Nov. 3, 1970 L. M. CARPENTER 3,537,339

WIRE STRIPPER

Filed Nov. 22, 1967 2 Sheets-Sheet 1

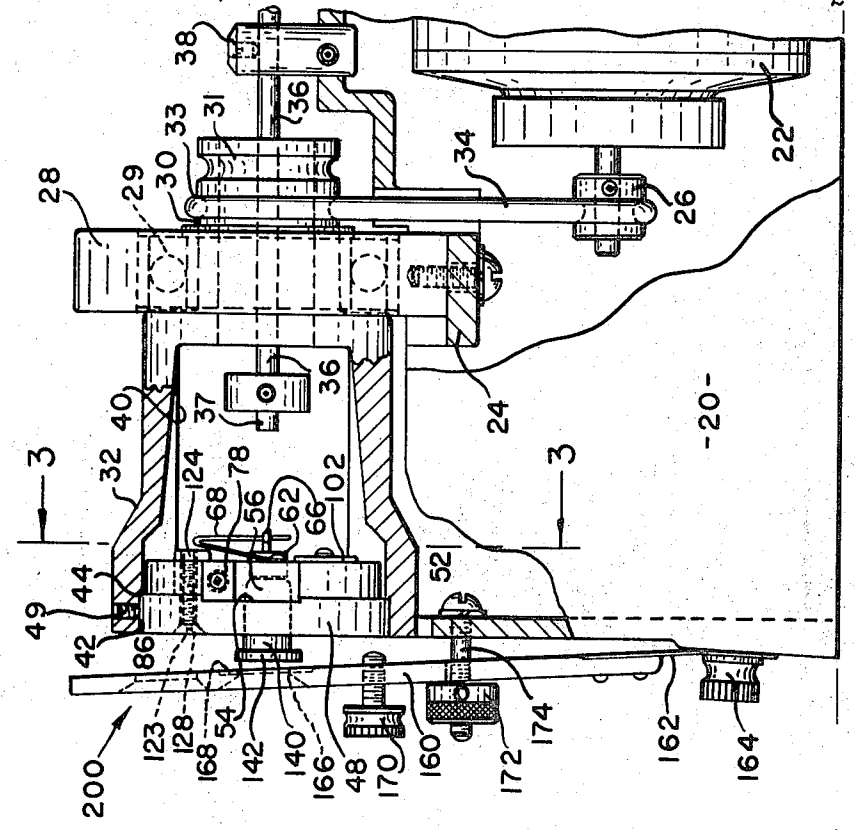


FIG. 2

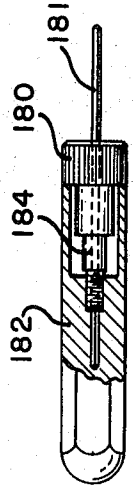


FIG. 6

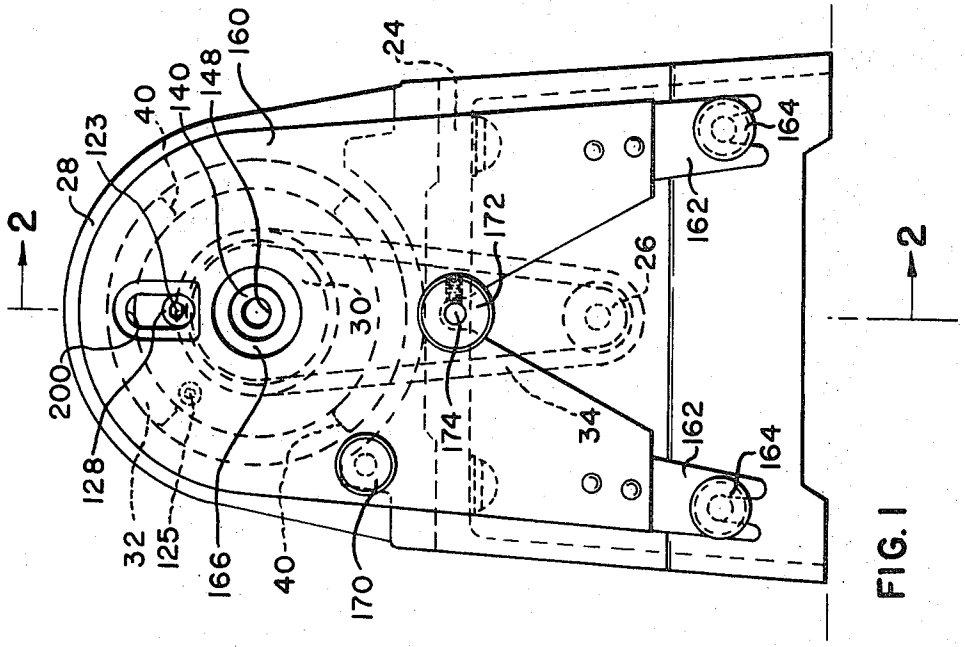


FIG. 1

INVENTOR.
LOUIS M. CARPENTER

BY

ATTORNEY.

Nov. 3, 1970 L. M. CARPENTER 3,537,339

WIRE STRIPPER

Filed Nov. 22, 1967 2 Sheets-Sheet 2

FIG. 4

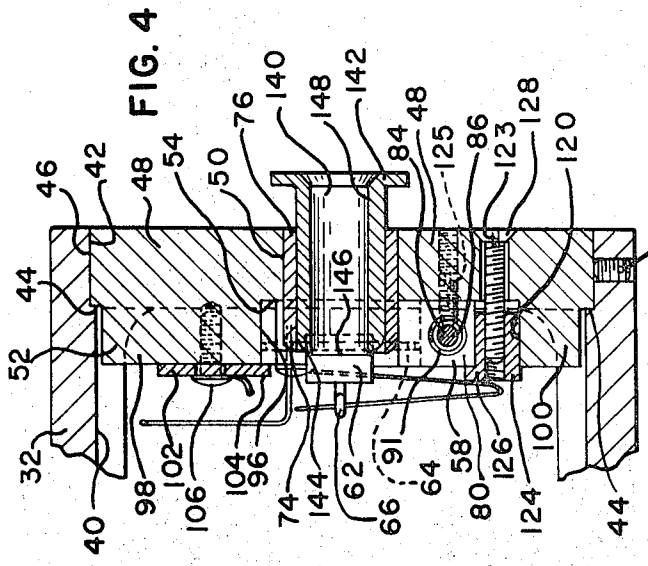


FIG. 7

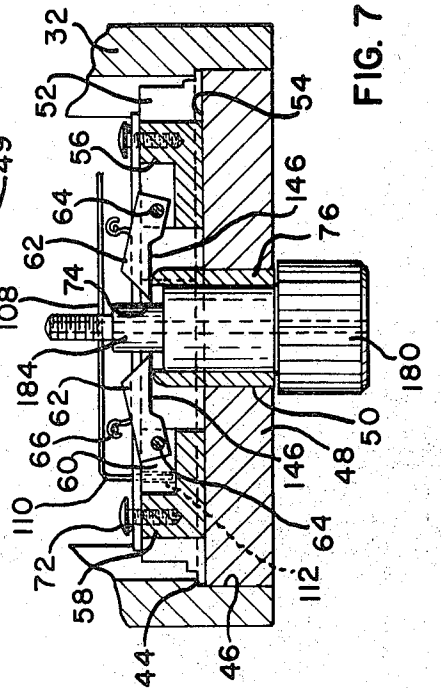


FIG. 3

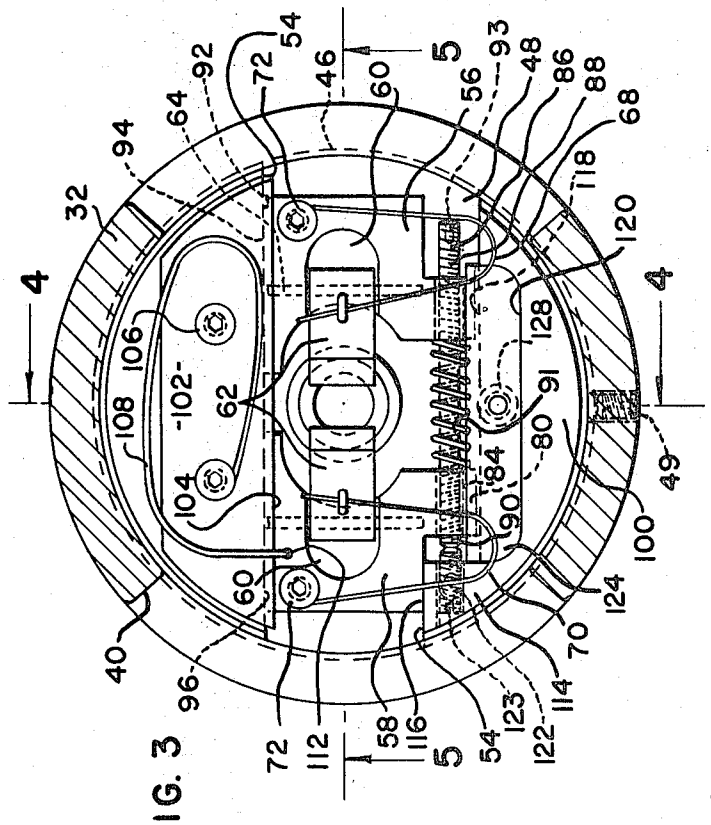
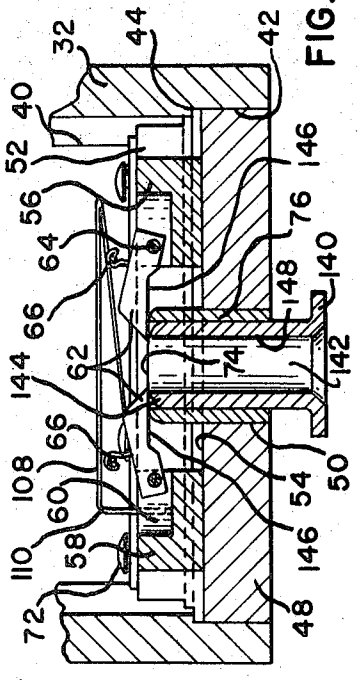


FIG. 5



INVENTOR.

LOUIS M. CARPENTER

BY

ATTORNEY.

United States Patent Office 3,537,339 Patented Nov. 3, 1970

3,537,339

WIRE STRIPPER

Louis M. Carpenter, 6900 Highbridge Road, Fayetteville, N.Y. 13066

Filed Nov. 22, 1967, Ser. No. 684,988
Int. Cl. H02g 1/12
U.S. Cl. 81—9.51 10 Claims

ABSTRACT OF THE DISCLOSURE

A rotary motor driven wire stripper having a hollow head and a face plate in one end with a central aperture, a transverse slot in the rear face of the plate, blade blocks with pivoted stripping blades radially slidable in the slot, on opposite sides of the aperture with cutting edges partially overlying the aperture, means for locking the blocks in the slot, a right and left hand screw threaded in aligned apertures in the blocks, and an adjustable abutment engaging one end of the screw.

This invention relates to insulated wire strippers, and more particularly to a double bladed rotary stripper.

Apparatus for stripping insulation from the ends of conductors employing a rotary head having a pair of pivoted blades which are separated to insert the end of a wire to be stripped, and thereafter closed to cut into and remove a slug of insulation, require accurate adjustment of the blades to accommodate conductors of various diameters, so that in cutting through the insulation, the conductor is not damaged. The spacing between the blades when in closed position must be at least as great as the conductor diameter, and centered about the axis of rotation. Heretofore it has been the practice to individually adjust each blade, a time consuming operation.

The present invention is directed to a two bladed wire stripper wherein provision is made for simultaneously adjusting both blades, so as to permit rapid changes to accommodate conductors of various diameters. Additionally, provision is made for centering the blades before adjusting the spacing, so that normally the only adjustment required is that of setting the blade spacing for the particular conductor diameter.

The above and outer novel features of the invention will appear more fully hereinafter from the following detailed description when taken in conjunction with the accompanying drawings. It is expressly understood that the drawings are employed for purposes of illustration only and are not designed as a definition of the limits of the invention, reference being had for this purpose to the appended claims.

In the drawings, wherein like reference characters indicate like parts:

FIG. 1 is an end elevation of the apparatus;

FIG. 2 is a side elevation, with the parts in section, taken substantially on the line 2—2 of FIG. 1;

FIG. 3 is a rear view of the head, greatly enlarged taken from the plane 3—3 of FIG. 2;

FIG. 4 is a sectional view taken substantially on the line 4—4 of FIG. 3;

FIG. 5 is a sectional view taken substantially on the line 5—5 of FIG. 3;

FIG. 6 is a view of an adjusting wrench and gage, partly in section, and

FIG. 7 is a view of a centering gage, removable from the wrench of FIG. 6, and shown positioned in a head in place of the usual head guide bushing to assist in initial centering of the blades prior to final adjustment.

Referring to FIGS. 1 and 2 there is shown a base 20 having a motor 22 mounted in the rear thereof, and having a bearing ring mount 24 just forward of the motor drive pulley 26. Rigidly secured to the mount 24 is a bearing ring 28 having a single ball bearing 29 in which is secured a reduced diameter portion 30 of the hollow rotary housing 32. Rearwardly of the bearing portion 30 is a hollow sleeve extension 31 having an external pulley groove 33 aligned with the motor pulley, and a drive belt 34. The bearing portion and pulley sleeve extension have an internal diameter sufficient to permit the insertion or removal of a wire end abutment rod 36 adjustably supported from a post 38 disposed behind the pulley sleeve extension 31. The housing 32 is provided with large opposed apertures 40 for access for adjustments, and elimination of insulation strippings into the hollow base 20. A removable cover (not shown) may be provided to enclose the housing 32.

The forward end of the rotary housing 32 is provided with an annular bore 42 and shoulder 44 for receiving and locating the outer peripheral portion 46 of a face plate 48, having a central aperture 50. A set screw 49 is provided to hold the plate in the housing. The face plate 48 has a rear reduced diameter portion 52 to easily clear the shoulder 44, and a transverse groove or slot 54 in which are located right and left hand blade blocks 56 and 58. Each of the blade blocks has a recess 60 in which is pivotally mounted a blade 62 on a pintle 64. Each blade is provided with a hook 66 to receive the respective ends of hair pin like springs 68 and 70, each being secured to its respective block 56 and 58 as by screws 72, the springs 68 and 70 urging the blades 62 to pivot against the annular end 74 of a sleeve 76 fixed in the aperture 50. The end 74 of the sleeve lies substantially in the common plane of the axes of the blade pintles 64.

Each of the blade blocks 56 and 58 have a side arm 78 and 80 respectively, having aligned apertures 82 and 84 provided with left and right hand threads. A rod 86, having corresponding right and left hand threads 88 and 90 is threaded in the side arm apertures 82 and 84, and a coil compression spring 91 is disposed about the central portion of the rod between the arms 78 and 80 and is adapted to normally urge the blade blocks apart. The transverse groove or slot 54 is of such a width as to receive the blade blocks 56 and 58, and the side face 92 of the groove is adapted to accurately engage the side faces 94 and 96 of the blade blocks, so as to dispose the blades 62 symmetrically with respect to the section line 5—5 of FIG. 3.

As shown in FIG. 4, the slot 54 lies between arcuate cheek portions 98 and 100 integral with the plate 48, the thickness of which, corresponds to the thickness of the blade blocks, plus a few thousandths of an inch. The cheek portion 98 is provided with a segmental plate 102 having an edge portion 104 overlying the side face 92 of the groove. Such plate is held in position by screws 106, one of which receives the end of a hair pin type spring 108 having a bent end 110 projected into an aperture 112 in the blade block 58, to urge such block to the left, as shown in FIG. 3, and in turn to urge the block

assembly comprising blocks **56**, **58**, rod **86** and spring **91**, to the left.

The cheek portion **100** is provided at one end with a projection **114**, having a surface **116** offset from the surface **118** at the other end, and a central recess **120**. The surfaces **116** and **118** are spaced from the side face **92** of the cheek **98** by an amount sufficient to permit the free transverse movement of the blade block assembly in the groove **54**. The projection **114** is provided with a threaded aperture in alignment with the threaded rod **86**, and is provided with a screw **122** adapted to abut the end of the rod **86**. The recess **120** is provided with a block **124** having an overhanging lip **126** adapted to engage the side arms **78** and **80** of the blocks **56** and **58** as indicated in FIGS. 3 and 4. The block, beneath the lip **126** is of less thickness than that of the blade blocks **56** and **58**, and is adapted to be drawn into the recess **120** by a screw **128**, which tends to tilt the block **124** counterclockwise as seen in FIG. 4, so as to simultaneously urge the lip **126** against the blade blocks while urging the right hand upper edges of the blocks upwardly as seen in FIG. 4, whereby to thrust the blade blocks against the bottom **130** of the groove, and against the side face **92** of the groove. In this manner the blade blocks **56** and **58** are securely fixed in any adjusted position. If desired, the threaded aperture of the block **124** in which the screw **128** extends may be slightly tapered, reducing in diameter from right to left as shown in FIG. 4, so as to avoid any unnecessary bending moment being applied to the shank of the screw **128**, when drawing the same tight.

Slidably disposed in the sleeve **76** is a bushing **140** having a flange **142** at one end, and a spherical surface **144** at the other. Such bushing engages the inside surfaces **146** of the blades **62** in the manner indicated in FIG. 5, and when slid inwardly against the blades, the blades **62** are pivotally spread apart. The internal bore **148** of the bushing is chosen so as to closely but freely embrace the external diameter of the insulation of a conductor end to be stripped, and by spreading the cutting edges of the blades through movement of the bushing sufficiently, the conductor end and its insulation can be inserted through the bushing into engagement with the abutment end **37** of the abutment rod **36**. Thereafter by releasing the bushing **140**, the blades are allowed to swing into cutting engagement with the insulation and to cut through the insulation to remove a tubular slug thereof. It will be understood that the spacing of the cutting edges of the blades when in the position indicated in FIG. 5, will be just slightly greater than the conductor diameter, so as to not engage or injure the conductor during the stripping action.

The movement of the bushing **140** at the time of insertion of the insulated conductor end into the bushing is facilitated by an actuating plate **160**, having spaced legs with leaf springs **162** clamped to the front face of the base by thumb screws **164**. The upper portion of the plate is provided with an aperture **166** in alignment with and of greater diameter than the bushing aperture and an annular graphited plastic wear disk **168** on its rear face is adapted to engage the flange **142** of the bushing **140**. The overall movement of the plate **160** is limited by an adjustable thumbscrew **170** threaded in the plate to one side thereof, and an adjustable thumb nut **172** on a screw **174** threaded through the front of base **20**. In practice, the leaf spring **162** will urge the plate lightly against the thumb nut **172**, which will be adjusted to provide slight clearance between the disk **168** and bushing flange **142**, to avoid wear, except as the plate is manually moved to slide the bushing in and spread the blades for a stripping operation.

The adjustment of the blade cutting edges so as to be spaced equally on opposite sides of the rotation axis of the head, is accomplished by use of the centering gage **180** threaded for handy storage in the handle of the Allen wrench **181** as indicated in FIG. 6. Such gage **180**

is removed by unscrewing from the wrench handle **182**, and is inserted in the sleeve **76** in substitution of a bushing. The block **124** is loosened, the screw **122** having an Allen wrench socket **123**, is backed off, and the right and left threaded rod **86** is then turned by the Allen wrench **181** inserted in the hexagonal end recess **93**. The blades are spread apart by a distance greater than the diameter of the gage shank **184**, and thereafter brought together to just barely touch the shank **184**. The block **124** is then secured by tightening screw **128** to lock the blocks **56** and **58**, and the screw **122** is then threaded into abutment with the end of the rod **86**. A locking set screw **125** for screw **122** may be provided. Thereafter, the spacing between the blade cutting edges may be quickly widened to remove the gage, and then adjusted for any size conductor, by loosening the block **124**, and rotationally manipulating the threaded rod **86** in one direction or the other, while the screw **122** and spring **108** maintains the blocks **56** and **58** uniformly spaced on opposite sides of the axis of the sleeve and axis of rotation of the head.

The apertures **40** permit access to the wrench socket head of the reverse threaded rod **86** so that adjustments in the blade spacing can be made without removing the face plate from the housing. Access to the clamp screw **128** may be had through the aperture **200** in the push plate **160**. It will be appreciated that the bushing **140** will be one of a set, each having a different aperture size to accept wire insulation of various diameters, and that upon changing a bushing, it will generally be necessary to change the spacing between the blade cutting edges so that the cutting edges will approach the metallic conductor but not cut or damage the same.

While the single form of the invention has been illustrated and described, it is to be understood that the invention is not limited thereto. As various changes in the construction and arrangement may be made without departing from the spirit of the invention, as will be apparent to those skilled in the art, reference will be had to the appended claims for a definition of the limits of the invention.

What is claimed is:

1. A wire stripper comprising a rotatable plate having a central aperture through which the end of an insulated conductor is projected, a pair of blades disposed behind the plate and on opposite sides of the aperture, means for pivotally mounting each of said blades mounted on the rear of said plate, and common means for moving said mounting means simultaneously in opposite directions radially of the aperture.

2. A wire stripper according to claim **1** wherein the plate is provided with a transverse groove in its face to receive the mounting means.

3. A wire stripper according to claim **2** wherein the common means comprises a rod having left and right hand threads disposed in aligned correspondingly threaded apertures in said mounting means.

4. A wire stripper according to claim **3** wherein the plate is provided with an adjustable abutment for one end of said rod.

5. A wire stripper in accordance with claim **2** having common means operably disposed along the groove for simultaneously locking both means in the groove.

6. A wire stripper in accordance with claim **3** having common means operably disposed along the groove for simultaneously locking both mounting means in the groove.

7. A wire stripper in accordance with claim **4** having common means operably disposed along the groove for simultaneously locking both means in the groove.

8. A wire stripper comprising a hollow rotatable head, a motor for driving the head, a face plate in one end of the head having a central aperture, and a transverse slot in the rear face of the plate, blade blocks radially slidable in said slot, one on each side of said aperture, a stripping blade pivoted in each of said blocks and having a

cutting edge adapted to partially overlie the aperture, means for locking said blocks in said slot against radial movement, means comprising a rod having right and left hand threads disposed in aligned threaded apertures in said blocks disposed to one side of said aperture, an adjustable abutment carried by said face plate adapted to engage one end of said rod, and resilient means for urging said blocks and rod end against said abutment.

9. A stripper according to claim **8** wherein the adjustable abutment is a threaded screw aligned with said rod.

10. A stripper according to claim **8** wherein a coil

compression spring is positioned on a central portion of said rod and between the aligned apertures in said abutment means.

References Cited

UNITED STATES PATENTS

3,241,407	3/1966	Oehlerking	81—9.51
3,361,016	1/1968	Carpenter et al.	81—9.51

ROBERT C. RIORDAN, Primary Examiner

R. V. PARKER, JR., Assistant Examiner