April 19, 1932. F. W. HVOSLEF 1,854,549

DAMPER MECHANISM

Filed Oct. 22, 1930

FIG. 1

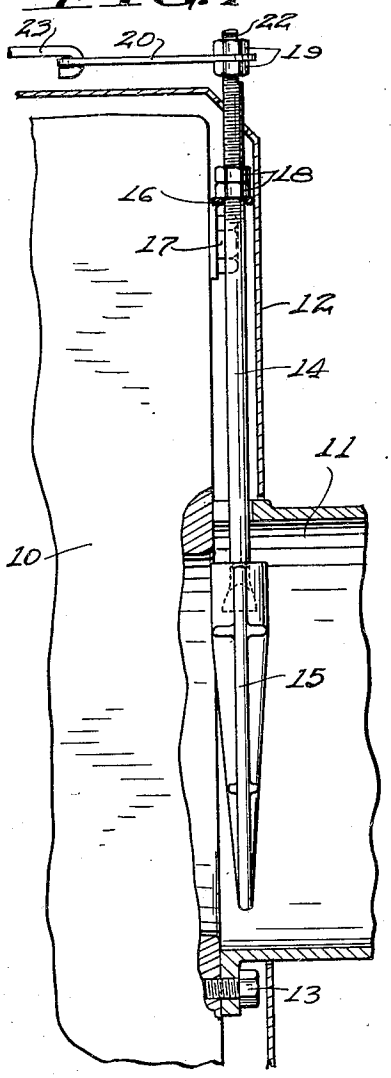


FIG. 2

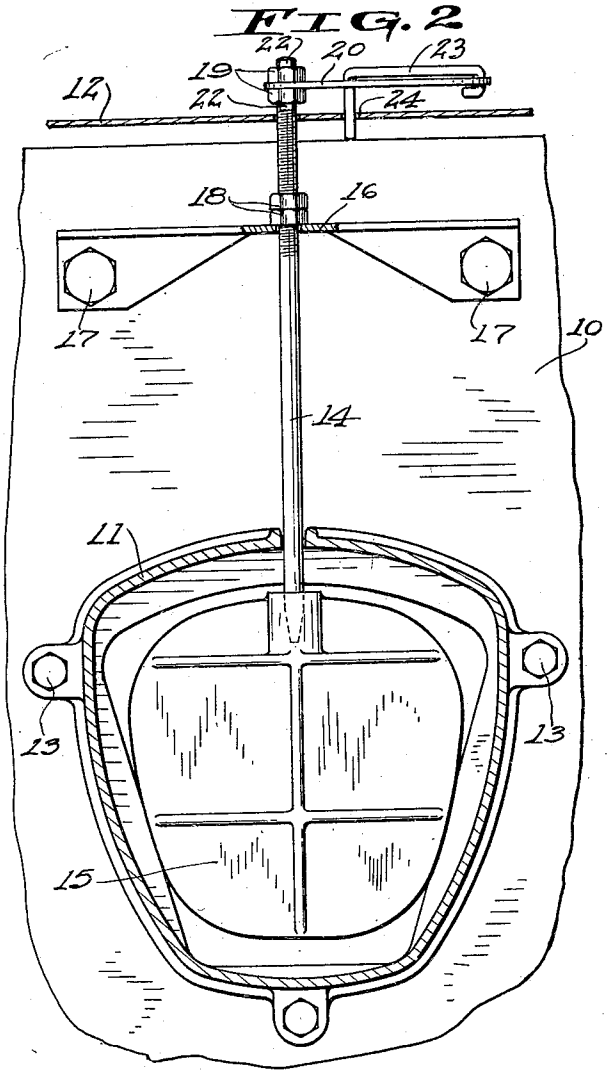
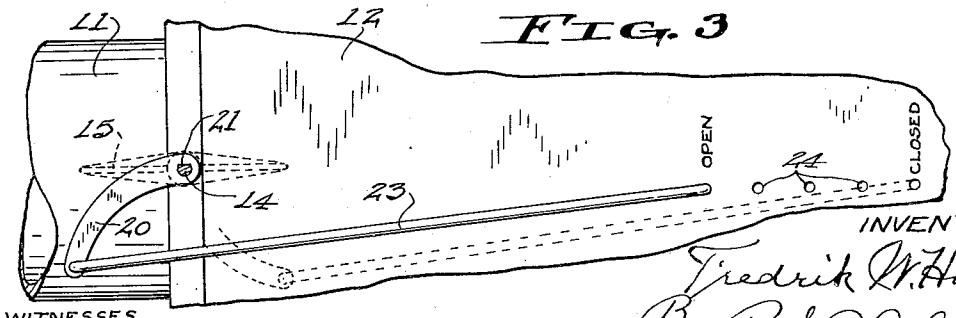


FIG. 3



INVENTOR

Fredrik W. Hvoslef

By R. S. C. Caldwell

ATTORNEY

WITNESSES

Irwin J. Rose

M. E. Downes

Patented Apr. 19, 1932 1,854,549

UNITED STATES PATENT OFFICE

FREDRIK W. HVOSLEF, OF KOHLER, WISCONSIN, ASSIGNOR TO KOHLER COMPANY, OF KOHLER, WISCONSIN, A CORPORATION OF WISCONSIN

DAMPER MECHANISM

Application filed October 22, 1930. Serial No. 490,405.

This invention relates to a damper and operating mechanism therefor for use in boilers and furnaces and has for its object to provide a suspended damper entirely free from dependence upon bearings in the walls of the smoke outlet for its support.

Another object of the invention is to provide a damper with a mounting or support capable of ready adjustment for positioning the damper in the smoke outlet.

Another object of the invention is to provide means accessible at the front of the boiler or furnace for varying the position of the damper, thus making it unnecessary to go to the back of the heater to make such change.

With the above and other objects in view the invention consists in the damper mechanism as herein claimed and all equivalents.

Referring to the accompanying drawings, in which like characters of reference indicate the same parts in different views,

Fig. 1 is a sectional side elevation of a portion of a boiler containing a damper mechanism constructed in accordance with this invention;

Fig. 2 is a sectional rear elevation thereof, and

Fig. 3 is a plan view showing different positions of the damper operating means.

In these drawings, 10 indicates a boiler or furnace and 11 the smoke outlet therefor, while 12 is a shell or casing, usually enameled to give ornamental appearance. The smoke outlet 11 is preferably of an oval shape in cross-section, as shown in Fig. 2, and is secured directly to the rear section of the boiler as by means of screws 13, the meeting faces of these parts being ground to make a tight fit.

Extending through a notch in the edge of the top of the smoke outlet 11 is a vertical stem 14 having a damper member 15 rigidly secured on its lower end, preferably cast thereon. The upper end of this stem extending through the space between the rear boiler section and shell 12 is supported from a bracket 16 and projects out through an opening in the shell, terminating a short distance above the top of the heater. The bracket 16 consists of an angularly bent strip of sheet metal secured to the rear boiler section by screws 17 and forming a shelf, through an opening in which the stem passes. A pair of nuts 18 threaded on the end of the stem engage the shelf of the bracket to support the damper and, by adjusting them on the stem, the damper may be raised or lowered and locked in such adjustments.

On the projecting end of the stem is threaded another pair of nuts 19 clamping between them an operating arm 20 which has a flat 21 in its opening to engage with a flat 22 on the end of the stem and thus compel the damper to turn therewith.

An operating rod 23 has one end hooked through the opening in the outer end of operating arm 20 and extends forward to the front part of the boiler or furnace where its other end is bent downwardly and is adapted to enter through any one of a number of openings 24 in the shell 12 for locking the damper in its adjustments, said openings being arranged at different distances from the stem to correspond with the different operative positions of the damper.

By suspending the damper on a vertical stem it is mounted independent of the smoke outlet and does not rely on bearings therein for its support, and consequently is not affected by temperature changes and wear of such bearing supports as usual, nor does it produce a leakage of draft by such wear.

The damper of this invention has the advantage of simplicity of design and manufacture and easy means of application and affords facility for remote control, either by the operating means shown or otherwise.

What I claim as new and desire to secure by Letters Patent is:

1. A damper mechanism comprising in combination with a heater having a smoke outlet conduit, a suspended damper within the smoke outlet supported from the heater independent of the smoke outlet, and means above the heater connected with the damper for operating the damper.

2. A damper mechanism comprising a smoke outlet conduit having means at its edge for securing it to a heater, there being a notch in the edge at the top of the smoke

outlet, a bracket having means for mounting it on the heater above the smoke outlet, a stem mounted on the bracket and passing through the notch, a damper member fixed on and suspended by the stem within the smoke outlet, and means for turning the stem.

3. A damper mechanism comprising a smoke outlet conduit having means for connecting its edge with a heater, there being a notch in the edge of the smoke outlet at the top thereof, a bracket having means for mounting it on the heater above the smoke outlet, a stem passing through an opening in the bracket and through the notch, a damper member fixed on the end of the stem within the smoke outlet, nuts threaded on the stem and bearing on the bracket for adjustably suspending the damper member, and means for turning the stem.

4. A damper mechanism comprising in combination with a heater having a smoke outlet conduit with means at its edge for securing it to the heater, a damper member in the smoke outlet fixed on a stem, means independent of the smoke outlet for suspending the damper member by means of the stem passing between the smoke outlet conduit and the heater, and means for turning the stem.

5. A damper mechanism comprising in combination with a heater having a smoke outlet conduit with means for securing its edge to the heater a damper member in the smoke outlet fixed on a stem which is suspended from the heater and passes between the smoke outlet conduit and the heater, an arm fixed on the stem, an operating rod connected with the arm, and means engaged by the operating rod for determining the positions of the damper member.

6. A damper mechanism comprising in combination with a heater having a smoke outlet conduit and means to connect the intake end of the conduit to the heater, a damper member in the smoke outlet fixed on a stem, means independent of the smoke outlet for suspending the damper member by means of the stem, a shell for the heater enclosing the stem and its supporting means, said stem projecting through the shell, an arm fixed on the stem, an operating rod connected with the arm and extending to the front of the heater and having a downwardly turned end to enter openings in the shell for holding the damper member in its various operative positions.

In testimony whereof, I affix my signature.

FREDRIK W. HVOSLEF.