

No. 620,345.

Patented Feb. 28, 1899.

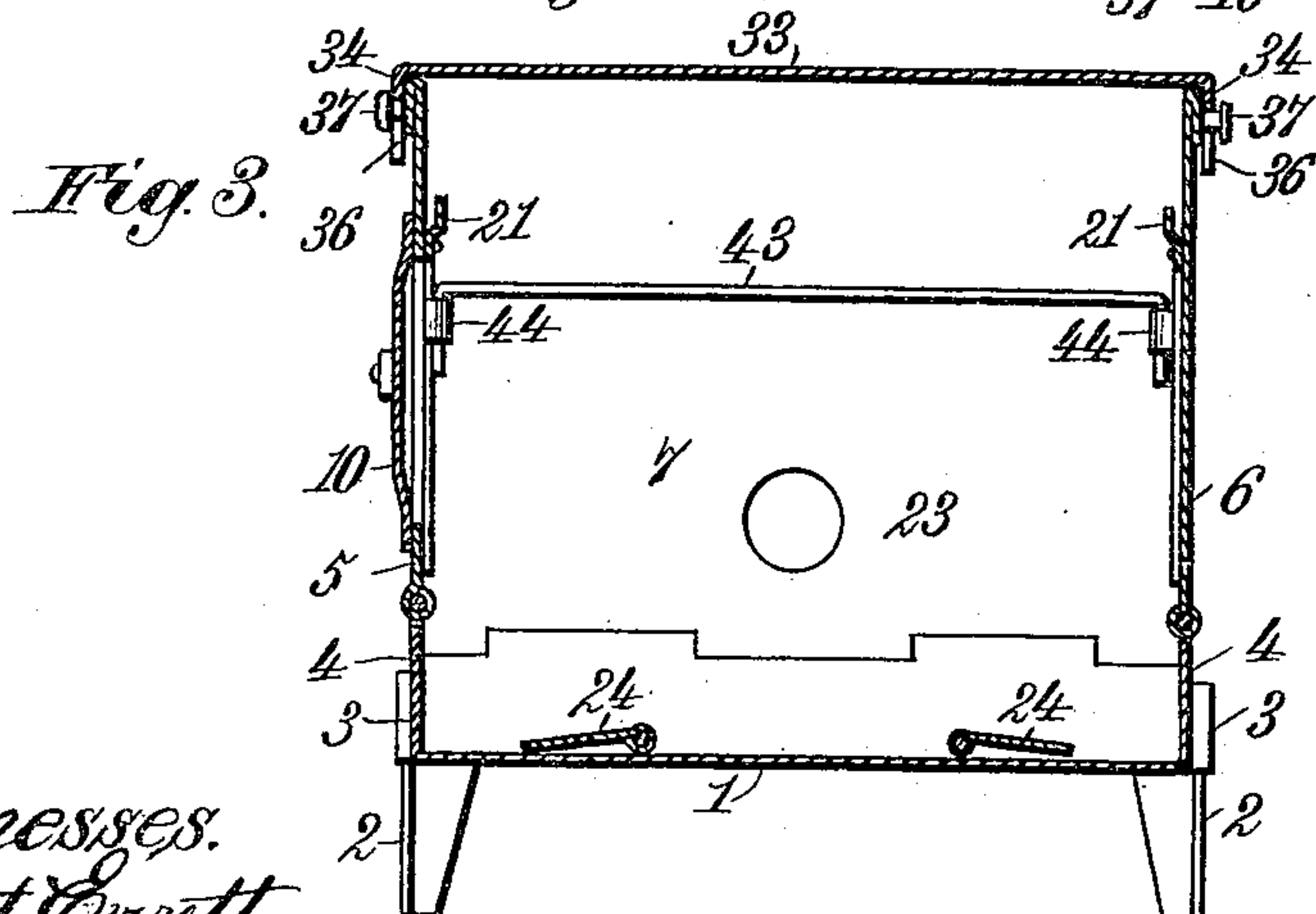
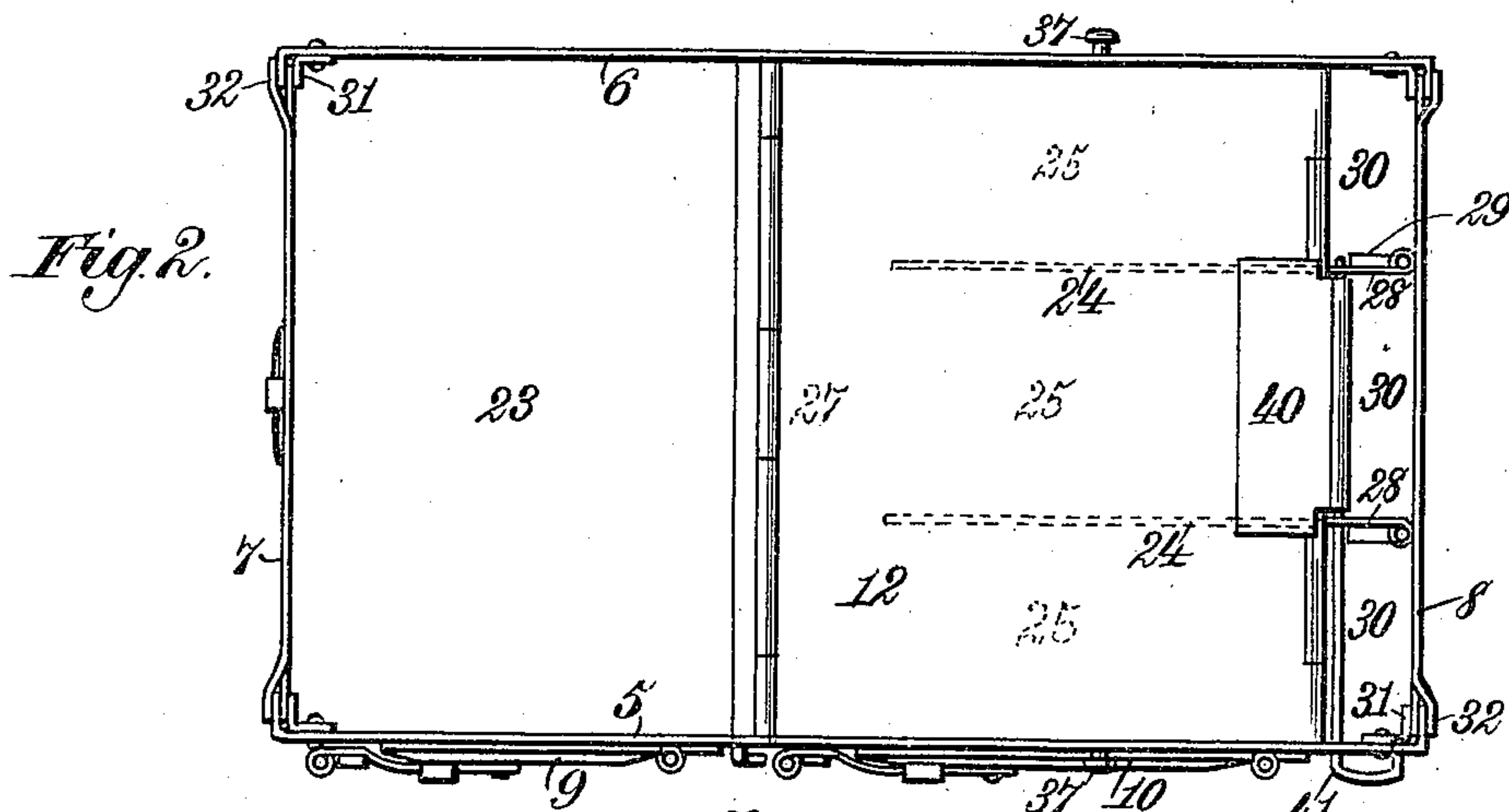
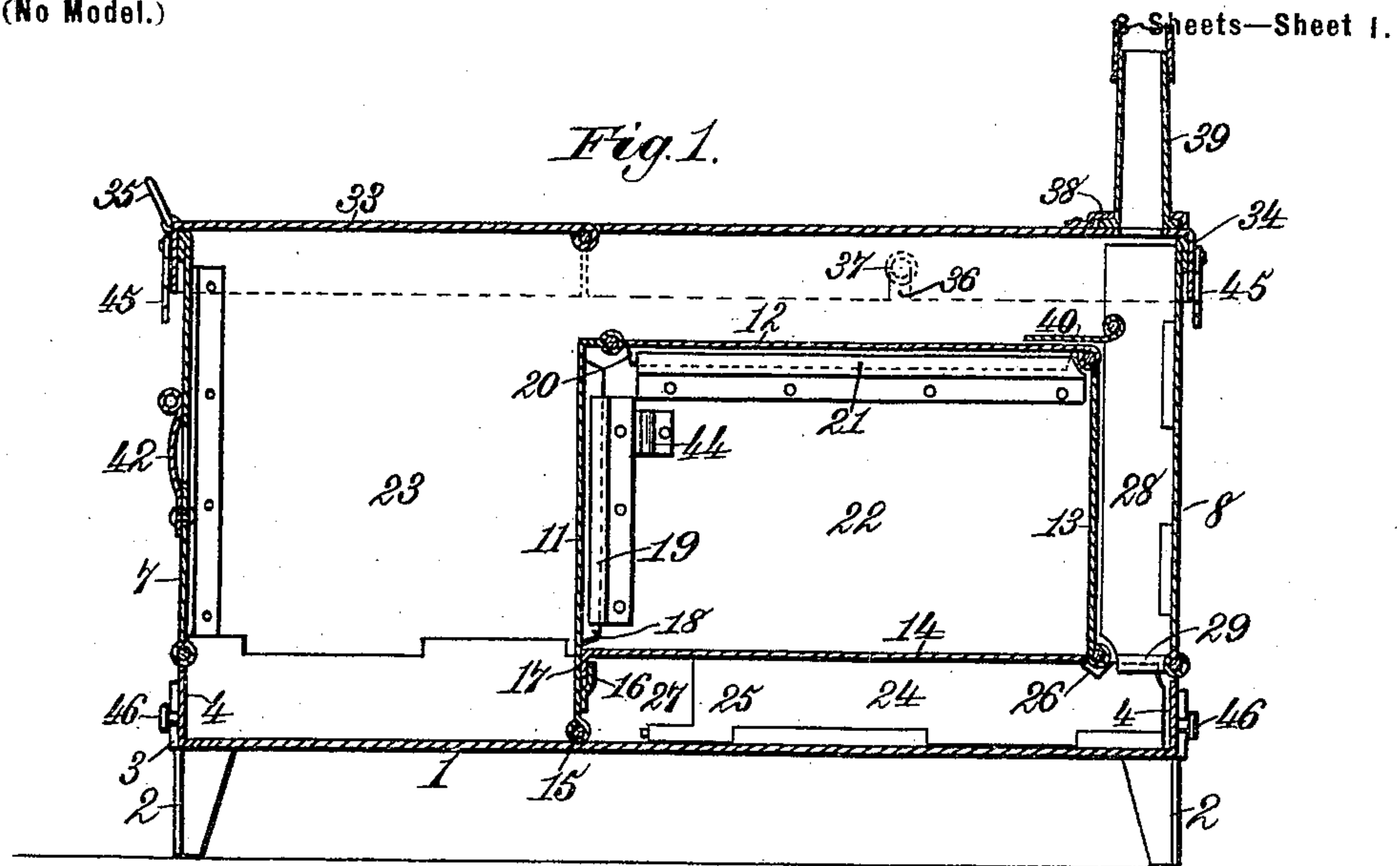
J. MORAWETZ.

FOLDING STOVE.

(Application filed Jan. 12, 1898.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses.  
*Robert Curlett,*  
*J. D. Nease*

Inventor.  
*John Morawetz.*  
By *James L. Norris,*  
*Atty.*

No. 620,345.

Patented Feb. 28, 1899.

J. MORAWETZ.  
FOLDING STOVE.

(Application filed Jan. 12, 1898.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 4.

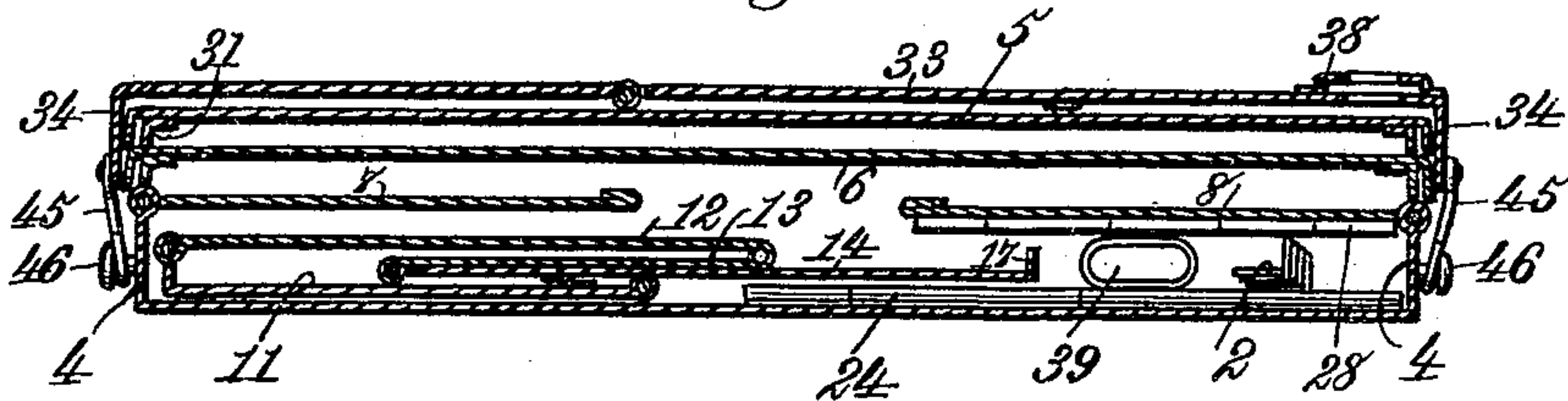


Fig. 5.

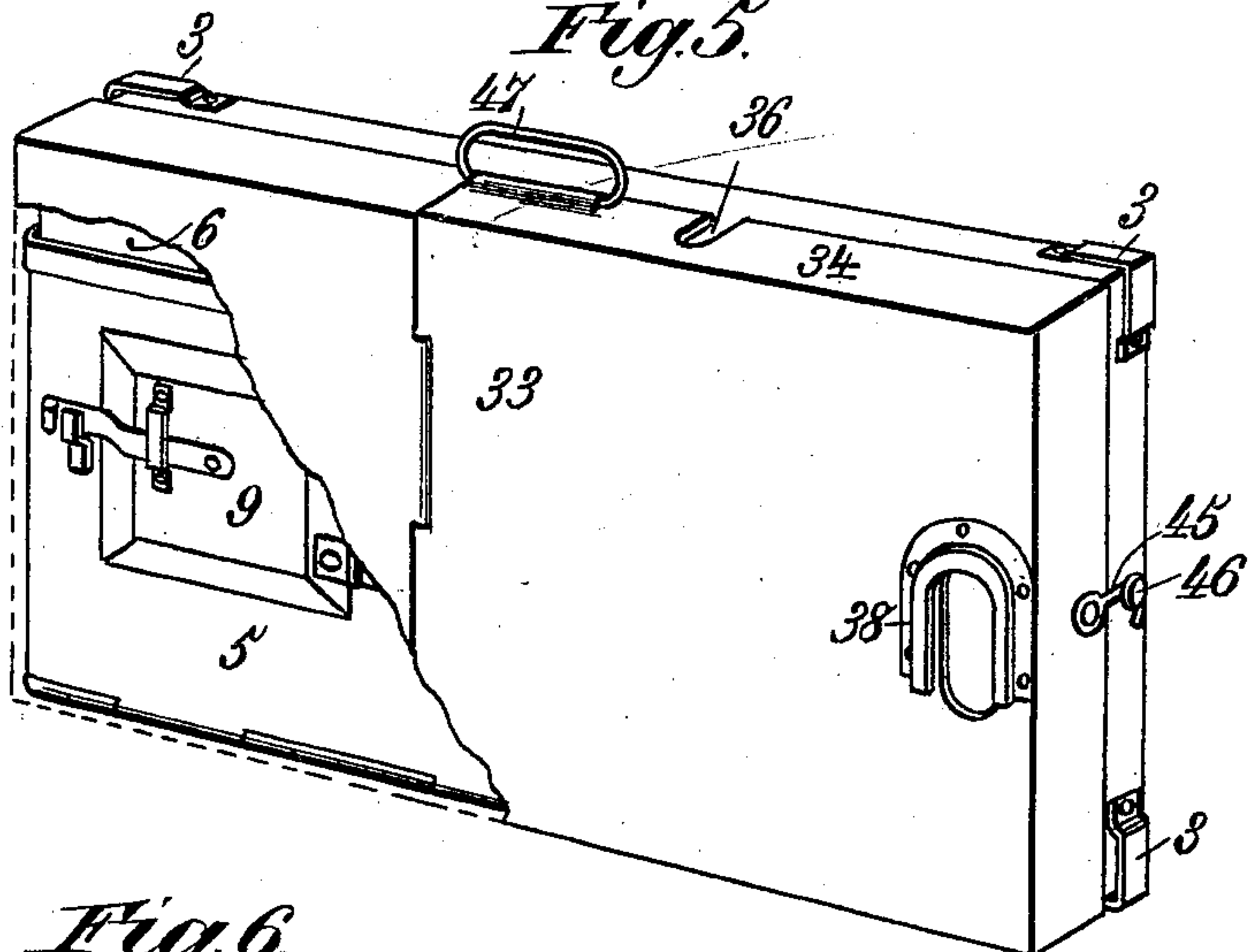


Fig. 6.

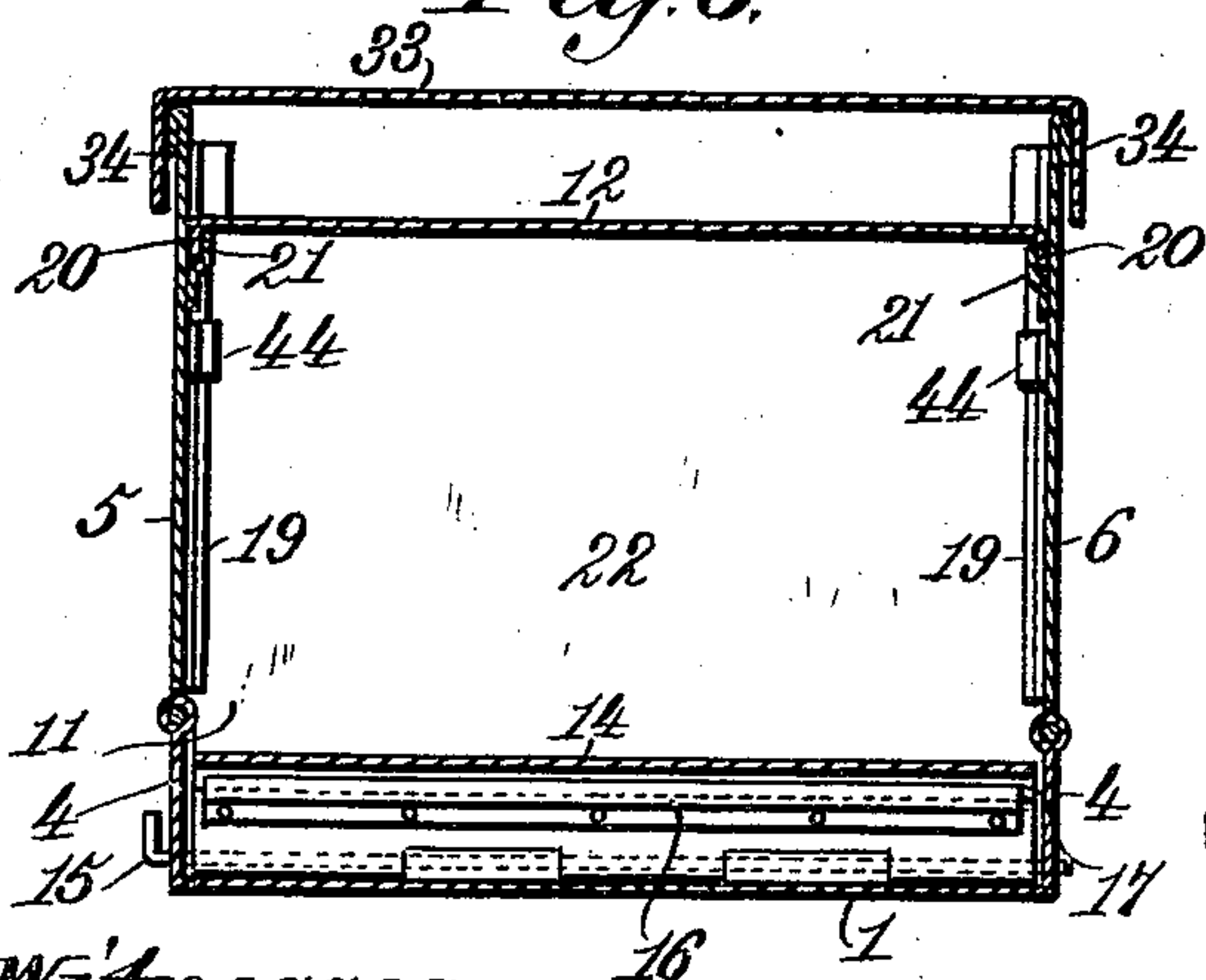
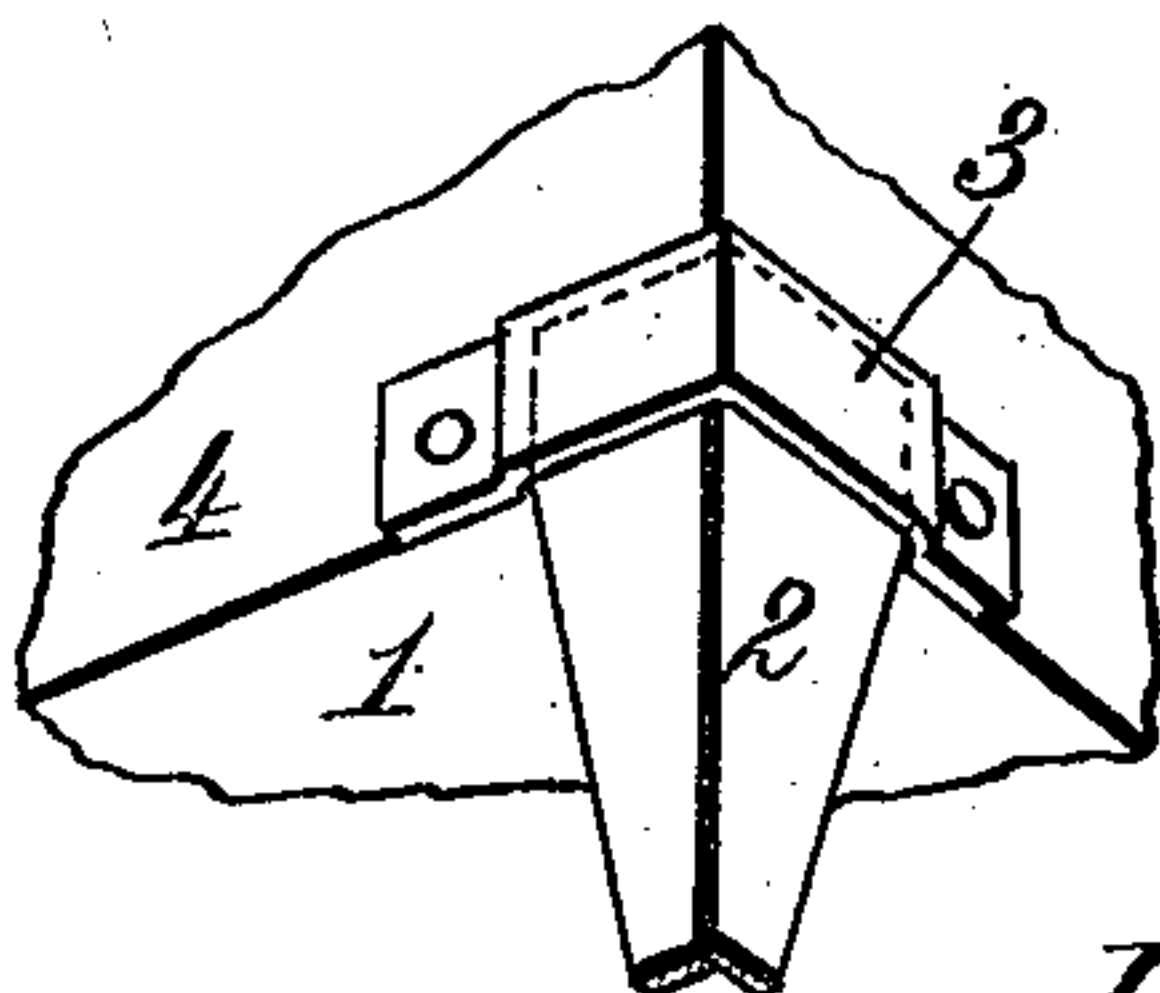


Fig. 7.



Witnesses.  
*Robert Gruett*  
*J. B. Kaefer*

Inventor.  
*John Morawetz.*  
By *James L. Norris*  
*Atty.*

No. 620,345.

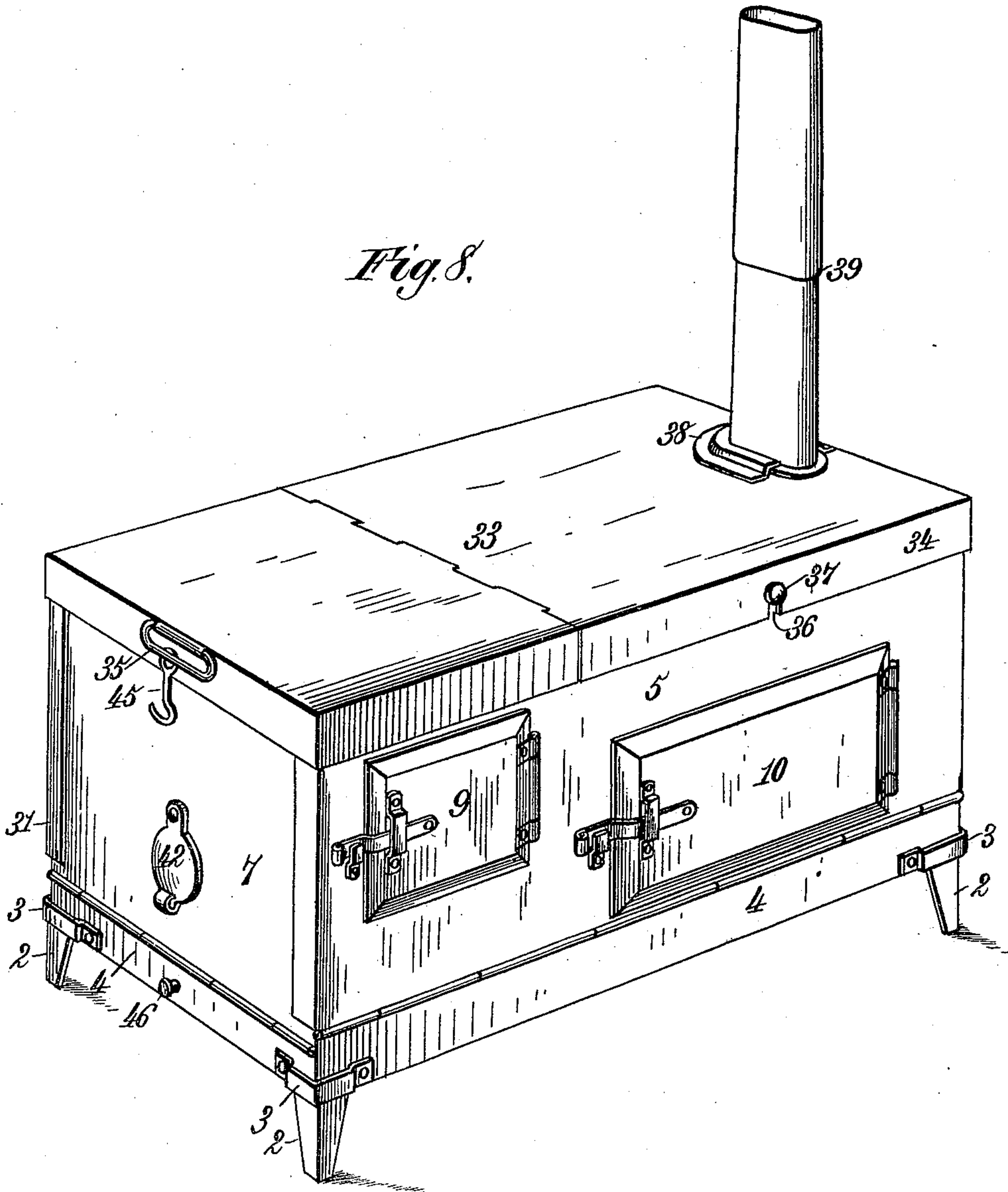
Patented Feb. 28, 1899.

J. MORAWETZ.  
FOLDING STOVE.

(Application filed Jan. 12, 1898.)

(No Model.)

3 Sheets—Sheet 3.



Witnesses.  
Robert Everett.  
J. B. Keefe

Inventor.  
John Morawetz.  
By James L. Norris.  
Atty.



# UNITED STATES PATENT OFFICE.

JOHN MORAWETZ, OF CASTELLA, CALIFORNIA, ASSIGNOR OF ONE-HALF TO  
FRANK P. MITCHELL, OF REDDING, CALIFORNIA.

## FOLDING STOVE.

SPECIFICATION forming part of Letters Patent No. 620,345, dated February 28, 1899.

Application filed January 12, 1898. Serial No. 666,424. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN MORAWETZ, a citizen of the United States, residing at Castella, in the county of Shasta and State of California, have invented new and useful Improvements in Folding Stoves, of which the following is a specification.

This invention relates to folding stoves more particularly adapted for camping-out purposes, and has for its object to provide a light, durable, and comparatively inexpensive sheet-iron stove capable of being folded into compact form for transportation and which can be quickly set up for use either as a cook-stove or heating box-stove.

My improved portable or folding stove comprises a stove-body supported on removable legs and having its bottom provided with a vertical flange or rim, to which the sides and ends of the stove are hinged, a folding oven arranged in the stove body or box and removably hinged to the bottom thereof, with a folding flue beneath and at the rear of said oven, a damper for controlling the said flue, and a removable stove-top which may have a hinged section capable of being raised to permit the putting in of large pieces of wood.

The improvements consist in features of construction and novel combinations of parts in a folding stove, as hereinafter more particularly described and claimed.

In the annexed drawings, illustrating the invention, Figure 1 is a vertical longitudinal section of the stove. Fig. 2 is a plan view of the stove with top removed. Fig. 3 is a vertical cross-section of the stove with the oven removed. Fig. 4 is a longitudinal section of the stove as folded for transportation. Fig. 5 is a perspective of the folded stove with a portion of the top broken away. Fig. 6 is a vertical cross-section of the stove with oven inclosed. Fig. 7 is a detail view of stove-leg and socket. Fig. 8 is a perspective of the stove ready for use.

The stove-bottom 1 is supported on detachable legs 2, preferably of sheet metal bent longitudinally at a right angle and adapted to fit into right-angled sockets 3, that are formed at the corners of said stove-bottom. A vertical flange or rim 4 surrounds the stove-bottom 1 at its sides and ends, as shown, to

which the stove sides 5 and 6 and stove ends 7 and 8 are hinged. This vertical flange or rim 4 may be integral with the bottom 1, formed by bending the same upward, or it may be constructed in any suitable and convenient manner. It is preferable that the end portions of this vertical flange 4 should be of less elevation than the side portions thereof, so that the ends of the stove may be turned down onto the stove-bottom and folded over, after which the stove sides may be folded over onto the stove ends.

In the front stove side 5 there is a door 9, through which to introduce fuel, and a door 10 to give access to the oven when the stove is unfolded and properly set up for use.

The folding oven consists of four sheet-metal plates 11 12 13 14, hinged together, so as to fold one upon another. One oven end plate 11 has one edge hinged transversely to the stove-bottom 1 in such a manner that the hinge rod or pintle 15 can be withdrawn through a perforation in one of the vertical side flanges 4, thereby making the oven detachable and permitting the cooking-stove to be quickly changed into a heating box-stove. Adjacent to this hinge the oven end plate 11 is provided with a flange 16 to tightly engage a flange 17 on the oven bottom plate 14, and thus hold in rectangular form the several plates of which the oven is composed. At its ends the plate or oven-wall 11 is provided with flanges 18 to engage cleats 19 on the front stove side 5 and rear stove side 6 when the stove and inclosed oven are properly set up. Similar flanges 20 are provided at the ends of the oven top plate 12 to engage cleats 21 on the front and rear stove sides 5 and 6, and thus by a close interlocking of the flanges 18 and 20 with the respective cleats 19 and 21 the front and rear sides of the stove will form close-fitting front and rear walls for the oven 22 to prevent the entrance therein of smoke from the adjacent fire-box 23, with which the fuel-door 9 communicates. The oven end wall or plate 11 is of greater height than the opposite wall or plate 13, so that a suitable flue-space will be afforded beneath the oven. In this space there are placed the bottom flue-plates 24, that are hinged longitudinally to the stove bottom plate 1, so they can be



turned over flatwise when the stove is to be folded. When lifted to vertical position, these plates 24 serve as supports for the oven 22 and form a flue or flues 25 beneath the same.

- 5 In the uppermost edge of each hinged flue-plate 24 there is a notch 26 to receive the projecting portion of the hinge connection between the oven-plates 13 and 14 and permit the oven to rest squarely on said bottom flue-plates. These bottom flue-plates 24 are so arranged that each has one end close to an end flange 4 of the bottom stove-plate 1, and they do not extend quite to the bottom portion of the oven end plate 11, but are constructed and arranged to leave beneath that end of the oven a cross-flue 27, through which the bottom flues 25 may communicate.

- The inner side of the rear stove end plate 8 has folding flue-plates 28 hinged thereto in such manner that they can be turned down against said end plate when the stove is to be folded. These flue-plates 28 are preferably provided at one end with grooves or channels 29 to fit onto the bottom flue-plates 24 and make close joints therewith. When the oven is resting properly on the bottom flue-plates 24, its wall 13 will be in contact with the end flue-plates 28, thus forming vertical flues 30 in communication with the flues that are beneath the oven.

- In setting up the stove the hinged and folding oven is to have its flanges 16 and 17 interlocked, thereby bringing the oven into rectangular form. The hinged flue-plates 24 and 28 will then be set out in position to form the flues, and the hinged stove end plates 7 and 8 will be raised to vertical position. The front stove-plate 5 and rear stove-plate 6 will be next brought gradually to vertical position in such manner that channeled flanges 31 on the ends of said plates 5 and 6 will receive and closely engage the vertical edges of the stove end plates 7 and 8, and simultaneously the hinged oven 22 will be tilted over onto the bottom flue-plates 24 in such manner that the oven-flanges 18 and 20 will engage with the cleats 19 and 21, thereby tightly closing the oven at front and rear. The stove end plates 7 and 8 are each preferably slit at their upper corners to form, with the channeled flanges 31, a suitable friction-lock 32, that will assist in holding the stove side plates 5 6 and end plates 7 8 in closely-jointed position.

- The stove-top 33 is provided with a depending rim or flange 34, that is adapted to fit closely onto and around the sides and ends of the stove. This stove-top is preferably constructed in two hinged-together sections, one of which will cover the oven and flues 30, while the other covers the fire-box. This last-named section of the stove-top is provided with a handle 35, by which it can be raised to permit putting large pieces of wood into the stove from the top. To prevent the other section of the stove-top from slipping, its depending flange or rim is provided with slots 36 to engage buttons or headed studs 37 on the front

side and rear side of the stove. This section of the stove-top will be, therefore, held secure, with no liability of slipping when the other section is lifted or swung upward on its hinge to permit the introduction of pieces of wood that may be too large to enter the door 9 at the front of the fire-box.

In the stove-top 33 there is an elongated smoke-opening that is partly surrounded by a lock flange or collar 38 to engage with a bead on the lower end of a stovepipe 39, that is preferably flattened or somewhat elliptical in cross-section. This stovepipe is preferably made in short telescopic lengths for convenience of packing.

Before the stove-top 33 is put in place a hinged damper 40 is arranged just above the top of the oven and in contact with the vertical edges of the upward-projecting portions of the hinged flue-plates 28, so that when this damper is open there will be a direct passage of smoke and products of combustion over the oven to the stovepipe, and when the damper is closed or turned vertically the products of combustion will be diverted to the flues beneath the oven before escaping through the entire length of the vertical flue, which is immediately beneath the stovepipe. The damper-rod 41 is extended through the front side plate of the stove, so it will be easily accessible for adjusting the damper. If desired, a draft-damper 42 may be arranged in the end plate 7 of the stove-body or fire-box.

It will be obvious that by hinging the folding oven 22 to the stove-bottom 1 in the manner hereinbefore described the hinge pintle or rod 15 can be easily withdrawn, so as to permit removal of the oven, thus enlarging the fire-box and converting the cooking-stove into a simple heater. When the stove is to be so used without the oven, there may be placed in the stove interior one or more transversely-arranged brace-rods 43, having hooked ends engaged in sockets 44, provided for that purpose. If desired, the top of the stove may be provided with customary pot-holes, over which to place cooking utensils.

To fold up the stove for storage or transportation, the legs 2 and stovepipe 39 are to be detached. The stove-top 33 may then be taken off and the damper 40 removed. By now opening the oven-door 10 and pressing the hand upward against the oven-top the hinged oven can be swung back from engagement of its flanges 18 and 20 with the cleats 19 and 21, and the stove front side 5 and rear side 6 can be simultaneously swung outward from engagement with the stove end plates. These hinged end plates 7 and 8 will then be turned outward and the hinged flue-plates 24 and 28 will be turned down flatwise. The interlocking oven-flanges 16 and 17 should now be disengaged, and the several hinged oven-plates may then be folded one upon another within the flanged bottom plate of the stove. The remaining space inclosed by the bottom flange 4 will accommodate the stove-



legs and damper and such utensils as pans, plates, spoons, knives and forks, if so desired. The stove ends 6 and 7 will then be folded inward and over these the stove sides 5 and 6, one upon the other. The flanged stove-top 33 is now placed on, as a cover for the folded insides 5 and 6, and may be secured by means of hooks 45, provided at its opposite ends and which are adapted to engage buttons or studs 46 on the upturned flange 4 of the bottom plate 1, thus securing together the folded parts of the stove in a compact, easily portable, and comparatively light package that can be readily carried by means of a handle 47, provided on one side of the stove-top.

The manner of unfolding the stove and setting it up for use will readily appear from the foregoing description, it being only necessary to remove the stove-top, throw outward the hinged sides and ends, then set up the oven and flue-plates in connection with the end plates and side plates of the stove-body, put the damper in position, replace the stove, and then attach the legs and stove-pipe.

If desired, the stove may be provided with a lining of asbestos for its walls and top.

What I claim as my invention is—

1. In a folding stove, the combination of a bottom plate provided with a surrounding upturned flange, an oven composed of folding plates hinged to each other and to the said bottom plate, stove side plates and end plates hinged to the upturned flange of the bottom plate and adapted to be folded inward and over onto the folded oven, one of the said side plates being provided with a door for the oven and a door for the fire-box, flue-plates hinged to the bottom plate and to one of the end plates, the said bottom flue-plates being adapted to support the hinged and unfolded oven, and a top plate surrounded by a depending flange or rim to engage the side plates and end plates of the stove, substantially as described.

2. In a folding stove, the combination of a bottom plate having a surrounding upturned flange, an oven composed of folding plates and detachably hinged to said bottom plate, stove side plates and end plates hinged to the upturned flange of the bottom plate and adapted to be folded inward and over onto the folded oven, the said oven and stove side plates being provided with means for detachable engagement, the hinged flue-plates, and a top plate having a depending flange or rim to closely engage the side plates and end plates of the stove, substantially as described.

3. In a folding stove, the combination of a

bottom plate provided with a surrounding upturned flange, an oven composed of folding plates hinged together and detachably hinged to said bottom plate, the pintle-rod of said oven-hinge being removable through one side 65 of the stove, side plates and end plates hinged to the upturned flange of the bottom plate, the said side plates being provided at their ends with channeled flanges to interlock with the said end plates and each side plate having cleats to engage with flanges on the oven, the hinged flue-plates, and a stove-top provided with a depending rim-flange to engage the side and end plates, substantially as described. 75

4. In a folding stove, the combination of a bottom plate having a surrounding upturned flange, a folding oven hinged to said bottom plate, stove side plates and end plates hinged to the said upturned flange of the bottom 80 plate, flue-plates hinged to the bottom plate and adapted to support the said oven, other flue-plates hinged to one of the end plates of the stove and adapted to extend above the oven, a damper hinged to said last-named 85 flue-plates, and a stove-top removably engaged with the side plates and end plates of the stove, substantially as described.

5. In a folding stove, the combination of a bottom plate provided with a surrounding up- 90 turned flange and having leg-sockets at its corners, detachable legs fitted to said sockets, stove side plates and end plates hinged to the upturned flange of the bottom plate, one of said plates being provided with a door; inter- 95 locking flanges for the side plates and end plates, and a stove-top having a depending rim or flange to surround and closely engage said end plates and side plates, substantially as described. 100

6. In a folding stove, the combination of a bottom plate provided with a surrounding upturned flange, an oven composed of folding plates hinged to each other and to the inner side of the stove bottom plate, stove side plates 105 and end plates hinged to the upturned flange of the bottom plate and adapted to be folded inward and over onto the folded oven, one of the said side plates being provided with a door for the unfolded oven and a door for the 110 fire-box, and a stove top plate removably engaged with the side plates and end plates of the stove, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing wit- 115 nesses.

JOHN MORAWETZ.

Witnesses:

WM. F. MUEHE,

GEO. H. WHITE.