Oct. 6, 1942. E. A. FIELD, JR 2,297,757

DRAFT REGULATOR OR CONTROL

Filed March 12, 1942 2 Sheets-Sheet 1

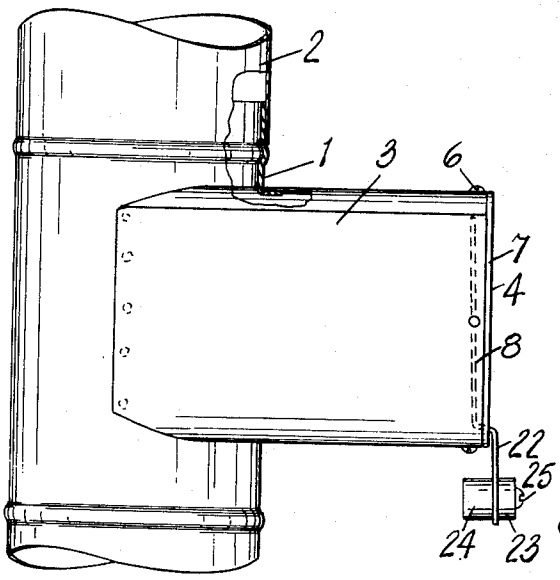


Fig. 1

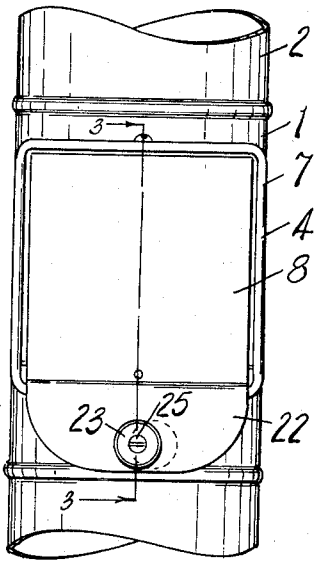


Fig. 2

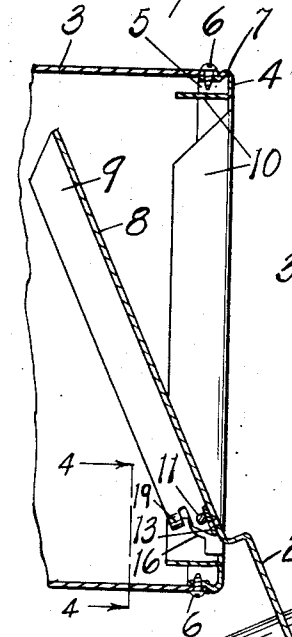


Fig. 3

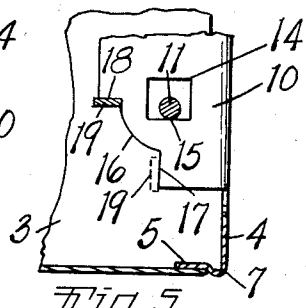


Fig. 5

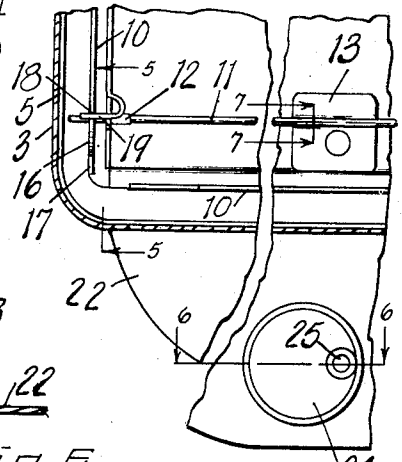


Fig. 4

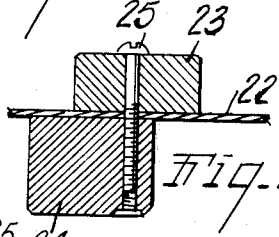


Fig. 6

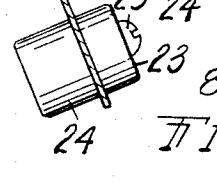




Fig. 7

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DRAFT REGULATOR OR CONTROL

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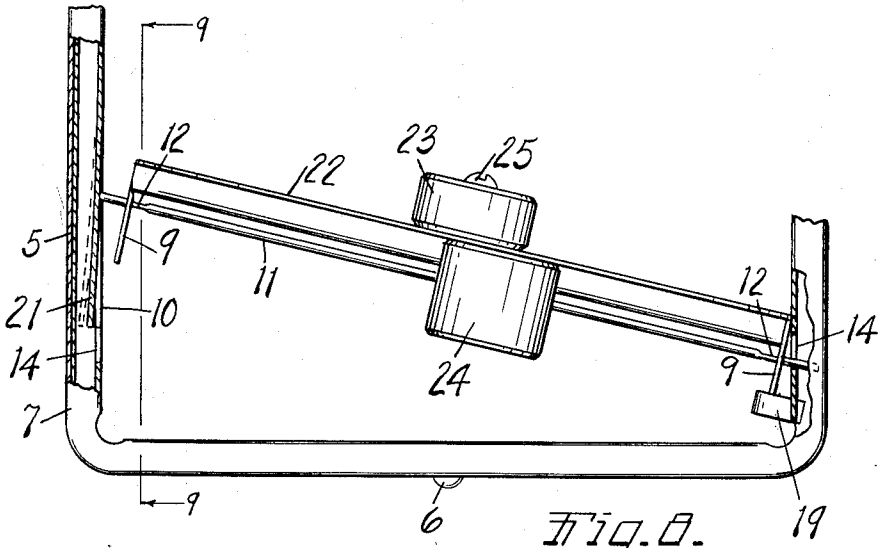


Fig. 8.

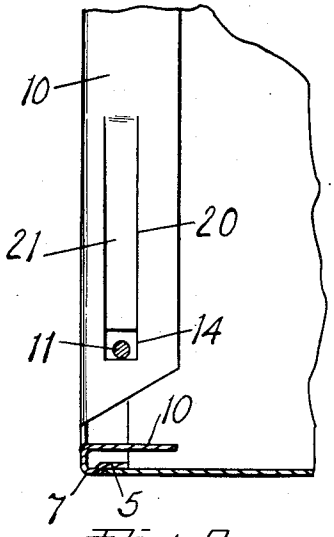


Fig. 9.

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DRAFT REGULATOR OR CONTROL

Edward A. Field, Jr., Mendota, Ill.

Application March 12, 1942, Serial No. 434,417

6 Claims. (Cl. 236—45)

This invention relates to improvements in draft regulators or controls.

The main objects of this invention are:

First, to provide a draft regulator or control which is simple and economical in structure and at the same time has a wide range of adaptability.

Second, to provide a draft control which is particularly well adapted for domestic use and may be installed by relatively unskilled workmen or persons in vertical flues or horizontal flues.

Third, to provide a structure which is substantially noiseless in its operation—that is, there is no objectionable clicking noises when the regulator gate opens and closes.

Fourth, to provide a structure in which the parts are simple and economical and easily assembled and disassembled should occasion require.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a fragmentary view of a draft regulator assembly embodying the features of my invention partially broken away and partially in section.

Fig. 2 is a fragmentary elevation looking from the right of Fig. 1.

Fig. 3 is an enlarged vertical section on a line corresponding to line 3—3 of Fig. 2, the counterweights being shown in full lines.

Fig. 4 is an enlarged fragmentary view in section on line 4—4 of Fig. 3.

Fig. 5 is an enlarged fragmentary view in section on line 5—5 of Fig. 4.

Fig. 6 is an enlarged fragmentary view mainly in section on line 6—6 of Fig. 4.

Fig. 7 is an enlarged detail section on line 7—7 of Fig. 4.

Fig. 8 is an enlarged fragmentary front elevation partially in vertical section illustrating the manner of positioning and removing the gate.

Fig. 9 is a fragmentary view in section on line 9—9 of Fig. 8 with the gate pintle in its operative position.

The embodiment of my invention illustrated is especially designed for domestic use and is adapted to be sold as a unit comprising a flue section 1 adapted to be installed in a flue 2, the flue section having a gate housing 3 extending laterally therefrom. This gate housing 3 is of equilateral section preferably, however, being provided with rounded corners, the purpose of the equilateral section being to permit the gate frame 4 being fitted thereto in any position of the unit—that is, whether the flue section 1 is disposed vertically or horizontally.

The gate frame 4 is formed of sheet metal conformed to an inwardly facing U-section, the outer flange or arm 5 of the frame being adapted to telescopingly fit within the end of the housing 3 and being secured therein as by means of the metal screws 6. The outer arms of the frame are preferably beaded at 7 to provide stops and also to cover the edge of the housing.

The gate 8 is provided with side flanges 9 swingably within the inner arms or flanges 10 of the side members of the frame. These parts, with the exception of screw 6, are formed of sheet metal.

The pintle 11 of the gate is in the form of a rod extending across the gate and through the flanges 9 thereof. It is fixedly secured to the gate by upsetting at 12 on the inner side of the gate flanges 9 and is also preferably spot-welded to the centrally disposed reinforcing plate 13 which is also spot-welded to the gate, see Figs. 3, 4 and 7.

The inner flanges 10 of the frame side members are provided with pintle receiving openings 14, these preferably being of substantially greater size than the pintle 11 and being rectangular to provide a pintle supporting surface 15 with which the pintle has rolling engagement. This avoids the necessity of great accuracy in forming the parts and also avoids any squeaking or frictional noises between the pintle and its bearing openings.

One of the frame flanges 10 is provided with a rearwardly facing recess 16 at its lower end, the ends of the recess 17 and 18 constituting stops which coact with the stop tongue 19 which is struck out from one of the side flanges of the gate. It will be noted that these stops are located quite close to the pintle and also the stop 19 is somewhat yielding so that when the gate swings from fully opened to fully closed position the stop engages the coacting stop without noise.

To facilitate the engagement of the pintle with the frame, one of the inner frame flanges 10 is provided with spaced vertical slits 20 extending upwardly from its pintle opening 14 providing a spring tongue 21 which may be deflected, as shown in Fig. 8, to permit the engagement and disengagement of the pintle with its frame bearings. The pintle is of such length that its ends coact with the outer arms of the

frame to limit the lateral or side members of the gate and prevent its side flanges coming in contact with the frame side flanges.

The gate of the embodiment illustrated is provided with an integral outwardly-offset downwardly-projecting portion **22** which constitutes a counterbalance arm. The counterweights preferably comprise the outer member **23** and the inner member **24**—that is, disposed on the outer and inner sides of the arm **22** respectively, the screw **25** being arranged through the weight **23** and engaging the weight **24**. It is not intended that these weights shall be adjusted by the user although it is of course possible to adjust them in a particular installation but the weights are factory calibrated to give the desired draft and it is the applicant's preferred practice to provide an additional or auxiliary weight for use when the draft control is to be installed on a horizontal pipe located about on the level with the top of the stove.

In most of the stove installations for which this draft control is especially designed, it is disposed in a vertical flue. However, it may be adapted to horizontal installations as the flue housing is of equilateral section and the gate frame may be adjusted according to the installation.

I have illustrated and described an embodiment of my invention which I have found very practical. I have not attempted to illustrate or describe certain other embodiments or adaptations as it is believed that this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a draft regulator, the combination of an equilateral open ended housing, a gate frame selectively fitting within said housing and comprising top, bottom and side members of inwardly facing U-section, the outer flanges of said frame having bead-like portions abutting the end of the housing, a gate provided with inturned side flanges swingable between the inner flanges of said frame, a pintle disposed through the side flanges of the gate adjacent the lower ends thereof, the inner flanges of the frame side members having pintle receiving openings adjacent their lower ends, and a recess in the lower end of the inner flange of one of said frame side members, the ends of the recess constituting stops, the side flange of the gate adjacent said recess having a laterally disposed tongue struck therefrom to constitute a stop coacting with said stops of the frame.

2. In a draft regulator, the combination of an equilateral open ended housing, a gate frame selectively fitting within said housing and comprising top, bottom and side members of inwardly facing U-section, the outer flanges of said frame having bead-like portions abutting the end of the housing, a gate provided with inturned side flanges swingable between the inner flanges of said frame, and a pintle disposed through the side flanges of the gate adjacent the lower ends thereof, the inner flanges of the frame side members having pintle receiving openings adjacent their lower ends, one of said inner frame flanges having spaced slits extending upwardly from its pintle opening providing a springable tongue permitting engagement and disengagement of the pintle with the pintle opening by a swinging movement.

3. In a draft regulator, the combination of a housing, a gate frame carried by said housing comprising top, bottom and side members of inwardly facing U-section, a gate provided with inturned side flanges swingable between the inner flanges of said frame, a pintle disposed through the side flanges of the gate adjacent the lower ends thereof, the inner flanges of the frame side members having pintle receiving openings adjacent their lower ends, said gate having an outwardly offset downwardly projecting portion at its lower edge constituting a counterweight arm depending below the pintle, a balancing weight disposed on the outer side of said counterweight arm, a screw disposed through such balancing weight and counterweight arm, and a second counterweight disposed on the inner side of said counterweight arm and eccentrically and adjustably engaged by said screw.

4. In a draft regulator, the combination of a housing, a gate frame at the front end of said housing and comprising inner side flanges, a gate provided with side flanges swingable within the side flanges of said frame, and a pintle disposed through the side flanges of the gate adjacent the lower ends thereof, the said frame side flanges having pintle receiving openings adjacent their lower ends and one of them having spaced slits extending upwardly from its pintle opening providing a springable tongue permitting engagement and disengagement of the pintle with the pintle opening by a swinging movement, one of said frame side flanges having spaced stops adjacent said pintle, the adjacent side flange of the gate having a laterally disposed stop thereon coacting with said stops on said frame, said gate having a counterweight thereon.

5. In a draft regulator, the combination of a housing, a gate frame at the front end of said housing and comprising inner side flanges, a gate provided with side flanges swingable within the side flanges of said frame, and a pintle disposed through the side flanges of the gate adjacent the lower ends thereof, the said frame side flanges having pintle receiving openings adjacent their lower ends and one of them having spaced slits extending upwardly from its pintle opening providing a springable tongue permitting engagement and disengagement of the pintle with the pintle opening by a swinging movement, said gate having a counterweight thereon.

6. In a draft regulator, the combination of a housing, a gate frame at the front end of said housing and comprising inner side flanges, a gate provided with side flanges swingable within the side flanges of said frame, and a pintle disposed through the side flanges of the gate adjacent the lower ends thereof, the said frame side flanges having pintle receiving openings adjacent their lower ends, one of said frame side flanges having spaced stops adjacent said pintle, the adjacent side flange of the gate having a laterally disposed stop thereon coacting with said stops on said frame, said gate having a counterweight thereon.

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