

June 20, 1950

R. CALMY
FIRE SCREEN

2,512,480

Filed March 10, 1947

2 Sheets-Sheet 1

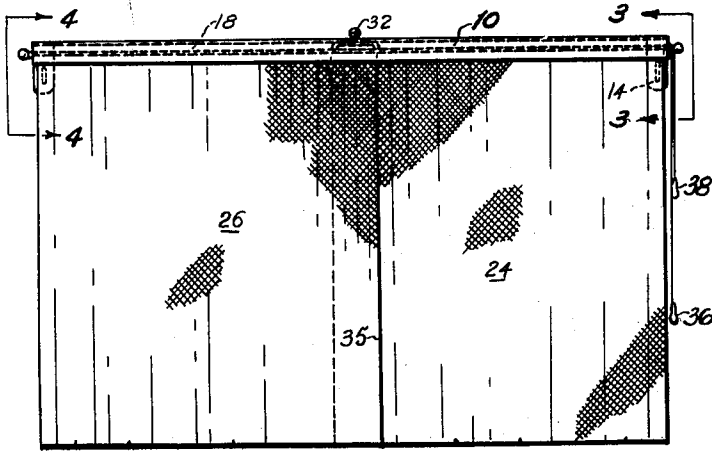


Fig. 1

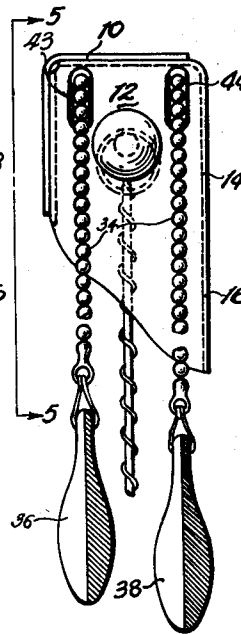


Fig. 3

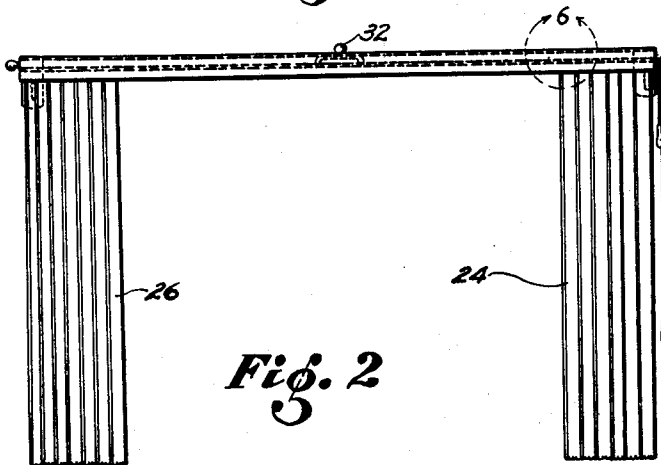


Fig. 2

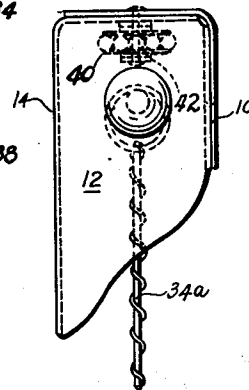


Fig. 4

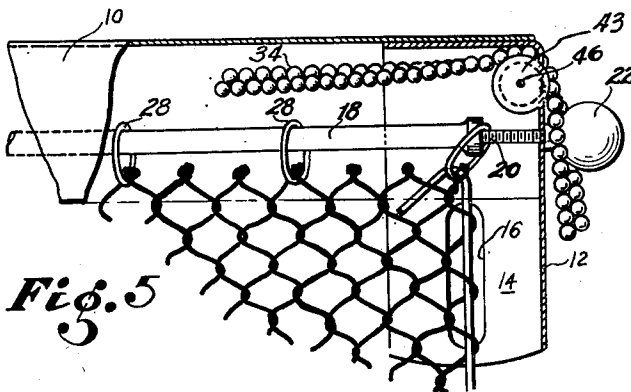


Fig. 5

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2 Sheets-Sheet 2

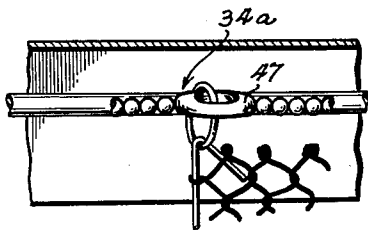


Fig. 6

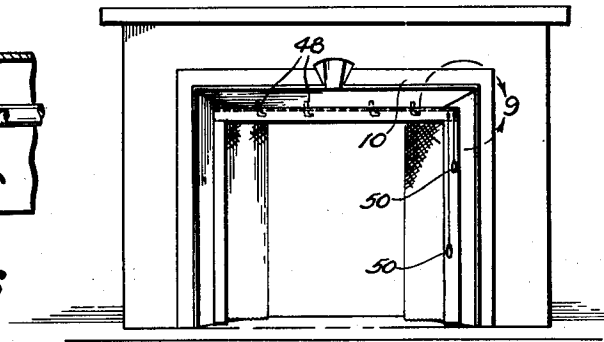


Fig. 7

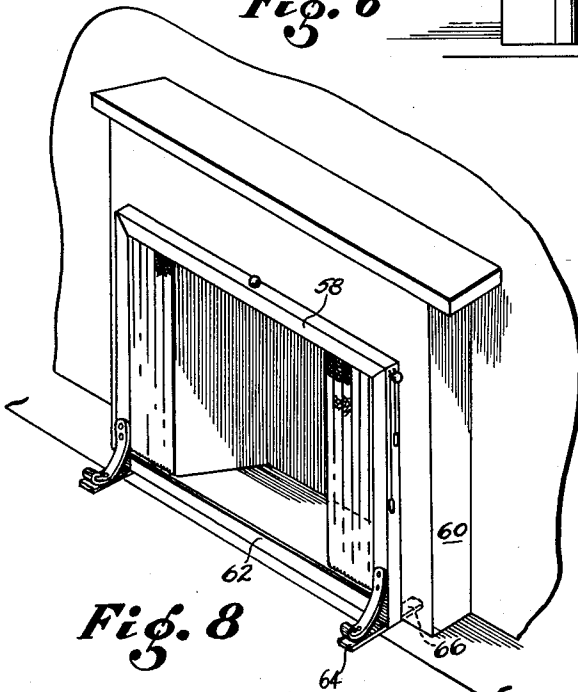


Fig. 8

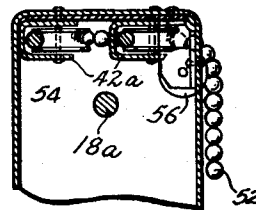


Fig. 10

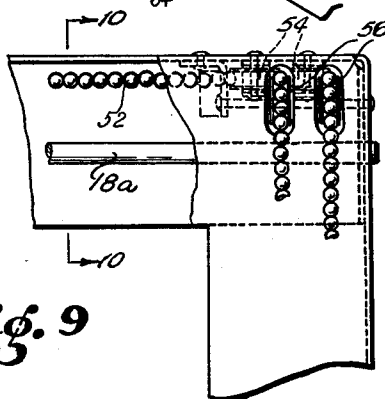


Fig. 9

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FIRE SCREEN

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2 Claims. (Cl. 160-344)

1

2

My invention relates to articles known as "fire screens" of the metal mesh type. Such screens are commonly made of metal mesh mounted on a light frame which may be placed in front of an open fireplace to prevent sparks or small embers from the fire from jumping onto the floor or carpet in front of the fireplace and causing damage.

A later form of fire screen having various advantages over the folding screen type is coming into use; in this later type the screen is in the form of a pair of metal mesh curtains or drapes hung on a supporting frame usually fixed across the top of the fireplace.

While smarter in appearance and in some ways more convenient to use, this screen has hitherto had some disadvantages; for instance, it has been necessary, when the screen was too hot to operate it by hand, to use some article such as a poker, to open the screen and since the proper draping of the screen required careful handling of the screen the attempt to manipulate it with a poker not only dented but finally might tear the metal mesh and ruin the appearance of the screen.

It is an object of the invention, therefore, to provide a fire screen of the drape type having means whereby the drapes may be opened and closed mechanically.

It is another object of the invention to provide mechanical means for operating a fire screen of the drape type which will be effective to move the drapes in a manner to maintain an even spacing or draping of the wire mesh.

It is a still further object of the invention to provide means for mechanically operating a fire screen of the type described which means cannot become unduly hot, and while very effective and easy to operate, are simple and unobtrusive.

It is another object of the invention to provide in a fire screen structure of the kind having a pair of curtain-like screens of metal mesh, operating means effective to open and close both the screens simultaneously.

Yet another object of the invention is to provide, in a fire screen structure of the kind having a pair of curtain-like screens of metal mesh, operating means including a length of chain and pulley means for guiding said chain which are so arranged that seizing of the pulleys cannot occur and the friction of the operating means is very low.

In the drawings:

Fig. 1 is a front elevation of the fire screen of my invention with the curtains in closed po-

sition, the texture of the woven wire material being indicated conventionally by mesh.

Fig. 2 is a front elevation of the fire screen with the curtains of my invention in open position.

Fig. 3 is a fragmentary detail looking in the direction of the arrows 3-3 in Fig. 1, and drawn to a larger scale.

Fig. 4 is a fragmentary detail looking in the direction of the arrows 4-4 in Fig. 1.

Fig. 5 is a fragmentary detail showing the construction of the screen at the upper left hand corner, with parts broken away.

Fig. 6 is a fragmentary detail partly in section and drawn to a larger scale showing the manner of attaching operating means to the fireguard curtains, the parts being located within the circle 6 shown in Fig. 1.

Fig. 7 is a front elevation of a modified form of the invention in which the fire screen frame is fitted into the hearth opening.

Fig. 8 is a perspective view of still another form of the invention showing a fire screen generally similar to that shown in Fig. 1, but arranged to be a separate and removable unit.

Fig. 9 is a fragmentary detail partly in section and to a larger scale showing the arrangement of the operating means for the fire screen curtain at the location indicated by circle 9 in Fig. 7.

Fig. 10 is a fragmentary section on the line 10-10 in Fig. 9.

In the drawings, the numeral 10 indicates a length of angle section supporting member which may be made of sheet steel or brass; at each end a piece of sheet material is folded to form a short lateral wall 12 and a short back wall or bracket 14 provided with a slot 16, the supporting member 10 being thus boxed in at its ends by the end pieces which may be secured to the angle member 10 in any suitable manner, as for instance by spot welding them thereto.

The supporting member may be secured in place across the top of a fireplace by screws passing through slots 16 into the brickwork of the fireplace and held therein in a known manner.

A metal "curtain rod" 18 is supported at each end in the lateral walls 12, as shown in Fig. 5, by a threaded stem 20 projecting from each end of the rod passing through a hole and secured by a threaded knob 22.

The curtains 24 and 26 are suspended from the rod by means of rings 28 engaging with every fourth link of the interwoven wire mesh. It is pointed out that the mesh is so formed, as shown in Fig. 5, that the material may be readily gath-

3

ered together in moving to the open position or spread out in moving to the closed position. It is desirable to provide that the curtains overlap and to provide for this the curtain rod is bent to define a double loop so that the outer edges of the curtains may move beyond each other in the closed position.

The center of the rod 18 is supported by a threaded stem secured to the rod and projecting upwardly through a hole in the horizontal flange of the angle material of the frame and secured by a ball 32 having a screw threaded hole therein and screwed onto the stem.

The curtains are preferably of considerably greater width than the fireplace so that they may drape gracefully and to maintain the desired draped effect it is necessary that the means for opening and closing the curtains should act to move them evenly, without jerkiness and with a sweeping movement.

The means for moving the curtains preferably comprises a length of ball chain 34 arranged in a double run, one run being connected by a free swivelling connection to the outer end of one curtain and the other run by a similar connection to the outer end of the other curtain. The outer edges of the curtains are preferably provided with depending rods 35 suspended from the outermost ring 28 of each curtain and passing downwardly through the vertical edge links of each curtain; the weight of these rods aids in maintaining an even forward or back sweep of the curtain material.

The ends of the ball chain are provided with pulls 36, 38 of appreciable weight, for instance, three ounces, and keep the length of chain under sufficient tension with the aid of free running guide pulleys, later described, to hold the chain out of sight behind the vertical flange of the supporting member.

The guide pulleys comprise a horizontally arranged guide pulley 40 having a relatively large diameter and a semi-circular groove in its periphery having a diameter substantially equal to that of the balls of the chain. The chain pulley 40 is mounted between the arms of a guide piece 42 effective to hold the chain in the pulley groove.

At the operating end of the chain two bronze pulleys 43 and 44 are mounted to turn freely on a steel shaft 46 extending across the end of the supporting member. The pulley and shaft may, of course, be of any materials such that the shaft will not bind in the pulley due to expansion when heated. The pulleys are positioned on the shaft by projecting into slots cut in the vertical wall 12 at the end of the supporting member. The groove in the pulleys is of the same diameter of that of the balls of the chain.

The pulls 36 and 38 may be connected to the chain by the usual form of ball chain connector, and the connection of the chain to the two rings 28 at the inner edges of the curtain screens may be made by the use of connectors 47 drilled with a transverse hole as shown in Fig. 6, through which rings sliding on rod 18 and supporting depending rods 35 are passed. This construction ensures that no binding of the innermost rings 28 due to the pull of the chains, can occur.

The described arrangement of actuating means offers very little friction and insures that a relatively light pull on the operating handle results in a swift sweeping movement of the mesh curtains, which may weigh from seven to eleven pounds each, which even movement in turn in-

4

suers that the material drapes in even folds in either closed or open position.

In the form of the invention shown in Fig. 7, the supporting member is fitted into the fireplace opening and secured in place by fastenings 48 passing upwardly through the top flange of the angle material supporting member into the roof of the fireplace. In the embodiment of Fig. 7, the curtain rod may be retained in position by the engagement of its ends in holes in the closed ends of the supporting member and the engagement of a centrally located stud in a hole in the top flange of the angle shaped support member. The curtain rod may be readily inserted into or removed from position by bowing the rod downwardly to bring the stud out of engagement with the hole and the rod, then slid longitudinally to engage or disengage first one end and then the other from the holes in the closed ends of the support member.

The pulls 50, as shown in Fig. 7, hang to the front of the screen at one or the other end thereof. In order to turn the ball chain 52 to extend at right angles to the run of the chain along the support member, I arrange guide pulleys 54 and brackets of the type described with reference to Fig. 3 arranged in any suitable mounting arrangement to direct the chains onto the front pulleys 56 over which the ball chains extend to the pulls as previously described.

In Fig. 8, a form of the fire curtain screen construction of my invention is shown arranged as a self-supporting unit which may be placed in front of a fireplace when needed and at other times removed and stored. In this form of the invention, the supporting member 60 is supported by vertical side members 62 connected by a bottom tie or connecting member 64. The screen supporting and operating means may be identical to those previously described with reference to Fig. 1.

The side members 62 may be provided with forwardly projecting footings 64 of any suitable construction and preferably the footings are carried rearwardly as shown at 66 to fit snugly into the fireplace opening.

While I have described and illustrated embodiments of the invention at present deemed preferable by me it is to be understood that various changes and modifications therein may be made by those skilled in the art without departing from the scope of the invention as intended to be defined by the appended claims.

I claim:

1. A fire screen having a pair of curtainlike screens of metal mesh suspended for straight line sliding movement on a rigid bar extending across the top of a fireplace, comprising: a frame structure having vertical members positioned against the face of the wall outside the fireplace and supporting the bar extending across the top of the fireplace; curtain suspending rings connected at spaced points to the curtains throughout the suspended length thereof, and mounted for free sliding movement on the bar so that all of the curtain may be gathered in folds at the sides of the fireplace when in open position; a length of ball chain secured intermediate its ends to the top of the inward edges of each curtain; a pair of handles secured to the ends of said length of ball chain, and of sufficient weight to hold the chain in taut condition; and guide pulleys grooved to fit the diameter of the balls of the chain and of a diameter to engage with several of said balls at all times and directing the chain from behind

through openings in the side frame members to support the handles outside of the frame members and protect the handles from the heat of the fire.

2. A fire screen as set forth in claim 1 and in addition comprising members connected in the length of flexible fireproof material and formed with holes through which the curtain hanging means secured to the inner edges of the curtains are engaged, the connection between the length of flexible fireproof material and the curtains being effective to prevent binding of the hanging means on the bar.

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