

Dec. 9, 1958

A. SZAPPANYOS

2,863,214

WIRE CUTTER

Filed June 11, 1956

4 Sheets-Sheet 2

FIG. 6A.

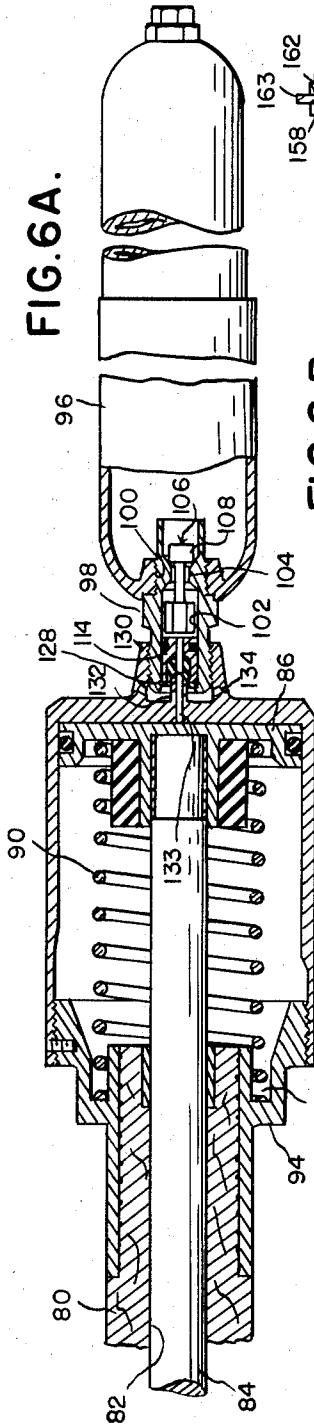


FIG. 6B.

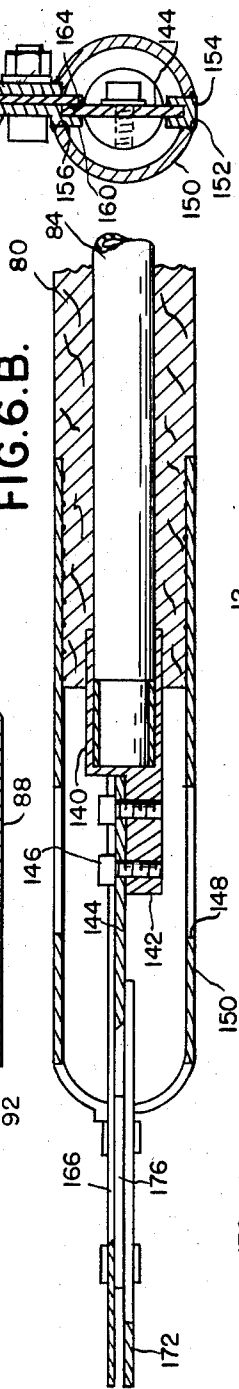


FIG. 12.

FIG. 11.

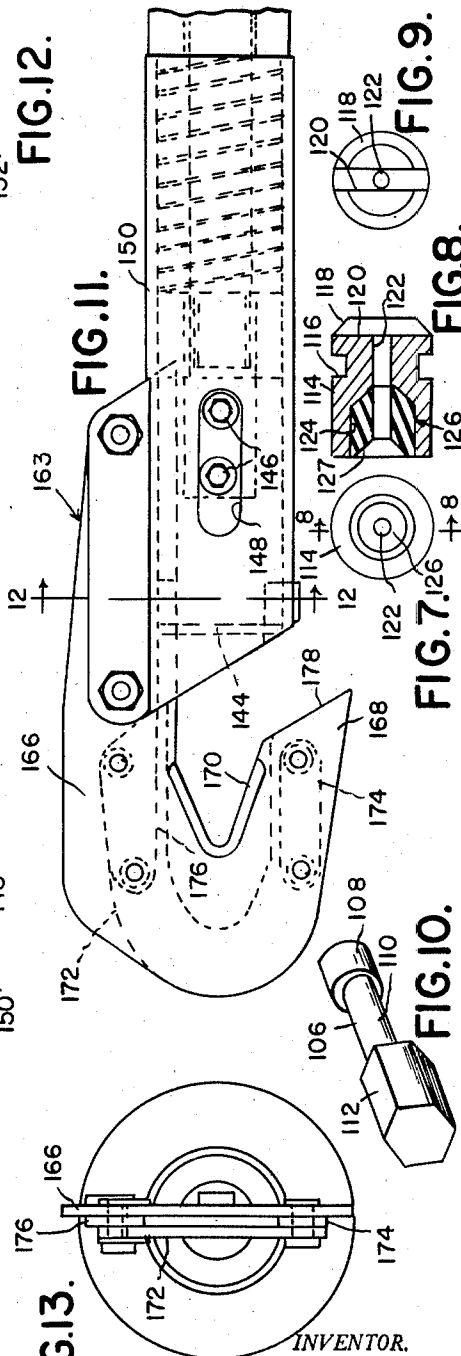


FIG. 13.

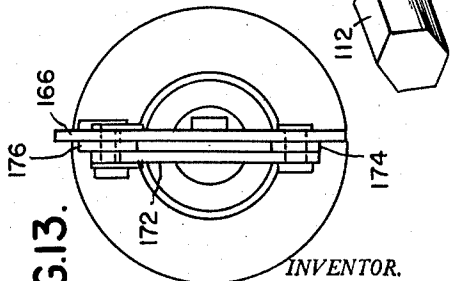


FIG. 9.

FIG. 8.

FIG. 10.

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FIG. 14A.

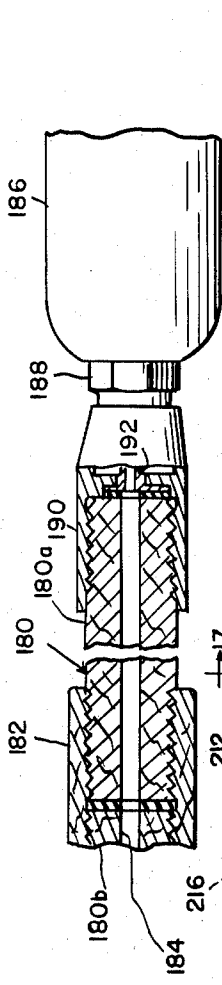


FIG. 14B.

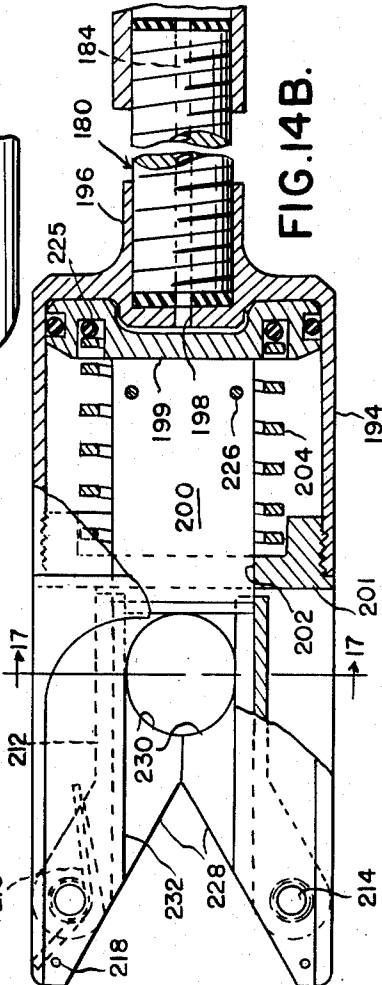


FIG. 15.

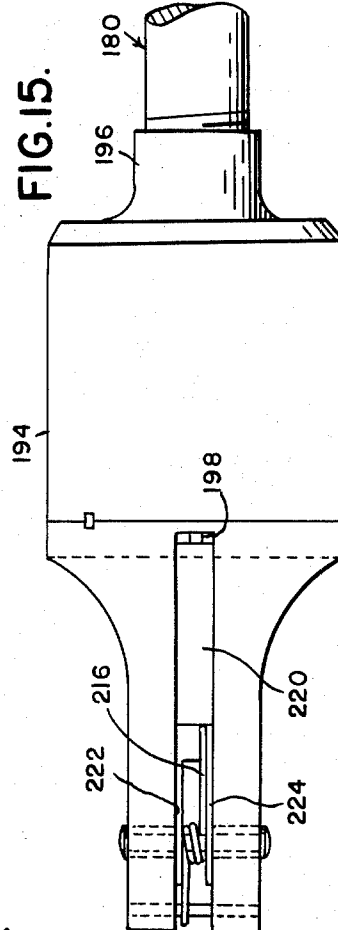


FIG. 21.

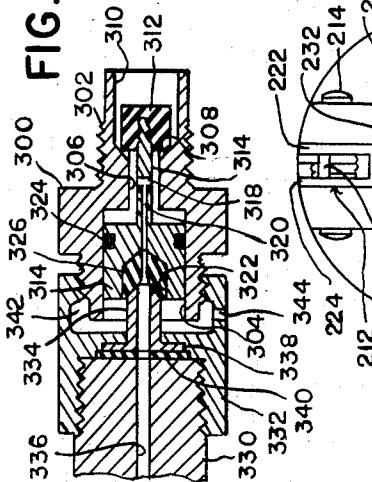


FIG. 17.

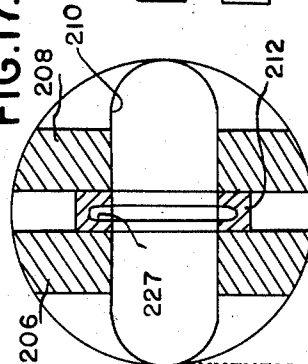
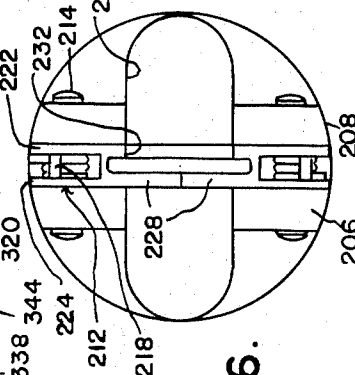


FIG. 16.



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FIG.18.

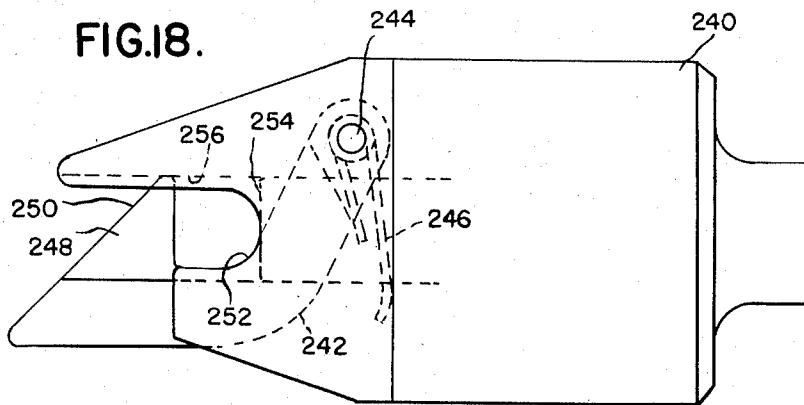


FIG.19.

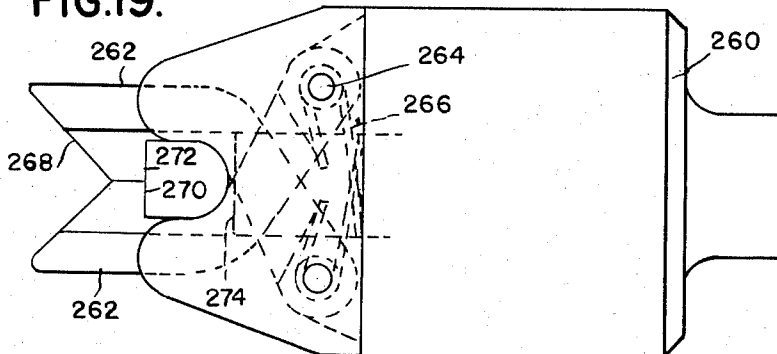
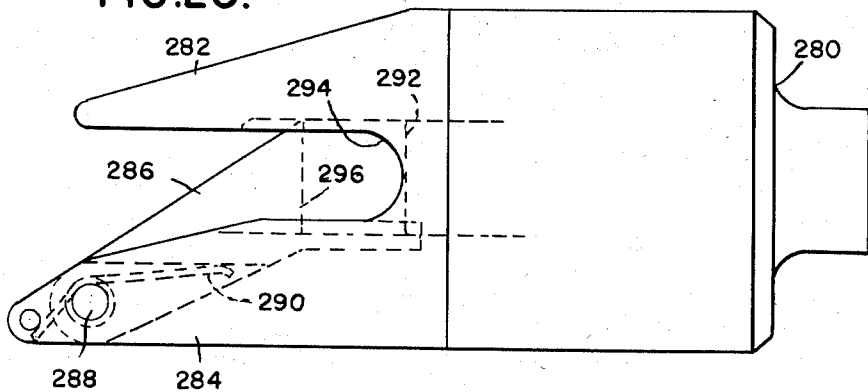


FIG.20.



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2,863,214

WIRE CUTTER

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Application June 11, 1956, Serial No. 590,463

21 Claims. (Cl. 30—131)

The present invention relates to a wire cutter, and more particularly to a power operated wire cutter having an elongated insulating handle and designed for severing high voltage lines.

It is an object of the present invention to provide a wire cutter actuated by pressure obtained from a compressed gas container.

It is a further object of the present invention to provide a power actuated system including a handle, a compressed gas container, and valve means actuated by relative movement between the handle and container for supplying gas under pressure from the container to pressure operated mechanism and for exhausting fluid under pressure from such mechanism.

It is a further object of the present invention to provide a wire cutter comprising an elongated insulating handle, a wire cutting device including a pair of relatively movable elements secured to one end of said handle, pressure operated means for actuating said device, a gas container carried by the other end of said handle, and selectively operable means for supplying fluid under pressure from said container to said pressure operated means and for exhausting fluid from said means.

It is a further object of the present invention to provide a wire cutting device including a head having a movable latch element engageable over the wire to latch the head to the wire preparatory to cutting the wire.

It is a further object of the present invention to provide wire cutting mechanism including a cutting head having one or more movable latch elements, resilient means urging said latch element or elements toward latching position, and one or more cam surfaces engageable by the wire to be cut operable to move one or more of the latch elements to unlatched position to receive the wire preparatory to cutting.

Other objects and features of the invention will become apparent as the description proceeds, especially when taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a fragmentary side elevational view, partly in section, showing the head of a wire cutter constructed in accordance with the present invention.

Figure 2 is a fragmentary longitudinal sectional view taken on the line 2—2, Figure 1, including the valve portion of the wire cutter.

Figure 3 is a sectional view on the line 3—3, Figure 1.

Figure 4 is a plan view showing separation of the wire cutter into components and storage in a container.

Figure 5 is a diagrammatic end elevational view of Figure 4.

Figures 6A and 6B together comprise a longitudinal sectional view of a second embodiment of the present invention.

Figure 7 is an enlarged end view of the valve actuating plunger employed in the construction of Figures 6A—6B.

Figure 8 is a sectional view on the line 8—8 Figure 7.

Figure 9 is an end view of the element shown in Figure 8.

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Figure 10 is a perspective view of the valve element employed in conjunction with the element of Figures 7—9.

Figure 11 is a side elevational view of the head shown in Figure 6B.

Figure 12 is a sectional view on the line 12—12, Figure 11.

Figure 13 is an end elevational view of the head shown in Figure 11.

Figures 14A and 14B together comprise a fragmentary side elevation of yet another embodiment of the present invention, with parts broken away.

Figure 15 is an elevational view of the head shown in Figure 14B.

Figure 16 is an end view of the head shown in Figure 14B.

Figure 17 is a sectional view on the line 17—17, Figure 14B.

Figures 18—20 are side elevational views of different embodiments of head structure.

Figure 21 is a longitudinal sectional view of a modified form of valve.

The present wire cutter is designed particularly for severing high voltage wires from a remote position. The several devices disclosed herein are intended to facilitate the severance of high voltage wires from a remote position in an easy operation and with a minimum of risk to the operator.

Referring first to Figures 1—5 the wire cutter comprises an elongated handle 10 formed of suitable insulating material such as plastic, wood or the like. Preferably, the handle is formed in a plurality of sections, two being indicated in Figure 2 at 10a and 10b. The sections 10a and 10b are provided with an elongated passage 12 extending completely therethrough and are assembled together with a coupling nut 14 so as to provide a continuous through passage from end to end of the handle.

At one end the handle is provided with a head 16 comprising a cylinder 18 having a passage 20 extending through its closed end and communicating with the passage 12 extending through the handle. The open end of the cylinder 18 is closed by an anvil member 22 having an elongated slot 24 and a recess 26 forming a seat for a compression spring 28. Movable longitudinally of the cylinder 18 is a piston 30 which has coupled thereto a blade 32 reciprocable through the slot 24. The anvil member 22, as best seen in Figure 1, includes a hook portion 34 including a recess 36 in which is received a blade 38, the blade having a sharp cutting edge as best seen in Figure 2. The blade 38 includes an extension 40, the blade being received between laterally separated portions 34a and 34b of the hook portion 34. The blade 38 is retained in assembled relation by suitable means such as rivets indicated at 41. The extension 40 is so shaped as to provide a double offset passage indicated generally at 42 for the reception of a wire to be cut. It will be observed that the extension 40 extends laterally beyond the cylinder 18 to facilitate hooking the extension 40 over a wire and by pulling downwardly upon the tool, the wire enters the portion of the passage 42 which extends vertically in Figure 1. At this time the operator presses the tool laterally to align the wire with the inner portion of the passage 42 which brings it into engagement with the sharp edge of the blade 38. This construction provides an interlock so that the entire wire cutter may be suspended from the overhead wire without danger of slipping off.

Means are provided for admitting fluid under pressure to the cylinder 18 to the right of the piston 30, as seen in Figure 2. This means comprises a container 44 for gas under pressure such as CO₂ gas. The container is provided with a fitting 46 which is externally threaded and which has a cylindrical opening 48 extending to a valve

seat 50. A valve disc 52 is normally maintained in sealing relation on the valve seat 50 by pressure of gas within the container 44.

The end of the handle 10 remote from the head 16 includes a coupling 54 adapted to be threaded over the threaded extension of the fitting 46 and having a tapered extension 56 engageable with the valve disc 52. The extension 56 has a longitudinally extending passage 58 communicating with a transverse passage 60. The coupling 54 is provided with exhaust ports 62.

The arrangement is such that when the container is firmly screwed onto the end of the handle 10, the extension 56 enters into the cylindrical passage 48 and lifts the valve 52 from its seat. At this time a cylindrical rear portion on the tapered extension 56 has entered into the cylindrical passage 48 and constitutes a seal therewith. Gas under pressure now flows around the valve 52 through the transverse passage 60, the longitudinal passages 58, 12 and 20 to the interior of the cylinder 18, thus forcing the piston rapidly to the left against the action of the spring 28. The size of the piston is such that sufficient force is exerted by the gas to sever the wire against the sharp edge of the blade 38. The container 40 is now loosened, withdrawing the tapered extension 56 from the passage 48 and permitting the valve 52 to seat under the pressure existing within the container when pressure to the left of the valve, as seen in Figure 2, is exhausted. This is accomplished when the cylindrical rear portion of the extension 56 moves out of the cylindrical passage 48, at which time gas may exhaust from the cylinder 18 through the passages 12, 58 and 60 and through the exhaust ports 62. By this means it is possible to obtain a number of wire cutting operations from a single charge of gas in the container.

In the embodiment of the invention so far described the cutting operation takes place between the sharp edge portion of the blade 38 and the blunt edge of the movable blade 32. It will be appreciated of course that the blade 32 may be provided with the sharp wire cutting edge and the stationary blade or element 38 may have a blunt portion against which the sharp cutting edge impinges. Alternatively, of course, the wire cutting operation may be a shearing operation in which the movable blade moves across an abutment surface.

Referring particularly to Figures 4 and 5, there is illustrated the advantageous feature of minimum storage space required by the present invention. In these figures the construction is illustrated as broken down into components and stowed in a box 66. In this figure the sections 10a and 10b of the handle are illustrated as separated. The head 16 is separated from the handle and the box 66 provide storage space for four gas containers 44.

Referring now to Figures 6A and 6B through Figure 13, there is illustrated a different embodiment of the present invention. In this case, as best seen in Figure 6A, an essential difference is that the piston and cylinder device is located directly adjacent the container. In this modification the handle which is of insulating material and may be of wood, is illustrated at 80 and has an opening 82 therethrough for the reception of a piston rod 84. The piston rod 84 is connected to a piston 86 slidable within a cylinder 88 and biased by a compression spring 90. The compression spring 90 is seated in an annular seat 92 formed in the cylinder head 94 which also forms the coupling for connecting the cylinder to the handle 80. The piston rod is shown as tubular, and is of insulating material.

The source of fluid under pressure for actuating the piston and cylinder device comprises the compressed gas container 96 having a fitting 98 screwed into a threaded opening 100 formed at one end of the container 96. The fitting 98 is provided with a cylindrical opening 102 therethrough and adjacent the end thereof which enters into the container 96 there is provided an annular re-

striction 104 constituting a valve seat. A valve unit 106, best illustrated in Figure 10, is provided having a cylindrical valve portion 108 which may be of nylon, a reduced valve stem 110 extending through the annular restriction 104, and an enlarged portion 112 which is of polygonal cross-section. If desired for assembly purposes the valve portion 108 may be threaded or pressed onto the one end of the reduced stem 110. With the parts assembled as seen in Figure 6A, pressure within the container 96 holds the valve portion 106 firmly on the valve seat formed by the annular restriction 104.

Slidable within the cylindrical opening 102 in the fitting is a sealing connector and valve actuator member 114, details of which are best seen in Figures 7-9. The member 114 is of generally cylindrical shape having an annular channel 116 for the reception of an O-ring which affords a seal between the member 114 and the inner surface of the cylindrical opening 102. At one end the member 114 is tapered as indicated at 118, and it is further provided with a transverse channel 120 extending completely across the end thereof. Extending axially through the member 114 is a fluid passage 122. At the opposite end, the member 114 is provided with a cylindrical recess 124 in which is received an annular sealing element 126 which may conveniently be formed of nylon plastic. The sealing member 126 is provided with an axial opening forming an extension of the opening 122, terminating in a conical recess 127. Ring 128 limits movement of member 114 in opening 102.

The cylinder 88 at its outer end includes an internally threaded sleeve 130 and in addition, is provided with an axially extending nipple 132 having a passage 133 extending therethrough and having a tapered end to engage and seal with conical recess 127. The sleeve 130 is provided with exhaust passages 134.

With the parts in the position shown in Figure 6A it is apparent that the valve portion 106 is retained on its seat by internal pressure within the container 96. The end of the nipple 132 has just engaged the annular seal 126. If now the container 96 is screwed further into the socket of the sleeve 130, the member 114 will be forced to the right by the nipple 132, thus unseating valve 106. This will provide for a flow of fluid under pressure around the polygonal enlargement 112, through the cross channel 120, into the passage 122, thence through the annular seal 126 and into the annular passage 133 extending through the nipple 132. The flow of gas under pressure moves the piston 86 to the left as seen in Figure 6A. When the container 96 is partially unscrewed from the cylinder 88, the parts again reach the position illustrated in Figure 6A, at which time equal pressures will exist at opposite sides of the valve 106. However, if the container is unscrewed slightly further, the valve 108 prevents movement of valve unit 106. Member 114 follows nipple 132 until it engages bumper ring 128, as a result of gas pressure. Upon further withdrawal of nipple 132 the end of the nipple moves out of engagement with the seal 126. This permits fluid to exhaust from the cylinder and reduction in pressure acting against the outer end of the member 114 permits the valve portion 106 to seat.

At the outer end of the handle 80 as seen in Figure 6B, the connecting rod 84 has a cup 140 secured thereto provided with an extension 142 to which is secured a cutting blade 144. The blade 144 is secured to the extension 142 by screws 146, access to which is provided by the elongated openings 148.

Affixed to the end of the handle 80 is a coupling member 150 of cylindrical configuration. At its forward end the cylindrical coupling 150 is slotted as indicated at 152 and in the slot is provided a channel shaped guide element 154 in which one edge of the blade 144 slides.

Generally opposite the slot 152 the coupling member 150 is provided with a slot 156 in which is mounted a plate 158 having its inner edge offset as indicated at 160. Secured to the other side of the slot is a second plate

162. Between plates 138 and 162 is a plate 163, its inner edge extending into juxtaposition to the offset portion 160 of the plate 158 to provide a second guide channel 164 for the blade 144. Channel 154 and plates 158 and 162 are welded in the slots 152 and 156, as indicated in Figure 12.

The plate 163 has a forwardly extending portion 166 having a return bent hook portion 168. Within the concave portion of the hook, cutting edges as indicated at 170 are provided.

Assembled in laterally spaced relation to the hook portion of the plate 163 is a generally U-shaped member 172, the member 172 being spaced from the plate 166 by spacers 174 and 176.

The end of the hook portion 168 extends laterally beyond the coupling member 150 to facilitate hooking the wire cutter over a high wire. The hook portion 168 includes an inclined camming surface 178 which serves to guide the wire into engagement with the sharp cutting edges 170.

The foregoing construction provides for movement of the blade 144 past the curved cutting edges 170 of the hook portion 168 of the plate 163, thus providing an efficient shearing cut for the wire engaged by the hook. The action of the compressed air in shifting the piston 86 to the left as seen in Figure 6, is opposed by the compression spring 90 which restores the piston to the illustrated position when the container 96 is partially unscrewed from the cylinder 88.

Referring now to Figures 14A and 14B through Figure 17, there is illustrated yet another embodiment of the present invention. In this case the wire cutter comprises the handle 180 which is formed of insulating material such for example as wood, and which may be formed of separate sections 180a and 180b assembled together with a coupling sleeve 182. The handle 180 is provided with a longitudinally extending passage 184. At one end of the handle 180 is the gas container or cartridge 186 which has a fitting 188 which may be identical with the fitting 98 disclosed in Figure 6A. The fitting 188 is threaded to a mounting member 190 secured to the end of the handle 180, the mounting member having a valve releasing nipple 192 which may be identical with the nipple 132 disclosed in Figure 6A. Thus, fluid under pressure may be admitted to the passage 184 by screwing the container 186 to the right, and pressure from the cylinder (later to be described) may be exhausted and the container 186 sealed by closure of its valve by screwing the container 186 to the left. At the opposite end of the handle 180 there is provided a cylinder 194, the closed end of which is provided with an internally threaded sleeve 196 for connection to the handle. The closed end of the cylinder is provided with a passage 198 which communicates with the passage 184 extending longitudinally of the handle. Movable within the cylinder 194 is a piston 199 to which is fixedly connected a cutting blade 200. The cylinder 194 is provided with a removable head 201 slotted as indicated at 202 for passage of the blade 200 and affording a seat for the compression spring 204 which opposes movement of the piston 199 in cutting direction. Extending forwardly from the head 201 are two laterally spaced ears 206 and 208, the ears being provided with a slot 210 which extends to adjacent the transverse portion of the head 201. Between the portions of the ears 206 and 208 at both sides of the slot 210 are pivotally mounted wire latching and cutting elements 212 cooperable with the blade 200 in cutting the wire. These elements are pivoted by pivot pins 214 and are biased to the position illustrated in Figure 14B by coil springs 216 one end of which engages a spring abutment pin 218 and the other end of which engages the latch element remote from the axis of the pivot pin 214. As best seen in Figure 15, each of the latching and cutting elements 212 comprises a solid portion 220 and a bifurcated portion

providing ears 222 and 224 between which the spring 216 is mounted.

Between the ends of the spring 204 and the spring seat constituted by the head 201 or the piston 199 is a rubber bumper ring 225. The blade 200 is attached to the piston 199 by suitable means such as the pins or rivets shown at 226. It is found that special means are required for preventing shearing of the pins 226 in operation of the wire cutter. This is explained due to the arrangement which provides for shearing action of the blade 200 as will presently be described. In operation, pressure developing within the cylinder 194 during the actual wire cutting operation may be such as to apply a very large force to the piston. When the wire is severed and the blade is released for slight additional travel, inertia of the blade accompanied by the abrupt arrest of forward movement of the piston by movement of the convolutions of the spring 204 into abutment, result in shearing of the pins or rivets 226. If however, the piston 199 has its forward travel arrested by cushioning means such as the ring 225, shearing of the pins or rivets is avoided.

As best seen in Figure 17, the latching elements 212 are channeled as indicated at 227 to provide a channel guide for opposite edges of the blade 200 in its forward movement. The latching elements 212 include abutting portions 228 provided with complementary recesses 230 to surround a wire to be cut. The portions of the latching elements 212 opposite the abutting portions 228 are cut away as indicated at 232. With this arrangement the cutting blade 200 advances past the edges of the abutting portions 228 of the latching elements in shearing relation. At the same time, opposite edges of the blade 200 are retained in guiding relation when the latching elements are in closed position.

It will be observed that the abutment portions 228 of the latching elements include inclined camming surfaces engageable with the wire. This permits the wire cutter to be connected to the wire simply by pushing it upwardly against the wire. This will cam the latching elements away from each other and permit the wire to drop into the space defined by the recesses 230. Once in this position, a positive interlock is provided and the tool may not be separated from the wire until the wire has been severed by actuation of the cutting blade 200.

Referring now to Figure 18 there is illustrated a somewhat different arrangement. In this case the wire cutting head 240 is provided with a latch and cutting arm 242 pivoted as indicated at 244 and biased to the illustrated position by a spring 246. The arm 242 includes an end portion 248 having a camming surface 250 engageable by a wire to cam the arm out of the way to permit the wire to enter the recess 252 in the head. It will be appreciated that the arm 242 operates in a slot provided in the end portion of the head. The cutting blade, a portion of which is indicated at 254, is guided in a recess indicated at 256 in the head and may move in shearing relation past the inner part of the end portion 248 or may operate against the inner surface thereof to cut the wire. In this embodiment of the invention it will be observed that forces exerted through the wire by the cutting blade 254 tend to swing the arm 242 further in closing direction.

Referring now to Figure 19 the head indicated at 260 is similar to that shown in Figure 18 except that two combined latching and cutting arms 262 are provided pivoted to the head as indicated at 264 and biased to the illustrated position by springs 266. The arms 262 include inclined camming faces 268 which permit engagement with the wire to spring the arms apart to permit the wire to enter the recess 270 formed in the head and to be retained therein by the overlying cutting surfaces 272. A portion of the blade 274 is illustrated and this blade may operate against the surfaces 272 as an abutment or it may move past these surfaces in shearing relation.

Referring now to Figure 20 there is illustrated a head 280 having a forwardly extending ear 282 and a laterally spaced forwardly extending ear 284 which is bifurcated to receive the latching and cutting element 286. The latching element 286 is pivoted between the bifurcated ears 284 by the pivot pin 288 and is biased to the illustrated position by the spring 290. A portion of the cutting blade is indicated at 292. Pressure of the head against the wire and particularly against the inclined camming surface of the latching element 286, cams the element clockwise as seen in Figure 20 and permits the wire to enter the recess 294 provided between the ears 282 and 284 at which time the latching elements swing outwardly to the illustrated position. At this time the blade 292 is actuated to the left by suitable mechanism, as seen in the figure, and cuts the wire against the surface 296 of the latching element 286. Again, the cutting operation may be performed against the surface 296 or by a shearing cut taken against an edge of the surface 296.

In Figure 21 there is illustrated an improved form of valve for controlling flow of gas under pressure to the piston and cylinder. In this figure the fitting 300 is externally threaded as indicated at 302, for connection to the gas container. An opening extends longitudinally through the fitting 300, this opening comprising a cylinder 304, a reduced passage 306, a conically tapered valve seat 308, and an enlarged chamber 310. A valve element 312 which conveniently may be formed of nylon, is provided in the chamber 310 and is connected to a reduced stem 314 which extends through the reduced opening 306 and connects to a piston 316 which is slidable in the cylinder 304. The stem 314 is provided with a transverse passage 318 communicating with a longitudinally extending passage 320 which in turn communicates with a laterally enlarged recess 322 in the end of the piston portion 316. The piston portion 316 is provided with an annular groove for the reception of a sealing O-ring 324. Located within the recess 322 is an annular seal 326 having a passage therethrough communicating with the passage 320. Seal 326 may also be of nylon.

A portion of the tool handle 330 is illustrated in the figure, adapted to be connected to the coupling 300 by a sleeve 332. The sleeve 332 engages the longitudinally apertured nipple 334 which has a passage therethrough forming a part of the passage 336 extending to the blade actuating piston and cylinder device. The nipple is illustrated as mounted by a flange 338 and a sealing gasket 340 is provided.

It will be understood that the fitting 300 in use is rigidly attached to the gas container and the coupling sleeve 332 is rigidly secured to the handle 330. Thus, when relative rotation is provided between the gas container and the handle, the coupling sleeve 332 moves longitudinally of the fitting 300. With the parts in the position shown it is assumed that the nipple 334 is pressed firmly against the sealing member 326 and that the internal gas pressure within the gas container is sufficient to hold the valve 312 on its valve seat 308. If now, relative rotation is provided between the gas container and handle in a direction to cause the nipple 334 to move to the right relative to the fitting 300, this will have the effect of lifting the valve 312 from its seat and will permit gas under pressure to flow through the passages 318, 320 and 336 to the interior of the cylinder, thus actuating the piston. During this time gas pressure within the cylinder 304 and to the right of the piston 316 will maintain the piston firmly against nipple 334 so as to prevent the escape of gas under pressure.

After the cutting stroke has been completed the gas container and handle are relatively rotated in the reverse direction until the parts again come to the position illustrated in Figure 21. At this time further movement of the nipple 334 to the left will cause the nipple to separate

from the seal 326 and the gas which is under pressure in the actuating cylinder will now escape into chamber 342 and thence through ports 344.

The drawings and the foregoing specification constitute a description of the improved wire cutter in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. An insulated wire cutter for cutting high voltage wires comprising a cutter head including a rigid element engageable over a wire, a movable element movable toward said rigid element to cut the wire, an elongated handle of insulating material, a container for gas under pressure carried at the end of said handle remote from said head, a piston and cylinder device connected to said movable element, a passage connecting said piston and cylinder device to said container, and valve means for controlling said passage.
2. A wire cutter as defined in claim 1 in which said piston and cylinder device is directly adjacent said container, and in which an elongated rod extends through said handle to connect the piston and cylinder device and said movable element.
3. A wire cutter as defined in claim 1 in which said piston and cylinder device is directly adjacent said movable element, and said passage extends the full length of said handle.
4. An insulated wire cutter for cutting high voltage wires comprising a cutter head including first means engageable over a wire, a movable element movable toward said means to cut the wire, an elongated handle of insulating material, a container for gas under pressure carried at the end of said handle remote from said head, a piston and cylinder device connected to said movable element, a passage connecting said piston and cylinder device to said container, and valve means for controlling said passage.
5. An insulated wire cutter for cutting high voltage wires comprising a cutter head including first means engageable over a wire, a movable element movable toward said first means to cut the wire, an elongated handle of insulating material, a container for gas under pressure carried at the end of said handle remote from said head, a piston and cylinder device connected to said movable element, a passage connecting said piston and cylinder device to said container, valve means for controlling said passage, said first means having a concave seat engageable by the wire, and guide means for said movable element to guide said movable element past an edge of said seat to shear the wire.
6. An insulated wire cutter for cutting high voltage wires comprising a cutter head including first means engageable over a wire, a movable element movable toward said first means to cut the wire, an elongated handle of insulating material, a container for gas under pressure carried at the end of said handle remote from said head, a piston and cylinder device connected to said movable element, a passage connecting said piston and cylinder device to said container, and valve means for controlling said passage, said first means comprising a movable latch element to latch said head over the wire to be cut.
7. An insulated wire cutter for cutting high voltage wires comprising a cutter head including first means engageable over a wire, a movable element movable toward said first means to cut the wire, an elongated handle of insulating material, a container for gas under pressure carried at the end of said handle remote from said head, a piston and cylinder device connected to said movable element, a passage connecting said piston and cylinder device to said container, and valve means for controlling said passage, said first means comprising a movable recessed latch element to latch said head over the wire to be cut with the wire at least partly received in the recess of said element.

8. An insulated wire cutter for cutting high voltage wires comprising a cutter head including first means engageable over a wire, a movable element movable toward said first means to cut the wire, an elongated handle of insulating material, a container for gas under pressure carried at the end of said handle remote from said head, a piston and cylinder device connected to said movable element, a passage connecting said piston and cylinder device to said container, and valve means for controlling said passage, said first means comprising a fixed element, a latch element movable laterally of said fixed element, said latch element having a wire receiving recess in the side thereof adjacent said fixed element.

9. An insulated wire cutter for cutting high voltage wires comprising a cutter head including first means engageable over a wire, a movable element movable toward said first means to cut the wire, an elongated handle of insulating material, a container for gas under pressure carried at the end of said handle remote from said head, a piston and cylinder device connected to said movable element, a passage connecting said piston and cylinder device to said container, valve means for controlling said passage, said first means comprising a fixed element, a latch element movable laterally of said fixed element, said latch element having a wire receiving recess in the side thereof adjacent said fixed element, said latch element having a camming surface engageable with a wire to cam the latch element to open position to engage the wire in the recess, and spring means urging said latch element toward closed position.

10. An insulated wire cutter for cutting high voltage wires comprising a cutter head including first means engageable over a wire, a movable element movable toward said first means to cut the wire, an elongated handle of insulating material, a container for gas under pressure carried at the end of said handle remote from said head, a piston and cylinder device connected to said movable element, a passage connecting said piston and cylinder device to said container, and valve means for controlling said passage, said first means comprising a pair of pivoted latch elements having confronting wire-receiving recesses in the adjacent edges thereof.

11. An insulated wire cutter for cutting high voltage wires comprising a cutter head including first means engageable over a wire, a movable element movable toward said first means to cut the wire, an elongated handle of insulating material, a container for gas under pressure carried at the end of said handle remote from said head, a piston and cylinder device connected to said movable element, a passage connecting said piston and cylinder device to said container, and valve means for controlling said passage, said first means comprising a pair of pivoted latch elements having confronting wire-receiving recesses in the adjacent edges thereof and having wire-engaging camming surfaces to move said latch elements to open position by pressure against a wire.

12. In a wire cutter, pressure actuated means for cutting a wire, a handle, a gas container, a fluid passage connecting said container and said means, a threaded connection between said handle and said container, said container having a fitting, a valve in said fitting, said handle having valve engaging means to unseat said valve when said container is screwed onto said handle to operating position.

13. In a wire cutter, pressure actuated means for cutting a wire, a handle, a gas container, a fluid passage connecting said container and said means, a threaded connection between said handle and said container, said container having a fitting, a valve in said fitting, said handle having valve engaging means to unseat said valve when said container is screwed onto said handle to operating position, said handle having an exhaust passage, and means between said handle and said valve establishing a seal while said valve is open.

14. Power wire cutting mechanism for high voltage

lines comprising an elongated insulating handle, a wire cutting device at one end of said handle, pressure operated means for actuating said device, a gas container threaded to the other end of said handle, and valve means operable by threaded motion of said container on said handle for selectively supplying fluid to said pressure operated means and sealing said container while exhausting fluid from said pressure operated means.

15. Structure as defined in claim 14 in which said valve means includes a valve, a valve operating sealing plunger, and a tubular member on said handle engageable therewith.

16. Structure as defined in claim 15 in which said tubular member is engageable with said plunger to open said valve and conduct fluid to said pressure operated means and is movable away from said plunger to exhaust fluid from said pressure operated means.

17. A cutter of the character described comprising a head having a pair of spaced apart extensions, a pair of latching and cutting elements pivoted at their ends to said extensions adjacent the free ends thereof and extending from their pivot connections toward said head, a knife mounted on said head for reciprocation between said extensions, resilient means acting between said extensions and said elements to urge the free ends of said elements toward each other, camming surfaces on said elements between said extensions engageable by a member to be cut to force said elements apart, said elements having confronting surfaces shaped to surround and support a member to be cut, said elements having grooves in their confronting edges in which said knife is reciprocable, and means limiting retraction of said knife to a position in which it is engageable with the free ends of said elements to constitute a centering stop for said elements.

18. A cutter as defined in claim 17 in which the portions of said elements opposite said knife are located at one side of said knife, to provide for movement of said knife thereacross in a shearing stroke.

19. A wire cutter comprising a head having thereon wire engaging and support structure, first spaced apart portions adapted to receive a wire segment therebetween and a second portion between said first portions engageable with a side of the wire segment, said first portions defining a retainer which prevents separation of said head from a wire by straight continuous movement, a cutting member on said head extending between said first portions and movable toward and away from the second portion of said structure, and power means for actuating said cutting member to cut the wire against the second portion of said structure.

20. A wire cutter comprising a head having a pair of laterally separated fixed supports, a pair of elongated cutting members pivoted at one end to said supports, said cutting members having recessed edge portions movable toward and away from each other to receive a wire segment therebetween, the said edge portions of said members having confronting grooves therein, a knife carried by said head, the edges of said knife being received in said grooves to be guided thereby.

21. A wire cutter comprising a head having a pair of laterally separated fixed supports, a pair of elongated cutting members pivoted at one end to said supports, said cutting members having recessed edge portions movable toward and away from each other to receive a wire segment therebetween, the said edge portions of said members having confronting grooves therein, a knife carried by said head, the edges of said knife being received in said grooves to be guided thereby, said knife being movable across the recessed edge portions of said members and having a limiting position in which it is engaged by the free ends of said members to constitute stop means therefor.

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