J. D. BEEBE.

HOLDER FOR RADIATOR FINS.

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925,446.

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Fig. 3.

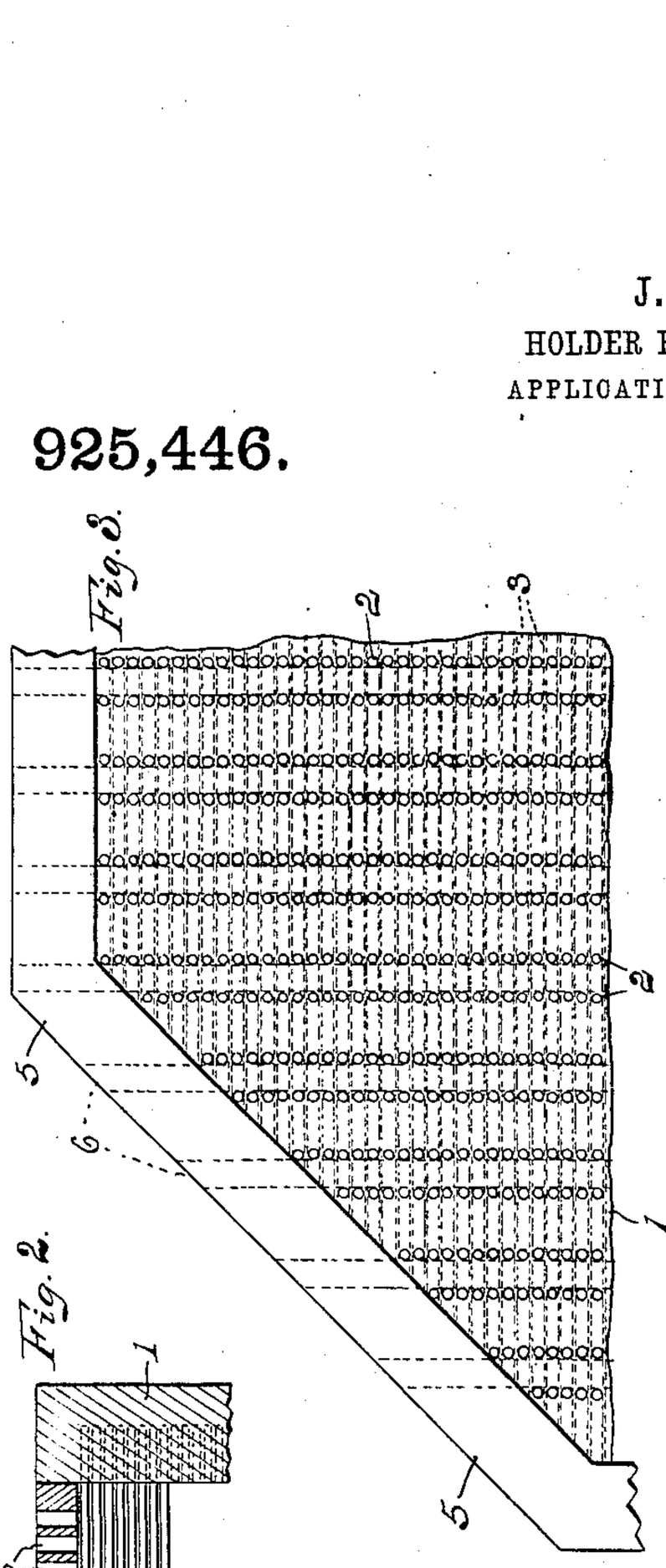


Fig. 2.

Fig. 6.

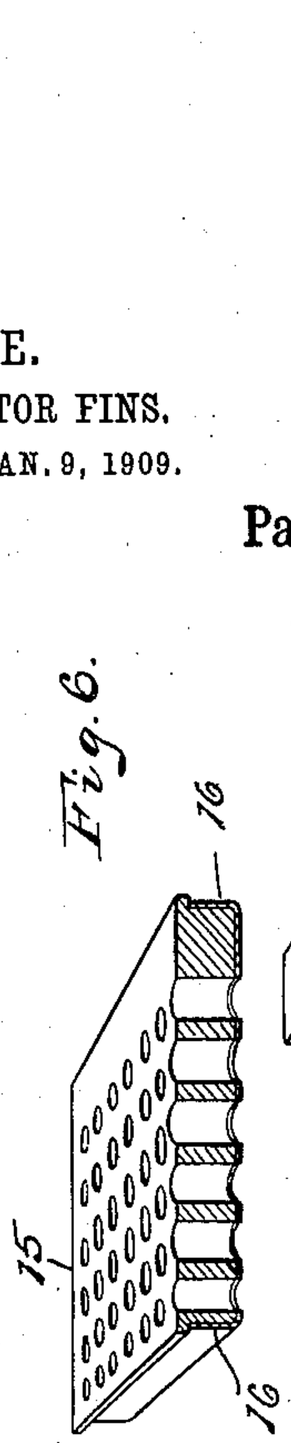


Fig. 7.

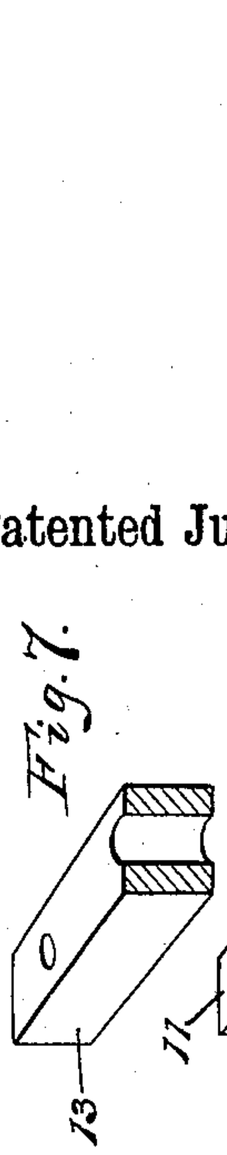
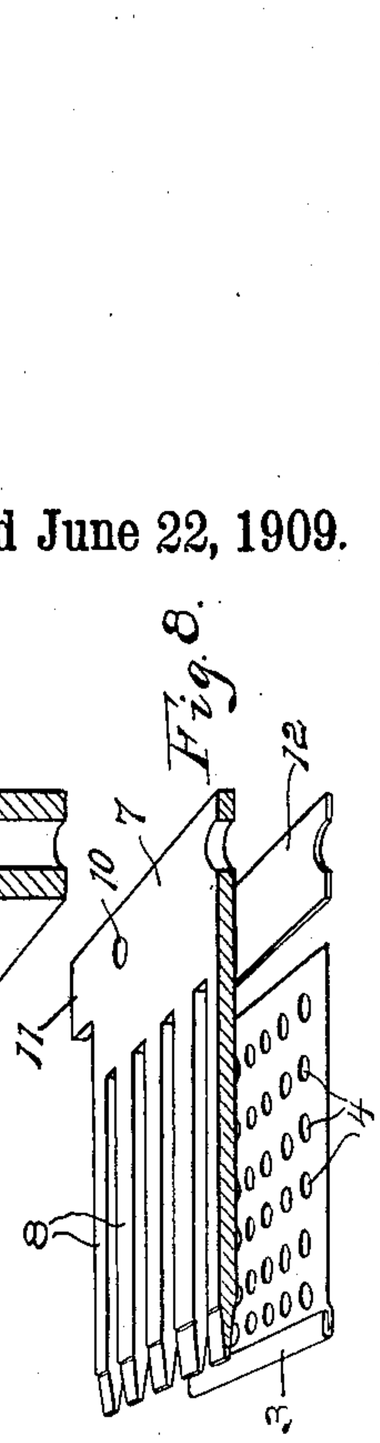


Fig. 8.



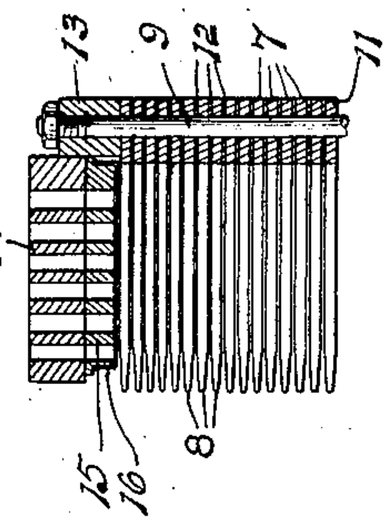


Fig. 5.

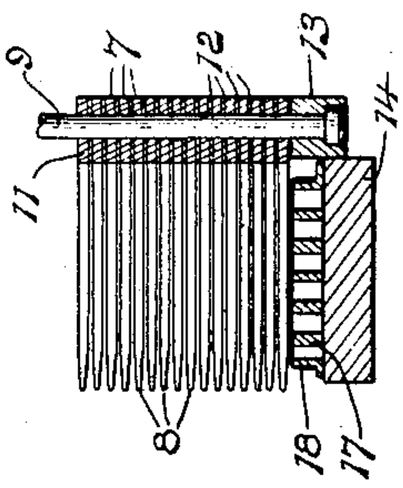
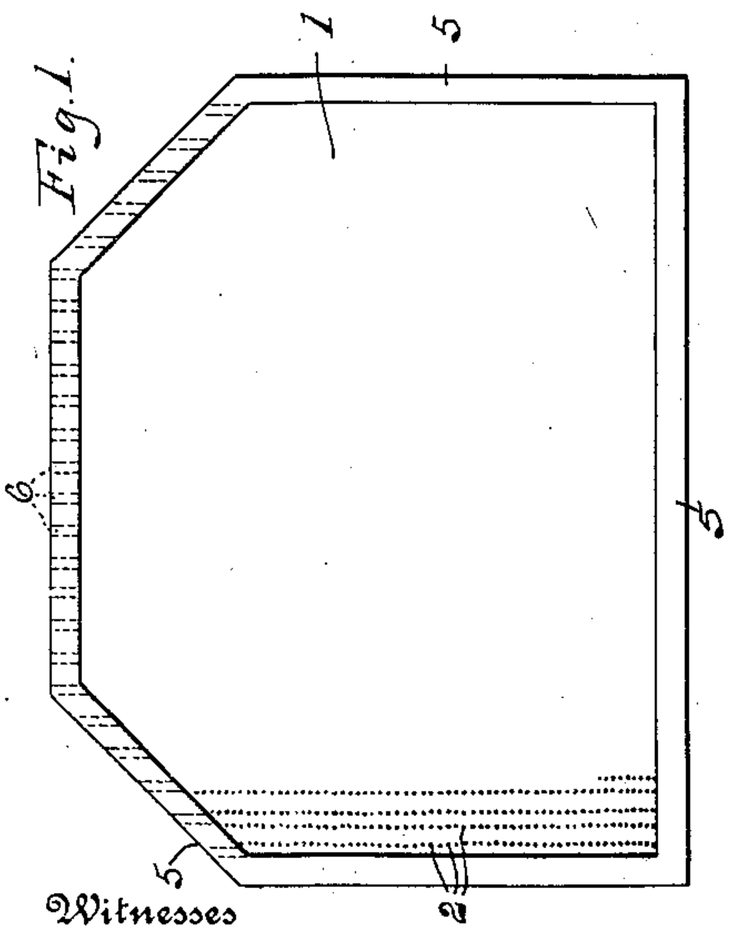


Fig. 1.



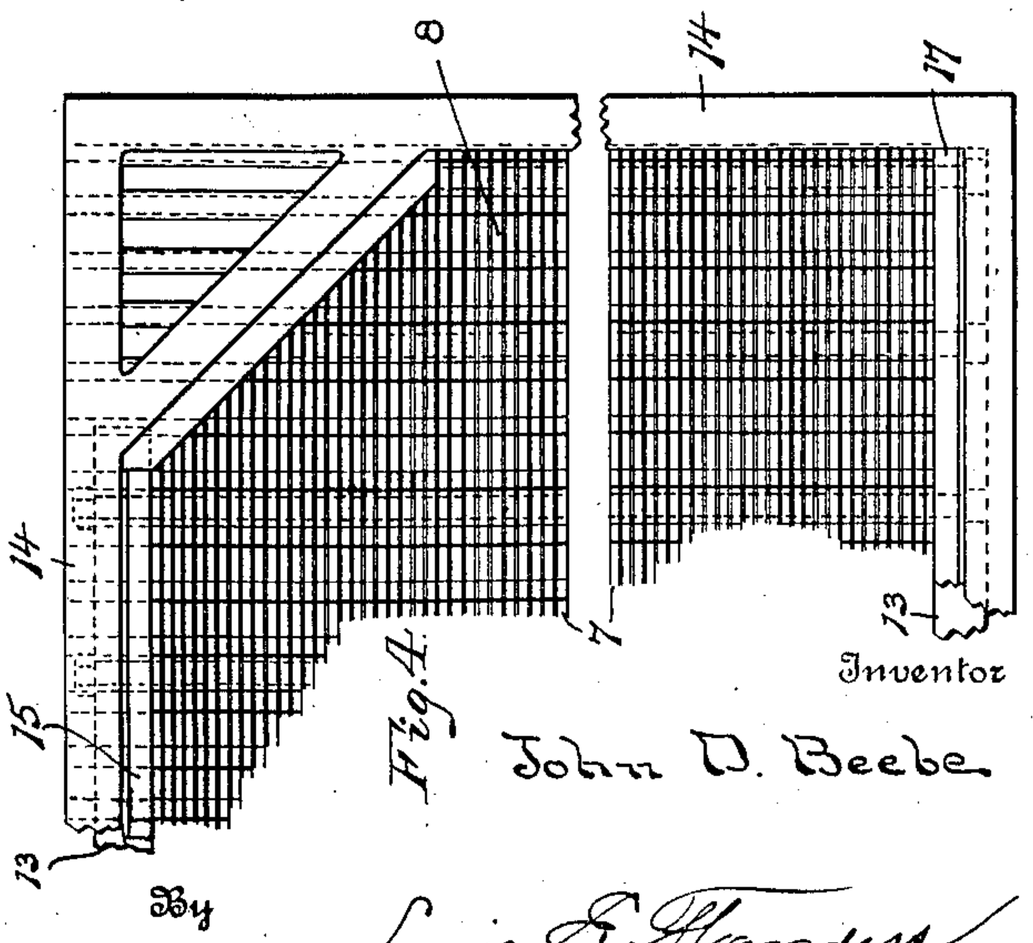


Fig. 4.

Witnesses

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HOLDER FOR RADIATOR-FINS.

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To all whom it may concern:

Be it known that I, JOHN D. BEEBE, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Holders for Radiator-Fins, of which the following is a specification.

This invention relates to a device for use in the assembling of radiator fins and tubes and its object is to provide suitable means for holding a series of thin metal plates or disks forming radiating fins in superposed and spaced relation to each other so that the water tube or tubes may be forced through the whole series in one operation, either by hand or other means, greatly facilitating the assemblage; and further to so construct the device that the assembled fins and tubes may be readily withdrawn therefrom.

To this end the invention consists in providing a holder comprising spacing plates between which the fins are adapted to be placed to hold the same in alined and spaced relation to each other, said spacing plates being arranged to project laterally from their support to receive the fins between them and to permit of their withdrawal laterally from between the fins after the passing of the water tubes through the fins.

The invention further consists in certain other new and useful features all as hereinafter more fully described reference being had to the accompanying drawings, in which,

Figure 1 is a front elevation of a device embodying the invention. Fig. 2 is an enlarged cross sectional detail of the same. Fig. 3 is a further enlarged detail showing a portion of the device in elevation. Fig. 4 is a detail of a modified construction showing a portion of the same in front elevation. Fig. 5 is a transverse vertical section of Fig. 4. Fig. 6 is a perspective detail of the upper tank block. Fig. 7 a similar view of one end of the securing bar. Fig. 8 a similar view of a portion of one of the spacing plates with one of the fin plates and one of the shims.

As shown in Figs. 1, 2, and 3, 1 is a supporting board or plate which may be of wood or metal as desired and of any desired size or shape, in the face of which board are secured rows of pins 2 which are so positioned as to form horizontal rows between which thin sheet metal fin plates 3 may be inserted. These plates are provided with rows of holes 4 to receive water tubes (not shown), and the pins or fingers 2 are arranged in vertical rows so that when the fin is in place between the fingers, a finger will lie close to each side of each transverse row of holes in the fin and form a support for each fin close to the holes therein so that when the water tubes are forced through the thin metal forming the fins said fins will not be bent thereby. The horizontal rows of fingers are just far enough apart to permit of the easy insertion of the fins between, this operation being aided by tapering the free outer ends of the fingers and the thickness of the fingers which may be either round or square in cross section, is equal to the distance which it is desired to space the fins apart.

A marginal frame 5 surrounds the field of fingers and forms a guide or abutment to perfectly aline the fins when they are slipped into place between the fingers, bringing the holes in each fin into perfect alinement with the holes in all the other fins. The upper edge of this frame is preferably provided with holes 6 which will be in perfect alinement with the holes in the several fins when the fins are in place between the fingers, these holes 6 serving to guide the tubes when they are being inserted therethrough into the holes in the fins. The lower side of the frame forms a stop for the tubes when they are forced downward through the fins.

In the modification shown in Figs. 4 to 8 inclusive, the holder is built up of a series of superposed plates 7 all of which are slotted inward from one edge to form a series of fingers 8, and these plates are secured together in a stack of the required number by bolts 9 extending through holes 10 in the integral marginal edge 11 of the plates. To space these plates, one from another, a sufficient distance to permit of the insertion of the fin plates 3 between, shim plates 12 are placed between the marginal portions of the plates, the bolts passing through the shims as well as through the plates. A top and bottom cross bar 13 are provided to engage the upper and lower sides of the stack of plates and assist in securing the plates together, said bolts 9 passing through these bars and firmly clamping the stack of plates together. A detachable frame 14 surrounds the field of projecting fingers of the plates and forms a guide to aline the fins when they are inserted be-

tween the fingers. Within this frame at the upper side of the holder is a tank block 15 upon which, before the block is placed within the frame, is slipped the formed bottom 16 of the upper tank of the radiator. This block, and the tank bottom are perforated to correspond with the perforations in the fins, and the upper side of the frame 14 is formed with holes which are in alinement with the perforations in the block and fins. The slots between the fingers 8 of the spacing plates are of a width substantially equal to the diameter of the holes in the fins which holes are opposite these slots, and when the water tubes are passed through the holes in the frame and the perforations in the tank block, and then forced downward through the holes in the fins between the fingers, the assembled fins and tubes may be withdrawn from the fingers when all have been so assembled, the tubes passing laterally out through the open ends of the slots. A similar tank block 17 for the formed top 18 of the lower tank of the radiator may be provided, and slipped in between the frame and the fingers of the lower plate so that in assembling the tubes and fins the perforated portions of the tanks will also be placed in position upon the tubes.

In assembling radiators having a large number of fins, it is obvious that the work is greatly facilitated by providing a holder of this character into which the fins may be slipped and the tubes then forced, either one at a time or simultaneously, through the whole number of fins, and the liability of injury to the fins by bending or otherwise is reduced to the minimum by placing and holding the fins between the spacing fingers.

Having fully described my invention, what I claim is:

1. A holder for radiator fins, comprising a plurality of rows of spacing and holding members, said members being spaced apart at intervals in one direction to permit tubes to pass therebetween, and spaced apart at substantially right angles to said direction to receive fins therebetween, and means for alining the rows of members in both directions.

2. A holder for radiator fins comprising a series of plates each having a row of fingers spaced apart at regular intervals to permit tubes to pass therebetween vertically to the plane of the plates, spacing members between the plates to permit insertion of fins between the rows of fingers, means for alining the plates, and means for alining the fins.

3. A holder for radiator fins having openings to receive tubes comprising a series of superposed plates each having a row of fingers projecting from one edge of the plate, said fingers being in the plane of the plate and spaced apart at regular intervals to afford passages therebetween for tubes, spacing members between the plates, means for alining the plates and spacing members, means for securing the same to each other, and means for alining the fins with their openings in line with the passages between the fingers.

4. A holder for radiator fins having openings at regular intervals, spacing and holding members arranged in superposed rows and spaced apart in one direction to form passages therebetween at intervals to permit tubes to pass therethrough and spaced apart at substantially right angles to said direction to receive the fins therebetween, means for rigidly supporting said members in fixed relation and for simultaneously removing the same from between the fins and tubes, a guide member for the tubes having openings opposite the respective passages between the fingers, and an adjusting member to engage the ends of the fins and adjust the same with their openings in alinement with the passages and guide openings.

5. A holder for radiator fins having openings, comprising a support and a series of rows of fingers attached at one end to said support and extending laterally therefrom across fins placed between said rows of fingers with the fingers of each row engaging said fins at each side of the openings to support and space the fins one from another.

6. A holder for radiator fins comprising a series of superposed plates formed with slots extending inward from one edge, forming spacing fingers to extend between adjacent fins and space the same, one from another, and means for securing said plates together along their integral edge.

7. A holder for radiator fins comprising a series of superposed plates formed with fingers along one edge between which fingers of adjacent plates the fins are adapted to be placed, shims between the plates to space the fingers of one plate from those of the next plate, and means for securing the plates together with the shims between.

8. A holder for radiator fins comprising a series of superposed plates each slotted inward from one edge to form a series of fingers, shims between the plates at their opposite edge, and bolts extending through the plates and shims to secure the plates together.

9. A holder for radiator fins each having a series of openings, comprising a series of rows of spacing members to support and space the fins, one from another, a block having openings corresponding to the openings in the fins to hold a tank member, and means for holding said block and the fins with their openings in alinement and in position relative to said spacing members.

10. A holder for radiator fins each having a series of openings comprising a series of rows of spacing members to support and space the fins, one from another, a block having openings corresponding to the openings in the fins to hold a tank member, and an inclosing frame forming a guide for alining the fins and engaging the block to hold the same in position relative to the spacing members.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN D. BEEBE.

Witnesses:
WM. KEELER,
M. M. MCGRATH.