Feb. 6, 1951 G. C. MOLOTZAK 2,540,277

ELECTRIC IGNITER FOR SOLID FUEL

Filed July 7, 1948

Fig. 1.

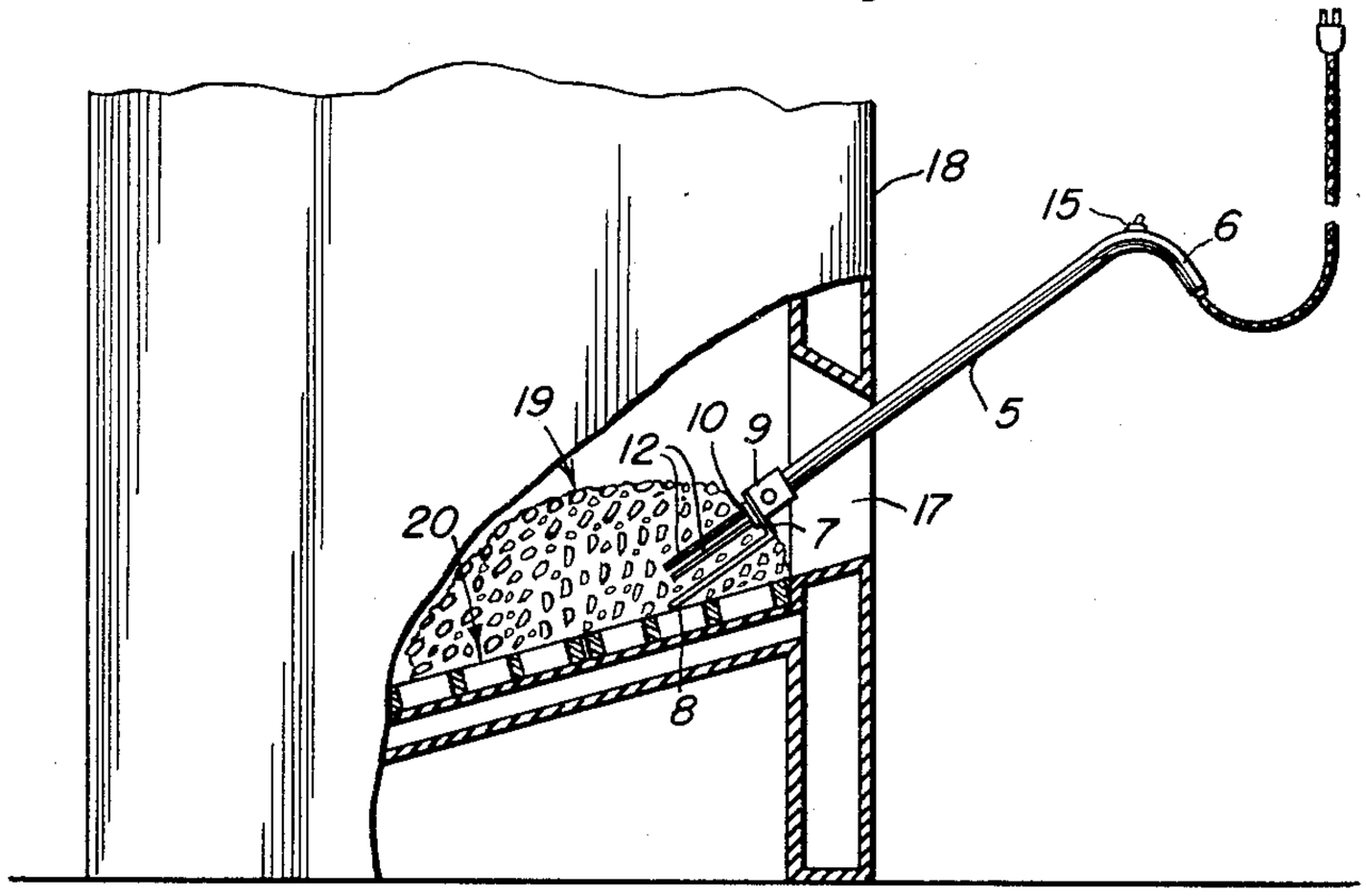


Fig. 2

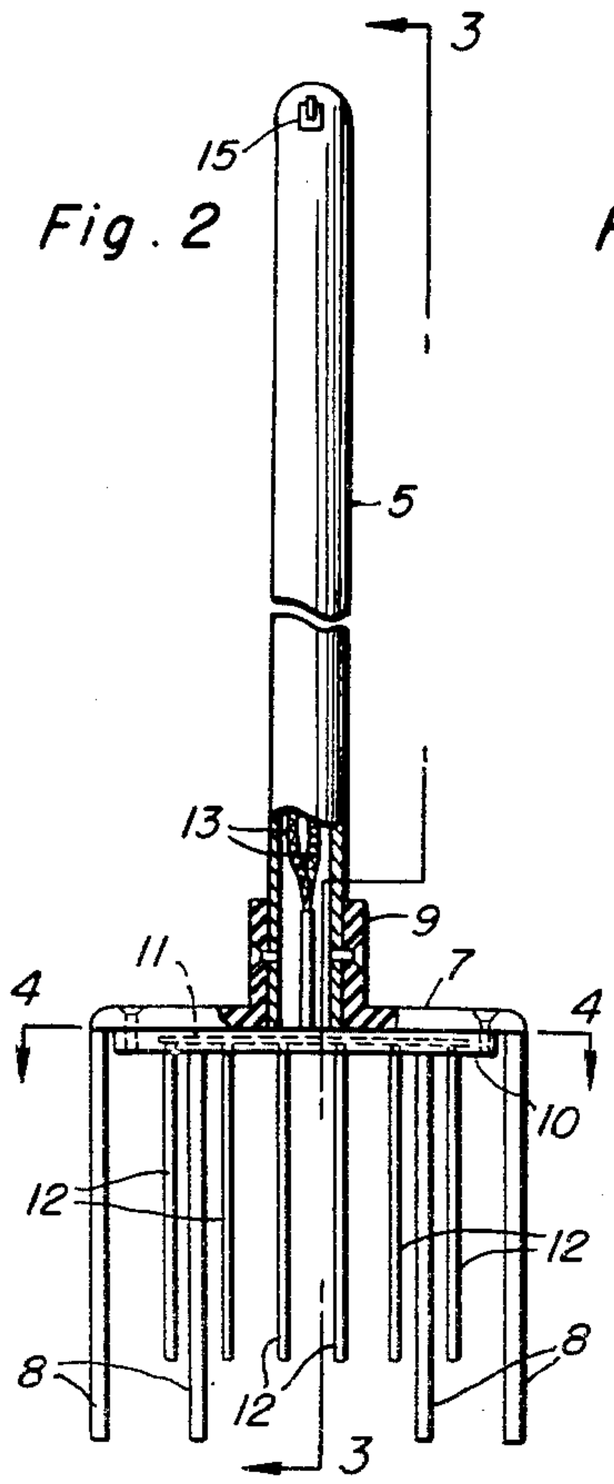


Fig. 3.

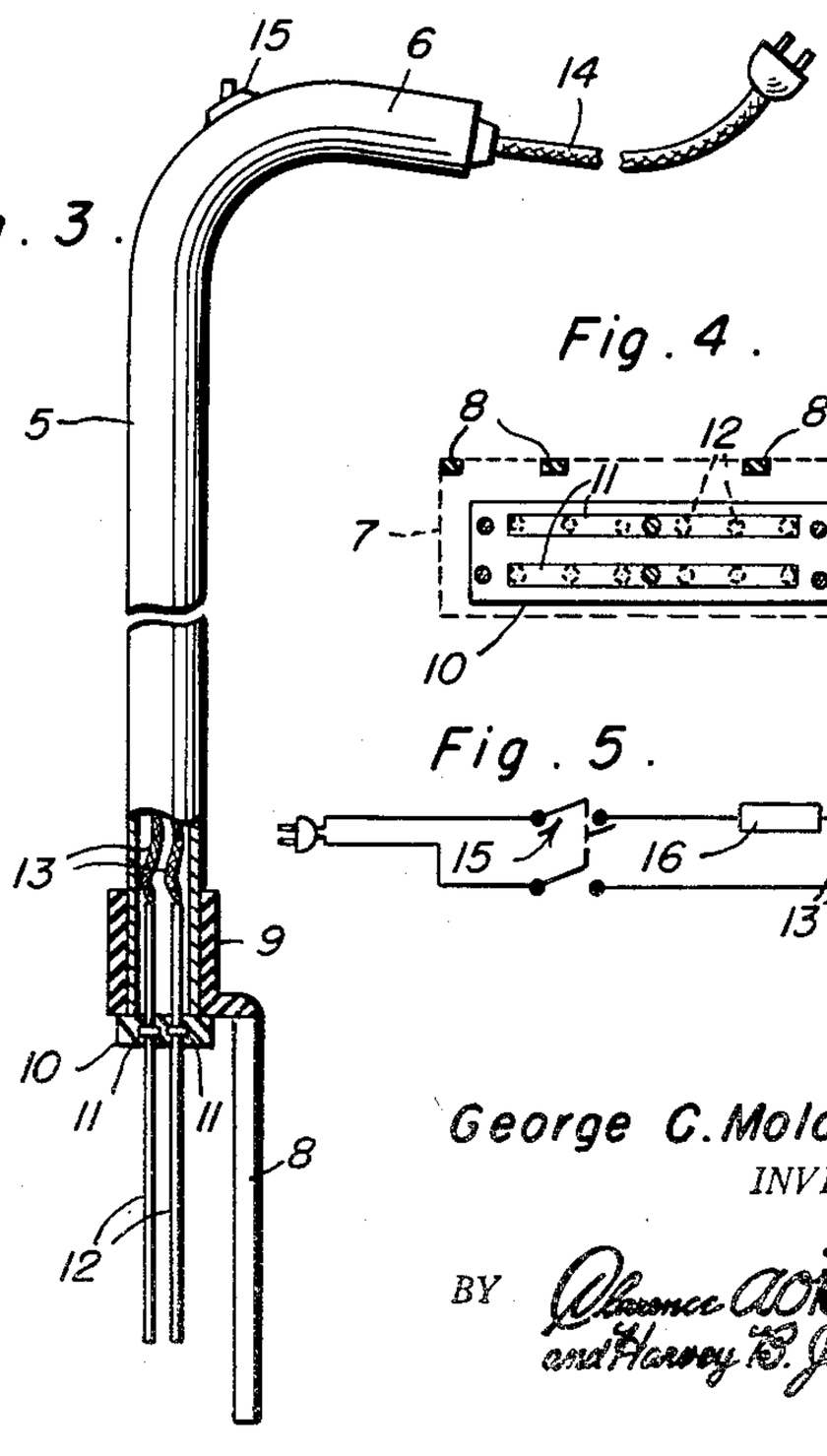


Fig. 4.

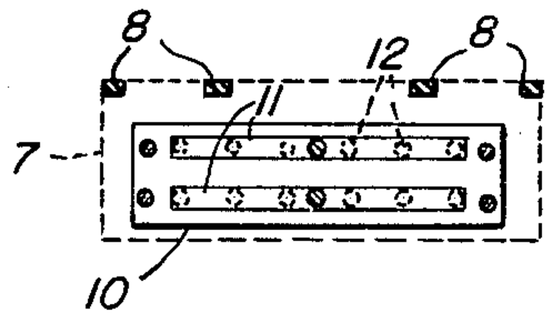
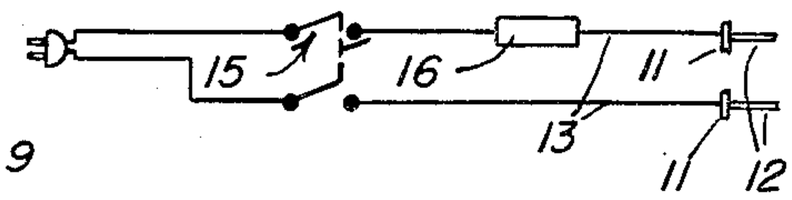


Fig. 5.



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2,540,277

ELECTRIC IGNITER FOR SOLID FUEL

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Application July 7, 1948, Serial No. 37,444

1 Claim. (Cl. 219—32)

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This invention relates to a fuel igniting device, and has more particular reference to a portable device for starting a fire in a body of solid fuel.

The objects of the present invention are to provide a device for igniting a solid body of fuel without using paper or other readily combustible material; to provide an igniter or kindler for solid fuel whereby the time required to start the combustion is reduced to a minimum; and to provide a novel portable device for starting a fire in a body of solid fuel easily and expeditiously.

The exact nature of the present invention will become apparent from the following description when considered in connection with the accompanying drawing, in which:

Figure 1 shows part of a solid fuel furnace with an igniting device of the present invention in operative position relative thereto;

Figure 2 is a front elevation, partly broken away and in section, illustrating the device on an enlarged scale;

Figure 3 is a view partly in side elevation and partly in section, taken on the line 3—3 of Figure 2;

Figure 4 is a horizontal section taken on the line 4—4 of Figure 2; and,

Figure 5 is a wiring diagram showing the circuit connections for the several electrical elements of the device shown in Figure 1.

Referring in detail to the drawing, the illustrated form of the invention includes a fork embodying an elongated tubular handle 5 having its rear end portion directed backwardly to provide a hand-grip 6, and a pronged head rigidly secured on the front end of said handle and including an elongated plate 7 disposed transversely of the handle and having a plurality of spaced forwardly projecting prongs 8 on the back edge thereof. The head may be formed of insulating material or suitably insulated from the handle, and it is shown as including a sleeve 9 centrally carried by plate 7 and fitted and secured on the adjacent end of the handle.

Secured to the front or bottom face of plate 7 is an elongated base plate 10 of insulating material having a pair of spaced conductor strips 11 longitudinally embedded therein, each conductor strip having a plurality of spaced forwardly extending electrodes 12 of slender elongated form fixed thereto. The electrodes are shorter than and disposed in front of the prongs 8 and are arranged in pairs with those of each pair disposed one directly in front of the other.

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Lead wires 13 of an attachment cord 14 are extended through the handle 5 and connected to the conductor strips 11 for conveying alternating current from an outlet receptacle to the electrodes. A manually operable double pole switch 15 is interposed in the lead wires 13, and a safety automatic circuit maker and breaker 16 is interposed in one of the lead wires 13, said switch and circuit maker and breaker being respectively mounted on the hand-grip 6 and within the handle 5. The circuit maker and breaker 16 is of a conventional type which is normally closed and which is adapted to open when the amperage of the current conveyed to the electrodes rises to a predetermined dangerous point.

In Figure 1, the device is shown passed through the fuel feed door opening 17 of a furnace 18 adapted to burn solid fuel, with the prongs 8 and electrodes 12 inserted well within the body of solid fuel 19 upon the grate 20 and with the free ends of the prongs 8 contacting the grate to hold the electrodes spaced therefrom. When the device is thus located, the switch 15 is closed and current flows from the electrodes of one conductor strip 11 to the other through the adjacent lumps of fuel, some arcs occurring between adjacent lumps of fuel and between them and the electrodes. Due to the resistance offered by the lumps of coal, they become heated to a temperature approaching incandescence, and their resistance decreases until the amperage of the current rises to a dangerous point, whereupon the circuit maker and breaker 16 automatically open until the resistance increases and then it automaticaly closes again. This action is repeated until the fuel is ignited to a point where combustion of the fuel is supported and maintained under normal operating and draft conditions, whereupon the switch 15 is opened and the device is withdrawn from the furnace.

In effect, the head of the device forms a shield or guard having a portion (the prongs) disposed behind and extending laterally and forwardly beyond the electrodes to minimize danger of contacting the latter with the furnace.

From the foregoing description, it is believed that the construction, operation and advantages of the present invention will be readily understood and appreciated by those skilled in the art. Modifications and changes in details of construction are contemplated, such as fall within the spirit and scope of the invention as claimed.

Having described the invention, what is claimed as new is:

A portable electrical solid fuel kindling tool comprising a hand fork, said fork embodying an elongated tubular handle having a hand grip at its rear end, and a pronged head rigidly secured on the front end of said handle, said head including a flat elongated plate attached intermediate its ends to said front end of said handle and disposed transversely of and in a plane substantially at a right angle to a plane intersecting the longitudinal axis of said handle, and a plurality of spaced prongs rigid with and projecting forwardly from the back edge of said plate, a flat elongated base plate of insulating material secured to the front face of said first-named plate, a pair of spaced elongated conductor strips disposed longitudinally of and imbedded in said base plate, a plurality of spaced elongated electrodes fixed to and projecting forwardly from each conductor strip, said electrodes being shorter than and disposed in front of said prongs, an attachment cord extending through

said handle and having insulated lead wires connected to the respective conductor strips, and a manually operable switch interposed in the lead wires and mounted on said hand grip.

GEORGE C. MOLOTZAK.

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