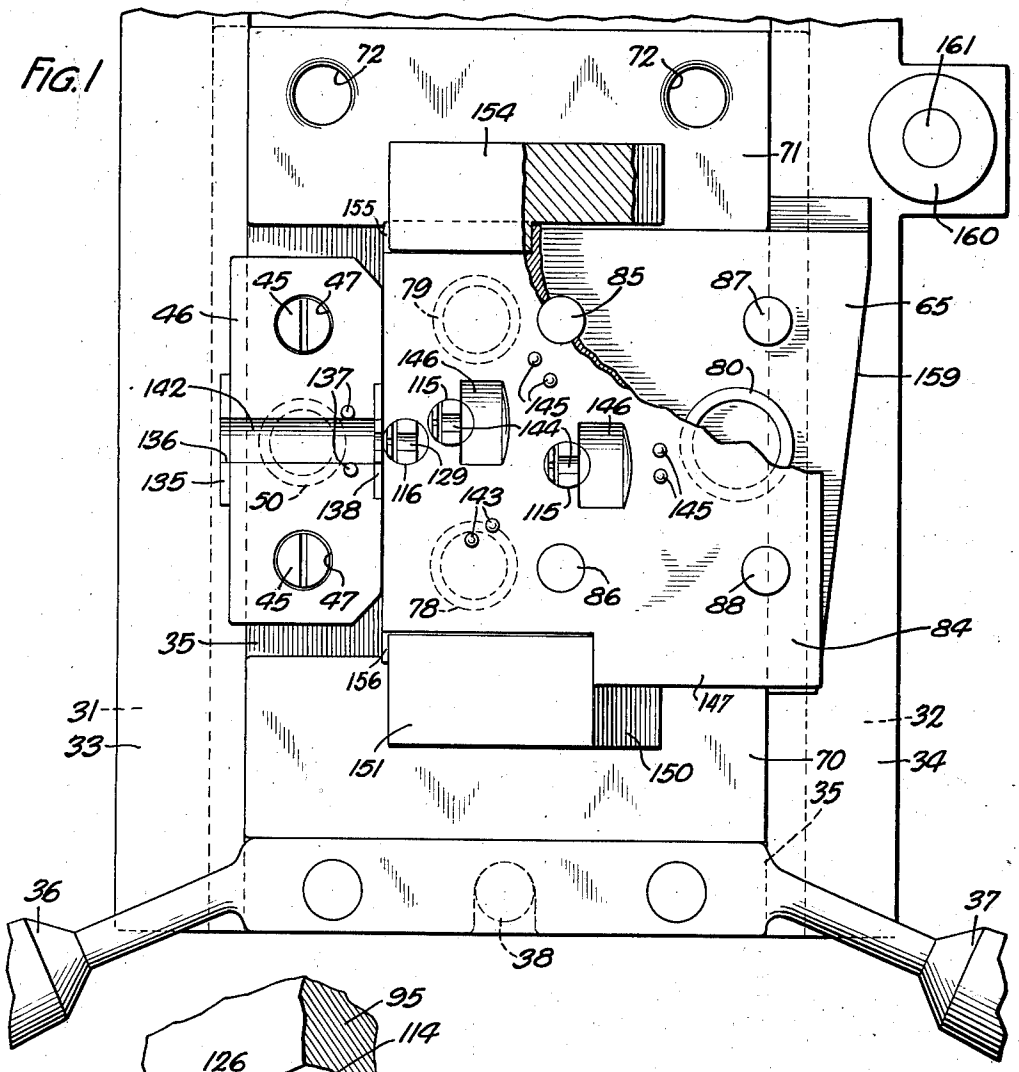
Feb. 19, 1946. J. J. LEMBITZ ET AL 2,395,374

STRIPPING APPARATUS

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FIG. 1



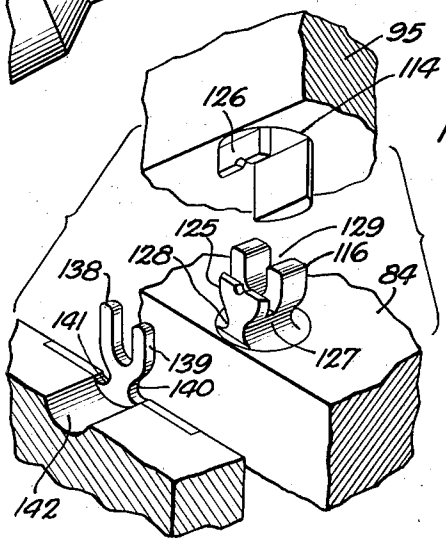
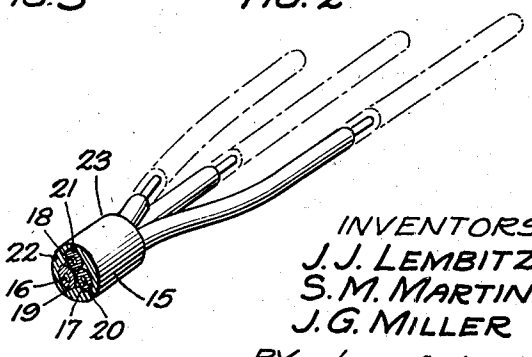


FIG. 3

FIG. 2

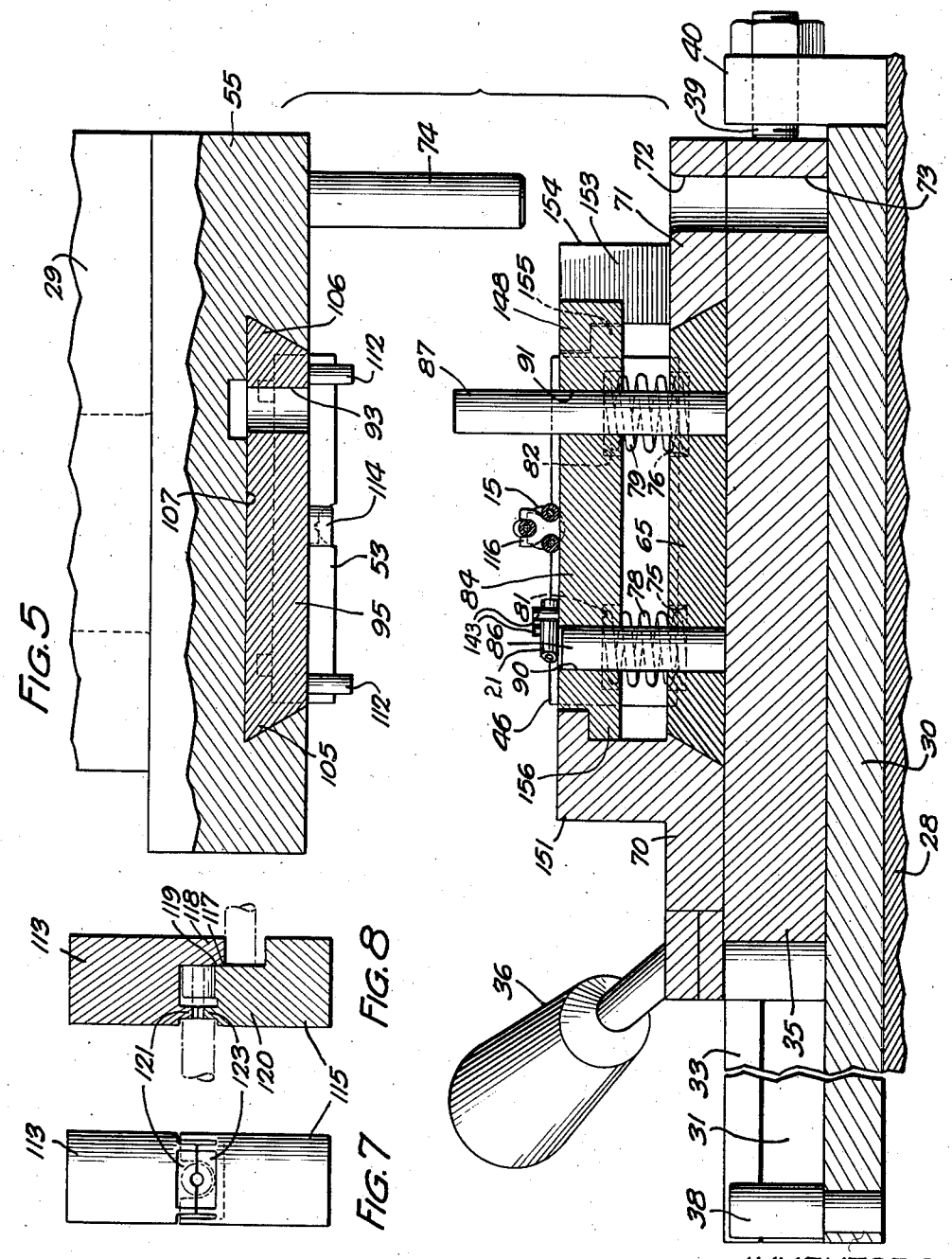


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STRIPPING APPARATUS

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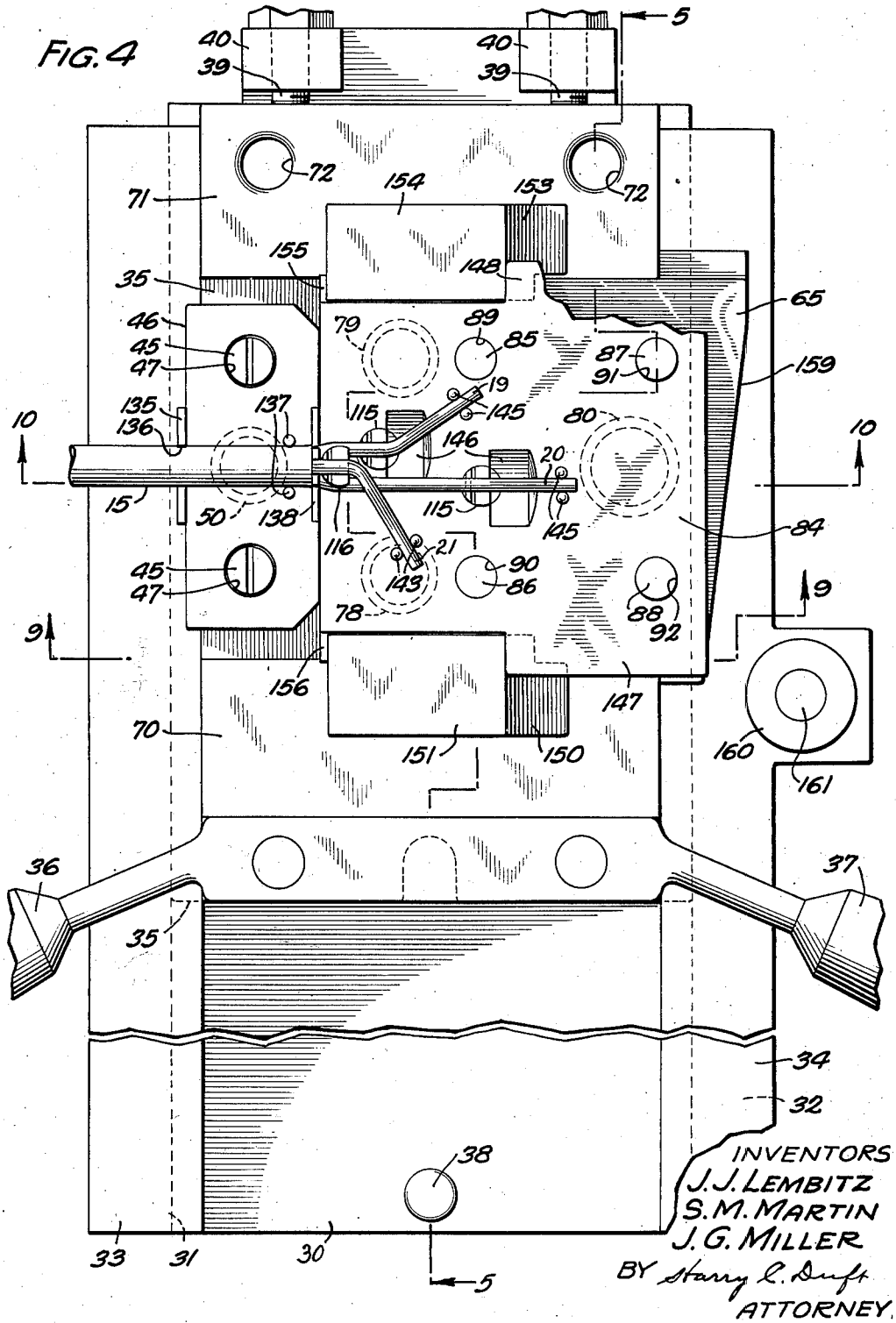
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FIG. 4



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FIG. 9

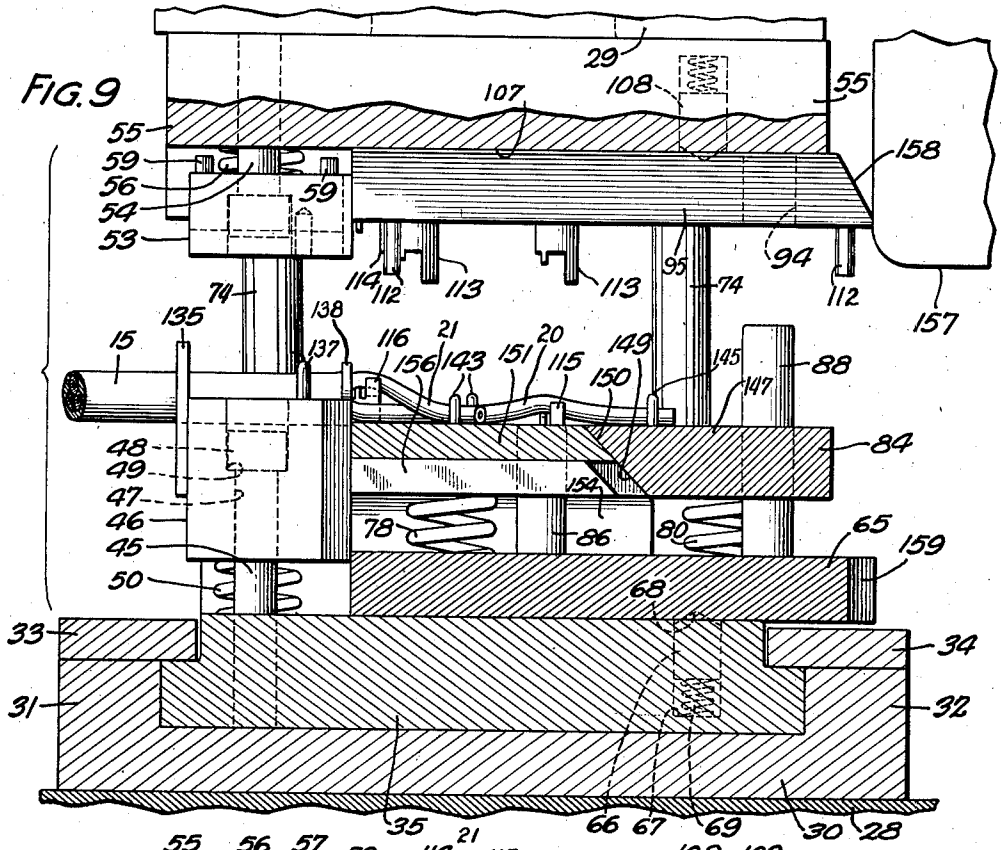
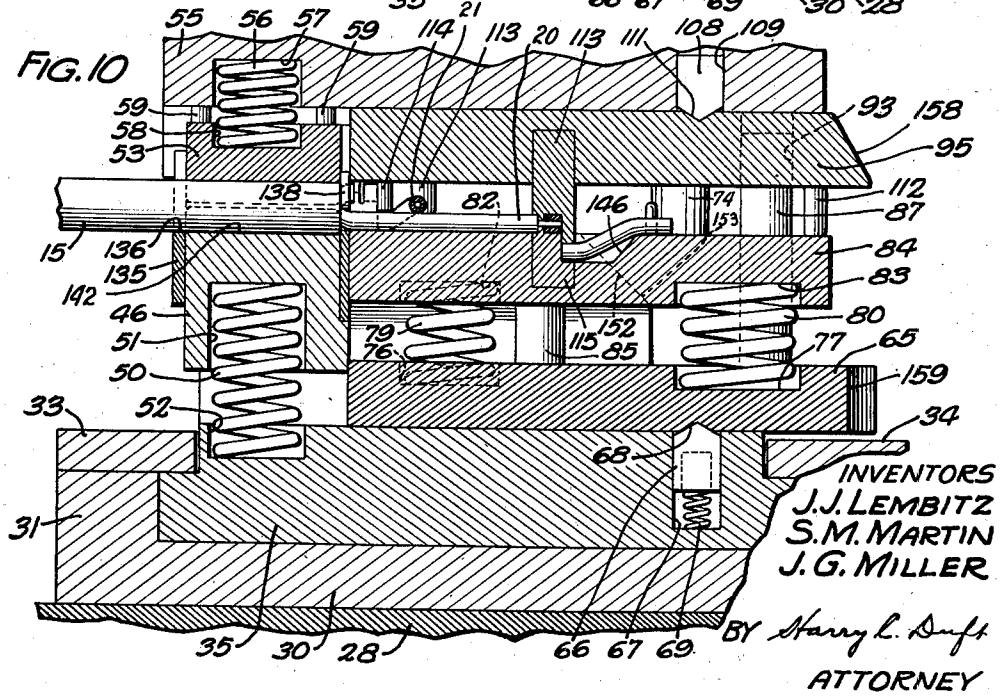


FIG. 10



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STRIPPING APPARATUS

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FIG. 11

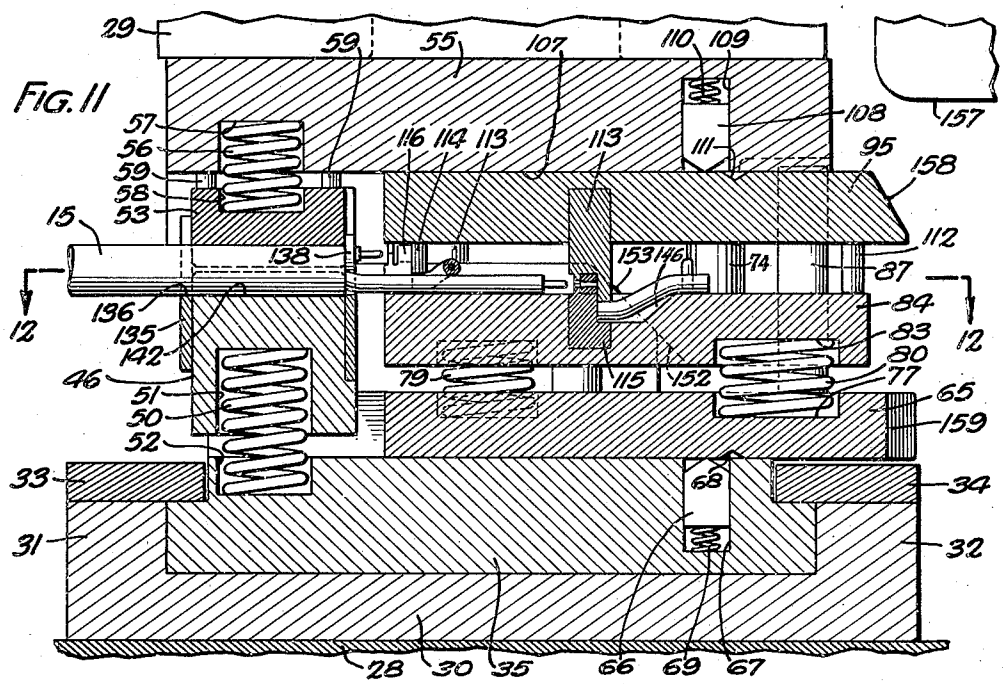
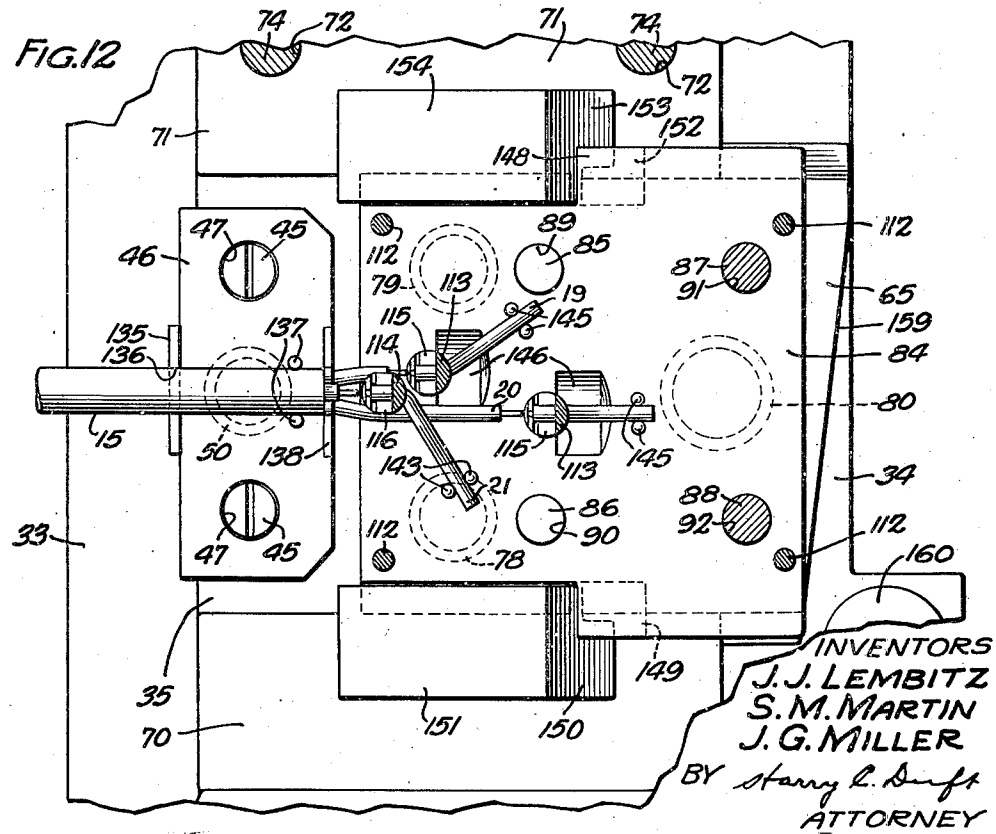


FIG. 12



Patented Feb. 19, 1946 2,395,374

UNITED STATES PATENT OFFICE

2,395,374

STRIPPING APPARATUS

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Application June 17, 1943, Serial No. 491,126

11 Claims. (Cl. 81—9.51)

This invention relates to stripping apparatus and more particularly to an apparatus for stripping insulation from conductors and for trimming the ends of the conductors.

It is an object of the present invention to provide a simple apparatus for expeditiously trimming and stripping insulated conductors.

In accordance with one embodiment of the invention, a three-conductor cord is loosely fixed in position on a slidable plate, which is, in turn, adapted to be slid under the ram of a punch press. The ram of the punch press carries tools which cooperate with other tools mounted on the slidable plate to engage the three conductors to shear them to predetermined lengths and to strip off a short length of insulation adjacent to the sheared ends of the conductors. The tools mounted on the ram and slidable plate are actuated to effect the shearing of the ends of the conductors and to pinch the insulation thereon in the first part of the stroke of the press and in a later portion of the stroke of the press, all of the tools are moved transversely to strip the insulation, between the pinched portion thereof and the ends of the conductors, off of the conductors.

A clear understanding of the invention may be had by reference to the following detailed description when considered in conjunction with the accompanying drawings, wherein

Fig. 1 is a plan view of the slidable plate and the tools carried thereby in their normal inoperative position, parts being broken away to more clearly illustrate underlying parts;

Fig. 2 is a view in perspective of the end of a cord comprising three separately insulated conductors showing the conductors with the insulation stripped from them by means of the apparatus constituting the invention;

Fig. 3 is an exploded perspective view of one set of the tools for operating on the cord;

Fig. 4 is a plan view of the slidable plate and showing part of the bed of the press and the mechanisms thereon which cooperate with the portion of the apparatus that is slid transversely to strip the insulating material from the individual conductors;

Fig. 5 is an irregular vertical sectional view taken substantially along the line 5—5 of Fig. 4 in the direction of the arrows;

Fig. 6 is a detailed view of the cooperating tools which shear some of the conductors, the view comprising an exploded perspective of these two tools, one of which is mounted on the slidable plate and the other on the ram;

Fig. 7 is a front elevational view of the tools shown in Fig. 6 showing the tools in their operated position;

Fig. 8 is a sectional view taken through the tools shown in Figs. 6 and 7 and showing the tools in operated position with an insulated conductor in dot and dash lines between the tools after the shearing has taken place, but prior to the stripping of the insulation from the conductor;

Fig. 9 is a vertical sectional view taken substantially along the line 9—9 of Fig. 4 in the direction of the arrows and showing the mechanism in the position it occupies prior to the operation of the ram and showing the cord and conductors in place between the tools;

Fig. 10 is a vertical sectional view taken substantially along the line 10—10 of Fig. 4 in the direction of the arrows showing the various parts of the apparatus in the position they occupy after the conductors have been sheared, but prior to the stripping of the insulation from the conductors;

Fig. 11 is a view similar to Fig. 10, except that it shows the various parts of the apparatus in the position they occupy after the ram has completely descended; and

Fig. 12 is a plan sectional view taken substantially along the line 12—12 of Fig. 11 in the direction of the arrows.

Referring to the drawings, wherein like reference characters designate the same parts throughout the several views, particular reference being had first to Fig. 2, wherein the three-conductor cord is shown at 15. This cord comprises three conductors 16, 17 and 18 covered individually by sheaths of insulation 19, 20 and 21. The three insulated conductors are, in turn, enclosed in a layer of insulation 22. Prior to being delivered to the apparatus constituting the present invention, the layer of insulation 22 is cut off at 23 to expose the three conductors 16, 17 and 18 insulated by their sheaths 19, 20 and 21. As the cord 15 is delivered to the apparatus of the present invention, the three insulated conductors 16, 17 and 18 are all of the same length, as indicated by the dot and dash lines in Fig. 2, and are to be stripped of their insulation and sheared to varying lengths, as clearly illustrated in this figure.

The apparatus which effects the operations just described comprises a punch press including a stationary bolster 28 (Fig. 5) above which there is a vertically reciprocable ram 29, which may be actuated in any suitable manner to move downwardly and then upwardly in a single cycle of operation of the press, as is usual in punch press mechanisms. The bolster 28 has suitably fixed

thereto a die shoe 30, having upstanding shoulders 31 and 32 (Fig. 9) which cooperate with guide plates 33 and 34 to slidably position a support plate 35, which is equipped with a pair of handles 36 and 37, whereby it may be slid from the position shown in Fig. 1 to the position shown in Fig 4, that is, from a position in front of the ram 29 to a position under the ram. The support plate 35 is limited in its forward movement away from the ram by a stop pin 38 and is limited in its movement toward the rear of the apparatus by a pair of adjustable abutment screws 39—39, which are threaded into blocks 40—40, in turn mounted on the die shoe 30.

Fixed to and extending upwardly from the support plate 35 are a pair of posts 45—45, on which there is slidably mounted a clamping block 46. The posts are positioned in shouldered apertures 47—47 and have head portions 48—48, as shown most clearly in Fig. 9, which engage shoulders 49—49 formed in the apertures 47, whereby the upward movement of the clamping block 46 is limited. The clamping block 46 is normally urged upwardly by a compression spring 50, which, as shown most clearly in Fig. 10, is seated in recesses 51 and 52 formed in the clamping block 46 and support plate 35, respectively. The clamping block 46 cooperates with an upper clamping block 53 slidably mounted on posts 54—54 (Fig. 9) threaded into a head plate 55, which is suitably attached to the ram 29. The clamping block 53 is normally urged downwardly by a compression spring 56, which, as shown most clearly in Figs. 10 and 11, is seated in recesses 57 and 58 formed in the head plate 55 and upper clamping block 53, respectively. The upper clamping block has a plurality of pins 59—59 mounted in it, which limit the amount of upward movement of the upper clamping block 53 upon compression of the spring 56, whereby, when the ram of the press is moved downwardly and a cord 15 is clamped between the upper clamping block 53 and the lower clamping block 46, the clamping block 53 will move upwardly a relatively short distance and, thereafter, will move downwardly with the head plate 55 and will then force the clamping block 46 downwardly against the action of the spring 50. It will be understood that the clamping of the cord by the clamping blocks 46 and 53 will not take place until after the support plate 35 has been slid under the head plate 55 on the ram 29 and that the cord 15, prior to being then clamped, will be held loosely on the lower clamping block 46, as will be described more in detail hereinafter.

The support plate 35 carries on its upper surface a slidable plate 65, which, as seen most clearly in Figs. 5, 9, 10 and 11, is normally held in the position shown in Figs. 9 and 10 by a detent 66, which is slidable in a recess 67 formed in the support plate 35 and normally urged upwardly to project its upper end into a notch 68 in the slidable plate 65 by a compression spring 69. The front and rear edges of the slidable plate 65 are dove-tailed to fit dove-tailed ways 70 and 71 suitably attached to the support plate 35 to guide the slidable plate 65 in its movement transversely of the support plate 35. The way 71 is provided with apertures 72—72 (Figs. 1 and 4) in direct vertical alignment with apertures 73—73 in the support plate 35. These two aligned apertures are adapted to receive liner pins 74—74 attached to the head plate 55 when the ram 29 of the press is moved downwardly and, accordingly, a slight taper is formed at the upper end of the apertures 72 so that the various parts of the mechanism will be properly aligned by the liner pins 74—74 after the support plate 35 has been pushed against the abutment screws 39—39. The upper surface of the slidable plate 65 has three recesses 75, 76 and 77 formed in it (Figs. 5 and 11), in which compression springs 78, 79 and 80 are seated. The upper ends of the compression springs 78, 79 and 80 enter recesses 81, 82 and 83 formed in a cam plate 84 and normally support the cam plate 84 in the position shown in Figs. 5, 9 and 10. In order to properly align the cam plate 84 and the slidable plate 65, four liner pins 85, 86, 87 and 88 are mounted on the slidable plate 65 and extend into liner holes 89, 90, 91 and 92 in the cam plate 84, respectively. It should be noted that the liner pins 85 and 86 are relatively short when compared with the liner pins 87 and 88. This construction is provided so that the liner pins 87 and 88 will extend an appreciable distance above the upper surface of the cam plate 84 and will enter into guide apertures 93 and 94, respectively, formed in a tool supporting plate 95 slidably mounted in the head plate 55.

The tool supporting plate 95 is provided with extending dove-tailed portions 105 and 106 (Fig. 5), which cooperate with a dove-tailed slot 107 cut into the head plate 55, whereby the plate 95 will be reciprocated with the head plate 55, but may be slid transversely thereof by the pins 87 and 88 when the cam plate 84 is slid transversely of the support plate 35 after the liner pins 87 and 88 enter the apertures 93 and 94 in the tool supporting plate 95. The tool supporting plate 95 is normally held in the position shown in Figs. 9 and 10 by a spring-pressed detent 108 (Figs. 9, 10 and 11), which is seated in a recess 109 and urged downwardly by a compression spring 110 to bear against the upper surface of the tool supporting plate 95, the tool supporting plate 95 being provided with a notch 111 adapted to receive the tapered end of the detent pin 108. The tool supporting plate 95 has four actuator pins 112—112 mounted in it, as shown most clearly in Fig. 12, which, after the ram 29 of the press has moved downwardly a predetermined distance, will engage the upper surface of the cam plate 84 to move the cam plate 84 downwardly against the action of the compression springs 78, 79 and 80.

Suitably mounted on the tool supporting plate 95 are a pair of tools 113—113 and a tool 114, which cooperate with a pair of tools 115—115 and a tool 116, respectively, mounted on and extending upwardly from the cam plate 84. The tools 113 and 115 are shown most clearly in Figs. 6, 7 and 8 and the tools 114 and 116 are shown most clearly in Fig. 3. As shown in these figures, each of the tools 113—113 is provided with a shearing edge 117 formed on a downwardly extending portion 118 thereof and adapted to cooperate with a shearing edge 119 formed on an upwardly extending portion 120 of the companion tool 115. Also extending downwardly from the body of each tool 113 is a pinching knife 121 having a wire-receiving recess 122 formed in it. The pinching knife 121 is adapted to cooperate with a pinching knife 123 formed on the companion tool 115 and having a wire-receiving recess 124 in it. The two pairs of pinching knives 121—121 and 123—123 are blunt-edged and are adapted to engage and pinch the insulation 19 and 20 on the conductors 16 and 17, as shown in Fig. 2, the conductors being received in the recesses 122—122 and 124—124. It should be remembered that there are two tools 113—113 and 115—115 operating simultaneously on the separated insulated conductors 16 and 17.

The tool 114 is of the same general construction as the tool 113, but it cooperates with the tool 116, which is of a slightly different shape from the tools 115—115. The tool 116 has a pinching knife 125 adapted to cooperate with a pinching knife 126 on the tool 114 in the same manner that the knives 121—121 and 123—123 cooperate. However, the tool 116 extends farther above the upper surface of the cam plate 84 than do the tools 115—115 and, in addition, is cut away as shown at 127 and 128 to permit the insulated conductors 16 and 17 to pass by it to rest on the tools 115—115. This construction is provided since the three-conductor cord 15 has the conductors 16 and 17 substantially parallel and at a lower level than the conductor 18 and the conductor 18 will thus enter a groove 129 in the tool 116 and the conductors 16 and 17 will rest against the tool 116 in the cut-away portions 127 and 128.

When a cord 15, which has had its outer layer of insulation cut off at 23 (Fig. 2), is to have its separate conductors cut, as shown in Fig. 2, and to have the insulation stripped from the ends of them, the cord may be placed on top of the clamping block 46, which is provided with a locating plate 135 adapted to receive and lightly grip the cord 15 in a slot 136 formed therein. Cooperating with the locating plate 135 are a pair of locating pins 137—137 positioned to bear against opposite sides of the cord 15, as shown most clearly in Fig. 4. The end of the outer layer of insulation 22 of the cord 15 is positioned against a second locating plate 138 on the block 46. As shown most clearly in Fig. 3, the locating plate 138 has an upwardly extending U-shaped portion 139, which has grooves 140 and 141 formed in it to receive the insulated conductors 16 and 17. The end of the layer 22 of insulation will abut the locating plate 138 and the conductor 18 may be laid in the U-shaped portion 139, whereas the two conductors 16 and 17, with their sheaths of insulation on them, may be laid in the grooves 141 and 140, respectively. It should be noted that the upper surface of the clamping block 46 has a groove 142 formed in it for receiving the cord 15.

When the cord 15 is placed with the end of its insulation 22 abutting the locating plate 138, and with the insulated conductor 18 laid in the U-shaped portion 139, the insulated conductor 18 will extend through the groove 129 in the tool 116 and may then be bent over and forced between a pair of locating pins 143—143 (Figs. 1, 4 and 12), which extend from the upper surface of the cam plate 84. Similarly, the conductors 16 and 17, with the insulation 19 and 20 still on them, may be laid in the grooves 144—144 in the tools 115—115 and between locating pins 145—145 adjacent to the two tools 115—115. Recesses 146—146 are provided adjacent to each of the tools 115—115 to receive the downwardly extending portions 118—118 of the tools 113—113 and also to receive the cut-off ends of the insulated conductors when the ram 29 moves the tools 113—113 downwardly to shear the ends from the conductors 16 and 17, as shown in dot and dash lines in Fig. 2.

As soon as the tools 113—113 and 114—114 have sheared the ends from the conductors 16, 17 and 18 and the cooperating pinching knives 122—122, 123—123, 125 and 126 have pinched the insulation on the conductors associated with them, the pins 112—112 carried by the tool supporting plate 95 will engage the upper surface of the cam plate 84 and force the plate 84 downwardly against the action of the springs 78, 79 and 80. The plate 84 is provided with frontwardly and rearwardly extending camming portions 147 and 148. The camming portion 147 has a cam face 149 which cooperates with a cam face 150 formed on a camming and guide block 151 (Figs. 4 and 9), in turn mounted on way 70. The camming portion 148 is provided with a cam face 152 (Figs. 4, 10 and 11) for cooperating with a cam face 153 on a camming and guide block 154 on way 71, whereby when the cam plate 84 is pushed downwardly, it will be shifted to the right (Figs. 4, 9 and 10) to the position shown in Figs. 11 and 12, after the pinching knives have pinched the insulation 19, 20 and 21 on the conductors 16, 17 and 18, respectively, to strip the insulation from the ends of the conductors which have been sheared by the tools 113—113 and 115—115 and 114 and 116. The camming plate 84 is provided with extending ribs 155 and 156, as seen most clearly in Fig. 4, which extend under an overlying portion of the camming and guide blocks 154 and 151, respectively, to limit the upward movement of the cam plate 84 and to aid in guiding the cam plate when it shifts transversely to the position shown in Figs. 11 and 12.

Suitably supported on the upper portion of the punch press, of which the ram 29 and bolster 28 comprise a part, is a cam member 157, which is adapted to engage a sloping face 158 of the tool supporting plate 95 when the ram 29 moves to its upper position, whereby the tool supporting plate 95 will be moved back to the position shown in Fig. 9. The mechanism for shifting the slidable plate 65 back to the position shown in Figs. 9 and 10 comprises a sloping face or cam surface 159 formed on the plate 65 and adapted to engage a cam roller 160 freely rotatable on a stud 161, which is, in turn, mounted on the die shoe 30. The last described part becomes effective when the guide plate 35 is slid back to the position shown in Fig. 1 from the position shown in Fig. 4.

A complete understanding of the apparatus may be had by reference to the following brief description of the mode of operation thereof in stripping the ends from three insulated conductors and trimming the conductors to the desired length. With the slidable plate 35 in the position shown in Fig. 1, a three-conductor cord 15, from which the outer layer 22 of insulation has been suitably removed, may be placed with the end of the layer of insulation, as shown at 23 (Fig. 2), against the locating plate 138, with the body of the cord 15 wedged in the locating plate 135 and with the conductors 18, 16 and 17, respectively, positioned in the grooves 129, 144 and 144, respectively, and with the conductors engaged between the pins 143—143 and 145—145. The body of the three-conductor cord 15 will, of course, be wedged between the pins 137—137 to aid in holding it in place. The slidable plate 35 may then be slid under the ram 29 of the punch press until the rear end of the plate abuts the abutment screws 39—39. After the plate 35 has been thus positioned, the press may be operated through one complete cycle to drive the ram 29 downwardly and then retract it to the position shown in Figs. 5 and 9. As the ram of the press 29 moves downwardly, the liner pins 74 will enter the aligned apertures 72 and 73 in the dovetailed plate 71 and in the support plate 35, thus to properly locate the support plate under the ram of the press. As the ram 29 continues to move downwardly, the liner pins 87 and 88 will enter the liner holes 93 and 94 in the tool sup-

porting plate 95 to lock the tool supporting plate 95 and the slidable plate 65 together. Shortly after the liner pins 87 and 88 enter the liner holes 93 and 94, the upper clamping block 53 will engage the cord 15 to clamp it tightly between the upper clamping block and the lower clamping block 46, thus to hold the cord 15 against longitudinal movement. As the ram 29 continues to move downwardly, the block 46 will move with it against the action of the spring 50 due to the pins 59 on the clamping block 53 striking the lower surface of the head plate 55. The springs 78, 79 and 80 are sufficiently strong to hold the cam plate 84 in its upper position, as shown in Figs. 9 and 10, until the shearing edges formed on the tools 113—113 and 114 cooperate with the shearing edges formed on the tools 115—115 and 116, to cut off the ends of the insulated conductors 16, 17 and 18. As soon as this cutting-off operation is completed to remove the portions of the insulated conductors shown in dot and dash lines in Fig. 2, the cam plate 84 will start to shift to the right as the springs 78, 79 and 80 are compressed. Since the liner pins 87 and 88 have, at this time, been nested in the apertures 93 and 94 in the tool supporting plate 95, the tool supporting plate 95 will move with the slidable plate 65 and cam plate 84 transversely of the die shoe 30 and the support plate 35. Since the pinching knives 122—122, 123—123, 125 and 126 have pinched the sheaths of insulation 19, 20 and 21 on the conductors 16, 17 and 18 tightly between them to substantially cut the sheaths of insulation at the point of engagement thereof by the pinching knives, the movement of the tool support 95 and camming member 84 to the right from the position shown in Figs. 9 and 10 to the position shown in Figs. 11 and 12 will strip the sheaths of insulation from the ends of the conductors 16, 17 and 18. This stripping action will be completed at approximately the time the ram reaches the limit of its travel downwardly and the ram will, in the usual manner, immediately move upwardly to carry the sloping face 158 of the tool supporting plate 95 into engagement with the cam member 157, thereby to cam the tool supporting plate 95 back to its former position, as shown in Fig. 9. The cam plate 84 will then have the sheared-off ends of the insulated conductors and the stripped sections of insulation on it, and the slidable plate 65 and cam plate 84 will remain in their right hand positions, as shown in Figs. 11 and 12, although the ram of the press has moved upwardly and the clamping block 53 has moved out of engagement with the cord 15. The cord 15 may then be removed from the pins 137—137 and locating plate 135, and the support plate 35 may be moved back to the position shown in Fig. 1 by manipulation of the handles 36 and 37. In moving from the position shown in Fig. 12 to the position shown in Fig. 1, the slidable plate 35 will carry the cam surface 159 on the slidable plate 65 past the roller 160 and, accordingly, the plate 65 and the cam plate 84 carried thereby will be shifted back to the left to the position shown in Fig. 1. After the plate 35 is thus moved back to the position shown in Fig. 1, the scrap material on the upper surface of the cam plate 84 may be removed therefrom in any suitable manner and a new cord placed in position to have its ends trimmed and stripped and the operations just described may then be repeated.

What is claimed is:

1. An apparatus for trimming and stripping conductors comprising a support plate, a slidable plate mounted for movement on the support plate, a cam plate resiliently mounted on the slidable plate, means cooperating with the cam plate for moving the cam plate in one direction, means for moving the slidable plate in a direction opposite to said one direction, shearing and pinching tools on said cam plate, a reciprocable and slidable tool supporting plate, tools on the tool supporting plate for cooperation with the tools on the cam plate, and means on the slidable plate for engaging the reciprocable and slidable tool supporting plate to lock the slidable plate and tool supporting plate together for movement in said one direction, said means being disengageable before said two plates move in the opposite direction.

2. An apparatus for trimming and stripping insulated conductors comprising a reciprocable ram, a tool supporting plate slidable with respect to the ram and movable with the ram, a plurality of trimming and stripping tools on the tool supporting plate, a stationary bed, a support plate slidable on said bed to position beneath the ram, a slidable plate on said support plate, a cam plate resiliently mounted on the slidable plate, cooperating cam surfaces on the cam plate and slidable plate for moving the cam plate transversely, and trimming and stripping tools on the cam plate for cooperation with the tools on the tool supporting plate to trim conductors during part of the movement of the ram in one direction and for stripping insulation from the conductors during another part of the movement of the ram in said direction.

3. An apparatus for trimming and stripping insulated conductors comprising a reciprocable ram, a tool supporting plate slidable with respect to the ram and movable with the ram, a plurality of trimming and stripping tools on the tool supporting plate, a stationary bed, a support plate slidable on said bed to position beneath the ram, cooperating cord clamping means on the ram and stationary plate for clamping a plurality of conductors during the trimming and stripping thereof, a slidable plate on said support plate, a cam plate resiliently mounted on the slidable plate, cooperating cam surfaces on the cam plate and slidable plate for moving the cam plate transversely, and trimming and stripping tools on the cam plate for cooperation with the tools on the tool supporting plate to trim conductors during part of the movement of the ram in one direction and for stripping insulation from the conductors during another part of the movement of the ram in said direction.

4. An apparatus for trimming and stripping insulated conductors comprising a reciprocable ram, a stationary bed, cooperating tools mounted on and slidable with respect to the ram and bed for trimming insulated conductors and stripping insulation from the insulated conductors, and means for sliding said tools transversely of the path of movement of the ram and with respect to the ram and bed in response to movement of the ram.

5. An apparatus for trimming and stripping insulated conductors comprising a reciprocable ram, a tool supporting plate slidable with respect to the ram and movable with the ram, a plurality of trimming and stripping tools on the tool supporting plate, a stationary bed, a support plate slidable on said bed to position beneath the ram, a slidable plate on said support plate, a cam plate resiliently mounted on the slidable plate, coop-

erating cam surfaces on the cam plate and slidable plate for moving the cam plate transversely of the support plate, means for connecting the tool supporting plate to the slidable plate to move the tool supporting plate transversely with the slidable plate, trimming and stripping tools on the cam plate for cooperation with the tools on the tool supporting plate to trim conductors during part of the movement of the ram in one direction and for stripping insulation from the conductors during another part of the movement of the ram in said direction, and means for restoring said slidable plate to position to be moved by the cam surfaces.

6. An apparatus for trimming and stripping insulated conductors comprising a reciprocable ram, a tool supporting plate slidable with respect to the ram and movable with the ram, a plurality of trimming and stripping tools on the tool supporting plate, a stationary bed, a support plate slidable on said bed to position beneath the ram, a slidable plate on said support plate, a cam plate resiliently mounted on the slidable plate, cooperating cam surfaces on the cam plate and slidable plate for moving the cam plate transversely, trimming and stripping tools on the cam plate for cooperation with the tools on the tool supporting plate to trim conductors during part of the movement of the ram in one direction and for stripping insulation from the conductors during another part of the movement of the ram in said direction, means for interconnecting the tool supporting plate and slidable plate to move the tool supporting plate during the stripping of insulation from the conductors, and means for restoring the tool supporting plate and the slidable plate to their original positions after they have been moved transversely.

7. An apparatus for trimming and stripping insulated conductors comprising a reciprocable ram, a tool supporting plate slidable with respect to the ram and movable with the ram, a plurality of trimming and stripping tools on the tool supporting plate, a stationary bed, a support plate slidable on said bed to position beneath the ram, a slidable plate on said support plate, a cam plate resiliently mounted on the slidable plate, cooperating cam surfaces on the cam plate and slidable plate for moving the cam plate transversely, trimming and stripping tools on the cam plate for cooperation with the tools on the tool supporting plate to trim conductors during part of the movement of the ram in one direction and for stripping insulation from the conductors during another part of the movement of the ram in said direction, means for interconnecting the tool supporting plate and slidable plate to move the tool supporting plate during the stripping of insulation from the conductors, means associated with the ram for automatically restoring the tool supporting plate during movement of the ram in a direction opposite to the hereinbefore mentioned direction, and means associated with the slidable plate for restoring it to its original position with respect to the supporting plate after it has been moved transversely

8. An apparatus for trimming and stripping insulating conductors comprising a pair of relatively movable cooperating tool-supporting plates, cooperating tools on said plates for trimming conductors when the plates are moved together, means for moving the plates together, whereby said tools engage the conductors, means for holding the conductors against movement with the tools, means cooperating with the plates for locking the plates together when they are moved together, and cam means for engaging an edge of one of the plates while the plates are locked together for moving both of the plates as a unit along the conductors.

9. An apparatus for trimming and stripping insulating conductors, comprising a pair of cooperating tool-supporting plates, cooperating tools on said plates for trimming conductors when the plates are moved together, means for moving the plates together and apart, means for locking the plates together when they are moved together, cam means for engaging an edge of one of the plates while the plates are locked together for moving both plates as a unit along the conductors, and means in the path of movement of the plates for separately engaging the edges of the plates after they have been moved apart for moving the plates in a direction opposite to the movement of the plates when locked.

10. An apparatus for trimming and stripping insulated conductors comprising a support plate, a second plate mounted for sliding movement on the support plate, a cam plate resiliently mounted on the second plate, shearing and pinching tools on the cam plate, a reciprocable and slidable tool-supporting plate, a head plate for moving the reciprocable tool-supporting plate toward and away from the cam plate, tools on the tool-supporting plate for cooperation with the tools on the cam plate, means on the second plate for engaging the cam plate and the tool-supporting plate to lock the plates together for sliding movement, and a cam for engaging an edge of the cam plate to slide the second plate and the tool-supporting plate transversely along the support plate and the head plate, respectively.

11. An apparatus for stripping insulated conductors comprising a stationary plate, a head plate movable facewise toward and away from the stationary plate, a stripping tool slidably mounted on the stationary plate, a second stripping tool slidably mounted on the head plate for cooperating with the first-mentioned tool to sever a portion of an insulating cover positioned on a conductor when the head plate is moved toward the stationary plate, means for temporarily locking the tools together, means for holding the conductor in a stationary position when the insulating cover of the conductor is severed by the tools, and means cooperating with the tools for sliding the tools along the plates after the tools have been locked together, whereby the tools strip the severed portion of the insulating cover from the conductor.

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