United States Patent [19]

Metcalf

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[54] **WIRE STRIPPER**

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[73] Assignee: **Ideal Industries, Inc.**, Sycamore, Ill.

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[21] Appl. No.: **326,819**

Related U.S. Patent Documents

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Issued: **Feb. 23, 1971**
Appl. No.: **712,682**
Filed: **Mar. 13, 1968**

[52] **U.S. Cl.** ..... **81/9.5 A**
[51] **Int. Cl.** **H02g 1/12**
[58] **Field of Search** ..... 81/9.5 A, 9.5 R, 417, 416, 81/427; 30/267

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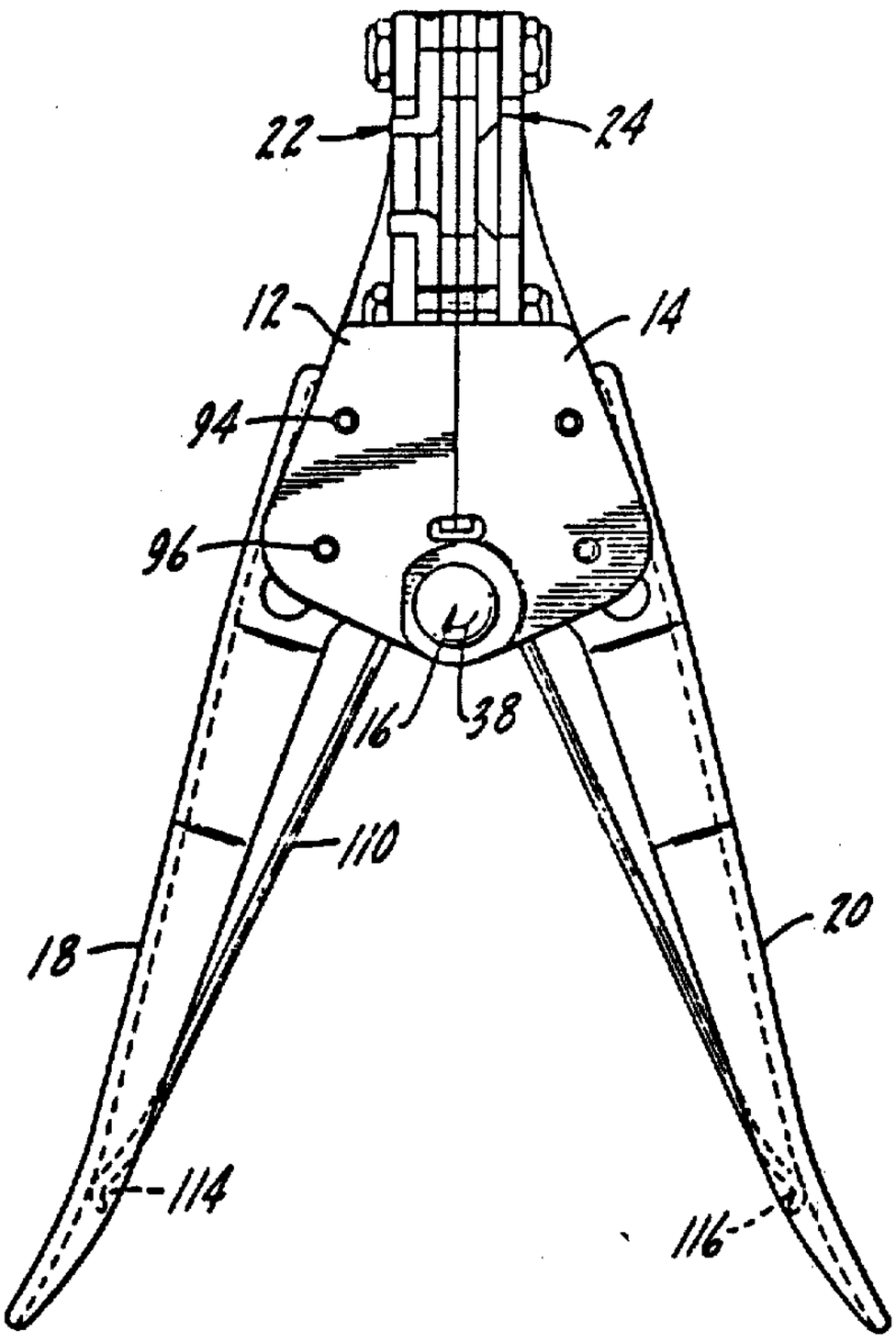
Assistant Examiner—Roscoe V. Parker
Attorney, Agent, or Firm—Kinzer, Plyer, Dorn & McEachran

[57] **ABSTRACT**

A wire stripper capable of being made of stamped parts and of reduced size with a device to prevent fraying or nicking wires. The wire stripper may be manually operated, in the form of a hand-held unit, and uses a phantom center actuating arrangement with a single spring arrangement for blade opening and handle return.

24 Claims, 17 Drawing Figures



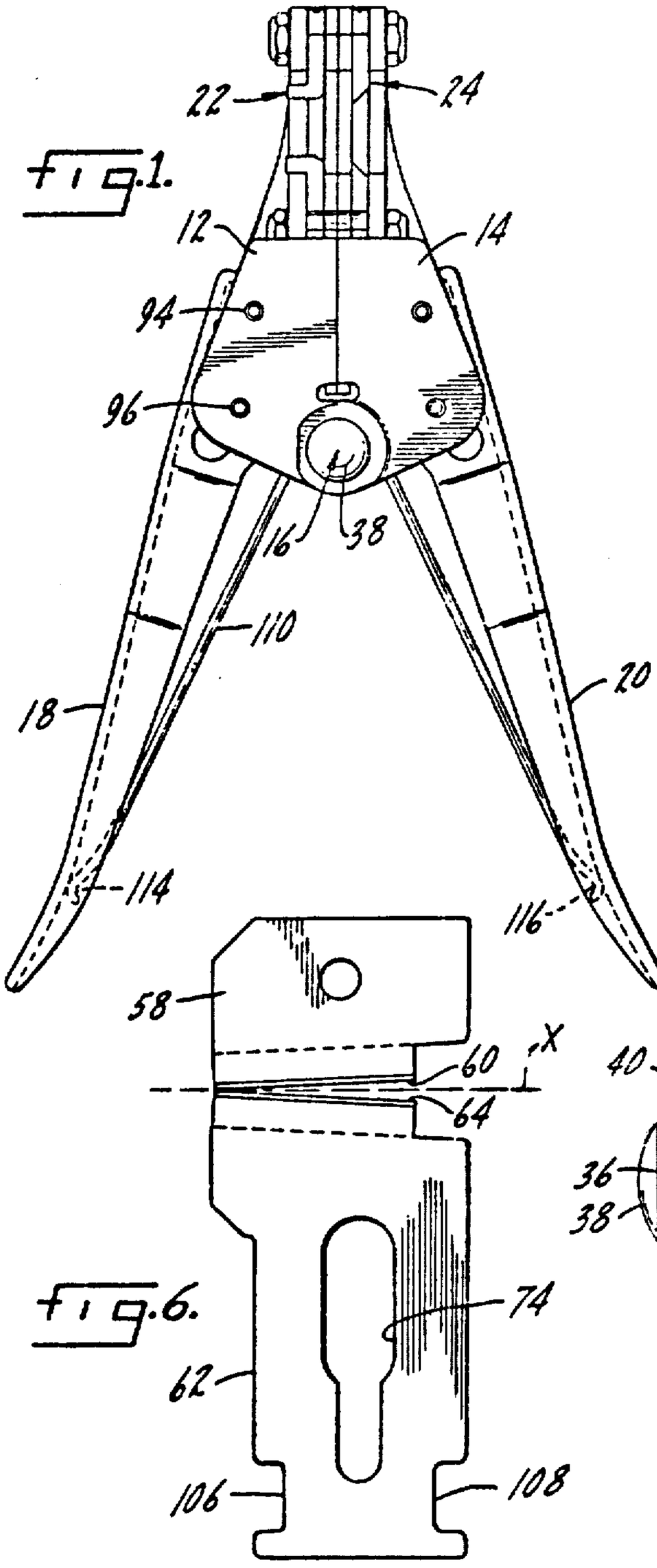


Fig. 1.

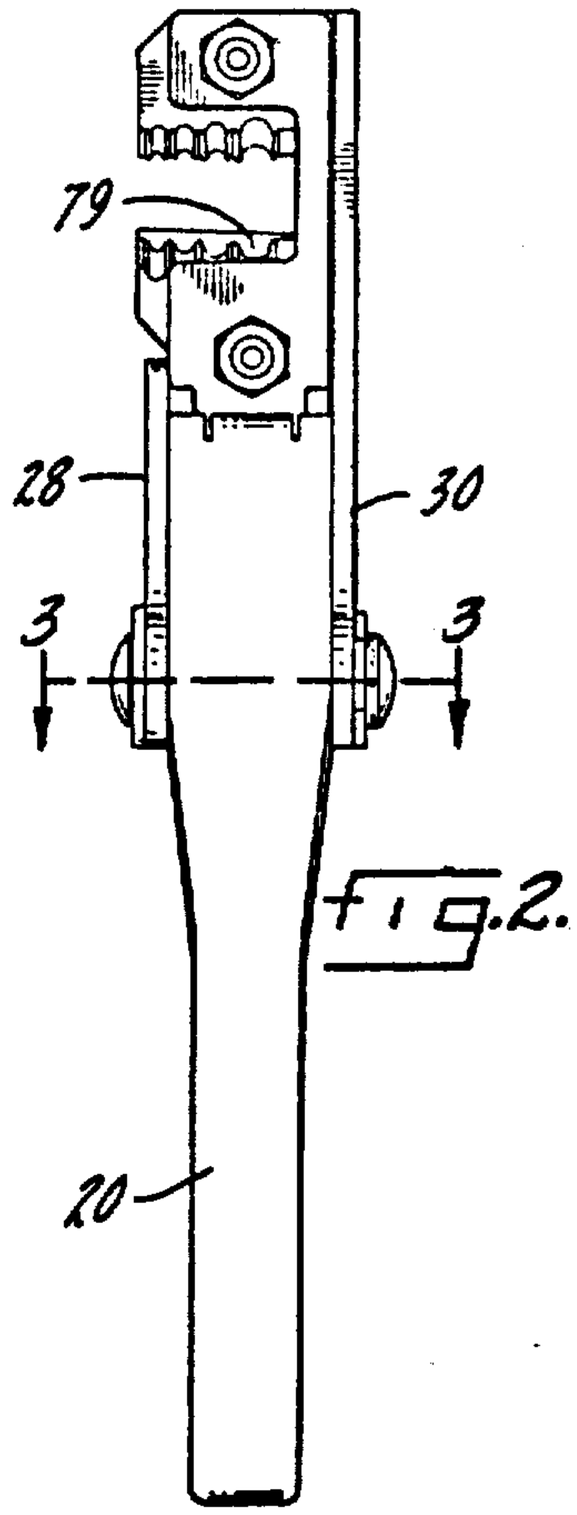


Fig. 2.

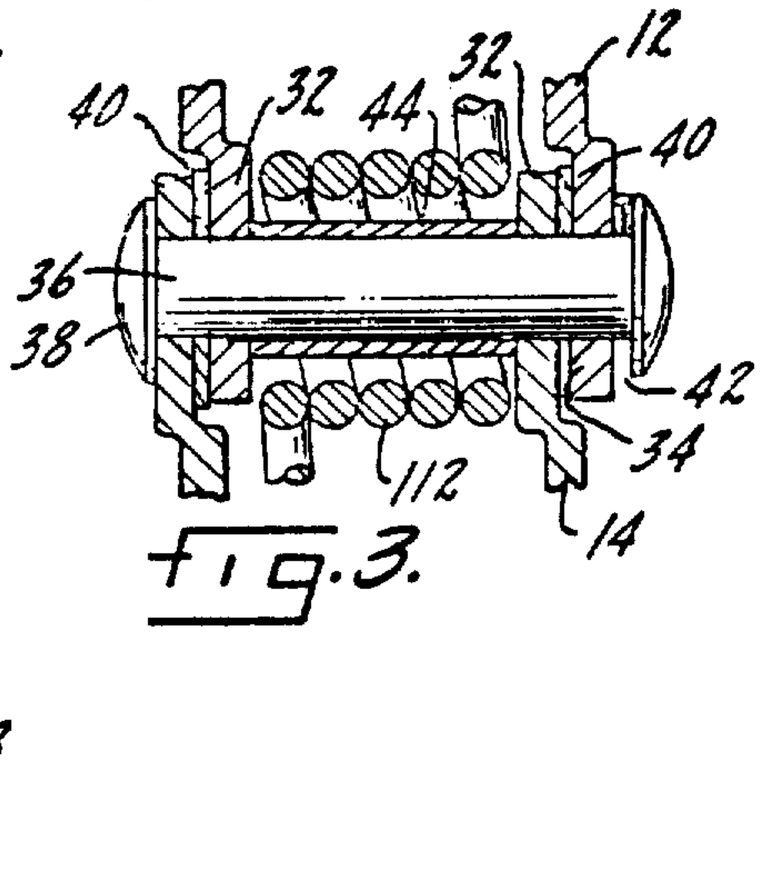


Fig. 3.

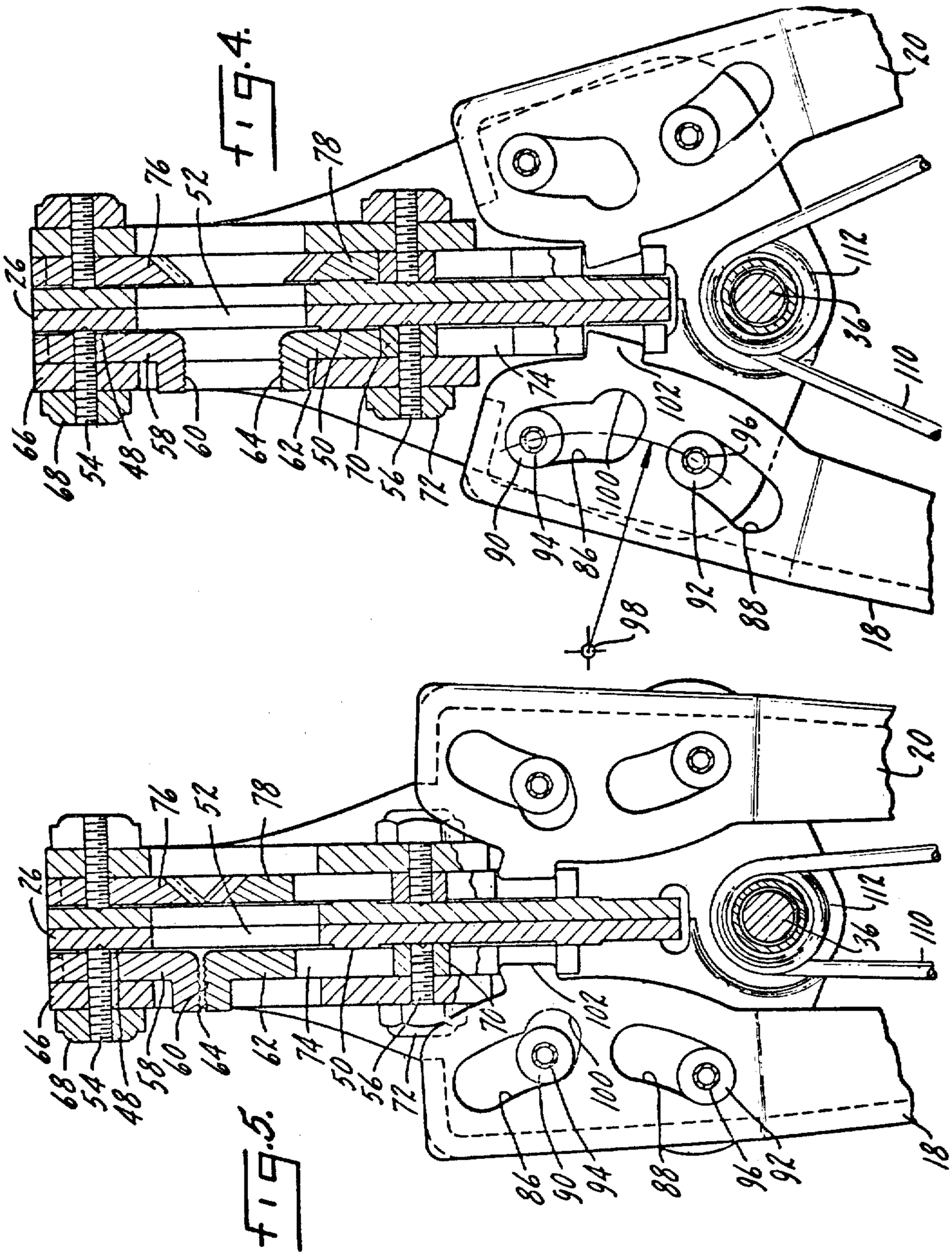


FIG. 4.
FIG. 5.
26
76
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58
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64
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50
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72
74
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110
112
36
20
18
86
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100
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98

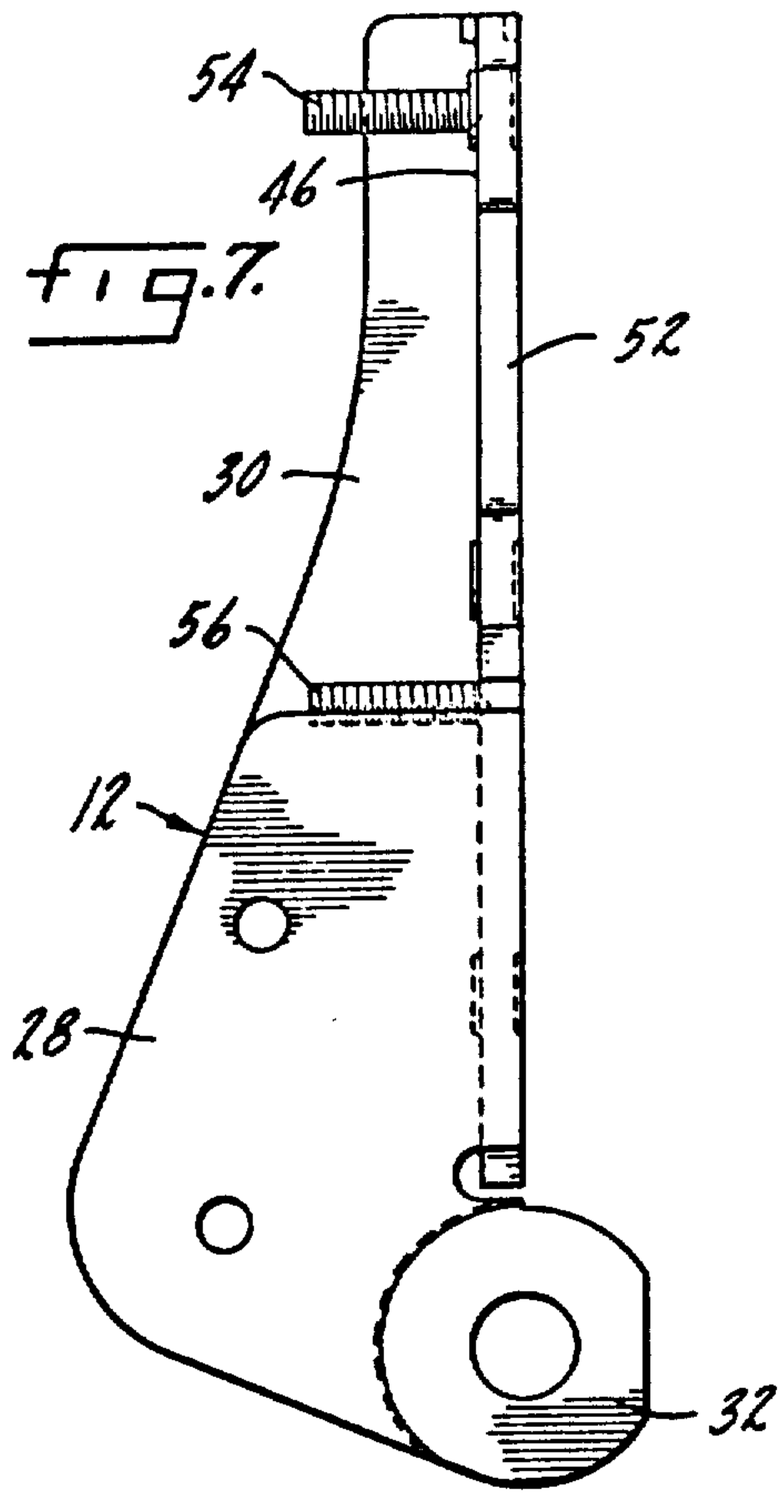

fig. 7.

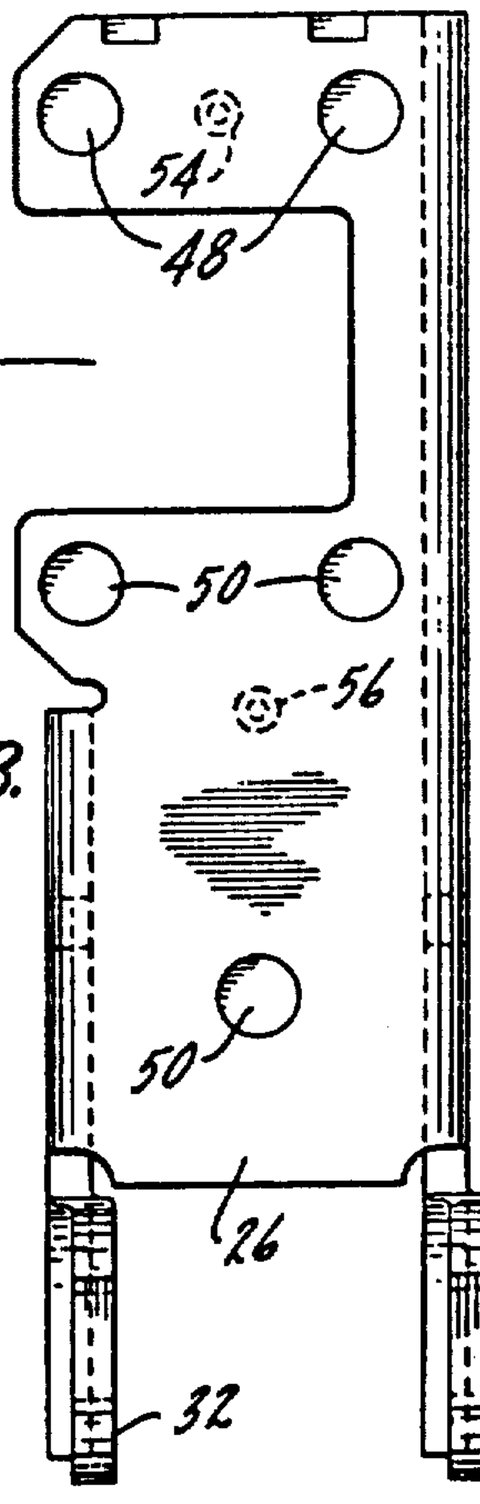

fig. 8.

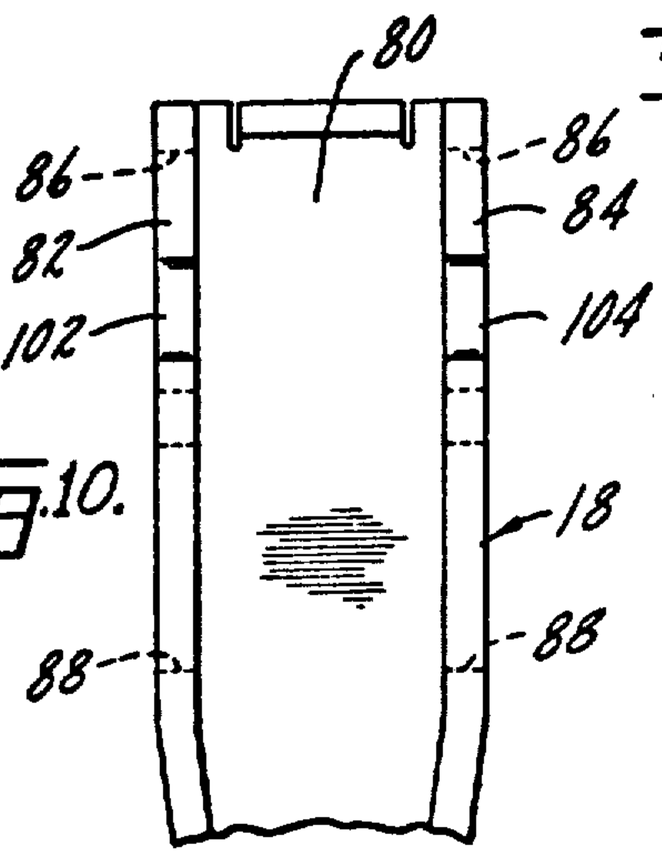

fig. 10.

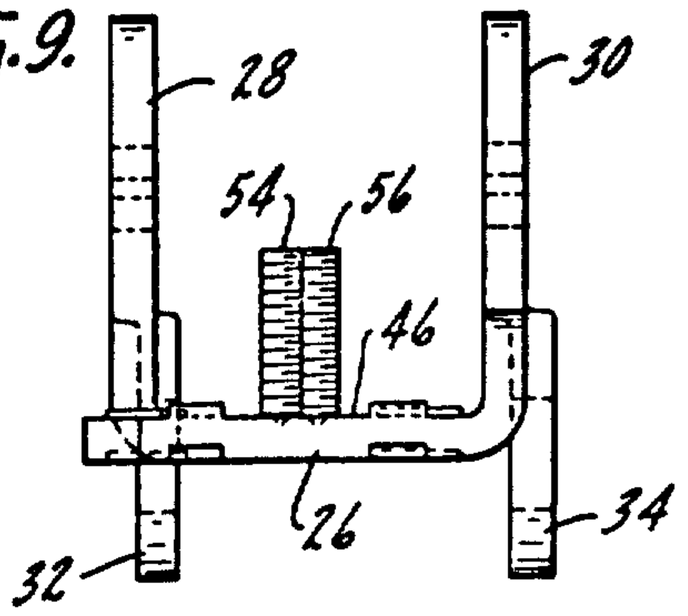

fig. 9.

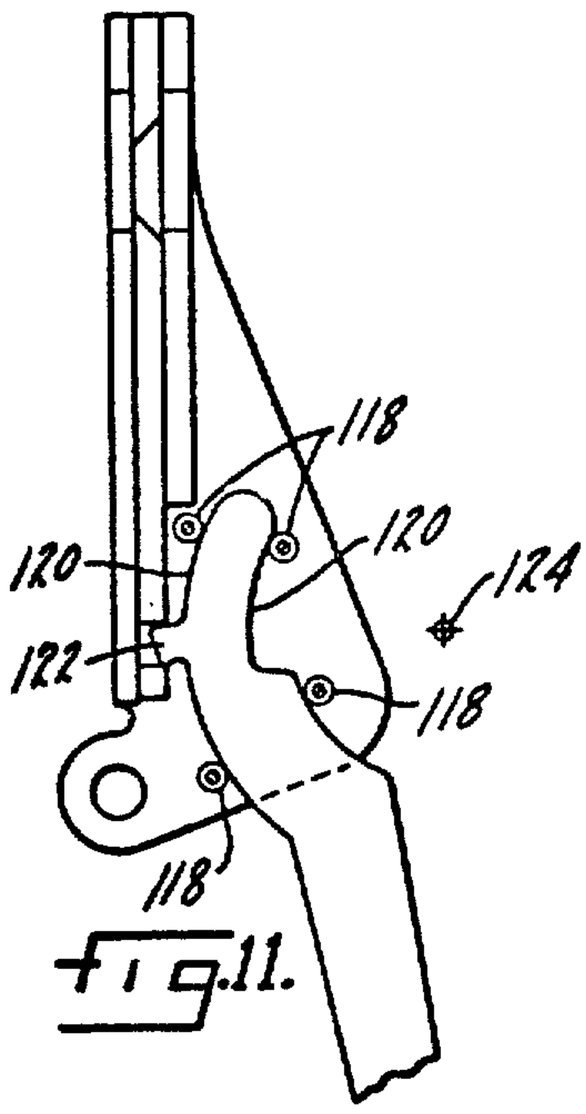

Fig. 11.

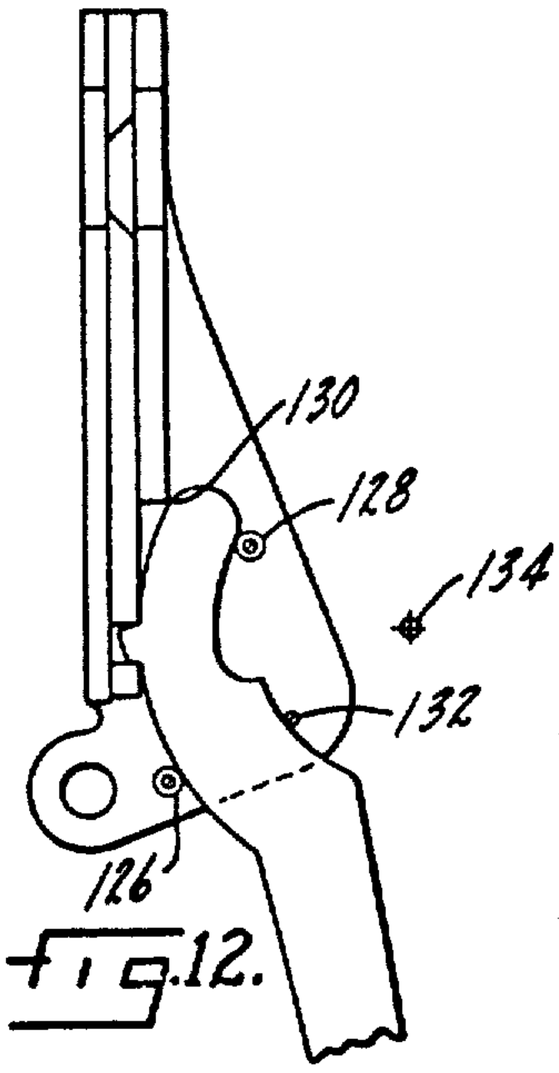

Fig. 12.

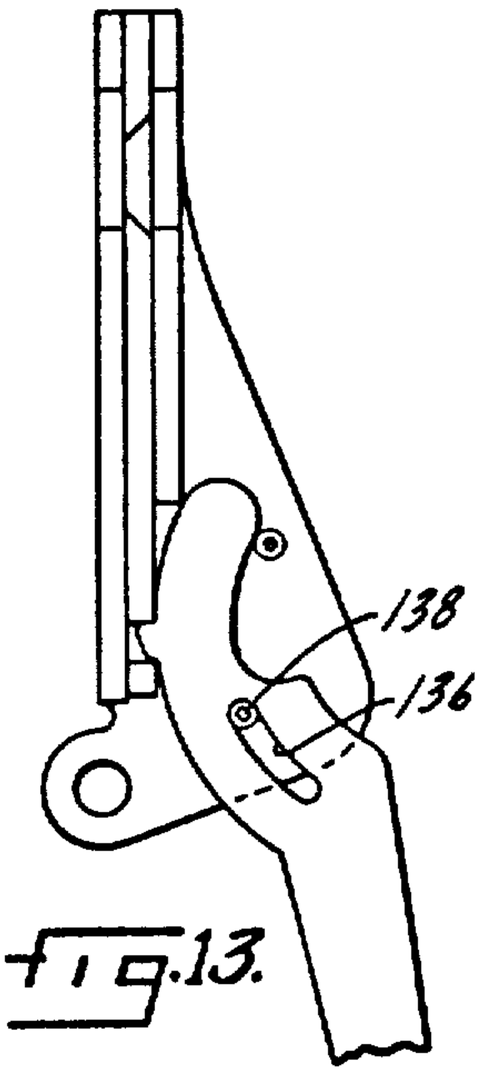

Fig. 13.

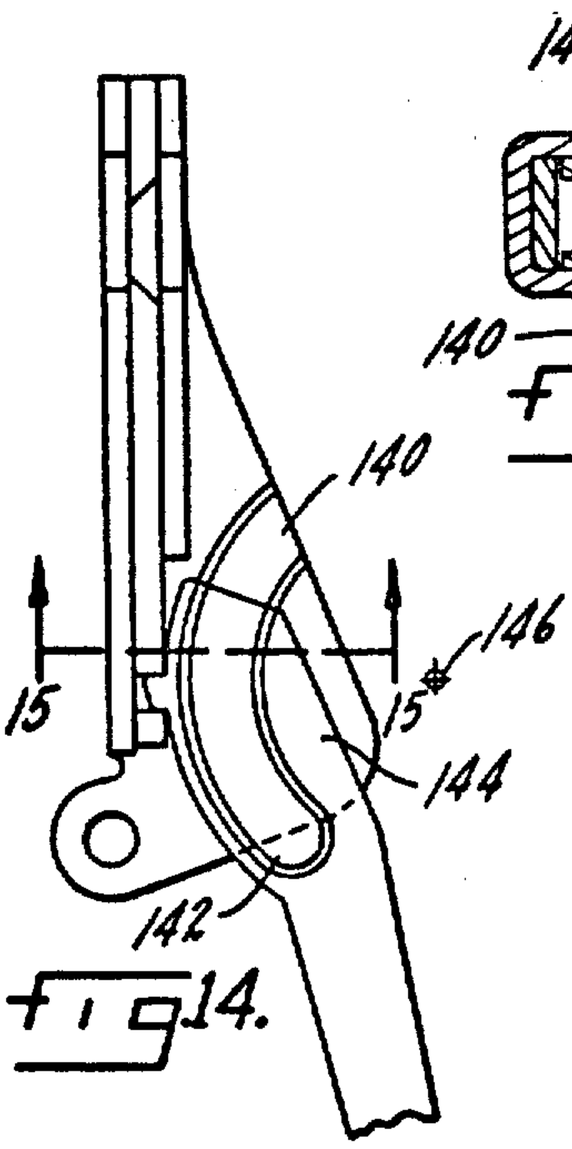

Fig. 14.

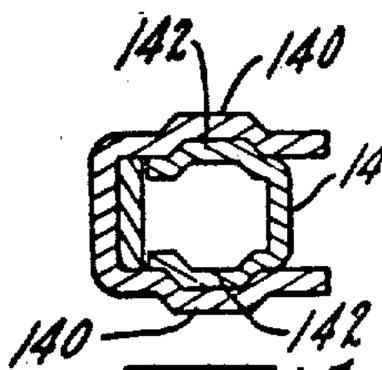

Fig. 15.

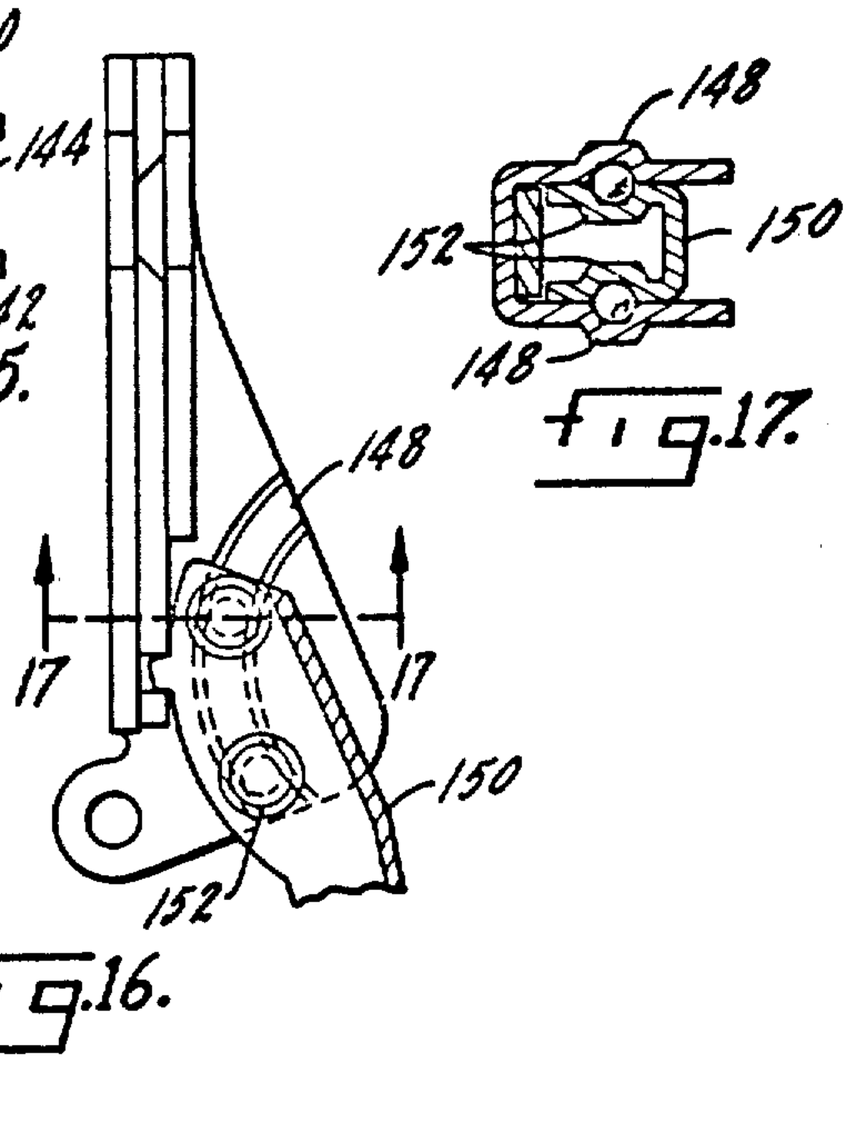

Fig. 16.

Fig. 17.

WIRE STRIPPER

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

SUMMARY OF THE INVENTION

This invention is in the field of wire strippers and specifically relates to a manually operated hand wire stripper, although certain features can be used in other types of strippers, for example bench strippers, automatic strippers or power strippers.

A primary object of the invention is a wire stripper which can be made from stamped parts thereby achieving ruggedness and avoiding the expense of die cast parts.

Another object is a hand stripper which can have the same size and general appearance as a die cast stripper but avoids its brittleness.

Another object is a handle actuating arrangement for a hand stripper using a phantom center or fulcrum for the handles to reduce width.

Another object is a friction or latching arrangement which causes the blades and grippers to release the wire prior to the closing of the jaws so that the wire, be it solid or stranded, will not be frayed or damaged by the return of the parts to initial position while they are in contact with the wire.

Another object is a friction arrangement of the above type which will operate in any pivoted position without requiring that handle excursion be completed.

Another object is an improved return spring arrangement for a hand stripper.

Another object is a spring arrangement for a stripper which lets one spring do the work of two.

Another object is a frame construction for a stripper which avoids binding of the sliding grippers or blades.

Another object is a return spring arrangement on a stripper which automatically takes care of the variable distance created by opening and closing the handles.

Another object is a frame construction for a wire stripper which automatically defines a true plane for the sliding grippers or blades.

Another object is an actuating connection between the handles, grippers and blades in a wire stripper which insures straight line motion and avoids camming or cocking of the grippers and blades.

Another object is a manually operated wire stripper in which the upper grippers or blades are fixed and the lower grippers or blades are movable, thereby avoiding manufacturing problems, and resulting in reduced cost.

Another object is a blade and gripper moving arrangement for a wire stripper which eliminates unfavorable stresses.

Another object is a stripper that provides uniform closing regardless of wire size.

Another object is a friction type latching arrangement in a wire stripper which does not have a snap action.

Other objects will appear from time to time in the ensuing specification and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a plan view of this stripper;

FIG. **2** is a side view of FIG. **1**;

FIG. **3** is a section along line **3—3** of FIG. **2**, on an enlarged scale;

FIG. **4** is a lateral section through the upper portion of the stripper of FIGS. **1** and **2**, on an enlarged scale;

FIG. **5** is similar to FIG. **4** but shows a different operating position;

FIG. **6** is an enlarged side view of one of the blades or jaws;

FIG. **7** is an enlarged front view of one of the frames;

FIG. **8** is a side view of FIG. **7**;

FIG. **9** is a top view of FIG. **8**;

FIG. **10** is a side view of the upper part of one of the levers;

FIG. **11** is a partial side view, similar to FIG. **4**, of an alternate form;

FIG. **12** is like FIG. **11**, but of a further alternate;

FIG. **13** is a further variation;

FIG. **14** is an additional modification;

FIG. **15** is a section along line **15—15** of FIG. **14**;

FIG. **16** is a further variant; and

FIG. **17** is a section along line **17—17** of FIG. **16**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The stripper is shown as including two frames or jaws or levers, **12** on the left in FIGS. **1** and **14** on the right, pivoted together generally at **16**. A pair of handles, **18** on the left and **20** on the right, extend down from the levers and are adapted to be manually manipulated to pivot the levers in an opening and closing action about the pivot **16**. The levers themselves carry pairs of paired clamping or gripping and stripping blades, the clamping or gripping blades being designated generally at **22** on the left lever and the stripping blades being designated generally **24** on the right lever. Each of the pairs of blades is adapted to perform an opening and closing action. The upper blades of each pair is shown as fixed and the lower blade moves upward to coact.

The levers **12** and **14** may be stamped parts and are preferably identical, except that they are mirror images, so that they can be made with one set of stamping dies. One such lever has been shown in detail in FIGS. **7** through **9** which may be considered to show either lever. The lever or frame is generally a channel or U-shaped, as shown in FIG. **9**, with a web or plate **26** and side legs or flanges **28** and **30** extending down to bosses **32** and **34**, each of which has a hole to accept a pivot pin **36** in FIG. **3**, which may be headed on each end as at **38** or otherwise formed to provide a unitary structure. The bosses **32** and **34** are offset to one side, as shown in FIGS. **3** and **9**, so that the left and right levers may interfit. Between the offset bearing portions, friction washers **40** may be positioned, and an axial thrust or compression is acquired by one or more Belleville springs or cone washers **42** so that a frictional drag or resistance is acquired between the moving or pivoted levers, shown in this case as applied directly at the pivot, although it might be otherwise. A spacing sleeve **44** may be used around the pivot pin or rivet to prevent the bosses from flexing inwardly, thus assuring that the Belleville washers are effective.

As shown in FIGS. **7** through **9**, a plurality of projections are formed on what may be considered the inner surface **46** of the web or plate **26**. For example, two such projections **48** are formed in the upper portion thereof and three, as at **50**, in the lower portion, the upper and lower portions being generally separated by a side slot **52**. Studs or screws **54** and **56**, welded or

otherwise suitably connected to the inner surface **46,** lso hold and guide the blades and grippers. Referring o FIG. **4,** the holding arrangement for only one set of lades is explained in detail since the other one may be dentical. The upper clamping blade or gripper **58** is omewhat L-shaped in cross section with its lower surace **60** being serrated or otherwise formed to provide gripping action when the lower blade **62** comes up vith its gripping face **64.** Note the closed position in IG. **5.** The upper stud **54** extends through a backing or uide plate **66** which is held by a stop nut **68** or the like. he lower stud or screw **56** extends through a spacer **0,** through the lower portion of backing plate **66** and s held in place by a stop nut **72** or the like. The movble blade **62** moves up and down around the spacer **70** ehind the guide plate **66** with the stud and spacer **70** itting in a slot **74,** in FIG. **6** in the blade. While the lade or gripper shown in FIG. **6** is actually the gripping lade, the arrangement is the same for the cutting lade. Since the slot **74** is elongated in a vertical direcion, this allows for the vertical travel of the lower lades. Note that the inner surface of the lower blade vill abut the three projections **50** on the inner surface f the lever. Thus the blade, in moving up and down, noves in a true plane defined by these three projecions. The spacer **70** is such that there is no binding, nd movement of the blade up and down is free and asy. The upper blade or gripper **58** is firmly clamped gainst the upper two projections **48.**

It is preferred that the two blades be made out of the ame stock, so the thickness of the plates from which hey are made can be the same. To prevent any drag or inding of the lower blade, the upper projections **48** xtend out a little bit more than the lower projections **0** which create a slight spacing for free movement of he lower blade.

The mounting and movement of the cutting blades **76** nd **78,** each of which has teeth or cutting channels on he opposed surfaces, may be the same as the clamping lades or grippers. The upper gripping surface **64** of the ripping blade may be on a slight angle to the horizonal, indicated by line X. The same is true of the gripping urface **60** on the upper jaw. Thus the two surfaces iverge somewhat in a lateral direction and this diverence conforms to the various hole sizes **79** in the cuting blades, the largest on the right in FIG. **2** and the mallest on the left. The smaller the wire, the closer a articular opening **79** allows the jaws to approach. The ivergence of the gripping surfaces compensates for his, resulting in a more or less true centering of the ire, regardless of wire size.

The handles **18** and **20** may be the same so the details f only one will be explained. The handle may be a tamped part, generally U-shaped in cross section, pening inwardly with a web **80** and side legs **82** and **4.** Each side part or leg has arcuate channels **86** and **8,** each of which fits around a guide or roller **90** and **2** mounted on pins which extend into the levers, as hown at **94** and **96** in FIG. **1.** The channels **86** and **88** re swung more or less on the same arc, for example oughly about a center **98** shown in FIG. **4,** exterior to he stripper. Handle **18** may be considered to be pivted about the point **98,** and in that sense it moves bout a phantom center with the limits of travel being letermined by the ends of the slots. The lower end of he upper slot **86** is provided with an offset **100** to aid n assembly and disassembly.

The legs **82** and **84** each has an inwardly extending projection **102** and **104** which extend into slots **106** and **108** formed in the sides of the movable blade and gripper, as shown in FIG. **6.** The result is that as the handles are closed, from the FIG. **4** to the FIG. **5** position, the upper portion of the handle will move about the rollers **90** and **92** which causes the projections **102** and **104** to raise the lower slidable blade and gripper. A return spring **110** is coiled about the center rivet, as at **112,** with the ends thereof extending down each handle and terminating at **114** and **116,** each of which freely slides along the inner surface of the handles. Thus as the handles are closed, the ends **114** and **116** will slide down the inner surface toward the end of the handle, and as they are opened, the loops will slide back up.

The phantom center or fulcrum arrangement explained in connection with the arcuate slots and pins in FIGS. **4** and **5** may be varied somewhat. For example, a plurality of guide pins, shown as four at **118** in FIG. **11,** bear against arcuate surfaces **120** on the upper portion of a modified handle, the upper portion having projections **122** which extend into the notches in the lower portion of the slidable blade. The disposition and arrangement of the guide pins and arcuate surfaces is such that movement will be effected more or less about a center point, designated generally **124,** exterior to the stripper. All of the pins in FIG. **11** have free rollers or rolls about them, whereas in the form of FIG. **12,** only two such pins and rollers are used, as at **126** and **128.** with the upper inner arcuate surface of the handle bearing against a part of the guide plate, as at **130.** The lower arcuate surface bears against a simple pin **132.** As before, the dimensioning and spacing is such that a generally arcuate movement is acquired generally about a center located more or less at **134.** In FIG. **13** a variant form is shown in which instead of lower pins and rollers around the lower end of the arcuate surfaces of the handles, a center slot and pin **136** and **138** with a roller is used to effect movement about a point exterior to the frame of the stripper.

In FIG. **14** the sides of the frame are formed outwardly somewhat, at **140,** to provide inner channels into which corresponding formations **142** fit which are provided in the sides of the upper part **144** of the handle. The surfaces and channels are generally arcuately disposed so that arcuate movement is more or less provided about an exterior center **146.**

In FIGS. **16** and **17** similar exterior formations **148** are provided at the sides of the levers or frames, but the upper portion of the handle **150** is oppositely formed at each side, as at **152,** so that in effect arcuately disposed ball races are provided. The oppositely disposed formations **152** are localized and are in the form of separated dimples, as shown in FIG. **16,** so that the ball in each dimple will stay in place, but free movement is provided along the continuous channel **148.** The disposition, dimensioning and arrangement is such that a generally arcuate movement is provided about a center exterior to the frame of the stripper.

The use, operation and function of the invention are as follows:

One of the main advantages of this stripper is that it may be made entirely of stamped parts and, therefore, is very rugged and will take a great deal of punishment. At the same time, it may be very precise in its operation and can be used as a precision unit. Also, a compact, small, over-all arrangement is provided which prevents it from being large, bulky and unwieldy, which would

be detrimental in a hand stripper. The unit may be operated basically like other hand strippers, namely the handles are squeezed together by the operator which causes the blades and grippers to close, the gripping jaws or grippers grabbing the insulation and the cutting jaws or blades cutting through.

As the handles are squeezed together, the lower blades or jaws rise so that they, first, grip and cut the insulation and, second, the levers spread when the bottom of the slots arrive at the rollers **90** and **92.** This first phase of movement is from FIG. **4** to FIG. **5.** *This closing movement of the handles from FIG. 4 to FIG. 5 compresses the spring 110 somewhat but the levers stay in their closed position due to the resistance offered to such movement by the resistance of the retard mechanism which includes the Belleville washer 42 and friction disc arrangement 40 of FIG. 3.* Thereafter, continued closing of the handles will *overcome the resistance of the retard mechanism and* cause the levers to separate, which strips the insulation from the wire. This might be considered the second stage of movement. During both stages, the return spring **110** is compressed and tends to resist this movement. This brings the levers or handles to their fully closed position. Thereafter the operator relaxes and allows the return spring **110** to separate the handles.

The friction arrangement, which may be considered in the nature of a latch, shown in detail in FIG. **3,** initially resists closing movement of the levers. Thus the levers stay spread and the initial opening movement of the handles lowers the cutting and stripping blades. This frees the wire and the operator can remove it before the levers come together. When the top of the slots **86** and **88** arrive at and contact the rollers **90** and **92,** the force of the spring **110** will cause the levers **12** and **14** to close. So a two stage return movement is provided, the first opening the grippers and blades and the second closing the levers. Note that one spring controls this action and the frictional resistance caused by the Belleville washer and frictional disc arrangement of FIG. **3** causes the grippers and blades to open first and the levers to close second. Thus the stripped wire can be removed and no fraying of stranded wire or scoring or nicking of solid wire will result.

A similar type of release arrangement has previously been incorporated in commercial strippers but it involved a latch which, once the latch was knocked loose, allowed the levers to snap together, which was somewhat violent and could and did cause damage. In the present arrangement, the frictional resistance merely allows the spring to slowly and uniformly close the levers after the grippers and blades have been fully separated. There is no snap action. Further, the prior latch was only effective when the levers had been separated to one distinct point, which meant one complete handle closure. In the present arrangement, the release will function regardless of the amount of separation of the levers, be it a full separation or any partial separation. This has the advantage that the operator can close the handles any desired amount and he knows that the grippers and blades will open first during return movement so that he can remove the wire and prevent it from being damaged.

The phantom center or fulcrum arrangement substantially reduces the size of the unit as compared to one that might have pivots on the outside, for example at point **98** in FIG. **4.** This substantially reduces the

weight of the over-all unit, and gives it a true pivoting action or something like it.

Another advantage is the single spring arrangement. In prior strippers where a coil spring has been disposed between the handles, extending across in the form of an arch, as the handles are closed and the coil spring tends to go solid, a strut effect takes place so that thereafter the force being applied tends to open the upper levels instead of forcing the jaws together. In the present construction, the spring force is applied to the handles down at the bottom or toward the outer ends of the handles, as at **114** and **116** in FIG. **1.** The force of closing the handles will be someplace between the points **114** and **116** and the pivot **16.** Thus if any strut effect occurs, the application of pressure by the hand of the operator will be above it. More of the total force will be going into closing the blades and grippers rather than spreading the upper levers **12** and **14.** The force required to grip and cut the insulation will be more directly applied and will be more effective.

Further, the lower gripper and blade move up instead of the uppers moving down. Prior arrangements in which the uppers moved required complex linkage arrangement to connect the handle to the uppers. The present connection is quite simple in that the inwardly extending projections on the inner part of the handles connect directly into notches **106** and **108** in the lower portion of the gripper and blade. Thus the process of grinding the movable blade is greatly simplified since its cutting surface will not be encumbered by a linkage or tail arrangement.

Further, the force of the closing handles is applied on each side of the lower gripper and blade, in notches **106** and **108,** rather than in the center. This has the advantage that the blade will not have any tendency to cant or cock as it moves up and no frictional drag or resistance will be encountered. If a center slot were used, the two sides of the handles would have to be brought together into a center projection, which is undersirable and cumbersome. Using two projections and a slot on each side of the blade insures a parallel motion instead of a canting or cocking motion.

In prior forms where the upper blade and gripper moved down in the case of a difficult or tough strip, it tended to strip the holding screw. But by moving the lower blade and gripper up, there will be very little tendency, if any, to break off one of the welded studs.

Having the lower ends of the springs, as at **114** and **116,** riding up and down freely inside of the channel shaped handles has the advantage that as the handles are closed, the point of spring application will change and the free sliding effect avoids the complications of rigidly connecting one to the other. The difficulty, which is avoided, is that as the handles are closed, the distance will be shortened. But the sliding arrangement completely solves this.

The dimpling arrangement in the frames has the advantage that a true plane can be defined in which the movable blade and gripper moves since three points define a true plane. Further the upper dimples, which bear against the fixed blade, can be easily made to project slightly farther than the lower ones so that when the entire assembly is clamped together, a slight clearance will be provided for the lower blade and gripper and, since it has to move, this avoids any binding or frictional dragging.

An advantage of the phantom center or fulcrum arrangement is that it substantially reduces the over-all

ize of the unit. The offsets or notches, designated **100** n the sliding connection between the levers and handles, greatly facilitate disassembly and replacement of vorn out or broken blades. In the position of the various parts in FIG. **5**, the handles **18** and **20** can be compressed together further. The upper portions of the handles will pivot outwardly about the lower pins **96** and the upper rollers **90** will enter the offsets or notches **100.** This additional movement allows the projections **102** to come out of the notches or slots **106** and **108** in the bottom of the lower sliding jaws. With he nut **72** removed, the lower jaw can be lifted out and eplaced. Thus, blade replacement can be very simply lone and does not require substantial disassembly of ny major components or parts of the stripper.

Whereas the preferred form and several variations of he invention have been shown and suggested, it should e understood that suitable additional modifications, hanges, substitutions and alterations may be made vithout departing from the invention's fundamental heme.

I claim:

1. In a stripper mechanism, a pair of pivoted levers, andles on the levers constructed to perform a closing nd opening action effective to open and close the evers, pairs of clamping and stripping members on the evers effective to grasp and strip insulation from wire positioned between them, and a friction retard mechaism effective to releasably hold the levers apart in ivoted position while the paired members separate llowing a wire to be removed prior to closing of the evers.

2. In a stripper mechanism, a pair of pivoted levers, andles mounted on the levers and constructed to perorm a closing and opening action effective to open and lose the levers, pairs of clamping and stripping members on the levers operated by manipulation of the andles effective to grasp and strip insulation from wire positioned between them, and a connection between he handles and levers effective, upon manipulation of he handles, to move the handles through a generally rcuate path described generally about a center laterlly outside of the levers.

3. The structure of claim **2** further characterized in hat the connection is in the form of pins and generally rcuate slots between the handles and levers.

4. The structure of claim **2** further characterized in hat the connection between the handles and levers is n the form of an arcuate formation on one and a guidng follower on the other conforming thereto.

5. In a stripper mechanism, a pair of pivoted levers, andles constructed to perform a closing and opening ction effective to open and close the levers, pairs of lamping and stripping members on the levers operated y manipulation of the handles effective to grasp and trip insulation from wire positioned between them, nd a return spring effective on the handles at a point djacent the ends thereof tending to bias the handles part such that the application of manual force to the andles will be generally between the lever pivot and he effective point of the return spring on the handles, *nd a resistance device on the levers providing a greater esistance to pivoting motion of the levers than the resisance of the return spring so that the clamping and striping members close before the levers open.*

6. The structure of claim **5** further characterized in hat the return spring is coiled around the lever pivot

with each end thereof extending along one of the handles in contact therewith at a point adjacent the end.

7. The structure of claim **6** further characterized in that each end of the return spring contacts the inner surface of its handle in a free sliding contact.

8. In a stripper mechanism, a pair of pivoted levers, handles slidably mounted on the levers and constructed to perform a closing and opening action effective to open and close the levers, pairs of clamping and stripping members on the levers operated by manipulation of the lever handles effective to grasp and strip insulation from wire positioned between them, the upper such members being fixed and the lower being slidably mounted on the levers, and a connection between the lower end of the sliding lower members and inside of the handles effective to raise the lower members when the handles are closed.

9. The structure of claim **8** further characterized in that the connection takes the form of two inwardly extending projections fitting in slots in the sides of the lower members.

10. In a stripper mechanism, a pair of frames, operable means effective to open and close the frames, pairs of clamping and stripping members on the frames operated by the operable means effective to grasp and strip insulation from wire positioned between them, at least one such member of each pair being slidably mounted on its frame, and three spaced projections extending from the surface of the frame engaging the slidable member and serving as the sliding support therefor.

11. In a stripper mechanism, a pair of frames, operable means effective to open and close the frames, pairs of clamping and stripping members on the frames operated by the operable means effective to grasp and strip insulation from wire positioned between them, one member of each pair being slidably mounted on its frame and the other being fixed, and a plurality of projections extending from the surface of the frame engaging the members, the projections engaging the fixed member extending slightly farther from the frame surface than those engaging the slidable member to prevent binding thereof.

12. In a stripper mechanism, a frame supporting pairs of clamping and stripping members effective to grasp and strip insulation from wires positioned between them, means for causing them to perform a clamping and stripping action, a plurality of cutting openings in the stripping members to cut insulation around the wire, the openings being graduated in size from largest to smallest, and gripping faces on the gripping members diverging somewhat in the direction of the largest cutting opening.

13. In a stripper mechanism, a pair of pivoted levers, handles mounted on the levers and constructed to perform a closing and opening action effective to open and close the levers, pairs of clamping and stripping members on the levers operated by manipulation of the lever handles effective to grasp and strip insulation from wire positioned between them, the upper such members being fixed and the lower being slidably mounted on the levers with a connection between the lower end of the sliding lower members and the inside of the handles taking the form of two inwardly extending projections fitting into slots in the side of the lower members, a connection between the handles and levers in the form of pins and generally arcuate slots between the handles and the levers, and generally inward extensions of the arcuate slots permitting said projections to

disengage the slots in the sides of the lower members, thereby enabling removal of said sliding lower members.

14. In a hand stripper, a pair of pivoted levers, handles mounted on the levers and constructed to perform a closing and opening action effective to open and close the levers, pairs of clamping andstripping jaws on the levers effective to grasp and strip insulation from wire positioned between them, and a resistance formation effective between the levers including a friction disk and Belleville spring arrangement on the lever pivot effective to hold the levers apart, by friction, until the clamping and stripping jaws have been separated allowing the wires to be removed after stripping prior to the closing of the levers.

15. The structure of claim **14** further characterized by and including a spring arrangement biasing the handles apart at all times.

16. The structure of claim **8** further characterized in that the slidable mounting between the handles and levers is constructed to move the handles through a generally arcuate path described generally about a center laterally outside of the levers.

17. In a hand stripper, a pair of pivoted levers, pairs of clamping and stripping jaws on the levers, the upper jaw of each pair being fixed on a lever and the lower jaw being movable to perform a generally linear opening and closing action with the fixed jaw, handles on the levers, a sliding generally arcuate mounting between the handles and levers constructed such that manual closing of the handles causes them to move inwardly and upwardly relative to the levers, and connections between the movable lower jaws and the handles such that manual closing of the handles is effective to raise the lower jaws to thereby grasp and strip insulation from wires positioned between the jaws.

18. The structure of claim **17** further characterized in that the mounting between the handles and levers is constructed to move the handles through a generally arcuate path described generally about a center laterally outside of the levers.

19. In a hand stripper, a pair of pivoted levers, pairs of clamping and stripping jaws on the levers, the upper jaw of each pair being fixed on a lever and the lower jaw being movable, the jaws being constructed to grasp and strip insulation from wire positioned between them, handles on the levers constructed to perform a closing and opening action, a connnection between the slidable lower jaws and the inside of the handles including at least one inwardly extending projection on each handle fitting in the lower jaw, a sliding connection between the handles and levers constructed such that manual closing of the handles causes them to move inwardly and upwardly relative to the levers to thereby raise the lower jaws, and an offset in the sliding connection permitting the projections to be disengaged from the lower jaws thereby enabling removal and replacement of the lower jaws.

20. The structure of claim **19** further characterized in that the sliding connection between the handles and levers includes a plurality of pin and slot connections constructed, upon manipulation of the handles, to move the handles through a generally arcuate path described generally about a center laterally outside of the levers.

21. In a hand stripper mechanism, a pair of pivoted levers, handles on the levers constructed to be manually closed and opened effective to pivot the levers open and closed, pairs of clamping and stripping jaws on the levers effective to grasp and strip insulation from wire positioned between them, and a friction retard mechanism on the levers effective to initially resist separation of the levers during closing of the handles and jaws and to automatically release allowing the levers to separate.

22. In a hand stripper mechanism, a pair of pivoted levers, handles on the levers constructed to be manually closed and opened effective to pivot the levers open and closed, a spring for biasing the handles open and the levers closing at all times, pairs of clamping and stripping jaws on the levers effective to grasp and strip insulation from wire positioned between them, and a retard mechanism on the levers effective to automatically resist pivoting closure of the levers when the handles are released thereby allowing a wire to be removed from between the jaws prior to closing of the levers but constructed to be overcome by the spring prior to full handle separation to allow the levers to close.

23. The structure of claim **1** further characterized in that one of each pair of members is fixed on the levers and the other of each pair is slidably mounted thereon, and a connection between the slideable members and the handles such that manipulation of the handles in an opening and closing action will cause the clamping and stripping members to open and close.

24. The structure of claim **23** further characterized in that the handles are slideably mounted on the levers.

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