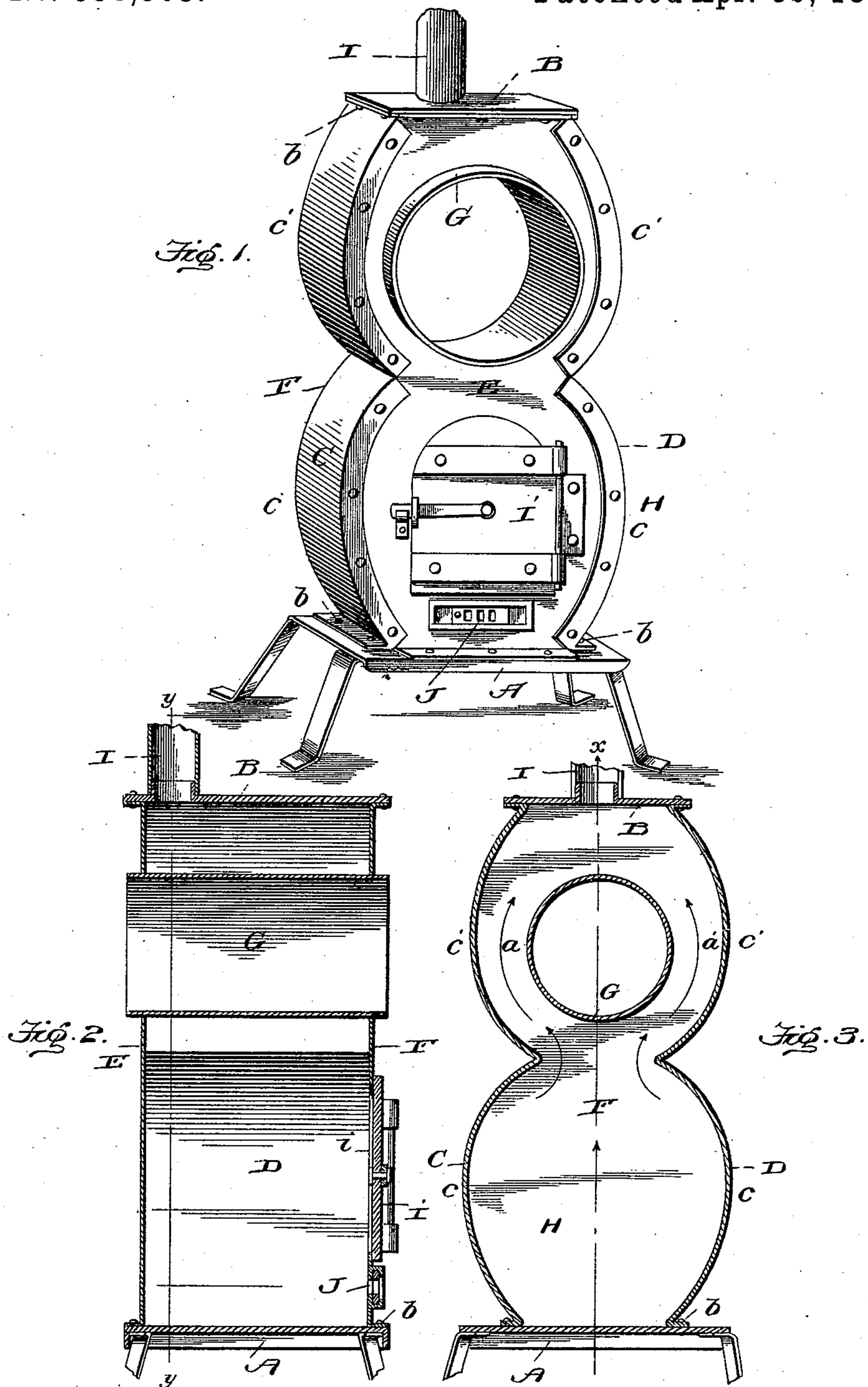


(No Model.)

L. L. CHAFFIN.  
HEATING STOVE.

No. 538,505.

Patented Apr. 30, 1895



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 538,505, dated April 30, 1895.

Application filed October 29, 1894. Serial No. 527,286. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS L. CHAFFIN, a citizen of the United States, residing at Monticello, in the county of Wright and State of Minnesota, have invented certain new and useful Improvements in Heating-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in heating stoves or furnaces, and the object that I have in view is to provide a simple, cheap and durable construction which will serve to deflect the heat toward the side walls of the stove and around a horizontal distributing tube or pipe situated in a direct path of the ascending smoke and products of combustion, so as to distribute the heat to the best advantage and secure a more uniform heating of the room or apartment in which it is placed, in proportion to the quantity of fuel consumed, than other heating stoves known to me.

With these ends in view, and such others as pertain to my invention, it consists in the combination with a base and a top plate, of side walls which are formed with duplex swelled or curved portions at intermediate points of their height, and united at their upper and lower edges to the base and top plate, respectively, end walls which have their edges shaped to conform to the curvature of the side walls and which are united to said side walls, the base and the top plate, and a horizontal distributing tube or pipe secured transversely in the stove, immediately above the fire box and in the path of the ascending heat, smoke and products of combustion, whereby passages are formed within the upper part of the stove between the side walls and the horizontal distributing pipe or tube, around which pipe or tube the heat and products of combustion are caused to circulate on their way from the fire box to the escape flue, so that the heat, &c., is deflected toward and against the side walls of the stove and a large volume of heat is radiated by the side walls, the horizontal pipe or tube, and the end walls of the stove; and the invention further consists in the construction and arrangement of parts which will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of a stove or furnace constructed in accordance with my invention. Fig. 2 is a vertical longitudinal sectional view through the stove or furnace on the plane indicated by the dotted line  $xx$  of Fig. 1. Fig. 3 is a vertical transverse sectional view on the plane indicated by the dotted line  $yy$  of Fig. 2.

Like letters of reference denote corresponding parts in all the figures of the drawings, referring to which—

A designates the base plate of my stove.

B is the top plate.

C, D, are the side walls, E, F, the end walls, and G the horizontal distributing pipe or tube which is secured to the end walls E, F, transversely through the stove and is arranged between the upper parts of the side walls in a manner to form with said side walls the circulating passages  $a, a'$  through which the heat, smoke and products of combustion are compelled to pass on their way from the fire box H to the exit flue or pipe I.

In the preferred embodiment of my invention, the base plate A and the top plate B are made of cast material while the side and end walls, and the distributing pipe or tube, are made of sheet metal, either from sheet iron or sheet steel; but I would have it understood that I do not strictly limit myself to the use of sheet metal in the manufacture of the side and end walls, and in the horizontal pipe or tube, because I am aware that said parts may be made of cast metal.

The side walls C, D, are each made of a single continuous piece and each wall is provided with the duplex curved portions,  $c, c'$ . The end walls have their edges shaped to conform to the curved parts,  $c, c'$  of the side walls, and the end and side walls are flanged and fitted together so that they can be riveted, as at  $b$ , or said walls may be united together by bolts or in any other suitable way. The side walls are assembled so that the curved parts  $c, c'$ , thereof face each other, and the curved parts  $c, c'$ , at the lower ends of the side walls form, with the end walls and the base,



the fire box or combustion chamber H, access to which is had by means of the door, I, which is hinged to the front end wall of the stove or furnace in a manner to close the fuel opening, *i*, in said end wall. To provide for the ingress of air to support combustion within the fire box, a series of perforations, J, are formed in the front wall, E, of the stove or furnace, and a suitable regulator is provided to close or expose these draft openings.

The end walls, E, F, are provided with openings below the top plate, and in these openings are fitted the ends of the horizontal pipe or tube, G, which extends transversely across the stove, from front to rear thereof. This pipe or tube, G, is suitably secured or united to the end walls, and the ends of said pipe or tube opens through the end walls for the free passage and radiation of heat from the stove into the room or apartment in which it is placed. This transverse horizontal pipe or tube, G, is situated in the direct path of the smoke, heat, and other products of combustion which ascend from the fire box, H, and said pipe, G, is, furthermore, situated between and concentric with the curved portions, *c*, *c'*, at the upper ends of the side walls, C, D, whereby flame passages are provided between the horizontal transverse pipe G and the curved parts, *c'*, of the side walls. This horizontal transverse pipe, G, serves to deflect the course of the products of combustion as they rise from the fire box against the side walls C, D, of the stove, and the heat, &c., is thereby caused to circulate around the pipe G and against the side walls, whereby the area of heating surface of the stove or furnace is largely increased and a greater volume or quantity of heat is radiated, in proportion of the fuel consumed, by my stove than by other forms of heating stoves or furnaces known to me.

The side and end walls of my stove or furnace are formed with flanges at their upper and lower edges, for the purpose of conveniently riveting the walls to the top plate and to the base of the stove, or said parts may be united in any other suitable manner; and the top plate, B, is provided, near its rear edge, with a flanged opening, to which is coupled the exit pipe or flue, the latter communicating with the chamber in the upper end of the stove above the horizontal, transverse distributing tube, G, so as to receive the smoke and other products of combustion.

The operation and advantages of my improved stove will be readily understood and

appreciated by those skilled in the art to which the invention relates from the foregoing description taken in connection with the drawings.

I am aware that prior to my invention it has been proposed to provide a horizontal-body heating stove with a horizontal heating drum which has a central open-ended flue confined between the heads thereof, and which drum is connected, at one end, with the smoke chamber of the stove by means of a vertical nipple or pipe that serves to conduct the smoke and products of combustion from the stove into the drum. My invention is distinguished from this construction in that the horizontal pipe or tube G is built in between the side walls and united to the end walls of the stove as an integral part thereof, and in that the pipe G is arranged directly over the fire box, in the path of the ascending products of combustion, to deflect the same toward the side walls and around said pipe or tube, whereby the efficiency of the stove is promoted.

Slight changes in the form and proportion of parts and in the details of construction of the stove herein shown and described as an embodiment of my invention can be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of the invention, and I therefore reserve the right to make such modifications and alterations as fairly fall within the scope of my invention.

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

A heating stove comprising a base, a top plate, the end walls E, F, each made in a single piece, the horizontal distributing pipe G fastened to the end walls E, F, and the continuous side walls C, C, each made of a single piece and united to the end walls, said side walls having the curved upper and lower parts *c*, *c'*, and the contracted middle portions which are carried inwardly toward each other immediately below the horizontal pipe G and forming the contracted throat between combustion chamber H and the side flues *a*, *a'*, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

LEWIS L. CHAFFIN.

Witnesses:

W. K. WHITTEMORE,  
JAMES C. TARBOX.