United States Patent [19]

Fowles

[11] **3,880,142**

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[54] **DEVICE FOR OPENING AND CLOSING FIREPLACE DAMPER**

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[52] **U.S. Cl.** **126/288**

[51] **Int. Cl.** **F23l 13/02**

[58] **Field of Search** 126/120, 288, 295

[56] **References Cited**

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[57] **ABSTRACT**

A device which is readily attached to a fireplace to provide means for operating the lever arm of a fireplace damper from outside the fireplace while simultaneously giving a visual indication of the position of the damper, comprises a supporting guide means adapted for attachment to a fireplace, an elongate push-pull member, and a connecting member which is adapted to pivotally connect one end of the push-pull member to the lever arm of the fireplace damper. The push-pull member is adapted to be supported by the supporting guide means and guided through a generally rectilinear movement toward and away from the fireplace. The damper is opened by pulling the push-pull member in a direction away from the fireplace. The push-pull member is then pivoted about its end which is connected to the connecting member until the free end portion thereof is adjacent to the face of the fireplace. The damper is closed by rotating the push-pull member until it is in rectilinear alignment with the guide of the supporting guide means and then pushed towards the fireplace.

3 Claims, 10 Drawing Figures

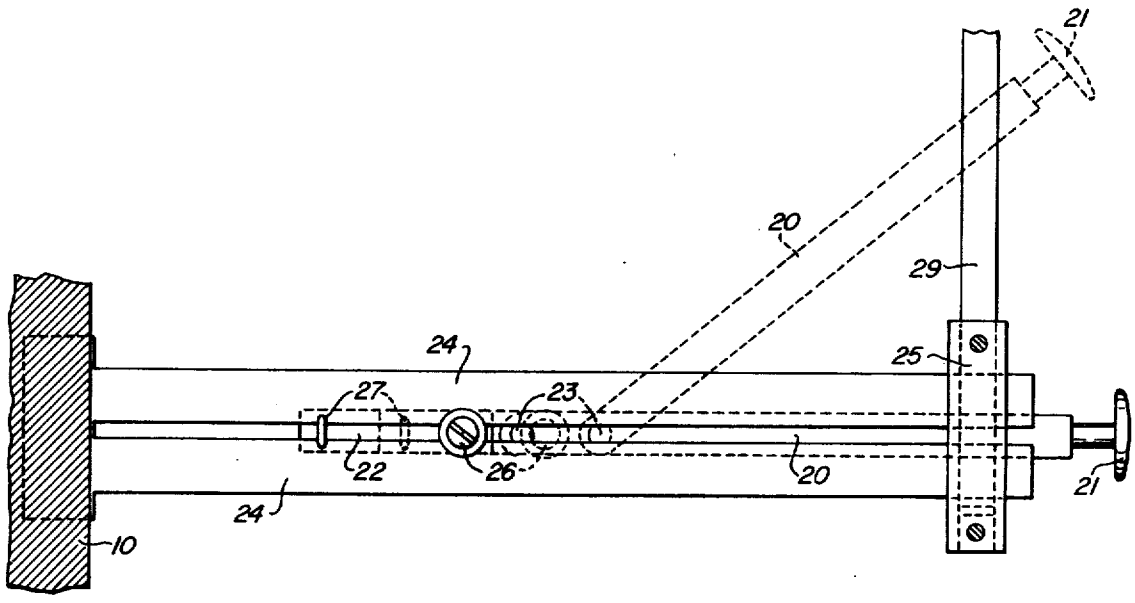


FIG. 1.

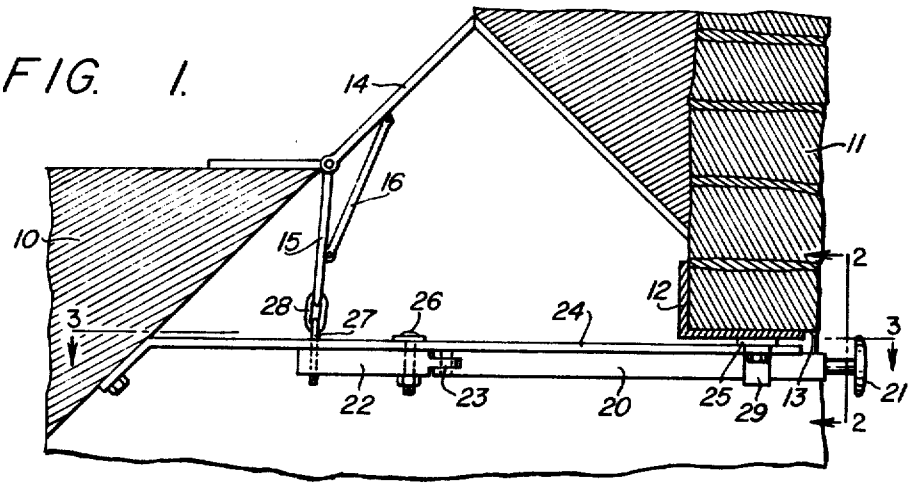


FIG. 2.

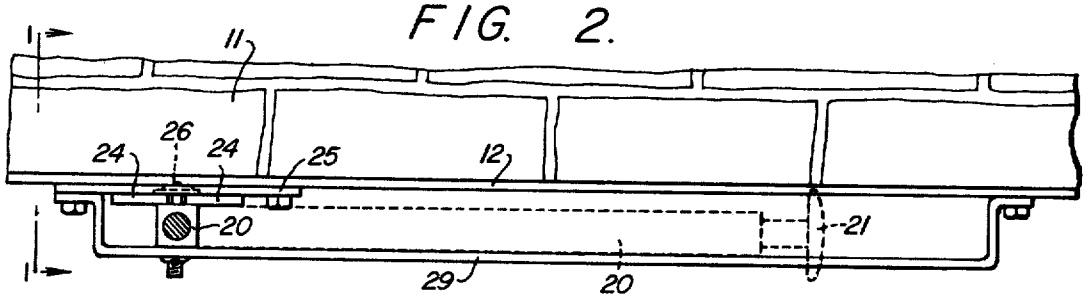


FIG. 3.

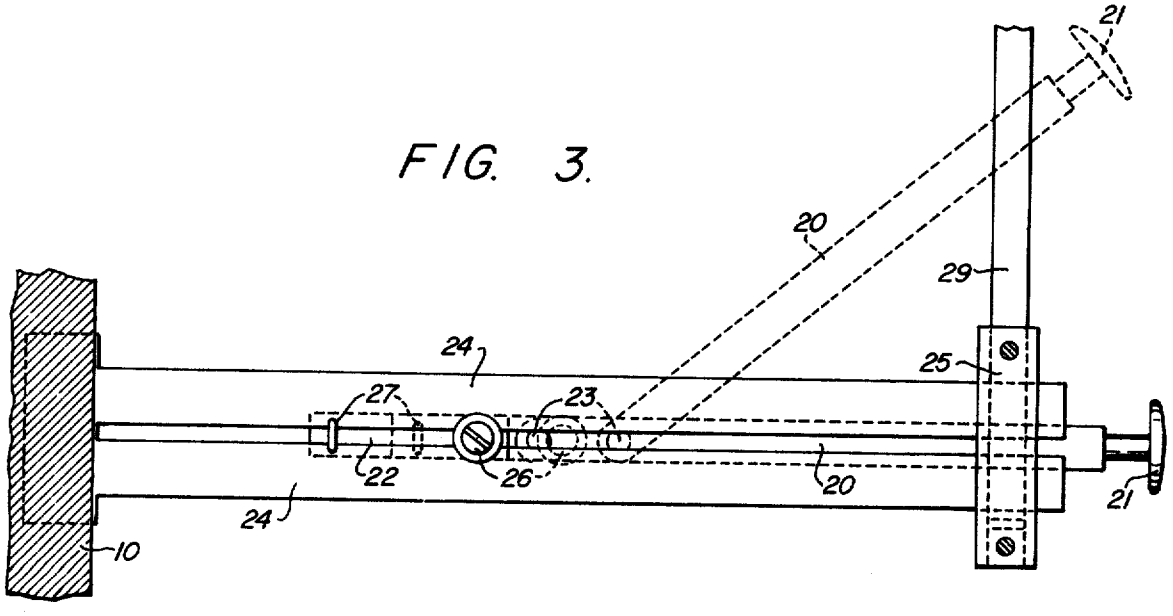


FIG. 4.

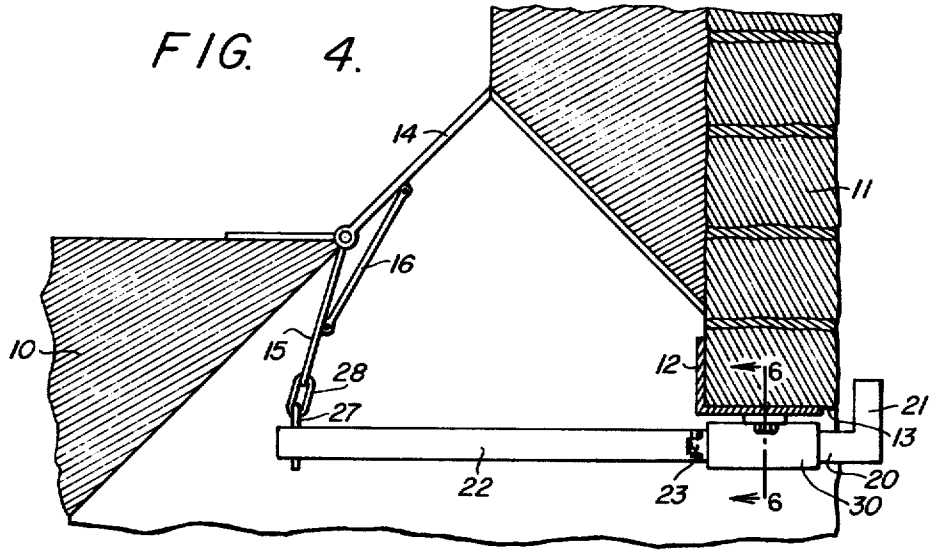
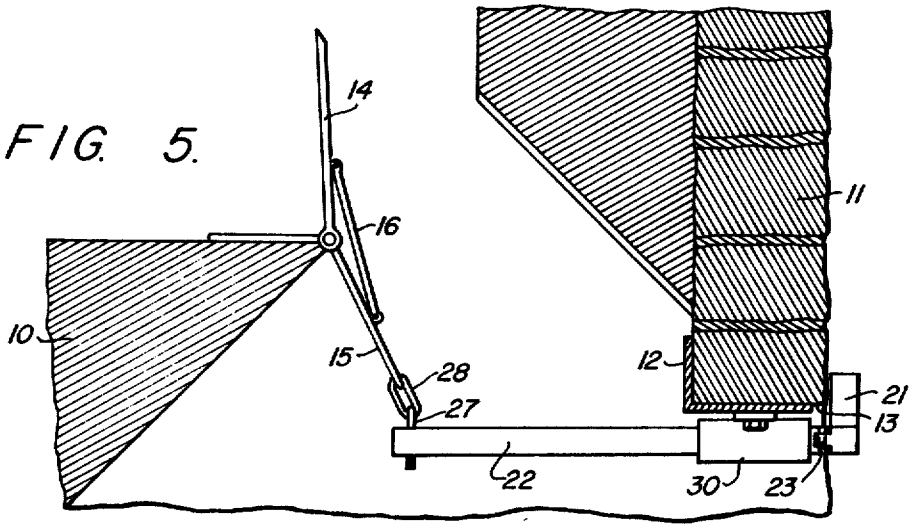


FIG. 5.



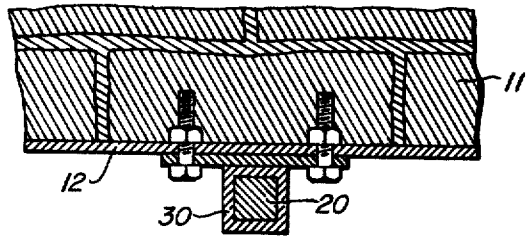


FIG. 6.

FIG. 7.

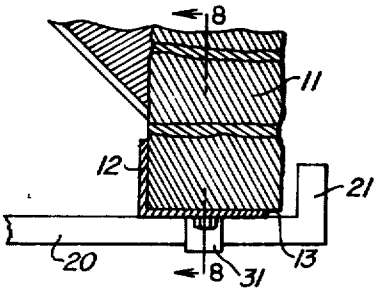


FIG. 8.

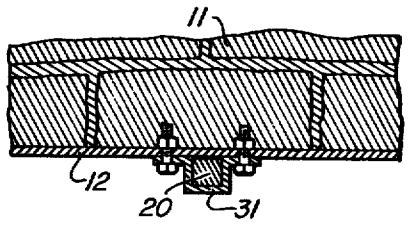


FIG. 9.

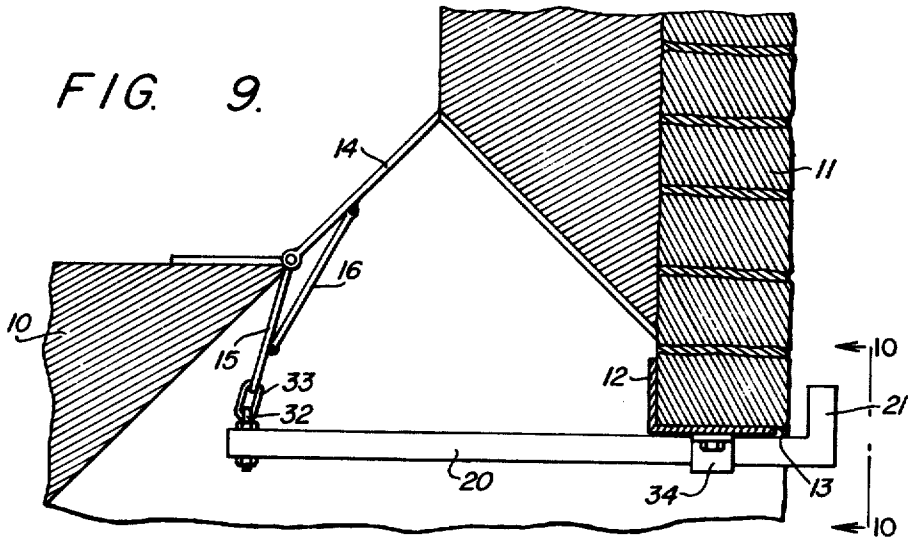
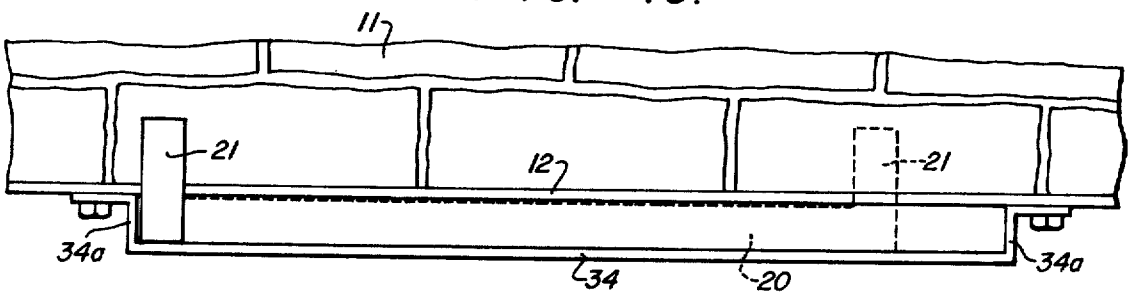


FIG. 10.



DEVICE FOR OPENING AND CLOSING FIREPLACE DAMPER

BACKGROUND OF THE INVENTION

1. Field

This invention relates to apparatus which is adapted for attachment to a fireplace, and by which the fireplace damper can be operated from outside the fireplace.

2. State of the Art

Fireplace damper apparatus having means associated therewith for operating the dampers from outside the fireplace are shown in U.S. Pat. Nos. 1,203,036; 1,562,727; 1,669,825; and 1,901,753. In conventional fireplace dampers, which are available commercially, the damper is operated by a lever arm which is suspended from the damper in the upper portion of the fireplace. The lever arm is operated by reaching into the fireplace and moving the lever arm towards the front of the fireplace to open the damper and towards the back of the fireplace to close the damper.

SUMMARY OF THE INVENTION

The present invention provides a device which is readily attached to a fireplace and provides means by which the lever arm of the fireplace damper can be operated from outside the fireplace. The device also provides a visual indication of the position of the damper. In accordance with the invention, the device includes an elongate push-pull member, one end portion of which is adapted to be pivotally connected to the lever arm of a fireplace damper by an appropriate connecting member, and a supporting guide means which is adapted for attachment to the fireplace and provides a trackway extending generally transversely of the fireplace. The push-pull member is supported in a generally horizontal plane by the supporting guide means so that the free end of the push-pull member extends from the fireplace just below the lintel or arch in the front wall of the fireplace. A handle is provided on the free end of the push-pull member.

The trackway of the supporting guide means provides a guide by which the push-pull member can be moved in generally rectinlinear motion toward and away from the fireplace. In opening the damper, the handle portion of the push-pull member is grasped and pulled in a direction away from the fireplace. The push-pull member is then rotated in a generally horizontal plane about its end which is pivotally attached to the damper lever arm until the handle portion of the push-pull member is adjacent to the face of the fireplace. The damper is closed by reversing the steps, i.e., the push-pull member is pivoted back into rectilinear alignment with the trackway of the supporting guide means, and then pushed in a generally rectilinear movement towards the fireplace.

The connecting member which connects the push-pull member to the lever arm of the fireplace damper provides for pivotal movement of the push-pull member both about a substantially vertically disposed axis and about a substantially horizontally disposed axis when the device is installed in a fireplace. The pivotal movement about the substantially horizontally disposed axis accomodates the change in the angular relationship between the push-pull member and the lever arm as the push-pull member is guided in its rectilinear motion toward and away from the fireplace. The pivotal movement about the substantially vertically disposed axis is utilized in rotating the push-pull member when opening and closing the damper as discussed hereinabove.

THE DRAWINGS

Several embodiments representing the best mode presently contemplated of carrying out the invention are illustrated in the accompanying drawings, in which:

FIG. **1** is a fragmentary, sectional view through a typical fireplace with damper closed, the view being taken on the line **1-1** of FIG. **2** and showing one embodiment of the device of the invention in operational relationship to the fireplace and damper;

FIG. **2**, a fragmentary front view of the fireplace of FIG. **1** taken on the line **2—2** of FIG. **1**;

FIG. **3**, a horizontal section taken on the line **3—3** of FIG. **1**;

FIG. **4**, a view corresponding to that of FIG. **1** showing another embodiment of the device of this invention;

FIG. **5**, a view similar to that of FIG. **4** showing the damper in the open position;

FIG. **6**, a transverse vertical section taken on the line **6—6** of FIG. **4**;

FIG. **7**, a view corresponding to a part of that of FIG. **4** appearing in the right hand corner thereof, but showing a variation of the device;

FIG. **8**, a transverse vertical section taken on the line **8—8** of FIG. **7**;

FIG. **9**, a view corresponding to that of FIG. **1** but showing a somewhat different embodiment; and

FIG. **10**, a fragmentary front view taken on the line **10—10** of FIG. **9**.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

The device of this invention is adapted to be readily attached to a fireplace and the various embodiments illustrated in the drawings are shown attached to a fireplace in operational relationship with the damper of the fireplace. The fireplace shown in the drawings comprises the usual back wall **10** and the front or arch wall **11**. The arch in the front or arch wall **11** is supported by an appropriate lintel such as the angle iron member **12**. The term lintel throughout the specification and claims is meant to include any exposed portion of the bottom surface of the arch, as shown by the numeral **13**, in addition to the support member such as the angle iron **12**. Thus, a component of the device of this invention which is described as being adapted to be attached to the lintel, could be attached to any exposed portion of the bottom surface of the arch as well as to the lintel itself. The fireplace, as shown, includes a damper **14** and a lever arm extending therefrom which when pulled towards the front of the fireplace opens the damper **14** and when pushed towards the back of the fireplace closes the damper **14**.

In the embodiment shown in FIGS. **1–3**, an elongate push-pull member **20** has a handle portion **21** at one end thereof and is pivotally attached at the other end to an elongate connecting member **22** about a vertical hinge axis **23**. The push-pull member **20** and the elongate connecting member **22** are shown both of the same square cross-sectional shape; however, they can be of any desired shape. Thus, circular or polygonal, e.g., octagonal, shapes are with contemplation.

The push-pull member 20 and connecting member 22 are supported from a supporting guide means comprising a pair of parallel, spaced apart rails 24 which provide a trackway extending transversely of the face of the fireplace. The parallel rails 24 are attached at one end thereof to the lintel 12 and at the other end to the back wall 10 of the fireplace. As shown, the ends of the rails at the face of the fireplace are integrally attached to a bracket 25 which is in turn attached to lintel 12. The push-pull member 20 and connecting member 22 are suspended from the parallel rails 24 by suspension means 26 which slide along the parallel rails through the space therebetween. The suspension means 26 illustrated comprises a screw and washer which slide along the parallel rails 24 with the screw extending through the space between the parallel rails 24 and connecting to the connecting member 22.

An elongate rod 27 having an eye at one end thereof is attached at its other end to the connecting member 22 so that the rod 27 extends through the space between the parallel rails 24. A ring member 28 connects the eye in rod 27 and the eye in the end of lever arm 16. When the handle portion 21 of connecting member 20 is pulled in a direction away from the fireplace, the connecting member 22 is guided in rectilinear movement along the parallel rails 24 moving the end of lever arm 15 towards the front of the fireplace, thus opening damper 14. The push-pull member 20 is then rotated about axis 23 until the handle portion 21 is adjacent to the face of the fireplace as shown in phantom in FIGS. 2 and 3.

An elongate support member 29 having opposite upstanding ends, which are attached to the lintel 12 of the fireplace so that it is adjacent and parallel to the face of the fireplace and spaced from the lintel 12 by a distance equal to the height of the upstanding ends, can be used, in addition to the parallel rails, as a support means for push-pull member 20. The support member 29 also provides support for the push-pull member when it is rotated into the position shown in phantom in FIGS. 2 and 3.

In the embodiment shown in FIGS. 4–6, the push-pull member 20 has a handle portion 21 at one end thereof and is pivotally attached at its other end to an elongate connecting member 22 about a vertical hinge axis 23 in a manner similar as in the embodiment shown in FIGS. 1–3 and described hereinabove. However, in the embodiment shown in FIGS. 4–6, the push-pull member 20 and connecting member 22 are supported by a supporting guide means comprising a tubular member 30 which is attached to the lintel 12. The tubular member 30 forms a slideway through which the push-pull member 20 and connecting member 22 are coaxially received for sliding motion therethrough. The tubular member 30 as shown in FIGS. 4-6 has a square shape so as to be coaxial with the square shaped push-pull member 20 and connecting member 22. However, the shape of the push-pull member 20 and connecting member 22 can vary as discussed hereinabove, and the shape of tubular member 30 will then correspond to the shape of the push-pull member and the connecting member.

In FIG. 4, the device is illustrated in its position with the damper closed. To open the damper the handle portion 21 is pulled in a direction away from the fireplace. The rod 27 and ring 28 which pivotally connect the connecting member 22 to the lever arm 15 move toward the front of the fireplace pulling the lever arm 15 along with them. The hinge axis 23 slides through the tubular member 30 and exits therefrom at the front of the fireplace. The push-pull member 20 is then rotated about the hinge axis until the handle portion 21 is adjacent to the front of the fireplace. The device is illustrated in FIG. 5 in its positon with the damper open and the handle portion 21 swung aroung the hinge axis 23 so that it is adjacent to the front wall 11 of the fireplace. The damper is closed by rotating the push-pull member 20 until it is in rectilinear alignment with connecting member 22 and tubular member 30. The handle portion 21 is then pushed towards the fireplace until the push-pull member 20 and connecting member 22 are in the position shown in FIG. 4.

Another embodiment of supporting guide means which provides a slideway for the push-pull member 20 and connecting member 22 is shown in FIGS. 7 and 8. As shown, a clamp member 31 is attached to lintel 12 and, together therewith, provide a slideway which is very similar to that of the tubular member 30 shown in FIGS. 4–6. The clamp 31 and lintel 12 form an enclosed slideway through which the push-pull member 20 and connecting member 22 are coaxially received for sliding motion therethrough. The push-pull member 20 and connecting member 22 function in the same manner in opening and closing the damper with the device of FIGS. 7 and 8 as discussed hereinbefore with respect to the device shown in FIGS. 4–6.

In the embodiment shown in FIGS. 9–10, and elongate push-pull member 20 has a handle portion 21 at one end thereof and is pivotally attached at its other end to a connecting rod 32 for pivotal movement about a vertical axis through connecting rod 32. As shown, a portion of rod 32 is journaled in a journal bearing positioned in the end portion of push-pull member 20. The connecting rod 32 has an eye 32*a* at one end thereof, and a ring member 33 connects the eye 32*a* with an eye in the end of lever arm 16.

The push-pull member 20 is supported by a supporting guide means comprising an elongate, flat bar 34 having opposite upstanding ends 34*a* which are attached to lintel 12 so that the bar 34 is parallel to the face of the fireplace and spaced from the lintel by a distance equal to the height of the upstanding ends 34*a*. The flat bar 34 is also positioned such that one of its upstanding ends 34*a* and a portion of the bar adjoining the upstanding end forms a trackway, guideway, or slideway through which the push-pull member 20 is guided in generally rectilinear motion in a direction toward and away from the fireplace.

In opening the fireplace damper 14 with the device shown in FIGS. 9 and 10, the handle portion 21 of push-pull member 20 is pulled in a direction away from the fireplace, thereby moving lever arm 15 towards the front of the fireplace to open damper 14. The push-pull member 20 is then rotated about the axis through the journeled portion of connecting rod 32 and slid along bar 34 until the handle portion 21 is adjacent to the face of the fireplace as shown in phantom in FIG. 10. In closing the fireplace damper, push-pull member 20 is rotated until it is in alignment with the guideway and is then guided through the guideway in generally rectilinear motion towards the fireplace until it is in the position shown in FIG. 9.

The position of the fireplace damper 14, i.e., whether open or closed, is visually indicated by the position of

the handle portion of push-pull member **20**. A mark indicating that the damper **14** is open can be placed on the face of the fireplace in the vicinity of where the handle portion **21** of push-pull member **20** approaches in the final step of opening the damper **14** with the device of this invention. A corresponding mark indicating that the damper **14** is closed can be placed on the face of the fireplace in the vicinity of where the handle portion **21** resides when the fireplace damper is closed. With the embodiments shown in FIGS. **1-3** and FIGS. **9-10**, the damper **14** can be partially opened and the push-pull member still rotated until the handle portion **21** is adjacent to the face of the fireplace. Marks indicating the degree of open, i.e., ¼, ½, ¾, etc, can be placed on the face of the fireplace in the vicinity of where the handle portion **21** of push-pull member **20** resides when the damper is in the indicated position. With the embodiments shown in FIGS. **4-8**, the fireplace damper **14** must be in its fully open position before the push-pull member **20** can be rotated, and thus, these embodiments indicate only two positions of the damper **14**, i.e., either fully opened or closed.

What I claim is:

1. A device by which the lever arm of a fireplace damper can be operated from outside the fireplace and which also provides a visual indication of the position of the fireplace damper, said device comprising an elongate push-pull member; connecting means for connecting one end portion of said push-pull member to the end of the lever arm of the fireplace damper, said connecting means being adapted so that the push-pull member can pivot around the end of said lever arm about a substantially vertical axis and so that said lever arm can pivot around said one end of the push-pull member about a substantially horizontal axis when the device is installed in a fireplace; and supporting guide means comprising an elongate bar which is adpated for attachment to the fireplace substantially parallel with the lintel of the fireplace, said push-pull member being supported by said elongate bar so that the free end thereof extends from the fireplace with said push-pull member being guided by said elongate bar through a generally rectilinear movement toward and away from the fireplace in a direction generally transverse of said elongate bar, as well as through a pivotal movement about the end thereof which is pivotally connected to said lever arm, whereby said fireplace damper can be opened by grasping the free end of the push-pull member, pulling it in a direction away from the fireplace so that said push-pull member moves in a generally rectilinear motion in a direction generally transverse of said elongate bar, thereby moving the lever arm of said fireplace towards the front of the fireplace which in turn opens said damper, the push-pull member is then rotated in a generally horizontal plane about the end thereof which is pivotally attached to said lever arm, until the free end thereof is brought adjacent to the face of the fireplace, and whereby said fireplace damper can be closed by grasping the free end of the push-pull member, rotating the push-pull member until it is generally in alignment with said lever arm, and pushing the push-pull member in a generally rectilinear motion toward the fireplace in a direction generally transverse of said elongate bar, thereby moving the lever arm of said fireplace towards the back of the fireplace which in turn closes said damper.

2. A device in accordance with claim **1**, including guide means comprising two parallel, spaced apart rails extending transversely of the face of the fireplace with said one end portion of the push-pull member being connected to said lever arm by connecting means which extend through the space between the parallel rails.

3. A device in accordance with claim **1**, wherein the bar is flat with opposite upstanding ends which are adapted to be attached to the lintel of the fireplace so that the elongate bar is parallel with the face of the fireplace and spaced from the lintel by a distance equal to the height of the upstanding ends, whereby the elongate bar and one of the upstanding ends provides a trackway through which the push-pull member is guided in its rectilinear movement toward and away from the fireplace.

* * * * *