Sept. 4, 1962 F. ACKERMAN ETAL 3,052,180

WIRE MARKING TOOL

Filed April 27, 1959 2 Sheets-Sheet 1

Fig. 1

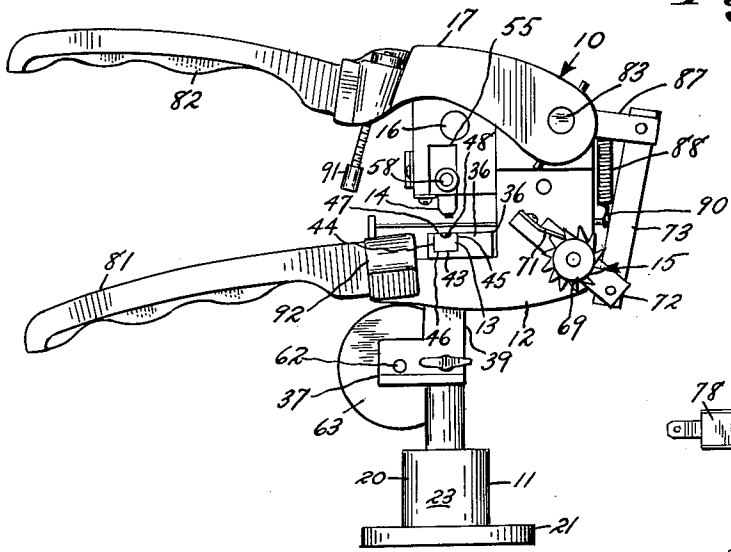
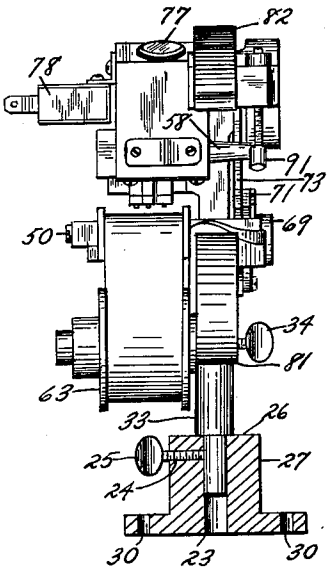


Fig. 2



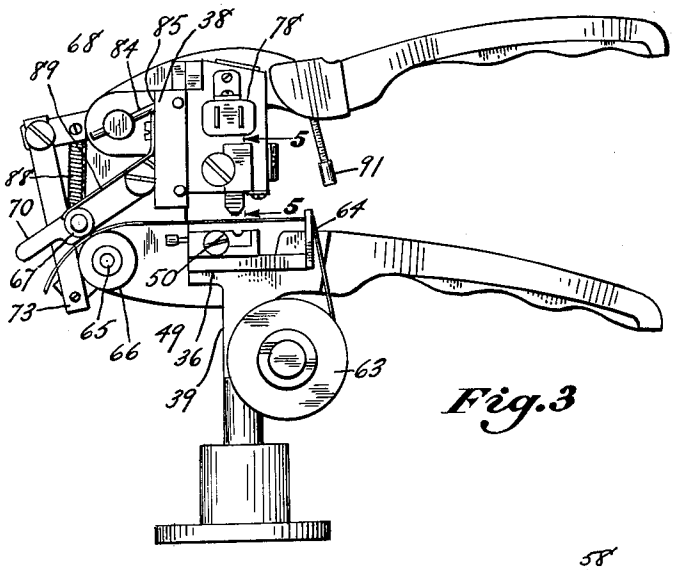


Fig. 3

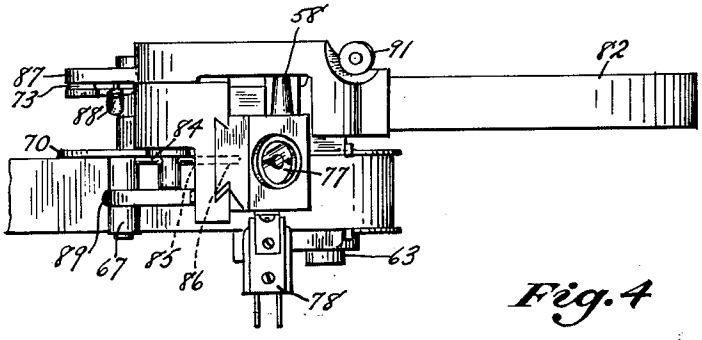


Fig. 4

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WIRE MARKING TOOL

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Fig.9

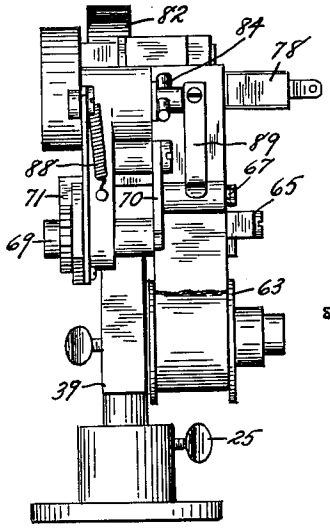


Fig.5

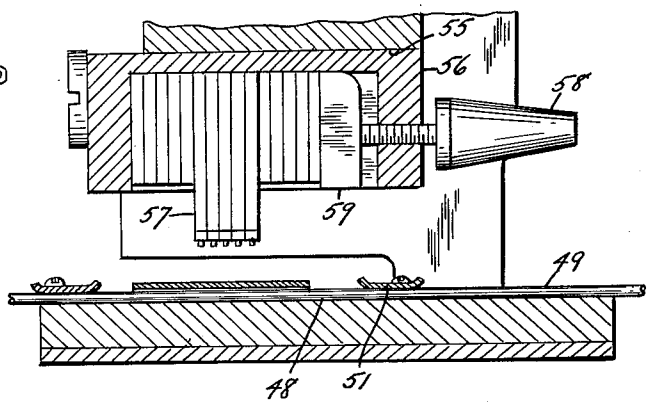
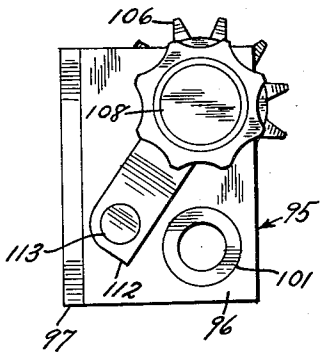


Fig.6



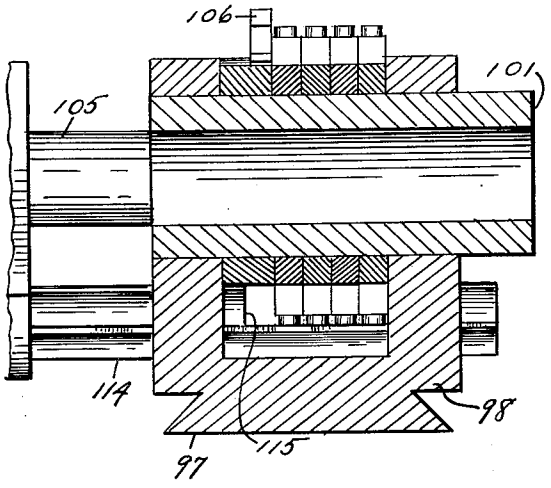


Fig.8

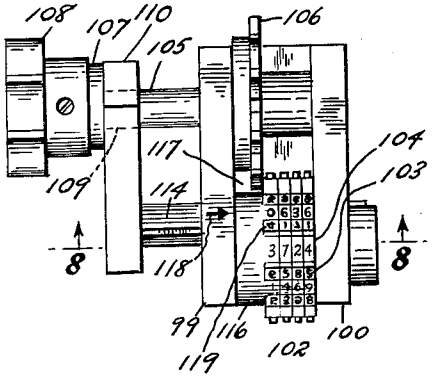


Fig.7

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WIRE MARKING TOOL

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2 Claims. (Cl. 101—9)

This invention relates generally to the field of wire marking devices, and more particularly to an improved compact lightweight form suitable for non-industrial or light-industrial use. Devices of this type are generally known in the prior art, and the invention lies in specific constructional details in the disclosed embodiment.

It is among the principal objects of the present invention to provide an improved wire marking tool of the class described which may be fabricated and sold at a cost considerably below that of similar machines known in the prior art, thereby permitting consequent wide sale, distribution and use.

Another object of the invention lies in the provision of an improved wire marking tool of the class described which may be operated in hand held condition, thereby imparting portability to the device, which is completely unavailable in the prior art.

Still another object of the invention lies in the provision of a wire marking tool possessed of the above advantages, which will nevertheless incorporate such desirable features as semi-automatic tape advancement means, heated type, as well as rapid interchangeability of type faces.

These objects, as well as other incidental ends and advantages, will become more clearly apparent during the course of the following disclosure, and be pointed out in the appended claims.

In the drawings, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

FIGURE 1 is a side elevational view showing an embodiment of the invention.

FIGURE 2 is a rear elevational view thereof.

FIGURE 3 is a side elevational view, showing the side disposed opposite that seen in FIGURE 1.

FIGURE 4 is a plan view thereof.

FIGURE 5 is a vertical transverse sectional view as seen from the plane 5—5 in FIGURE 4.

FIGURE 6 is a side elevational view showing an alternate form of type carrying means.

FIGURE 7 is an end elevational view of the alternate form of type carrying means.

FIGURE 8 is a transverse sectional view as seen from the plane 8—8 in FIGURE 7.

FIGURE 9 is a front elevational view of the embodiment.

In accordance with the invention, the device, generally indicated by reference character 10, comprises broadly: a base element 11, a frame element 12, wire guiding means 13, type carrying means 14, ribbon support and advancement means 15, heating means 16 and lever operating means 17.

The base element 11 is preferably formed as a casting, and includes a cylindrical portion 20 and a flange portion 21 formed integrally therewith. A vertically disposed bore 23 extends through the vertical length of the base element, while a threaded bore 24 extends from an outer cylindrical surface 27 to the bore 23. The bore 24 supports set screw means 25. The upper surface 26 of the cylindrical portion 20 limits the movement of inward travel of a supporting stud 33, upon which the frame element 12 rests. The flange portion 21 is preferably provided with a plurality of openings 30 permitting the base

element 11 to be secured to a vertical supporting surface (not shown).

The frame element 12 is also preferably in the form of a casting, of aluminum or other suitable light metal, and engages the upper portion of the supporting stud 33 with set screw means 34. The frame element 12 includes first and second horizontal portions 36 and 37, respectively, as well as first and second vertical support portions 38 and 39, respectively.

The wire guiding means 13 is supported on the first horizontal portion 36 of the frame element 12, which is provided with an elongated groove 43 of rectilinear cross-section. The means 13 is slideably disposed within the groove 43 and includes vertical side surfaces 44 and 45, a bottom surface 46, and a top surface 47 into which extends a longitudinally disposed groove 48 corresponding to the diameter of the wire 49 to be marked. It will be understood by those skilled in the art that the particular wire guiding means 13 shown in the drawing may be replaced by others (not shown), which are identical, but which are provided with grooves 48 of varying diameters to accommodate varying gauges of wire. The means 13 is supported within the groove 43 by set screw means 50, and the wire 49 is resiliently held within the groove 48 by spring members 51 which overlie the groove 48 and press downwardly upon the outer surface of the wire on either side of the area to be marked (see FIG. 5). In normal operation, the spring member 51 is adjusted to give a very light pressure upon the surface of the wire 49, to permit the same to be easily drawn through the groove 48 so that succeeding segments of the wire may be readily marked.

The type carrying means 14 is supported by the first vertical support portion 38 which is provided with an elongated groove 55. The means 14 includes an elongated vise 56 which supports individual type characters 57, as is known in the art. The vise 56 is closed by screw means 58 which bears upon a pressure plate 59.

The ribbon support and advancement means 15 is supported from the second horizontal portion 37 of the frame element 12, and includes a spindle 62 supporting a spool 63 of waxed cellulosic tape. As is known in the art, the wax is impregnated with a suitable dye before coating upon the tape, and during operation of the device, the heated type characters 57 press the ribbon 64 against the outer surface of the insulation of the wire 49, causing the wax to offset, leaving a desired impression upon the insulating covering. A ribbon advancement spindle 65 is mounted for rotation on the first vertical support portion 38 of the frame element 12, the same being provided with a rubber roller 66 which engages the waxed surface of the ribbon 64. A pressure roller 67 is supported upon a link 70 and is urged by a spring 68 to contact the opposite surface of the ribbon 64, thereby assuring a positive frictional drive. The opposite end of the spindle 62 is a ratchet 69 driven by a pawl 71 on a pivotally mounted pawl supporting link 72. The link 72 is connected to a second link 73 in turn connected to the lever operating means 17, as will become more clear at a point hereinafter.

The heating means 16 is preferably of a low amperage type, and may be provided with a suitable thermometer 77 to indicate when the device has reached operating temperature. A connecing plug 78 is preferably formed integrally therewith, the heating means 16 being mounted directly within the type carrying means 14, so that heat may be readily transmitted to the type characters 57 through the vise 56.

The lever operating means 17 includes a fixed arm 81 mounted on the lower portion of the frame element 12 and a movable lever 82 disposed in coplanar relation therewith. The lever 82 is supported on a horizontal

pintle 83 which extends through the frame element 12, and supports a radially arranged projection 84 which extends through an opening 85 in the first vertical support portion 33 and a second opening 86 in the type carrying means 14, to engage the edges thereof. An extension 87 of the lever 82 extends forwardly to engage the link 73 mentioned hereinabove. A spring 88 serves to urge the lever 82 to its upwardmost position, the same including an upper end 89 connected to the extension 87 and a lower end 90 connected to the frame element 12.

The upwardmost limit of movement of the lever 82 is determined by the engagement of the projection 84 with the edge of the opening 85. The lowermost limit is relatively critical, and is accordingly determined by a threadedly adjustable limit means 91 on the lever 82 which engages a projection 92 on the frame element 12.

From a consideration of FIGURES 1 to 3, inclusive, it will be apparent that with downward movement of the lever 82, the heated type characters 57 contact the ribbon 64 to press the same against the wire 49, the downward movement causing the pawl 71 to slip a notch on the rachet 69. With release of the lever 82, the spring 88 contracts, and raises the lever, whereby motion is transmitted through the links 73 and 72 to advance the spindle 65, thereby moving a fresh portion of the ribbon 64 into position for subsequent impressions.

Turning to FIGURES 7, 8 and 9, there may be seen an alternate form of type carrying means 95. This form is interchangeable with the means 14, and is particularly useful where frequent changes of marking symbols are required.

The means 95 includes a U-shaped frame member 96 having dovetail means 97 on a centrally disposed wall 98, which means 97 is interchangeable with that of the means 14. On either side of the centrally disposed wall 98 are symmetrical side walls 99 and 100. A first shaft 101 extends between the walls 99 and 100 and supports a plurality of type bearing wheels 102, each having a plurality of type characters 103 extending radially therefrom to form interstices 104 therebetween. A second shaft 105 is slidably mounted between the walls 99 and 100 for axial movement, the shaft 105 supporting a gear-shaped member 106 which forms stop means limiting the axial movement. A first end 107 of the shaft 105 mounts manually engageable knob means 108, as well as the opening 109 in a first end 110 of a laterally extending link 111. The second end 112 thereof supports a third shaft 113, the axis of which is parallel to the second shaft 105, and which is provided with an axially disposed projection 114 engageable in the aligned interstices 104 of the wheels 102. A notch 115 is disposed in the projection 114 in such manner that it lies in coplanar relationship with respect to the plane of the U-shaped member 106. A spacing collar 116 forms a space 117 between the walls 99 and 100 to allow the gear-shaped member 106 to become disengaged from any of the interstices of the wheels 102, as when the device is in use. Indicator means 118 cooperates with markings 119 in the interstices 104 to indicate the characters which are aligned in position for making an impression upon wire disposed therebeneath.

Prior to operation, the wheels 102 are adjusted by the rotation of the knob means 108 while the gear-shaped member 106 is aligned with a specific wheel 102. When the desired character has been reached, the second shaft 105 is shifted axially to engage the next wheel 102, and a similar adjustment is made. This process is continued until all of the wheels 102 have been properly adjusted, after which the gear-shaped member 106 is moved to the space 117. This movement moves the notch 115 out of alignment with all of the wheels 102, so that the same remains locked in proper adjustment during subsequent marking operations.

It may thus be seen that we have invented novel and highly useful improvements in wire marking tools, in which there has been provided a simple low cost hand operated device which may be used while hand held without difficulty, or which selectively may be mounted upon a fixed surface. Owing to the use of a novel linkage arrangement, conventional expensive rack and pinion advancement means is eliminated, to be replaced by a simple pivotally mounted projection which partially serves as its own means for limiting rotational movement. By extensive use of aluminum castings, the weight of the device may be kept to a very low order, consistent with durability.

We wish it to be understood that we do not consider the invention limited to the precise details of structure shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention pertains.

We claim:

1. In a wire marking device of the class described, the improvement comprising: a frame element, a type carrying element arranged for substantially vertical reciprocation on said frame element, an actuating lever pivotally mounted for movement on a horizontal shaft passing through said frame, said shaft having a projection thereon extending perpendicular to the axis of said shaft, said type carrying element having an opening therein, said projection being engaged within said opening, whereby pivotal motion of said actuating lever is transmitted to said type carrying element to result in vertical movement thereof.

2. In a wire marking device of the class described, the improvement comprising: a frame element, a type carrying element arranged for substantially vertical reciprocation on said frame element, an actuating lever pivotally mounted for movement on a horizontal shaft passing through said frame, said shaft having a projection thereon extending perpendicular to the axis of said shaft, said type carrying element having an opening therein, said projection being engaged within said opening, whereby pivotal motion of said actuating lever is transmitted to said type carrying element to result in vertical movement thereof; said frame element having a fixed arm extending therefrom substantially in the plane of movement of said actuating lever, whereby said arm and said lever may be simultaneously grasped by a single hand of a user.

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