

H. A. BRUGGEMAN.
HEATER FOR AUTOMOBILES AND THE LIKE.
APPLICATION FILED JAN. 8, 1916.

1,218,367.

Patented Mar. 6, 1917.

3 SHEETS—SHEET 1.

Fig. 1.

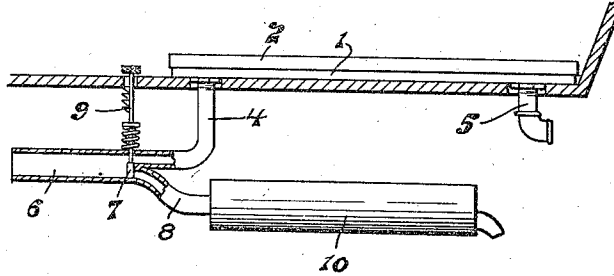


Fig. 2.

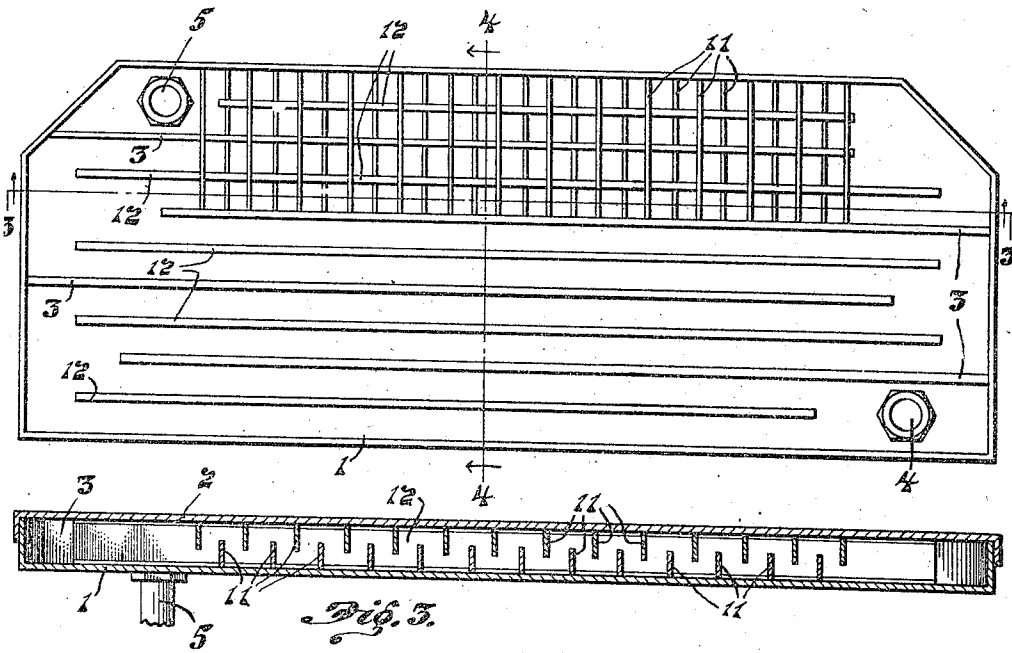
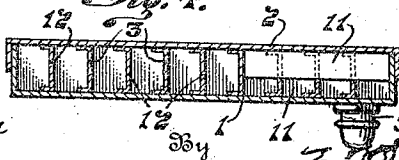


Fig. 3.

Fig. 4.



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Robert O. Kaicher

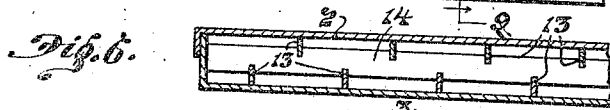
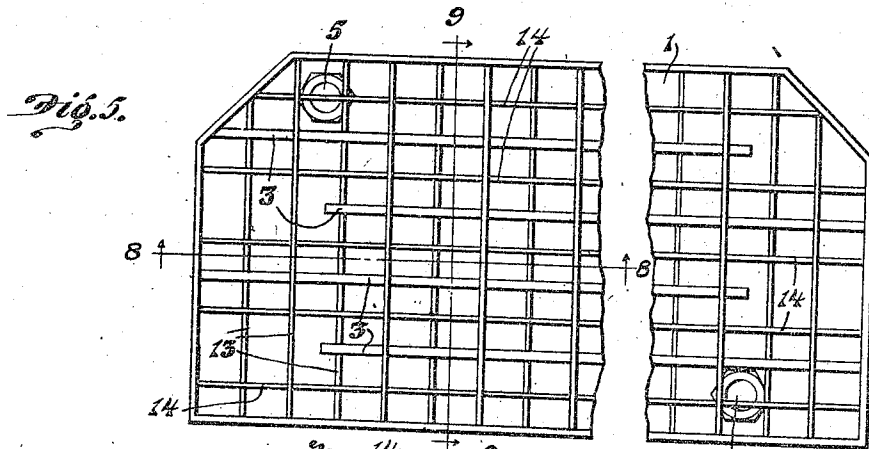
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 3 SHEETS—SHEET 2.



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Fig. 7.
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3 SHEETS—SHEET 3.

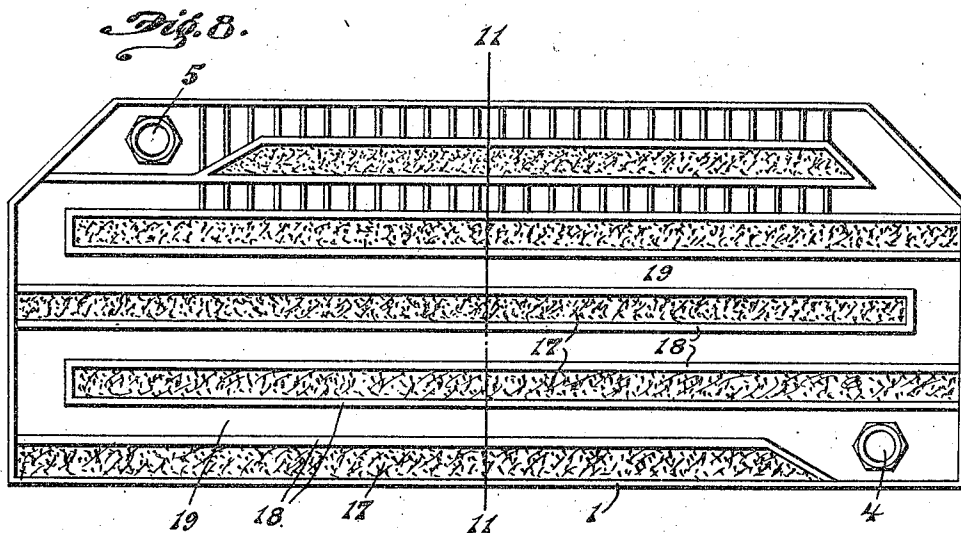
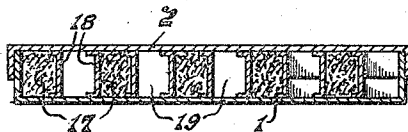


Fig. 9



Witness

Robert O. Karcher.

By

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UNITED STATES PATENT OFFICE.

HAROLD A. BRUGGEMAN, OF BEAVER FALLS, PENNSYLVANIA.

HEATER FOR AUTOMOBILES AND THE LIKE.

1,218,367.

Specification of Letters Patent.

Patented Mar. 6, 1917.

Application filed January 8, 1916. Serial No. 70,951.

To all whom it may concern:

Be it known that I, HAROLD A. BRUGGEMAN, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented a new and useful Heater for Automobiles and the like, of which the following is a specification.

My invention relates to heaters for automobiles and the like, in which a case is employed, containing division plates, whereby the products of combustion are conveyed in alternate directions, and baffle plates employed to check the rapid escape of the products of combustion.

The objects of the invention are, first, to provide simple means for producing heat from the products of combustion, second, to so construct the heater that it can be placed in position for use at different points, reference being had to the particular shape of the heater, and third, to provide means for retaining the heat.

These objects together with other objects readily apparent to those skilled in the art, may be attained by the construction illustrated in the accompanying drawings, although the invention may be embodied in other forms, the construction illustrated being chosen by way of example.

In the accompanying drawings:

Figure 1 is a view, in side elevation, of the heater as applied for use.

Fig. 2 is a top view showing the upper cover removed.

Fig. 3 is a section on line 3—3, Fig. 2, except the top cover is shown in the cross section.

Fig. 4 is a view on line 4—4, Fig. 2, except the top cover is shown.

Fig. 5 is a top view showing the top cover removed and illustrating a slight modification or additional baffle plates.

Fig. 6 is a section on line 8—8, Fig. 5.

Fig. 7 is a section on line 9—9, Fig. 5.

Fig. 8 is a top view of a modification showing the upper cover removed and illustrating the heat-retaining means.

Fig. 9 is a sectional view on line 11—11, Fig. 8.

Similar numerals of reference indicate corresponding parts throughout the several figures of the drawings.

In the accompanying drawings, 1 represents the bottom or base and 2 the top or cover, which parts or members are prefer-

ably connected together, but in such a manner that they can be easily detached, but at the same time so attached that there will not be danger of accidental displacement with reference to each other. The case members 1 and 2 are preferably formed of sheet metal and of any desired size. Between the tops and bottoms 1 and 2 are located the desired number of partitions 3 and for the purpose of directing the products of combustion back and forth the opposite ends of said partitions are alternately spaced from the ends of the casing, by which arrangement the products of combustion are conveyed, first in one direction and then in the opposite direction, as they pass from the intake pipe 4 to the outlet or final exhaust pipe 5. It will be understood that the pipe 4 is to be connected to the exhaust pipe 6, said exhaust pipe being connected to the combustion engine in the ordinary manner.

For the purpose of shunting the products of combustion from the heater, if so desired, a valve 7 is provided, which valve is connected in proper relationship with the branch pipe 8 and the heater exhaust pipe 4 so that the valve can be adjusted by means of the valve rod 9 to cause the products of combustion to pass into the exhaust pipe 8 and into the muffler 10 or into the open air as desired.

It will be understood that by arranging the valve 7 the products of combustion or more specifically the exhaust from the engine can be directed through the heater or cut-out, whereby the degree of heat can be easily regulated at all times and for all purposes, the exhaust being passed through the heater or into the muffler 10 and the open air as desired.

It is well understood that if the products of combustion in explosive engines are checked or prevented from rapid escape there is danger of certain back pressure upon the engine, and in order to overcome this difficulty under certain circumstances it is better to provide a fewer number of baffle plates 11 and locate the baffle plates near the exhaust or outlet pipe 5. By this arrangement the intake portion of the heater is left free to receive the products of combustion without danger of over-compression, owing to the fact that no obstruction as to the movements of the products of combustion are present, except the alternating partitions 3.

For the purpose of properly bracing the

top 2 the braces 12 are provided, which
braces are spaced from both ends of the
casing of the heater proper and present no
resistance to the products of combustion.
5 The baffle plates 11 are located in staggered
relationship with reference to each other
as best illustrated in Fig. 3. In Fig. 7 I
have shown a slight modification, the gen-
eral arrangement, however, being practically
10 the same, except that in this instance the
baffle plates 13 correspond in function with
the baffle plates 11 shown in Fig. 2, which
baffle plates are distributed over practically
the entire heater, and the longitudinal
15 baffle connecting plates 14 employed. The
plates 13 and 14 being located at right angles
to each other and notched together, but oth-
erwise the construction is substantially the
same, the baffle plates being located sub-
20 stantially as illustrated in Fig. 8.

It will be understood that it is immaterial
as to whether or not the heater is used in a
horizontal or vertical position. In some in-
stances it may be desirable to have the heater
25 formed in such a manner that it can be
placed in the bottom of the vehicle and in
such a place that a person's feet can be
placed upon the heater. In other instances
it may be desirable, and is desirable, to
30 place a heater under a seat or at the back
of the seat. The shape and size of the
heater proper being determined by the posi-
tion it is to occupy in the vehicle, but so
far as the general arrangement of the var-
35 ious parts contained in the heater are con-
cerned, they are the same, regardless of the
position in which they are to be placed.

It will be understood that the baffle plates
and the partitions, whereby a zig-zag move-
40 ment is imparted to the products of combus-
tion, are the same or substantially the same.

The purpose of detachably connecting the
top and bottom members of the casing is to
provide means for access to the various par-
45 titions and braces for the purpose of chang-
ing or rearranging the various partitions
and for the purpose of cleaning the heater,
and in order to accomplish this result it is
obvious that the braces and partitions, to-
50 gether with the baffle plates need not neces-
sarily be connected to either the top or bot-
tom members of the casing.

In some instances it may be desirable to
provide means whereby the heat generated
55 can be retained, thereby maintaining the
heat for a considerable length of time. This

feature of the modified form is illustrated
in Figs. 10 and 11. This result is brought
about by placing gravel or its equivalent 17
between the division plates 18 and so ar- 60
ranging the division plates that the products
of combustion will pass in alternating direc-
tions through the open passages 19, by which
arrangement the free passage of the prod- 65
ucts of combustion is maintained, but at 65
the same time will impart heat to the heat
retaining substance so that after the prod-
ucts of combustion have been cut off or the
engine stopped heat will be retained for a
considerable length of time. It will be un- 70
derstood that the general arrangement of
the heater is substantially the same no mat-
ter whether heat retaining substances are
placed within the heater or not.

Having fully described my invention what 75
I claim as new and desire to secure by Let-
ters Patent, is—

1. In a heater of the class described, the
combination of a casing, said casing pro-
vided with inlet and outlet apertures, said 80
apertures located at opposite sides and ends
of the casing, a series of partitions located
within the casing and spaced from each
other, the ends of said partitions alternately
spaced from the ends of the casing, a series 85
of baffle plates extended inwardly from the
top and bottom of the casing in staggered re-
lationship and at substantially right angles
to the partitions, the series of baffle plates
spaced from the intake aperture and ex- 90
tended near the outlet aperture, all ar-
ranged substantially as shown.

2. In a heater of the class described, the
combination of a casing, said casing pro-
vided with inlet and outlet apertures, said 95
apertures located at opposite sides and ends
of the casing, a series of partitions located
within the casing and spaced from each
other, the ends of said partitions alternately
spaced from the ends of the casing, a series 100
of baffle plates extended inwardly from the
top and bottom of the casing in staggered
relationship and at substantially right an-
gles to the partitions, the series of baffle
plates spaced from the intake aperture and 105
extended near the outlet aperture, and heat
retaining material located between the par-
tition plates in alternate relationship, all ar-
ranged substantially as shown.

In testimony that I claim the above, I 110
have hereunto subscribed my name.

HAROLD A. BRUGGEMAN.