

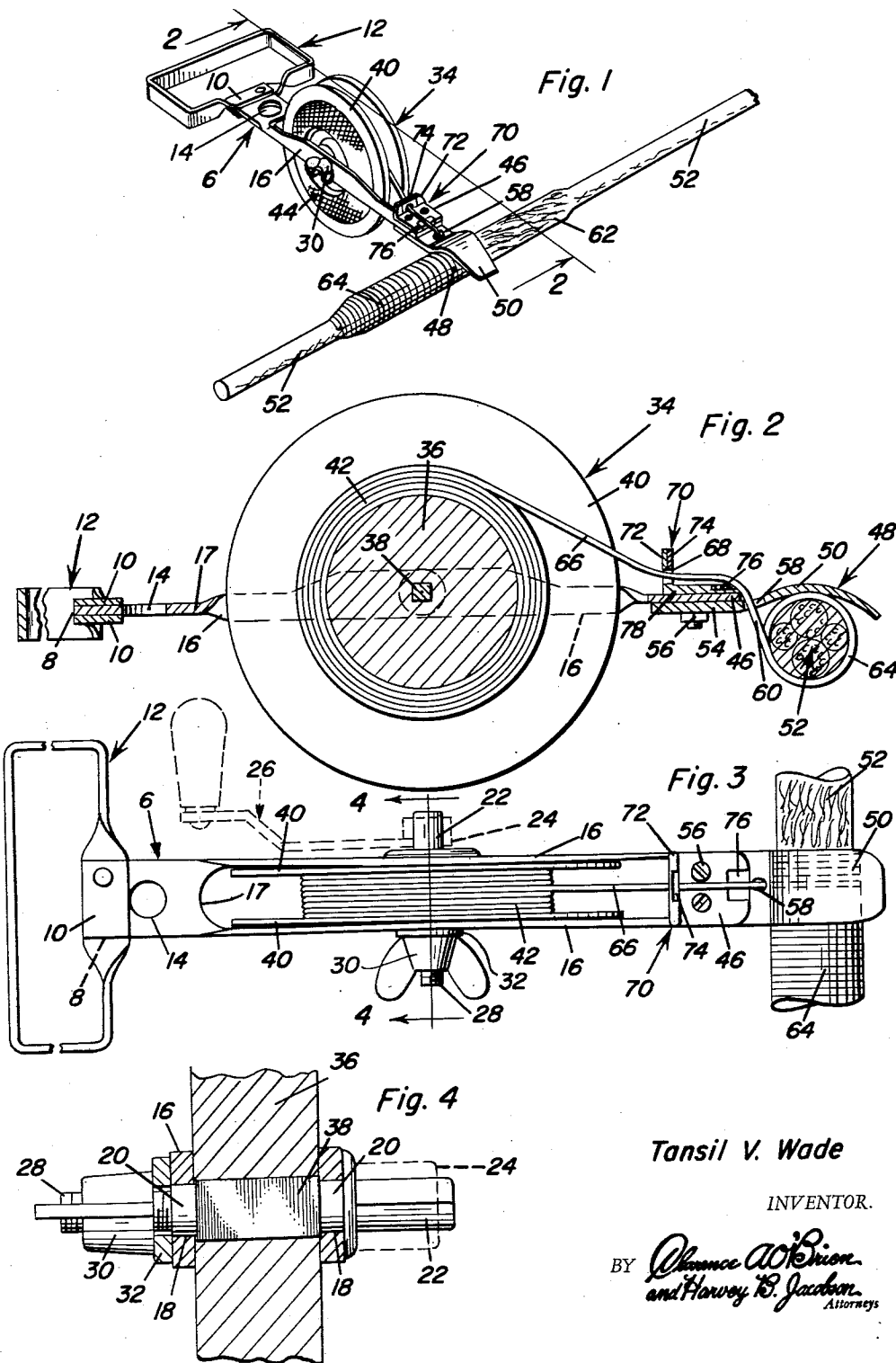
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WIRE COILING AND SEIZING TOOL

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WIRE COILING AND SEIZING TOOL

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The present invention relates to hand tools and implements which are used for coiling and tightly wrapping the coils around a splice existing between adjacent connected ends of wire cable or the like and which are variously referred to in the trade and elsewhere as winding and wrapping implements and also as manually usable tight-coiling and wire seizing tools.

More specifically, the concept pertains to a simple, practical effectually usable seizing tool which functions with reliable efficiency when seizing bendable wire over wire rope splices. It is not the intention here to give the impression that wire wrapping and seizing tools and implements for hand use are in any sense of the word original. As a matter of fact, many and varied tools, makeshift and otherwise, have been evolved, produced and used. Others have been covered in prior patents and whether they have met with widespread adoption and use is problematical at least to this applicant. In any event a typical prior art device that might be regarded as exemplifying the state of development of the art would be the wire winding tool of Burghardt Patent 2,721,037 of October 18, 1955.

The Burghardt patent discloses a tool which, like the one herein revealed as an improvement, is characterized by a handle-equipped frame, a winding drum mounted for rotation on the frame, said drum being employed to store the wire which is to be unwound therefrom for purposes of thereafter being wrapped around the cable in the manner illustrated. The frame has means to rest, fulcrum and rotate around the cable and other means to guide the unwinding wire.

Comparing the tool herein revealed with the stated prior patent or any other analogous implements and tools known to this applicant it will be evident that in carrying out the principles of this invention there has been evolved and produced an improved construction involving structural refinements and suitably performing components which provide a novel advance in the art.

More explicitly, in carrying out the principles of the invention a simple one-piece frame is provided. The median part of the frame has a slot therein and is provided with a wire winding and reeling spool or drum which is mounted in the slot. A hand-grip is fixed to one end of the frame. A specially bent terminal is provided at the other end of the frame, which may perhaps be described as an attachable and detachable shoe. This shoe serves as a rest and guide and permits one to rotate the tool as an entity around the axis of the cable in a manner to coil and wind the wire to accomplish the desired seizing and splice reinforcing step.

Novelty is also predicated on an L-shaped cleat or bracket which has aligned inlaid wear-resisting inserts with which the sliding and movable wire will cooperate.

Other objects, features and advantages will become more readily apparent from the following description and the accompanying illustrative, but not restrictive, drawing.

In the drawing, wherein like numerals are employed to designate like parts throughout the views:

FIG. 1 is a perspective view showing a fragmentary portion of a wire rope cable embodying a splice with the reinforcing or wrap-around wire being applied and illustrating the seizing or coiling and wrapping tool which is the subject of the instant invention.

FIG. 2 is a view on a large scale, taken on the plane of the line 2—2 of FIG. 1, looking in the direction of the arrows.

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FIG. 3 is a top plan view of the structure seen in FIG. 2.

FIG. 4 is a section on an exaggerated scale on the plane of the line 4—4 of FIG. 3, looking in the direction of the arrows.

Referring now to the drawing the principal part of the over-all device is designated generally as a frame and this is denoted by the numeral 6. Although the frame may be of some other construction that that herein shown it has been satisfactorily constructed from a length of sturdy strap metal, the left hand end of which is denoted at 8 in FIG. 2, this end being sandwiched and riveted or otherwise fastened between the terminal end portions 10 embodied in a rectangular hand-grip 12 also made of a suitable gauge strap metal. The end portions 10 are actually twisted laterally and overlap and are riveted to the intervening end portion 8. The hole 14 serves merely to lighten the weight of the frame. The median portion of the frame 6 is slotted and the longitudinal side portions on opposite sides of the slot are twisted to define appropriate reaches 16 which are apertured as at 18 (FIG. 4) to accommodate the journal portions 20 of an axle or a bolt. In other words these apertures 18 are aligned and provide bearings for the journals 20. The end portions of the bolt extend beyond the frame side portions or members 16. One end of the axle, as seen in FIG. 4, is square and provides an attaching member 22 for a cooperating non-circular socket member 24 at one end of the attachable and detachable handcrank 26 (FIG. 3). The other end portion of the bolt or axle is screw-threaded as at 28 (FIG. 4) to accommodate a wing nut 30 which may be tightened or loosened against the washer 32 for the obvious purpose of either freeing the spool or drum 34 for rotation or frictionally clamping and binding it between the reach members 16. The solid hub portion 36 is keyed on and rotates with the non-circular central portion 38 of the axle, as brought out in FIG. 2. The circular or disk-like heads on the reel are denoted at 40 and are in close spaced parallelism so that the hub is actually relatively narrow. It is on this hub that the coils or convolutions 42 of the reinforcing wire are wound and stored. It will be noticed in FIG. 1 that the opposite exterior surfaces of the heads are suitably knurled or milled as at 44 to provide anti-slipping surfaces. Referring now to the distal end portion of the frame, that is the portion 46 (FIG. 2) this serves to accommodate two significant components. First there is the aforementioned fulcruming and guiding shoe 48. This shoe has an arcuate portion 50 which conformingly cooperates with the surface of the wire rope or cable 52 in a now generally well-known manner. A shank 54 of the shoe is bolted beneath the terminal end 46 as denoted at 56. The median portion has a guide hole 58 for a portion 60 of the wrap-around wire. That part of the wire which is to be wrapped around the splice 62 (FIG. 1) is denoted at 64. The wire also has a portion 66 which extends through a hole 68 provided therefor in an L-shaped cleat or guide bracket 70. The upstanding arm 72, which is provided with the aforementioned guide hole 68, is provided with an insert of suitable wear resisting material 74. A similar insert 76 is brazed in place on the lower or horizontal arm 78 of the bracket. The bracket itself is held in place on the end portion 16 by the aforementioned bolts 56.

Sometimes the wire for storage, that is portion 42, is reeled on the hub by hand and the anti-skid knurled surfaces 44 aid in accomplishing this. In other instances it is more desirable to reel or wind the wire with the aid of the aforementioned handcrank 26 which is why I provide a handcrank (appearing in phantom lines in FIG. 3).

In practice it is obvious that the arcuate shoe 50 is placed for fulcruming and rotation on the splice in the manner shown in FIG. 1. Of course prior to this the free or terminal end of the wire has been drawn off the reel or spool and has been threaded through the guide opening 68 and also through the cooperating openings 58. This allows the windings to be prepared for seizing around the splice in a now generally well-known manner. The handle 12 may be caught hold of and the entire implement as an entity may be swung through a circular path thus accomplishing the seizing step with certainty and rapidity.

It is submitted that a careful consideration of the featured objectives and advantages, the descriptive specification and the accompanying claims will enable the reader to obtain a comprehensive understanding of the invention herein disclosed. Under the circumstances a more lengthy description is believed to be unnecessary.

Minor changes in shape, size, materials and rearrangement of components may be resorted to in actual practice without departing from the spirit of the invention or the scope of the invention as covered in the claims.

What is claimed as new is as follows:

1. A manually usable wire seizing tool comprising, in combination, an elongated frame having a proximal end provided with a hand-grip and a distal end provided with a readily attachable and detachable cable contacting member, said member having an arcuate portion adapted to rest on the cable and a shank portion which is detachably bolted to said distal end, a median portion of said member having a wire guide opening, an L-shaped bracket also detachably mounted on said distal end and having an upstanding portion provided with a guide opening cooperating with the first named guide opening, the angularly disposed portions of said bracket being provided with aligned cooperating wear-resisting inserts with which portions of a seizing wire cooperate to minimize friction wearing drag on the moving portion of the wire which is being payed out through said guide openings for seizing needs, an axle mounted on a median portion of the frame, and a wire winding and storing spool mounted on and carried by a portion of the axle spanning a reel accommodating slot provided therefor on said frame.

2. The structure defined in claim 1, and wherein said spool embodies opposed circular heads and a hub portion having exterior surfaces rotatably contacting interior surfaces of the cooperating side portions of said frame, the exterior surfaces of said hub portion being knurled and providing anti-slipping finger gripping surfaces which facilitate turning the spool.

3. A manually usable wire seizing tool comprising an

elongated frame having a proximal end, a distal end and an intervening portion provided with a longitudinal slot, said frame having spaced parallel longitudinal side portions, said slot being adapted to accommodate a wire winding and storing spool, said side portions being provided with oppositely disposed axially aligned bearing holes, an insertable and removable bolt having a shank one end of which is screw threaded and the other end which is provided with a shoulder with an axial extension projecting therebeyond and non-circular in cross-section and adapted to accommodate a readily attachable and detachable hand crank, said shoulder abutting an exterior surface of one of the side portions of said frame, a portion of the shank spanning said slot and having journals journaled for rotation in the bearing holes, the screw threaded end projecting through and beyond an adjacent cooperating bearing hole and provided with an assembling and retaining nut, a wire winding and storing spool mounted for operation in the slot and having a hub portion secured to that portion of the bolt spanning the slot, said spool having a hub portion and heads mounted around the outer periphery of said hub portion, the exterior surfaces of said hub portion being knurled to provide anti-slipping finger grips, a hand grip mounted on the proximal end of the frame, a fulcruming and guiding shoe having an arcuate portion to conformingly cooperate with a surface of a cable which is to be wrapped with wire, having a shank portion on one side of the aforementioned distal end and a median portion with a wire guide hole, an L-shaped cleat constituting a guide bracket, said cleat arranged on an opposite side of said distal end and being secured to the distal end by fastening means which also serves to maintain in place the shank of the shoe, said cleat having an upstanding portion at right angles to the shank of the shoe and provided with a wire guide opening.

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