Sept. 29, 1953 J. M. DUNSTON 2,653,596

CONVERTIBLE SOLID AND LIQUID FUEL-BURNING STOVE

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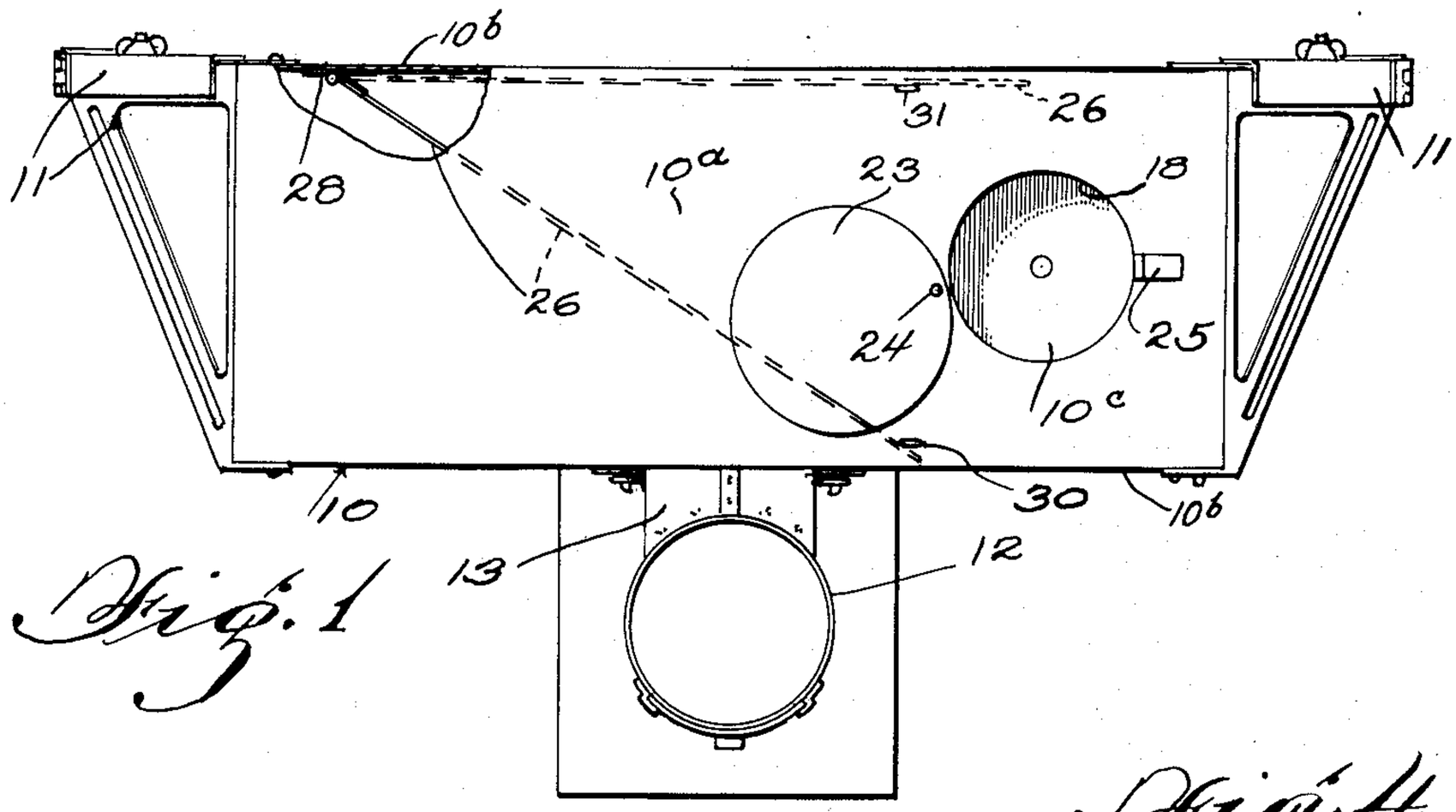
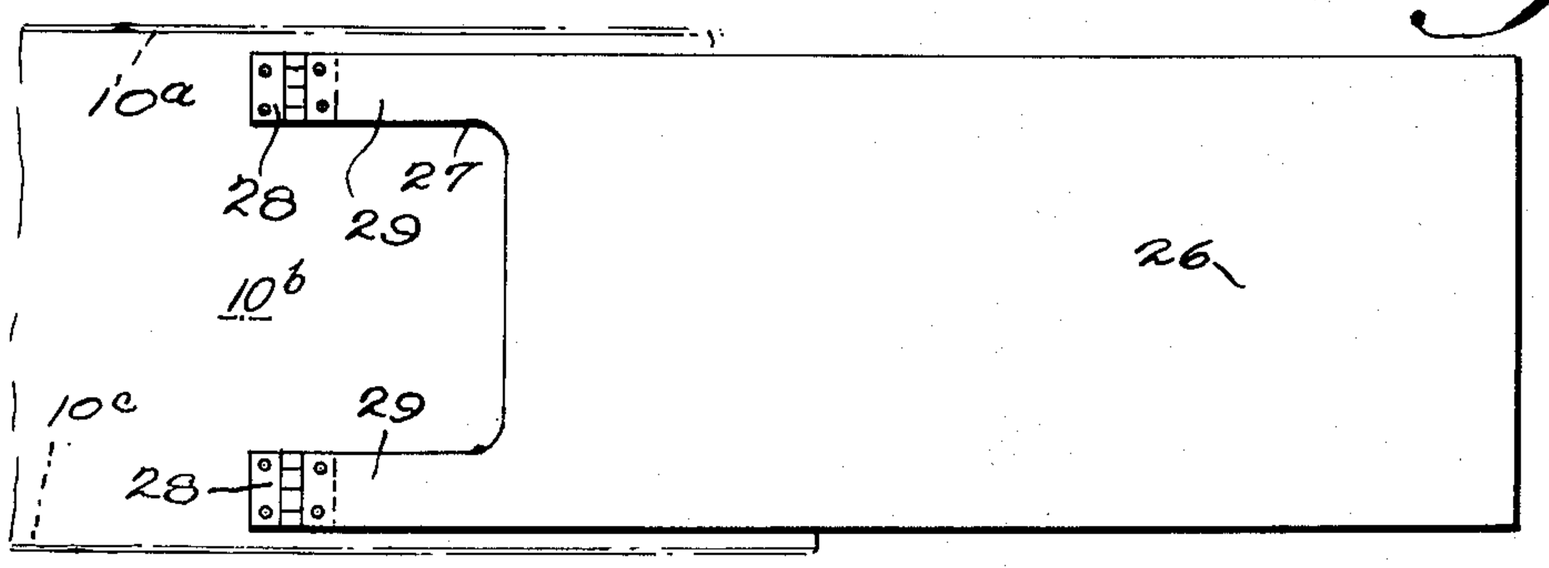


Fig. 1

Fig. 4



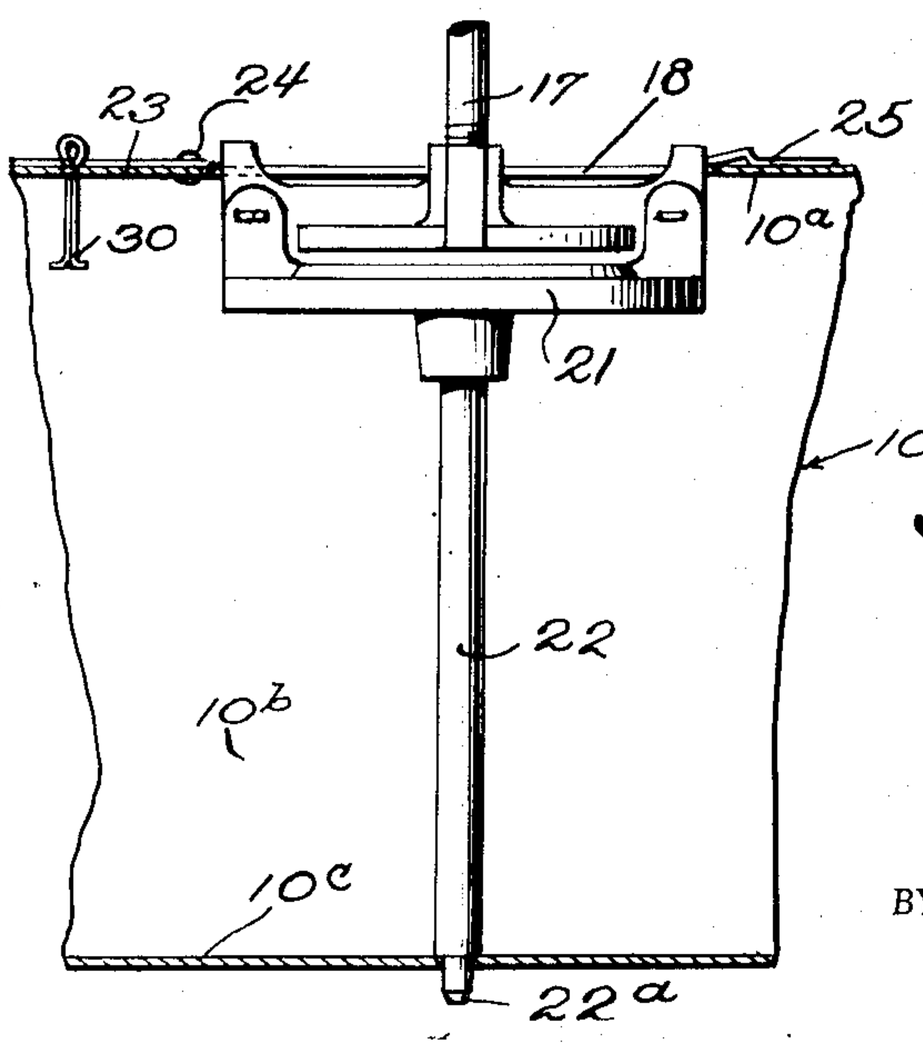


Fig. 3

INVENTOR
James M. Dunston

BY W. J. Eccleston
ATTORNEY

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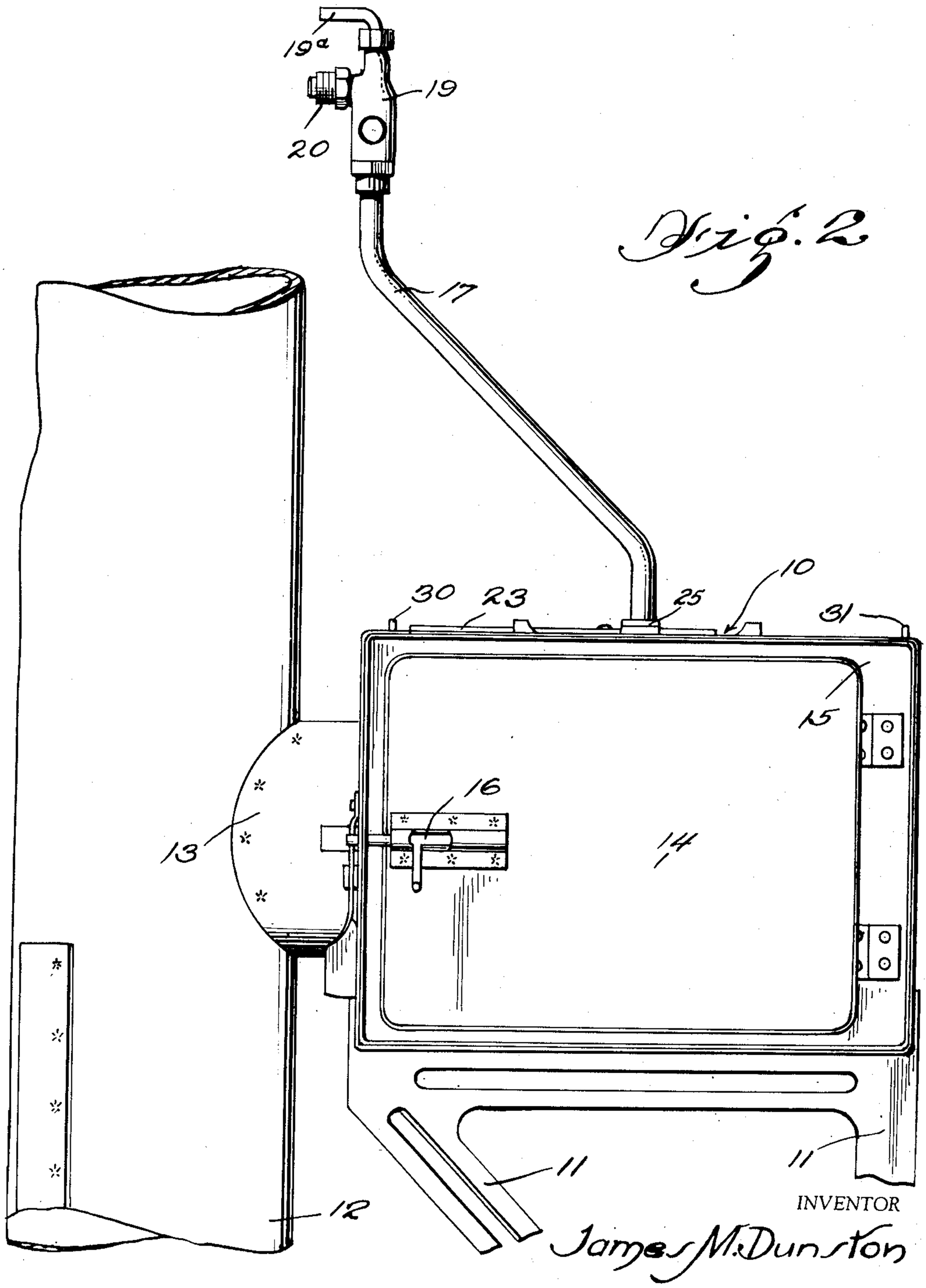
Fig. 2



INVENTOR

James M. Dunston

BY W. J. Eccleston.

ATTORNEY

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CONVERTIBLE SOLID AND LIQUID FUEL-BURNING STOVE

James M. Dunston, Jeffersonville, Ind.

Application September 19, 1949, Serial No. 116,512

2 Claims. (Cl. 126—60)

(Granted under Title 35, U. S. Code (1952), sec. 266)

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

This invention relates to convertible heating stoves and in general aims to provide a stove so constructed that it may be quickly and easily changed from an oil-burning to a solid fuel-burning stove, and vice versa.

In stoves designed for military usage, it is preferable to employ gasoline as the fuel if supplies thereof are available; however as war conditions may interrupt the supply, it is highly desirable to construct the stoves so that they are readily converted to wood-burning. In accordance with the invention, a stove is provided which can be changed from oil to wood-burning and vice versa without adding or taking away any parts, the essential change involving a simple shifting of a baffle within the stove body. However, it is desirable that the oil burner and the oil supply pipe be made removable and in the preferred stove provision is made to permit this in the easiest possible manner.

In the accompanying drawings forming a part of this specification,

Fig. 1 is a top plan view of the stove showing the baffle in dotted lines in two positions, the top of the stove body being broken away to expose the baffle hinge and the oil burner being omitted;

Fig. 2 is an end elevation of the stove viewed from the door end, parts being broken away;

Fig. 3 is a sectional elevation showing the oil burner in position on the stove body; and

Fig. 4 is a side elevation of the baffle per se, portions of the stove body being shown in phantom.

Referring particularly to the drawings, the illustrative stove includes a rectangular and generally hollow body **10** made of sheet steel or the like and supported at opposite ends by two legs **11** (each preferably in the form of a right triangle) and by a vertical stovepipe **12** fixed to the body halfway between its ends and standing on the floor or surface upon which the legs rest. The stovepipe **12** is connected to the interior of body **10** by means of a coupling **13**. A door **14** is hinged to a doorframe **15** set in one end of the body and is adapted to close said end, a slide latch **16** securing the door when closed. Solid fuel may be thrown into the stove when the door **14** is open. When liquid fuel is to be burned, a fuel pipe **17** extends downwardly from an elevated tank (not shown) or other fuel source to a liquid fuel burner **21** which is supported adjacent a round opening **18** in the top wall **10a** of the body. A needle valve **19** secured to the upper end of fuel

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pipe **17** has a handle **19a** for control of the flow of fuel, and also has a screw coupling **20** for connection with a source of liquid fuel. The preferred fuel burner is disclosed in the H. E. Hopkins Patent No. 2,638,890, dated May 19, 1953, and is supported by a vertical rod **22** having a reduced end **22a** fitting a small hole in the bottom **10c** of the stove body, hence may be removed merely by lifting it from the stove after disconnecting fuel pipe **17**. A circular cover or lid **23** is pivoted as at **24** and may be swung on said pivot to close the opening **18**, which will usually be done when burning solid fuel, although occasionally the cover may be opened partially to admit air from the top to check combustion. A keeper or retainer **25** holds the cover closed. None of the elements so far described, except the stove body, forms any part of the present invention.

Disposed within the stove body is a baffle **26** which is a generally rectangular flat metal plate, with a cut-out providing a draft opening **27** at one end. A pair of hinges **28** are secured to the ends of the arms or tongues **29** bordering the draft opening **27**; these hinges are aligned vertically and are riveted to one of the long upright walls **10b** of the stove body near the end thereof which is opposite the door. This puts the draft opening **27** near the last-mentioned end. The baffle is of greater length than the width of the stove body so that it may extend diagonally across the interior of the stove as shown in Fig. 1, in which position it substantially contacts the opposite wall **10b** with its free end. Thus, the stove body is divided by the baffle into two compartments of unequal size, the larger being toward the door. A cotter pin **30** which extends through and has a sliding fit in a hole in the top **10a** serves as a latch to hold the baffle in its body-dividing position, and may be pulled up manually to permit swinging the baffle into the dotted line position, where it is flat against the wall **10b** to which it is hinged. In the latter position a cotter pin **31** (also extending through the top **10a**) may be engaged with the baffle to hold it against movement. Such shifting of the baffle will be done through the open dooor when the stove is cold or substantially so. When burning solid fuel the baffle will be held adjacent wall **10b**, as just described, but when liquid fuel is burned the baffle will be in the diagonal or "compartmentizing" position to hold in the heat from the oil flames, as the products of combustion are forced to travel to the end of the stove body and back before reaching the stovepipe **12**.

What I claim is:

1. In a stove of the type having a hollow elon-

gated body with a stovepipe connection, and a door at one end, a substantially flat baffle hinged at one end to the inside of the body adjacent the other end of the body, said baffle having an opening at its hinged end for passage of products of combustion, the hinge axis being vertical and the width or height of the baffle being substantially equal to the distance between the top and the bottom of the body, the length of said baffle being such that it assumes an acute angular position relative to the body when swung on its hinge axis to contact the body with its free end, and plural latch means on the body to hold the baffle either in said acute angular position or adjacent the wall of the body to which it is hinged, the interior of the body being free of obstruction when the baffle is in the position last described so that solid fuel may then be burned.

2. A stove adapted to be readily converted from liquid fuel burning to solid fuel burning and vice versa, comprising a hollow elongated body having a base support and adapted to extend substantially horizontally, said body including two opposite substantially parallel and vertical side walls, a top, a bottom, a closed end wall, and a door closing the opposite end of the body; a stovepipe connected through one of the side walls, at a point approximately midway the ends of the body, to the interior of the hollow body; the top of the body having an opening located between the door end of the body and the stovepipe and adapted to receive a removable down-draft oil burner; a cover movably mounted on the body top and adapted to close said opening when the oil burner has been removed; a baffle wholly inside said hollow body and being substantially

vertical and having a height nearly equal to the distance between the top and bottom of the body; said baffle being hinged at one end to the side wall which is opposite the side wall having the stovepipe connection, the hinges of said baffle being near said closed end wall and permitting free swinging of the baffle on a vertical axis; the length of said baffle being materially greater than the distance between said two side walls so that the baffle may extend in a diagonal plane entirely across the interior of the body to form two compartments inside the body, the baffle then being between said opening in the top of the body and said stovepipe; the baffle having a draft opening adjacent its hinged end, so that when the baffle is in the aforesaid diagonal position products of combustion are forced to flow in a tortuous path along one face of the baffle and through said draft opening to the compartment on the other side of said baffle and thence to said stovepipe; and plural latch means on the body to hold the baffle either in said diagonal position or lying adjacent the side wall to which it is hinged.

JAMES M. DUNSTON.

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