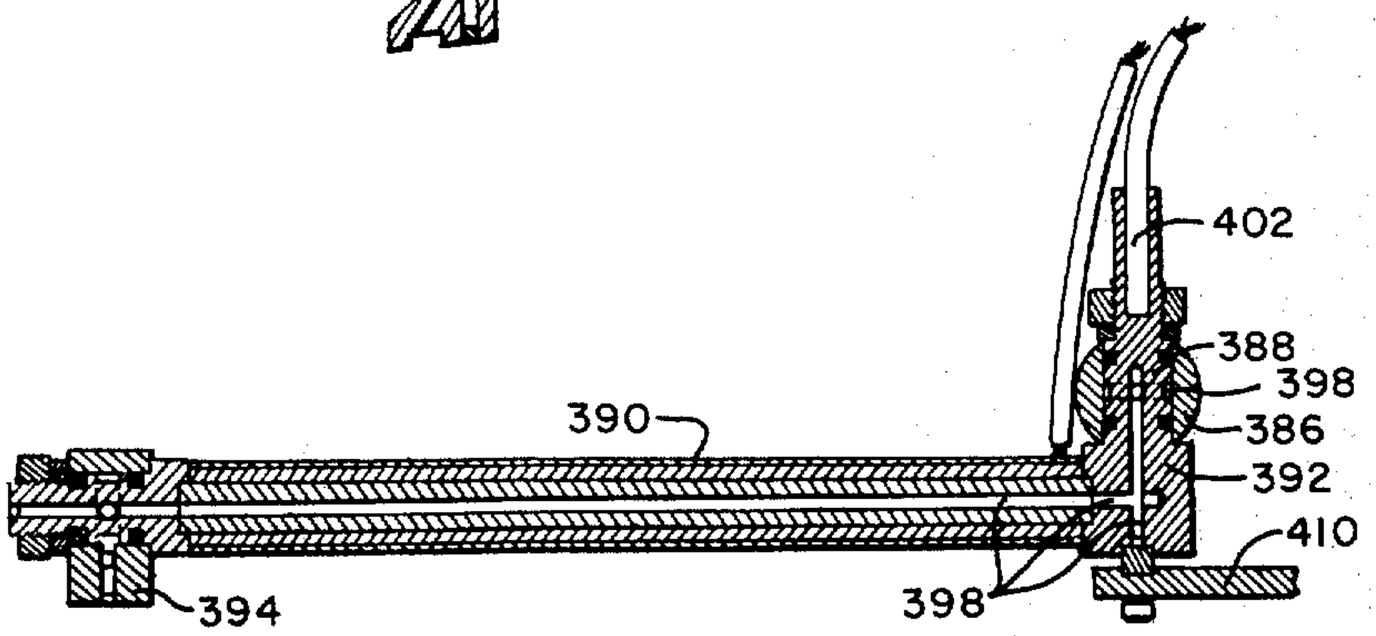


FIG. 25

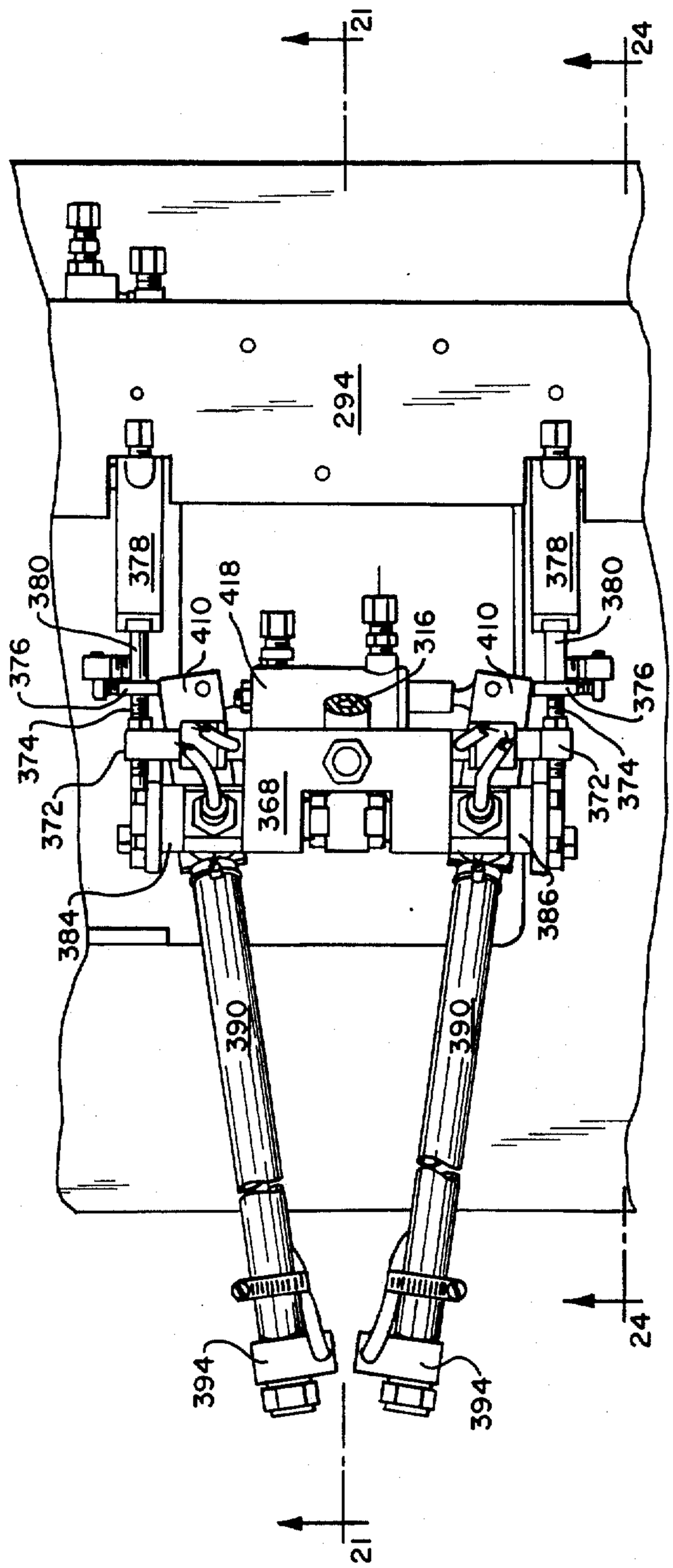
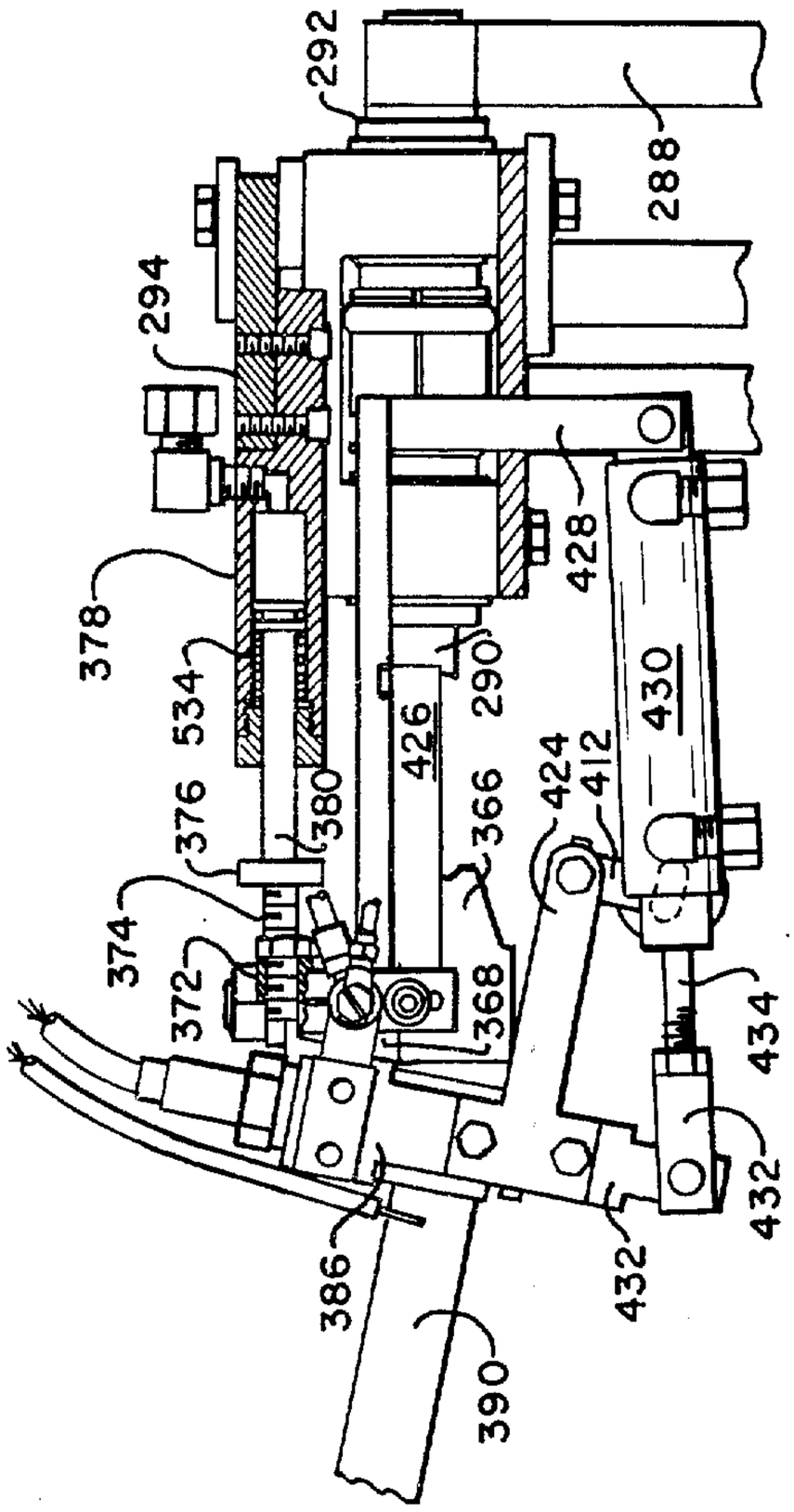


FIG. 23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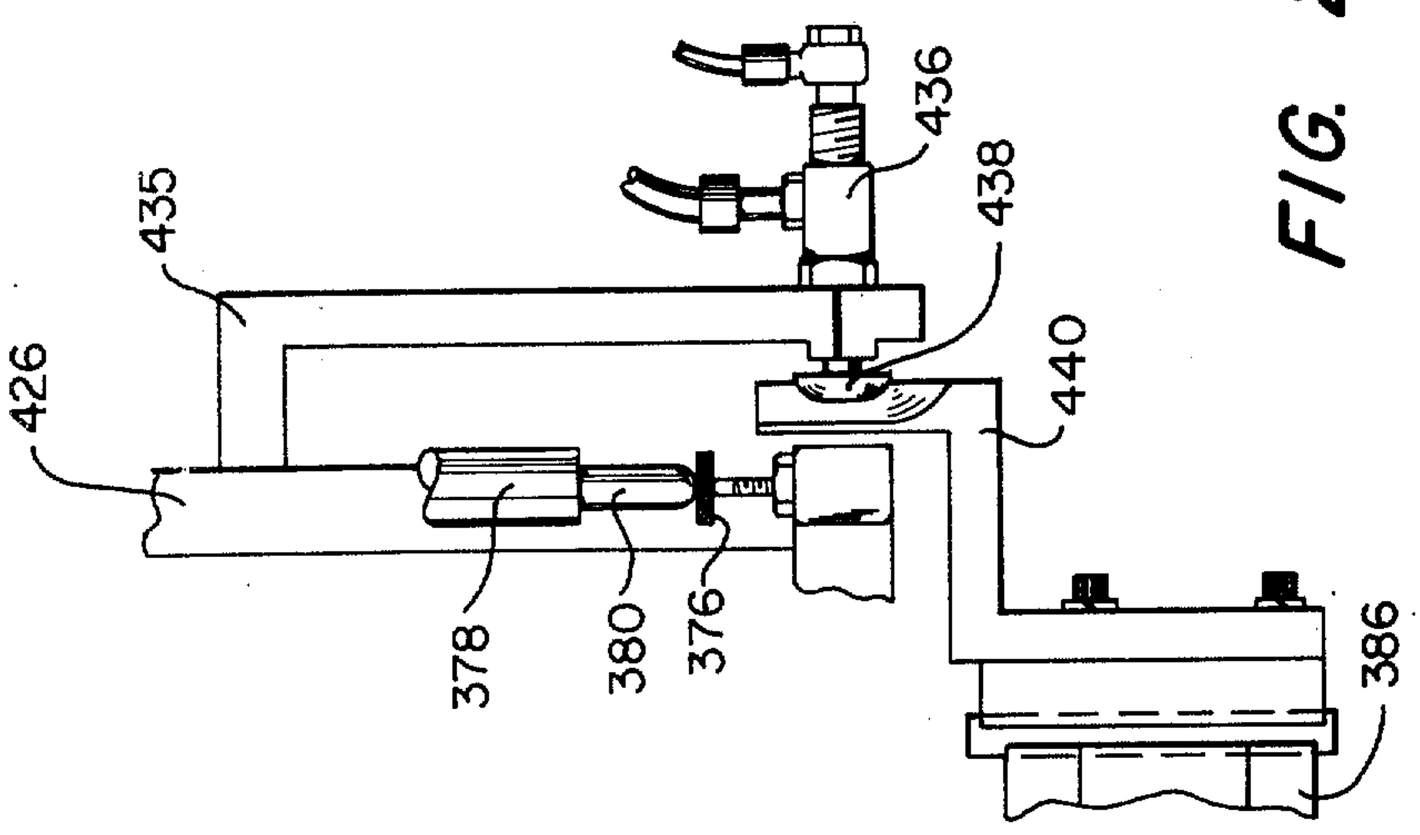
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FIG. 28

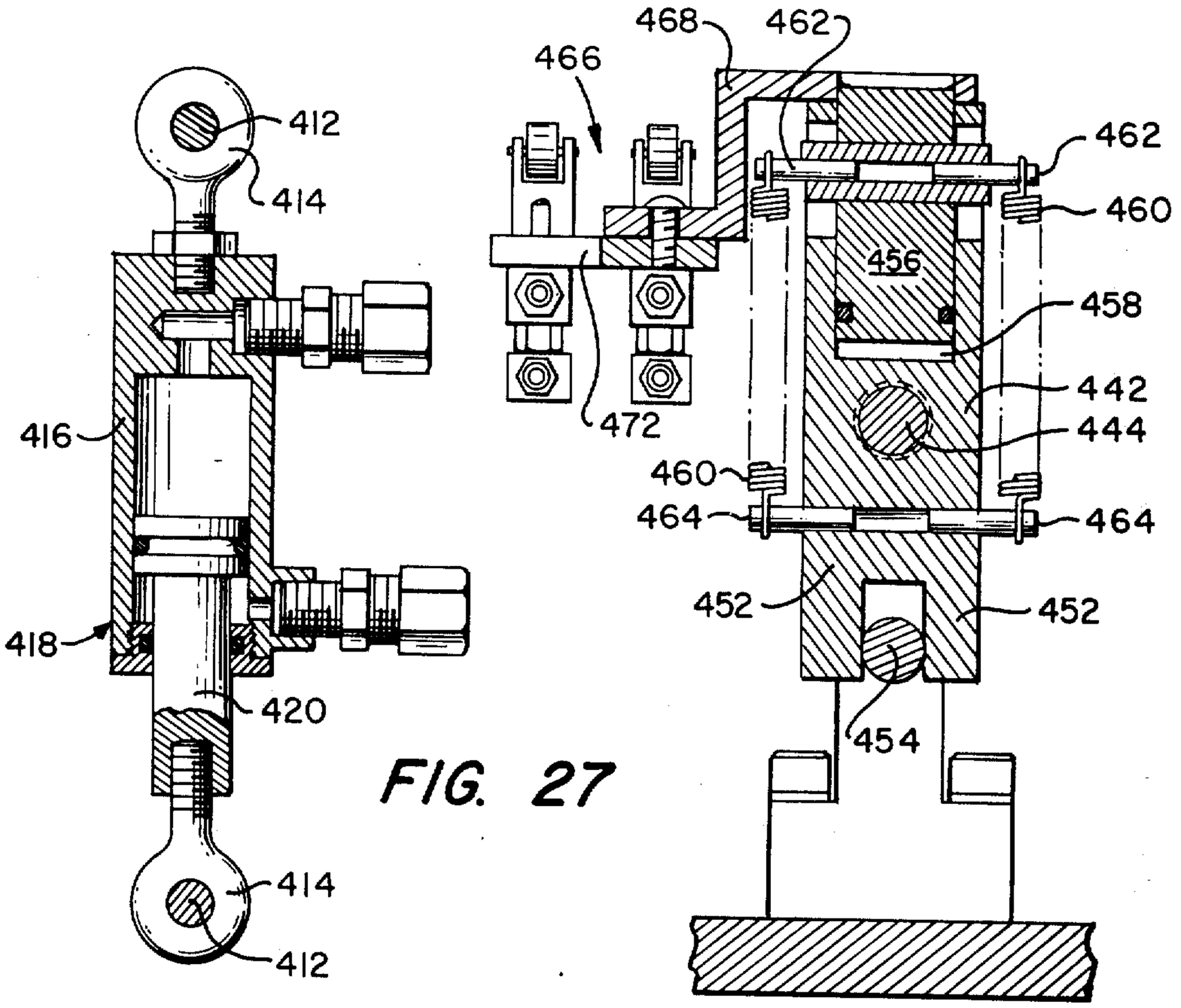

FIG. 27

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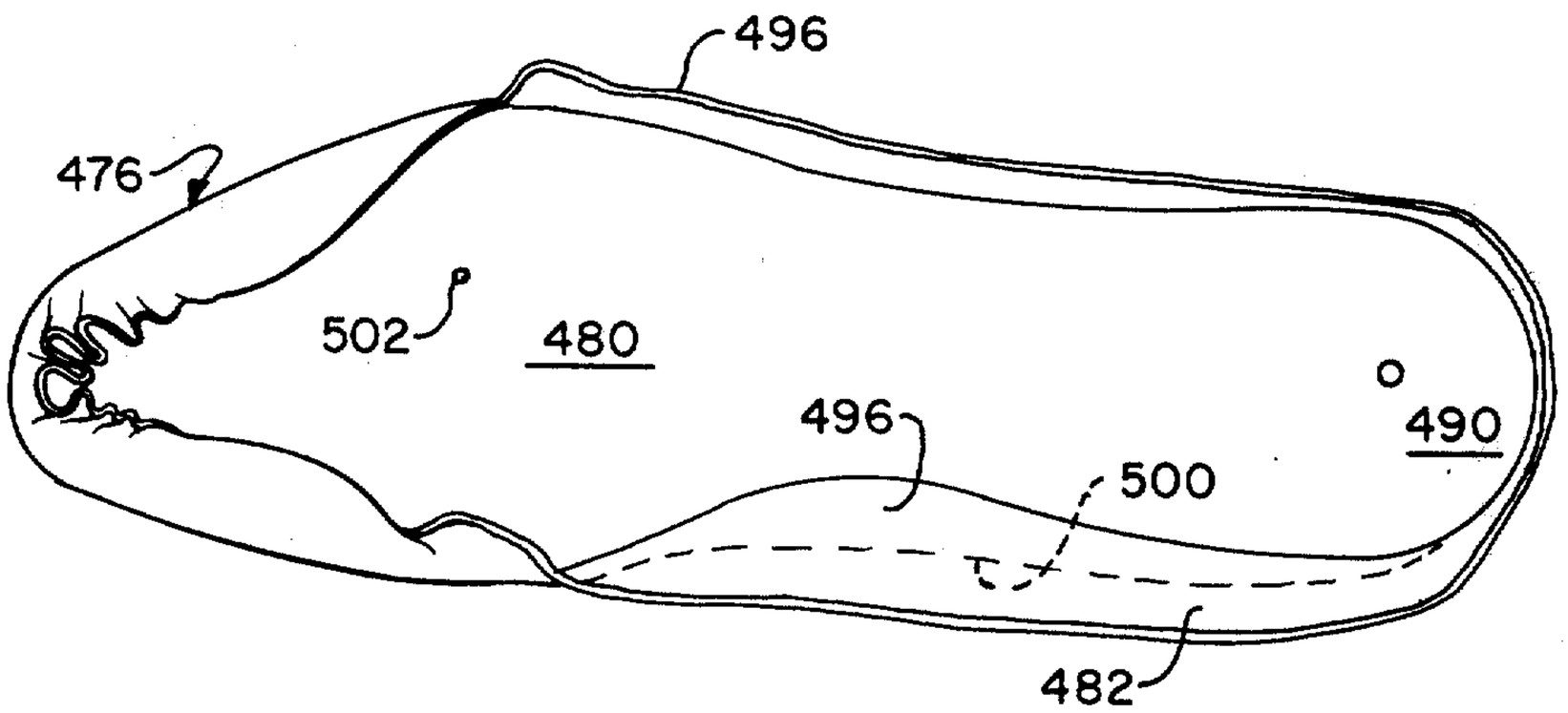
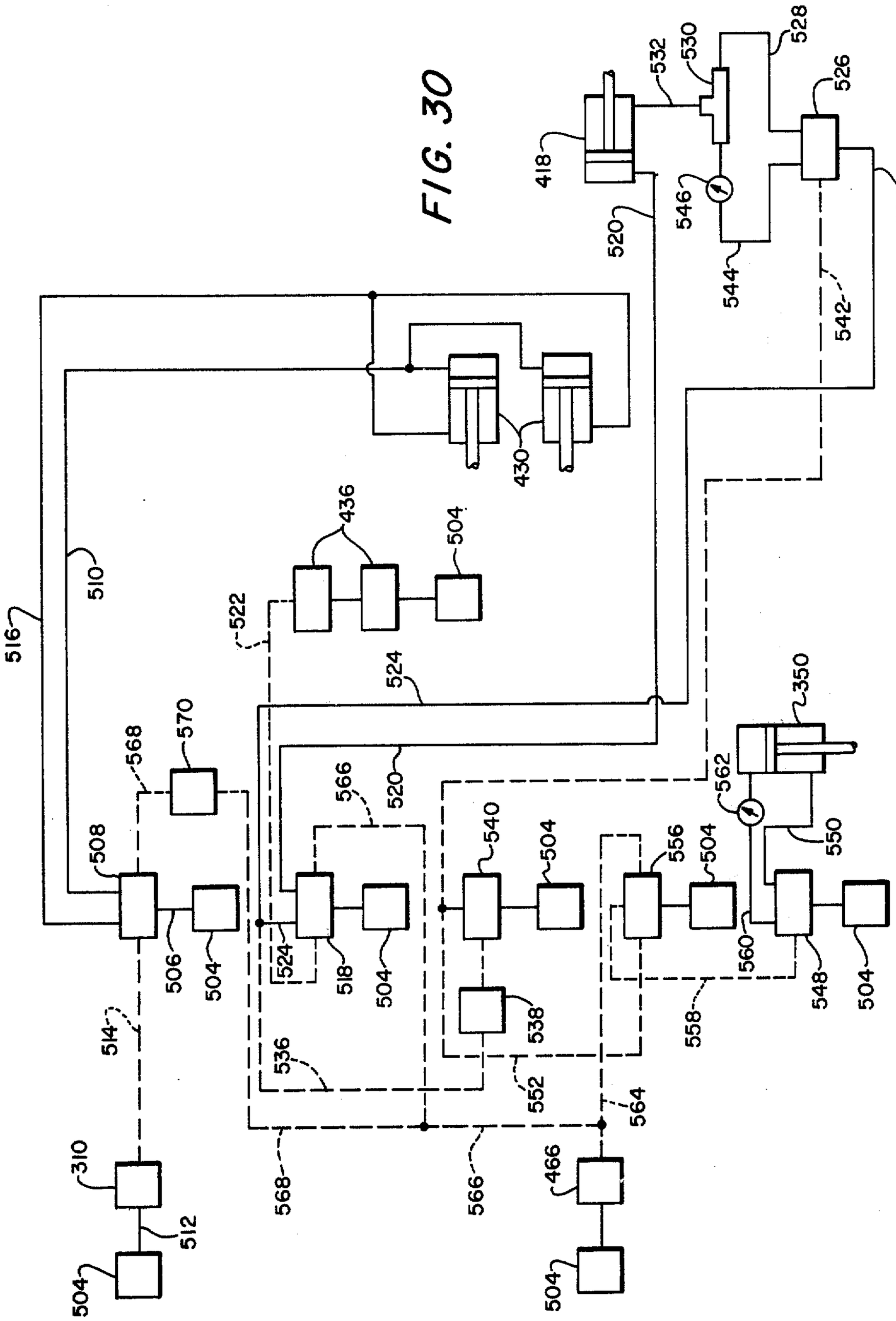


FIG. 31A

FIG. 30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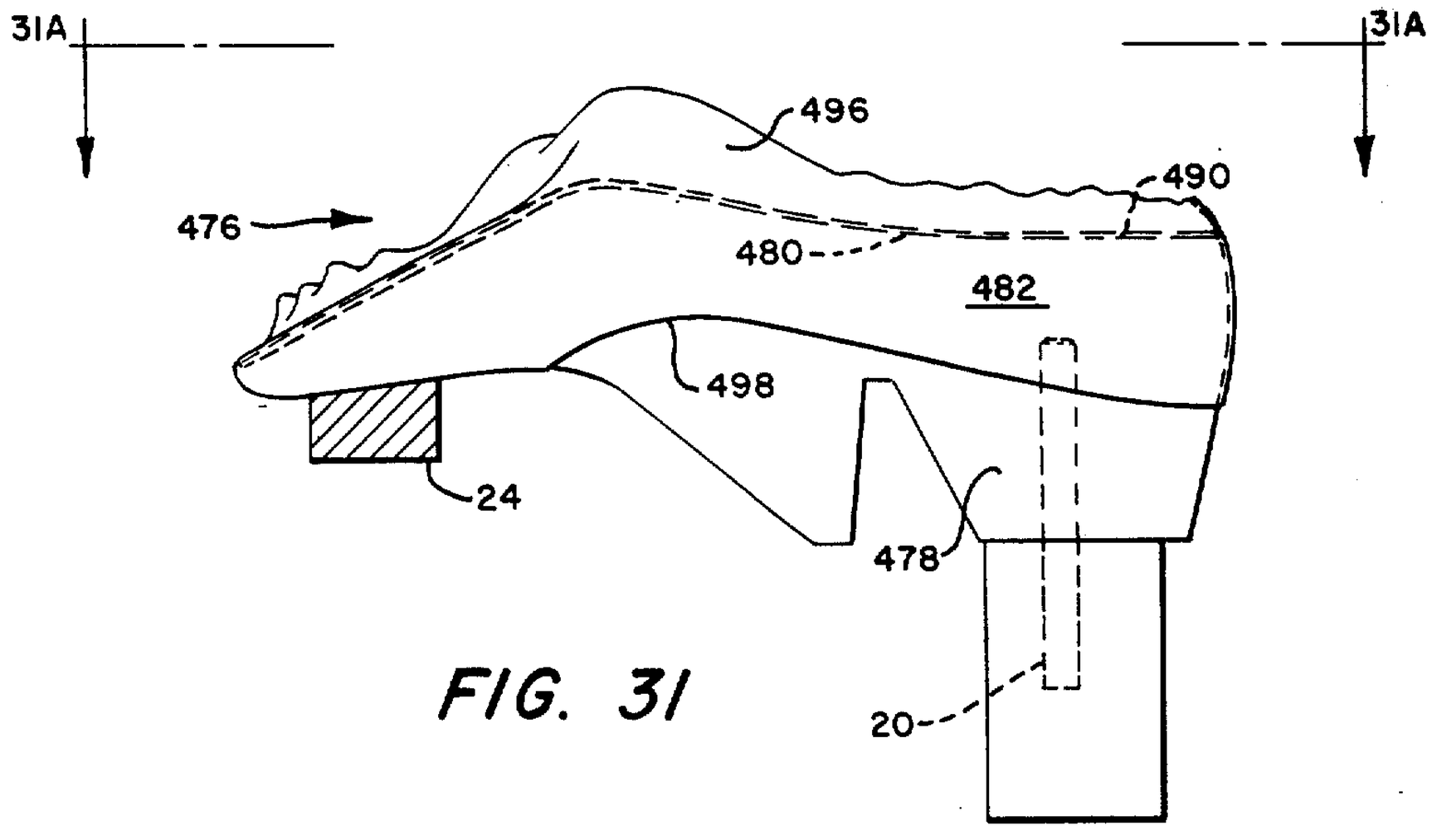
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FIG. 31

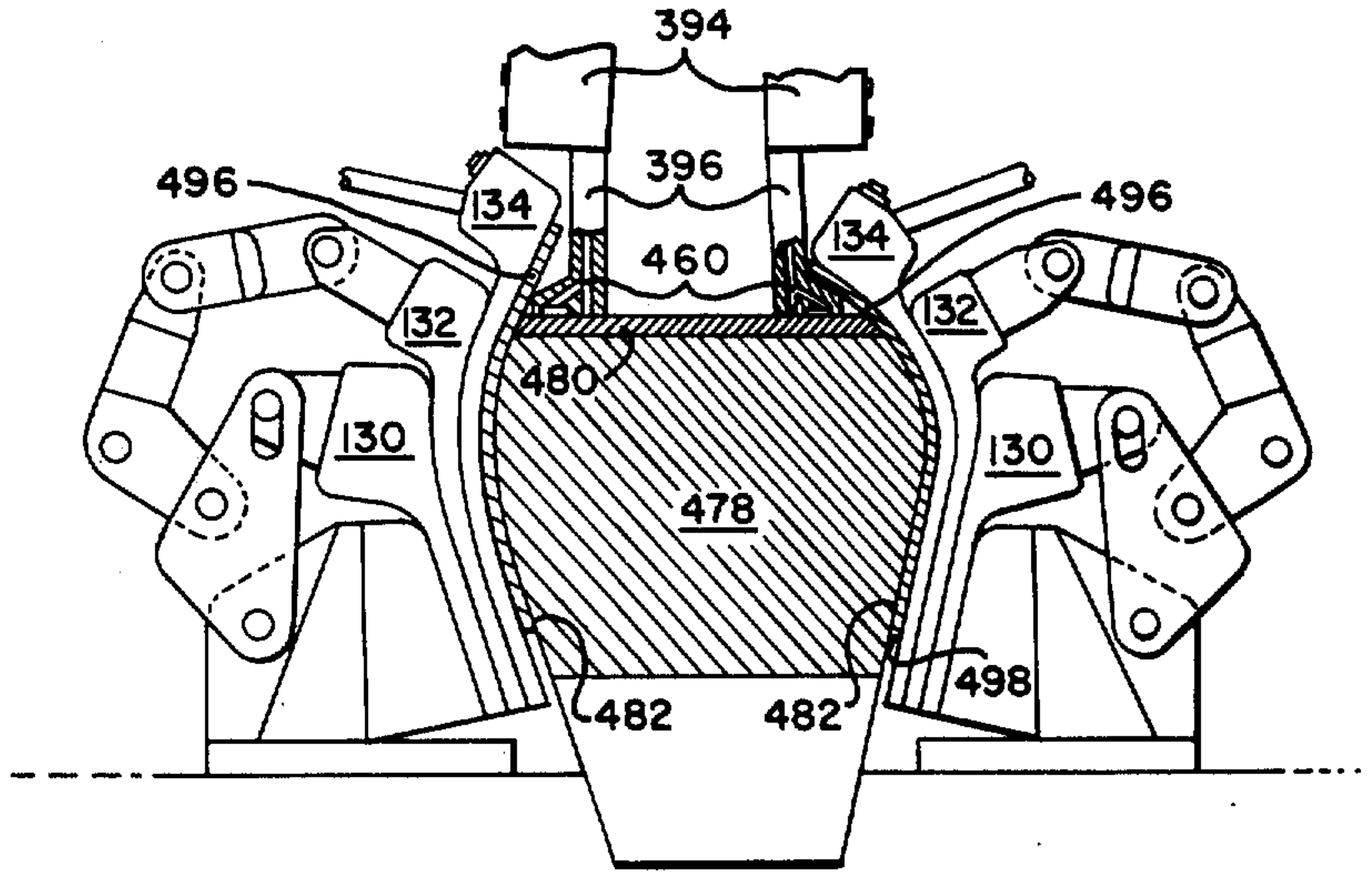
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FIG. 33

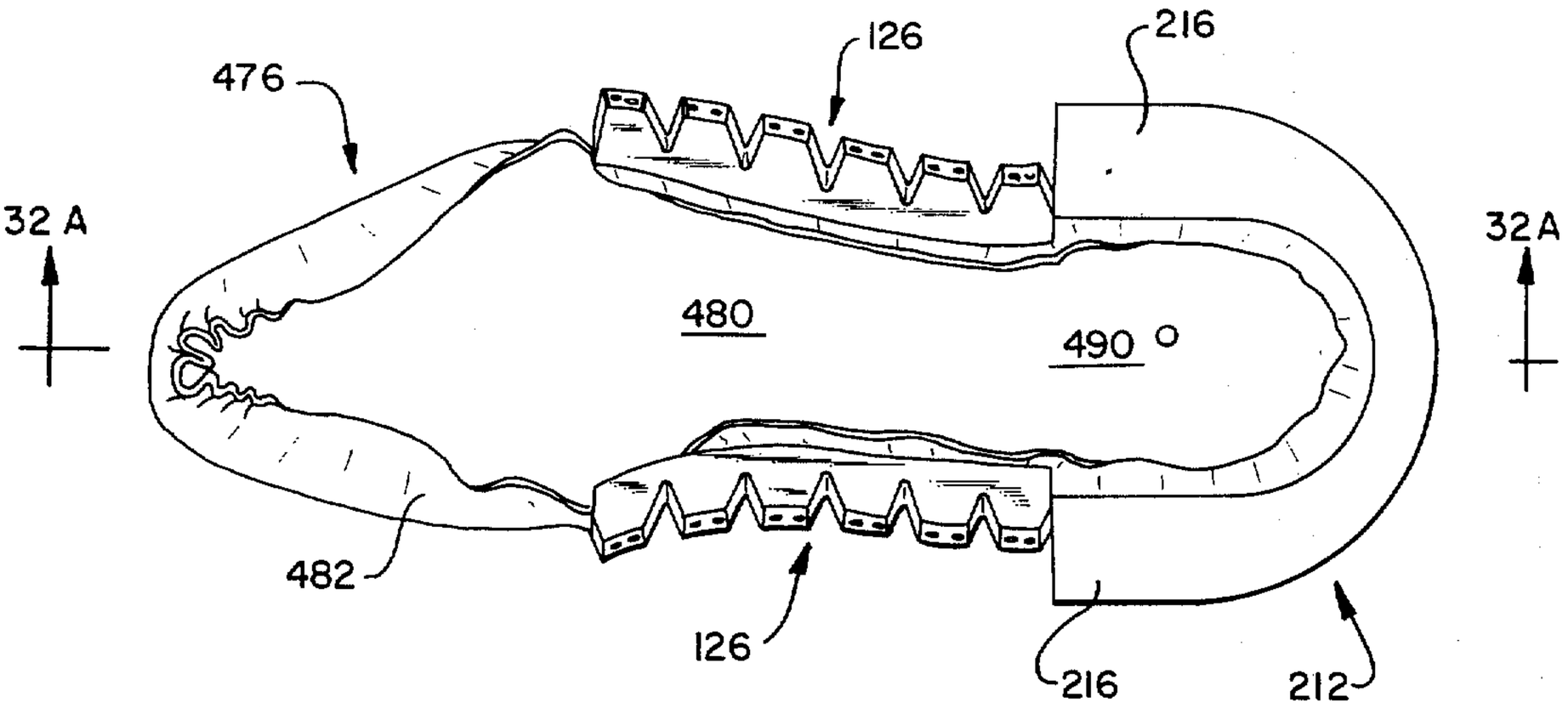

FIG. 32

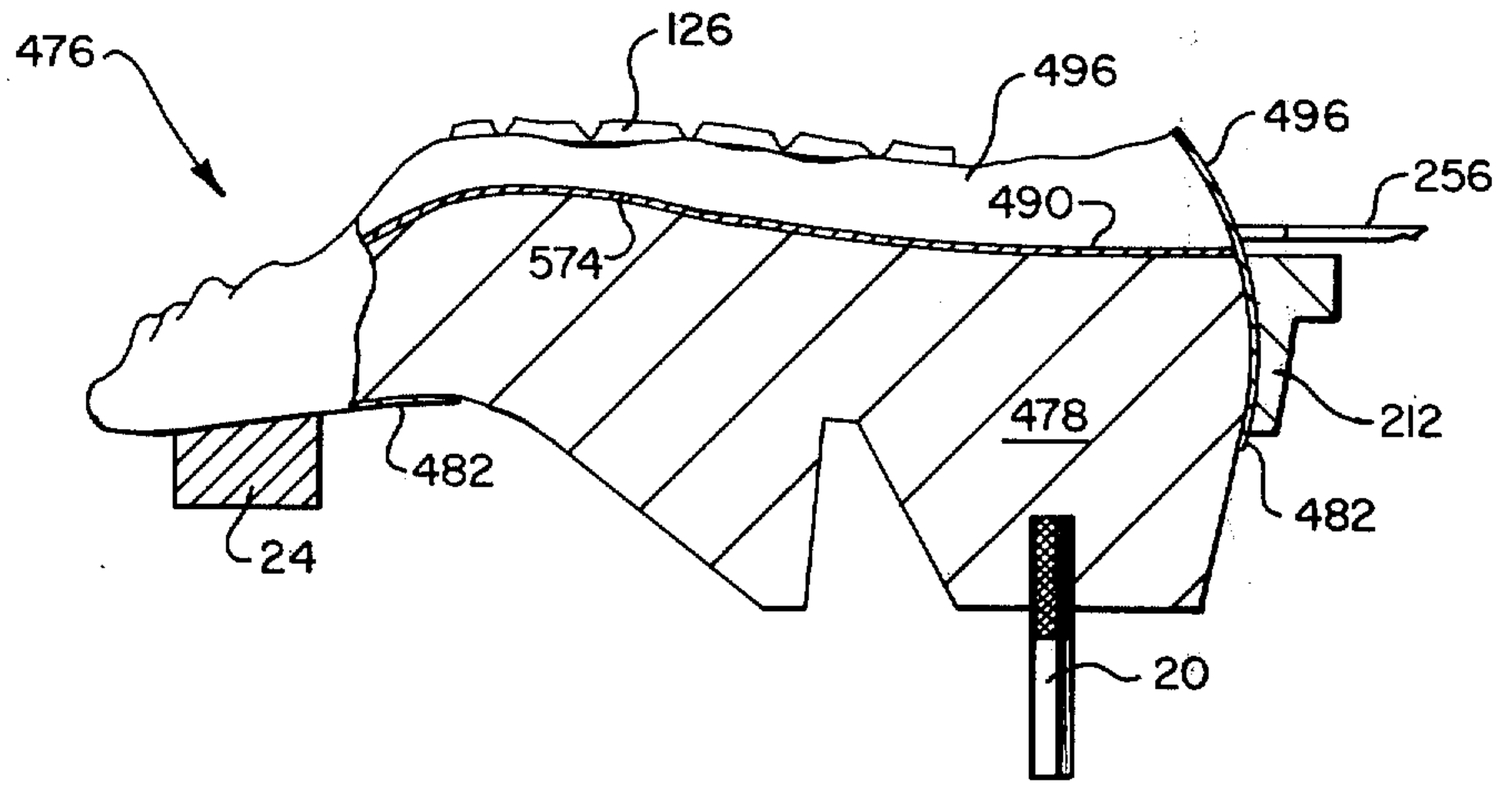

FIG. 32A

CEMENT LASTING THE SIDE AND HEEL PORTIONS OF A SHOE ASSEMBLY

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

This is a division of application Ser. No. 467,522 filed May 6, 1974.

BACKGROUND OF THE INVENTION

U.S. patent application Ser. No. 386,129 filed Aug. 6, 1973, *which has been granted as U.S. Pat. No. 3,831,216*, discloses a cement lasting machine operable on the side portions of a shoe assembly comprised of a last having an upper mounted thereon and an insole located on its bottom. The machine includes a shoe assembly support that supports the shoe assembly bottom-up and cement applying members, in the form of nozzles, that are yieldably urged downwardly by a downwardly directed force against the insole and outwardly by outwardly directed forces into corners between the side portions of the upper margin and the corresponding portions of the insole periphery. The nozzles are caused to travel rearwardly in the corners while the downwardly and outwardly directed forces are maintained, from the boundaries between the previously wiped upper margin of the toe portion of the shoe assembly and the upper margin of the side portions of the shoe assembly to the boundaries between the upper margin of the side portions of the shoe assembly and the previously wiped upper margin of the heel portion of the shoe assembly, and cement is extruded through the nozzles into these corners during this travel. The rearward travel of the nozzles is terminated by the engagement of a cam, travelling in unison with the nozzles, with a stop member that is mounted in the machine and whose position can be manually adjusted. After the application of the cement in the corners, the side portions of the upper margin are wiped against and adhesively bonded to the insole by side wiping instrumentalities. The shoe assembly is clamped in position for the application of the cement between the shoe assembly support and a hold-down that bears against the insole, the support being raised to cause the insole to bear against the hold-down.

U.S. Pat. No. 3,506,992 discloses a heel lasting machine wherein a shoe assembly having an upper mounted thereon and an insole located on its bottom is supported bottom-up on a support and the support is raised until the insole bears against a hold-down to thereby clamp the shoe assembly between the support and the hold-down. This is followed by the movement of a plate carrying a heel clamp and heel wipers until the bight of the heel clamp, that acts as a work engaging member, engages the heel end of the shoe assembly to thus locate the heel clamp in proper position for clamping the heel portion of the upper against the last and locate the heel wipers in proper position for wiping the heel portion of the upper margin against the insole. The heel wipers move in a planar path and the hold-down is so located as to position the heel portion of the insole in a plane that is substantially parallel to this path and is substantially coplanar with the bottoms of the wipers.

U.S. Pat. No. 3,422,474 shows a cement lasting machine that includes heel wipers and side wipers that wipe the heel and side portions of an upper margin against an insole after cement has been applied into the corners between these portions of the upper margin and the corresponding portions of the insole periphery by nozzles that travel along these corners.

SUMMARY OF THE INVENTION

A first aspect of this invention is concerned with a cement lasting machine that applies cement in the corners between the side and heel portions of the upper margin and the insole periphery by nozzles that travel along these corners and that includes side and heel wipers for wiping the side and heel portions of the upper margin against the insole as in U.S. Pat. No. 3,422,474. The machine includes a cam travelling in unison with the nozzle that engages a stop member to terminate the travel of the nozzles as in application Ser. No. 386,129. The machine also includes a heel clamp that is moved by a plate towards the heel portion of the shoe assembly until the bight of the heel clamp engages the heel end of the shoe assembly as in U.S. Pat. No. 3,506,992.

An object of this first aspect of the invention is to automatically locate the stop so that it will be engaged by the cam to terminate the travel of the nozzles when the nozzles are proximate to the heel ends of the corners regardless of the length of the shoe assembly and the locations of the heel ends of the corners. This object is achieved by so connecting the heel clamp and the stop that the stop is moved in unison with the clamp during the movement of the heel clamp towards the heel end of the shoe assembly.

In its broadest variant, the first aspect of the invention is concerned with a machine for applying cement along a surface of any workpiece up to a desired location on the workpiece by a cement applying member that moves along the surface up to the desired location. An object of this variant is to automatically stop the movement of the cement applying member at this desired location regardless of the length of the workpiece. This object is achieved by having a cam, that is movable with the cement applying member, engage a stop surface of a stop member, the stop member being connected for movement in unison with a workpiece engaging member that is moved into engagement with an end of the workpiece.

A second aspect of the invention is concerned with a cement lasting machine having the arrangement for clamping the shoe assembly between the support and the hold-down and having the heel wipers as in U.S. Pat. No. 3,506,992 and having the nozzles moving along the corners between the upper margin and the insole to apply cement in these corners as in application Ser. No. 386,129. In this aspect of the invention, the nozzles travel in the corners of the heel portion of the shoe assembly preparatory to the heel wipers wiping the heel portion of the upper margin against the insole. A difficulty arises with this arrangement due to the nozzles having to travel past the hold-down and thus being interfered with by the hold-down. An object of this aspect of the invention is to obviate this difficulty.

The difficulty referred to in the preceding paragraph is obviated by providing a brake that coacts with a bar, to which the shoe assembly support is secured and from which the shoe assembly support extends upwardly, to

lock the shoe assembly against movement during the cement applying operation by the nozzles and the wiping operation by the heel wipers. The machine is so operated that, after the shoe assembly is clamped between the support and the hold-down, the brake is caused to lock the bar together with the shoe support against movement. This is followed by a removal of the hold-down from the insole out of interfering relation with the nozzles, the cement applying movement of the nozzles and the heel wiping operation of the heel wipers.

The second aspect of the invention has utility regardless of whether the cementing and wiping operations are performed on the toe portion or the heel portion of the shoe assembly, regardless of whether the cement applying member is a nozzle and regardless of how many cement applying members are used. Therefore, in its broadest variant, this aspect of the invention has wipers that are not necessarily heel wipers and the corner in which the cement is applied by a cement applying member is not necessarily in the heel portion of the shoe assembly.

In moving the nozzles into the corners, in the manner disclosed in application Ser. No. 386,129, it is desirable that the nozzles first move against the insole and then move outwardly into the corners. By moving the nozzles in this sequence, assurance is provided that the nozzles do not tangle with the upper margin which, at this time, is overhanging the insole and that the nozzles do not move outwardly of the upper margin before moving downwardly. A third aspect of the invention is concerned with a mechanism for ensuring that this desired sequence of nozzle movement takes place.

The mechanism of the third aspect of the invention includes a control operative to cause a drive mechanism to move a cement applying member (disclosed as a nozzle) outwardly and an actuator connected to the cement applying member for movement therewith during the movement of the cement applying member towards the insole. The actuator is so located as to intersect the control pursuant to the movement of the cement applying member against the insole and this intersection is effective to operate the drive mechanism.

In the disclosure of application Ser. No. 386,129, the nozzles are caused to move along the corners and apply cement into the corners after they have been urged yieldably outwardly into the corners. During their movement along the corners, the nozzles continue to be urged yieldably outwardly so that they will stay in the corners. The nozzles should be urged yieldably outwardly under relatively low pressure during their travel along the corners to ensure that they will not tear or gouge the upper margin during their movements. However, the nozzles should initially be urged rapidly outwardly to ensure that they are in the corners when they commence their movements along the corners and to minimize the duration of the sequence of operations. A fourth aspect of the invention is concerned with ensuring that the nozzles perform in this desired manner.

In accordance with the fourth aspect of the invention, a cement applying mechanism, disclosed herein as a nozzle, is yieldably urged outwardly into the corner under relatively high pressure. After this, the cement applying mechanism is yieldably urged outwardly under relatively low pressure, and this is followed by the movement of the cement applying member along the corner while the cement applying member continues to be yieldably urged outwardly under the relatively low pressure.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front view of the machine;

FIG. **2** is a front view of the upper portion of the machine;

FIG. **3** is an elevation of the shoe assembly support;

FIG. **4** is a planview taken on the line **4—4** of FIG. **3**;

FIG. **5** is a view of a mechanism for adjusting the elevation and inclination of a side lasting unit;

FIG. **6** is an isometric view of a side lasting unit;

FIG. **7** is a partially sectional view of a side lasting instrumentality;

FIGS. **8** and **9** are side views of portions of the machine;

FIG. **10** is a bottom view of a heel lasting instrumentality in the machine;

FIGS. **11** and **12** are top views of the heel lasting instrumentality;

FIG. **13** is a plan view of a heel clamp operating mechanism;

FIG. **14** is a view taken on the line **14—14** of FIG. **16**;

FIG. **15** is a view taken on the line **15—15** of FIG. **10**;

FIG. **16** is a plan view of a heel wiper operating mechanism;

FIGS. **17, 18, 19** and **20** are side views of portions of the machine that cause movements of the nozzles;

FIG. **21** is a sectional elevation of a cement applying mechanism taken along the line **21—21** of FIG. **23**;

FIG. **22** is a partially sectional view taken along the line **22—22** of FIG. **21**;

FIG. **23** is a plan view of the cement applying mechanism;

FIG. **24** is a view taken along the line **24—24** of FIG. **23**;

FIG. **25** is a view taken along the line **25—25** of FIG. **22**;

FIG. **26** is a section taken along the line **26—26** of FIG. **22**;

FIG. **27** is a section taken along the line **27—27** of FIG. **21**;

FIG. **28** is a view taken along the line **28—28** of FIG. **19**;

FIG. **29** is a section taken along the line **29—29** of FIG. **8**;

FIG. **30** is a schematic representation of a portion of the machine control circuit;

FIG. **31** is a side view of the shoe assembly as it is supported in the machine at the beginning of a machine cycle;

FIG. **31A** is a view taken along the line **31A—31A** of FIG. **31**;

FIG. **32** is a plan view of the shoe assembly as it appears in the machine after the side and heel portions of the upper have respectively been clamped to the last by the side lasting instrumentalities and a heel clamp;

FIG. **32A** is a section taken along the line **32A—32A** of FIG. **32**; and

FIG. **33** is a view showing the nozzles as they appear when applying cement into the corners between the side portions of the upper margin and the corresponding portions of the insole periphery.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The operator is intended to stand in front of the machine as seen in FIG. **1** and to the left of the machine as seen in FIG. **8.** Directions extending towards the operator (right to left in FIG. **8**) will be designated as "forward" and directions extending away from the operator (left to right in FIG. **8**) will be designated as "rearward". The front of the machine is closest to the operator and the back of the machine is furthermost from the operator.

Referring to FIGS **1–4,** the machine includes a sleeve **10** that is fixedly mounted to a stationary bracket **12.** A bar **14** is mounted in the sleeve **10** for heightwise movement. An air operated motor **16,** that is secured to the bracket **12,** has an upwardly extending piston rod **18** that is secured to the bottom of the bar **14,** whereby the motor **16** can effect heightwise movement of the bar **14.** A last pin **20** is secured to the top of the bar **14.** A column **22** is mounted to and is located forwardly of a flange **38,** described below, that is secured to the bar **14.** A toe rest **24** is mounted to the top of the column **22.**

A set of mounting fingers **26** extends laterally of each side of the sleeve **10,** each set of fingers **26** being secured to the sleeve **10.** An arm **28** is pivoted intermediate its ends to the outermost extremity of each set of fingers **26.** An air operated motor **30,** formed of a cylinder **32** and a piston rod **34,** is located between the rear ends of the arms **28.** The cylinder **32** is pivotally connected to the rear end of one of the arms **28** and the piston rod **34** is pivotally connected to the rear end of the other of the arms **28.** A set of brake fingers **36** is mounted to the front of each arm **28,** the sets of brake fingers extending inwardly of their associated arms **28** towards the flange **38.** The flange **38** is mounted to the front of the bar **14** by means of screws **49** (only one of which is shown in FIG. **3**) that connect the flange **38** and the bar **14** and that extend through slots **41** in sleeve **10.**

The last pin **20** and the toe rest **24** constitute a work support **40** for supporting a shoe assembly described below.

Referring to FIGS. **1** and **5,** a beam **42** is located on each side of the support **40** and each beam **42** is mounted to the machine frame **44** for heightwise movement. A bolt **46** that is rotatably mounted in the machine frame **44,** is threaded into a nut **48** that is secured to each beam **42** whereby rotation of each bolt **46** effects heightwise movement of its associated beam **42.** Each bolt **46** is so connected to a shaft **50** extending out of the side of the machine frame **44** as to enable rotation of each shaft to rotate its associated bolt **46.** A table **52** is located above each beam **42.** A pair of spaced side flanges **54** (FIG. **1**), depend from each table **52,** and a center flange **56** depends from each table between its associated sides flanges **54.** The flanges **54** and **56** receive between them flanges **58** that are upstanding from the associated beam **42.** A pivot pin **60** extends through each group of flanges **54, 56,** and **58** whereby each table **52** is pivotally mounted for swinging movement about the transversely extending prone axis of its associated pin **60.** A bar **62** is rotatably mounted in each beam **42** and a bar **64** is rotatably mounted in the bottom of each flange **56.** A shaft **66,** rotatably mounted in each bar **62,** has a threaded extension **68** that is threaded into a bar **64** whereby rotation of each shaft **66** causes its associated flange **56** and table **52** to swing about the axis of its associated pin **60.** A knob **70** (FIG. **1**) is secured to the point of each shaft **66** to facilitate the rotation of the shafts **66.**

Duplicate sets of lasting units **72** are located on opposite sides of the support **40** (see FIGS. **1** and **2**). Referring to FIGS. **5** and **6,** each set of lasting units **72** is mounted for inward-outward movement on a table **52.** An air actuated motor **74,** mounted to each table **52,** has a piston rod **76** that is secured to a base **78** of a set of lasting units **72** to thereby enable the motors **74** to effect inward-outward movements of the sets of lasting units **72.**

Referring to FIGS. **6** and **7,** each set of lasting units **72** is formed of a plurality of lasting units **80** located side by side that are mounted to a support **82** that is secured to and is located above a base **78.** A flange **84** for each lasting unit **80** is secured to and extends upwardly of a support **82** and threadedly receives a bolt **86.** Each bolt **86** extends through an outer slide bracket **88,** forming a part of a lasting unit **80,** that is slidably mounted to a support **82** for inward-outward movement. Each lasting unit **80** includes an inner slide bracket **90** that is mounted to a support **82** for inward-outward movement. A knob **92** is pinned to the outer end **94** of each bolt **86,** the outer ends **94** being of smaller diameter than the threaded portions of the bolts **86.** The brackets **88** are located between the shoulders located at the juncture of the larger and smaller diametered portions of the bolts **86** and shoulders formed at the inner ends of the knobs **92.** Due to the connection between the outer brackets **88** and the inner brackets **90,** described below, rotation of the knobs **92** in one direction or the other will cause inward or outward movement of the brackets **88, 90** along the supports **82** and thus cause inward or outward movements of the lasting units **80.**

An air operated motor **96** is pivoted to each outer bracket **88** and extends inwardly thereof. The piston rod **98** of each motor **96** is pivoted by a pin **100** to the middle of a lever **102.** Each lever **102** has an upper limb **104** and a lower limb **106,** the limbs extending inwardly of the pin **100.** Each limb **106** is pivoted by a pin **108** to a lever **110.** The bottom of each lever **110** is pivoted by a pin **112** to a block **114** for inward-outward movement about the axis of the pin **112.** Each block **114** is pivoted for heightwise movement to an inner slide bracket **90** by a pin **116.** A shaft **118,** mounted to and upstanding from each bracket **90** inwardly of its associated pin **116,** extends through its associated block **114.** Compression springs **120** are entwined about the shafts **118** and extend between the tops of the blocks **114** and collars **122** mounted to the tops of the shafts **118.** The springs **120** yieldably urge the blocks **114** downwardly about the axes of the pins **116** to positions wherein the bottoms of the blocks **114** engage collars **124** that are mounted to the shafts **118** beneath the blocks **114.**

A lasting instrumentality **126** is anchored to each block **114** by bolts **128.** Each lasting instrumentality **126** is formed of three plies, the outer ply being an outer presser strap **130,** the middle ply being an inner presser strap **132,** and the inner ply being a lasting strap **134.** The straps **130, 132** and **134** are made of an elastic, flexible and deformable material such as urethane. The straps **130, 132** and **134** respectively have bottom segments **130a, 132a** and **134a** that are rigid by virtue of being secured to the block **114** by the bolts **128.** The top of each lasting strap **134** is formed into a thickened

relatively rigid top segment **134b.** The middle segment **134c** of the lasting strap **134,** between the bottom segment **134a** and the top segment **134b,** is flexible, deformable and stretchable.

The top of each inner presser strap **132** is formed into a thickened relatively rigid top segment **132b** that is located below its associated lasting strap top segment **134b.** The middle segment **132c** of the inner presser strap **132,** between the bottom segment **132a** and the top segment **132b,** is flexible, deformable and stretchable.

The top of each outer presser strap **130** is formed into a thickened relatively rigid top segment **130b** that is located below its associated inner presser strap top segment **132b.** The middle segment **130c** of the outer presser strap **130,** between the bottom segment **130a** and the top segment **130b** is flexible, deformable and stretchable.

A lug **136,** embedded in the outer presser strap top segment **130b,** has a pin **138** mounted thereto that is slidably received into a slot **140** formed at the top of each lever **110.**

A lug **142,** embedded in the inner presser strap top segment **132b,** is pivoted by a pin **144** to a link **146,** and each link **146** is pivoted by a pin **148** to the top of its associated limb **104.**

An air operated motor **150** is associated with each lasting instrumentality **126.** Each motor **150** is pivoted to a bracket **152** that is secured to the top of each outer bracket **88.** The motors **150** extend inwardly of the brackets **152.** A socket **154** is embedded in each lasting strap top segment **134b.** Each socket **154** rotatably receives a ball **156** that is mounted to the inner end of the piston rod **158** of its associated motor **150** to thereby provide a flexible connection between the piston rods **158** and the lasting strap top segments **134b.**

Referring to FIGS. **8–16,** a platform **160** is located rearwardly of the support **40** and the lasting units **72.** A head **162** is mounted to and is located above the platform **160.** A main slide plate **164** is slidably mounted in the head **162** for forward-rearward movement. A fluid actuated motor **166,** mounted to the head **162** has a piston rod **168** connected to a bracket **170** mounted to the slide plate **164** to effect this movement. A heel clamp slide **172** is slidably mounted below the main slide plate **164** for forward-rearward movement in guideways **174** (FIGS. **14** and **15**) mounted to the main slide plate. Mounted to the rear of the heel clamp slide **172** is a bracket **176** having a pair of laterally extending arms **178.** An air actuated motor **180** is pivoted to each of the arms **178** on a pin **182.** Each motor **180** has a piston rod **184** extending forwardly thereof. A pair of arms **186** are pivotally mounted to pins **188** which are secured to the forward end of the heel clamp slide **172.** A shoulder **190** is provided on the heel clamp slide **172** rearwardly of the pins **188** to limit the extent that the arms **186** may pivot in a rearward direction. When at rest, the arms **186** are maintained in abutment against the shoulders **190** by means of tension springs **192** which are each connected at one end to an arm **178** and at its other end to a clip **194.** The clips **194** are rigidly fastened to the outer extremities of the arms **186** by pins **196.** A pair of sliding links **198,** having longitudinal slots **200** formed at their midportions, are pivotally connected by means of pins **202** to angle brackets **204,** the angle brackets **204** being rigidly fastened to the piston rods **184** of the motors **180.** The links **198** are also movably connected to the arms **186** by means

of engagement of the slots **200** and the pins **196** so that activation of the motors **180** to cause the piston rods **184** to move forwardly (to the left in FIG. **13**) will cause the links **198** to have substantially linear forward movement, being guided by the pins **196.** During the forward motion of the links **198,** the pins **196,** and consequently the arms **186,** are rigidly maintained in a rearward position by means of the tension spring **192.** Another link **206** is pivotally mounted at one end to each of the arms **186** by means of pins **208** which are secured to the arms **186** at their midportion. The other end of each link **206** is pivotally mounted to a pin **202** so that, as the motors **180** impart substantially forward motion to the links **198,** rotary motion about the pins **208** will be simultaneously imparted to the links **206.** A bolt **210** is threaded into each arm **186** in such a manner that it is in registry with the plane of rotation of the links **206** so that, as the links **206** rotate in response to actuation of the motors **180,** they will abut the rearward ends of the bolts **210,** thereby terminating the substantially forward linear motion of the links **198** and cause the arms **186,** the links **198** and the links **206** to become rigid with respect to each other. When such a relatively rigid relationship occurs, further actuation of the motors **180** to cause further forward motion of the piston rods **184** will cause the arms **186,** the links **198** and the links **206** to rotate, as rigid units, about the pins **188,** overcoming the tension of the springs **192,** with the motors **180** swinging about the axes of the pins **182.**

As shown in FIGS. **10, 13** and **15,** a substantially U-shaped heel clamp pad **212,** having a bight **214** and a pair of legs **216** extending forwardly of the bight on opposite sides of the bight, is located forwardly of the heel clamp slide **172** between the links **198.** The clamp pad **212** is formed from a yieldable material such as polyurethane. A positioning lug **218,** extending rearwardly of the pad bight **214,** is received in a slot formed in the forward end of the heel clamp slide **172.** Lugs **220,** that are mounted to and extend outwardly of the pad legs **216,** are pivotally connected to the fronts of the links **198.**

Referring to FIGS. **10** and **15,** a pilot valve **222** depends from a bar **224.** The bar **224** has a hole formed therein for rotatable accommodation of the rearward end of a shaft **226.** The midportion of the shaft **226** is threaded into the forward end of the bracket **170** so as to be rigidly connected to and partake of the motion of the main slide plate **164.** A finger **228** extends upwardly from and is made integral with the bar **224** and is contained in a longitudinal slot **230** (FIG. **14**) formed in the heel clamp slide **172.** Formed at the forward end of the shaft **226** are spaced collars **232** and **234.** A depending leg **236,** which is an integral part of the heel clamp slide **172,** straddles the shaft **226** at a point intermediate the collars **232** and **234.** It may thus be seen that the heel clamp slide **172** and all components mounted thereto may slide with respect to the main slide plate **164** a distance that is governed by the clearance between the depending leg **236** and the collars **232** and **234.** A stop **238** is secured to the bottom of the depending leg **236** and extends rearwardly to be in alignment with the plunger **240** of the pilot valve **222.** In the idle condition of the machine, the heel clamp slide **172** is maintained in a forward position relative to the main slide plate **164** with the depending leg **236** in abutment with the collar **232** by means of a pair of tension springs **242** (FIG. **10**) that have one end connected to the bracket **170** and the other end connected

to an arm **178** of the bracket **176** which is mounted to the rear of the heel clamp slide **172.**

Referring to FIGS. **11, 12, 14** and **16,** a wiper slide **244** is slidably mounted for forward and rearward movement in guideways **246** formed in the upper surface of the main slide plate **164.** An air actuated motor **248** is mounted to a bracket **250** that is secured to and extends rearwardly of the main slide plate **164.** The piston rod **252** of the motor **248** is connected to the wiper slide **244** so that activation of the motor **248** will cause the wiper slide **244** and all components carried thereon to move forwardly or rearwardly in the guideways **246.** Slidably mounted to the upper surface of the forward end of the main slide plate **164** are a pair of wiper cams **254** to which are mounted heel wipers **256.** A pair of links **258** pivotally connect the wiper slide **244** and the wiper cams **254** so that motion may be transmitted to the wiper cams **254** and consequently the wipers **256** upon actuation of the wiper slide **244** by the air motor **248.** For the purpose of guiding the wiper cams **254** in a desirable predetermined path, rollers **260** are rotatably mounted to the main slide plate **164** and protrude upwardly into cam slots **262** formed in the wiper cams **254** for accommodation of the rollers **260.** The wiper cams **254** are maintained in sliding contact with the main slide plate **164** by means of a cover **264** which is bolted to the main slide **164** and is spaced therefrom by means of spacers **266** (FIG. **14**), the spacing between the main slide plate **164** and the cover **264** being such that the wiper cams **254** may have horizontal sliding motion only, there being insufficient clearance for allowance of any substantial vertical movement.

Referring to FIGS. **8, 9** and **11,** a hold-down slide **268** is mounted to the top of the cover **264** for forward-rearward movement. An air actuated motor **270,** mounted to the bracket **250,** has a forwardly projecting piston rod **272** that is connected to the slide **268** so that the motor **270** may effect forward-rearward movement of the slide. An air actuated motor **274,** mounted to the slide **268,** has a forwardly directed piston rod **276.** A hold-down **278** is mounted to the front of the slide **268** for heightwise movement and is so connected to the piston rod **276** by a linkage **280** as to enable forward and rearward movements of the piston rod **276** to respectively lower and raise the hold-down **278.**

Referring to FIGS. **2, 8, 11, 12** and **17–19,** a pair of front posts **282** and **284** and a pair of back posts **286** and **288** are upstanding from the head **162.** The two front posts and the two back posts are located on opposite sides of the head **162** and a pair of slide rods **290** extend between the posts **282** and **286** and between the posts **284** and **288** so as to be located on opposite sides of the head **162** and so as to extend in forward-rearward directions. Bearing blocks **292** are slidably mounted on the slide rods **290** for forward-rearward movement and a slide plate **294** extends between the slide rods **290** and is secured to the bearing blocks **292.**

An air actuated motor **295,** comprising a cable cylinder **296,** extends between the posts **282** and **286** and is mounted to blocks **298** and **300** that are respectively secured to the posts **282** and **286.** Cables **302,** forming parts of the motor **295,** are secured to the opposite faces of a piston (not shown) that is slidably mounted in the cylinder **296.** The cables **302** extend about pulleys **304** that are rotatably mounted in the blocks **298** and **300** and the ends of the cables remote from the piston in the cylinder **296** are anchored to a clip **306** that is mounted to a strap **308.** The strap **308** is fastened to one of the bearing blocks **292.** Thus, actuation of the motor **295** will move the clip **306** forwardly or rearwardly to thereby move the slide plate **294** and the parts carried forwardly or rearwardly.

Referring to FIGS. **17, 18** and **20,** a valve **310** mounted to the bearing block **292** that has the strap **308** fastened thereto has a forwardly directed valve stem **312** that is spring urged forwardly by the conventional spring in the valve **310** so as to urge the valve stem **312** against a valve actuating rod **314** that is pivoted to the bearing block **292** associated with the valve **310** for forward-rearward swinging movement about the axis of a pin **316.** The valve stem **312** urges the rod **314** about the axis of the pin **316** to a position wherein the front of the rod **314** engages a stop pin **318** that projects from the associated bearing block **292.**

As shown particularly in FIGS. **17** and **20,** a column **320** is mounted in the machine adjacent the front post **282** for forward-rearward movement and can be adjusted in forward-rearward directions by a screw **322** that is threaded into the column **320** and is rotatable in a bracket **324** that is secured to the post **282.** A support **326** extends rearwardly of this column. An air actuated motor **328** is pivoted to the column **320,** and the piston rod **330** of the motor **328** extends rearwardly of this motor. The bottom of a bar **332** is pivoted to the back of the piston rod **330.** The top of the bar **332** is so pivoted to the back of the support that a stop lug **334** on the topmost portion of the bar **332** extends above the support **326** in alignment with the front of the rod **314.**

Referring to FIG. **21,** a cement pot **336** is mounted to the slide plate **294** for forward-rearward movement therewith. The cement pot includes a funnel **338** into which solid granules of thermoplastic cement is supplied and a storage chamber **340** into which the solid cement gravitates from the funnel **338** and in which the cement is melted by heating means (not shown). The molten cement gravitates from the chamber **340** through a passage **342** and an orifice **344** in a hollow sleeve **346** into a bore **348** forming the hollow interior of the sleeve **346.** The sleeve **346** is mounted to the cement pot **336.** An air actuated motor **350,** also mounted to the cement pot **336,** has a downwardly depending piston rod **352** to which is attached a downwardly depending plunger **354** that is slidable in the bore **348.** An orifice **356** in the bottom of the sleeve **346** has a valve seat **358** formed thereon that is cooperative with a ball valve **360** to close the orifice **356** in response to upward movement of the plunger **354.** The ball valve normally rests on a support member **362** that is mounted to the cement pot **336** so that communication is provided between between the orifice **356** and a passage **364** located below the orifice **356.**

Referring to FIGS. **21** and **22,** a prong **366** is secured to and extends downwardly and forwardly of the cement pot **336.** A block **368** is pivoted to a post **370** extending upwardly of the front of the prong **366** for swinging movement about the upright axis of the post **370.** A projection **372** (FIG. **23**) extends laterally of each side of the block **368** and a stabilizer bolt **374** is secured to each projection **372** with a head **376** of each bolt **374** extending rearwardly of its associated projection **372.** As shown particularly in FIGS. **23** and **24,** a pair of single acting spring return air operated motors **378** are so mounted to the slide plate **294** that their

forwardly directed piston rods **380** are in alignment with the bolt heads **376.**

A pair of aligned spindles **382** (FIG. **22**) are mounted for swinging movement about a horizontal axis in projections **384** of the block **368,** the spindles having extensions **386** that extend outwardly of the block **368.** A heightwise extending spindle **388** (see FIGS. **22** and **25**) is swingably mounted in each spindle extension **386** and a nozzle carrier **390** is mounted to an extension **392** of the spindle **388** so as to extend forwardly thereof. A nozzle holder **394** is mounted to the front of each nozzle carrier **390** and a nozzle **396** (FIG. **26**) is mounted to and depends downwardly of each nozzle holder **394.**

Interconnected passage means **398** in the cement pot **336,** the prong **366,** the block **368,** the post **370,** the spindles **382,** the spindle extensions **386,** the spindles **388,** the nozzle carriers **390,** the nozzle holders **394** and the nozzles **396** provide communication for the molten cement between the passage **364** and passages **400** (FIG. **26**) located in each of the nozzles **396.** Strategically located electric cartridge heaters, such as the heaters **402** shown in FIGS. **25** and **26** serve to maintain the cement that is in the passage means **398** and the passages **400** molten. A check valve **404** (FIG. **26**) in each nozzle holder **394** yieldably blocks the flow of cement through the passage means **398.**

Each spindle extension **392** has a bar **410** (FIGS. **21, 22** and **25**) extending rearwardly thereof that has a bar **412** depending from its back end. Each bar **412** is mounted to a yoke **414.** One of the yokes **414** is secured to the cylinder **416** (FIG. **27**) of an air operated motor **418** and the other yoke **414** is secured to the piston rod **420** of this motor. As described below, the operation of the motor **418** serves to swing the nozzle carriers **390** and the bars **410** about the axes of the spindles **388.** The extent of outward movement of the bars **410** and the extent of inward movement of the nozzle carriers **390** is determined by the engagement of the bars **410** with stop bolts **422** that are located outwardly of the bars **410** and are mounted to bars **424** that in turn are secured to their associated block extensions **386.**

A rod **426** (FIG. **24**) attached to and extending rearwardly of each projection **372** of the block **368** has a post **428** depending from its back, and an air operated motor **430** is pivoted to the bottom of each post **428.** A lug **432,** depending downwardly of and connected to each spindle extension **386,** is pivoted to a clevis **432** that is secured to the piston rod **434** of its associated motor **430,** the piston rods **434** projecting forwardly of the motors **430.**

Referring to FIGS. **19** and **28,** a bracket **435** is secured to each rod **426** and a valve **436** is so mounted to each bracket **435** as to have its valve actuator **438** extend inwardly of its associated bracket **435.** The valve actuators **430** are resiliently urged inwardly by the conventional springs incorporated in the valves **436.** A cam **440** is so mounted to each spindle extension **386** as to be in intersecting relationship with its associated valve actuator **438.**

Referring to FIGS. **8, 9, 11, 12, 19** and **29,** a block **442** is slidably mounted for forward-rearward movement on a shaft **444.** The shaft **444** is fixed to and extends between the back post **288** and a pillar **446** that is mounted to the head **162.** A compression spring **448,** entwined about the shaft **444** between the block **442** and the pillar **446,** acts to yieldably urge the block **442** rearwardly along the shaft **444.** A lug **450** is rigidly mounted to the slide plate **164** and is movably mounted on the shaft **444** rearwardly of the block **442** so as to be engaged by the back of the block **442** and thus limit the extent of rearward movement of the block **442** under the influence of the spring **448.** Depending lugs **452** on the block **442** straddle a rod **454** that is located below the shaft **444** and is secured to the post **288** and the pillar **446.** An air operated cylinder **456** is mounted for heightwise movement in a cavity **458** in the block **442** and is resiliently urged downwardly of the block by tension springs **460** that extend between pins **462** anchored to the cylinder **456** and pins **464** anchored to the block **442.** The bottom of the cavity **458** is in communication with a source of pressurized air. A valve assembly **466** is mounted to a flange **468** that is secured to the top of the cylinder **456.** The valve assembly **466** is offset outwardly of the cylinder **456.** The flange **468,** which forms a stop member, includes a forwardly facing stop surface **470** (FIG. **8**) that is approximately at the level of the top of the cylinder **456,** and a lower surface **472** to which the valve assembly is mounted. A cam **474** is mounted to the bearing block **292** associated with the back post **288.** The cam **474,** as described below, is in alignment with the stop surface **470** and the valve assembly **466** when the cylinder **456** has been raised to an upper position.

In the idle condition of the machine: the piston rod **18** is retracted into the motor **16** to maintain the support **40** in a lowered position; the piston rod **34** is retracted into the cylinder **32** of the motor **30** to thereby maintain the brake fingers **36** disengaged from the flange **38;** the piston rods **76** are retracted into the motors **74** to thus force the bases **78** into outer positions and thus position the sets of lasting units **72** in outer positions wherein they do not interfere with the placement of a shoe assembly on the support **40** as described below; the piston rods **98** are retracted into the motors **96** and the piston rods **158** are retracted into the motors **150** thus placing the lasting instrumentalties **126** in outer positions on the supports **82;** the piston rod **168** is retracted into the motor **166** to maintain the main slide plate **164** and the parts carried thereby in a rearward position; the piston rods **184** are retracted into the motors **180** to maintain the heel clamp pad **212** in an open position; the piston rod **252** is retracted into the motor **248** to thereby maintain the wipers **256** in the retracted position shown in FIG. **16;** the piston rod **272** is retracted into the motor **270** to maintain the hold-down **278** in a rearward position; the piston rod **276** is retracted into the motor **274** to maintain the hold-down **278** in an upper position; the motor **295** is so actuated as to cause the cables **302** to locate the slide plate **294** and the parts carried thereby, including the cement nozzles **396,** in a rearward position with the cam **474** located rearwardly of the valve assembly **466** and the flange **468;** the piston rod **330** is retracted into the motor **328** so that the stop lug **334** is in alignment with the rod **324;** the piston rod **352** is retracted into the motor **350** so that the bottom of the plunger **354** is above the orifice **344;** the piston rods **380** are projecting out of the motors **378** under relatively low pressure and bar against the bolt heads **374** so that the block **368,** together with the nozzles **396,** is restrained against movement about the upright axis of the post **370;** the cylinder **416** and the piston rod **420** of the motor **418** are extended away from each other so that the nozzles **396** are swung above the axes of the

spindles **388** to positions that are relatively close to each other in positions determined by the engagement of the bars **410** with the stop bolts **422;** the piston rods **434** are projected out of the motors **430** to thereby move the nozzles **396** about the axis of the spindles **382** to raised positions; and the cylinder **456** is retained in a lowered position in the block **442** by the springs **460** to thereby lower the stop surface **470** and the valve assembly **466** out of intersecting relation with respect to the cam **474.**

Thermoplastic cement is placed in the funnel **338** of the cement pot **336** and gravitates into the chamber **340** wherein it is melted. The molten cement flows from the chamber **340** through the passage **342,** the orifice **344,** the passage **364,** and the passage means **398** up to the valves **404** in the nozzle holders **394.**

A shoe assembly **476** (FIGS. **31** and **31A**) comprising a last **478** having an insole **480** located on its bottom and an upper **482** mounted thereon is placed bottom-up on the support **40** with the vamp of the shoe assembly resting on the toe rest **24** and with the last pin **20** inserted into the thimble in the back portion of the last so that the toe of the shoe assembly faces forwardly. Prior to placement in the machine, the shoe assembly **476** had been toe lasted. In FIGS. **31** and **31A** the shoe assembly **476** is illustrated as being for a left foot and the machine operating cycle described below will be for a left foot shoe assembly.

The machine includes a left and a right control knob **484** (FIG. **1**), each of which is mounted to a post **486** at the front of the machine. To start the machine cycle, the left control knob **484,** as seen in FIG. **1,** is momentarily depressed. By means shown in the aforementioned application Ser. No. 386,129, the column **22** and the toe rest **24** are so mounted to the sleeve **10** that they can swing leftwardly or rightwardly with respect to the sleeve **10** about an upright axis. The depression of the left control knob **484** actuates an air operated motor **488** (FIG. **3**) to swing the column **22** and the toe rest **24** rightwardly (FIG. **1**).

The depression of the left control knob **484** also admits air under relatively high pressure to the blind end of the left motor **378** as seen in FIG. **1** (the top motor **378** in FIG. **23**) to thus project the piston rod **380** of this motor **378** forwardly under a pressure that is higher than the pressure projecting the piston rod **380** of the other motor **378** forwardly. As a result, the block **368** is swung counter clockwise (FIG. **23**) about the axis of the post **370** so as to swing the nozzles **396** rightwardly as seen from the [part] *front* of the machine (downwardly in FIG. **23**).

The depression of the left control knob **484** also actuates the motor **270** to project the piston rod **272** forwardly to thus move the hold-down slide **268** forwardly, thereby moving the hold-down **278** forwardly over the bottom of the shoe assembly **476.** This is followed by an actuation of the motor **274** to project its piston rod **276** forwardly to thus lower the hold-down **278** to a position wherein its bottom is at substantially the same elevation as the plane of the bottom of the heel wipers **256.** After this, the motor **16** is actuated under relatively low pressure to project its piston rod **18** upwardly to thereby raise the support **40** until the heel seat portion **490** (FIG. **31A**) of the insole bears against the bottom of the hold-down **278** to thus locate the insole heel seat portion **490** in a plane substantially level with the plane of the bottoms of the heel wipers **256** in a plane parallel to the plane of movement of the heel wipers **256.** After this, the motor **30** is actuated to move the cylinder **32** and the piston rod **34** away from each other to thereby force the brake fingers **36** against the flange **38** so as to lock the support **40** in working position in the machine in the position it had assumed pursuant to the rise of the support **40** by the motor **16** to bring insole heel seat portion **490** against the bottom of the hold-down **278.** This is followed by an actuation of the motor **274** to raise the hold-down **278** to its idle position and an actuation of the motor **270** to return the hold-down slide **268** to its idle position.

After the hold-down slide **268** has returned to its idle position, the motor **166** is activated to move the main slide plate **164** to a forward working position and thereby carry the heel clamp pad **212** and the heel wipers **256** forwardly from their out-of-the-way positions until the bight **214** of the heel clamp pad **212** abuts the heel end of the shoe assembly **476,** thereby terminating forward motion of the heel clamp pad **212.** The main slide plate **164** and the heel wipers **256** carried thereon continue to move forwardly until the collar **234** (FIG. **15**) on the shaft **226** abuts the depending leg **236** of the heel clamp slide **172.** Simultaneously with the abutment of the collar **234** and the depending leg **236,** the plunger **240** of the pilot valve **222** is depressed by reason of its abutment with the stop **238** to thereby actuate the pilot valve **222.** The actuation of the pilot valve **222,** by means of a control arrangement shown in U.S. Pat. No. 3,436,779, serves to lock the piston rod **168** of the motor **166** in position to thereby lock the main slide plate **164** in its forward position and also causes actuation of the motors **180.**

The actuation of the motors **180** causes the heel clamp driving mechanism shown in FIGS. **10** and **13** to operate in the manner described above to move the heel clamp pad **212** to the FIG. **32** position. The legs **216** of the head clamp pad **212** are initially stretched forwardly towards the toe of the shoe assembly and are subsequently swung inwardly until they engage the side walls of the shoe assembly in the regions of the breast lines, so that all of the inner wall of the pad **212** engages the heel of the shoe assembly.

After the hold-down slide **268** has been returned to its idle position as described above, the momentary depression of the left control knob **484** causes the motors **74** to be so actuated as to project their piston rods **76** inwardly to thus move the bases **78,** together with the sets of lasting units **72,** inwardly to positions wherein bolts **492** (FIG. **6**) mounted on the bases **78** engage flanges **494** mounted to the tables **52.** As a result, the lasting instrumentalities **126** are positioned close to but not in engagement with the shoe assembly. This is followed by an operation of the motors **96** so as to admit pressurized air under relatively high pressure to the blind ends of these motors to thereby enable each piston rod **98** to cause a lasting intrumentality **126** to move inwardly with respect to its support **82** with its inner bracket **90** sliding on the support until the lasting strap bottom segment **134a** engages and meets resistance from the shoe assembly **476.** At this time, since there is no pressurized air in the motors **150,** the piston rods **158** are dragged inwardly of the motors **150** during the inward movements of the lasting instrumentalties **126.** The lasting strap bottom segments **134a** engage the side portions of the shoe assembly **476,** between its toe and heel portions, wherein the margin **496** of the upper **482** extends away from the insole as shown in FIG. **33.** The rigid bottom segment **134a** straddles

the top line **498** of the upper so as to clamp the top line against the last **478.** Upon engagement of a bottom segment **134a** with the shoe assembly **476,** the continued force applied by the piston rod **98,** through the lever limb **106,** causes the lever **110** to swing inwardly about its pivot pin **112.** The inward swinging of the lever **110,** through the pin and the slot connection **138** and **140,** causes the outer presser strap top segement **130b** to be forced inwardly thus flexing inwardly the outer presser strap middle segment **130c.** This is followed by an inward swinging of the lever **102** about its pivot pin **108** which, through the lever limb **104** and the link **146,** causes the inner presser strap top segment **132b** to be forced inwardly thus flexing inwardly the inner presser strap middle segment **132c.**

It is desired, during the lasting of the shoe, that the top line **498** of the side portions of the upper **482** be clamped against the last **478** and remain stationary on the last while the side portions of the upper extending from the top line towards the last bottom and the insole **480** have any slack and wrinkles taken out and then be pressed tightly against the last. This is accomplished by virtue of the fact that the bottom segment **134a** first rigidly clamps the top line **498** to the last after which the outer presser strap top segment **130b** is moved against the shoe assembly followed by a movement of the inner presser strap top segment **132b** against the shoe assembly. The movement of the pressure straps against the shoe assembly causes the lasting strap middle segment **134c** to flex and press the upper between the top line and the insole bottom against the last while conforming to the shape of the last. Since the outer presser top segment **130b** is lower than the inner pressure strap segment **132b,** the pressure applied by the lasting strap middle segment **134c** against the upper commences at its bottom proximate to its rigid bottom segment **134a** and works its way upwardly. Therefore, the upper is progressively urged upwardly of the top line as it is pressed against the last thus pressing the upper against the last in a wrinkle free manner. At the completion of the pressing of the upper against the last by the lasting strap middle segment **134c,** the lasting strap top segment **134b** extends upwardly of the insole **480** and outwardly of the upper margin **496** as indicated in FIG. **33.**

From the foregoing it can be seen that, at the time the motors **96** are actuated to move their piston rods **98** inwardly, the lasting instrumentalties must be on opposite sides of the shoe assembly **476** in positions that are close to but not in engagement with the shoe assembly and that these positions are determined by the engagement of the bolts **492** with the flanges **494.**

When operating on a left foot shoe assembly, with the toe rest **24** on the longitudinal center line of the machine, the left side of the shoe assembly (the upper side in FIG. **31A**) projects further from the longitudinal center line of the machine than the right side of the shoe assembly (the lower side in FIG. **31A**). Therefore, with a left foot shoe assembly and with the toe rest **24** located on the longitudinal center line of the machine, when the motors **74** have completed the inward movement of the lasting instrumentalties **126** due to the engagement of the bolts **492** with the flanges **494,** the lasting instrumentalties **126** on the left side (FIG. **1**) of the machine will be closer to its associated side of the shoe assembly **476** than the lasting instrumentalties on the right side of the shoe assembly. In some instances, the lasting instrumentalties on the left side of the machine may actually be in engagement with the shoe assembly. It is for the purpose of avoiding this undesirable condition that the toe end of the shoe assembly **476** was caused to swing rightwardly about the axis of the last pin **20,** by the motor **488.**

As shown in FIG. **31A,** the right side of the last **478** of the left foot shoe assembly **476** (the bottom side as seen in FIG. **31A**) has a reentrant portion **500** that curves inwardly of and between the toe and heel portions of the side of the last. The other side of the last has a much less pronounced reentrant portion.

In addition to the operation of the motor **96,** after the engagement of the bolts **492** with the flanges **494** pressurized air is sent under relatively low pressure to the blind ends of the motors **150** on the right side of the machine as seen in FIG. **1** to thereby force the piston rods **158** of these motors inwardly at a lower pressure than the pressure that had been applied to the motors **96.** The pressurized air is admitted to the blind ends of these motors **150** at the same time as it is admitted to the blind ends of the motors **96.** However, due to the pressure of the air entering these motors **150** being lower than the pressure of the air entering the motors **96,** the actuation of these motors **150** to force their piston rods **158** inwardly is delayed until the outer presser straps **130** have been flexed inwardly to cause the upper **482** to conform snugly to the shape of the last **478** and to press the upper against the last.

The actuation of the right motors **150,** as seen in FIG. **1,** forces the associated lasting strap top segments **134b** on the right side of the machine, as seen in FIGS. **1** and **33,** inwardly under the relatively low pressure to provide an inwardly directed back-up force that folds each lasting strap top segment **134b** downwardly about its juncture with its lasting strap middle segment **134c** so that the top segment **134b** forms an acute angle with respect to the insole **480,** this being permitted by the flexible connection provided by the ball and socket connections **154, 156.** This causes the upper margin **496** on the side of the shoe assembly having the reentrant portion **500** to be folded downwardly about the periphery of the insole, part way towards the insole, as indicated in FIG. **33,** to form an acute angle with the insole.

The shoe assembly engaging parts are now in the position shown in FIG. **32** with the pad **212** pressing the heel portion of the upper **482** againts the last **478** and the lasting instrumentalties **126** pressing the side portions of the upper margin against the last, the lasting instrumentalties **126** being located forwardly of the pad **212** with substantially no space between the rearmost lasting instrumentalties **126** and the fronts of the pad legs **216.**

The motor **295** is now actuated so as to cause the cables **302** to move the slide **294** and the parts carried thereby, including the nozzles **396,** forwardly until the valve actuating rod **314** engages the stop lug **334.** The stop lug **33** is so located that it is engaged by the rod **314** at a location such that the nozzles **396** are over the widest part of the shoe assembly, indicated by number **502** in FIG. **31A.** The engagement of the rod **314** by the lug **334** causes the valve **310** to open.

Referring to FIG. **30,** the motors **430** are maintained in their idle positions by pressurized air passing from a source **504** through a line **506,** a valve **508** and a line **510** to the blind ends of these motors. The opening of the valve **310** sends air from the source **504** through a line **512,** the valve **310** and a pilot line **514** to the left

side of the valve **508** to shift the valve **508.** This shifting of the valve **508** vents the air from the blind ends of the motors **430** through the line **510** and the valve **508** and enables pressurized air to pass from the valve **508** through a line **516** to the rod ends of the motors **430** to thereby retract the piston rods **434** into the motors **430** and thus cause the nozzles **396** to be lowered under the yieldable force of the pressurized air in the motors **430** until they engage the insole **480** in the general region indicated by number **502** in FIG. **31A** wherein the nozzles are spaced from the upper margin **496** and the insole periphery laterally of the side portions of the upper margin and the corresponding portions of the insole periphery that are between the toe and heel portions of the shoe assembly.

As described above, the toe portion of the shoe assembly **476** was swung rightwardly by the motor **488.** In order to ensure that the nozzles engage the insole **480** inwardly of the upper margin **496,** the nozzles were also swung rightwardly. As described above, by the admission of the relatively high pressure air to the left motor **378** as seen in FIG. **1** which is the top motor **378** in FIG. **23.**

The motor **418** is maintained in its idle condition by pressurized air passing from the source **504** through a valve **518** and a line **520** to the motor **418.** The lowering of the nozzles **396** causes the valves **436,** which are normally closed, to open. The opening of the valves **436** enables pressurized air to pass from the source **504** through the valves **436** and a pilot line **522** to the left side of the valve **518** to shift this valve. The shifting of the valves **518** enables the air in the line **520** to vent to atmosphere through the valve **518** and enables pressurized air to flow from the valve **518** through a line **524,** a valve **526,** a line **528,** a shuttle valve **530** and a line **532** to the motor **418** to so actuate the motor **418** as to move the yokes **414** inwardly under the yieldable force of the pressurized air operating under relatively high full line pressure in the line **532** and thus move the nozzles **396** outwardly under relatively high pressure along the insole **480** into the angle between the insole and the upper margin **496** until the nozzles reach the corners between the insole and the upper margin as indicated in FIG. **33.**

It is desirable that the nozzles **396,** in moving into these corners, first move downwardly against the insole and then move outwardly along the insole into the corners to ensure that the nozzles will not tangle with the upper margin which, as indicated in FIG. **33,** is overhanging the insole **480** and extending inwardly of the insole periphery at this time, and to ensure that the nozzles do not move outwardly of the upper margin before moving downwardly. This desirable sequence is ensured by causing the outward movement of the nozzles to take place in response to the downward movement of the nozzles which causes the opening of the valves **436,** the opening of the valves **436** in turn causing the outward movement of the nozzles to take place.

By means not shown, the opening of the valves **436** also shuts off the flow of pressurized air to the motors **378** so that the return springs **534** (FIG. **24**) of these motors retract their piston rods **380** out of engagement with the bolt heads **276** to thereby enable the motor **418** to move the nozzles **396** outwardly.

The aforementioned shifting of the valve **518** that had caused the pressurized air to flow through the line **524** to the motor **418** also enabled pressurized air to flow from the line **524** through a pilot line **536** and a pneumatic timer **538** in the line **536** to the left side of a valve **540** to shift the valve **540** after a time delay provided by the timer **538.** The shifting of the valve **540** enables pressurized air to flow from the source **504** through the valve **540** and a pilot line **542** to the left side of the valve **526** to shift the valve **526.** The shifting of the valve **526** cuts off the flow of pressurized air through the line **528** and enables pressurized air to flow under relatively low pressure from the valve **526** through a line **544,** a pressure regulator **546** in the line **544** set a pressure lower than the pressure of the air that had flowed through the line **528,** the shuttle valve **530** and the line **532** to the motor **418** to cause the motor **418** to urge the nozzles **396** outwardly into the corners between the insole **480** and the upper margin **496** at a lower pressure than they had been originally urged outwardly.

Now the motor **328** is acutated to lower the stop lug **334** and disengage it from the valve actuating rod **314** thus causing the valve **310** to close the enabling the motor **295** to again move the plate **294** and the nozzles **396** forwardly. During this resumption of the forward movement of the nozzles **396,** they are resiliently urged downwardly against the insole **480** by the motors **430** and are resiliently urged outwardly against the upper margin **496** under relatively low pressure by the motor **418** so that they are bearing against the insole and the upper margin when they stop their forward motion as described below. The nozzles **396** are urged outwardly against the upper margin **496** under relatively low pressure during their forward movement and during their below described rearward movement so that they will not tear or gouge the margin during these movements. The nozzles **396** are initially urged outwardly under relatively high pressure so as to rapidly move them outwardly into the corners between the upper margin **496** and the insole **480** thereby ensuring that they are in the corners when the nozzles resume their forward movement and and when the nozzles meet resistance to continued forward movement at the boundaries between the wiped toe portion of the upper margin and the unwiped side portions of the upper margin as described below.

As shown in greater detail in application Ser. No. 386,129, the machine control is so constructed that, in response to the lowering of the stop lug **334** to enable the slide plate **294** and the nozzles **396** to resume their forward movement, the motor **295** is caused to reverse its movement and move the slide plate **294** and the nozzles **396** rearwardly. The control is so constituted that the nozzles **396,** at the conclusion of their forward movement, are located at the boundaries between the wiped toe portion of the upper margin and the unwiped side portions of the upper margin. Since the block **368,** together with the nozzles **396,** can swing about the axis of the post **370,** the block, together with the nozzles, swing about this axis in one direction or the other should one nozzles arrive at this boundary before the other.

At the same time as the slide plate **294** and the nozzles **396** commence their rearward movement, pressurized air is caused to flow, by means described below, to the blind end of the motor **350** to thereby move the plunger **354** downwardly at a regulated speed past the orifice **344** and force cement through the passage means **398,** the check valves **404** and the passages **400** in the nozzles **396** into the angle between the upper margin **496** and the insole **480.**

The aforementioned opening of the valve **310** caused pressurized air to flow into the bottom of the cavity **458** to thereby raise the cylinder **456** to bring the stop member **470** and the valve assembly **466** into intersecting relationship with the cam **474.** At this time, the cam **474** is forward of the stop surface **470** and the valve assembly **466** so that it does not intersect them during the forward movement of the plate **294.** The plate **294,** together with the nozzles **396,** continues its rearward movement until the back of the cam **474** engages the stop surface **470** and engages the valve assembly **466** to thereby open the valve assembly **466.** The aforementioned forward movement of the main slide plate **164** to bring the bight **214** of the heel clamp pad into abutment with the heel end of the shoe assembly **476** had also moved the lug **450** forwardly. The lug **450,** in this forward movement, pushes the block **442,** together with the stop surface **470** and the valve assembly **466,** forwardly against the force of the spring **448.** The stop surface **470** is located in a forward-rearward position that is dependent on the forward-rearward position of the heel end extremity of the shoe assembly **476.** The machine parts are so dimensioned that the forward-rearward distance between the stop surface **470** and the pad bight **214** is substantially equal to the forward-rearward distance between the back of the cam **474** and the nozzles **396.** Therefore, regardless of the length of the shoe assembly **476** and the forward-rearward position of the heel portion of the shoe assembly, the nozzles **396** are located proximate to the heel end portion of the corner between the insole **480** and the upper margin **496** when the plate **294** and the nozzles **396** terminate their rearward movements.

During the rearward movements of the nozzles from the boundary of the unwiped side portion of the upper margin **496** with the previously wiped toe portion of the upper margin to locations that are proximate to the heel end extremity of the shoe assembly **476,** the cement is continuously being extruded from the nozzle passages **400** into the angle between the upper margin **496** and the insole **480,** the nozzles **396** are continuously being yieldably urged downwardly against the insole **480** by the motors **430,** and the nozzles **396** are continuously being urged yieldably outwardly, under relatively low pressure, against the upper margin **496** by the motor **418,** as shown in FIG. **33.** Therefore, during the rearward cement extruding movement of the nozzles **396** they are able to remain in the angle between the insole **480** and the upper margin **496** in desirable positions for the extrusion of the cement regardless of the contour of the bottom of the insole and regardless of the contour of the insole periphery.

The relatively low back-up force exerted against the reentrant portion **500** on the right side of the shoe assembly **476** to fold the lasting strap top segments **134b** part way towards the insole forces the partially folded upper margin **496** on the right side of the shoe assembly against the periphery of the insole **480** to create a barrier between the upper margin and the insole that inhibits the creeping of the cement between the upper margin and the insole and then between the upper **482** and the sides of the last **478.** As noted in FIG. **33,** the angle formed between the side of the last and the bottom of the last on the right side of the shoe assembly having the reentrant portion **500** is an acute angle which is smaller than the angle, which is close to a right angle, formed between the left side of the last and the bottom of the last. Therefore, the need for folding the lasting strap top segments **134b** on the right side of the last partway towards the insole does not exist with respect to the lasting segments **134b** on the left side of the last. By not folding the upper margin **496** on the side of the shoe assembly **476** not having the reentrant portion **500,** the nozzles **396** on that side of the shoe assembly may move further outwardly under the force imparted thereto by the motor **418** until it meets resistance from the upper margin **496** and thus be positioned close to and extrude cement close to the periphery of the insole **480** which enhances the quality of the bond between the upper margin and the insole effected by the wiping operation described below. It is for these reasons that the left motors **150** (FIGS. **1** and **33**) were not actuated, as were the right motors **150** to force their piston rods **158** inwardly under relatively low pressure.

The heel portion of the upper margin **496** is held upright and pressed against the last **478** by the heel clamp **212** to thereby enable the nozzles **396** to stay in the corner between this portion of the upper margin and the corresponding portion of the insole periphery as the nozzles move past this portion of the upper margin.

The motor **350** is maintained in its idle condition by pressurized air passing from the source **504** through a spring return valve **548** and a line **550** to the rod end of this motor. The motor **350** was actuated to force cement through the nozzles **396** pursuant to the aforementioned shifting of the valve **540** which, in addition to enabling the flow of pressurized air through the pilot line **542,** enabled pressurized air to flow from the valve **540** through a pilot line **552** to the left side of a valve **556** to shift the valve **556.** The shifting of the valve **556** enabled pressurized air to flow from the source **504** through the valve **556** and a pilot line **558** to the left side of the valve **548** to shift the valve **548.** The shifting of the valve **548** cut off the flow of pressurized air in the line **550** and enabled pressurized air to flow from the valve **548** through a line **560** and a pressure regulator **562** in the line **560** to the blind end of the motor **350** to actuate the motor **350** to force cement through the nozzles **396.**

The aforementioned opening of the valve assembly **466** enables pressurized air to flow from the source **504** through the valve assembly **466** and a pilot line **564** to the right side of the valve **556** to thereby shift the valve **556** back to its original position so that the flow of pressurized air in the pilot line **558** to shut off. The shutting off of the air flow in the line **558** enables the return spring in the valve **548** to return this valve to its original position to thereby cut off the flow of air in the line **560** and causes the pressurized air to again flow in the line **548** and thus actuate the motor **350** to return to its idle condition so as to cut off the flow of cement through the nozzles **396.**

The opening of the valve assembly **466** also enables pressurized air to flow from the valve **466** through a pilot line **566** to the right side of the valve **518** to thereby shift this valve back to its original position so that the flow of air in the line **524** is cut off and pressurized air again flows through the line **520** to the motor **418** to thereby cause the motor **418** to swing the nozzles **396** inwardly and away from the upper margin **496** proximate to the heel end extremity of the upper margin.

The opening of the valve assembly **466** also enables pressurized air to flow from the line **566** through a pilot

line **568** and a pneumatic timer **570** in the line **568** to the right side of the valve **508** to thereby shift this valve back to its original position so that the flow of air in the line **516** is cut off and pressurized air again flows through the line **510** to the motors **430** to cause the motors **430** to return to their idle position to thereby raise the nozzles **396** to their idle positions after a time delay imparted by the timer **570.** This time delay enables the motor **418** to swing the nozzles inwardly of the upper margin **496** before they are raised upwardly of the insole **480** by the motors **430.**

The opening of the valve assembly **466** also returns the motors **378** to their idle condition.

The opening of the valve assembly **466,** after a time delay sufficient to enable the nozzles **396** to be raised clear of the shoe assembly **476,** causes pressurized air under a higher pressure than had previously been applied to the right motors **150** to flow to the blind ends of all of the motors **150.** This causes each motor **150** to force its piston rod **158** inwardly under relatively high pressure and thereby force the lasting strap top segment **134b** inwardly over the insole periphery under relatively high pressure. This has the effect of forcing each lasting strap top segment **134b** inwardly and downwardly to press the upper margin **496** against the insole **480.** At this time, the rigid lasting strap bottom segments **134a** are still clamping the top line **498** to the last, and the inward and downward force imparted to the lasting strap top segments **134b** causes the lasting strap middle segment **134c** to stretch, while the inner and outer presser straps **132** and **130** maintain their pressure against the shoe assembly **476,** to thus force the portion of the upper **482** extending above the top line **498** upwardly and stretch the upper upwardly and tightly about the last while it is conforming to the shape of the last. The pressure applied by the presser straps **130** and **132** is light enough to allow this stretching of the lasting strap middle segments **134c** to take place. The forcing down of each lasting strap top segment **134b** against the insole causes the lasting strap top segments **134b** to wipe or fold the side portions of the upper margin **496** against the insole **480** and bond the upper margin to the insole by means of the previously applied cement.

After the lasting strap top segments **134b** have forced the side portions of the upper margin **496** against the insole **480** for a sufficient length of time as to enable the side portions of the upper margin to be effectively bonded to the insole, the motors **74, 96** and **150** are actuated to return the sets of lasting units **72** to their idle positions. This is followed by an actuation of the motor **248** to cause the wiper slide **244** to move forwardly thereby imparting motion to the wiper cams **254** and consequently the heel wipers **256** in a heel wiping stroke by means of the links **258.** The heel wipers **256** are guided in their movement by the engagement of the cam slots **262** with the rollers **260** in a path that is both forwardly translating and inwardly swinging about the vertex **572** (FIG. **16**) of the heel wipers. This causes the heel wipers **256** to engage the heel portion of the upstanding upper margin **496,** that extends from the heel end extremity of the shoe assembly **476** to the rearmost ends of the side portions of the upper margin **496** that had been previously wiped against and bonded to the insole by the sets of lasting units **72,** and wipe the heel portion of the upper margin against the insole heel seat portion **490** and bond it to the insole heel seat portion by means of the previously applied cement.

At about the same time as the actuation of the motor **248** to effect the heel wiping stroke, the flow of pressurized air to the cylinder **456** is cut off to thereby enable the springs **460** to lower the cylinder **456** to its idle condition to thereby lower the stop surface **470** out of intersecting relationship with the cam **474** and to thereby lower the valve assembly **466** away from the cam **474** so as to allow the valve assembly **466** to open. The lowering of the stop surface **470** out of intersecting relationship with the cam **474** enables the motor **295** to resume the rearward movement of the plate **294** and the nozzles **396** until they reach their idle positions.

At or near the end of the heel wiping stroke the motor **30** is so actuated as to cause the brake fingers **36** to disengage the flange **38** and thus unlock the support **40** for heightwise movement. At about the same time, air is introduced under increased bedding pressure to the motor **16** to cause the support **40** to be so forced upwardly as to press the wiped heel portion of the upper margin **496** against the bottoms of the heel wipers **256** to thereby flatten the wiped heel portion of the upper margin and enhance the bond between the heel portion of the upper margin and the insole heel seat portion **490.** When this bedding pressure has been applied for a sufficient length of time, the machine parts that have not already done so are returned to their idle positions and the machine cycle is completed so that the lasted shoe assembly **476** can be removed from the machine.

When the shoe assembly is in the FIG. **32A** position during the cement extruding travel of the nozzles **396** along the insole periphery preparatory to the wiping of the side and heel portions of the upper margin against the insole, the upwardly facing bottom of the insole heel seat portion **490** lies in a substantially horizontal plane that is substantially parallel to the plane of the bottoms of the heel wipers **256.** The shank portion **574** of the insole, at this time, rises upwardly and forwardly from the heel seat portion **490** at an incline that is dependent on the size and style of the shoe assembly **476.** The lasting instrumentalties **126** should, at this time, extend in forward-rearward directions in an inclined plane that is approximately parallel to the plane of the insole shank portion **574.** Prior to the start of the machine cycle, the shafts **66** had been rotated to cause the lasting instrumentalties **126** to swing in the appropriate direction about the axes of the pins **60** to thereby adjust the inclined plane of the lasting instrumentalties **126.** If necessary, the shafts **50** had been rotated to raise or lower the lasting instrumentalties **126** to bring them to the apropriate elevation.

The shoe assembly **476** had been brought to the FIG. **32A** position wherein the upwardly facing bottom of the insole heel seat portion **490** is in the substantially horizontal plane referred to in the preceding paragraph by causing the motor **16** to raise the shoe assembly so as to bring the insole heel seat portion against the hold-down **278.** The shoe assembly had then been retained in this position by the operation of the motor **30** to cause the brake fingers **36** to bear against the flange **38,** after which the hold-down **278** was disengaged from the shoe assembly. The hold-down **278** was disengaged from the shoe assembly with the shoe assembly retained in the FIG. **32A** position by the brake fingers **36** so that the hold-down **278** would not be intersected by and interfere with the nozzles **396** during the rearward cement extruding movement of the nozzles and also would not be intersected by and interfere with the

nozzles during the forward movement of the nozzles from their idle position to the location wherein the nozles were lowered against the insole.

When operating on a right foot shoe assembly, the operator will start the machine cycle by momentarily depressing the right control knob **484** (FIG. **1**). This causes actuation of the motor **488** to swing the column **22** and the toe rest **24** leftwardly (FIG. **1**). The depression of the right control knob **484** also admits air under relatively high pressure to the blind end of the right motor **378** as seen in FIG. **1** (the bottom motor **378** in FIG. **23**) to thus project the piston rod **380** of this motor **378** forwardly under a pressure that is higher than the pressure projecting the piston rod of the other motor **378** forwardly. As a result, the block **368** is swung clockwise (FIG. **23**) about the axis of the post **370** so as to swing the nozzles **396** leftwardly as seen from the front of the machine (upwardly in FIG. **23**).

In a right foot shoe assembly, the left side of the last has the reentrant portion **500.** In operating on the right foot shoe assembly, after the engagement of the bolts **492** with the flange **494,** pressurized air is sent under relatively low pressure to the blind ends of the motors **150** on the left side of the machine as seen in FIG. **1** to thereby force the piston rods **158** of these motors inwardly at a lower pressure than the pressure that had been applied to the motors **96.** The actuation of these motors **150** forces the associated lasting strap top segments **134b** on the left side of the machine, as seen in FIGS. **1** and **33,** inwardly under relatively low pressure to provide the inwardly directed back-up force described above with respect to the left foot shoe assembly and to cause the upper margin **496** on the side of the right foot shoe assembly having the reentrant portion **500** to be folded downwardly part way towards the insole.

In a right foot shoe assembly, when the toe rest **34** is on the longitudinal center line of the machine, the right side of the shoe assembly (the lower side in FIG. **31A**) projects further from the longitudinal center line of the machine than the left side of the shoe assembly (the upper side in FIG. **31A**). Therefore, with the right foot shoe assembly and with the toe rest **24** located along the longitudinal center line of the machine, when the motors **74** have completed the inward movement of the lasting instrumentalties **126** due to the engagement of the bolts **492** with the flanges **494,** the lasting instrumentalties **126** on the right side of the machine (FIG.) will be closer to their associated side of the shoe assembly **476** that the lasting instrumentalties on the left side of the shoe assembly. Therefore, the leftward swinging of the toe rest **32** and the nozzles **396,** in operating on a right foot shoe assembly, enables the sides of the shoe assembly to be spaced the desired distance inwardly from the lasting instrumentalties **126** when the lasting instrumentalties have completed their inward movement pursuant to the operation of the motors **74.** The leftward movement of the nozzles **396,** in operating on a right foot shoe assembly, ensures that the nozzles engage the insole **480** inwardly of the upper margins **496** when the nozzles are lowered against the sole **480** by the motors **430.**

In all other respects the machine cycle in operating on a right foot shoe assembly is identical to the above described machine cycle in operating on a left foot shoe assembly.

I claim:

1. A cement lasting machine, operable on a shoe assembly formed of a last having an upper mounted thereon and an insole located on its bottom, for applying cement in the corner between a particular portion of the margin of said upper and the periphery of *the corresponding portion of* the insole and for wiping said margin portion against the insole comprising: wiping means mounted for movement, in a prescribed plane substantially parallel to the bottom of the wiping means, in a wiping stroke between a retracted position and an advanced position; a bar mounted for heightwise movement in a path that is at right angles to said plane; a [show] *shoe* assembly support secured to and extending upwardly of the bar for so supporting the shoe assembly bottom-up that said insole portion substantially lies in a plane parallel to said prescribed plane; brake means cooperative with the bar and movable between a braking position wherein it locks the bar against said heightwise movement and an open position wherein it permits said heightwise movement; a hold-down mounted for movement between a remote position spaced from the shoe assembly and a working position in a prescribed location above the support wherein the bottom of the hold-down lies in a wiping plane that is substantially coextensive with the bottom of the wiping means; a cement applying member mounted for heightwise movement towards and away from the insole and mounted for cement applying movement between a starting position and a final position along said corner past said prescribed location; means for initially retaining the wiping means in its retracted position; means for initially retaining the bar, together with the support, in a lower position; means for initially retaining the brake means in its open positions; means for initially retaining the hold-down in its working position; means for initially retaining the cement applying member in an upper position above said starting position; means for thereafter [raising] *applying an upwardly directed yieldable force to the bar to yieldably raise* the bar, together with the support, [under a yieldable force] to cause said insole portion to bear against the hold-down and thus locate said insole portion in said wiping plane; means, operative after said insole portion has been located in said wiping plane, for lowering the cement applying member into said starting position; means, operative after said insole portion has been located in said wiping plane, for causing the brake means to move into said braking position; means, operative after the brake means has moved into said braking position, for causing the hold-down to move to said remote position whereby said insole portion is retained in said wiping plane by said brake means; means for thereafter causing the cement applying member to effect its cement applying movement, the movement of the hold-down to said remote position preventing interference between the cement applying member and the hold-down during said cement applying movement; means enabling cement to be applied by said cement applying member into said corner during said cement applying movement; means for thereafter raising the cement applying member upwardly of the insole; [and] means for thereafter moving the wiping means through said wiping stroke to wipe said margin portion against the corresponding portion of the insole and bond said margin portion to the corresponding portion of the insole by means of the cement; *and means, operative after the commencement of the wiping stroke, for causing the brake means to return to its open*

position to thereby enable said yieldable force to press the wiped margin portion against the bottom of the wiping means.

2. The machine of claim **1** further comprising: a stationary sleeve in which said bar is mounted for said heightwise movement; and a flange mounted to the bar for heightwise movement therewith; and wherein said brake means comprises: a pair of arms movably mounted to opposite sides of said sleeve; and a brake finger mounted to a first end of each arm so that the brake fingers are located on opposite sides of and in registry with the flange; and wherein the means for retaining the brake means in its open position and for causing the brake means to move into said braking position comprises: a motor connected to the ends of the arms remote from the brake fingers.

3. A method, operable on a shoe assembly formed of a last having an upper mounted thereon and an insole located on its bottom, for applying cement in the corner between a particular portion of the margin of said upper and the periphery of the corresponding portion of the insole and for wiping said margin portion against said insole comprising: providing wiping means mounted for movement, in a prescribed plane substantially parallel to the bottom of the wiping means, in a wiping stroke between a retracted position and an advanced position; providing a bar mounted for heightwise movement in a path that is at right angles to said plane; providing a shoe assembly support that is secured to and extends upwardly of the bar; so supporting the shoe assembly bottom-up on the support that said insole portion substantially lies in a plane parallel to said prescribed plane; initially retaining the wiping means in its retracted position; initially retaining the bar, together with the support, in a lower position; placing a hold-down in a working position in a prescribed location above the support wherein the bottom of the hold-down lies in a wiping plane that is substantially coextensive with the bottom of the wiping means; thereafter [yieldably raising] *applying an upwardly directed yieldable force to the bar to yieldably raise* the bar, together with the support, to cause said insole portion to bear against the hold-down and thus locate said insole portion in said wiping plane; thereafter locking the bar against the heightwise movement; thereafter moving the hold-down away from said working position to a remote position spaced from the shoe assembly whereby said insole portion is retained in said wiping plane by said locking of the bar; thereafter causing a cement applying member to have cement applying movement between a starting position and a final position along said corner past said prescribed location, the movement of the hold-down to said remote position preventing interference between the cement applying member and the hold-down during said cement applying movement; applying cement by the cement applying member into said corner during said cement applying movement; thereafter raising the cement applying member upwardly of the insole; [and] thereafter moving the wiping means through said wiping stroke to wipe said margin portion against the corresponding portion of the insole and bond said margin portion to the corresponding portion of the insole by means of the cement; *and, after the commencement of the wiping stroke, unlocking the bar to thereby enable said yieldable force to press the wiped margin portion against the bottom of the wiping means.*

4. The machine according to claim 1 further comprising: means, operative at about the same time as the brake means is caused to return to its open position, for increasing the extent of said yieldable force.

5. The method according to claim 3 further comprising: increasing the extent of said yieldable force at about the same time as the bar is unlocked.

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