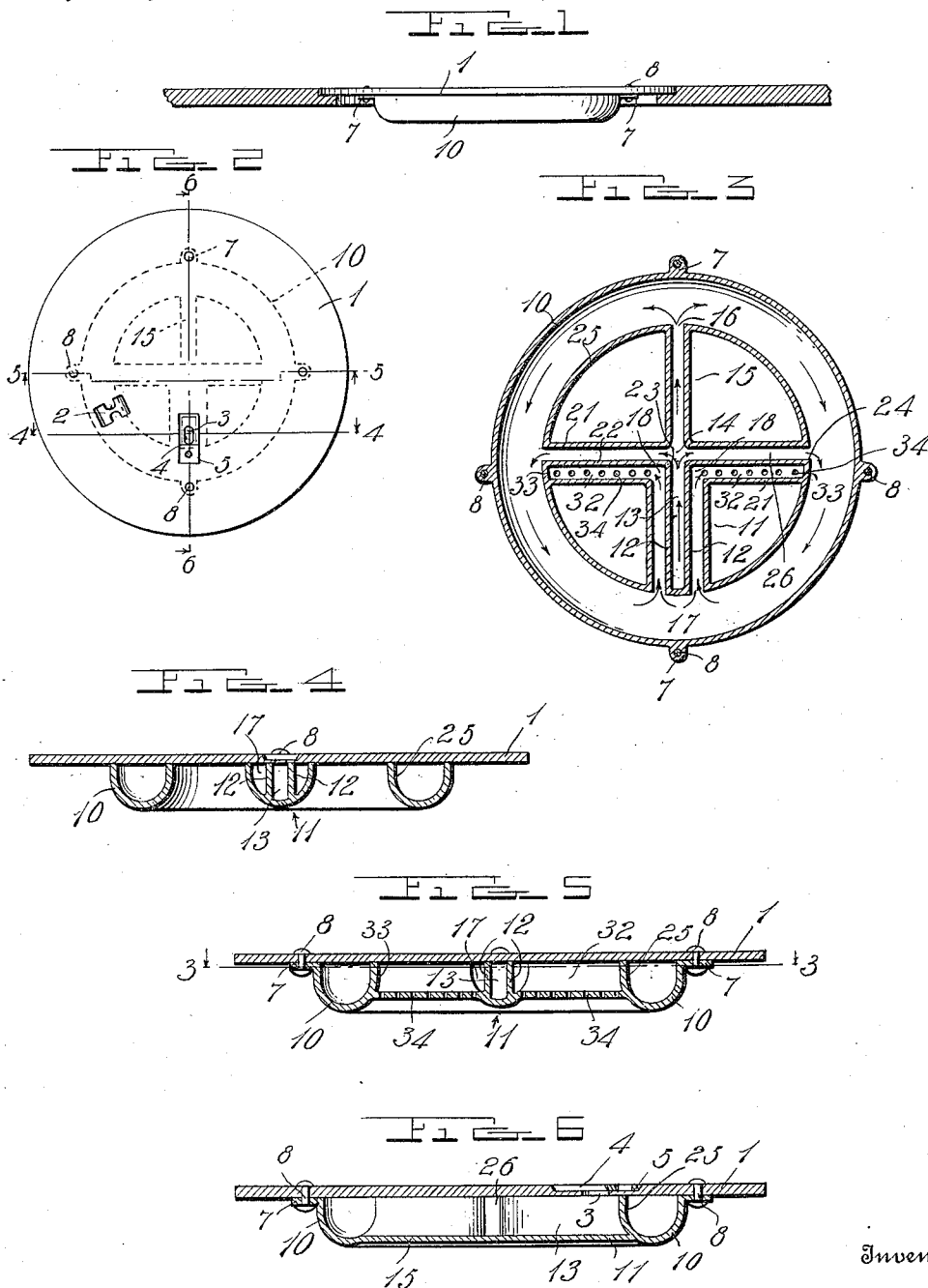


T. E. LEWIS.  
AIR HEATING STOVE LID.  
APPLICATION FILED SEPT. 12, 1912.

1,069,444.

Patented Aug. 5, 1913.



Witnesses

A. Van Loock  
N. L. Colbamer

Inventor  
T. E. Lewis

By *A. B. Wilson & Co.*  
Attorneys

# UNITED STATES PATENT OFFICE.

THOMAS E. LEWIS, OF SCRANTON, PENNSYLVANIA.

AIR-HEATING STOVE-LID.

1,069,444.

Specification of Letters Patent.

Patented Aug. 5, 1913.

Application filed September 12, 1912. Serial No. 720,061.

*To all whom it may concern:*

Be it known that I, THOMAS E. LEWIS, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Air-Heating Stove-Lids; and I do 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.

This invention relates to stoves and furnaces, and more especially to the lids thereof; and the object of the same is to construct a plate which if let into the stove top becomes a lid and which itself carries an air-admitting damper and means for heating the air before it is passed into the interior of the stove to be consumed. This object is carried out by forming the plate on its inner side with a spider or casting in the shape of a wheel, and conducting the air in a tortuous course through channels formed in the spokes and rim of such wheel before it is finally admitted into the fire-box—all as hereinafter more fully described and claimed, and as shown in the drawings wherein—

Figure 1 is a section through a stove top and a side or edge view of this improved lid, and Fig. 2 is a plan view of the lid alone. Fig. 3 is an enlarged horizontal section of the lid, taken just beneath its top plate. Figs. 4, 5 and 6 are cross sections, taken respectively on the lines 4—4, 5—5 and 6—6 of Fig. 2.

Referring to the drawings, the numeral 1 designates a plate which is made round and may serve as a lid for closing a hole in the ordinary stove top, but which could have other configuration without departing from the spirit of my invention. I will, however, refer to it herein as a stove lid, because that is the use I propose ordinarily to make of it. With such end in view, then, the plate 1 will be round and rather thin, and of a size to close the ordinary pot-opening in a stove as usual; and it may be provided with a recess 2 for inserting the ordinary lid-lifter as usual. At a proper point the plate 1 is pierced with an inlet opening 3 which is formed in the bottom of a depressed portion 4 preferably made rectangular, and in said depression rests a slide 5 having an opening 6 adapted, when the slide is moved, to be brought more or less

into register with the inlet opening 3 so that the operator may control the volume of air admitted through the plate 1. This detail as a whole we may call a damper, and its specific construction is not essential to the present invention further than it should be located as hereinafter described.

To the under side of the plate is secured a metal casting or spider 9 formed substantially in the shape of a wheel as best seen in Fig. 3; and, if it be a casting separate from the plate 1, it will have lugs or ears 7 through which may pass rivets 8 that also engage the plate for holding the spider thereto. The rim 10 of the spider is circular in outline and stands just within the lugs or ears 7 as shown, and it is by preference U-shaped in cross section so that its interior forms a channel whose top is closed by the plate and which channel extends around said plate near the periphery thereof. Inside this rim are disposed four or more spokes which are by preference cast integral with the rim and of substantially U-shape cross section so as to form channels which also are closed by the plate 1 as described. What might be called the main or master spoke 11 has two longitudinal partitions 12 within its channel, so that said channel is sub-divided into three parts. The intermediate of these we will call the inlet channel 13 and its outer end communicates with the inlet opening 3 through the plate 1, for which purpose it will be necessary to dispose said inlet opening off-center in the plate and near the periphery thereof as shown.

The inner end of the inlet channel 13 communicates with the hub of the wheel-shaped spider at 14. In the embodiment of my invention shown in the drawings, there is a second spoke 15 directly opposite the master spoke. The inflowing air passes from the hub 14 through the length of the spoke 15, and out of the outer end of the latter at the point 16 into the rim 10, thence it is divided and passes around within said rim as indicated by the arrows, practically to the point of starting, where the two streams of air respectively enter the outside channels 17 in the master spoke 11 and again flow inward in the hub 14 to the points 18 but entirely out of communication with the cooler air flowing through the inlet channel 13.

In addition to the master spoke 11 and the spoke 15 opposite thereto, I provide

what we will call lateral spokes of which but two are shown in the present embodiment of my invention radiating from the hub. Each of these lateral spokes 21 has a single longitudinal partition 22 connected at its inner end at the point 23 with the nearest partition wall 12 of the inlet channel 13 and at its outer end at the point 24 with the inner wall 25 of the rim 10; and at one side of the partition 22 is a channel 26 which leads from the hub radially outward into the interior of the rim. It follows that the inflowing cool air travels the course designated by the arrows, and while some of it passes along the spoke 15, some of it also passes outward through the channels 26 within the lateral spokes 21 and finds its way into the rim 10. It will be obvious that if there are more than two of the lateral spokes, the air will be split up into still finer divisions than illustrated. On the other side of the partition 22 the space within each lateral spoke 21 constitutes an exit channel 32 opening at the point 18 into the nearest outside channel 17 of the master spoke 11, and closed at its outer end at the point 33 by the inner wall 25 of the rim 10; and the bottom wall of each exit channel 32 is pierced with perforations as at 34. It follows from this construction that the air after passing along the master spoke and the spoke 15 opposite thereto, and thence around within the rim 10, passes along the outside channels 17 of said master spoke, thence into and along the exit channels 32 of said lateral spokes, and finally out of the perforations 34 therein and into the space under the plate 1 which, of course, communicates with the interior of the stove or furnace. Thus it will be seen that by opening the damper to a proper extent, cold air is admitted through the cover plate 1 of this lid, and the structure of the casting or spider carried thereby causes the air to pass first to the center of the same, thence through the diffusing spokes to the rim of the same, then back again almost to the point of starting, and then a second time

along the master spoke, radially outward from the hub, and through the perforations into the interior of the stove body. Throughout this course the air is subjected to considerable heat as will be clear, and the result is that by the time the air finds its way into the firebox it is in a highly heated condition so that it does not retard the fire nor subtract from the efficiency thereof for the purpose of heating the air ordinarily admitted through the inlet damper. If this device become a part of a stove lid as I contemplate, such lid can of course be instantly removed from the stove top and replaced by another, or it may be placed over the pot-hole as desired. The advantages of devices of this character are too well known to be amplified here, and of course I do not limit its use to any specified type of stove or furnace.

What is claimed as new is:

An air-heating stove lid comprising a plate having an inlet opening through it, and a wheel-shaped casting beneath said plate having channels in its spokes and rim closed by the plate, one of the spokes being enlarged and having two longitudinal partitions within its channel sub-dividing the latter into an inlet channel communicating at its outer end with said opening and at its inner end with the hub of the wheel, and two side channels communicating at their outer ends with the rim of the wheel; and the lateral spokes containing partitions producing diffusing and exit channels, the former communicating at their extremities with said hub and rim, and the latter having their inner extremities communicating with said side channels, their outer extremities closed, and their side walls perforated, for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

THOMAS E. LEWIS.

Witnesses:

PATRICK L. GLANCEY,  
DAVID ROWLANDS.