March 7, 1967 J. A. FREITAS, JR., ETAL 3,307,337

SPARK ARRESTOR

Filed April 21, 1965

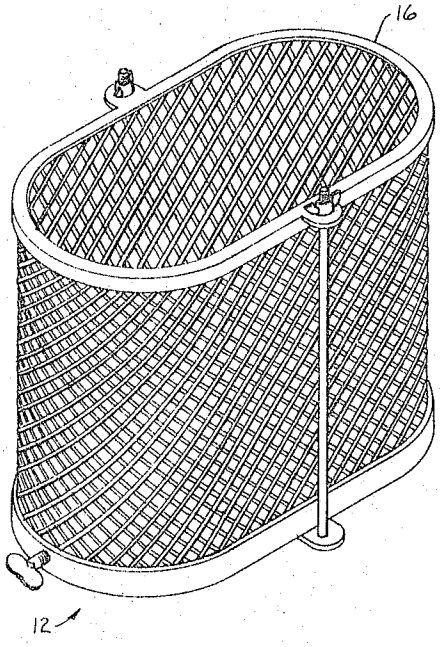


Fig. 1

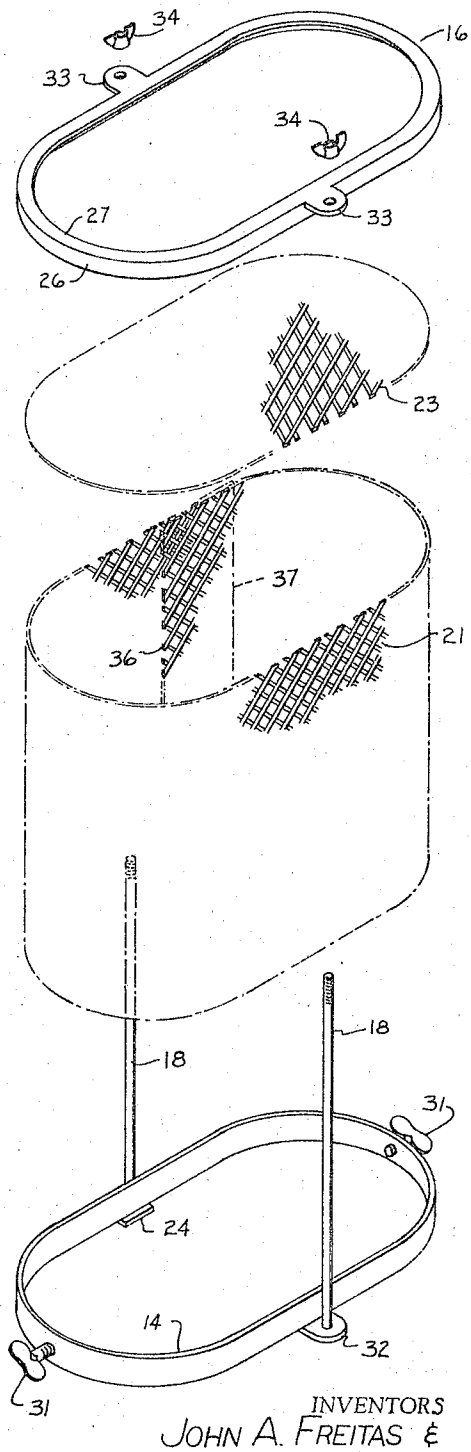


Fig. 2

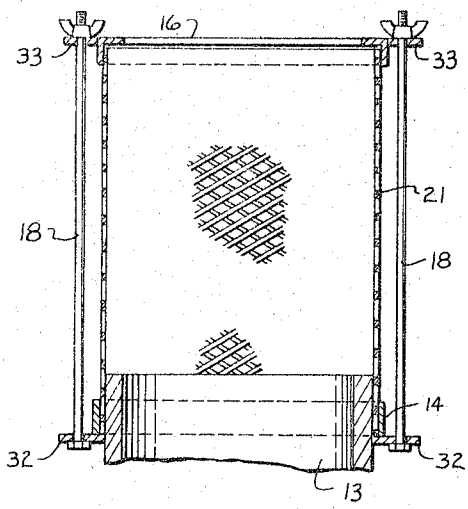


Fig. 3

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SPARK ARRESTOR

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This invention generally relates to spark arrestors for prevention against burning debris or the like from leaving a flue or chimney structure, and is more particularly directed towards a spark arrestor particularly adapted for household chimneys.

In connection with residential construction, most chimneys provided therein are provided with an inner flue which extends upwardly through the roof of the residence and extends above the roof line. Frequently, such flues are constructed of terra-cotta and may be of elliptical or rectangular cross-sectional form. In most instances, no provision is made for preventing burning embers from a fireplace from rising upwardly with the draft of the chimney and falling to the ground whereby the danger of fire may exist. One of the difficulties encountered in connection with conventional spark arrestors is that they are usually not of a sufficient size or configuration to be adapted for convenient mounting on a fireplace flue. However, even if a conventional type of arrestor is installed on a fireplace flue, after a period of use it will usually become burnt out or otherwise rendered ineffective, and yet it is too difficult and/or too costly to replace.

It is, accordingly, an object of the present invention to provide a spark arrestor for a chimney flue element in which means are provided for readily attaching the arrestor to and removing such arrestor from the flue without requiring any special tools or fastening elements.

Another object of the invention is to provide a spark arrestor as above described which may be readily disassembled or knocked down so as to facilitate replacement of the screen members therefrom, while the longer lasting frame or screen-support members may be reused.

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 the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawing:

FIGURE 1 is a perspective view of the spark arrestor of the present invention in assembled condition.

FIGURE 2 is an exploded perspective view of the arrestor.

FIGURE 3 is a side cross-sectional view showing the mounting of the arrestor on a chimney flue.

As hereinabove explained, the spark arrestor of the present invention which is generally designated by the numeral **12** in the drawing, is adapted for releasable attachment onto and adjacent the upper portion of a chimney flue **13**. Such flue as is well known, may be of rectangular shape, but is herein illustrated of elliptical cross-sectional form. Consequently, the spark arrestor presently to be described assumes such an elliptical configuration, but it should be understood that in the event the flue is rectangular, the arrestor **12** will be of corresponding shape.

As here illustrated, the apparatus of our invention generally includes a lower frame member **14** adapted to encompass the flue element in telescoping relationship

therewith, an upper frame member **16**, and suitable means such as long bolts **18** or rods maintaining the frame members in vertically superimposed and spaced relationship. The upper frame member **16** will normally be positioned above the top of flue **13**.

Extending vertically between the frame members **14** and **16** is a screen **21**, which is sufficiently tall or high and which is provided with sufficient openings so as to not inhibit the free flow of gas rising from the chimney therethrough. If desired, the upper frame member **16** could be provided with a solid top cover or plate, but since the hot products of combustion tend to rise upwardly, it is preferred that the cover member **23** be likewise made of an open mesh or screen material and as here shown is sufficiently sized to fit over the sidewall screen.

The lower frame **14** may be simply formed of strap material, and in order to maintain the side screen **21** in proper position relative thereto, such frame is provided with opposed inwardly spaced projections **24** at the bottom edge of the strap and on which the lower edge of the screen may be supported, such screen being telescopically inserted within the frame. Also, if desired, suitable fasteners could extend through apertures in the frame **14** and pass through the screen for releasable attachment of the screen to the frame.

Regarding the attachment of the upper edge of the screen to the upper frame **16**, the latter is preferably constructed of angular cross-sectional form, having a continuous vertical flange **26** and an inwardly extending horizontal web **27** at the upper edge of the flange. The upper edge of screen **21** is thus inserted against the inner edge of flange **26**, and likewise engages the lower surface of web **27**. The cover screen **23** is placed over the upper edge of side screen **21** before upper frame **16** is installed so that both screens are effectively locked in place by the insertion of the frame.

In order to fasten the lower frame **14** to the flue **13**, we have provided opposed apertures in the frame through which screw members extend **31**, and by merely tightening up on the screws the same will be brought into firm engagement with the exterior portions of the flue and thereby releasably attach the spark arrestor to the flue. The screws will pass through the adjacent portions of the screen **21**, but will in no way interfere with the spark arresting characteristics of the screen.

It will also be noted that the frame members **14** and **16** are each provided with outwardly extending apertured lugs **32** and **33** respectively and on opposite sides thereof. Lugs **32** and **33** are in aligned relationship with each other, so that by means of the vertically extending bolts **18** extending through the lug apertures, and nuts **34**, the top frame may be releasably secured in spaced relation to the bottom frame and likewise retain the cover screen **23** and side screen **21** in position therebetween.

Should the top screen or cover **23** burn out or otherwise become damaged, it is only necessary to release the bolts, remove the top frame **16**, and thereby permit removal of the cover. In the same manner, it is possible to remove the side screen **21** with the top frame removed should the side screen be damaged.

It should be pointed out that it is not necessary to cut the side screen to exact size since it is possible to overlap the ends **36**, **37** thereof before inserting the same into the frame **14**. The cover screen must, of course, be more accurately cut.

What is claimed is:

1. A spark arrestor comprising a lower horizontal frame member formed of a substantially continuous length of strap-like material, said lower frame member having its width vertically disposed and adapted to encompass a

flue element, means including a screw threaded actuator mounted on said lower frame member for releasably clamping said lower frame member to said flue element, screen supporting elements extending inwardly from the inner wall of said lower frame member, a tubular screen constituted by a sheet of screening folded over on itself in overlapping engagement having the lower edge thereof telescopically received within said lower frame member and supported on said elements, said screen being substantially continuous and extending upwardly from the upper edge of said lower frame member with the inner wall of the screen defining an unobstructed chamber coextensive with said lower frame member, said lower frame member constituting means for determining the amount of overlap of and the peripheral shape of the lower edge portion of said tubular screen, a horizontally disposed substantially planar cover screen overlying and closing the upper end of said tubular screen, means securing said cover screen to, determining the amount of overlap of and determining the peripheral shape of the upper edge portion of said tubular screen including an annular strap telescopically receiving the upper edge of said tubular screen within said strap and having inwardly projecting flange means engaging the upper edge of said tubular screen for maintaining said cover screen in position over said tubular screen.

2. The spark arrestor according to claim 1, wherein said screw threaded actuator is a set screw threaded into said lower frame member for inward movement, said annular strap is substantially solid and has an angle bar configuration throughout its periphery, said annular strap and said lower frame member each having a plurality of outwardly projecting apertured lugs arranged in aligned vertical pairs, and including a bolt extending through and clamping together the lugs of each aligned pair.

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