Jan. 26, 1937. C. M. WOOLLEY 2,069,190

CIRCULATION ENHANCING ATTACHMENT FOR RADIATORS

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Fig. 1.

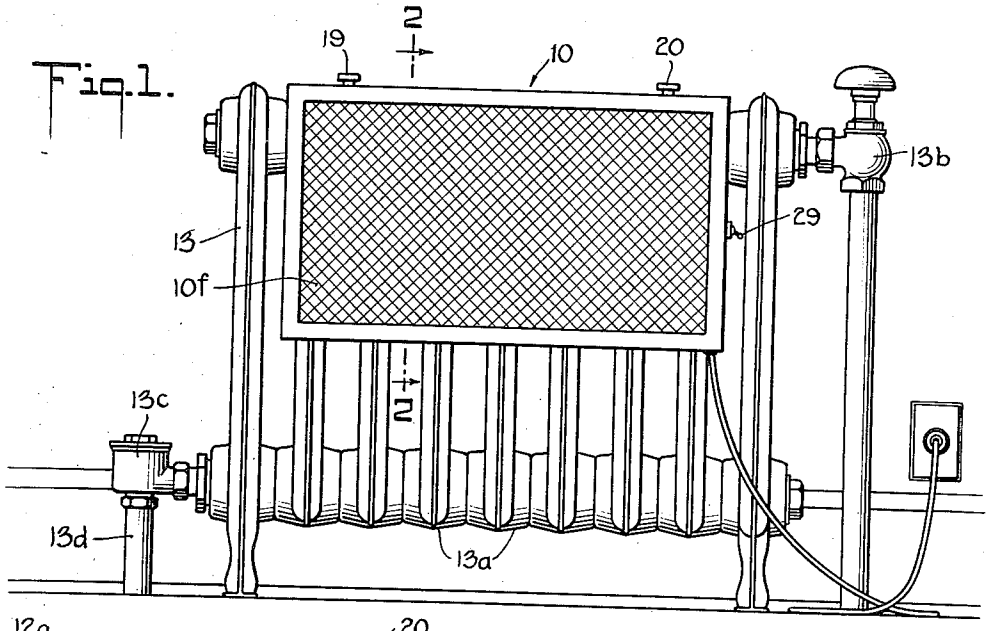
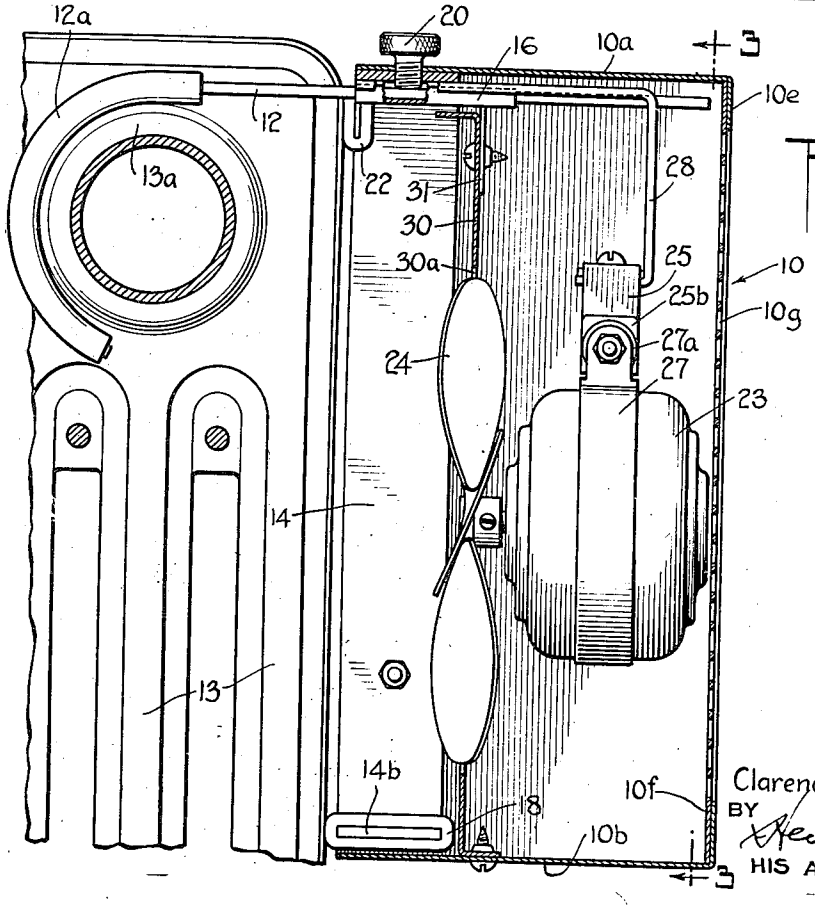


Fig. 2.



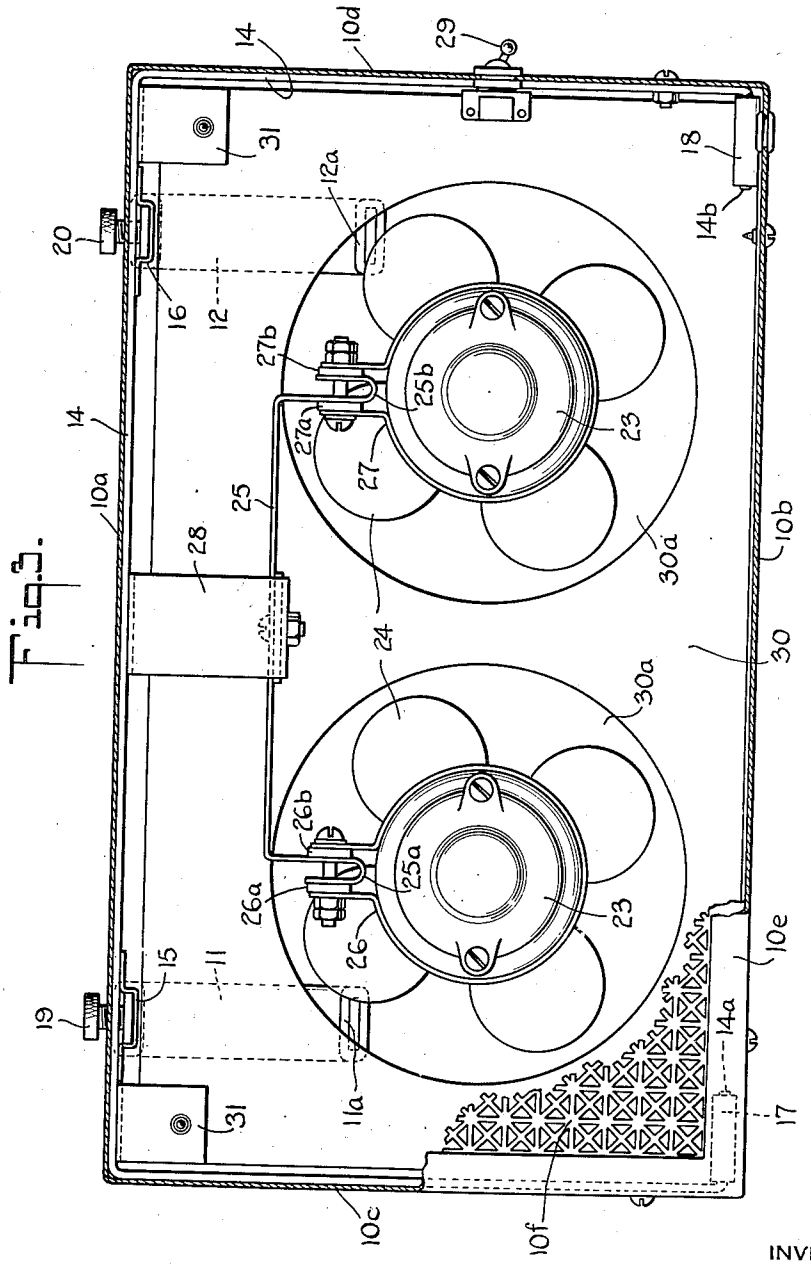
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Fig. 3.



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2,069,190

CIRCULATION ENHANCING ATTACHMENT FOR RADIATORS

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Application November 8, 1935, Serial No. 48,813

4 Claims. (Cl. 257—137)

My invention relates to portable positive air circulating attachments for radiators, and more particularly to air circulating and heat enhancing attachments that may be readily installed relative to heating radiators to increase their effective heating capacity and effective scope of distribution.

At times, it is desirable or is desired to augment the natural circulation of air relative to a radiator to attain speedier and/or more widely distributed heating of room air, which attainment is had by the operation of embodiments of my invention.

Embodiments of my invention may be positioned relative to a radiator when it is desired to operate the same. If preferred, my attachment may be removed from the radiator and stored.

To the above and other ends, my invention is arranged to provide a relatively compact, light weight, air circulating unit that is readily attached to and removed from any present day regulation type of heating radiator.

Embodiments of my invention include, in essentials, a casing having defined therein air ingress openings disposed oppositely to air egress openings, means for readily positioning the casing relative to the heating surfaces of a radiator, supplied with a suitable heating medium such as steam, and air circulating means within the casing operative for positively drawing air in through one set of openings and projecting the same through opposite sets of openings, such positive air projecting means being advantageously in the form of one or more motor and fan units.

A preferred form of my invention comprises a casing having an open back, and a perforated front panel, self-adjusting hangers adapted to fit over an ordinary sectional heating radiator and to position and support the casing with its open back in substantial planar coincidence with a vertical, usually the front, heating faces of the radiator, one or more motor fan units mounted within the casing between the perforate front panel and the open back, and a septum having openings for, and coordinated with such one or more fans, to draw room air in through the perforated front panel and positively project the air through the open back of the casing into heat exchange relation with the surfaces of the individual heating sections or other component parts of the radiator.

Further features of the invention will be more fully understood from the following detailed description, reference being also made to the accompanying drawings, in which:

Fig. 1 is a side elevation of a convenional heating radiator and a preferred embodiment of my portable air circulating attachment secured thereto and cooperating therewith.

Fig. 2 is an enlarged vertical section taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged front elevation of the embodiment illustrated in Figs. 1 and 2, unattached to a radiator, and showing a part of the front panel broken away to reveal a vertical section taken on the line 3—3, Fig. 2.

Referring to the drawings and to the specific construction therein shown, the numeral 10 indicates a casing comprising a top panel 10*a*, a bottom panel 10*b* and opposite side panels 10*c* and 10*d*, all of which may be integrally related, preferably formed from a single sheet of metal. One of the peripheral edges of the casing 10 is shown angled inwardly to provide a peripheral flange 10*e*, to the inner face of which flange is shown rigidly attached in any suitable manner as by welding, the perforate front panel 10*f*.

In the illustrated embodiment hangers 11 and 12, preferably of strap metal are formed as a hook at one end, for engagement with and support from sections 13*a* of a radiator 13. The hangers 11 and 12 may be adjustable to afford suitable positioning relative to the radiator as by adjustment within the slides 15 and 16 respectively, which slides may be of channeled sheet metal, suitably secured, as by welding, to an inner face of the supporting-stiffening strap 14.

The strap 14 serves as the backbone, so to speak, of the completely assembled attachment and extends around the inner faces of the casing 10, at a peripheral edge thereof, being secured by suitable fastening means such as screw-bolts, and terminates at opposite ends of the bottom panel 10*b* in buffer feet 14*a* and 14*b* over which may be placed cushioning sleeves 17 and 18 of rubber or like material.

After suitable adjustment of hanger lengths have been made to adapt the attachment for use with a particular radiator, locking of the hangers 11 and 12 within their respective slides 15 and 16 is accomplished by means of the knurled set screws 19 and 20 respectively.

Buffer members, as at 22, in addition to the buffer feet 14*a* and 14*b*, may be placed at advantageous points along the strap 14, for instance at opposite ends of the top of same as shown, to insure firm seating of the attachment to the radiator face. Also, the hooked ends of the hangers 11 and 12 may be covered by sleeves, 11*a* and 12*a*, of rubber composition or like material to serve both as an absorber of vibration and a protector for the radiator.

Housed within the casing 10, and operative to draw air therein through the perforations 10*g* of the front panel 11*f* and to discharge it therefrom through the open back in heat exchange contact with the heating surfaces of the individual radiator sections, are means for circulating air. As such, one or more motor fan as-

semblies comprising the motor 23 and the fan 24 may be utilized.

In the preferred construction illustrated two such motor-fan assemblies are resiliently suspended, within the casing 10 at opposite ends of a suspension cross-bar 25, by any suitable means such as the bolt-nut-adjustable spring clamps 26 and 27 fitted about the respective motors 23, and having interposed between their clamping ends and the U shaped ends 25a and 25b of the suspension cross-bar 25, disks 26a and 26b and 27a and 27b, respectively, of fiber or like material to absorb motor and fan vibration. The suspension cross-bar 25 may be suspended by rigid attachment, as by bolting, from the bracket 28, which bracket may be in turn rigidly secured, as by welding, to a point on the inner face of the top portion of the supporting-stiffening strap 14 midway between its ends.

The motor or motors 23 are desirably of the electrical type, controllable as by a snap switch 29, which switch may have two or more settings corresponding to certain desired speeds of rotation of the fans 24, and hence being capable of causing predetermined variation of the air circulating capacity of my radiator attachment, and thus in the heating and circulating characteristics of the radiator with which my attachment coordinates.

Preferably a septum 30 having one or more openings 30a corresponding in number to the number of fans 24 and of diameters slightly larger than that of the fans, and otherwise imperforate, operative to direct air into the mean paths of rotation of same, extends across the cross-sectional area of the casing in a plane substantially perpendicular to the axis of rotation of such fans. The septum 30 illustrated extends vertically upwardly within the casing, to the lower faces of the slides 15 and 16 and is suitably secured in position at its top to arms 31 depending from the supporting strap 14, and at its sides and bottom to respective side and bottom panels of the casing 10 by screws or like fastening means.

In certain instances it may be found desirable to use an apron or aprons in connection with the casing 10 to form partially enclosed, air directing channels, leading up or down to the open back of the casing, between individual sections of the radiator. The apron or aprons may suitably depend from the bottom panel 10b of the casing, or extend upwardly from the top panel 10a, or both, if required.

The supply of a suitable heating medium, preferably steam, to the radiator 13 is controlled by a conventional inlet valve 13b; its discharge is through a steam trap 13c and return pipe 13d.

During the stage of supply of the heating medium through the sections 13a of the radiator, the motors 23, and therewith their coordinated fans 24, may be actuated to cause a circulation of air in through the front perforations 10g, on through the septum openings 30a, and projected through the open back of the casing 10 into heat exchange relation with the thermal surfaces of the radiator sections. In such manner an effective circulation of room air through the heating assembly is accomplished with a corresponding increase in the effectiveness of distribution of heated air through the room or other spaced area served by my attachment.

When the motors and fans are not in operation the usual natural circulation of convection air currents through the radiator ensues unhampered by the presence of my attachment.

In warm weather, my attachment may be advantageously employed as a means for positively circulating room air for comfort and/or cooling purposes, notwithstanding that no heating medium is supplied to the radiator; if desired, a cooling medium may be supplied to the radiator.

Whereas I have described my invention by reference to specific forms thereof, it will be understood that many changes and modifications may be made without departing from the spirit of the invention.

I claim:

1. A portable air circulating attachment for a radiator including in combination a casing having an air inlet spaced apart from an air outlet, air projecting means interposed between said air inlet and said air outlet, and means for positioning said casing proximate a vertical face of the radiator with either its air inlet or its air outlet in registry with air channels running through the body of the radiator, said means comprising a hanger adapted to embrace a portion of the radiator in effecting support of said casing.

2. A portable air circulating attachment for a radiator including in combination a casing having an air inlet spaced apart from an air outlet, one or more motor-fan assemblies interposed between said air inlet and said air outlet and operative to draw air in through said inlet and project air through said outlet, and adjustable means carried by said casing, and adapted to embrace a portion of the radiator to effect support of said casing proximate a vertical face of the radiator, either its air inlet or its air outlet in registry with air channels running through the body of the radiator.

3. A portable air circulating attachment for radiators including in combination a casing having an air inlet spaced apart from and directly opposed to an air outlet, one or more motor-fan assemblies interposed between said air inlet and said air outlet, and operative to positively draw air in through said inlet and project air through said outlet, and adjustable means supported about the top of the radiator for securing said casing adjacent the front vertical face of the radiator, so that either said air inlet or outlet is in registry with air channels running through the body of said radiator.

4. A portable air circulating attachment for a radiator, including in combination a casing having an air inlet spaced apart from an air outlet, one or more motor-fan assemblies interposed between said air inlet and said air outlet and operative to positively draw air in through said air inlet and project air out through said outlet, and hanger means adjustably secured near the top of said casing for temporarily positioning said attachment proximate a vertical face of the radiator so either said air inlet or air outlet is in registry with air channels running through the body of the radiator.

CLARENCE M. WOOLLEY.