United States Patent [19]

Chippendale

[11] **3,724,310**

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[54] CABLE SPLITTER

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[52] **U.S. Cl.** **83/435,** 83/4, 83/323, 83/924

[51] **Int. Cl.** **B26d 7/06**

[58] **Field of Search**....83/4, 168, 435, 322, 323, 349, 83/430, 924; 81/9.51

[56] **References Cited**

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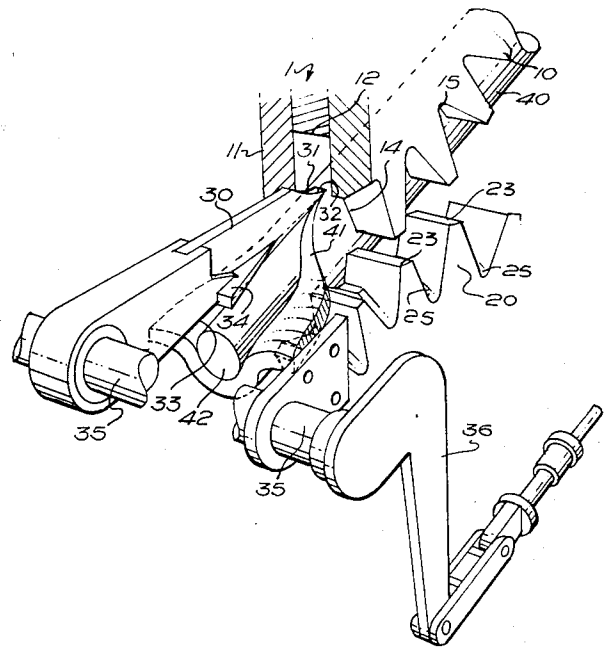
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[57] **ABSTRACT**

Cable splitting apparatus is provided, for recovering metal from sheathed cables, in which a splitting tool is arranged in collaboration with a central annular groove in one of two gripping wheels the periphery of which is provided with gripping teeth so that during rotation of the wheels the gripping teeth press the sheath against the sides of the splitting tool for the tool and teeth in combination to shear through the sheath.

7 Claims, 4 Drawing Figures



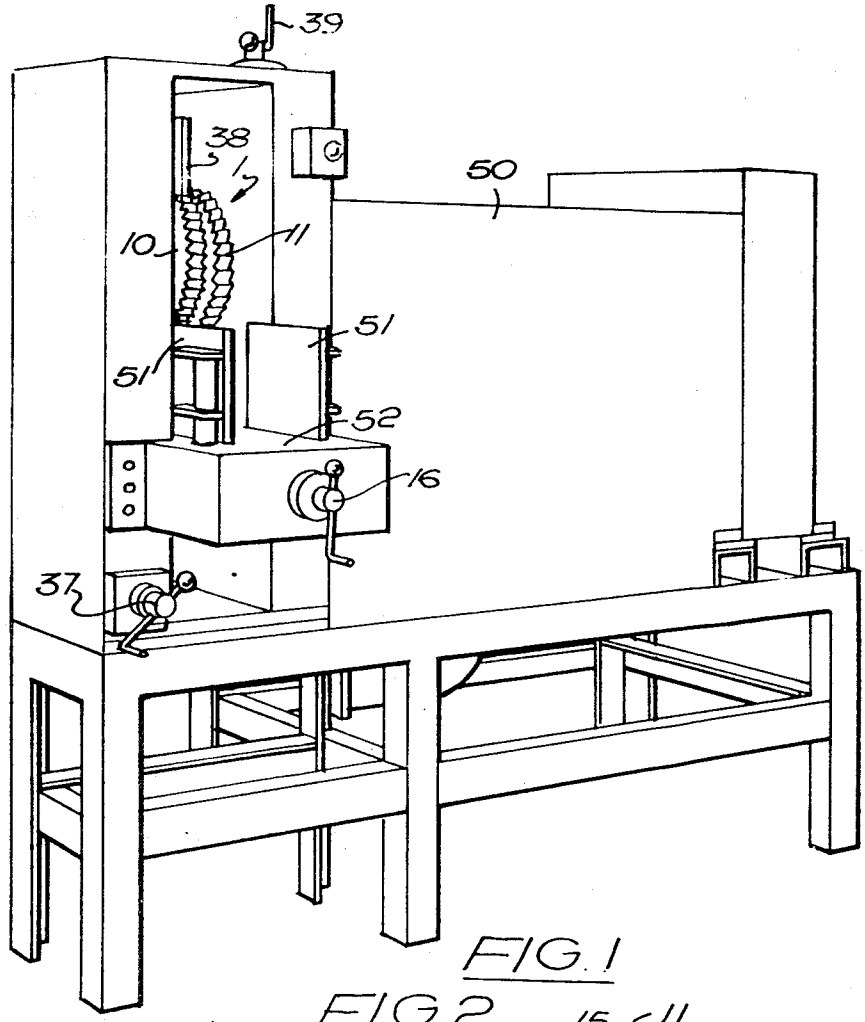
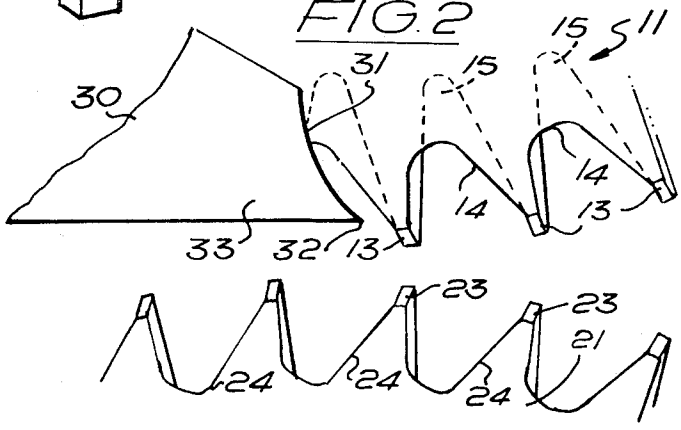


FIG. 1

FIG. 2

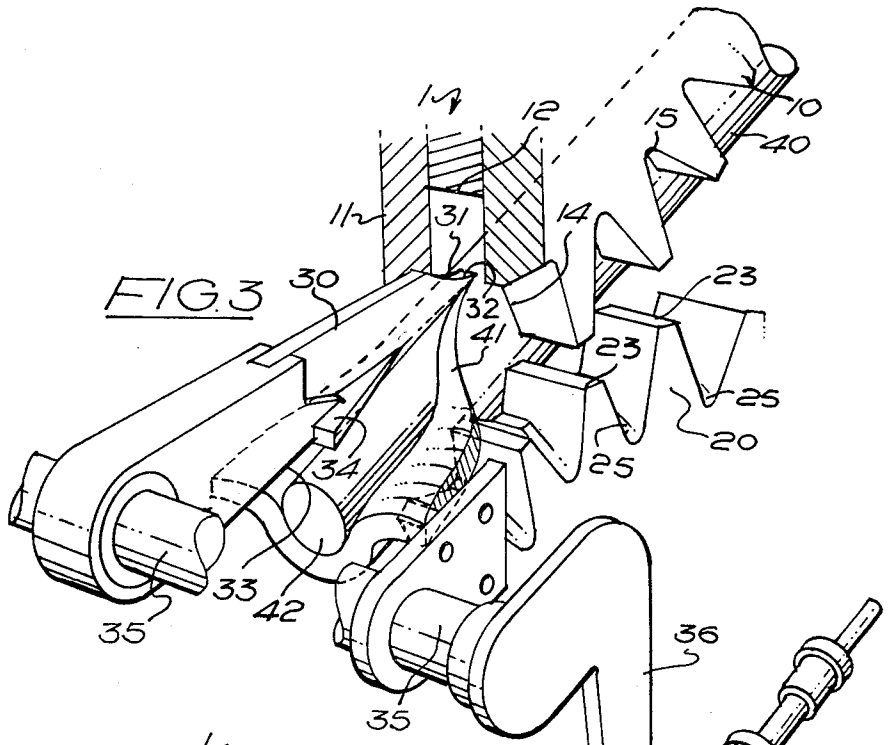


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ATTORNEYS

FIG. 3



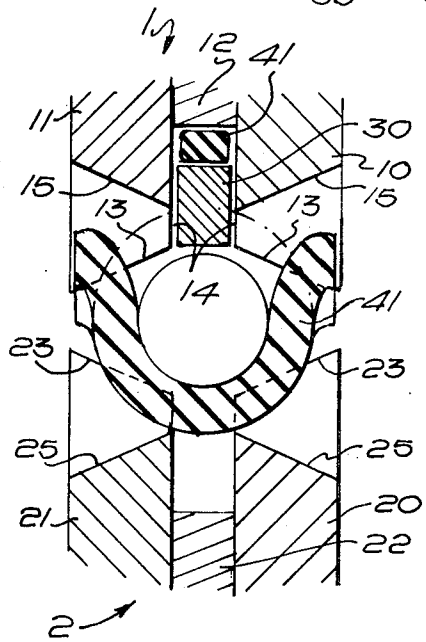


FIG. 4

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CABLE SPLITTER

This invention relates to the splitting of metal sheathed cables, such as electrically conductive cables, for the recovery of metal.

According to the present invention there is provided apparatus for splitting sheathed cables for metal recovery purposes, including a pair of cable gripping wheels, means for driving the wheels to give linear motion to a cable fed between the wheels, at least one of said wheels having a central annular groove in its periphery with gripping teeth on each side of the groove, and a sheath splitting tool arranged in collaboration with said groove so that the gripping teeth during rotation will press the sheath against the sides of the tool for the tool and teeth in combination to shear through the sheath.

The splitting tool may be positioned on the cable exit side of the wheels to dig into the sheath to force a part thereof progressively into the groove for a strip of the sheathing to be cut off, and a cleaning tool is preferably mounted with its nose in the wheel groove for the removal of parts of the sheathing which are carried in the groove from the splitting tool.

The splitting tool is of a width corresponding to the distance between teeth on opposite sides of the groove and preferably has a ground arcuate leading edge forming an acute angle with a bottom edge of the tool. Divergent portions of the tool are preferably provided spaced from the acute angled tip for opening the slit in the sheath cut by the tip and by shearing by the teeth against the arcuate leading edge of the tool.

The gripping teeth of the wheels preferably incline inwardly in shallow V formation, from each side face to the edges of the groove and the teeth co-operating with the splitting tool have cutting edges at the juncture between each groove side face and each tooth end. Lands between the teeth of the wheels are inclined outwardly for shedding entrained pieces of the sheath.

The grooved wheel which co-operates with the splitting tool may be made up of a pair of toothed wheels joined together on a shaft with an interposed spacing collar of less diameter to form the groove. The pair of toothed wheels are secured against relative rotation and this arrangement facilitates grinding and dismantling for regrinding when required.

At least one of the wheels is adjustably mounted so that it can be set relative the other wheel to suit the thickness of cable to be passed between the wheels.

The splitting tool may be adjustable in relation to its co-operative grooved wheel for varying the depth at which the tip digs into the sheath of a cable.

The invention will be further described by way of example with reference to the accompanying drawings in which:

FIG. 1 shows an apparatus for splitting sheathed cables for metal recovery according to the invention,

FIG. 2 indicates the relative positioning of the splitting tool and co-operative grooved wheel of the apparatus of FIG. 1,

FIG. 3 is a perspective view corresponding to FIG. 2 and

FIG. 4 is a section showing grooved wheels and split cable as in FIG. 3.

A pair of wheels **1, 2** are each made up of pairs of toothed wheels **10, 11** and **20, 21** joined together on a shaft (not shown) with interposed spacing collars **12, 22** of lesser diameter forming central grooves. The gripping teeth are inwardly inclined at **13, 23** in shallow formation for providing a good grip on a sheathed cable passed through the tip of the wheels, **1, 2**.

A splitting tool **30** is of a width corresponding to the distance between teeth on opposite sides of the spacing collar **12** and has a ground arcuate leading edge **31** forming an acute angled tip **32** with a bottom edge **33** of the tool. Divergent inserts **34** are provided on on each side of the splitting tool spaced from the tip **32** for opening the slit in the sheath **41** of a cable **40** cut by the tip **32** and by shearing by the teeth against the arcuate edge **31**.

The teeth co-operating with the splitting tool **30** have cutting edges **14** at the juncture between each groove side face and each tooth end. Lands **15, 25** between the teeth of the wheels **1, 2** are inclined outwardly for shedding entrained pieces from the sheath **41**.

Each of the toothed wheels **10, 11** and **20, 21** are secured against relative rotation with the other toothed wheel of the pair and the wheel **1** is mounted for adjustment by handle **16** relative to the wheel **2** in accordance with the thickness of cable **40** passed between the wheels **1, 2**. The splitting tool **30** is carried on a shaft **35**, interrupted for clarity in FIG. **3**, connected to a crank **36** for pivotal adjustment by handle **37** for varying the depth at which the tip **32** digs into the sheath **41** of cable **40** and for avoiding undue interference with the core **42** of cable **40**.

A cleaning tool **38** is mounted with its nose in the groove of the wheel **1** for the removal of parts of the sheathing **41** which are carried in the groove from the splitting tool **30**. The cleaning tool is vertically adjustable by handle **39**.

A motor for driving the wheels **1, 2** is housed in casing **50** and guides **51** for the cable **40** are carried over a feeding surface **52** for feeding the cable **40** to the tip of the wheels **1, 2**.

If desired a further splitting tool may be provided in co-operating with the groove in the wheel **2** so that two strip-like pieces are cut from opposite sides of the cable **40**. In this case the teeth of toothed wheels **20, 21** have cutting edges **24** at the juncture between each groove side face and each tooth end, the bottom edge of the tool is uppermost and a further cleaning tool is provided with its nose in the groove of wheel **2**.

The apparatus is effective in splitting both tubular armored cable and cable having a helical steel wire armoring.

The embodiments in which an exclusive property or privilege is claimed are defined as follows:

1. Apparatus for splitting sheathed cables for metal recovery purposes, including a pair of cable gripping wheels, means for driving the wheels to give linear motion to a cable fed between the wheels, at least one of said wheels having a central annular groove in its periphery with gripping teeth on each side of the groove, and a sheath splitting tool arranged in collaboration with said groove so that the gripping teeth during rotation will press the sheath against the sides of the tool for the tool and teeth in combination to shear through the sheath.

2. Apparatus as claimed in claim **1** in which the splitting tool has an arcuate leading edge forming an acute angled tip with a bottom edge of the tool.

3. Apparatus as claimed in claim 1 in which the splitting tool includes on opposite faces thereof diverging surfaces portable of split cable sheath material.

4. Apparatus as claimed in claims 1, in which the gripping teeth of the wheels are inclined inwardly, in shallow V formation, from each side face to the edges of the groove.

5. Apparatus as claimed in claim 1 in which lands between the teeth of the gripping wheels are inclined outwardly.

6. Apparatus as claimed in claim 1 in which the grooved wheel which co-operates with the splitting tool is made up of a pair of toothed wheels joined together on a shaft with an interposed spacing collar of less diameter forming the groove.

7. Apparatus as claimed in claim 1 in which a cleaning tools is mounted with its nose in the wheel groove.

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