March 25, 1941. J. VON PIERCE 2,236,123

WARM AIR FURNACE CLEANER

Filed Dec. 6, 1938

FIG. 1.

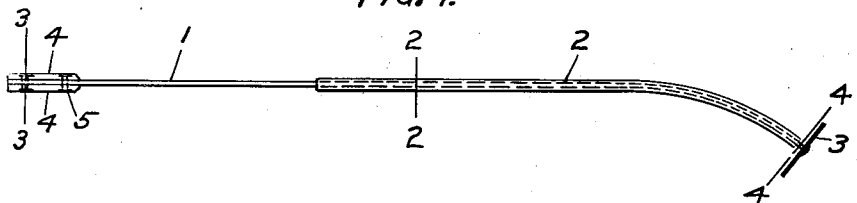


FIG. 2.

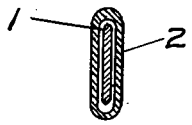


FIG. 3.

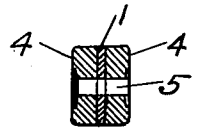


FIG. 4.

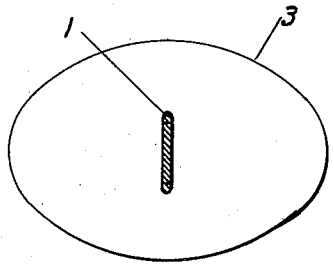


FIG. 5.

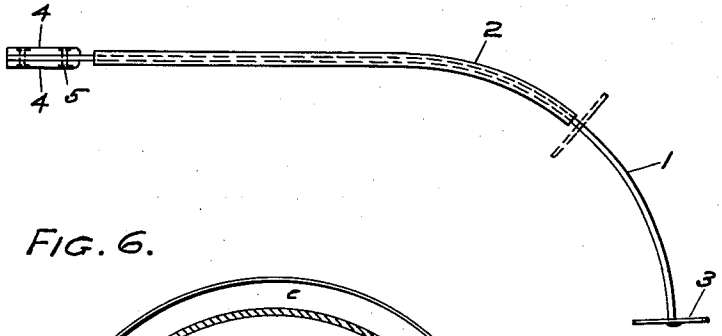


FIG. 6.

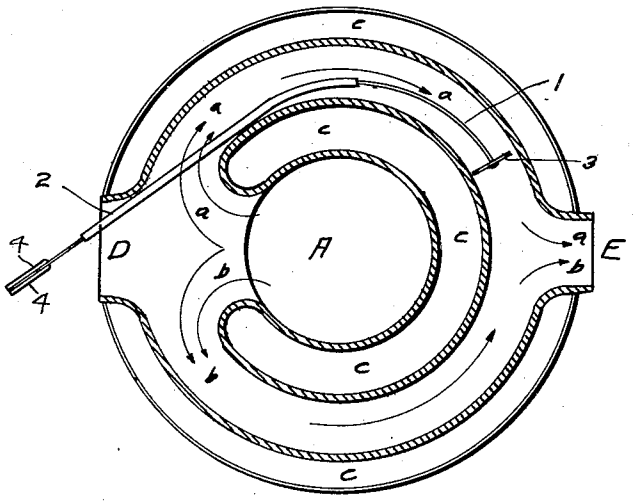
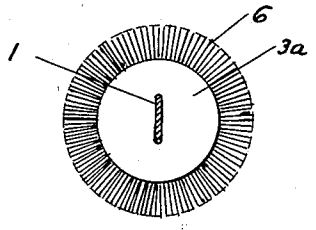


FIG. 7.



INVENTOR:-

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WARM AIR FURNACE CLEANER

John Von Pierce, Knoxville, Tenn.

Application December 6, 1938, Serial No. 244,230

4 Claims. (Cl. 15—242)

My invention relates to furnace cleaners and more particularly to the group of devices designed to be used manually for cleaning the fine ashes and soot from the curved tubes of warm air furnace radiators. Its novel, yet simple, construction is a decided improvement over cleaners now in use, my object being to produce a cleaner which is inexpensive to manufacture, while combining durability, effectiveness and ease of operation.

My cleaner combines a tubular sheath or guide with a flexible stem longer than the sheath and held slidably therein, the stem having a handle rigidly mounted on one end and a rake on its opposite end, one end of the sheath serving as a handle, its opposite end being curved to partially enter the curved tube to be cleaned. The end of the stem carrying the handle is straight while the rake end is curved to a radius which is an average of the curvature of radiator tubes of various sized furnaces.

In the particular form of my cleaner herein disclosed the sheath is of rectangular or oblong cross section, the stem being of similar cross section, to slide endwise therein; but it is to be understood that other forms may be used for these parts, and that I am not to be limited to the use of these exact forms, but may vary the details to suit conditions, so long as the main principles of the construction of the device are adhered to.

In the drawing accompanying this specification:

Fig. 1 is a view of the cleaner showing the handle end of the stem drawn out until the rake is almost against the sheath end.

Fig. 2 is a transverse section on the line 2—2 of Fig. 1.

Fig. 3 is a transverse section on the line 3—3 of Fig. 1.

Fig. 4 is a transverse section on the line 4—4 of Fig. 1 showing the rake outline.

Fig. 5 is a view of the cleaner showing the stem pushed inwardly the handle of the stem being almost against the straight end of the sheath.

Fig. 6 is a horizontal section thru the radiator of an ordinary warm air furnace showing my cleaner inserted therein the rake stem being partially extended into the curved tube of the radiator.

Fig. 7 is a section on line 4—4 of Fig. 1 showing a modified form of the rake.

In all of the figures, like numerals indicating similar parts, 1 is the flexible stem, 2 the sheath or guide, 3 the rake, 4 the handle sides, 5 rivets, 6 flexible brush teeth, 3a the center plate of the modified form of the rake.

The burning gases of the furnace pass up thru the opening A, separate and travel around in the curved tubes of the radiator in the direction of the arrows *a—a—a* and *b—b—b*, join and pass into the smoke pipe at E. A clean-out door is located at D thru which the cleaner is inserted into the tubes to be cleaned. The circulating air to be warmed passes up thru the spaces *c—c—c* surrounding the curved tubes of the radiator.

To operate my cleaner the rake is first drawn back against the curved sheath or guide end by pulling out the handle end of the stem to make the cleaner appear as shown in Fig. 1 of the drawing. It is then inserted into one side of the radiator as shown in Fig. 6. When the sheath is in place it is raised to allow the rake to go above the ashes in the bottom of the radiator and the stem is then pushed inwardly to cause the rake to go in a curved line towards the back of the curved tube. The sheath is then lowered to allow the rake to rest on the bottom of the radiator and is then drawn forwards thus raking the ashes and soot outwardly. By raising the sheath up, moving it backwards and forwards, the soot can be scraped from the top and sides of the radiator. Then all of the soot and ashes can be raked out at the clean-out door as described in the foregoing. To clean out the opposite tube the cleaner is turned over.

My cleaner may be used to clean out the furnace smoke pipe by inserting it into the pipe thru the check damper thereon.

Having described my furnace cleaner I claim:

1. A cleaning device for longitudinally curbed tubes comprising a rigid tubular guide member, a resilient stem of greater length than said guide member and longitudinally slidable therein, one end of said stem having a normal curvature approximating the longitudinal curvature of the tube to be cleaned, the curved portion of said stem being adapted to assume the contour of said guide member when retracted therein and to resume and substantially maintain its normal curvature when projected from said guide member, a cleaning member fixed to the curved end of said stem and means for extending and retracting the stem in said guide member.

2. A cleaning device comprising a rigid tubular guide member, at least one end of said guide member having a predetermined curvature, a resilient stem of greater length than said guide

member and longitudinally slidable therein, one end of said stem having fixed thereto a handle, its opposite end carrying a cleaning member, the cleaning member end of said stem having a normal curvature approximating that of the curved portion of said guide member, the curved portion of said stem registering with the curved portion of said guide member and adapted to substantially maintain its curvature when projected from said guide member.

3. A cleaning device comprising a rigid tubular guide member of oblong cross section, at least one end of said guide member having a predetermined transverse curvature, a resilient stem of greater length than said guide member, said stem being oblong in cross section and longitudinally slidable in said guide member, one end of said stem having fixed thereto a handle, its opposite end carrying a cleaning member, the cleaning member end of said stem having a normal transverse curvature approximating that of the curved portion of said guide member, the curved portion of said stem registering with the curved portion of said guide member and adapted to substantially maintain its curvature when projected from said guide member.

4. A cleaning device comprising a rigid tubular guide member of oblong cross section, said guide member being substantially straight for a portion of its length and terminating at one end in a transversely curved portion, a resilient stem of oblong cross section and of greater length than said guide member, longitudinally slidable in the latter, said stem being substantially straight for a portion of its length and terminating at one end in a normally transverse curvature approximating that of the curved portion of said guide member, a cleaning member fixed to the curved portion of said stem, the opposite end of said stem carrying a handle, the curved portion of said stem registering with the curved portion of said guide member and adapted to substantially maintain its curvature when projected from said guide member.

JOHN VON PIERCE.