

Aug. 11, 1942.

S. T. HOWARD

2,292,377

FOLDING GRATE

Filed June 18, 1941

2 Sheets-Sheet 1

Fig. 1.

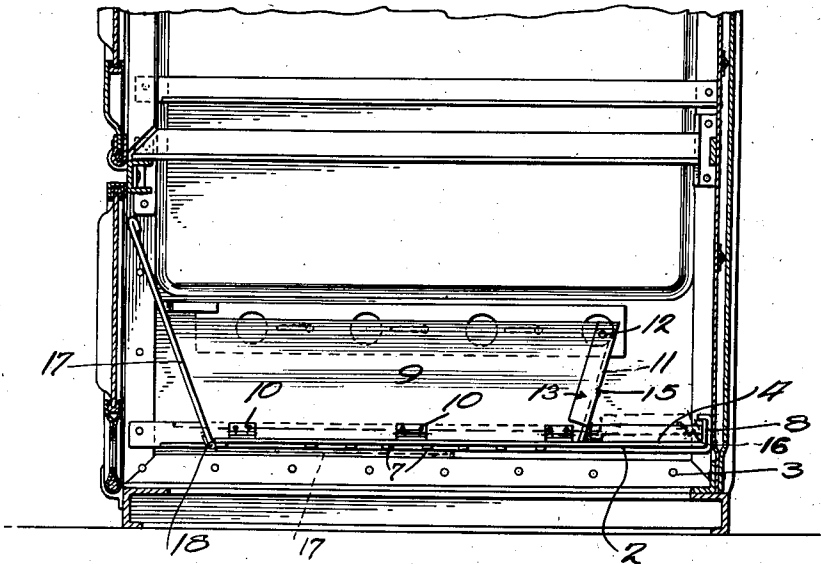
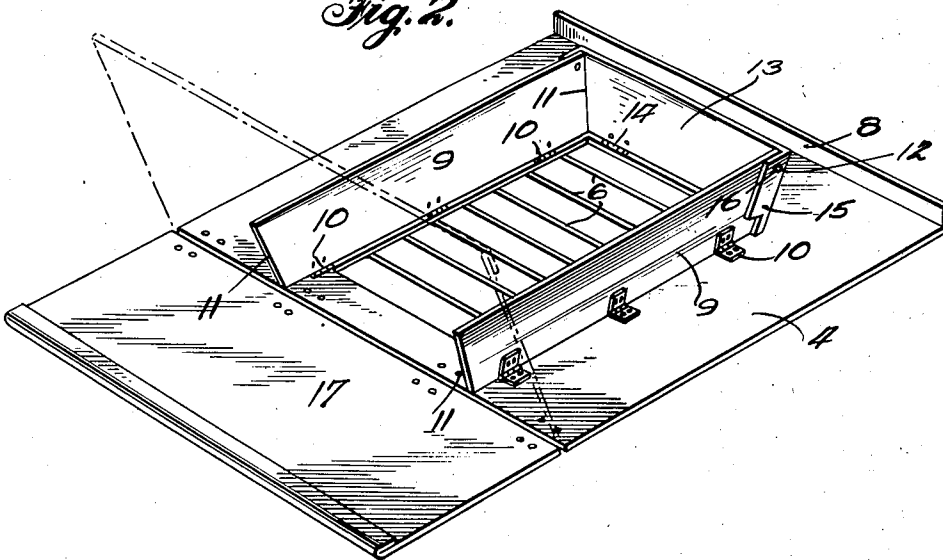


Fig. 2.



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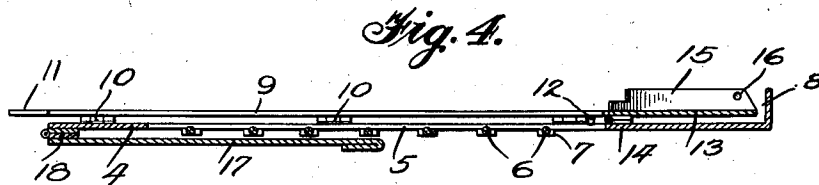
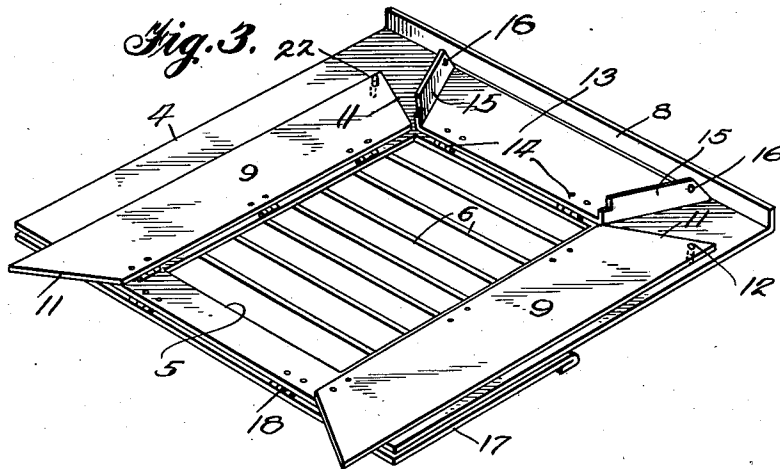
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,292,377

FOLDING GRATE

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Application June 18, 1941, Serial No. 398,565

2 Claims. (Cl. 126—9)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein, if patented may be manufactured and used by or for the Government for governmental purposes without the payment of any royalty thereon.

This invention relates to an improved folding fire grate, more particularly to a collapsible fire grate forming a part of the heating equipment of a range or the like, for use with solid fuels of any kind in an emergency in the event that liquid fuel is not obtainable for use in liquid fuel burners which are regular equipment. More specifically, for instance, for use in the new portable Army range and other heating requirements of the service, if gasoline or other liquid fuels are not obtainable.

An object of this invention is to provide a simple, durable, and inexpensive device that may be quickly arranged for use, or folded for storage into compact form and will occupy a small space.

Another object is to provide a construction wherein the parts may all, with only a few exceptions, be formed of stamped sheet metal of a preferred gauge.

Another object is to provide a structure that may be rapidly fabricated by unskilled labor, in quantity, at very low cost.

A further object is to provide a grate requiring no machine work, the parts being produced throughout by punching, die work and spot welding in the formation of the parts and their assembly.

The above and further objects will appear in the following description and be finally pointed out in the claims.

While a preferred embodiment of the invention is shown, it will be understood that slight changes in the form and minor details of construction may be resorted to without departing from the spirit of the invention, or fall beyond the scope of the claims.

Similar numerals indicate corresponding parts in all the figures of the drawings in which:

Fig. 1 is a view, for illustrative purposes, showing a vertical section of a portion of a range with the improved grate in full lines in the position it occupies when in use as a heating unit and in dotted lines folded in the position it occupies when stored and not in use.

Fig. 2 is a perspective view of the grate arranged for use with the front plate swung down in full lines to better show the parts and in dots in its normal operating position.

Fig. 3 is a perspective view of the grate, showing the parts in folded positions.

Fig. 4 is a longitudinal section of the grate, the parts in folded positions.

Fig. 5 is a transverse section of the grate with the parts folded.

Reference now being had to the drawings by numerals: 1 indicates a range into which the grate may be inserted on rails 2 for use in the consumption of solid fuel for heating purposes, and 3 indicates a space in which the grate may be folded and stored when not in use.

The base plate 4 of the grate is provided with a rectangular opening 5. Arranged across said opening at intervals are the grate bars, preferably round, in cross section as shown at 6, flattened at their ends at 7, and spot welded to the base plate at their ends across opening 5. The base plate is provided at its rear edge with upturned flange 8 adapted to stiffen the plate and form a bumper for the grate, when being inserted within a range or in other positions for heating or storing, and shield the parts when folded.

Side plates 9 are hinged at 10, adjacent to the side edges of opening 5, having their ends formed on an angle as shown at 11, and are held, when the grate is arranged for use, in inwardly and downwardly inclined positions. Said side plates are identical with the exception of pins 12 mounted at the rear upper corners of the side plates which project from the plates in opposite directions and require them to be rights and lefts.

Rear plate 13 hinged to base plate at 14 is provided with wings 15 at its ends arranged on angles adapted to provide an inward and downward inclination to the rear plates when plates 9 and 13 are connected. Wings 15 are provided with perforations 16 adapted to be engaged by pins 12 of the side plates in such a manner as to prevent accidental separation of the plates at said connecting points in the following manner: When the grate is arranged for use, the rear ends of the side plates 9 are located on the inner face of wings 15 with pins 10 of said plates in engagement with perforations 16 of the wings 15. The weight of the fuel placed in the grate will tend to force the side and end plates outwardly at their tops, the side plates are held firmly against outward movement by wings 15 and the pins 12 on side plates 9 are forced into full engagement with perforations 16 and outward swing of the end plate 13 is prevented by pins 12 of the side plates (see Fig. 2), it being obvious that an inward movement of the tops of side plates 9 is required to withdraw

pins 12 prior to the disengagement of the rear plate and the rear ends of the side plates.

The front plate 17 is hinged to the base plate at 18 and extends above the other plates, is adapted under certain conditions to not only form a front inclined wall to the grate, but to direct the draft of air entering a structure in which the grate is operating to beneath the grate.

To fold the grate, as set up for use as shown in Fig. 2 to its folded condition as seen in Fig. 3, front plate 17 is folded on its hinges around beneath the base plate and side members 9 are moved inwardly on their hinges at their tops to withdraw their pins 12 from perforations 16 in wings 15 of the rear plate 13, the rear plate, and the side plates may then be folded down on top of the base plate, into flat compact form.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. A folding grate comprising, a base plate having an opening crossed by grate bars and a rear bumper flange, side plates having ends formed on an incline and pins mounted in their rear upper portions hinged on the base plate adjacent to said opening therein, a rear plate having

wings at its ends arranged on an angle, perforations in the wings adapted to be engaged by the pins of the side plates and a front in contact with the front inclined edges of the side plates, said side, rear, and front plates adapted when arranged for use to provide a hopper-shaped fuel container terminating at its lower end at the edges of the opening in the base plate.

2. A stamp metal folding grate comprising, a base plate having an opening crossed by grate bars and having a rear bumper flange, stamp metal side plates having ends formed on an incline and pins mounted in their rear upper portions hinged on the base plate adjacent to said opening therein, a stamp metal rear plate having wings at its ends arranged on an angle, perforations in the wings adapted to be engaged by the pins of the side plates and adapted to prevent separation of the side and rear plates and a stamp metal front plate for contact with the front inclined edges of the side plates, said side, rear and front plates adapted when arranged for use, to provide a hopper-shaped fuel container terminating at its lower end at the edges of the opening in the base plate.

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