

No. 827,955.

PATENTED AUG. 7, 1906.

W. R. BOND.
AUTOMATIC STOVE DAMPER.
APPLICATION FILED APR. 24, 1905.

2 SHEETS—SHEET 1.

FIG. 2.

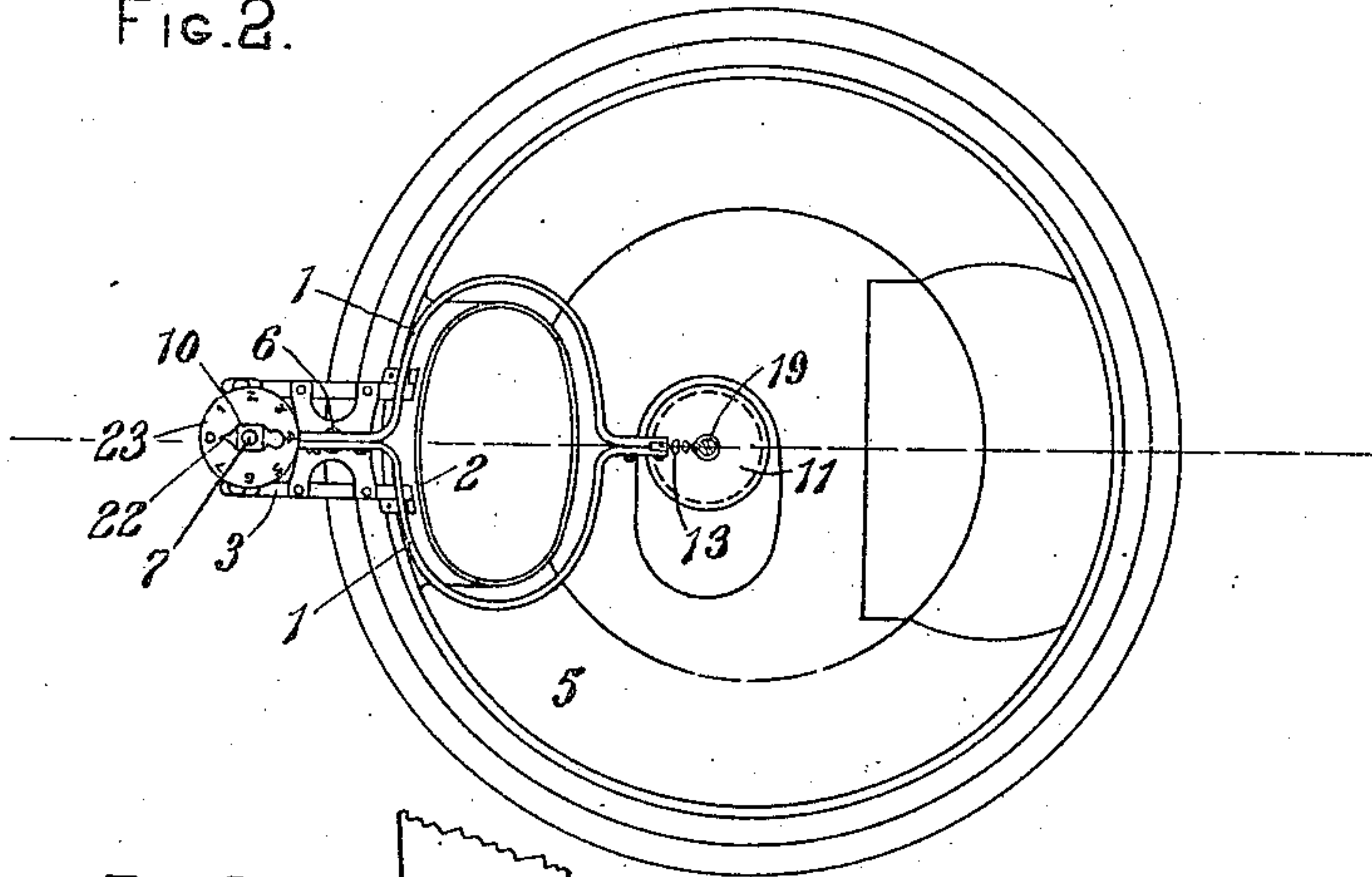
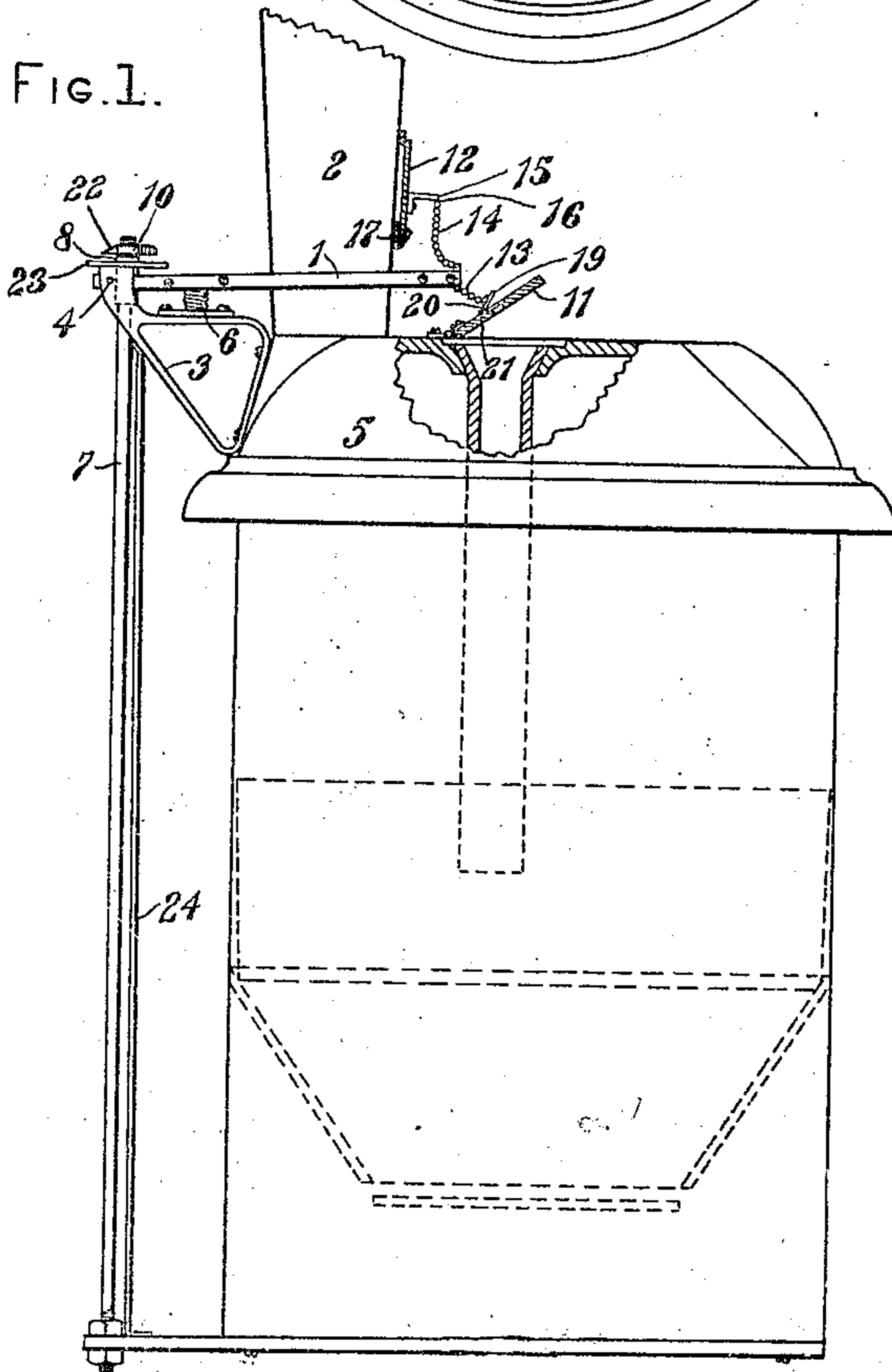


FIG. 1.



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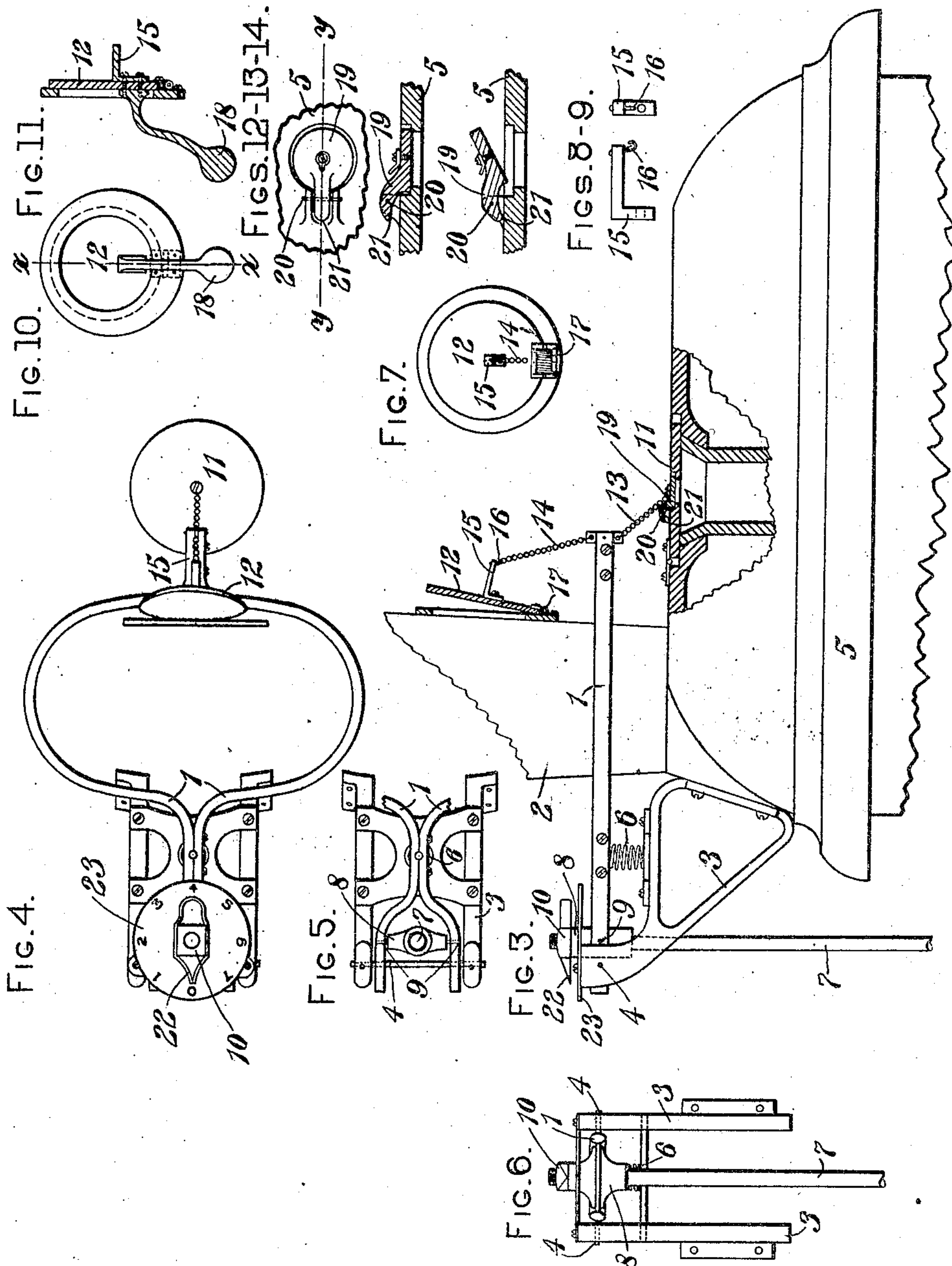
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM R. BOND, OF FORT THOMAS, KENTUCKY.

AUTOMATIC STOVE-DAMPER.

No. 827,955.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Application filed April 24, 1905. Serial No. 257,108.

To all whom it may concern:

Be it known that I, WILLIAM R. BOND, a citizen of the United States, residing at Fort Thomas, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Automatic Stove-Dampers, of which the following is a specification.

The object of my invention is to provide simple, effective, and economical means for automatically regulating the temperature of a stove.

My invention consists of a pivoted arm mounted upon a support secured to the stove, a spring interposed between said pivoted arm and support, a fulcrum secured adjacent to the stove substantially independent of the contraction and expansion thereof and attached to said arm between the spring and the pivot securing the arm to the support, a damper in the pipe and in the stove, each attached to said pivoted arm and adapted to be moved thereby, means for closing said dampers, an adjustable sleeve or gage for regulating the temperature, and a dial and pointer for indicating the desired temperature.

My invention also consists in parts and in the combination and arrangement of parts as set forth and claimed herein.

In the drawings, Figure 1 is a side elevation of a heating-stove, partly in section, showing my invention applied thereto. Fig. 2 is a plan view, the pipe-damper being omitted. Fig. 3 is a side elevation, partly in section, showing the top portion of the stove with my invention applied thereto. Fig. 4 is a plan view of my device. Fig. 5 is a plan view of a portion of the device with the dial and pointer removed. Fig. 6 is a rear view of the device. Fig. 7 is a front view of the pipe-damper. Fig. 8 is an enlarged side view of the pipe-damper lever. Fig. 9 is a front view of the same. Fig. 10 is a rear view showing a modified construction of the pipe-damper. Fig. 11 is a vertical section on the line *x x* of Fig. 10. Fig. 12 is an enlarged plan view showing the auxiliary damper illustrated in Fig. 3. Fig. 13 is a vertical section of the same on the line *y y* of Fig. 12. Fig. 14 shows the auxiliary damper open.

I prefer to construct my automatic stove-damper substantially as follows: An arm 1, preferably formed in the shape of a collar adapted to surround the stovepipe 2, is attached to a support 3 by a pivot 4, the support being suitably secured to the stove 5.

A spring 6 is interposed between said support and arm to support the free end of the arm 1 and the sleeve 8. A standard 7, secured to or adjacent the stove substantially independent of the contraction and expansion thereof, is connected to the arm 1 by means of a sleeve 8, attached by pivots 9, forming a fulcrum for the arm 1. The upward movement of the sleeve is limited by means of the gage 10, and the sleeve is normally held from downward movement by the spring 6, but will yield to permit downward movement thereof when the pivot 4 is raised by the expansion of the stove. The stove-damper 11 and pipe-damper 12 are each attached to the free end of the arm 1 and operated thereby. The free end of the arm 1 is preferably connected to the stove-damper 11 by a chain 13 and to the pipe-damper 12 by a chain 14. The pipe-damper 12 is provided with a lever 15, having a hook 16, to which the chain 14 is preferably connected. The pipe-damper 12 may be held normally closed by means of spring 17 or weight 18. An auxiliary stove-damper 19 is preferably secured within the stove-damper 11 by pivot 20 and is provided with a stop 21 to limit its upward movement, as shown in Figs. 1 and 14. This auxiliary damper permits the gradual shutting off of the inflow of air as the stove-damper is being closed, thus increasing the sensitiveness of the action of the damper in closing to decrease the temperature. It also permits of greater sensitiveness in the operation of opening the stove-damper, since it will readily open to admit a small amount of air to the fire and allow a gradual increase in the temperature of the stove before the stove-damper could be raised, owing to its increased weight and the air-pressure thereon.

In order to overcome changes in temperature and varying drafts, I have provided the adjustable connecton between the arm 1 and lever 15, consisting of the hook 16, which is adapted to engage different links of the chain 14 to hold the pipe-damper normally open the desired distance. A pointer 22 upon the gage 10 and dial 23, mounted upon the support 3 and having suitable characters, are provided to indicate the desired temperature. The lever 15 is provided upon the pipe-damper 12 to assist in overcoming the air-pressure against said damper when it is being opened. The standard 7 is placed in such position as not to be affected by the heat from the stove, or it may be protected

from the action of the heat by means of a shield 24, as shown in Fig. 1, to limit its contraction and expansion to a minimum as compared with the contraction and expansion of the stove.

The operation of my device is substantially as follows: The normal position of the dampers is indicated by Fig. 1, showing their position before the stove has been heated. As the stove becomes heated the metal therein expands, and consequently lifts the support 3, which acting upon the pivot 4 draws the free end of the arm 1 downwardly, thus permitting the stove-damper to close and the pipe-damper to open, as shown in Fig. 3. When the fire decreases and the stove contracts, the action of these dampers will be reversed, and there will be a shifting of the dampers to regulate the heat, depending upon the contraction and expansion of the stove. To regulate the temperature, adjust the gage 10 up or down upon the standard 7 the desired distance. To increase the temperature, elevate the gage 10 by turning it to the left upon the standard 7, which will cause the free end of the arm 1 to rise, thus drawing the stove-damper 11 upwardly to increase the draft and at the same time permit the pipe-damper 12 to move a corresponding distance to close or partially close it to still further increase the draft. To decrease the fixed temperature desired, lower the gage 10 by turning it to the right upon the standard 7. When the stove expands and lifts the support, drawing the free end of the pivoted arm downwardly, the stove-damper will close and the pipe-damper will open correspondingly and will continue to open still farther as long as the stove continues to increase in heat. The use of my invention secures an even and regular temperature, prevents overheating of the stove, and renders the stove more economical in the use of fuel by not only preventing unnecessary heating, but also by causing a more thorough consumption of the products of combustion.

It will be obvious that my invention is capable of some modification without material departure from the scope and spirit thereof, and for this reason I do not wish to be under-

stood as limiting myself to the precise construction and arrangement set forth—as, for instance, the auxiliary damper may be omitted, if desired; but

What I claim, and desire to secure by Letters Patent, is—

1. In an automatic stove-damper, a stove, a support mounted thereon, an arm pivoted to said support, a spring interposed between said arm and support to exert pressure upwardly against said arm, a standard secured adjacent to the stove and pivotally connected to said arm, and a damper attached to the free end of said arm and adapted to be operated thereby.

2. In an automatic stove-damper, a stove, an arm pivotally secured to the top thereof, a fulcrum for said arm, a spring adapted to exert pressure upwardly against said arm whereby the fulcrum is maintained in its position, a standard secured adjacent to the stove and pivotally connected to said arm, a stove-damper and an auxiliary damper therein, a stop to limit the movement of said auxiliary damper, and means for connecting said auxiliary damper to the free end of said arm.

3. In an automatic stove-damper, a stove, an arm pivotally secured to a stove, a fulcrum for said arm, a spring adapted to exert pressure against said arm, a standard secured adjacent to the stove and pivotally connected to said arm, a damper having an auxiliary damper therein attached by flexible connection to the free end of said arm and adapted to be operated thereby.

4. In an automatic stove-damper, a stove, an arm pivotally secured thereto, a fulcrum for said arm, a spring adapted to exert pressure against said arm, a standard secured adjacent to the stove and pivotally connected to said arm, a damper attached to the free end of said arm and adapted to be operated thereby, and a weight on the inside of the damper adapted to return said damper to its normal position.

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