No. 676,292. Patented June 11, 1901.

C. WIGTEL.

CABLE SPLICING TOOL.

(Application filed Oct. 5, 1900.)

(No Model.)

Fig. 1.

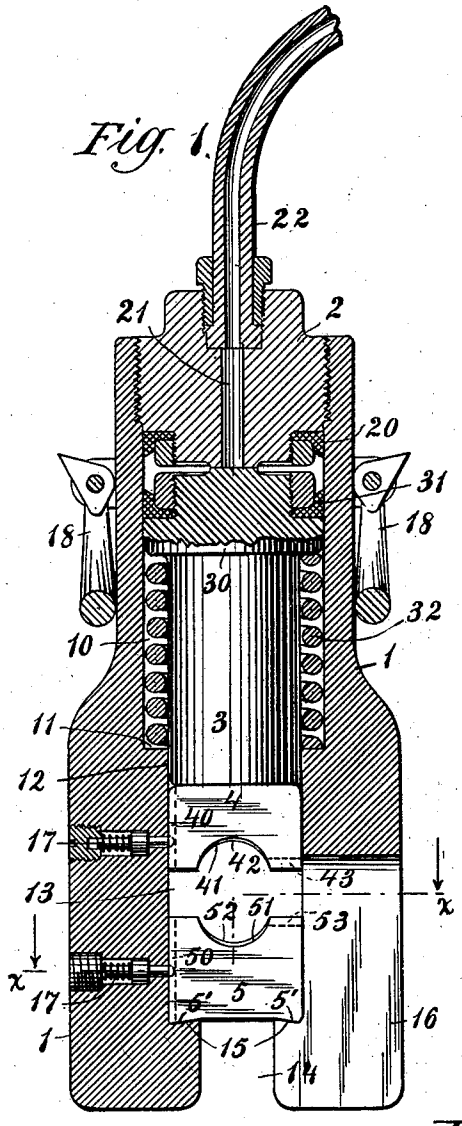


Fig. 2.

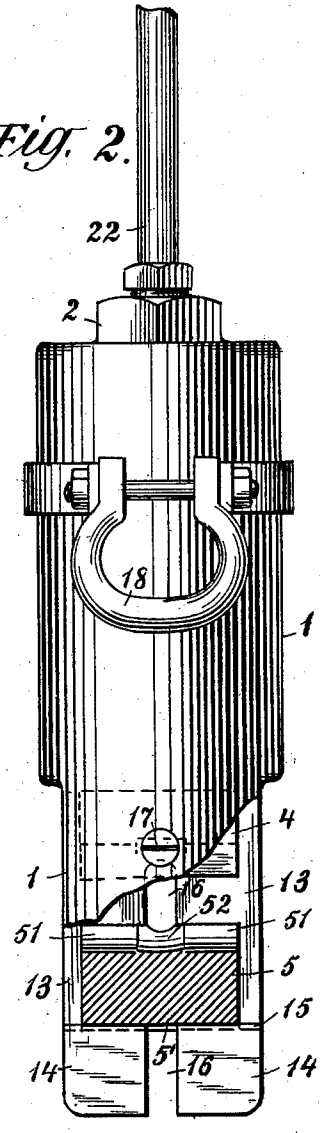
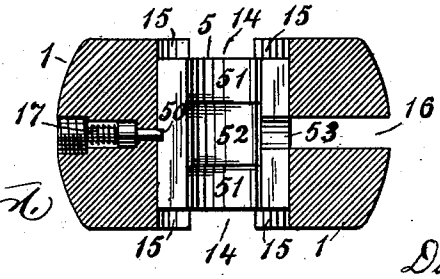


Fig. 3.



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CABLE-SPLICING TOOL.

SPECIFICATION forming part of Letters Patent No. 676,292, dated June 11, 1901.

Application filed October 5, 1900. Serial No. 32,067. (No model.)

To all whom it may concern:

Be it known that I, CARL WIGTEL, a citizen of the United States, and a resident of the borough of Brooklyn, in the county of Kings, in the city and State of New York, have invented a certain new and useful Improvement in Cable-Splicing Tools, of which the following is a full, clear, and exact description, reference being made to the accompanying drawings, forming part of this specification.

This invention relates to improvements in tools with which sections of electric cables are joined together by compressing the abutting ends of the sections and a ductile-metal sleeve inclosing them into a substantially solid mass; and the invention consists of a press constructed as herein described and claimed.

On the accompanying sheet of drawings, Figure 1 is a vertical section and elevation of a portable hydraulic press embodying the invention; Fig. 2, a broken elevation of the press and longitudinal section of the lower die-block on a plane at right angles to that of Fig. 1; and Fig. 3, a cross-section of the tool on the planes x x, Fig. 1.

Similar reference-numerals designate like parts in the different views.

The body of the press is a steel casting 1. In the upper part of the body is a screw-plug 2, at the inner end of which is a ring of packing 20. At the bottom of the chamber 10 in the body is a platform 11, and the plug 2 has in it a fluid-passage 21, which communicates with the chamber 10. Below this chamber is a recess 12, which is round and communicates with the chamber, and a transverse slot 13 extends through the body, intersecting the recess 12. A narrower slot 14 extends from the bottom of the body to the slot 13, the width of the slot 14 being such that a cable to be spliced may be passed through this slot into the slot 13. The surfaces 15 at the bottom of the slot 13 are inclined to the upright sides of the slot as one of the sides of an acute angle is inclined to the other. Another slot 16, whose upright faces are at right angles to those of the slots 13 and 14 and whose width is such that a branch of a cable may be passed through the slot, extends from the exterior of the body to the slots 13 and 14. Pins 17, inserted in holes in the body, project normally into the slot 13, these pins having their projecting ends rounded, and there being in the holes coil-springs that tend to force the pins forward, but allow them to be pushed backward. Handles 18 are attached to the body, as appears by Figs. 1 and 2.

The ram or piston 3 is a cylinder on which is a head 30. It fits in the chamber 10 and recess 12, the head being made tight in the chamber by a ring of packing 31. A coil-spring 32, resting on the platform 11 and bearing against the head of the ram, exerts an upward pressure on the ram and holds it, except when it is depressed in consequence of the action of the fluid upon it, in the position in which is is shown, the head 30 being in contact with the bottom of the plug 2. A pair of blocks 4 and 5, which form a die whose length is equal to that of the sleeve on which the tool is to act, fit in the slot 13. These blocks have in them grooves 40 and 50, with which the pins 17 engage, and they may be pushed into the slot and into engagement with the pins and be withdrawn from the slot with the hands. The top of the block 4 on which the ram acts is flat. The bottom of the block 5 has surfaces 5′, that are inclined to the sides of the block at angles equal to those included between the surfaces 15 and the sides of the slot, the bottom and sides of the block fitting between the surfaces 15 and the sides of the slot, as appears by Figs. 1 and 2. On the faces of the blocks are semicylindrical surfaces 41 and 51, which when the blocks are brought together face to face form cylindrical surfaces somewhat smaller in diameter than the sleeves, and between the surfaces 41 of the block 4 and the surfaces 51 of the block 5 are projections 42 and 52, respectively. When a cable is spliced where there is a branch, the die-blocks then used have in them notches 43 and 53 to form a passage for the branch to the exterior of the die; but when such a passage is not required die-blocks without those notches are commonly used.

The fluid-passage 21 in the plug 2 is connected by a pipe 22 with a pump, by which fluid is forced into the chamber 10 to actuate the ram.

The tool is especially intended to be used

in splicing cables laid in underground conduits, and consequently to be operated in the manholes through which access to the cable is afforded and in which there is but little room. It is applied to a cable while the die-block 5 is out of the body. It receives the cable first in the slot 14 and afterward in the slot 13 as it is lowered in the manhole, and, if there is a branch, that is received in the slot 16. The cable being in the slot 13 the die-block 5 is inserted in the body under the cable. The ram is actuated by pumping fluid into the chamber 10, the pump being on the ground outside of the manhole and the connecting-pipe being preferably flexible. The die compresses the sleeve and the wires within it throughout the length of the sleeve, yet it subjects them to the greatest compression at the abutting ends of the wires and midway between the ends of the sleeve, where the projections 42 and 52 act on them. The spring 32 lifts the ram and forces the fluid up through the plug and the pipe 22 back to the pump.

The block 5 and the body of the tool are fitted together at the bottom of the slot 13, as described, to prevent or to help prevent the body from springing under the pressure exerted by the ram, the block serving to tie the parts of the body together.

It is to be noted that some features of the invention might be embodied in a screw-press or lever-press as well as in a hydraulic press.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A cable-splicing tool consisting of a press having in its body a space extending transversely through the body and to the bottom of the body, the tool comprising a removable lower die-block that fits in said space and rests on the body at both sides of the space, and the die-block and body having on them interlocking surfaces that engage with one another to prevent the parts of the body at the ends of the die-block from springing outward, substantially as described.

2. A cable-splicing tool consisting of a press having in its body a space extending transversely through the body and to the bottom of the body, and a slot 16 extending from the exterior of the body to said space, the tool comprising a removable die-block, and means to secure the die-block in said space, the block being connected with the body at both sides of the space, substantially as described.

3. A cable-splicing tool consisting of a press having in its body transverse slots 13 and 14, the tool comprising a removable die-block having surfaces 5′ on its bottom that are inclined at acute angles to the lateral faces of the block and fit the surfaces 15 at the bottom of the slot 13, the lateral faces of the block being in contact with the sides of the slot, substantially as described.

4. A cable-splicing tool consisting of a press having in its body a space extending transversely through the body and to the bottom of the body, the tool comprising a removable die-block that fits in said space and rests on the body at both sides of the space, and a catch to engage said die-block, substantially as described.

5. A hydraulic tool having in the upper part of its body a ram-chamber, and in the lower part a space extending transversely through the body and to the bottom of the body, the thickness of the body on both sides of this space being greater than the wall of the ram-chamber, and the tool comprising a removable lower die-block that fits in said space, resting on the body at both sides of the space, substantially as described.

6. A hydraulic tool having in its body transverse slots 13 and 14, the tool comprising the combination of a ram extending into the slot 13, and an upper die-block and an under die-block that fit in this slot, the under die-block having surfaces 5′ on its bottom that are inclined at acute angles to the lateral faces of the block and fit the surfaces 15 at the bottom of the slot 13, the lateral faces of the block being in contact with the sides of the slot, substantially as described.

7. A hydraulic tool comprising the combination of: the body 1; the plug 2; the ram 3; the spring 32, resting on the platform 11 and bearing against the head 30 of the ram; and upper and lower die-blocks that fit in the slot 13 in the body, the lower die-block being removable from the body; substantially as described.

8. A cable-splicing press comprising a pair of die-blocks having on their faces surfaces 41 and 51 and projections 42 and 52, substantially as described.

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In presence of—
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H. A. SOHL.