(No Model.) 2 Sheets—Sheet 1.

H. L. GATES.

SHEET METAL COAL HOD.

No. 488,758. Patented Dec. 27, 1892.

Fig. 1.

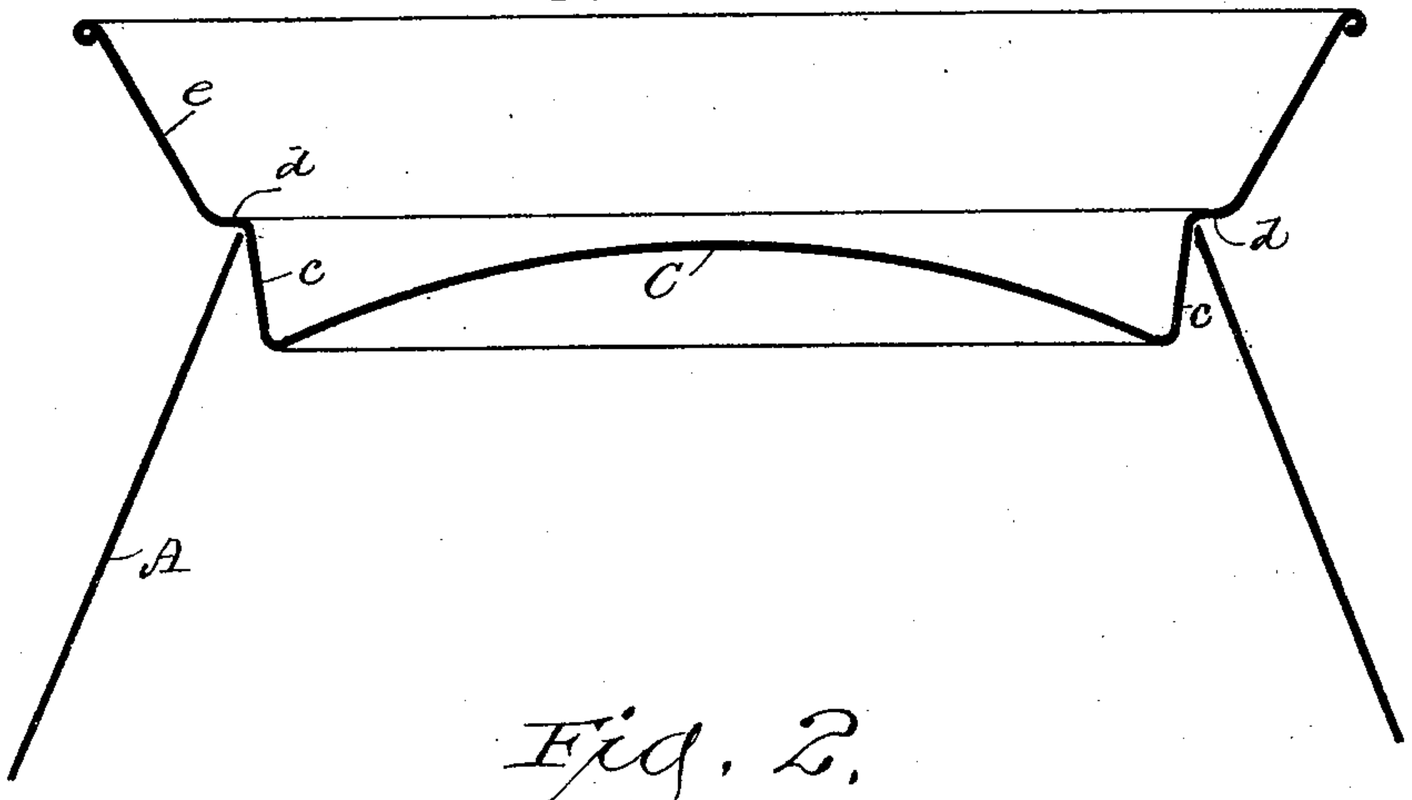


Fig. 2.

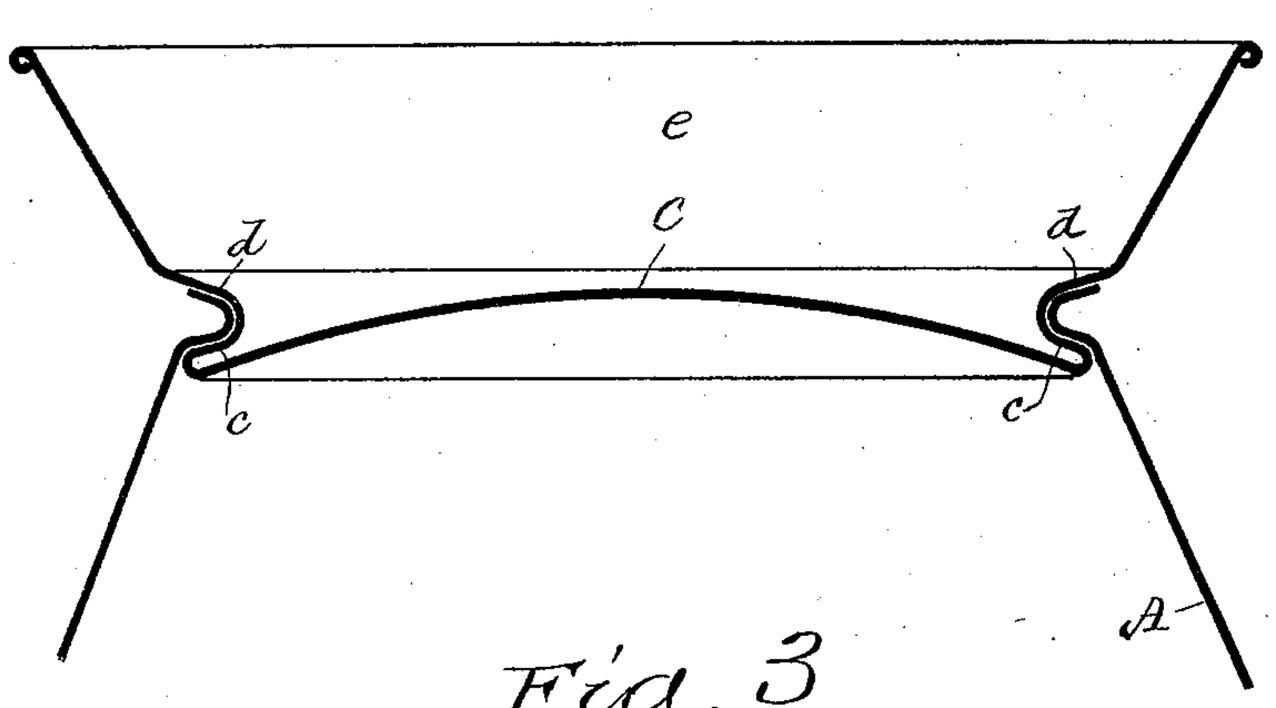
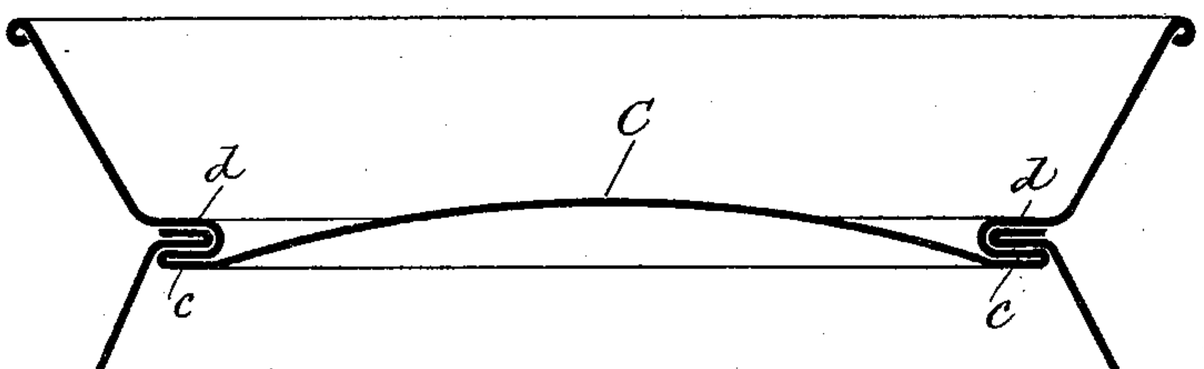


Fig. 3.



Witnesses
Geo. W. Young.
W. E. Oliphant

Inventor
Henry L. Gates,
By H. G. Underwood
Attorneys

(No Model.) 2 Sheets—Sheet 2.

H. L. GATES.

SHEET METAL COAL HOD.

No. 488,758. Patented Dec. 27, 1892.

Fig. 5.

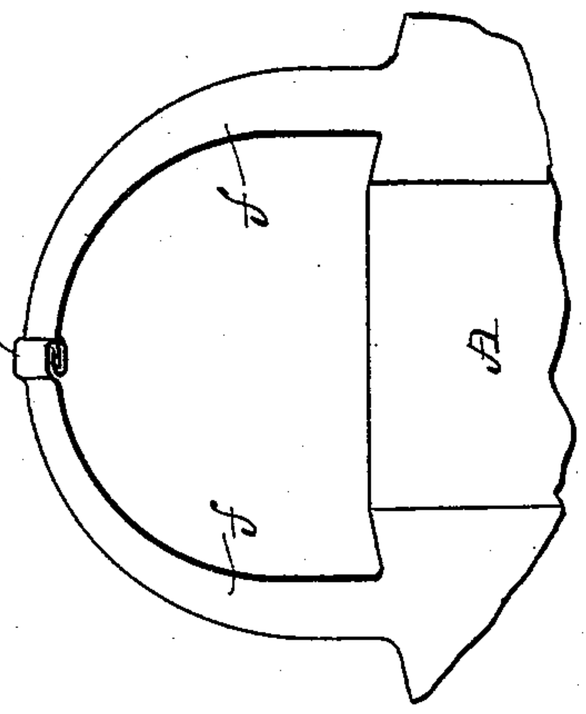


Fig. 6.

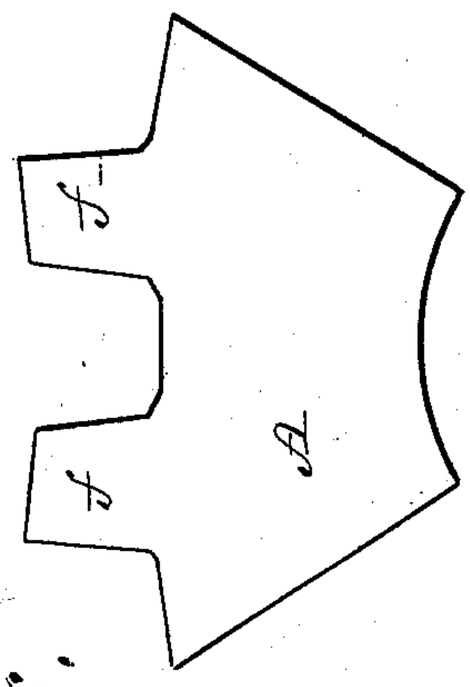


Fig. 9.

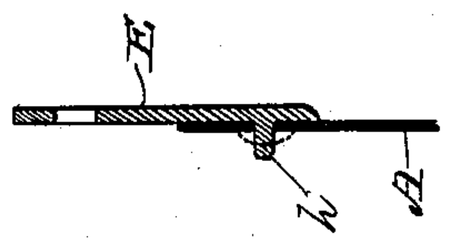


Fig. 4.

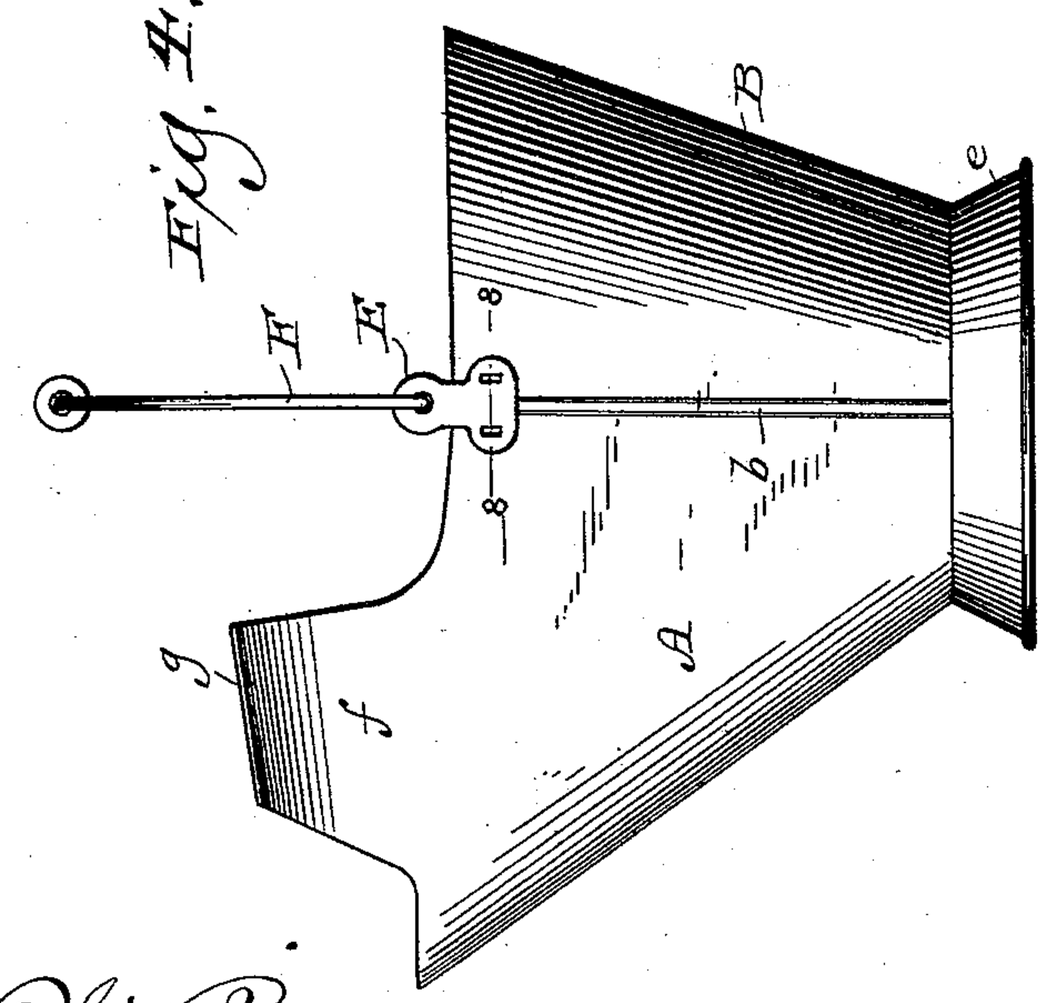


Fig. 8.

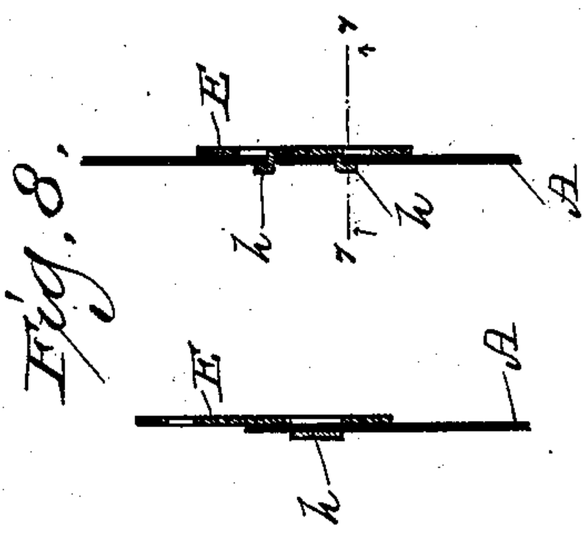


Fig. 7.

Witnesses
Geo. W. Lowry.
W. E. Oliphant

Inventor
Henry L. Gates
By H. G. Underwood
Attorney

UNITED STATES PATENT OFFICE.

HENRY L. GATES, OF MILWAUKEE, WISCONSIN.

SHEET-METAL COAL-HOD.

SPECIFICATION forming part of Letters Patent No. 488,758, dated December 27, 1892.

Application filed September 5, 1892. Serial No. 445,067. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. GATES, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Sheet-Metal Coal-Hods; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to simplify and cheapen the production of sheet-metal coal-hods; and it consists in certain peculiarities of construction and combination of parts to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings: Figures 1 to 3 are diagrams illustrating the successive steps in the method of joining the body and bottom of a coal-hod according to my improvements, said body and bottom being inverted. Fig. 4, represents a side elevation of a completed coal-hod embodying my improvements, Fig. 5, a front elevation of the upper or funnel portion of the hod, Fig. 6, a diagram of the blank for the front section of the hod-body, Fig. 7, a detail horizontal section taken on line 7—7 of the succeeding figure, Fig. 8, a detail vertical section on line 8—8 of Fig. 4, illustrating one form of my improvements in the matter of joining bail-ears to the body portion of the hod, and Fig. 9, a like view illustrating another form of my improvements relative to joining the bail-ears and hod-body.

Referring by letter to the drawings A represents the front and B the rear section of a sheet-metal coal-hod body, these sections being joined at their meeting edges by ordinary lock-seams *b* as is common in the art, and as it is also common in the art to make coal-hod bodies from a single blank having its meeting edges seamed. I do not wish to be understood as limiting myself to any particular number of body sections or blanks in connection with the improvements hereinafter specified.

So far as I am aware it has heretofore been common in the art to primarily flange the body and form an engaging bead or fold in the bottom portion of a hod, then spring the body-flange into the bottom-bead and finally compress the seam thus formed to thereby complete the joint.

By my improvements I seek to do away with the preliminary flanging of the body and beading of the bottom, thereby saving the expense and labor of these two operations, as well as certain others incidental thereto, but not necessary to enumerate for the information of those skilled in the art. In carrying out this portion of my invention I form the bottom C of the hod in such a manner as to have an approximately vertical portion or wall *c* form an angle with an approximately horizontal portion *d*, the diameter of said bottom at the angle thus formed being about that of the bottom of the hod-body, which latter I make primarily without angle or bend at its lower edge and slip onto said bottom as clearly illustrated in Fig. 1. Now by means of a suitable beading mechanism the body and encircled bottom wall *c* are bent inward in such a manner as to form a common fold one within the other as shown in Fig. 2, after which the fold thus formed is compressed, as shown in Fig. 3, by a drop-hammer or other suitable means, to complete the union of the hod-body and bottom. As will be seen by Fig. 2 it is preferable to have the lower edge of the hod-body double on itself when the beading operation takes place, but this is not absolutely necessary to the carrying out of the present essential features of my invention, as it is possible to make such variation in the general contour of the hod-bottom and beading mechanism that would result in but one thickness of said body being caught in the fold of said bottom, therefore it is to be understood that fundamentally my invention, as thus far described, consists in a result due to the simultaneous flanging of a hod-body and the beading of a hod-bottom engaged therewith. That portion *e* of the hod-bottom beyond the approximately horizontal portion *d*, in a direction opposite the walls *c*, is made flaring and curled or wired at the edge as is usual in the art, while at the same time I prefer to make the bottom proper concave, in order that when the compression of the fold, above described, takes place only the engaged parts will offer resistance to the compressing mechanism, and in case a drop-hammer mech-

anism is employed for the compressing operation, the bottom will accurately center on a corresponding mandrel under the hammer, while in the finished hod the concave bottom strengthens the whole.

When my improved coal-hods are provided with funnels, I. prefer to cut the front portion of the hod-body in such a manner as to leave enough metal to form said funnel in one piece therewith, it being preferable perhaps to cut the metal as shown in Fig. 6, and join the projecting portions *f* thereof by an ordinary lock seam *g*, as best illustrated in Fig. 5. However considerable variation may be made from the exact construction herein shown and specified.

In the manufacture of coal-hods it is usual to provide the ears, E, for bails F, with suitable openings for independent rivets passed through these openings and the bodies, but as shown by Figs. 7 to 9 inclusive I prefer to form the bail-ears with integral projections *h*, that are struck out from or cast with said ears accordingly as the latter are of sheet-steel or malleable iron. In either form of bail-ears, the projections *h* thereon may be driven through the metal forming the hod-bodies, and this operation being completed, said projections are upset to retain the ears in place.

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

1. A method of making sheet-metal coal-hods, that consists in forming the bottom thereof with a primary vertically disposed wall at an angle to a horizontally disposed portion, encircling said bottom wall with the body portion of the hod primarily devoid of angle or bend at its lower edge, simultaneously bending the parts thus engaged, and subsequently compressing the joint thus established, substantially as set forth.

2. A method of making sheet-metal coal-hods, that consists in forming the bottom thereof with a concave center and a primary vertically disposed wall, the latter being at an angle to a horizontally disposed portion that is on a plane below the concavity, encircling said bottom wall with the body portion of the hod primarily devoid of angle or bend at its lower edge, simultaneously bending the parts thus engaged, and subsequently compressing the joint thus established, substantially as set forth.

3. A method of making a sheet-metal coal-hod that consists in forming its bottom with a primary vertically disposed wall at an angle to a horizontally disposed portion, encircling said bottom wall with the body portion of the hod primarily devoid of angle or bend at its lower edge, bending the bottom and body walls together to thereby fold the body-wall on itself within the bottom wall, and subsequently compressing the engaging folds, substantially as set forth.

4. A two-part sheet-metal coal-hod having the lower edge of its body-wall folded on itself to form a two-layer flange engaging and this flange engaged with a compressed bead in the bottom-wall of said hod, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

H. L. GATES.

Witnesses:
N. E. OLIPHANT,
H. H. MEIXSELL.

Correction in Letters Patent No. 488,758.

It is hereby certified that in Letters Patent No. 488,758, granted December 27, 1892, upon the application of Henry L. Gates, of Milwaukee, Wisconsin, for an improvement in "Sheet-Metal Coal-Hods," an error appears in the printed specification requiring correction as follows: In line 69, page 2, the word "engaging" should be stricken out; and that the Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 10th day of January, A. D. 1893.

[SEAL.]

CYRUS BUSSEY,
Assistant Secretary of the Interior.

Countersigned:

N. L. FROTHINGHAM,
Acting Commissioner of Patents.