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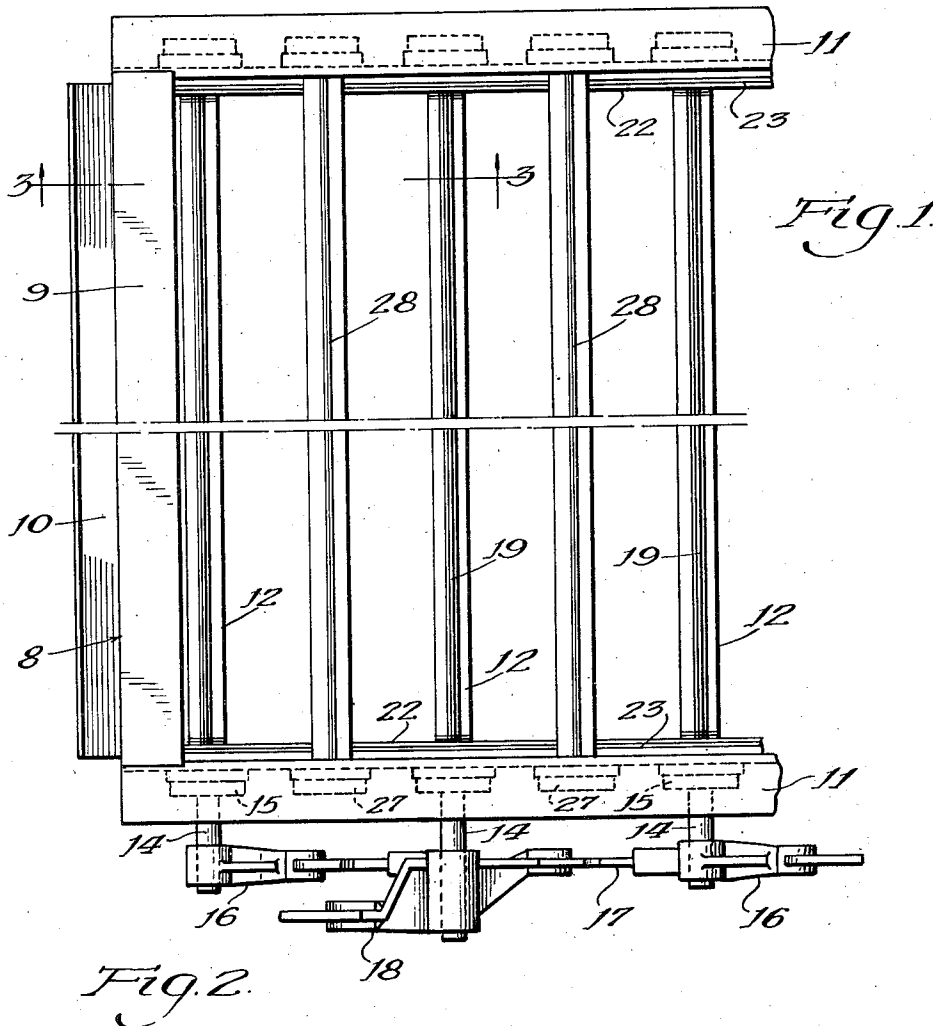
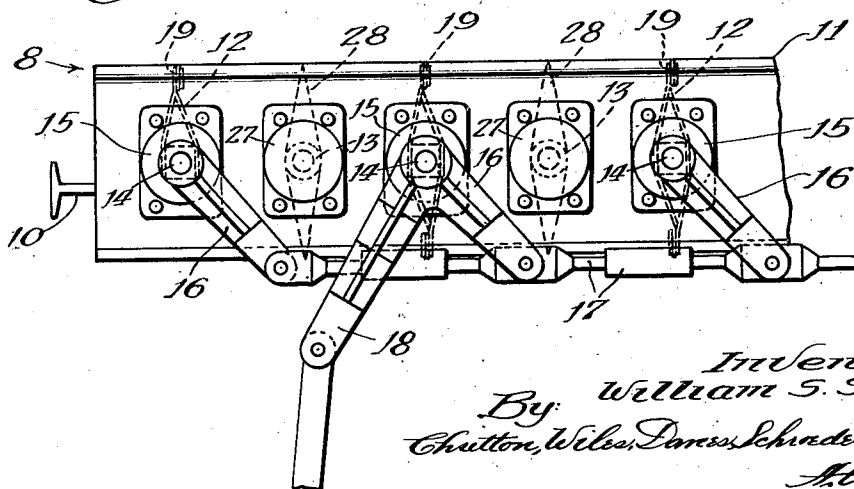
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2,390,227.

DAMPER CONSTRUCTION

Filed July 31, 1944

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

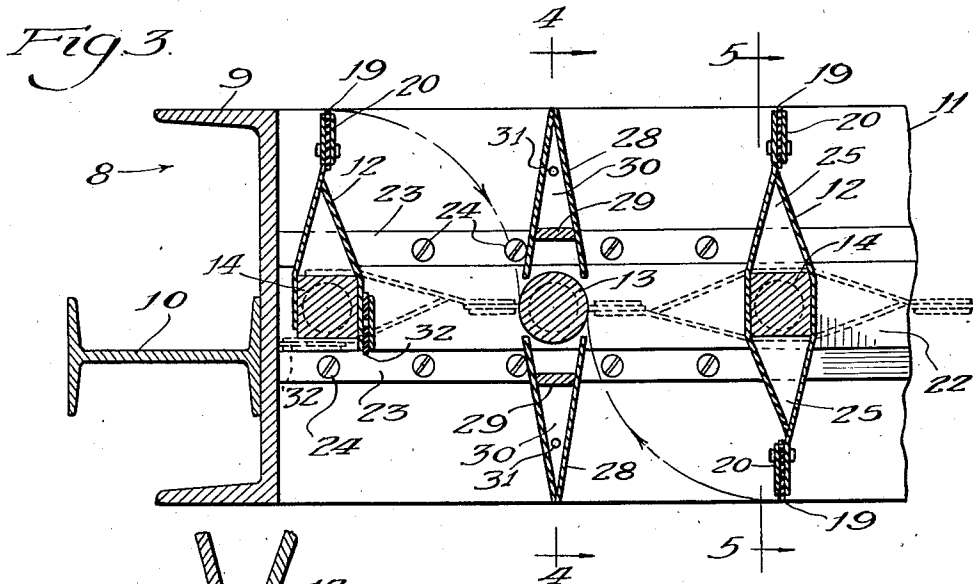
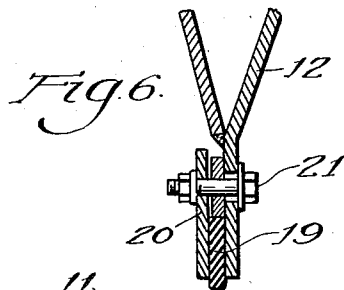
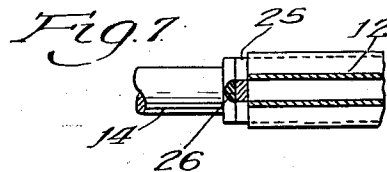
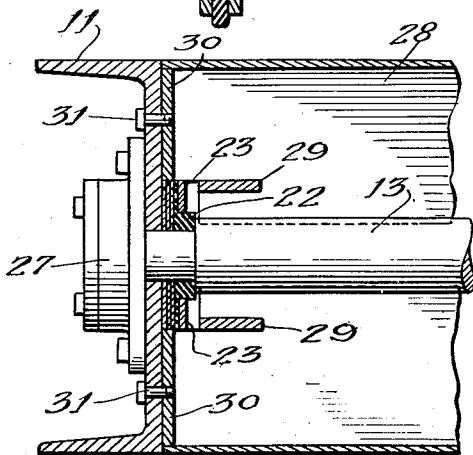
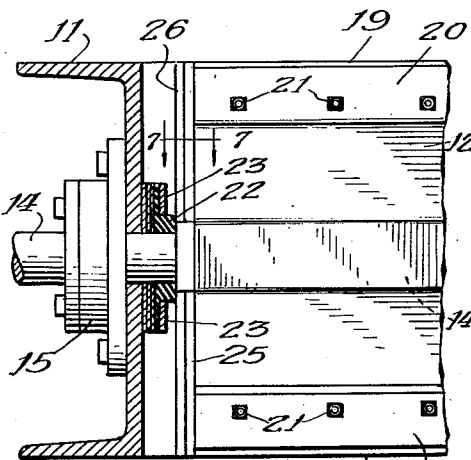


Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE

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DAMPER CONSTRUCTION

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9 Claims. (Cl. 98—110)

This invention relates to damper construction and more particularly to a construction in which a series of parallel louver blades are turned simultaneously, in the same direction, from open to closed position.

The primary object of the present invention is to provide an improved damper construction which will be easy to operate, offer little resistance to the flow of air in the open position, and be substantially air-tight when in closed position.

The construction is particularly adapted to large installations, such as wind tunnels, aircraft testing structures and the like, where the opening is sometimes about eight feet long and the louver blade six feet in length. With such large installations, the edges of the blade usually make a friction contact with a stationary part of the structure when in closed position, and considerable force is required to overcome this friction when it is necessary to open the damper. An important feature of the present invention is the use of rollers between pairs of adjacent blades which facilitate making a tight closed connection with the flexible edges of the blades.

Another object of the invention is to provide an improved yielding contact between the ends of the blades and the frame when in closed position.

The invention is illustrated in a preferred embodiment in the accompanying drawings in which—

Figure 1 is a fragmentary elevational view of a damper construction, embodying the invention, in open position; Fig. 2, an end elevational view of the actuating mechanism for the blades; Fig. 3, a fragmentary sectional view taken at line 3—3 of Fig. 1; Fig. 4 a fragmentary sectional view taken as indicated at line 4—4 of Fig. 3; Fig. 5, a fragmentary sectional view taken as indicated at line 5—5 of Fig. 3; Fig. 6 an enlarged fragmentary sectional view of a portion of one of the blades; and Fig. 7, a fragmentary sectional view taken as indicated at line 7—7 of Fig. 5.

In the embodiment illustrated, a frame 8 may be formed of vertical channel members 9 reinforced by an I-beam 10, and joined by channel members 11 in which louver blades 12 and rollers 13 are journaled.

Each of the louver blades has a square shaft 14, which extends through a bearing 15 and is provided with a crank 16, connected to an adjustable actuating bar 17, which is driven by crank arm 18 from a source of power not shown. The actuating bar 17 serves to rotate each of the

louver blades simultaneously in the same direction. As shown in Fig. 6, the louver blades are provided at their edge portions with a strip of yielding material such as rubber or fabric 19, which is clamped in place by means of a plate 20 and bolts 21.

The channel members 11 at the top and bottom of the structure also are provided with a strip of rubber or canvas 22, whose edge portions are clamped by strips 23 held by screws 24. The ends of the louver blades are closed by triangular pieces of metal 25, which are welded to the blades and support a strip of half-round metal 26, which turns against the strip 22 when in closed position, and makes a substantially airtight connection.

As shown in Figs. 3 and 4, the rollers 13 are provided at each end with bearings 27, so as to turn easily when brushed on opposite sides by the louver blades 12. The rollers are provided on opposite sides with deflectors 28, which are reinforced by crossbars 29, and are closed at their ends by triangular strips 30, which are bolted to the channel 11 as indicated at 31.

It will be understood that at each end of the frame a mutilated louver blade must be provided. As shown in Fig. 3, this blade is the same as the blades 12, except that one leg of the blade is cut away and a rubber sealing strip 32 is secured near the center of the blade to engage the channel 9 when the blade is in closed position, as indicated by the dotted line in Fig. 3.

As will be clear from Fig. 3, when the louver blades are turned from the open position illustrated to the closed position, indicated by dotted lines, the yielding edge of one blade brushes one side of the roller while the yielding edge of the adjacent blade brushes the roller at a diametrically opposed line, and both blades tend to rotate the roller counter-clockwise, as viewed in Fig. 3. In opening the louvers the roller again facilitates movement. It will be understood that the blades may be turned readily from closed position to full open position, or any desired intermediate position.

The foregoing detailed description is given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, for some modifications will be obvious to those skilled in the art.

I claim:

1. In a damper construction: a frame, a pair of parallel louver blades spaced apart at least the width of a blade and journaled in said frame and provided at their edge portions with flexible

contact material, and a roller journaled in said frame between said blades to rotate slightly when the blades are turned to closed position, at which time the flexible edges of the blades contact the roller.

2. A structure as specified in claim 1, in which means is provided for oscillating the blades in the same direction simultaneously, and a stationary wind deflector is provided for the roller.

3. In a damper construction: a frame, a plurality of oscillatable parallel louver blades spaced apart between their centers of rotation a distance somewhat greater than the width of a blade and journaled in said frame, means for oscillating said blades simultaneously in the same direction, and rollers journaled in said frame between adjacent pairs of blades to be engaged at diametrically opposed lines by the edges of adjacent blades and turn therewith when the blades are turned to closed position.

4. Apparatus as specified in claim 3, in which the lateral edge portions of the blades are faced with flexible material, and the end portions of said blades make a yielding contact with the frame.

5. Apparatus as specified in claim 3, in which the rollers are provided with stationary wind de-

flectors, and the blades are tapered towards a widened axis portion to reduce wind resistance when in open position.

6. In a damper construction: a frame; a plurality of oscillatable louver blades journaled in the frame for selectively swinging to closed and open position, each adjacent pair of said blades being spaced apart a distance such that when their adjacent edges are nearest together they will have a space therebetween; and a roller in each of said spaces, said adjacent edges of the blades when in their nearest together position contacting the roller therebetween.

7. Damper construction as claimed in claim 6, in which each of said rollers is provided with a stationary wind deflector.

8. Damper construction as claimed in claim 6, in which each of the blade edges that contacts a roller has secured thereto flexible material to make a tight closed connection with the roller when in contact therewith.

9. Damper construction as claimed in claim 6, in which each of said rollers rotates slightly as the adjacent blade edges approach and recede from their nearest together position.

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