United States Patent [19]

Koch et al.

[11] **3,867,754**

[45] **Feb. 25, 1975**

[54] **STRIPPER CRIMPER MACHINE**

[75] Inventors: **Robert Milton Koch; Donald Andrew Wion,** both of Harrisburg, Pa.

[73] Assignee: **AMP Incorporated,** Harrisburg, Pa.

[22] Filed: **Feb. 22, 1974**

[21] Appl. No.: **445,035**

[52] **U.S. Cl.** ..... **29/203 DS**

[51] **Int. Cl.** **H01r 43/04**

[58] **Field of Search** ..... 29/203 DT, 203 DS, 203 D, 29/203 R; 81/9.51

[56] **References Cited**

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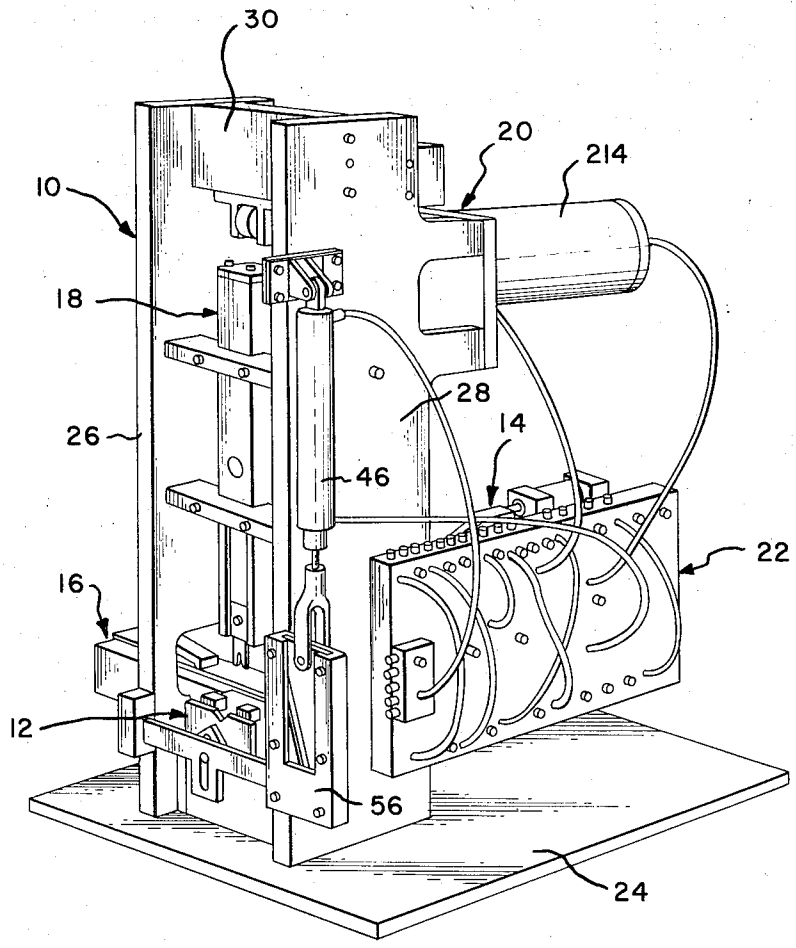
3,423,815	1/1969	Spangler et al.	29/203 DS
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Primary Examiner—Thomas H. Eager

[57] **ABSTRACT**

A light weight or miniature fluid actuator stripper crimper machine is disclosed for semi-automatically stripping insulation from the free end of a wire and crimp connecting an electrical terminal on the stripped end of the wire. The subject machine is pneumatically actuated and includes apparatus designed to accomplish the following sequence of functions, namely, gripping of the free end of a wire, cutting and stripping the insulation from the free end of the wire, moving the wire vertically into the open barrel of an electrical terminal, crimping the terminal onto the free end of the wire, freeing the wire from the clamp, and stripping the terminal from the machine. The subject machine is light weight and requires only connection to a source of pressurized air in order to achieve the desired operational sequence.

16 Claims, 23 Drawing Figures



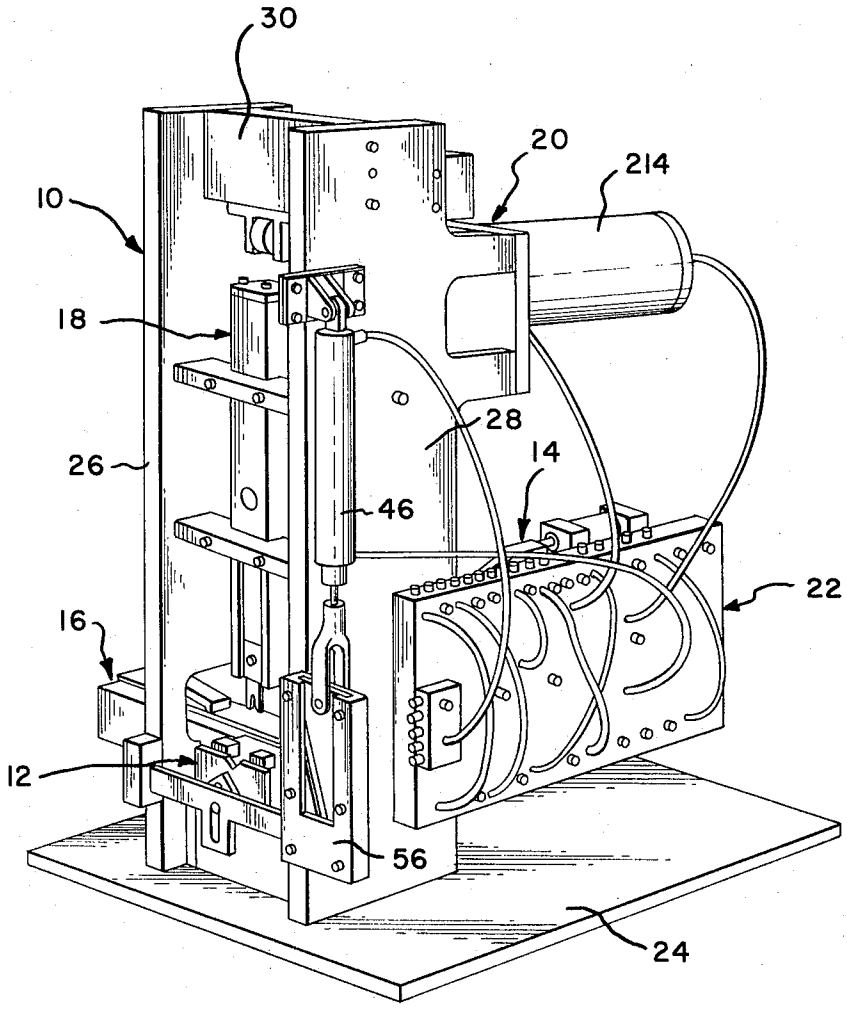


Fig. 1

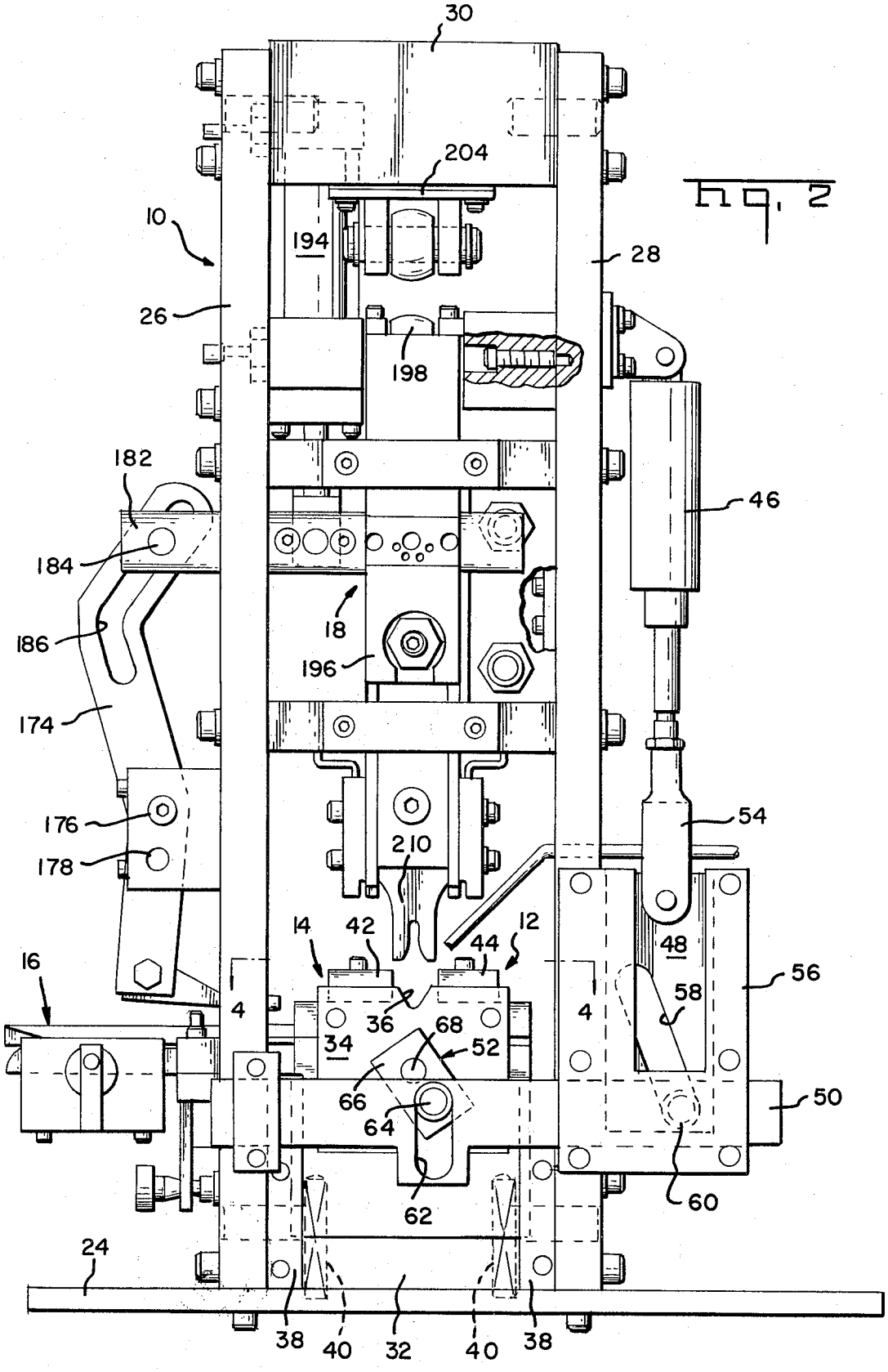

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Fig. 2

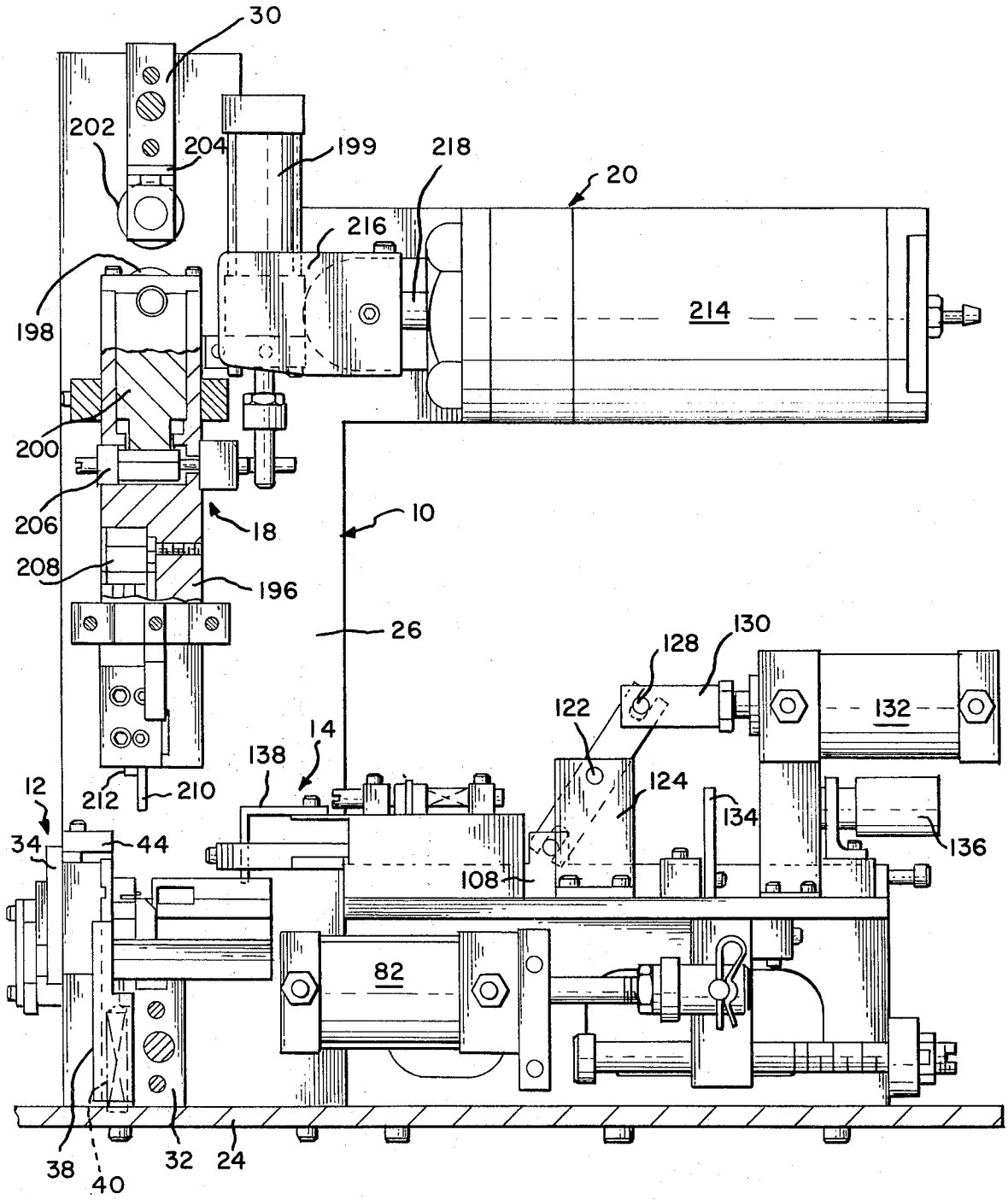

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Fig. 3

Fig. 5

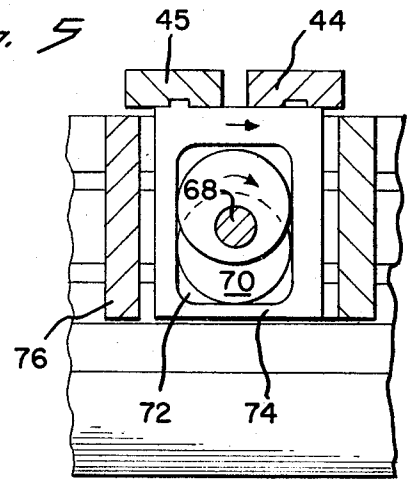


Fig. 4

Fig. 9

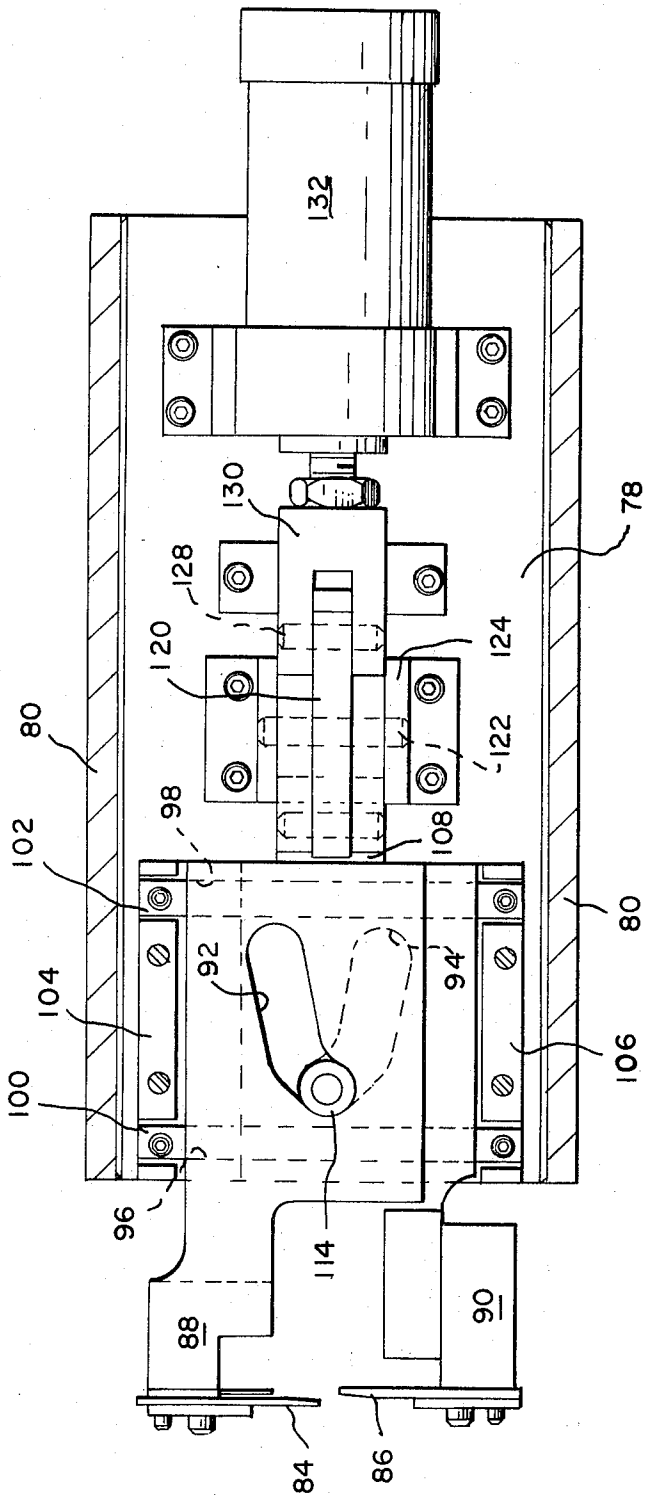

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FIG 6A

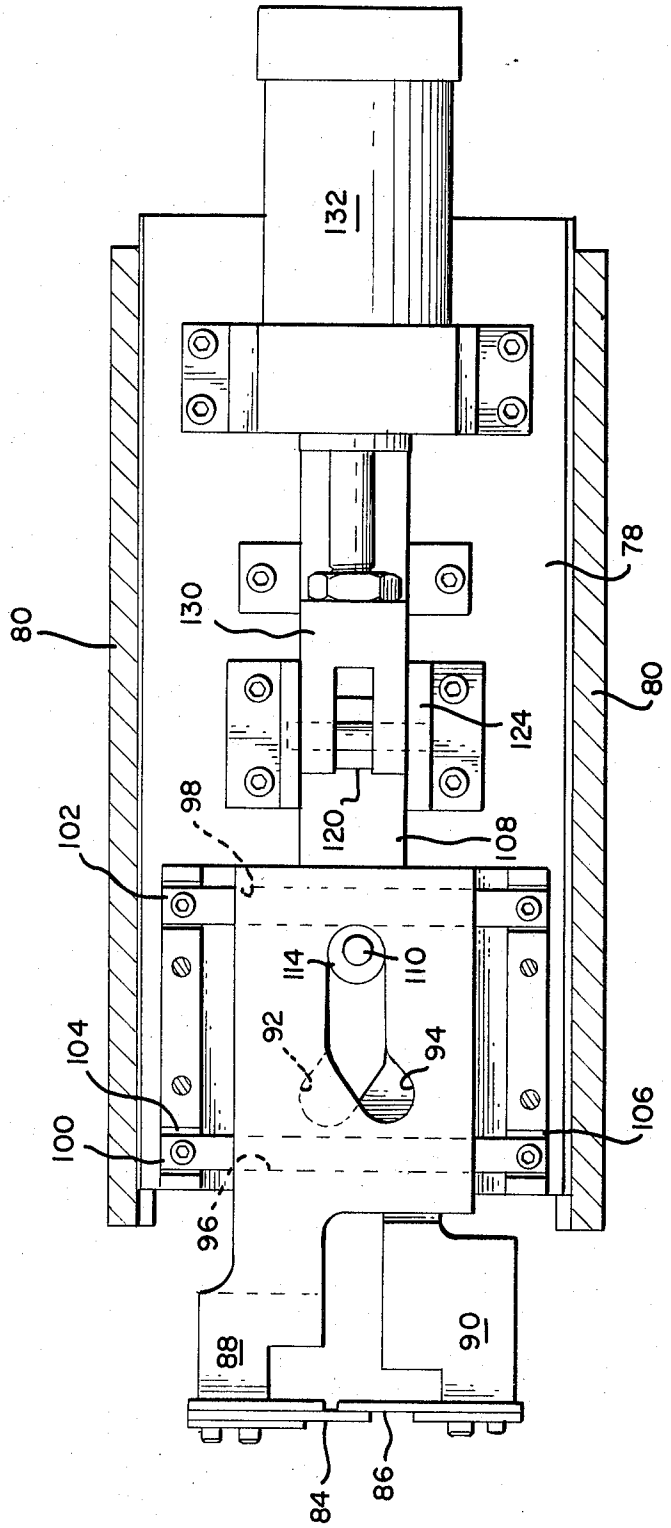

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FIG. 6B

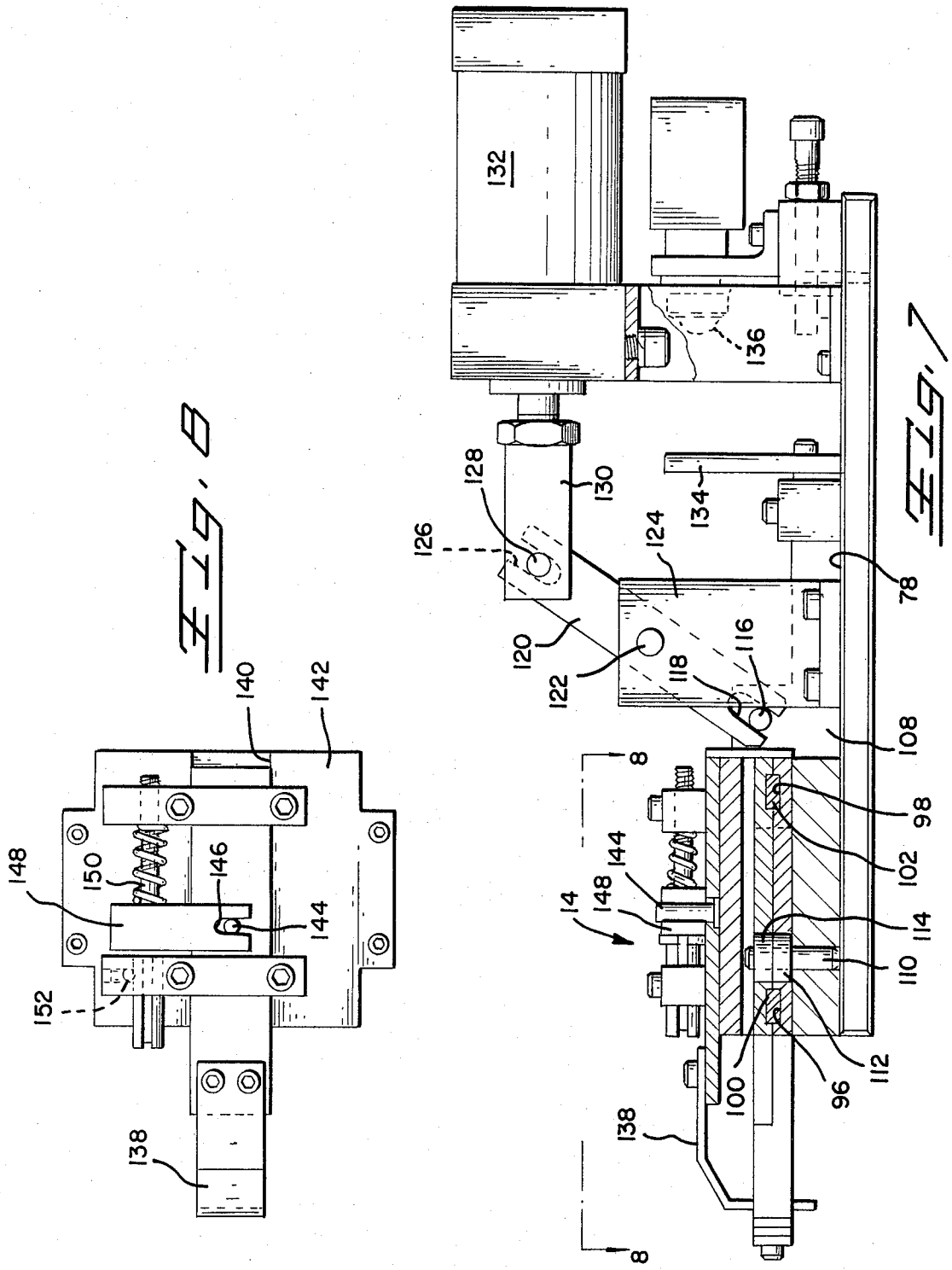

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FIG. 7

FIG. 8

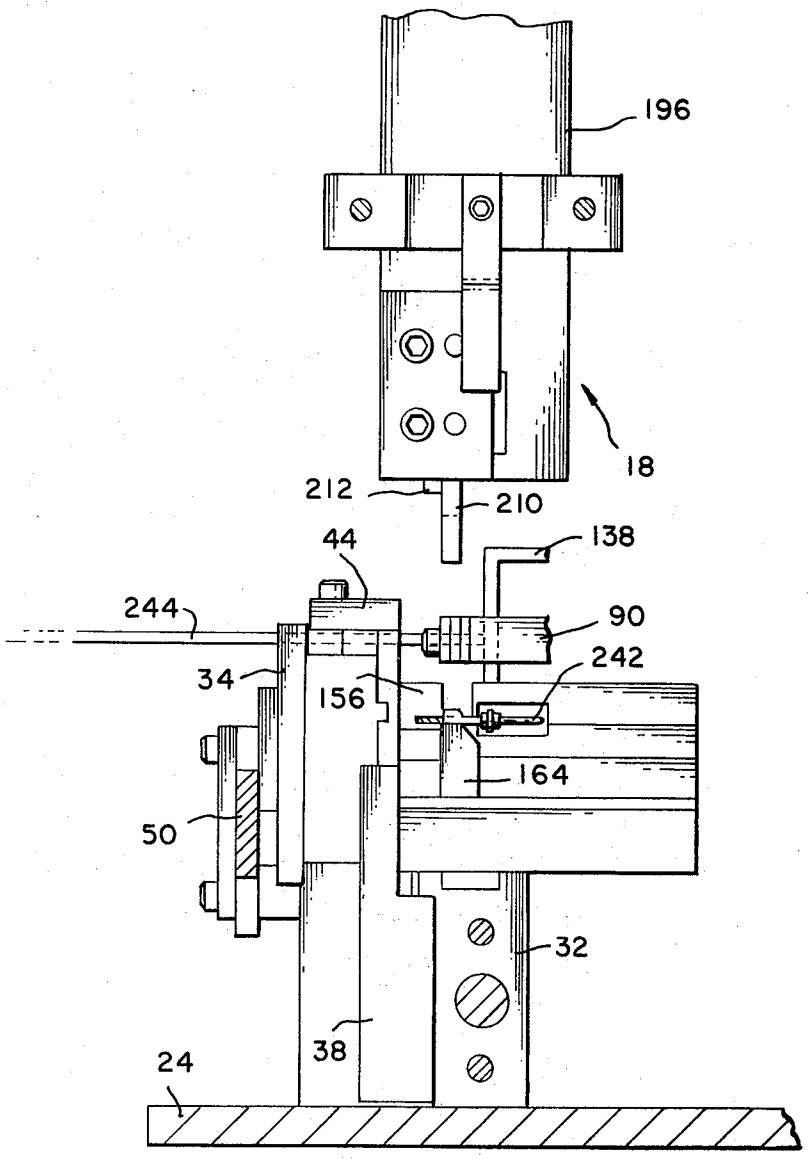


Fig. 10

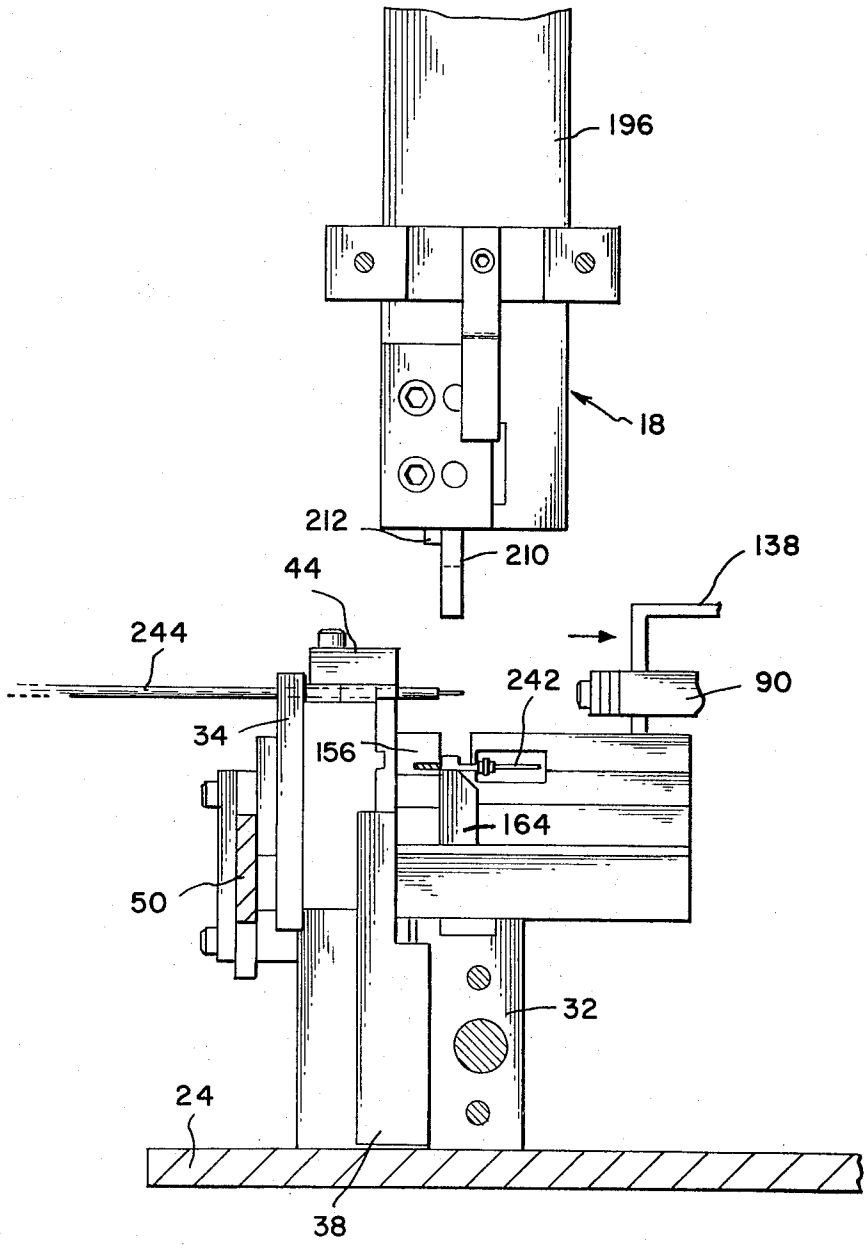


Fig. 11

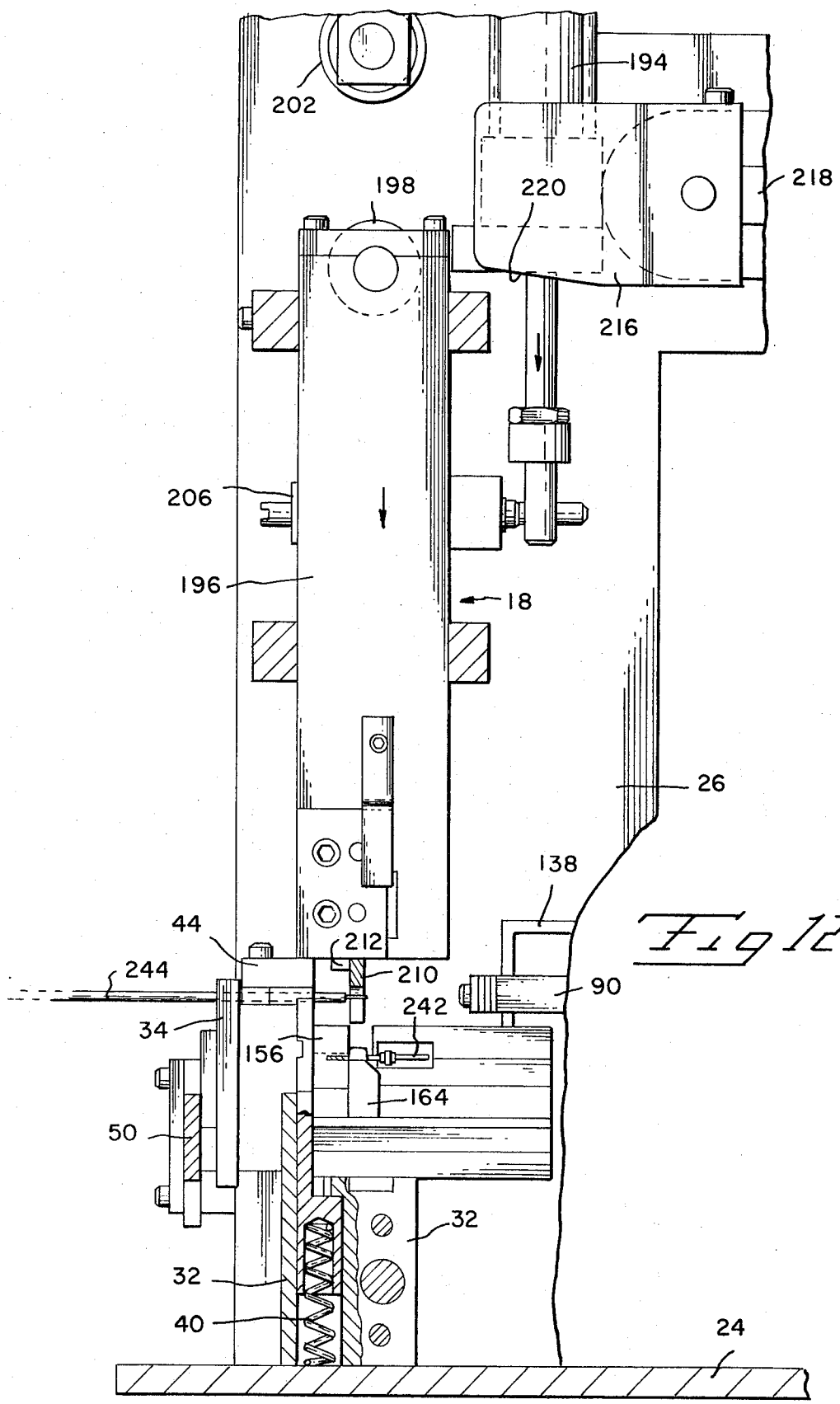

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Fig 12

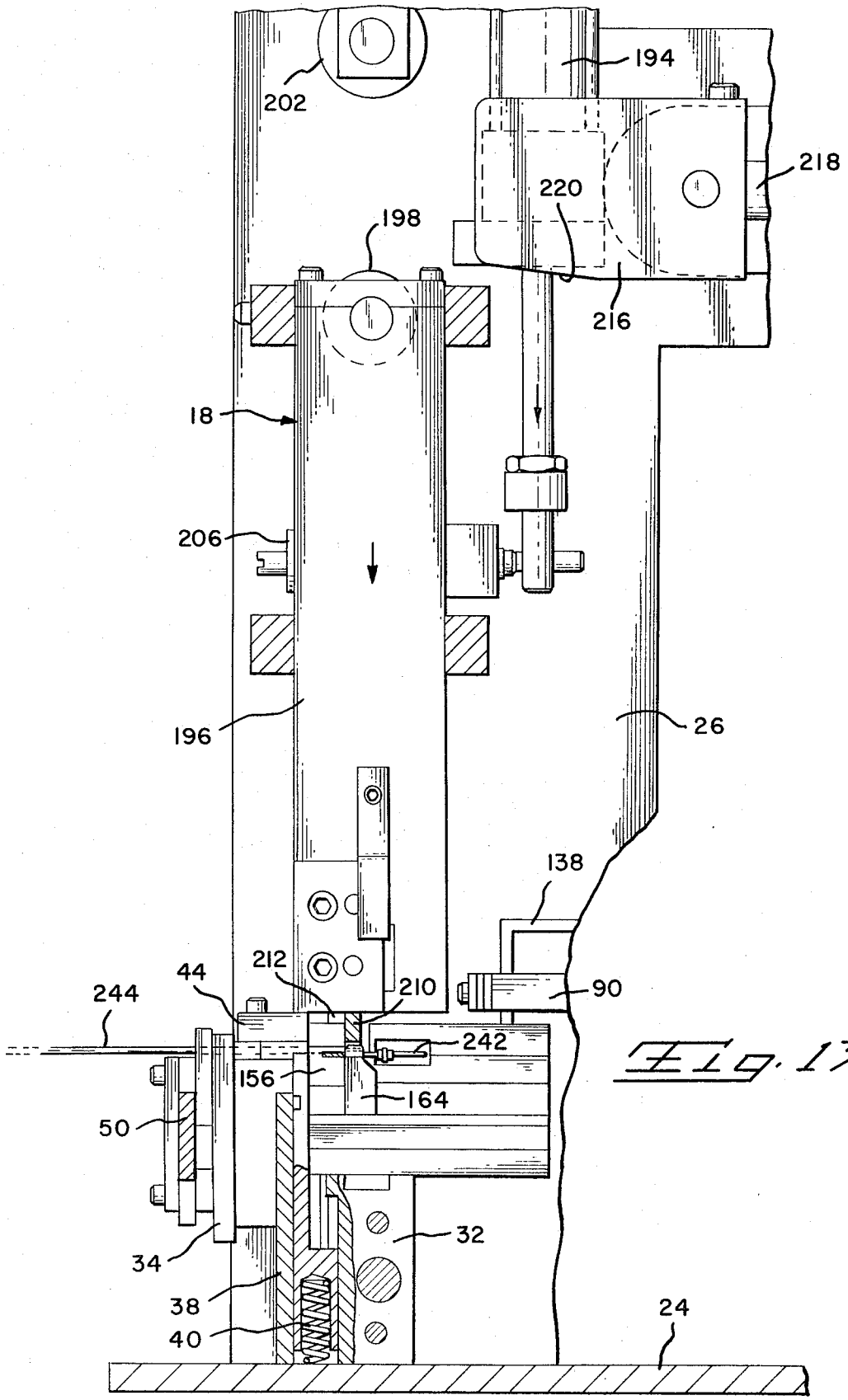

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Fig. 13

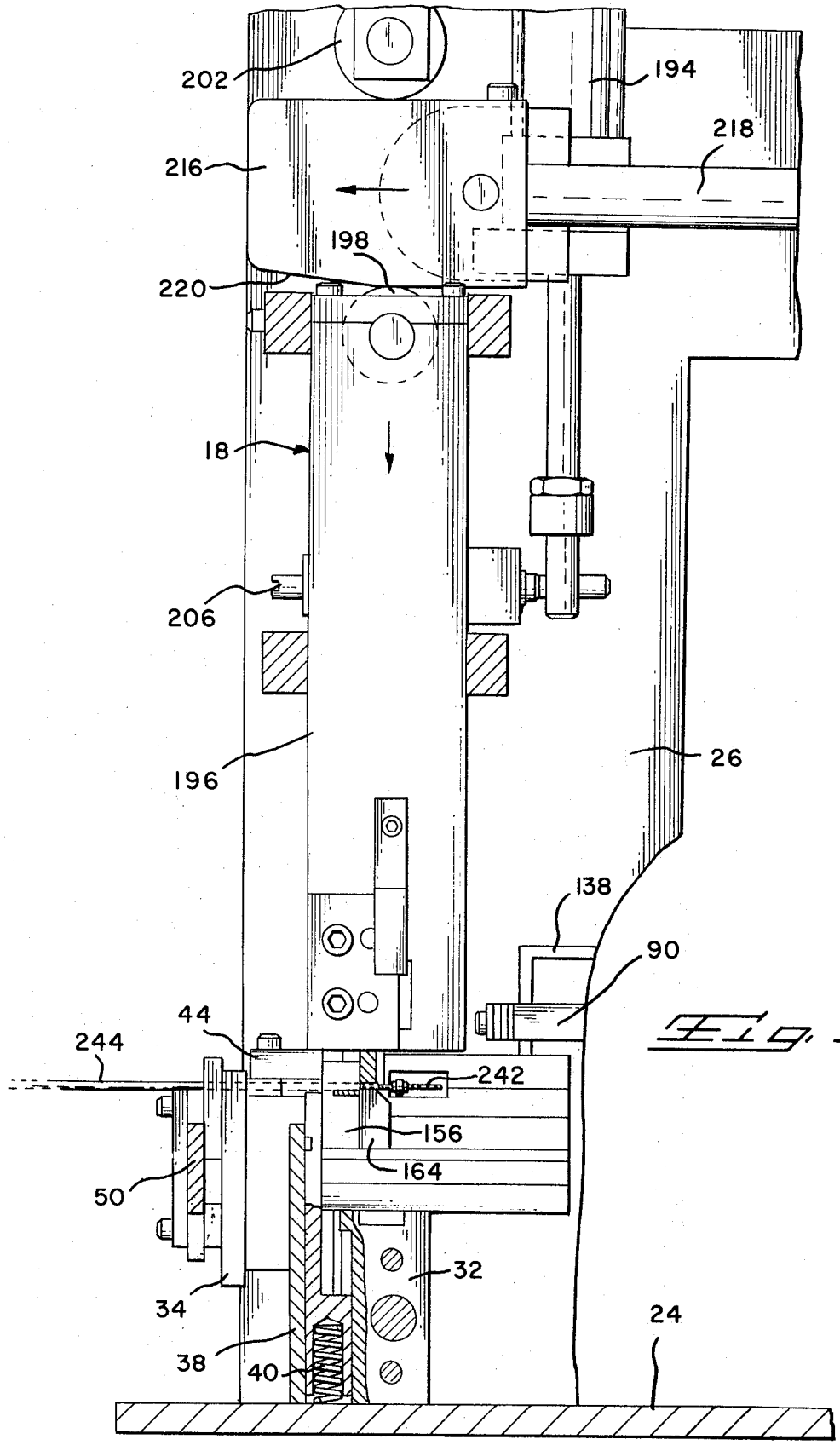

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Fig. 14

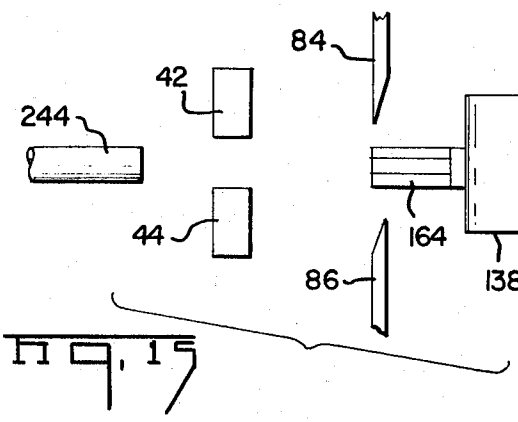


Fig. 15

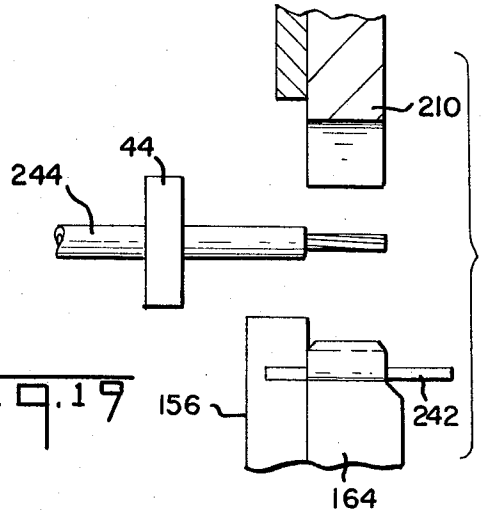


Fig. 19

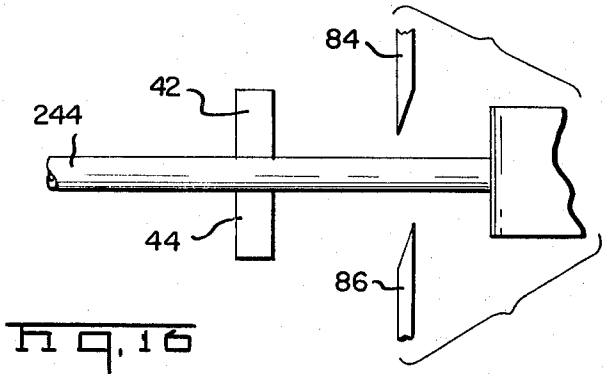


Fig. 16

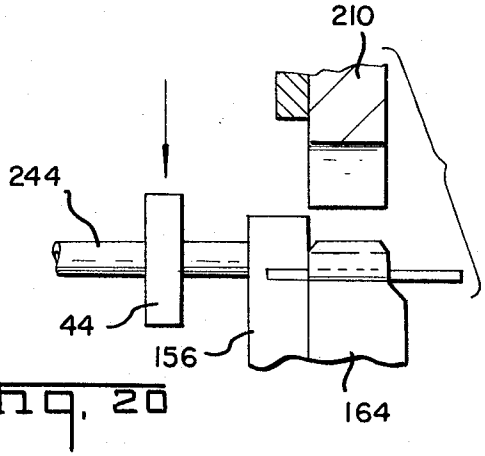


Fig. 20

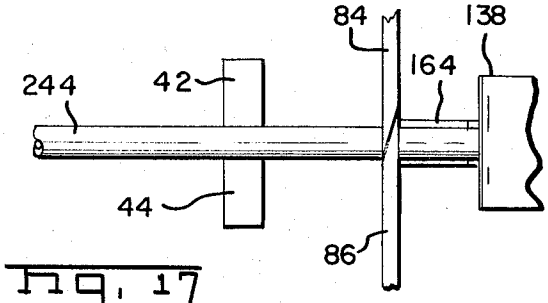


Fig. 17

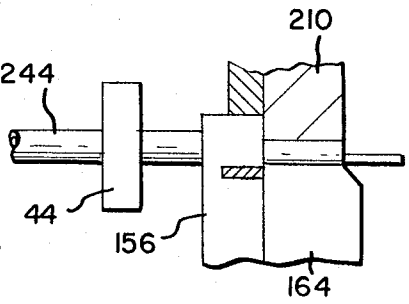


Fig. 21

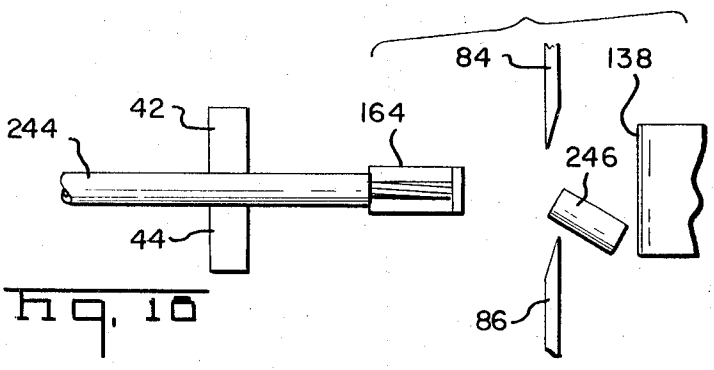


Fig. 18

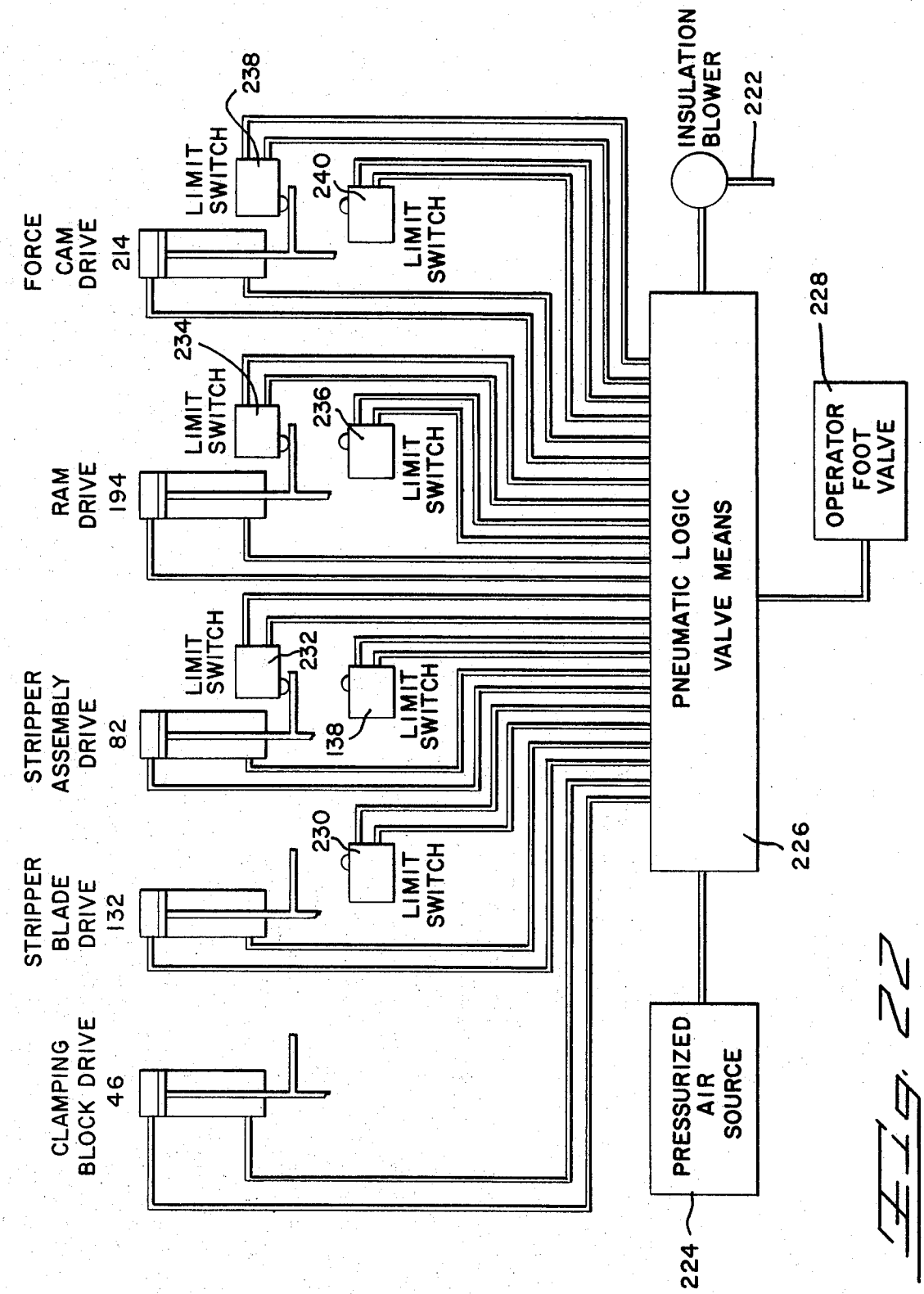

INSULATION BLOWER
222
238
LIMIT SWITCH
240
LIMIT SWITCH
FORCE CAM DRIVE
214
234
LIMIT SWITCH
236
LIMIT SWITCH
RAM DRIVE
194
LIMIT SWITCH
232
LIMIT SWITCH
138
STRIPPER ASSEMBLY DRIVE
82
230
LIMIT SWITCH
STRIPPER BLADE DRIVE
132
CLAMPING BLOCK DRIVE
46
PNEUMATIC LOGIC VALVE MEANS
226
228
OPERATOR FOOT VALVE
PRESSURIZED AIR SOURCE
224

Fig. 27

STRIPPER CRIMPER MACHINE

BACKGROUND OF THE INVENTION

1. The Field of the Invention

The present invention relates to stripper crimper machines and in particular to a pneumatically operated light weight machine for semi-automatically stripping the insulation from the free end of a wire and crimp connecting an electrical terminal thereon.

2. The Prior Art

There are many well known devices for accomplishing a wire stripping and terminal crimping operation, for example U.S. Pat. Nos. 2,774,130; 3,155,695; 3,423,815; and 3,588,984. All of these patents describe devices which are quite effective for stripping the insulation from the free end of a wire and crimp connecting a terminal thereon. All of the known apparatus include a clamping device for gripping a wire at a point remote from its free end, a pair of insulation severing blades adapted to be closed on the wire between its free end and the clamping device to sever the insulation and thereafter to move the blades axially of the wire to drag the severed insulation slug therefrom clamping device being arranged to then position the stripped wire in the open barrel section of an electrical terminal disposed on an anvil, and a crimping die moveable relative to the anvil by a press ram to crimp connect the terminal on the wire. However, all of the known machines have had some features which have limited their use.

For example, most of the known stripping and crimping machines have been rather large heavy units which are too bulky and expensive for operations which periodically require a large number of terminal applications. Such operations frequently have too great a volume of terminations to allow hand stripping and crimping and yet not enough to justify the space and capital expenditure of large automatic machinery.

Some of the known prior art machines have specific disadvantages that are of concern regardless of the size or operational capacity of the machine. For example, when the die engages the open barrel simultaneously with the positioning of the wire in the barrel, especially when stranded wire is being used, strands of wire may be trapped between the die and the barrel and accordingly broken off. This frequently results in an unacceptable termination and jamming of the machinery when these broken strands accumulate.

Many of the known stripping and crimping machines are quite difficult to adjust for crimping force, stripping length, etc. The difficulty of making these adjustments tends to limit the use of the machine to a relatively small number of types of terminals and wire sizes.

SUMMARY OF THE PRESENT INVENTION

The present invention is a semi-automatic, pneumatically operated machine for stripping a length of insulation from the free end of a wire and crimp connecting an electrical terminal on the stripped end. The machine includes a wire clamping assembly having a pair of clamping blocks adapted to be brought into clamping engagement with the wire through actuation of a double lobed cam by a piston cylinder drive means, a stripping assembly having a pair of cutter blades adapted to be moved horizontally to sever the insulation of the wire with the stripping assembly subsequently moved axially of the wire to remove the severed slug of insulation therefrom, a ram assembly adapted to drive the stripped wire end into an open terminal barrel, and a force cam assembly adapted to act on the ram after it has completed most of its travel and cause the terminal to be sheared from its associated carrier and crimped on the stripped wire end. The machine also includes terminal feed means for feeding a continuous strip of terminals to the crimping station in response to the sequential operation of the ram.

It is therefor an object of the present invention to produce an improved light weight, semi-automatic, pneumatically operated stripper crimper machine.

It is another object of the present invention to produce a stripper crimper machine which can be easily and readily adjusted for crimp height, wire strip position, wire strip length, wire strip depth and terminal feed length.

It is yet another object of the present invention to produce an improved stripper crimper machine which has quick tool change capability so as to be adaptable for use with a wide variety of terminal sizes and styles.

It is a further object of the present invention to produce an improved stripper crimper machine in which the wire is positively clamped and stripped without damage to the wire.

It is a still further object of the present invention to teach an improved stripper crimper machine which may be readily and economically produced.

The foregoing objects and other advantages of the present invention will become apparent to those skilled in the art from the following detailed description taken with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the subject machine according to the present invention with the pneumatic conduits omitted for the sake of clarity;

FIG. **2** is a front elevation of the subject machine shown in FIG. **1**;

FIG. **3** is a side elevation of the subject machine shown in FIG. **1** with the right side plate removed;

FIG. **4** is a top plan view taken along line **4—4** of FIG. **2** showing the wire gripping means;

FIG. **5** is a section view taken along line **5—5** of FIG. **4** showing the means for actuating the wire gripping blocks;

FIG. **6A** is a top plan view of the stripping mechanism with the wire stop plate removed and the stripper blades in a first disengaged position;

FIG. **6B** is a top plan view of the stripping mechanism in a second retracted position with the stripper blades closed;

FIG. **7** is a side elevation of the stripping mechanism of FIG. **6**, with parts in section to show the guide means for laterally moving the stripping blades;

FIG. **8** is a top plan view taken along line **8—8** of FIG. **7** showing the wire stop plate and its adjusting means;

FIG. **9** is a fragmentary front view, partially in section, of the terminal feed mechanism;

FIG. **10** is a partial side elevation showing the subject machine at the point in time when a wire is introduced therein;

FIG. **11** is a partial side elevation, similar to FIG. **10**, showing the subject machine after stripping of the wire;

FIG. **12** is a partial side elevation, similar to FIGS. **10** and **11**, showing the subject machine after initial driving of the ram;

FIG. 13 is a partial side elevation, similar to FIGS. 10 to 12, showing the subject machine with the tonkers down ready for crimping of the terminal on the stripped free end of the wire;

FIG. 14 is a partial side elevation, similar to FIGS. 10 to 13, showing the subject machine after the final crimping action;

FIGS. 15 to 21 are diagramatic views showing the operational sequence of the subject machine; and

FIG. 22 is a schematic of the pneumatic actuation system for the subject machine.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Turning now to the drawings and in particular to FIGS. 1 to 3 the subject machine includes the following subassemblies: the main load frame 10, a wire clamp assembly 12, a stripper assembly 14, a terminal strip guide and bottom tooling assembly 16, a ram and upper tooling assembly 18, a force cam assembly 20 and pneumatic logic actuating system 22.

The main load frame 10 consists of a base plate 24, a pair of parallel, spaced side plates 26, 28, and fixed upper and lower beams 30, 32, respectively.

The wire clamp assembly 12 is found at the lower front portion of the machine and is shown in detail in FIGS. 4 and 5. The wire clamp assembly is mounted immediately to the rear of a target shield 34 having a V-shaped groove 36 centrally located in the upper edge thereof. The shield 34 is mounted in gibs 38 for vertical reciprocating motion and is biased in an upward direction by spring 40. The wire clamp assembly includes a pair of normally spaced clamping blocks 42, 44 adapted to be brought together by a drive mechanism which includes a vertically mounted piston cylinder device 46, vertically disposed cam plate 48, horizontally disposed cam arm 50 and crank-cam assembly 52. One end of plate 48 is attached to the piston arm 54 of the piston cylinder device 46 and the plate is mounted for vertical reciprocating motion in channel frame 56. An angled elongated cam slot 58 is formed in a lower portion of the plate 48. The horizontally disposed cam arm 50 is mounted for reciprocable movement transversely of the machine and includes a pin 60 extending normally therefrom to slide in the cam slot 58. The cam arm 50 has vertically elongated slot 62 in which pin 64 slides. The pin 64 is attached to one end of a crank arm 66 which is fixedly mounted on rotable cam shaft 68. A double lobed cam 70 is fixed to the shaft 68 with each lobe arranged to lie in an opening 72 of a clamp block bearing plate 74 (only the plate for block 42 being shown). The plates are held for horizontal restrained movement by frame members 76 and target shield 34.

The stripper assembly is best seen in FIGS. 6A, 6B, 7 and 8. The entire stripper assembly 14 is mounted on a plate 78 which is driven in gibs 80 by the piston cylinder device 82 for horizontal reciprocating motion toward and away from the wire clamp assembly 12. The stripper assembly includes blades 84, 86 which are detachably mounted on the free end of sliding stripper members 88, 90, respectively. The stripper members 88, 90 are identically formed profiled members which are reversedly positioned to be matched together in the manner of scissors. Each of the members includes a profiled slot 92, 94 and transverse grooves 96, 98. A pair of fixed rectilinear members 100, 102 extend transversely between side frame members 104, 106. The stripper members 88 and 90 are arranged so that the rectilinear members 100 and 102 lie in the transverse grooves 96, 98. Thus the movement of the members 88, 90 is restricted to a direction normal to their longitudinal axis. An elongated drive member 108 extends longitudinally of the stripper assembly with a fixed pin 110 extending normally from one end thereof. Rollers 112 and 114 are mounted on the end of pin 110 and lie within slots 92, 94, respectively. The stripper members 90, 92 are moveable horizontally normal to the reciprocating movement of the drive plate 108 and fixed pin 110 to open and close the stripper blades 84, 86. The drive plate 108 includes a horizontally disposed pin 116 which slides in slot 118 in one end of lever arm 120. The arm 120 is pivotally mounted on shaft 122 secured in frame 124. A similar slot 126 is formed in the other end of arm 120. Pin 128 is fixed to the piston arm 130 of piston cylinder device 132 and slides in slot 126. The rearward travel of drive member 108 is controlled by plate 134 which is aligned to strike limit switch 136.

The wire stop is shown in top plan view in FIG. 8 and includes a stop member 138 mounted for longitudinal movement in a channel 140 in plate 142. A pin 144 projects upwardly from the stop member and lies within the slot 146 of adjustment member 148. The adjustment member 148 is selectively positioned on plate 142 by the screw assembly 150 which includes detent means 152 to lock the assembly against rotation once it is set.

The terminal strip guide and bottom tooling assembly 16 is shown in FIG. 9 and includes beam 154 having terminal shear 156 mounted thereon. The terminal shear is biased upwardly by spring 158 and includes a V-shaped wire guide groove 160 and a terminal strip slot 162. The anvil 164 is positioned to the rear of the terminal shear. The terminal strip guide means 166 includes a guide block 168 having a passage 170 through which a continuous ladder of terminals (not shown) is fed. A drag mechanism 172 extends into the bottom of the passage to act, in a conventional manner, to prevent the unintended withdrawal of the terminal strip from the channel. The guide means is detachably held on the side frame by conventional means (not shown) and can be readily changed.

A portion of the terminal feed assembly is also shown in FIG. 9 and includes a feed arm 174 which is pivotally mounted by pin 176 in one of two spaced holes 178. One end of the arm is provided with a terminal engaging tine 180 while the opposite end of the arm is attached to drive arm 182 by means of pin 184 which slides in the profiled cam slot 186. The tine 180 is pivotally attached to the arm 174 by pivot pin 188 and biased by spring 190 so that the free end of the tine passes through slot 192 into passage 170. The other end of drive arm 182 is attached to ram drive piston cylinder device 194 and ram 196 (FIGS. 2 and 3).

The ram and upper tool assembly includes vertically disposed piston cylinder device 194 and vertically disposed ram 196 mounted in the frame for vertical reciprocating motion. A roller 198 is rotatably mounted in clevis 200 at the upper end of the ram in parallel spaced relation to roller 202 which is attached to the upper beam 30 with adjustment shims 204 therebetween. The ram includes a first adjustment means 206 for adjusting the position of the roller 198 with respect

to the ram thereby controlling the ram stroke. This adjustment means is a polygonal spacer block and adjustment is effected in the manner described in U.S. Pat. No. 3,253,451. A second adjustment means **208** is included in the ram to control the position of the crimping die **210** depending from the lower end of the ram beyond bumper block **212.** While only a wire crimping die has been shown, it should be readily understood that this die can be replaced by a die having insulation and wire crimp portions.

The force cam assembly **20** includes the horizontally disposed piston cylinder device **214** having cam **216** mounted on the end of piston arm **218.** Cam surface **220** of the cam **216** is directed toward the roller **198.**

The operational sequence of the subject machine is illustrated in FIGS. **10** to **21.** It will be assumed that the required tooling has been installed in the machine, an appropriate terminal strip has been mounted in the terminal guide assembly with the lead terminal **242** in position over the crimping anvil **164** and the feed tine **180** engaged on the terminal carrier strip in the conventional manner (FIG. **15**). The operator inserts a wire **244** into the target area (FIG. **10**) which is bound on the side by the clamp block faces **42, 44** on the bottom by the V-grooves **36,** and **160** and at the end by the wire stop **138.** The operator depresses the foot valve **228** (FIG. **22**) starting the operational sequence of the pneumatic logic valve means **226.** The wire clamping piston cylinder device **46** mounted on the side plate **28** drives the guided cam plate **48** downwardly causing the cam arm **50** to slide to the left thus rotating the double lobe clamp cam **70** through the crank lever **66** causing the sliding block bearing plates **74** and attached clamp blocks **42, 44** to move together thereby clamping the wire between the blocks (FIG. **16**). The stripper blade piston cylinder device **132** mounted on the stripping assembly drives piston arm **130** forwardly causing lever arm **120** to pivot and pull rearwardly the drive member **108** carrying pin **110** and rollers **112, 114.** The rollers move in cam slots **92, 94** to guide sliding stripper members **88, 90** to which the V-shaped insulation cutting blades **84, 86** are attached. The sliding stripper members **88, 90** move towards the center of the stripper assembly **14** causing the blades **84, 86** to close on the wire and cut through the wire insulation (FIG. **17**). The piston cylinder device **82** mounted on the base plate is actuated to drive the entire stripper assembly **14** to the rear thus pulling the slug of insulation **246** from the wire and to expose the bare conductor and clear the stripping tool from under the ram and upper tooling (FIGS. **11** and **18**). An air blast is directed through conduit **222** towards the stripping area to insure the stripped insulation is cleared from the operating area. The ram driving piston cylinder device **194** mounted to the left-hand side plate **26** begins to drive the ram **196** downward (FIG. **19**) until it meets a resistance equal to the force exerted by the device **194.** In the downward movement of the ram (FIG. **12**) the clamp assembly is depressed against springs **40** by depresser bars **212** attached to the ram **196,** which action carries the stripped wire downward into the open barrel of the terminal (FIGS. **13** and **20**). The downward movement of the ram also opens a gap between the two rollers **198** and **202** (FIG. **13**). The downward movement of the ram along with drive arm **182** cocks the terminal feed by means of pin **184** operating in cam slot **186** of the pivoting feed lever **174,** to which the terminal feed tine **180** is attached. The force cam piston cylinder device **214,** mounted towards the rear of the main load frame, drives a shallow angle force cam **216** between the rollers on the ram and upper beam (FIG. **14**) causing additional downward movement of the ram tooling and terminal shear **156** thereby exerting the final crimping force as well as shearing the terminal from the carrier strip (FIG. **21**). The force cam **216** retracts and the clamp blocks **42, 44** and insulation cutting blades **84,** 86 open. The ram **196** ascends allowing the terminal shear **156** and clamp mechanism to return to their up position under the influence of their return springs and causing the terminal strip to feed one lead by means of the feed linkage system. A knock-out blade (not shown) nested in the ram strips the crimped termination from the crimp tooling at the end of the ram stroke and the terminated wire is free to be withdrawn from the machine. The stripper assembly slides to its forward cycle start position and the machine is ready for the next operational sequence.

The initial crimp height, namely the minimum clearance between the anvil and the wire crimping end of the ram, is established when the machine is initially assembled by means of appropriate spacers or shims **204** between the upper beam **30** and the upper roller **202.** The crimp height may be further adjusted by well known adjustment means **206.** This adjustment means comprises a polygonal rod which provides different dimensional interferences between the ram **196** and the floating ram roller clevis **200** thus determining the extent of the ram travel and the crimp height. The height of the crimp die **210** is adjusted by rotating a multisided crimper adjustment block **208** nested in a cavity in the front of the ram.

The strip position, namely the location where the insulation is cut by the blades relative to the terminal to be applied, is determined by the forward position of the stripper assembly. This position is controlled by adjusting the position or stroke of the piston cylinder device **82.**

The wire strip length is determined by the length of the wire extending beyond the strip position. This is governed by the wire end stop **138** which is adjustable in the means described in relation to FIG. **8.** The screw assembly **150** is rotated to drive the wire stop member **138.** The screw assembly is locked in the selected position by engagement of the detent means **152.**

Each wire size requires a different set of insulation cutting blades (although some overlapping is possible with certain types of insulation). Blades **84, 86** are changed by removing socket head cap screws which secure them to the stripper members **88, 90.** Blade location is assured by locating pins in the blade holders. Blade change can be made from the front of the machine with some difficulty and can be made more readily by disconnecting and sliding the entire stripper assembly out the rear of the machine.

The precise depth to which the insulation cutting blades pierce the insulation is governed by the travel of the drive bar **108.** This travel can be adjusted by adjusting the stroke of piston arm **130** or the positioning of the piston cylinder device **132.**

Two terminal strip feed strokes are available by the selection of either of two feed lever pivot holes **178** provided in the pivot bracket. Fine adjustment of the final feed position (which determines feed terminal po-

sition relative to the tooling) is adjusted by location of the feed tine **180** on the lower end of the feed lever.

Tool changes for accommodating different terminals may be accomplished in two ways, either by replacing the anvil and guides on the lower tooling assembly and crimpers in the ram assembly or by exchanging complete assemblies. The ram assembly is preferably removable from the front of the machine by removing two ram guide covers and by disconnecting the feed force beam **182.** This requires only the removal of conventional means, such as socket head cap screws. The lower tooling assembly is removed by removing screws or the like and sliding the assembly out the left side of the machine while elevating the feed arm.

A schematic of the pneumatic system of the subject machine is shown in FIG. **21.** The system is connected to a pressurized air source **224** and includes a pneumatic logic valve means **226** which is actuated by an operator controlled foot valve **228.** The previously identified piston cylinder devices **46, 82, 132, 194,** and **214** and their associated limit switches **136, 230, 232,** 234, 236, 238 and **240** are connected to the valve means **226** by conventional conduits. The valve means **226** controls the actuation of the piston cylinder devices in proper sequence and in response to actuation of the various limit switches to effect the desired operation of the machine. Approximately **80** psi air supply has been found suitable for operating this machine. Examples of suitable pneumatic logic devices can be found in U.S. Pat. Nos. 3,638,856; 3,602,135; 3,608,572; and 3,605,779.

The present invention may be subjected to many modifications and changes without departing from the spirit or essential characteristics thereof. The present embodiment should therefor be considered in all respects as merely illustrative and not restrictive.

What is claimed is:

1. A fluid actuated semi-automatic stripper crimper apparatus for stripping insulation from the free end of a wire and crimp connecting an electrical terminal from a continuous strip of terminals onto the free end of said wire, said apparatus comprising:

frame means,

wire clamping means mounted on said frame means including a pair of normally spaced clamping blocks and means adapted to drive said blocks together to clampingly secure a wire between said blocks,

a stripper assembly including means mounting said assembly in said frame means for horizontal reciprocating motion, wire insulation cutting means, means adapted to drive said cutting means into cutting engagement with the insulation of said wire, and means to drive said assembly axially of said wire to strip a severed slug of insulation therefrom,

a bottom tooling assembly disposed behind said wire clamping means and beneath said stripper assembly, said tooling assembly including a fixed anvil and vertically moveable terminal shear means,

terminal strip feed means adapted to feed a continuous strip of terminals through said shear means to a position above said anvil,

ram means mounted in said frame for vertical reciprocable motion, said ram means including a crimping ram, means adapted to drive said ram into contact with said terminal and at least one die means depending from said ram, and

a force cam assembly disposed to drive between an upper portion of said ram and a fixed abutment, after said ram has made initial contact with said terminal, to apply a crimping force to said ram whereby said terminal is severed from its associated carrier strip and crimped to the stripped end of said wire.

2. A stripper crimper apparatus according to claim **1** wherein said wire clamping drive means comprises:

a pair of closely spaced, parallel clamp block supporting plates having said blocks fixedly mounted thereon, said plates having a profiled central aperture and being constrained for only horizontal sliding movement,

cam means adapted to bring said blocks into clamping engagement, said cam means including a shaft, a double lobed cam fixed on said shaft, with said lobes lying within said apertures in said plates, whereby rotation of said cam within said apertures causes said blocks to be driven together.

3. A stripper crimper apparatus according to claim **2** wherein said drive means comprises,

a pneumatically actuated piston cylinder device operatively connected to rotate said cam shaft.

4. A stripper crimper apparatus according to claim **3** wherein said drive means further comprises:

a first cam plate connected to be driven by said piston cylinder device,

a second cam plate connected to be driven by and in a direction normal to the direction of movement of said first cam plate, and

crank arm means connected to said cam shaft and to be driven by said second cam plate.

5. A stripper crimper apparatus according to claim **1** wherein said stripper assembly further comprises:

a pair of stripper members overlappingly mounted together in scissor fashion, each said member having a profiled cam slot therein and a cutting blade mounted thereon with said blades in cutting opposition, and means restraining movement of said stripper members to reciprocal motion normal to the longitudinal axis and in the plane of said stripper members.

6. A stripper crimper apparatus according to claim **5** wherein said stripper assembly cutter drive means comprises:

a drive arm having a shaft extending normally therefrom,

roller means on the free end of said shaft lying within said cam slots of said stripper members, and

a pneumatically actuated piston cylinder device operatively connected to drive said drive arm along its longitudinal axis whereby movement of said rollers in said cam slots causes said cutter blades to be opened and closed.

7. A stripper crimper apparatus according to claim **6** wherein said stripper assembly drive means comprises:

a pneumatically actuated piston cylinder device connected to reciprocally drive the stripper assembly in said frame axially of said wire after the insulation has been cut whereby the severed slug of insulation is stripped from said wire.

8. A stripper crimper apparatus according to claim **5** wherein said stripper assembly further comprises:

wire guide stop means, and

means to adjust the positioning of said stop means whereby the length of the slug of insulation to be removed is determined.

9. A stripper crimper apparatus according to claim **1** wherein said shear means includes a horizontal slot through which said terminal strip passes, said shear means being adapted to be driven downwardly by said ram means to shear each terminal from the associated carrier strip.

10. A stripper crimper apparatus according to claim **1** wherein said terminal strip feed means further comprises means to apply a drag force to said terminal strip.

11. A stripper crimper apparatus according to claim **10** wherein said terminal strip feed means further comprises means to feed said terminal strip in step wise fashion whereby single terminals are sequentially positioned on said anvil.

12. A stripper crimper apparatus according to claim **1** wherein said ram drive means comprises a pneumatically actuated piston cylinder device.

13. A stripper crimper apparatus according to claim **12** wherein said crimping ram further comprises:

means for adjusting the ram stroke, and

means for adjusting the position of said crimping die.

14. A stripper crimper apparatus according to claim **1** wherein said force cam assembly comprises:

a first roller mounted in a vertically fixed position on said frame,

a second roller mounted on said ram in parallel spaced relation to said first roller, and

cam means adapted to be driven between said rollers to apply said crimping force to said ram.

15. A stripper crimper apparatus according to claim **14** wherein said cam drive means comprises a pneumatically actuated piston cylinder device.

16. A stripper crimper apparatus according to claim **1** further comprising:

a pneumatic logic fluid distribution system operatively connected to actuate said clamping means, said stripper assembly, said ram means, and said force cam assembly in proper operating sequence, and

operator actuated means for initiating said operating sequence.

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