O. SPAHR.

GAS OR OIL RADIATOR.

APPLICATION FILED MAR. 23, 1912.

1,068,461. Patented July 29, 1913.

FIG. 1.

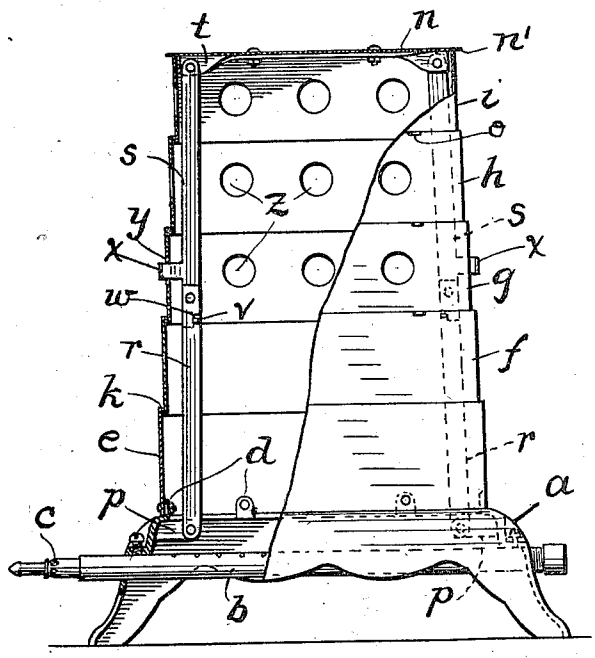


FIG. 2.

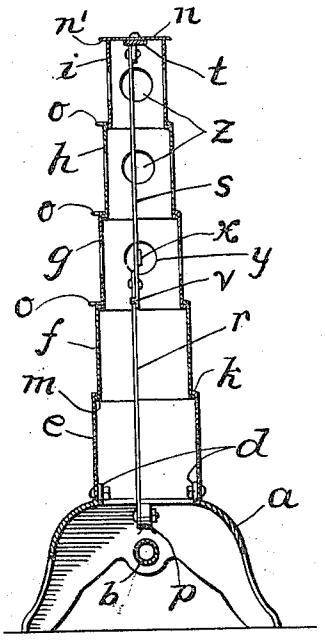


FIG. 3.

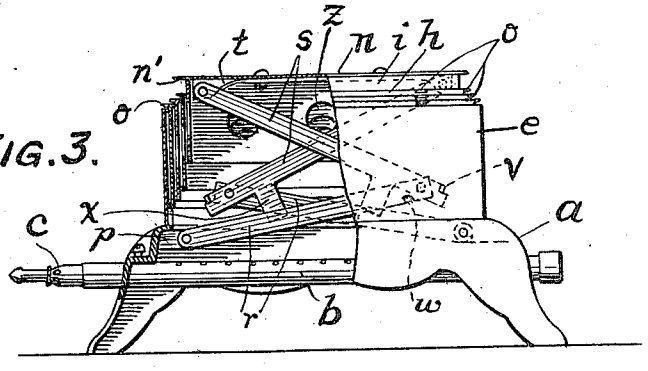
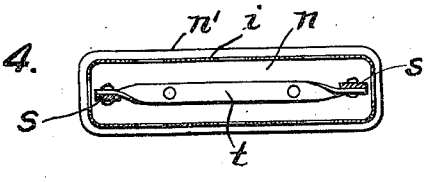


FIG. 4.



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GAS OR OIL RADIATOR.

1,068,461. Specification of Letters Patent. Patented July 29, 1913.

Application filed March 23, 1912. Serial No. 685,720.

To all whom it may concern:

Be it known that I, OTTO SPAHR, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Gas or Oil Radiators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to oil and gas radiators.

The main object of my invention is to provide a radiator of such construction that, when not in use, it may be collapsed so as to occupy but a small fraction of the space it occupies when in operation. A radiator having such a capacity posesses certain obvious advantages, such, for example, as the occupancy of a very small space in transportation and storage. It has been found, however, that the attempt to produce extensible and collapsible articles of an analogous nature, as for example, stoves, develops certain objections which preclude their commercial utility. Among such objections may be mentioned structural complications tending to get out of order, supplemental detachable parts adapted to get lost, ineffective means for holding the members absolutely rigid in their extended positions, time required to effect adjustment, and too limited range of extensibility.

The more specific object of my invention is to provide an extensible and collapsible oil or gas radiator having a great range of extensibility, which can be quickly extended or collapsed, which will be automatically maintained in position when extended and which will be retained in that position with absolute rigidity, and which is devoid of any detachable or complicated means liable to get out of order.

A preferred embodiment of my invention is shown in the accompanying drawings, in which:

Figure 1 is a side elevation, partly in section of the radiator in its extended position; Fig. 2 is a vertical section on the line 2—2 of Fig. 1; Fig. 3 is a side elevation, partly in section, of the radiator in its collapsed positon; Fig. 4 is an inverted plan of the top of the radiator.

a is the base through which extends the burner pipe *b*, which is supported on the end frames of the base. The extreme contracted end of the burner pipe is adapted for connection with a tube for supplying the oil, gas or vapor. The shoulder near this end of the burner pipe is provided with orifices *c* for the admission of air, thereby enabling the fuel to be mixed with air before being burned.

The base *a* is provided with upturned ears *d*, to which is secured the lowest and fixed hollow section *e* of the radiator body. The upper edge of the lowest section is provided with an inturned flange *k* against which abuts the outturned flange *m* on the lower edge of the second and movable hollow section *f* when the radiator is extended as in Figs. 1 and 2. The flange *m* is of about the width of the flange *k*, so as to adapt the section *f* to slide within the section *e* and fit reasonably close thereto during the sliding movement. In the same manner the section *f* is connected with the third section *g*, the section *g* with the fourth section *h*, and the latter with the fifth or top section *i*. The top section *i* is provided with a cover *n*.

The sections *f g* and *h* are provided, at their upper edges, with outwardly extending lips *o* and the cover *n* on the top section *i* is extended beyond the side walls of the cover to form an overhanging flange *n'*. When the sections are in their collapsed relation, as shown in Fig. 3, the lips *o* and the flange *n'* limit the downward movement of their respective sections. When the sections are collapsed, the flange *n'* affords a finger hold to enable the upper section *i* to be grasped and lifted. In the lifting of the section *i*, the out-turned edge *m* of each section engages the inturned edge *k* of the section below it and lifts such section, and thus, one after the other, all the sections are lifted, until the radiator assumes the form illustrated in Figs. 1 and 2.

To automatically hold the sections in their extended relation, the following means are provided: Secured to the base and near one end thereof is the bracket *p* to which is pivoted one end of the lever *r*, which is of a length equal to substantially one-half the combined height of the several radiator sections. Pivoted to the other end of lever *r* is one end of a second lever *s*, of a length about equal to that of the lever *r*. The upper end of the lever *r* is pivoted to a support *t* secured to the cover *n* of the top section *i*. A similar pair of levers *r* and *s*, connects the support *t* with a second bracket *p* secured to

the other end of the base. The support t is preferably made of a flat bar secured to the under wall of the cover n, the ends of the bar being twisted at an angle of 90 degrees to afford a ready means of providing a pivotal connection for the upper ends of the two levers s. The upper lever s of each pair of levers has at its lower end a projection v adapted to enter a notch w in the corresponding lever r when the two levers are in parallel relation. It will be observed that both pairs of levers are located within the body of the radiator and that the two pairs are arranged in different planes to permit them to fold without interference with each other. When the radiator is collapsed as in Fig. 3, the two levers of each pair fold toward each other as shown. When the radiator sections are moved into their extended position, the two levers of each pair are moved into parallel relation, each projection v entering its corresponding notch w. These levers thus act to automatically hold the sections in their extended relation, and no amount of downward pressure upon the top section can effect a collapse of the sections. It will be noticed that each upper lever s is provided, near its pivoted end, with a projection x, which extends through a hole y in one end wall of the middle section g. By pressing against these projections x, the levers r and s on each side can be moved into an angular relation, whereupon the sections can be easily collapsed by gentle pressure upon the top section i. In addition to the holes y, the side walls of the upper sections are preferably provided with holes z to permit the free escape of the products of combustion.

While I have illustrated a radiator that is substantially rectangular in horizontal cross-section, the invention is not limited in its application to any particular shape of radiator, nor is the invention limited to any specific features other than those pointed out in the claims.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. An oil or gas radiator, comprising a base and a fixed bottom section, a top section, and a plurality of intermediate sections, said sections progressively decreasing in dimensions from the bottom upward and thereby adapted to telescope one within another, and two pairs of levers within the radiator body, the corresponding ends of corresponding levers of the two pairs being pivoted to the radiator base at opposite sides thereof and the corresponding ends of the remaining two levers being pivoted to the cover of the top section at opposite sides thereof, the other ends of the two levers of each pair being pivoted together, and a projection on one of said levers, near its pivoted connection with the other lever, adapted to extend through the wall of one of the intermediate sections when the radiator is in its extended position.

2. An oil or gas radiator, comprising a base and a fixed bottom section, a top section, and a plurality of intermediate sections, said sections progressively decreasing in dimensions from the bottom upward and thereby adapted to telescope one within another, and two pairs of levers within the radiator body, the corresponding ends of corresponding levers of the two pairs being pivoted to the radiator base at opposite sides thereof and the corresponding ends of the remaining two levers being pivoted to the cover of the top section at opposite sides thereof, the other ends of the two levers of each pair being pivoted together, a projection on one lever of each pair, near its pivotal connection with its companion lever, adapted to extend through the wall of one of the intermediate sections when the radiator is extended and the levers are in parallel relation, and a projection on one lever of each pair adapted to enter a notch in its companion lever when the levers are in parallel relation.

3. An oil or gas radiator, comprising a base and a fixed bottom section, a top section, and a plurality of intermediate sections, said sections progressively decreasing in dimensions from the bottom upward and thereby adapted to telescope one within another, and two sets of levers within the radiator body, the corresponding ends of the lower levers of the two sets being pivoted to the radiator base at opposite sides thereof and the corresponding ends of the upper levers of the two sets being pivoted to the cover of the top section at opposite sides thereof, the other ends of the upper and lower levers of each set being pivotally connected together, retaining means adapted to maintain the levers of a set in parallel relation when the sections are moved into their extended position, and hand-operated means for moving the levers of a set into an angular position preparatory to collapsing the sections.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, on this 21st day of March, 1912.

OTTO SPAHR.

Witnesses:
M. M. HAMILTON,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."