Nov. 26, 1935. I. M. HAYWARD 2,022,285

OIL BURNER

Filed June 14, 1934

Fig. 1.

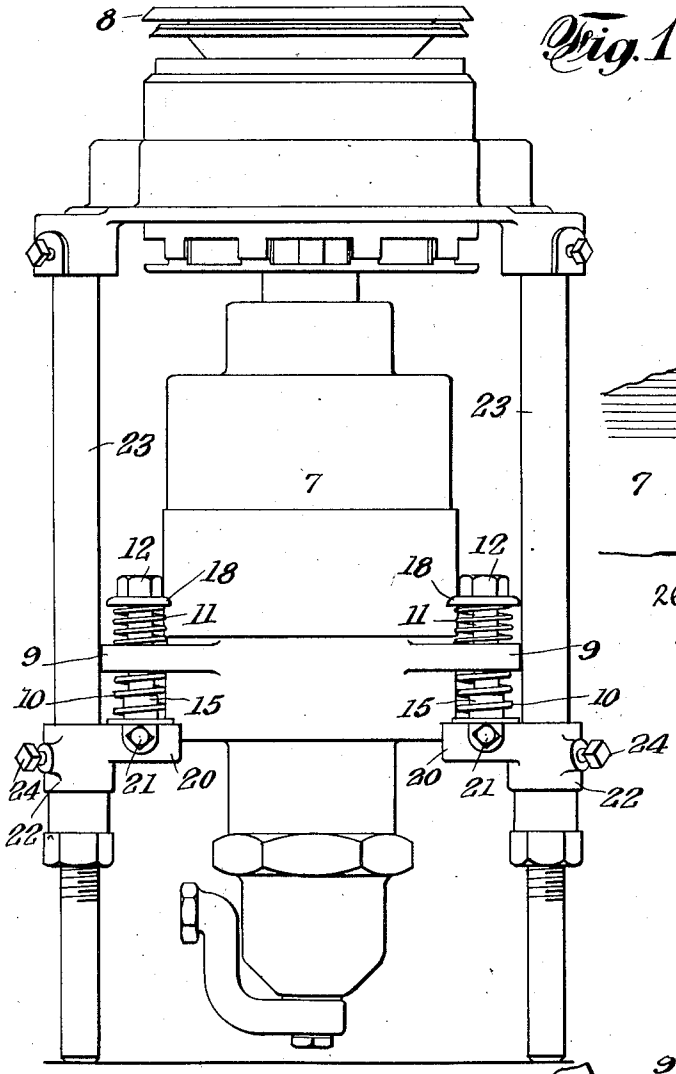

Fig. 2.

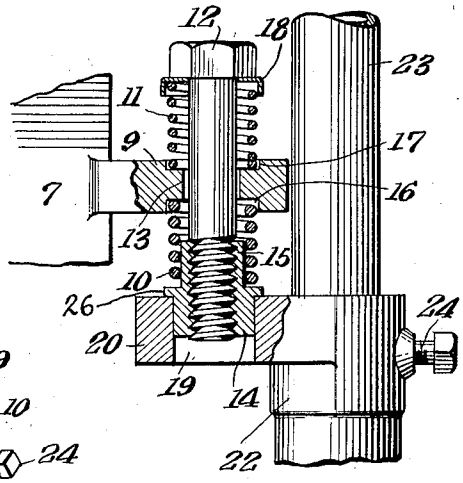

Fig. 3.

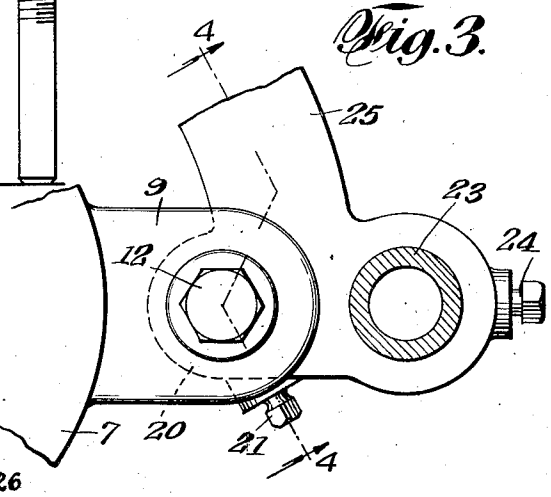

Fig. 4.

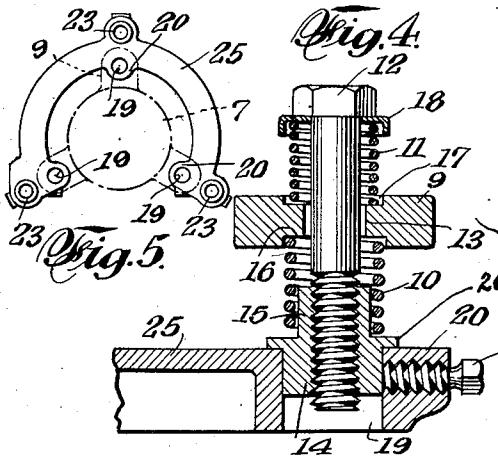

Fig. 5.

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OIL BURNER

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Application June 14, 1934, Serial No. 730,659

6 Claims. (Cl. 248—20)

This invention relates to oil burners of the type disclosed in the Hayward applications Ser. No. 567,553, filed October 8, 1931, Patent No. 1,928,688, October 3, 1933 and Ser. No. 634,504, filed September 23, 1932.

Special objects of this invention are to cushion the motor part of the burner, so as to absorb vibration and quiet the running of the motor, to combine the cushion mounting with the motor so that the same will remain a part of the motor when the latter is removed from its supporting stand or base and to accomplish these objects inexpensively and practically.

The drawing accompanying and forming part of the following specification illustrates practical embodiments of the invention, but these will be understood as representatives since the structure may be modified in various ways all within the true intent and broad scope of the invention.

Fig. 1 is a front elevation of the burner.

Fig. 2 is an enlarged broken sectional detail of one of the spring motor mounts.

Fig. 3 is a broken part sectional plan, illustrative of a second form in which the supporting lugs for the spring mounts are integrally connected.

Fig. 4 is a broken section as on line 4—4 of Fig. 3.

Fig. 5 is a plan of the horseshoe-shaped connected mounting lugs.

In Fig. 1, the motor is designated 7, and this as more fully disclosed in the patent above identified, is a vertical shaft motor carrying at the top a whirling atomizer 8. The problem is to cushion this motor so as to absorb sound and vibration.

This is accomplished in the illustration by providing the motor with three equi-distantly spaced outstanding lugs 9, located near the lower end of the motor at a position to sustain and balance it effectively and by engaging these lugs between pairs of supporting and cushioning springs 10, 11, respectively.

To effectively combine these spring mounts with the motor, bolts 12 are provided extending freely through the over-size openings 13, in the motor lugs and the springs are secured by these bolts in compression at opposite sides of the lugs.

Thus as shown particularly in Figs. 2 and 4, the bolts 12 are threaded into nuts 14, forming abutments for the lower ends of sustaining springs 10. These nuts have cylindrical hub portions 15, for centering the lower ends of such springs and the upper ends of these springs are centered in the seats or counter-bores 16, in the undersides of the motor lugs.

The lighter cushioning springs 11 are centered at the bottom in counter-bores 17, in the upper sides of the lugs and the upper ends of these springs are shown as centered in thimbles or flanged washers 18, beneath the heads on the upper ends of the bolts.

The spring abutment nuts 14, on the lower ends of the bolts may be circular in cross-section as indicated, so as to seat in circular sockets 19, in the frame or stand 20, and to rigidly but removably secure them in such sockets, set screws 21 are provided.

In Figs. 1 and 2, the parts of the stand receiving and supporting the bolts are in the nature of lugs sleeved at 22, on the three posts or legs 23, of the stand and individually adjustably secured thereon by set screws 24.

In the second form of the invention illustrated, Figs. 3 to 5 inclusive, the lug members 20 of the frame are integrally connected together by a horseshoe-shaped yoke 25, which serves to rigidly attach and brace the legs of the frame. The open side of this horseshoe frame is toward the front of the burner, so that the motor may, when desired, be readily lifted out through the open side of this frame after the set screws 21 have been released.

The spring mounts, including the bolts, springs, centering washers and nuts are all assembled and roughly adjusted before the motor is set in its frame or stand. These spring mounts do not extend beyond the motor lugs 9, and hence do not add in effect to the bulk of the motor. The motor is readily mounted in the stand by simply properly locating it and then lowering, so that the nuts 14, seat in the sockets 19 provided therefor in the frame. Then upon turning in the set screws 21, the motor will be positively secured but in resiliently supported relation in the frame. The bolts 12 may be turned to effect individual adjustments of the supporting and tensioning springs 10, 11, and they all may be turned down or released more or less, according to needs for a more solid or a less solid mounting. The individually adjustable supporting lugs 20 in Figs. 1 and 2, have certain advantages, in that they may be raised or lowered for motor levelling or other purposes, but the horseshoe form of frame shown in Figs. 3 and 4, is a more rigid and permanent form of stand. Both structures provide a desirable three point support for "floating" the motor in a resilient self-centering relation. The spring rests 14, preferably have an easy slip fit in the

sockets 19, so as to readily enter and separate from the same. These spring rests are preferably in the form of relatively long screw bushings as shown with the lesser diameter cylindrical portions 15, at the top for guiding and centering the sustaining springs. The set screws 21 hold the nut members against turning in the sockets when adjustments are made to the spring compressing bolts. The intermediate outstanding annular flange 26 of the screw bushings serve both as supporting shoulders for the sustaining springs 18 and as stop shoulders limiting the extent of seating of these screw bushings in the sockets 19 provided therefor.

What is claimed is:

1. In apparatus of the character disclosed, the combination of a mounting stand having open supporting sockets, a motor unit to be supported in cushioned relation on said stand and spring mounting means for so supporting said motor unit, said spring mounting means including bolts having bolt heads and nuts forming abutments at opposite ends of the same and an intermediate abutment through which each bolt loosely extends, springs disposed about each bolt at opposite sides of the intermediate abutment about said bolt and engaged with the end abutments of the bolt, certain of said abutments on the bolts being shaped to fit in and be removably seated in said supporting sockets of the stand and certain other of said abutments being attached to said motor unit and thereby attaching said bolts and springs in unitary fashion to said motor unit and whereby said spring mounting means will remain connected with said motor unit when said motor unit is lifted out of the stand and the socket engaging abutments are thereby freed of the supporting sockets.

2. In an oil burner, the combination of a supporting stand having sockets and a detachable motor unit for mounting in said stand and including spring mounts carried by said motor unit and having spring rests detachably engageable in the sockets of the stand, said spring rests being in the form of screw bushings and the spring mounts being in the form of bolts engaged with said screw bushings, the motor having supporting lugs and the bolts passing freely through said supporting lugs with springs at opposite sides of the lugs and acting in reverse directions against the head portions of the bolts and the screw bushings respectively and set screws associated with the sockets for securing the spring rests in position therein and for holding the same in the adjustment of the bolts.

3. In an oil burner, the combination of a three post mounting stand, a horseshoe-shaped frame engaged on the three posts of said stand and having sockets therein, a motor adapted to be entered through the open side of said horseshoe frame and provided with mounting lugs, bolts extending loosely through said mounting lugs, bushings screwed on said bolts and adapted to removably seat in said sockets and sustaining and cushioning springs at opposite sides of the motor lugs and interposed respectively between said lugs and the bushings and between the lugs and the upper ends of the bolts.

4. In an oil burner, the combination of a three post mounting stand, a horseshoe-shaped frame engaged on the three posts of said stand and having sockets therein, a motor adapted to be entered through the open side of said horseshoe frame and provided with mounting lugs, bolts extending loosely through said mounting lugs, bushings screwed on said bolts and adapted to removably seat in said sockets and sustaining and cushioning springs at opposite sides of the motor lugs and interposed respectively between said lugs and the bushings and between the lugs and the upper ends of the bolts and fastening means for removably securing said bushings seated in said sockets.

5. In combination, a motor for an oil burner, said motor being provided with outstanding mounting lugs, bolts extending freely through said mounting lugs, nut members on said bolts and springs surrounding said bolts at opposite sides of said mounting lugs, the lower springs being heavier than the upper springs for sustaining the motor, said upper lighter springs serving for cushioning the motor on said sustaining springs and a frame having sockets for said nut members and set screws for removably securing said nut members in said nut sockets.

6. In combination, a motor for an oil burner, said motor being provided with outstanding mounting lugs, bolts extending freely through said mounting lugs, nut members on said bolts, springs surrounding said bolts and disposed at opposite sides of said mounting lugs, said nut members being in the form of elongated screw bushings having intermediate outstanding annular flanges providing abutments for the springs engaging said nut members and a supporting stand having sockets receiving the end portions of said screw bushings and the flanges of said screw bushings forming stops limiting the seating of said screw bushings in said sockets.

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