

(19) **DANMARK**

(10)

DK 180557 B1



(12)

PATENTSKRIFT

Patent- og
Varemærkestyrelsen

- (51) Int.Cl.: **F16L 5/04 (2006.01)** **F16L 23/032 (2006.01)**
- (21) Ansøgningsnummer: **PA 2020 00600**
- (22) Indleveringsdato: **2020-05-18**
- (24) Løbedag: **2020-05-18**
- (41) Alm. tilgængelig: **2021-06-17**
- (45) Patentets meddelelse bkg. og publiceret den: **2021-06-17**
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- (54) Titel: **FLANGE MEMBER FOR VENTILATION DUCTS**
- (56) Fremdragne publikationer:
JP 2009112138 A
JP H11223014 A
KR 101868754 B1
KR 20110098448 A
- (57) Sammendrag:
A flange member (100) for protect a ventilation duct (110) from breaking through a wall (112) is disclosed. The flange member (100) is configured to protect the ventilation duct (110) from breaking or puncturing and extend through the wall (112), thereby preventing the spread of smoke and fire in various rooms in a building or a house when a fire accident happened. The flange member (100) comprises a first member (102) and a second member (106). the first member (102) and the second member 106) having one or more brackets (104 and 108), respectively. the first member (102) and the second member (106) are configured to securely connect each other at both end portions using one or more fasteners to form the flange member (100) and enable a user to simply affix to the wall (112) and the ventilation duct (110) using one or more fasteners.

Fortsættes...

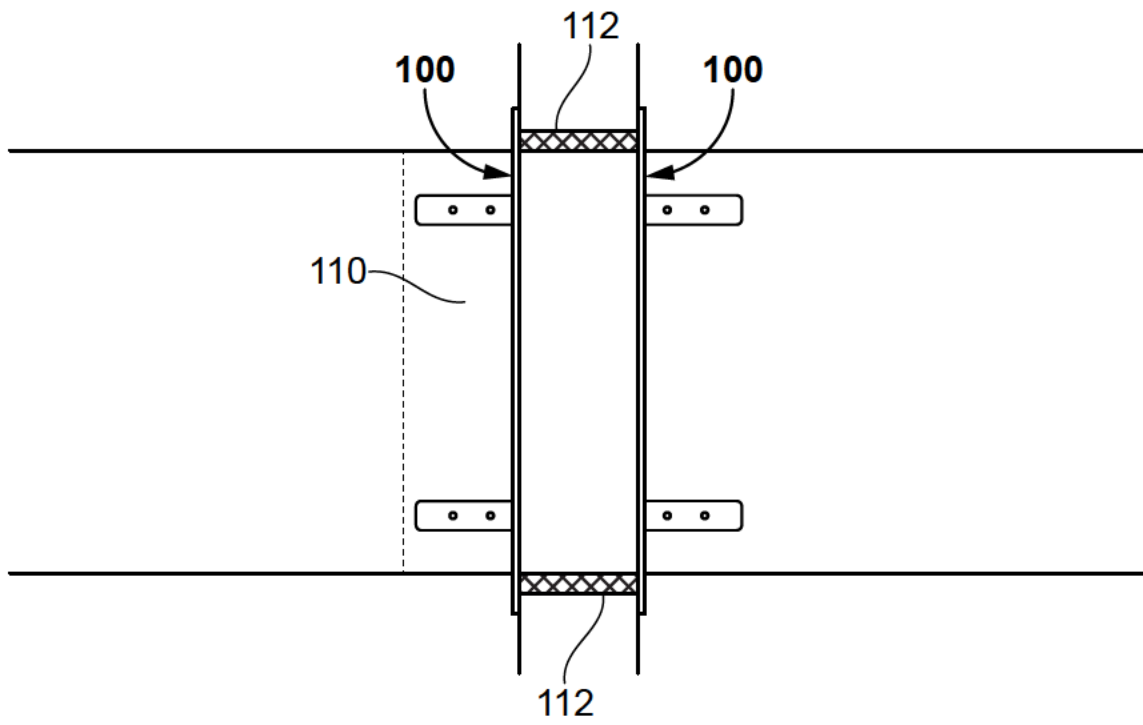


FIG. 1

FLANGE MEMBER FOR VENTILATION DUCTS

TECHNICAL FIELD OF THE INVENTION

5 The invention disclosed herein generally relates to a ventilation duct and a flange member. More particularly, the present invention relates to a wall flange for preventing the ventilation ducts from punctures or breaks and expands through a wall, thereby effectively preventing the spread of smoke and fire from one room to another.

10 BACKGROUND

 Various structures are provided with a vent pipe system or a duct system, which is a collection of tubes that distributes the air to the various rooms. The vent pipe system or duct system leads from inside the structure to terminate at a point outside an external
15 surface of the structure for ventilation purposes. Ventilation refers to the exchange of indoor and outdoor air. For example, every building or house with indoor plumbing has a vent component that allows atmospheric air to enter into various rooms. Without proper ventilation, gases from combustion appliances, like stoves and fireplaces, could accumulate in a poorly ventilated house/building and threaten people's health and safety.

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 Generally, ventilation ducts are normally fabricated from thin galvanized sheet steel in the form of rectangular or circular duct sections of predetermined length. Said duct sections are assembled into channels of any desired length by connecting together via flange members. Experience over time, however, has shown that especially the
25 collections in the ventilation duct system have been vulnerable and contributed to fire spread. It has also been found that in case of fire, due to the large heat development, very large stresses/tensions arise in the pipe installation itself, which makes it fall off both horizontally and vertically, depending on the location.

The ventilation ducts provide possible routes for smoke spread between adjacent rooms in case of a compartment fire. When a ventilation duct goes from one room to another, it happens by breaking through a wall. It is through this breakthrough that the danger arises in fire situations, as fire and smoke could then spread from one room to another. In addition, a certified fire sealant is therefore used to eliminate the spreading of fire and smoke from one room to another. The problem then arises when the duct (channel) system begins to fall off or extend, which could destroy the fire sealing, thereby spreading fire and smoke between the rooms in a building or house.

10 A prior art, JP 2009112138 A of *Furukawa Techno Mat Co Ltd.*, discloses a fireproofing member provided with: plastic half cylindrical members combined in a cylindrical shape; thermal expansible fire resistant material sheets fitted to inner peripheries of the half cylindrical members, and metallic half flange members each of which is fitted to one end side in an axial direction of the half cylindrical member and is combined in a flange shape. Another prior art, JP H11223014 A of *Inaba Denki Sangyo*, discloses a filter bearing device constituted of a locking member capable of being locked with the circumference of an opening of an through hole in order to close the through hole by filling the circumferences of various kinds of piping inserted into the through hole of a structural body with a filler. However, above-mentioned prior arts fail to disclose one or more brackets of the first member and the second member are secured to the ventilation duct using one or more fasteners.

In the light of above-mentioned problems, there is a need for a wall flange for preventing the ventilation ducts from punctures and breaks through a wall, thereby effectively preventing the spread of smoke and fire from one room to another.

SUMMARY OF THE INVENTION

This summary is provided to introduce a selection of concepts in a simplified form that is further disclosed in the detailed description of the invention. This summary is not intended to identify key or essential inventive concepts of the claimed subject matter, nor is it intended for determining the scope of the claimed subject matter.

The present invention discloses a flange member for ventilation ducts. More particularly, the present invention relates to a wall flange for preventing the ventilation ducts from punctures and breaks through a wall, thereby effectively preventing the spread of smoke and fire from one room to another.

The flange member is configured to protect the ventilation duct from breaking or puncturing through the wall, thereby preventing the spread of smoke and fire in various rooms in a building or a house when a fire accident happened. In one embodiment, the flange member is further configured to enable a user to affix to both sides of the wall using one or more fasteners, for example, screws. The flange member provides more safety for the ventilation duct from falling off.

The flange member comprises a first member and a second member. The first member and the second member having one or more brackets, respectively. The first member and the second member are configured to securely connect each other at both end portions using one or more fasteners to form the flange member and enable a user to simply affix to the wall and the ventilation duct using one or more fasteners, for example, screws. The flange member is configured to prevent the ventilation duct from punctures and breaks through the wall, thereby effectively preventing the spread of smoke and fire from one room to another in a building. The first member and the second member further comprise at least one hole for receiving fasteners, for example, steel screws.

The brackets of the first member and the second member are secured to the ventilation duct using one or more fasteners. In one embodiment, the brackets of the first member and the second member are extended upwardly from inside edge portions of the of the first member and the second member, respectively. In one embodiment, the
5 brackets are spaced apart at predetermined measured distances. In one embodiment, the first member and the second member comprise at least any one of a shape includes, but not limited to, a semi-spherical or a semi-elliptical shape. In one embodiment, the flange member is made of a material, but not limited to, metal. In an exemplary embodiment, the flange member is made of steel. In one embodiment, the first member and the second
10 member further comprise a raised portion and a flat portion at both ends, respectively.

In one embodiment, the raised portion of the first member is securely connected to the flat portion of the second member using one or more fasteners. In one embodiment, the raised portion of the second member is securely connected to the lower portion of the
15 first member using one or more fasteners. In one embodiment, the raised portion and the flat portion of the first member and the second member comprise one or more holes for receiving fasteners, for example, screws. In one embodiment, the brackets of the first member and the second member further comprise one or more holes for receiving fasteners, for example, screws, thereby securely fixing the brackets onto the ventilation
20 duct.

Other objects, features and advantages of the present invention will become apparent from the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing summary, as well as the following detailed description of the invention, is better understood when read in conjunction with the appended drawings. For illustrating the invention, exemplary constructions of the invention are shown in the drawings. However, the invention is not limited to the specific methods and structures disclosed herein. The description of a method step or a structure referenced by a numeral in a drawing is applicable to the description of that method step or structure shown by that same numeral in any subsequent drawing herein.

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FIG. 1 exemplarily illustrates perspective view a flange member used to protect a ventilation duct from breaking through a wall strands in an embodiment of the present invention.

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FIG. 2 exemplarily illustrates a side perspective view of the flange member in one embodiment of the present invention.

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FIG. 3 exemplarily illustrates a side view of a first member of the flange member in one embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 1, a flange member **100** used to protect a ventilation duct **110** from breaking through a wall **112** is disclosed. The flange member **100** is configured to protect the ventilation duct **110** from breaking or puncturing through the wall **112**, thereby preventing the spread of smoke and fire in various rooms in a building or a house when a fire accident happened. The flange member **100** is further configured to enable a user to affix to both sides of the wall **112** using one or more fasteners, for example, screws. The flange member **100** is retrofit and provides more safety for the ventilation duct **110** from falling off.

Referring to FIG. 2, the flange member **100** of the present invention in one embodiment is disclosed. The flange member **100** comprises a first member **102** and a second member **106**. The first member **102** and the second member **106** having one or more brackets (**104** and **108**), respectively. The first member **102** and the second member **106** are configured to securely connect each other at both end portions using one or more fasteners to form the flange member **100** and enable a user to simply affix to the wall **112** (shown in FIG. 1) and the ventilation duct **110** (shown in FIG. 1) using one or more fasteners, for example, screws. The flange member **100** is configured to prevent the ventilation duct **110** from punctures and breaks through the wall **112**, thereby effectively preventing the spread of smoke and fire from one room to another in a building. The first member **102** and the second member **106** further comprise at least one hole **118** for receiving fasteners, for example, steel screws.

The brackets (**104** and **108**) of the first member **102** and the second member **106** are secured to the ventilation duct **110** using one or more fasteners. In one embodiment, the brackets (**104** and **108**) of the first member **102** and the second member (**106**) are extended upwardly from inside edge portions of the of the first member (**102**) and the second member (**106**), respectively. In one embodiment, the brackets (**104** and **108**) are spaced apart at predetermined measured distances. In one embodiment, the first member

102 and the second member **106** comprise at least any one of a shape includes, but not limited to, a semi-spherical or a semi-elliptical shape. In one embodiment, the flange member **100** is made of a material, but not limited to, metal. In an exemplary embodiment, the flange member **100** is made of steel. In one embodiment, the first member **102** and the second member **106** further comprise a raised portion **116** and a flat portion **115** at both ends, respectively.

Referring to FIG. 3, the first member **102** of the flange member **100** is disclosed. In one embodiment, the raised portion **116** of the first member **102** is securely connected to the flat portion **115** of the second member **106** using one or more fasteners. In one embodiment, the raised portion **116** of the second member **106** is securely connected to the lower portion **115** of the first member **102** using one or more fasteners. In one embodiment, the raised portion **116** and the flat portion **115** of the first member **102** and the second member **106** comprise one or more holes for receiving fasteners, for example, screws.

In one embodiment, the brackets (**104** and **108**) of the first member **102** and the second member **106** further comprise one or more holes **114** for receiving fasteners, for example, screws, thereby securely fixing the brackets (**104** and **108**) onto the ventilation duct **110**.

The advantages of the present invention include the flange member **100** protects the ventilation duct **110** from breaking or puncturing through the wall **112**, thereby preventing the spread of smoke and fire in various rooms in a building or a house when a fire accident happened. Further, the flange member **100** is inexpensive, made in a simple design but still effective, reliable, convenient and quick operational.

Krav

1. En ventilationskanal (**110**) og en flangedel (**100**), hvor flangedelen (**100**)

5 omfatter

en første del (**102**) med et eller flere beslag (**104**);

en anden del (**106**) med et eller flere beslag (**108**),

10 hvor den første del (**102**) og den anden del (**106**) har slutdele (**115**, **116**),
konfigureret til sikkert at forbinde hinanden i begge ender (**115**, **116**) ved
hjælp af et eller flere fastgørelseselementer til dannelse af flangedel (**100**),
og hvor flangedelen (**100**) er fastgjort til ventilationskanalen (**110**) ved
hjælp af et eller flere fastgørelseselementer,

15 hvor tilstedeværelsen af flangedelen(**100**) på ventilationskanalen (**110**) der
passerer gennem en væg (**112**), når den er i brug forhindrer derved
ventilationskanalen (**110**) fra punktering og brud og effektivt forhindrer
spredning af røg og ild fra et rum til et andet i en bygning, kendetegnet
ved, at det ene eller flere beslag(**104** og **108**) på den første del (**102**) og
den anden del(**106**) af flangedelen (**100**) er fastgjort til ventilationskanalen
20 (**110**) ved hjælp af et eller flere fastgørelseselementer.

2. Ventilationskanalen (**110**) og flangedel (**100**) ifølge krav 1, hvor det ene eller flere
beslag (**104** og **108**) på den første del (**102**) og den anden del (**106**) er udstrakt i en vinkel
fra de indvendige kantdele af den første del (**102**) og den anden del (**106**), af flangedelene
25 (**100**).

3. Ventilationskanalen (**110**) og flangedel (**100**) ifølge krav 1, hvor det ene eller flere beslag (**104** og **108**) på den første del (**102**) og den anden del (**106**) er adskilt fra hinanden ved forudbestemte målte afstande.
- 5 4. Ventilationskanalen (**110**) og flangedel (**100**) ifølge krav 1, hvor den første del (**102**) og den anden del (**106**) omfatter mindst en af hvilken som helst form, der inkluderer en halvkugleformet eller en semi-elliptisk form.
- 10 5. Ventilationskanalen (**110**) og flangedel (**100**) ifølge krav 1, hvor flangedelene (**100**) er fremstillet af stål.
6. Ventilationskanalen (**110**) og flangedel (**100**) ifølge krav 1, hvor den første del (**102**) og den anden del (**106**) yderligere omfatter en hævet del (**116**) og en flad del (**115**) i begge ender.
- 15 7. Ventilationskanalen (**110**) og flangedel (**100**) ifølge krav 6, hvor den hævede del (**116**) af den første del (**102**) er sikkert forbundet med den flade del (**115**) på den anden del (**106**) ved hjælp af et eller flere fastgørelseselementer.
- 20 8. Ventilationskanalen (**110**) og flangedel (**100**) ifølge krav 6, hvor den hævede del (**116**) af den anden del (**106**) er sikkert forbundet med den nederste del (**115**) af den første del (**102**), ved brug af et eller flere fastgørelseselementer.
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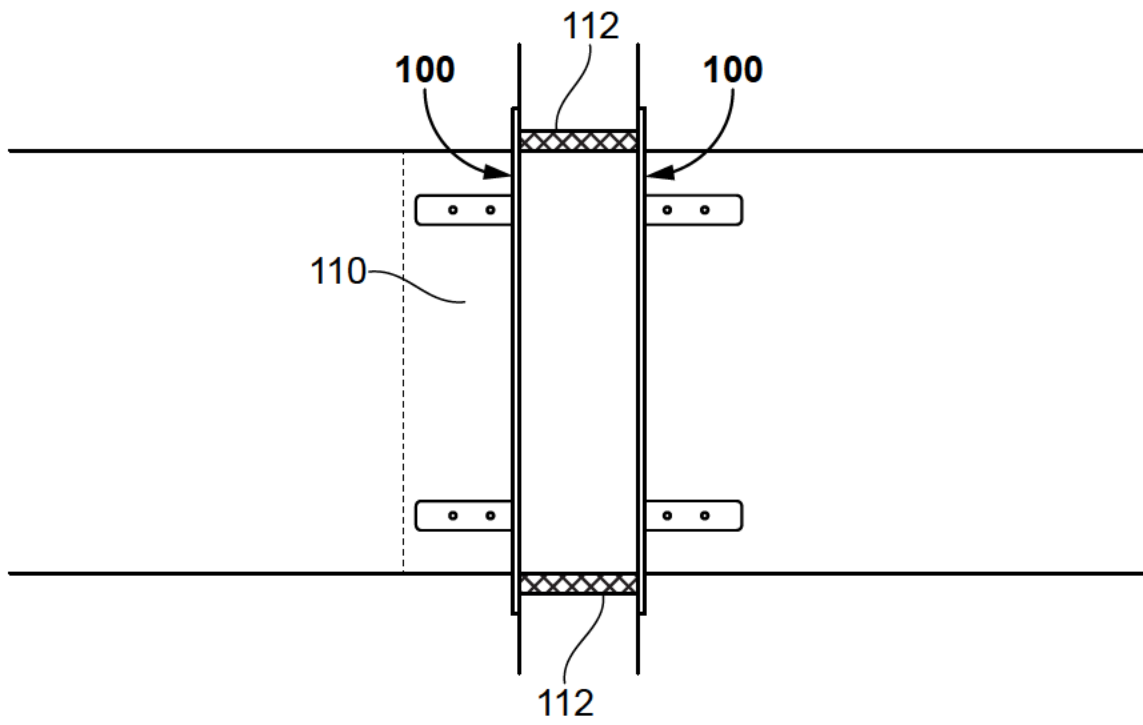


FIG. 1

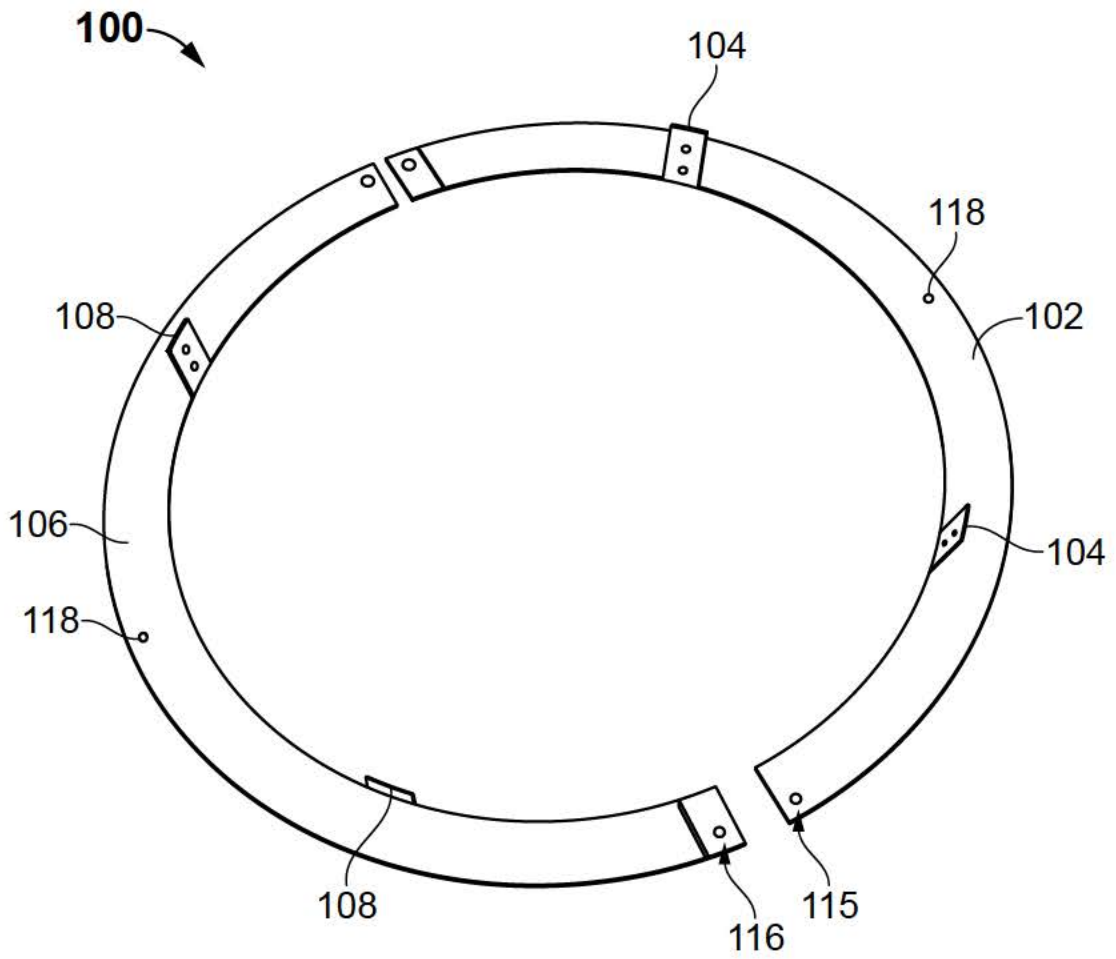


FIG. 2

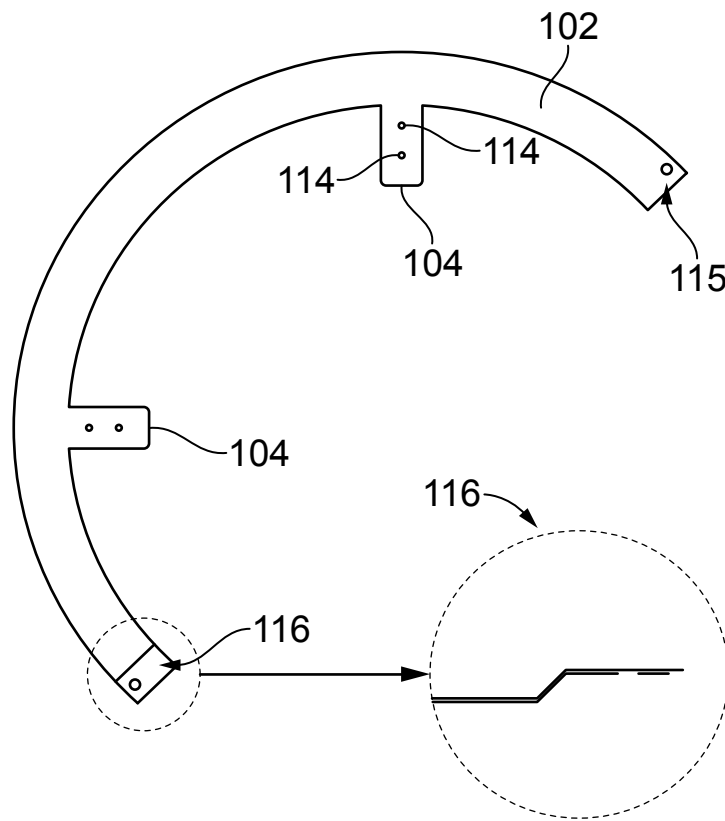


FIG. 3