April 29, 1941. K. L. STORRS 2,239,833

FUEL FORM MANUFACTURING APPARATUS

Filed Sept. 14, 1939 2 Sheets-Sheet 1

Fig. 1.

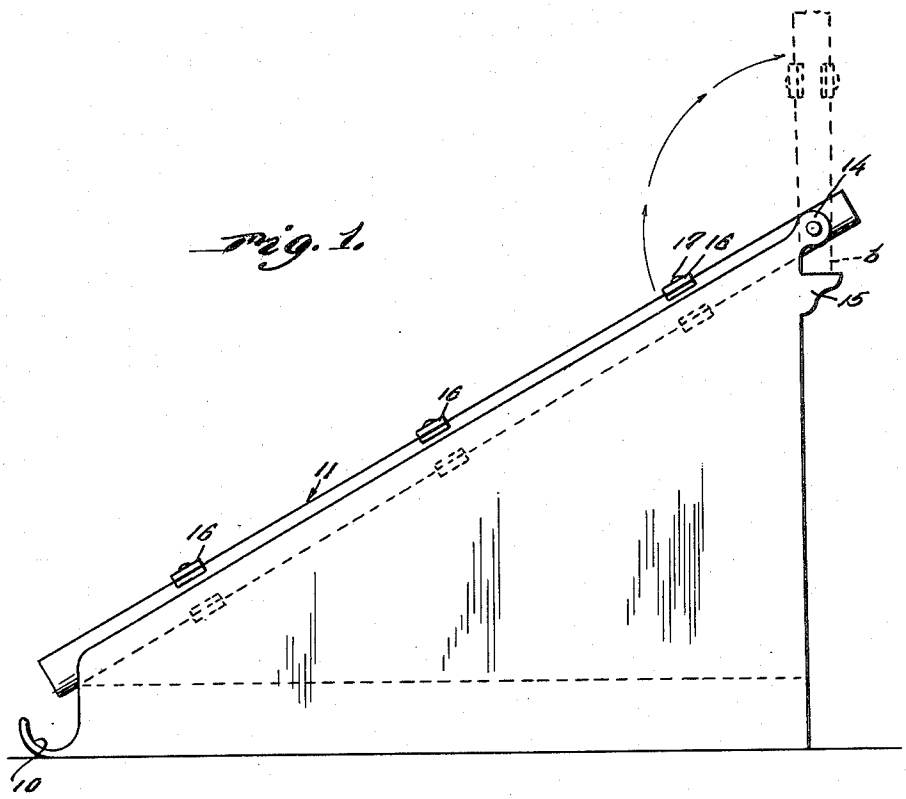


Fig. 4.

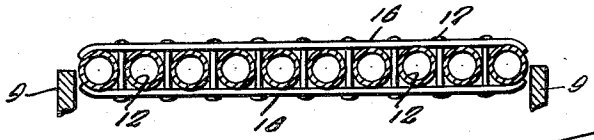
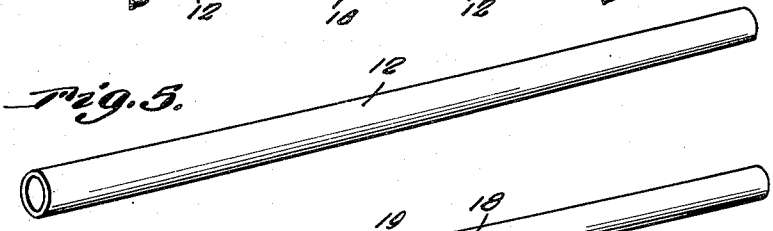


Fig. 5.



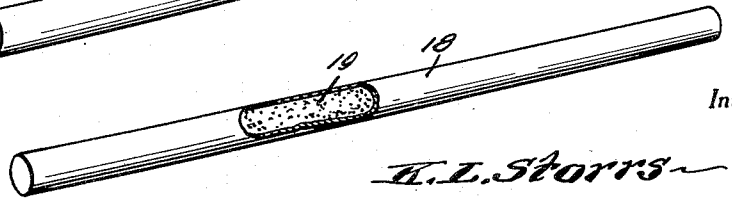


Fig. 6.

Inventor

K. L. Storrs

By Clarence A. O'Brien and Hyman Berman

Attorneys

April 29, 1941. K. L. STORRS 2,239,833

FUEL FORM MANUFACTURING APPARATUS

Filed Sept. 14, 1939 2 Sheets-Sheet 2

Fig. 2.

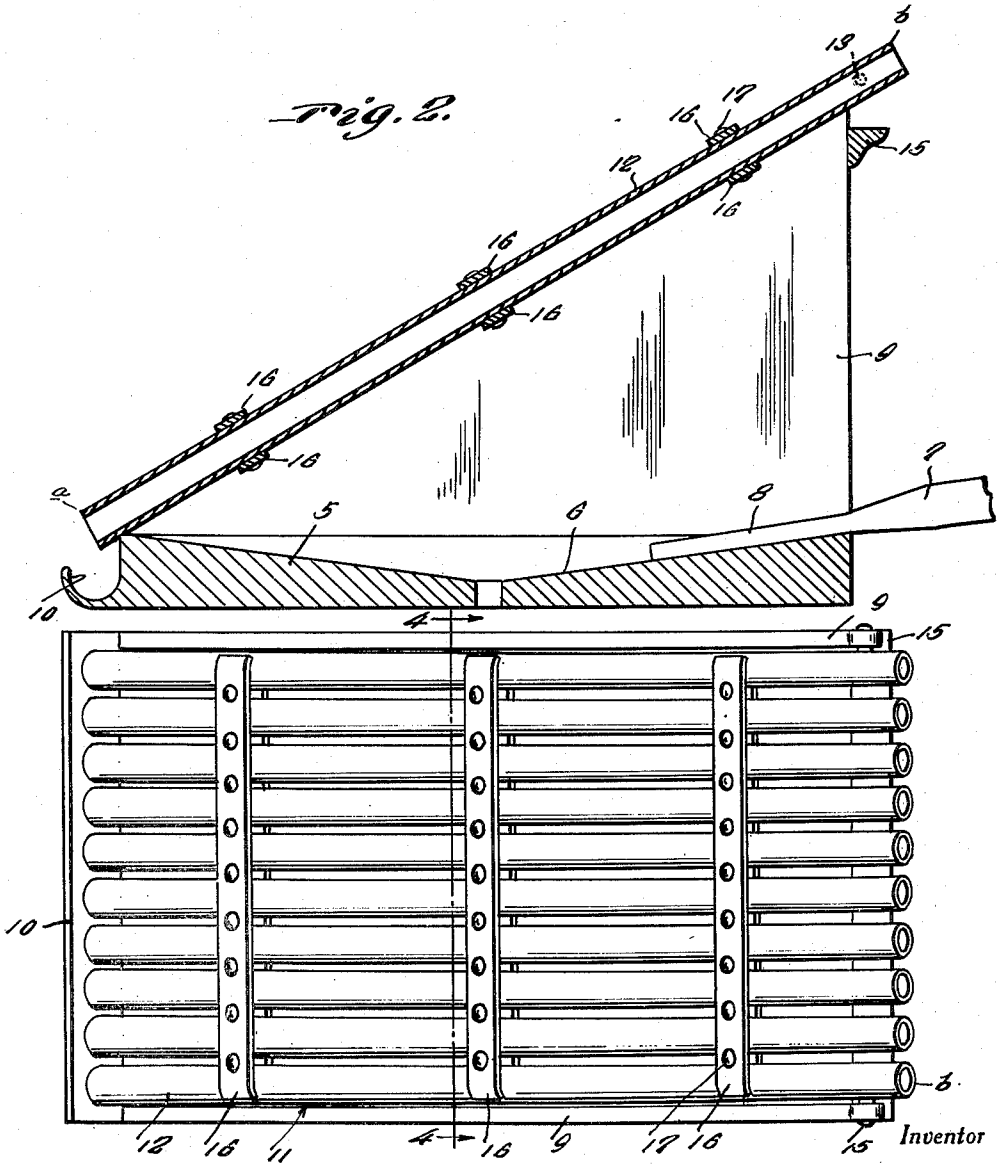


Fig. 3.

Inventor

K. L. Storrs

By Clarence A. O'Brien and Hyman Berman

Attorneys

Patented Apr. 29, 1941 2,239,833

UNITED STATES PATENT OFFICE

2,239,833

FUEL FORM MANUFACTURING APPARATUS

Kindred Lane Storrs, Coal City, Utah

Application September 14, 1939, Serial No. 294,971

4 Claims. (Cl. 44—13)

This invention relates to new and useful improvements in a method of manufacturing fuel in a desirable form from slack coal and rendering the same substantially smokeless.

The principal object of the present invention is to provide an apparatus in which slack coal can be placed and the slack coal treated in such a manner as to remove coal tar and other undesirable constituents to the end that the resulting product is substantially smokeless when burned.

Another important object of the invention is to provide a process of manufacturing smokeless fuel which in execution will be simple and of low cost to perform.

These and various other important objects and advantages of the invention will become apparent to the reader of the following specification.

In the drawings—

Figure 1 represents a side elevational view of the apparatus.

Figure 2 is a vertical sectional view.

Figure 3 is a top plan view.

Figure 4 is a fragmentary cross sectional view taken substantially on the line 4—4 of Figure 3.

Figure 5 is a perspective view of one of the fuel forming tubes.

Figure 6 is a perspective view with a portion broken away, showing one of the finished fuel logs.

Referring to the drawings wherein like numerals designate like parts, it can be seen that the apparatus is made up of the base 5 which can have the basin-like top concavity 6 in which suitable fuel can be placed and kept under blast by a suitable bellows unit 7 having its nozzle 8 protruding into the concavity 6. The base 5 has the vertical side walls 9, the upper edge portions of which slope downwardly from one end of each wall to substantially meet the base 5, as is clearly shown in Figures 1 and 2, and at this end of the base 5 is a trough 10.

Numeral 11 generally refers to the fuel forming and treating assembly which is swingably mounted as suggested in Figure 1. This assembly consists of a plurality of tubes 12 tapering from their relatively large ends *a* upwardly to their smaller ends *b*. A pin 13 is disposed transversely through the upper reduced ends *b* and the ends of this pin are disposed through the apertured ears 14 at the uppermost portions of the side walls 9, and, of course, headed to prevent displacement. Thus the assembly 12 is swingably supported and when the tubes are elevated to the dotted line position shown in Figure 1, the then lower or reduced ends *b* are immediately above or against the ledge 15 so that the slack coal which is being placed in the tubes at this time cannot pass out through the lower ends of the tubes.

Metallic straps 16 pass over and below the tubes and are connected together by bolts 17. Thus the tubes are held in one assembly.

In the operation of the apparatus, the assembly 11 is swung upwardly to the dotted line position shown in Figure 1. Slack coal is now poured into the tubes and tamped. The ledge 15 prevents the slack coal from passing from the tubes. After the tubes have been properly filled, the assembly 11 is lowered to the position shown in Figure 1 with the end portions *a* of the tubes overlying the trough 10.

Heat from the firepot 6 will now begin to heat the tubes 12 and the result is that coal tar and other undesirable substances in the slack coal will drip out of the lower ends of the tubes 12. When the slack coal has thus been treated with heat, ram rods can be inserted in the reduced ends *b* of the tubes and the coal logs punched out. These logs will slide over the trough 10 and into a suitable bin or container.

The logs thus formed are subsequently treated by dipping in wax or some other suitable substance to prevent the entrance of moisture, because one of the objects in heating the slack coal in the first instance is to not only remove coal tar and other smoke producing constituents, but also all moisture and obviously to prevent the re-entrance of moisture into the logs, the logs are sealed with a suitably thick coating 18 of wax. The log 19 is substantially rigid when it comes from the molding assembly 11, but can be broken up into small pieces if it is to be used in automatic stokers, furnaces or the like.

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

1. A heating and molding apparatus of the character described comprising an elongated hollow member open at its opposite ends, heating means, a supporting structure for supporting the hollow member in an inclined position over the heating means, a pivotal connection between the upper end portion of the hollow member and the upper portion of the supporting structure when the hollow member is in inclined position, and means for closing the pivoted end of the hollow member when the hollow member is raised to a vertical position.

2. A heating and molding apparatus of the character described comprising an elongated hollow member open at its opposite ends, heating means, a supporting structure for supporting the

hollow member in an inclined position over the heating means, a pivotal connection between the upper end portion of the hollow member and the upper portion of the supporting structure when the hollow member is in inclined position, and means for closing the pivoted end of the hollow member when the hollow member is raised to a vertical position, said closing means consisting of a ledge over which the pivoted end of the hollow member is disposed when the latter is in raised position.

3. A heating and molding apparatus of the character described comprising an elongated hollow member open at its opposite ends, heating means, a supporting structure for supporting the hollow member in an inclined position over the heating means, a pivotal connection between the upper end portion of the hollow member and the upper portion of the supporting structure when the hollow member is in inclined position, and means for closing the pivoted end of the hollow member when the hollow member is raised to a vertical position, and a trough at the lower end of the supporting structure for catching liquefied extracts from material being heated in the hollow member.

4. A heating and molding apparatus of the character described comprising an elongated hollow member open at its opposite ends, heating means, a supporting structure for supporting the hollow member in an inclined position over the heating means, a pivotal connection between the upper end portion of the hollow member and the upper portion of the supporting structure when the hollow member is in inclined position, and means for closing the pivoted end of the hollow member when the hollow member is raised to a vertical position, said hollow member being flared longitudinally in a direction from the pivoted end thereof.

KINDRED LANE STORRS.