(No Model.)

J. B. HYDE.

APPARATUS FOR CONSTRUCTING ELECTRIC CONDUCTORS.

No. 284,855. Patented Sept. 11, 1883.

Fig. 1.

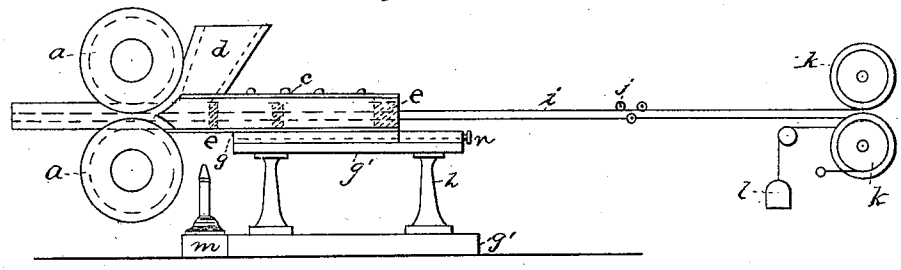


Fig. 2.

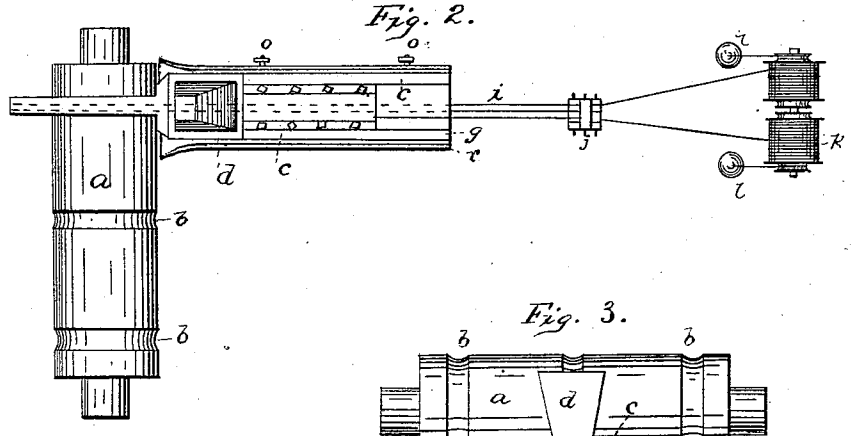


Fig. 3.

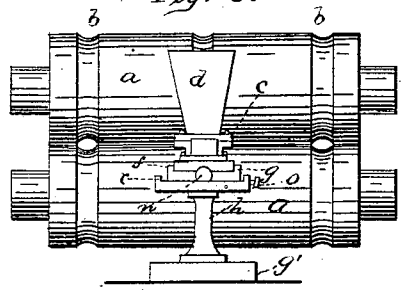
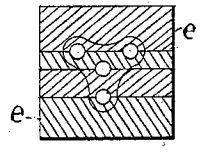


Fig. 4.



WITNESSES
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APPARATUS FOR CONSTRUCTING ELECTRIC CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 284,855, dated September 11, 1883.

Application filed June 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, J. BURROWS HYDE, a citizen of the United States of America, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Constructing Electric Conductors, of which the following is a specification, reference being had therein to the accompanying drawings.

My improvements relate to a novel system for manufacturing that class of electric cables which are formed of a series of fiber-covered insulated wires embedded within an arming of lead. Lead-covered cables are usually made by the same kind of machines or "presses" that are employed to make lead pipes, but upon which a peculiar and especially-made forming-die is substituted in place of the annular die for the pipe. Those presses contain a strong pump-like cylinder, which, the piston being withdrawn, is filled with melted lead, that, under great pressure from a hydrostatic pump, is forced out through the die that forms the pipe; or, if arranged to make an electric cable, the covered wires are conducted into the press from reels and through the die in such way that they are embedded within the lead and emerge with it as a completed cable. Such constructed presses make but one cable at a time. They are bulky and expensive in construction, besides requiring great motive power for operation. My improvement will make several cables simultaneously, is simple and inexpensive, comparatively, in its construction, and requiring a minimum power to work it, and it is particularly, but not exclusively, adapted to the form of cable patented by me May 8, 1883, No. 277,036. (See drawing.)

Figure 1 shows a side elevation of the apparatus, partly in section; Fig. 2, a plan view of the same, the upper roll being removed; Fig. 3, an end elevation; Fig. 4, an enlarged scale wire guide-block, also showing an outline of the cable shape.

a a represent a pair of rollers, preferably of iron, having three grooves, *b*, cut on their periphery, of configuration or contour to conform to the required exterior shape of the cable.

c represents an adjustable trough, having a removable cover and secured to a base, *f*, which is made to slide back and forth in a recess formed on the top surface of a table, *g*, by the adjustment of an adjusting-screw, *n*, at its rear end, and carrying at its forward end an open fount, *d*, for melted lead, the forward end of which fount is flanged outward on each side, and at its bottom is curved outward to fit between the rollers *a* when in position for working, as shown, and is adjustable sidewise by the screws *o o* in the sides of the table *g*. The front end of the sliding and adjustable trough *c* is made to fit the rolls closely, its fitting edge being widened by lateral flanges, to prevent escape of the fluid lead and to decrease abrading friction. It will be seen that this trough is designed to be adjusted both sidewise and direct.

e e show guide-blocks for the wires which are located in the trough, they being made in four parts, as shown at enlarged Fig. 4.

The cap or cover of the trough and fount or vessel *d* are integral, or, if preferable, may be separable and secured together, they being fitted to the trough by flanges both on the cover and trough and secured to said trough by screws and nuts, as shown. When the cover and fount are removed from the trough, the guide-blocks *e* can be removed, they being firmly held in grooves or recesses at the inner sides of the said trough, but which grooves are not shown in the drawings. The blocks are made in sections to facilitate adjustment of the wires and removal.

The table *g* is supported on a base, *g'*, which rests upon and is secured to legs *h*.

i represents the wires; *j*, straightening-rollers between which the wires pass; and *k*, wire reels provided with tension-weights *l*, to keep the wires in line.

m represents a Bunsen burner and stand to temper the heat of the lead-fount, the lead being supplied from a melting-vessel.

In commencing to operate the machine the wires are made to pass from the weighted reels between the straightening-rollers through the apparatus to the cable-reel, (not shown,) they being held in position by the gages *e*, one of which gages—a simple perforated plate—is placed over the wires beyond the rollers *a*, the perforations in this plate corresponding to Fig. 4. The wires are kept at proper tension to

insure straight direction. After such first working a few inches of the complete cable should be always left attached at the same point and the gage-plate be dispensed with. The lead from the fount *d* will chill as soon as it comes in contact with the walls of the cable-grooves in the rolls *a*, and when said rolls rotate the melted lead of its own gravity will flow down and into the outlet-space in the rolls, and as the chilled metal moves away by rotation of the rolls the insulated wires are enveloped and carried forward and delivered as a complete cable.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus for making lead cables, the combination, with a pair of forming-rollers, of the sliding or adjustable trough and fount and the adjustable guides for the wires located in said trough, substantially as described.

2. The combination of the trough and fount with the reels at or near the rear thereof, having tension-weights, the intermediate straightening-rollers, and the grooved rollers arranged at its forward end, substantially as described.

3. The combination, in an apparatus for making lead cable, consisting of the movable adjustable trough, and the fount *d*, with its outlet for the lead adapted to fit between the rollers for the delivery of the lead to the grooves, as described.

4. An apparatus for making lead cable, consisting of the trough and its bed, said trough having a fount provided with an extended outlet for delivering the lead to the rollers, in combination with a heating medium arranged below the trough, preferably beneath the fount, whereby the temperature of the lead may be regulated, as shown and described.

5. The combination of the trough and lead-fount with the sectional movable dies for guiding the wires to the rollers independent of the movement of the trough, whereby each wire is guided centrally through its proper wing or center of the cable, as may be, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

J. BURROWS HYDE.

Witnesses:
JACOB J. STORER,
ALBERT P. MORIARTY.