Oct. 18, 1932. R. H. CROSBY 1,883,591

RADIATOR HANGER

Filed Jan. 3, 1928

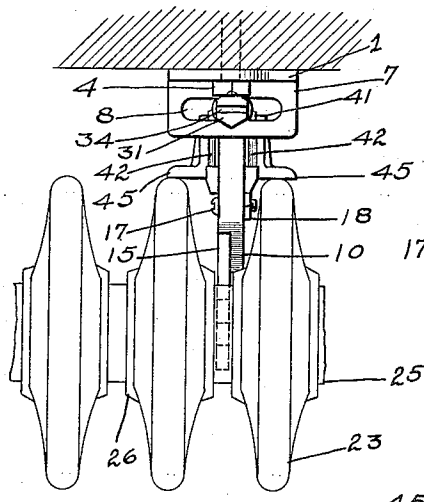


Fig. 1

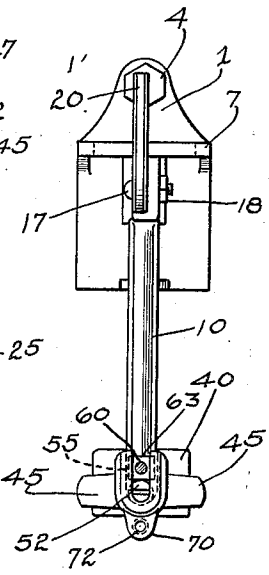


Fig. 4

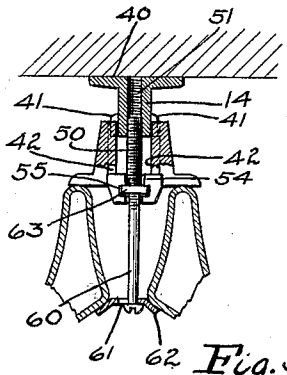


Fig. 5

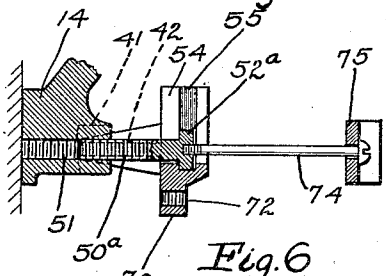


Fig. 6

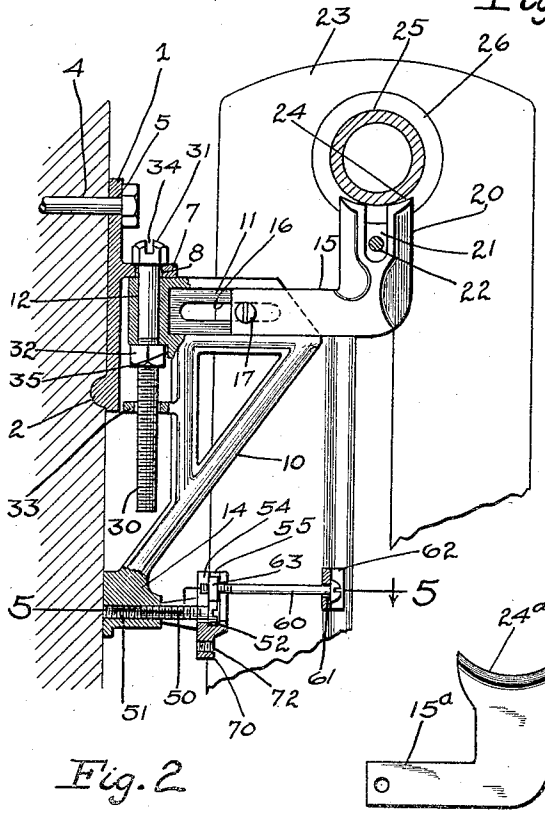


Fig. 2

Fig. 7

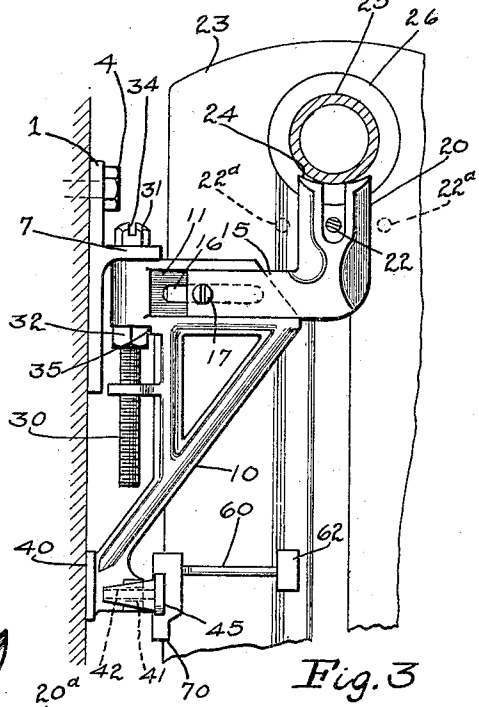


Fig. 3

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UNITED STATES PATENT OFFICE

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RADIATOR HANGER

Application filed January 3, 1928. Serial No. 244,238.

This invention relates to improvements in radiator hangers and has as its general object to provide means whereby a universal adjustment of the radiator can be obtained. Other objects are to provide means for swingingly mounting the radiator by its top portion only, in such manner that the radiator can be adjustably swung by a single device, on a horizontal axis toward and away from the wall, moved vertically, and horizontally in direction parallel to the wall, and swing about a vertical axis; to provide means for obtaining these adjusting movements positively and micrometrically; to provide means for micrometrically adjusting the bracket vertically and in parallel relation to the wall and to locate this adjusting means in an accessible position at the top of the radiator; to provide a swinging adjustment of the bracket about a vertical axis; to provide means for adjusting the bracket horizontally in a direction parallel to the wall; and generally to provide a compact simply constructed device for accomplishing the above results, which supports the radiator adjacent its top portion only, and in which the adjusting elements are easily accessible.

Features of the invention include the broad idea of pendently securing a bracket for universal adjusting movements, that is, in vertical and horizontal directions, to swing on a vertical axis, and to permit swinging adjustment of the radiator about its upper portion as a center, as well as all the details of construction along with combinations and sub-combinations of the elements, and including the construction of the elements per se.

Advantages of the device will be set forth in the description of the drawing forming a part of this application, and in said drawing

Figure 1 is a top plan showing a portion of a radiator and illustrating its connection with the improved bracket herein;

Figure 2 is a vertical section corresponding to Figure 1;

Figure 3 is a similar view showing the radiator lying nearer the wall, and thus illustrating the horizontal adjustability of the device toward and away from the wall;

Figure 4 is a front view of the bracket with the radiator removed and showing the tie bolt in section;

Figure 5 is a plan section substantially on line 5—5 of Figure 2;

Figure 6 is a detail vertical section of a modification of the stop clamping means; and

Figure 7 is a modified form of supporting arm.

The numeral 1 generally indicates a wall piece having a lug 2 on that face which engages the wall and adapted to enter the wall or have frictional contact therewith to prevent swinging of the piece, about the bolt 4 which passes through an opening 5 at the upper part of the bracket to secure the bracket to the wall. The bracket has a shelf-like portion 7 having an elongated slot 8 therein which slot is parallel with the wall when the wall piece is in operative position, see Figure 1.

Arranged beneath the shelf-like portion, and therefore beneath the slot 8, is a bracket generally designated 10. The upper portion of this bracket has a horizontal groove 11, as a guide which is perpendicular to the wall when the bracket is in operative position. The bracket rearwardly of this guide and between the guide and the wall has a vertical opening 12, to be traversed by an adjusting element later to be described. The bracket is also provided with a toe or foot portion 14, to abut the wall.

An arm 15 is slidably adjustable in the guide 11, and the guide portion of the bracket is slotted as at 16 and a headed bolt 17 passes through one arm of the bracket 15 through the slot and has a nut 18. Thus the bracket is made adjustable toward and away from the wall, and means is provided for securing it in adjusted position. The bracket is provided with an upstanding arm 20 and this arm is slotted at 21 to loosely receive a tie rod 22 of a radiator 23 composed of sections. The slot is wide enough to permit a sufficient swinging adjustment of the radiator in a manner to be described. The sections of the radiators are connected by what are herein termed section-connecting elements 25, the function of each of which is to connect and

establish circulation between adjacent units. Generally bosses 26 are provided and are threaded to receive the nipples or connecting elements 25. Sometimes the bosses 26 engage one another and sometimes they are spaced apart but in any event at least one of these portions rests upon the top of the bracket as shown in Figure 2, and thus the radiator is supported at its top only, and on the arm for swinging adjustment toward and away from the wall about the point of engagement of the arm with the nipple as a center. In some radiators, a tie bar 22 is arranged lengthwise substantially at the position shown in Figures 2 and 3. In other radiators the tie rods are arranged in transversely spaced pairs as shown at 22*a*, in dotted lines in Figure 3. The upstanding portion 20 of the arm 15 is therefore of a transverse width which will freely pass between the elements 22*a*, and in this way, and in combination with a slot 21 the arm is adapted to be engaged upwardly for abutting connection with nipples and radiators having different types of tie bar arrangement. Of whatever type, the radiator is free to swing. The upper surface of the extension 20 is in this instance curved as at 24. A modification of the arm is shown at 15*a* and in this instance extension 20*a* does not have the slot, but has a broadened upper portion, the upper surface of which is curved as at 24*a*. The arm, in relation to the bracket, provides means whereby the radiator can be adjusted horizontally toward and away from the wall and also provides means whereby the radiator may assume a pendant pivotal relation relative to the supporting means, that is to the arm 15.

This invention provides in addition a connection between the bracket 10 and the wall piece 1 permitting a vertical adjustment of the bracket and therefore of the radiator pendent upon the bracket as well as adjustment in direction parallel to the wall. For this purpose, a headed threaded rod 30 passes loosely downwardly through the slot 8 and is held pendently by means of the head 31 engaging the upper side of the shelf 7. A nut 32 engages the threads of the rod, and supports the bracket as best shown in Figure 2. It is seen that the rod passes loosely downwardly through the opening 12 of the bracket, and the bracket is further provided with a projecting portion having an opening 33 as a guide to loosely receive the lower portion of the rod 30. The head 31 is provided with a screw driver slot 34 so that the rod may be rotated from above, thus providing easily accessible adjusting means. The nut 32 engages against a surface 35 as a stop to prevent its rotation. Therefore, when the bolt is rotated the bracket is raised or lowered depending upon the direction of rotation. Thus far means has been provided for adjusting the radiator vertically and horizontally in parallel relation to the wall and also to permit a positive swinging adjustment of the radiator about its top portion as a center of support, toward and away from the wall.

Means is also provided to forcibly, accurately and swingingly adjust the radiator toward and away from the wall about the point of engagement of the adjustable arm with the connecting nipple as a center, and to secure the parts after adjustment. The toe portion 14 is broadened at the rear as at 40 to provide an enlarged vertical surface portion which engages flatly against the wall as best shown in Figure 5, but also as shown in Figures 3 and 4. This toe portion as best shown in Figure 5 is provided with guides 41 arranged in horizontal relation one at each opposite side of the toe portion. Slidable in these guides are corresponding guides 42 of a stop element which is provided with lateral wings 45 as stops adapted to bridge and engage adjacent radiator units as shown in Figure 1. These wings lie forwardly of the guides 41. This stop element is adjustable upon the foot portion of the bracket toward and away from the wall. A fine and positive adjusting movement is obtained by means of a threaded screw 50 engaged with corresponding threads of a bore 51 of the toe portion of the bracket. The shank portion of the screw 50 loosely fits in a vertical slot 54 provided in the stop, and the opposite walls of this slot are grooved as at 55 to receive the cylindrical head 52 of the screw 50. This arrangement simply provides means by which the screw, when rotated, causes an adjusting motion of the stop toward and away from the wall, and in relation to the bracket 10.

In order that this stop be secured positively to entrain the radiator in its movement, a bolt 60 is provided having a shank passing through a slot 61 of a clip 62, see Figure 5. The bolt 60 has a square nut 63 which is adapted while connected to the bolt to be dropped into the grooves 55, to lie or rest upon the cylindrical head 52 as best shown in Figures 2 and 4. The broad idea for adjustably connecting the lower portion of the bracket with the radiator to obtain swinging adjustments thereof toward and away from the wall is claimed along with the details of construction shown herein. The stop is also provided with a lug 70 having a threaded opening 72 with which, if desired, a bolt of the type 60 may be engaged to obtain a positive connection of the radiator with the stop. A modification of the invention is shown in Figure 6 in which the cylindrical head 52*a* of the bolt 50*a* is threaded as at 73 to receive the corresponding threads of bolt 74 connected with clip 75.

It will be understood that ordinarily two of the devices described herein will be used to support a radiator. Only one has been shown

in the drawing, however. It will be understood that when two devices are used the same are attached to the wall in spaced relation corresponding to the length of the radiator or to the number of sections, so that each opposite end of the radiator will preferably be supported by a bracket. It is conceivable that sometimes more than two brackets may be used.

The arrangement whereby the radiator is supported by its upper portion is advantageous because the elements are more accessible. Moreover, the device provides a compact hanger all of the parts of which are at a conveniently accessible level at the top of the radiator. After the brackets are adjusted, the radiator held at the top portion and at opposite ends can be easily placed upon the upper surface of the arms 15. In many instances the bottom of the radiator can act as a pivot and the radiator can be swung into engagement with the arms and then the bracket 10 raised by means of the screw bolt 30 to raise the radiator off of the floor. It will be understood that under the latter conditions the radiator bracket would be first adjusted downwardly and then a single person could easily swing the radiator into position on the brackets with the radiator resting as a pivot on the floor. There is a considerable advantage gained by this means because heretofore two men were often required to properly place the radiator. Moreover, the present device provides means not only for swingingly connecting the radiator, but provides a connection only by the upper portion of the radiator, but permits the adjustment of the lower portion toward and away from the wall. Another advantage is that the vertical adjustment can be made from the top of the radiator by means of a screw driver, the driver slot being substantially immediately adjacent the topmost portion of the radiator.

The bolt 30 affords a vertical adjustment to cause the radiator to conform with the height of the window sill or with the pipe connections. This adjustment can be made after the radiator is placed on the hanger or even before it is placed. This is a valuable feature because the radiator can be set at the exact height desired. By this vertical adjustment there is no necessity to place the hanger plate at any exact location vertically because a misplacement of the same can be compensated by the vertical adjustment. This is an important feature because in using a fastening device similar to bolt 4 in tile or brick walls where the tile or brick are laid in courses, the bolt should be placed between the courses. In this way if the course does not lie at exactly the proper height, the bolt can nevertheless be embedded at the course level and the vertical adjustment can be accomplished to compensate. The slot 8 allows for adjustment as well as for expansion and contraction, between the brackets, where two or more are used. The translative adjustment of the support for the radiator provided by the element 15, avoids the necessity of manufacturing and carrying in stock many sizes of radiator hangers to take care of various widths of radiators. It will be seen that the range of adjustment of the element or elements 15 will compensate for different widths of radiators. It will be noted that only one bolt 4 is required for each hanger because of the projection 2. The entire weight is downwardly on the anchor bolt and not outwardly, and this arrangement prevents the disengagement of the bolt 4. The arrangement of the foot of the bracket 10 provides means as a rest for the radiator and also means for lining up the radiator so that it will be plumb and in true alignment with the wall. The adjustment range for different widths of radiators can be augmented both by adjustment of the stop element and by different lengths of tie bolts 60. This adjustment at the bottom of the bracket 10 is an important feature of the invention. By means of the slot 8 which may be even longer than shown in the drawing, one hanger plate can receive two hangers, so that in case of a very short radiator, that is, one having only three, four or five units or sections, one hanger plate with two hanger brackets may be used. This eliminates the use of one anchor bolt and a wall plate 1.

Although all details of construction are also claimed, there is no intention to limit the invention, which is also claimed broadly.

A valuable feature of the invention herein relates to the bracket 15 and its upward extension 20. It will be noted that this extension bracket is horizontally adjustable in the bracket 10, and that the top of the upward extension 20 lies as shown in the drawing substantially at the level of the anchor bolt 4, but may lie above that level. There is an obvious advantage in this arrangement, particularly when it is desired to have a radiator arranged under a window. With a relatively long vertical extension 20 the bolt 4, as well as the bracket 10 and its related parts, will all be below the level of the top of the radiator, and mostly below the level of the top of the arm 20 at its point of engagement with the connector 25. Moreover, another object is to have the bolt 4 (which extends through the brickwork) arranged at a level well below the top of the brickwork, so that a sufficient anchorage is obtained and so that no loosening of the brickwork will take place. In addition, it is desirable to have the anchor bolt as far below the top of the radiator as possible, and at a location in which it is not ordinarily visible from any position in a room except when standing close to the radiator.

Another feature of the invention, as here-

tofore mentioned, is the depression or slot 21 which receives a tie rod 22. Although this slot has been shown as quite narrow, it, of course, is understood that it may be wider. In this instance, the extension 20 is sufficiently narrow to pass between a pair of tie rods 22a. It is possible however (without departing from the spirit of the invention) that the slot or depression could be made wide enough to receive both tie rods 22a.

I claim as my invention:

1. A radiator bracket having means for connecting it to a wall and for supporting a radiator by its top portion, and having a stop mounted upon the bracket and adapted to bridge two adjacent radiator sections, said stop being slidably guided in the bracket and having means for accurately adjusting it in its guide, said means being accessible from between the radiator sections and from the front of the radiator.

2. In combination with a wall, a bracket secured thereto, a radiator supported by the bracket for swinging movement toward and away from the wall, a stop slidably guided upon the bracket for movement toward and away from the wall, and of a width to bridge two radiator sections, said stop having a recess, and means detachably arranged in said recess and operable by a screw driver for adjusting the stop, and accessible from the front of the radiator and between its sections.

3. In combination with a wall, a bracket secured thereto, a radiator supported by the bracket for swinging movement toward and away from the wall, a stop slidably guided upon the bracket for movement toward and away from the wall, and of a width to bridge two radiator sections, said stop having a recess, means detachably arranged in said recess and operable by a screw driver for adjusting the stop, and accessible from the front of the radiator and between its sections, and a headed bolt having a nut detachably but non-rotatably disposed within said recess, and having means engageable with the radiator to draw the same toward the stop, the head of said bolt having a screw driver slot which is accessible from a point between the radiator and from the front thereof.

4. A bracket having means to support a radiator at its top for swinging motion, a stop carried by the bracket to engage the radiator, said stop being slidably guided and having a recess open at the top and toward that side which faces the radiator, when supported by the bracket, and an adjusting screw having a head held rotatably but non-translatably in said recess, and having a screw driver slot accessible from that open side of the recess which is accessible from the front of the radiator.

5. A bracket having means to support a radiator at its top for swinging motion, a stop carried by the bracket to engage the radiator, said stop slidably guided by said bracket and having a recess open at the top and toward that side which faces the radiator when supported by the bracket, an adjusting screw having a head held rotatably but non-translatably in said recess, and having a screw driver slot accessible from that open side of the recess which is accessible from the front of the radiator, and a bolt having a nut non-rotatably held in said recess and having a head accessible from a point between the radiator and from the front thereof and further carrying a clip for engaging across two radiator sections, whereby the bolt can be rotated to draw the radiator towards the stop and whereby said stop can be adjusted toward and away from the bracket.

6. A wall plate, a bolt having a pendent, swivel connection with said plate, a bracket supported by the bolt in the manner of a hinge, and having a toe portion engageable with the wall, a radiator supporting element slidably guided for horizontal adjustment in said bracket, and adapted to pass between the sections of a radiator and to engage a nipple connecting said sections at the top, and in a manner to permit swinging motion of the radiator in a direction toward and away from the wall, as a pendulum, a stop horizontally adjustably slidable upon the toe portion of said bracket and of a width to bridge two adjacently disposed radiator sections, means accessible from the front of and between the sections of a radiator for adjusting said stop, said stop having a socket to receive a tie bolt for securing the radiator against the stop.

7. In combination a support, a vertically disposed bolt having a swivel connection with said support, a bracket connected to said bolt as a hinge to swing in a horizontal plane, and having a toe portion adapted to rest against a wall but to be unattached thereto, a radiator supporting element horizontally slidable upon the bracket adjacent the level of the swivel connection, and capable of adjustment horizontally and therefore perpendicularly to the axis of the bolt, and means for detachably securing a radiator to the toe portion of the bracket.

8. In combination, a support, a vertically disposed bolt carried by the support, a bracket connected to the bolt as a hinge to swing in a horizontal plane, and having a toe portion adapted to rest against the wall, and means carried by the bracket for supporting a radiator in outwardly spaced relation to the hinge connection, and means for securing the radiator to the toe portion of the bracket.

In witness whereof, I have hereunto set my hand this 28th day of December 1927.

RALPH H. CROSBY.