Dec. 16, 1930. G. E. LAUER 1,785,385

FLUE DAMPER AND LATCHING MECHANISM

Filed Nov. 1, 1928

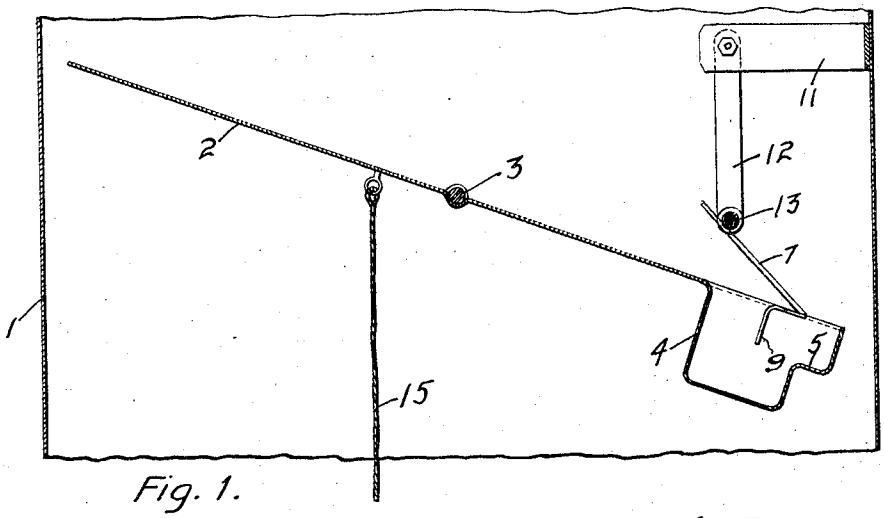


Fig. 1.

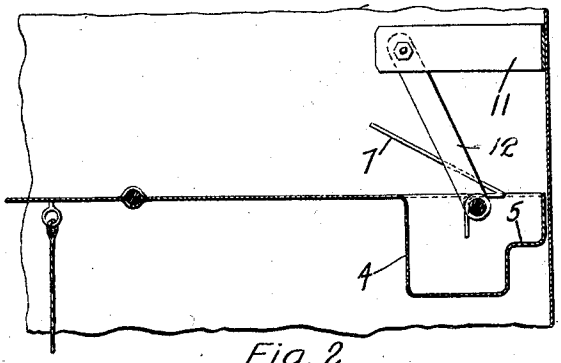


Fig. 2.

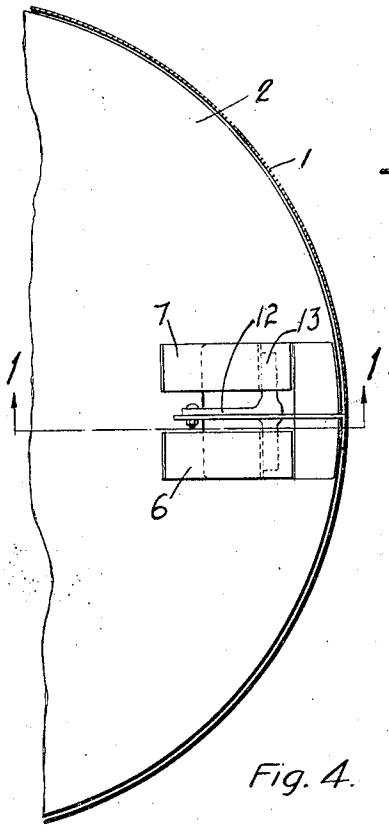


Fig. 4.

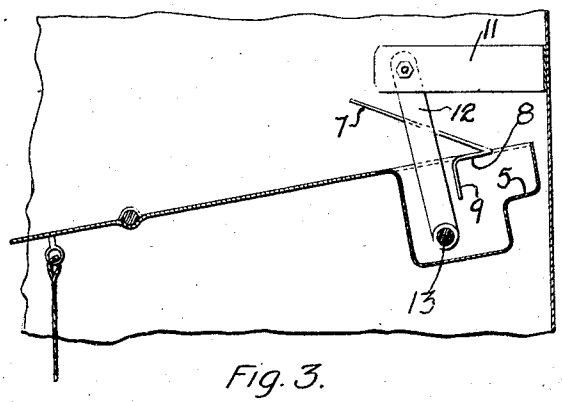


Fig. 3.

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Patented Dec. 16, 1930 1,785,385

UNITED STATES PATENT OFFICE

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FLUE DAMPER AND LATCHING MECHANISM

Application filed November 1, 1928. Serial No. 316,380.

This invention relates to a latching mechanism for latching and unlatching a flue damper in and from its closed position.

In general it is the object of this invention to provide a flue and its associated damper with a latching mechanism which operates automatically to both latch and unlatch the damper into and from its closed position by a partial rotation of the damper.

More specifically the object of this invention is the construction in a flue having a pivoted damper, of a shoulder in said damper, a pendulum supported by said flue and provided with a horizontally extending portion, and means for guiding said horizontally extending portion in a closed path around said shoulder.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of my invention which is illustrated in the drawings accompanying the present specification. It is to be understood that I do not limit myself to the showing made by the said drawings and description as I may adopt variations of the preferred form within the scope of my invention as set forth in the claims.

Referring to said drawings:

Figure 1, is a vertical section of a flue and damper in which the objects of my invention are embodied. The view is taken along the plane indicated by the line 1—1 of Figure 4.

Figure 2 is a similar section showing the damper in its latched position.

Figure 3 is a section showing the relation of various elements of the latching mechanism just after the damper has been released or unlatched.

Figure 4 is a top plane view of the mechanism shown in the above figures.

My invention contemplates the use of a conventional cylindrical flue 1, adapted to be closed by a damper 2, pivotally carried on a rod 3 secured along one of its chords. As shown in the drawings both the flue and its damper are of circular form but objects of my invention may be embodied therein irrespective of such form.

Formed on the periphery of the damper 2 and preferably along the perpendicular bisector of its pivotal axis is a downwardly extending pocket 4, provided on its outer wall with a shelf 5 secured to the damper 2 on either side of the pocket 4 and disposed above said pocket are a pair of spaced parallel deformed guide strips 6 and 7. The lower ends of these strips are provided with right angularly disposed portions 8 and 9 which together define what may be termed horizontal and vertical shoulders. It is to be noted that the portion 8 is coplaner with the damper 2 and that the lower end of the portion 9 lies just above the plane of the shelf 5. The upper ends of the strips 6 and 7 extend somewhat beyond the vertical rear wall of the pocket 4 and lie in an inclined plane which intersects the open mouth of the pocket. Due to the additional weight of the pocket 4, the center of gravity of the damper 2, lies at a point between the pocket and the rod 3. The damper is therefore always urged by gravity to a vertical position.

Extending inwardly into the flue 1 and secured thereto at a point somewhat above the horizontal plane determined by the rod 3, is a bracket 11. To the outer end of this bracket is pivoted a pendulum 12, provided at its lower end with a cross-arm 13. As best shown in Figure 1, the pendulum 12 should be pivoted on an axis which lies considerably inwardly of the pocket formed by the right angularly disposed portions 8 and 9 of the guide strips 6 and 7.

The automatic operation of the latching mechanism above described may be effected by merely pulling on a cord 15 attached to the damper 2 on the side opposite the pocket 4 and is as follows: Normally, the damper, due to the action of gravity, remains in vertical position. By pulling on the cord 15 the damper is gradually made to assume a horizontal position and in so doing the guide members 6 and 7 engage the cross-arm 13 of the pendulum 12, (as shown in Figure 1), and force it outwardly by their inclined surfaces. On reaching the right-angularly disposed portions 8 and 9, the pendulum is swung to the left until its cross-arm is engaged beneath and against the shoulders formed by the right

angularly disposed portions 8 and 9, as shown in Figure 2. To release or unlatch the device the cord is given a further pull until the cross-arm of the pendulum has cleared the lower edges of the vertical portions 9, at which time the damper is free to fall and the pendulum free to move to the left. It is to be noted that the shelf 5 prevents the cross-arm from completing a closed path about the strips 6 and 7 without first engaging the shoulders formed by the right-angularly disposed portions 8 and 9.

Although as shown in the drawings the damper has been provided with a downwardly depressed pocket 4, it is evident that a strip of material having the same cross-sectional contour as that of the pocket shown will serve to guide the cross-arm of the pendulum in the desired manner. Nor need the cross-arm 13 be provided with two legs as shown, one leg being sufficient to answer the purpose.

From the above description, it will be noted that I have provided a latching mechanism for flue dampers operating automatically to both latch and unlatch said damper by a mere partial rotation of the damper.

I claim:

1. A flue provided with a pivoted damper, a catch member provided on said damper, a pendulum supported by said flue and provided with a horizontally extending portion for guiding said horizontally extending portion in a closed path around and into and out of latching engagement with said catch member upon successive movement of the damper in one direction.

2. A flue provided with a pivoted damper, a catch member provided in said damper, a pendulum supported by said flue and provided with a horizontally extending portion adapted to be latched with said catch member in one position of said pendulum, and means for progressively guiding said horizontally extending portion into engagement with said catch member upon movement of the damper into a predetermined position, said catch member releasing the pendulum upon further movement of said damper.

3. A flue provided with a pivoted damper; a catch member carried by said damper; a pendulum supported by said flue and provided with a horizontally extending portion, the neutral position of said horizontally extending portion lying to one side of said catch member; said member being formed for progressively guiding said horizontally extending portion into latching engagement with said catch member when moving the damper to a closed position, said catch member releasing the pendulum upon opening of the damper.

4. A flue provided with a pivoted damper having a downwardly concaved pocket; a catch member carried by said damper and disposed within said pocket; a pendulum supported by said flue and provided with a horizontally extending portion, the neutral position of said horizontally extending portion lying to one side of said catch member; said member being formed for guiding said horizontally extending portion into engagement with said catch member on a relative movement between said pendulum and said damper.

5. A flue provided with a pivoted damper, a pivoted damper, a pivoted latch carried by said flue, a catch member carried by said damper and arranged to engage the latch to hold the damper in a predetermined position, means on said damper co-operating with said latch on a relative movement between said latch and damper for effecting engagement of the latch with said catch, and means for partially rotating said damper.

6. A flue provided with a pivoted damper having a catch member thereon, a bracket secured to said flue, a latch pivotally suspended from said bracket, said catch member including a guide member co-operating with said catch member to guide said latch beneath a portion of the catch on a relative movement between said flue and latch.

7. A flue provided with a pivoted damper arranged to normally hang in open position, gravity operated latch means carried by said flue, and means including a catch member arranged whereby, on a partial rotation of said damper, the latch will be guided into and out of latching engagement with the catch member.

In testimony whereof, I have hereunto set my hand at Oakland, California, this 16th day of October, 1928.

GEORGE E. LAUER.