

1,358,869.

P. E. NORRIS.
LEAD BURNING MACHINE.
APPLICATION FILED MAR. 17, 1917.

Patented Nov. 16, 1920.

2 SHEETS—SHEET 1.

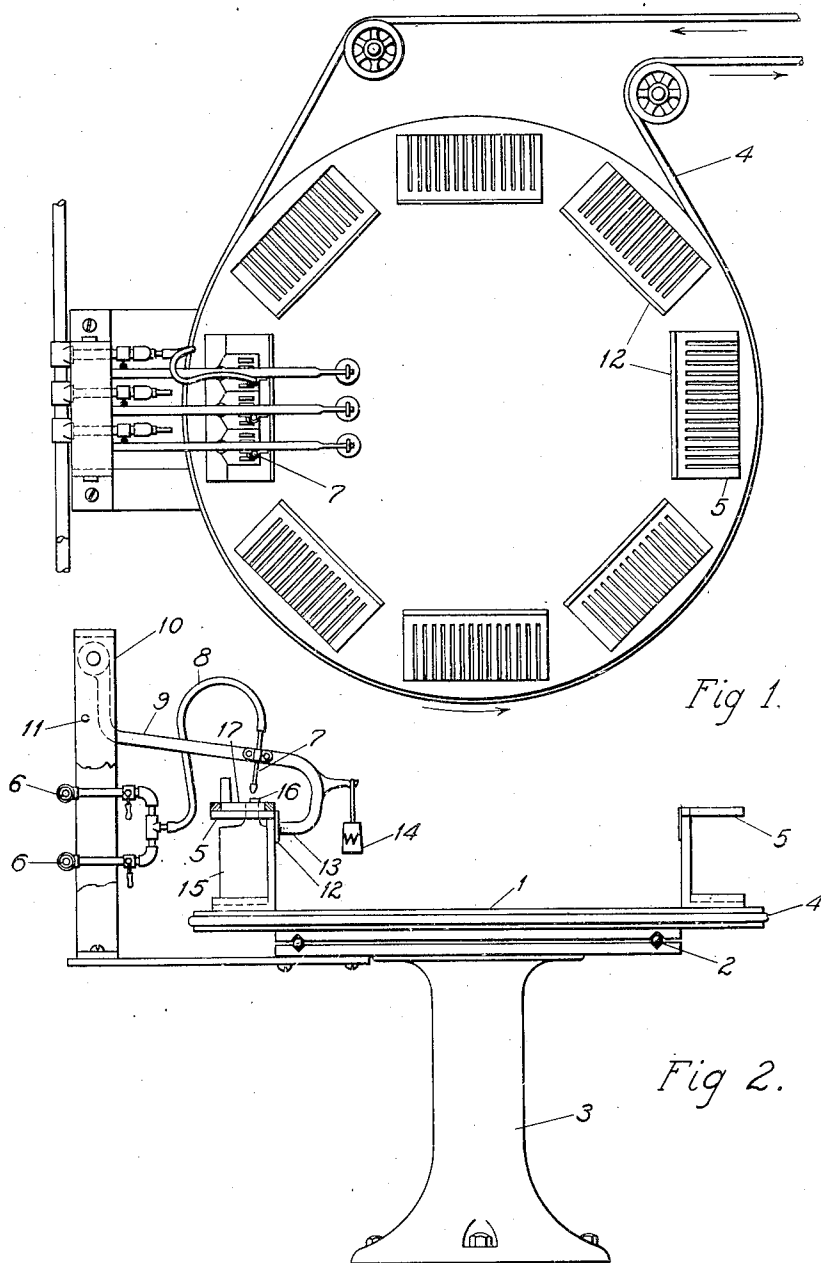


Fig 1.

Fig 2.

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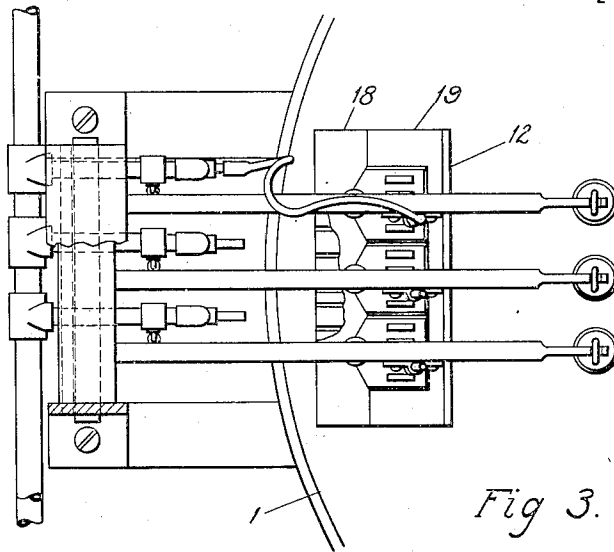


Fig 3.

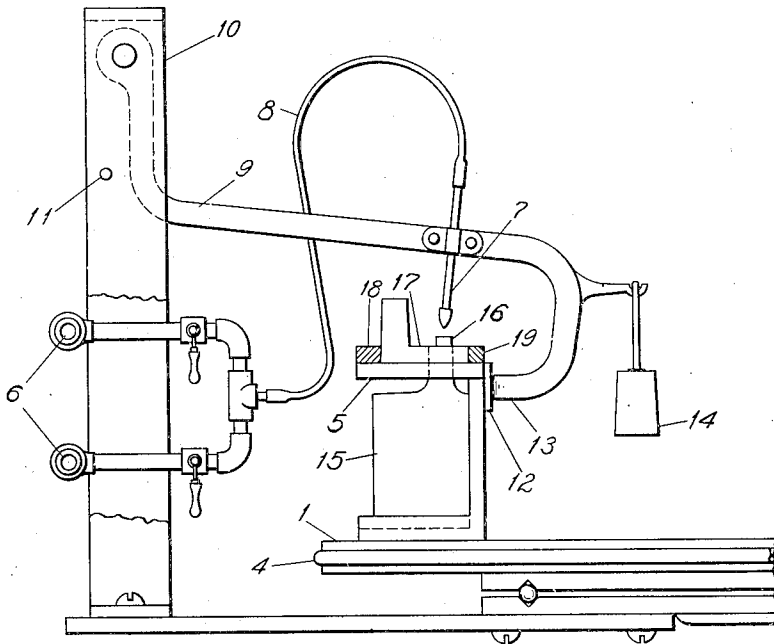


Fig 4.

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UNITED STATES PATENT OFFICE.

PAUL E. NORRIS, OF CLEVELAND, OHIO, ASSIGNOR TO U. S. LIGHT & HEAT CORPORATION, OF NIAGARA FALLS, N. Y., A CORPORATION OF NEW YORK.

LEAD-BURNING MACHINE.

1,358,869.

Specification of Letters Patent. Patented Nov. 16, 1920.

Application filed March 17, 1917. Serial No. 155,437.

To all whom it may concern:

Be it known that I, PAUL E. NORRIS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Lead-Burning Machines, of which the following is a specification.

The present invention relates to improvements in lead burning machines.

As is well known, the plates of one polarity in a battery cell are electrically and mechanically connected by means of a lead strap which is integrally united to the lugs of said plates. The plates of the other polarity are similarly united. The present invention relates more particularly to a labor saving device whereby the uniting of the lugs of the plates to the strap may be accomplished.

An object of the present invention is to provide a machine whereby the straps may be united to battery plates with a minimum of labor and expense.

A further object is to provide a machine which will accomplish the above-mentioned object with a minimum of danger of getting out of order and which will result in a uniform product.

Further objects will be apparent as the description proceeds.

Referring to the drawings:—

Figure 1 represents a plan view of one embodiment of the invention.

Fig. 2 represents a view in elevation of the same.

Figs. 3 and 4 represent a plan and elevation respectively of a detail of the invention.

In the illustrated embodiment of the invention, a revoluble table 1 is provided, which is mounted by means of roller bearings 2, or in any other suitable way, upon a standard 3. The table should preferably be at a height for men to work conveniently thereon. The edge of said table may be grooved for the reception of a belt 4 by

means of which power may be communicated to said table for revolving the same.

The table 1 will preferably be provided with a series of circumferentially placed racks 5, as shown in Fig. 1, which will each be of a size and configuration suitable for holding a number of battery plates in their proper spaced relation. As the table is revolved by the belt 4, the racks 5 will be moved in succession under a series of gas fixtures which will now be described.

Located at the left hand side of the table, as viewed in Figs. 1 and 2, are a pair of sources of gas supply 6, 6. Communicating with these sources 6, 6, are a plurality of burning tips 7, each of which tips 7 will be connected to said sources through flexible tubing 8. The proper mixture for the supply of gas from the sources. Each tip 7 is mounted on a pivotally mounted supporting bar 9. Each of said bars 9 is pivoted to a stationary frame 10 which, if preferred, may be mounted on the standard 3. Located in the frame 10 are a plurality of stops 11, each of which is adapted to cooperate with one of the bars 9.

Each of the racks 5 is provided on the side toward the center of the table with a guide bar 12 which, as will be noted in Fig. 1, is a straight bar arranged tangentially to the circle marking the path of movement of the center of said bar. Each of the bars 9 is provided with a guide 13 adapted to cooperate with the bars 12. Each of the bars is preferably held in a position downwardly and toward the left, as shown in Fig. 2, by means of a weight 14. Due to the position of each of the bars 12, it will be at once evident that the ends of each of said bars will be farther from the center of the table than any other part of said bars. Each of the stops 11 is so positioned with relation to its respective bar 9 that the guide 13 is never farther from the center of the table than the ends of the guide bars 12. Consequently, as the guide bars are moved in a

circular direction, the guide bars 12 will move to the left of the guides 13 (Fig. 1) and will successively move said guides 13. As a result, the tips 7 will be always moved
 5 to the correct position for playing a flame upon the tops of the lugs of the battery plates.

Referring to Figs. 2 and 4, the racks are indicated by the numeral 5, the plates by the numeral 15 and the lugs of said plates
 10 by the numeral 16. A strap which is to be united to the lugs 16 is represented by the numeral 17.

In order that there may be no overflow of
 15 lead when the lugs 16 are fused into an integral mass with the straps 17, it is desirable that some means be provided for restraining the escape of the molten lead. For this purpose a frame consisting of the parts 18
 20 and 19, as best illustrated in Fig. 3, is provided.

The mode of operation of the described embodiment of the invention will be apparent without explanation. It will be sufficient
 25 to state that a number of workmen will be spaced around the table, each having a specified duty assigned to him. For instance one man will place plates in the rack while another will apply straps to said plates,
 30 while another may apply the frame members 18 and 19. As the table revolves, the racks will be carried to each man for him to do his work. After the plates and straps are in their proper positions, the movement of the
 35 table will bring the straps and lugs under the first of the burning tips 7. The tips 7 will be held in the proper position through the coöperation of the guide plate 12 and stop 13. Further movement of the table
 40 will carry the strap so that the second tip 7 also plays a flame thereon. Each part of each strap and the lugs associated therewith will successively come under each jet, where-
 45 by the metal of the lugs and the strap will be fused into an integral mass. After the rack has passed out from under the burning tips 7, a workman will remove the plates from said rack, whereby said rack may be
 50 again filled by his neighboring workman.

The described embodiment of the invention has been illustrated with three burning tips 7. It will be apparent that any number may be used so long as each is movable independently of the others.

The present invention has been illustrated as being embodied in a revoluble table for the reason that this form is economical of space. It will be clear, however, that the invention may take other forms. Many
 60 modifications will occur to those skilled in the art. It is desired that the patent will cover all such modifications that fall within the scope of the invention as defined by the appended claims.

What I claim as new and desire to secure 65 by Letters Patent of the United States, is—

1. In lead burning apparatus, in combination, a revoluble table, a plurality of circumferentially spaced holding means on said table for holding the material to be burnt, a
 70 plurality of flame-directing means independently movable radially of said table, guiding means carried by each of said holding means, means movable with each of said flame directing means for engaging said guiding
 75 means to control the position of its respective flame-directing means.

2. In lead burning apparatus, in combination, conveying means, a plurality of independently movable flame-directing means, 80 said conveying means being adapted to carry material past said flame-directing means in proximity thereto, and guide means for controlling the relative positions of said flame-directing means, whereby to move said flame-directing means to conform to the outline of the work carried by said conveying means.

3. In lead burning apparatus, in combination, a revoluble table, holding means mounted on said table for holding material 90 to be burnt, flame directing means movable relative to said holding means, guide means revoluble with said table for controlling the position of said flame directing means in a direction substantially radial of said table, 95 and means for preventing said flame directing means from getting out of operative relation with said guide means, said guide means comprising a straight member arranged tangentially to the path of movement of the center of said member. 100

4. In combination, a plurality of battery plate holding means, each of said means being provided with slots for the reception of battery plates and also being provided with 105 means for holding a battery strap in its proper position, means for restricting the flow of molten lead, flame-directing means, and means for conveying said holding means whereby said plates and straps may successively come into operative relation with said flame-directing means. 110

5. In lead burning apparatus, in combination, conveying means, a plurality of holding means on said conveying means for holding material to be burnt, a plurality of flame-directing means independently movable normally of the path of said holding means, guiding means carried by each of said holding means, each of said flame-directing means being provided with means for engaging said guiding means to control the position of said flame-directing means. 120

6. In lead burning apparatus, in combination, conveying means, holding means on 125 said conveying means for holding material to be burnt, flame-directing means movable normally of the path of movement of said

holding means, guiding means carried by
said holding means, said guiding means comprising a straight member arranged tangentially to the path of movement of the
5 center of said member, said flame-directing means being provided with means for engaging said guiding means to control the position of said flame-directing means.

7. In combination, revoluble carrying
10 means, plate holding means carried thereby, said holding means being adapted to hold

plate lugs in a substantially straight line, flame-directing means and guide means for said flame-directing means revoluble with said carrying means, said guide means comprising a substantially straight member arranged tangentially to the path of movement of the center of said member. 15

In witness whereof, I have hereunto subscribed my name.

PAUL E. NORRIS.