

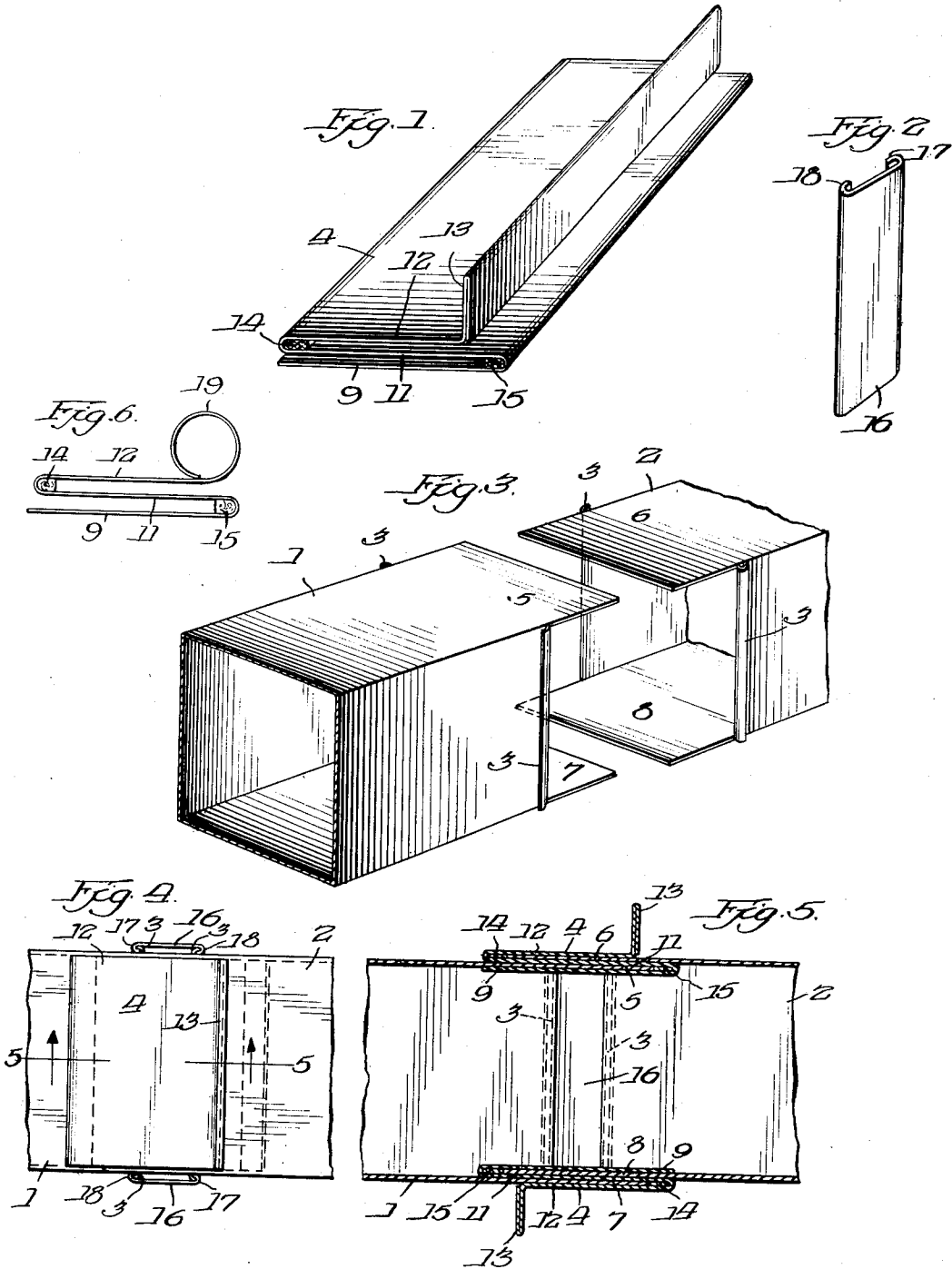
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H. J. ZACK

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DUCT JOINT CONSTRUCTION

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Witness:
R. B. Davison

Inventor:
Hans J. Zack
By: Wilson, Dawell, McCarroll & Nelson
Attys

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DUCT JOINT CONSTRUCTION

Hans J. Zack, Chicago, Ill.

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6 Claims. (Cl. 285—201)

This invention relates to joints for metal ducts. One of the requirements in the use of metal ducts is that the forming of the joints between sections of ducts be very inexpensive yet fully effective to prevent air leakage and to form rigid and stable structures.

This invention aims to provide means for forming joints of ducts which will meet the above requirements and which are more rigidly constructed and more easily and tightly sealed than has heretofore been possible.

Various purposes, objects and advantages of the invention may be understood from a reading of this specification.

15 In the drawing:

Fig. 1 is a perspective of one of the elements employed in the joint,

Fig. 2 is a perspective of another element in the joint,

20 Fig. 3 is a perspective showing adjoining ends of two sections of ducts which are ready for being joined in accordance with this invention,

Fig. 4 is a top plan view of the two sections after being joined,

25 Fig. 5 is a central vertical section on a plane passing through the line 5—5 of Fig. 4, while Fig. 6 is an end view of a modified form of cleat.

Ordinarily the ends of the two sections of ducts 1 and 2 will be prepared as shown in Fig. 3 with the sides cut back and curled back as illustrated to form the curved outwardly extending flanges 3.

The device shown in Fig. 1, termed a cleat and generally indicated by the numeral 4 is then placed between the opposite ends 5 and 6 of the duct sections and another similar cleat between the opposite ends 7 and 8 at the bottom of the two duct sections. The horizontal portion of each cleat is formed to produce the folds 9, 11 and 12 and the upstanding reinforcing rib 13. Suitable packing 14 and 15 is positioned as shown. Into the upper cleat between the folds 9 and 11 the end portion 5 is inserted while the end portion 6 is inserted between the folds 11 and 12, each portion extending inwardly until it rests against the associated packing material 14 or 15. The bottom cleat is inverted so that its rib extends downwardly and the end portion 8 is inserted between the folds 9 and 11 while the end portion 7 is inserted between folds 11 and 12. Thus the duct sections are telescoped together and locking cleats as shown in Fig. 2 may then be affixed.

55 The cleats, generally indicated as 16, have

curved flanges 17 and 18 which may embrace the curved flanges 3 of the adjoining duct sections after the latter have been telescoped together. This is accomplished by aligning the end of the cleat with a pair of curved flanges 3 and then sliding it thereon either from the top or bottom. As shown in Fig. 4 a locking cleat of this character is used on each vertical side of the duct.

The reinforcing rib 13 being on the outside of the joined sections of duct adds greatly to the rigidity of the structure and prevents the outside fold of the cleat from being warped away from the adjoining duct surfaces.

It is found that the joints formed in accordance with this invention have a high degree of rigidity, can be assembled most economically and speedily and do not come part or become less effective during prolonged use.

The packing material employed at the places indicated is preferably a fibrous fire-proof material when the ducts are used for carrying hot air and in any event a fibrous material not subject to substantial deterioration over a considerable period of time, although it will be understood that rubber-containing compositions may be employed. The material should be somewhat resilient or compressible.

The modified form of cleat shown in Fig. 6 differs from that of Fig. 1 only in that instead of employing the flat doubled reinforcing rib 13, a rolled or tubular reinforcing member 19 is provided.

It should be understood that while the invention is herein illustrated in its preferred embodiment, it may be utilized in other forms which differ in various respects from the present disclosure though remaining within the spirit and scope of the invention, particularly as it is defined in the appended claims.

Having shown and described my invention, I claim:

1. A joint for metal duct sections comprising a sheet metal body folded to form three folds between two of which one end of a duct section is insertable and between the next two of which the end of the adjoining duct section is insertable, projections on the two duct sections, and detachable means engaging said projections for holding said duct section ends locked between said folds.

2. A joint for metal duct sections comprising a sheet metal body formed into three superposed folds, the middle and one outside fold forming a groove to receive the end of one duct section while the middle and other outside fold

are formed to receive the end of an adjoining duct section, projections on said duct sections, and means engaging said projections for forcing said ends inwardly in position within said folds toward the bottoms of the folds.

3. A joint for metal ducts comprising a sheet metal strip folded to form three superposed folds, the middle and one outside fold being constructed to receive an end of a duct section, the middle and other outside fold being adapted to receive the end of another adjacent duct section in overlapped relation to the first said end, yieldable means in the bottoms of said folds for engaging the duct ends, projections on said ducts, and means engaging said projections for urging said duct sections toward each other within said folds against said yieldable means.

4. A joint for metal ducts comprising a sheet metal strip folded to form three superposed folds, the middle and one outside fold being constructed to receive an end of a duct section, the middle and other outside fold being adapted to receive the end of another adjacent duct section in overlapped relation to the first said end, lock engaging means on the duct sections, and locking means cooperating with said lock engaging means

for drawing the sections toward each other and for locking said duct sections within said folds in said overlapped relation.

5. A joint for metal duct sections comprising outwardly curved flanges on the sides of the ducts at their adjoining ends, the top and bottom walls of the adjoining duct section ends lying in overlapped relation, a sheet metal cleat formed into three superposed flat folds between which the overlapping top and bottom surfaces lie, and means embracing the said flanges for holding said duct sections in locked position with their overlapping ends within said folds.

6. In combination with two adjoining duct section ends, sheet metal cleats each shaped to form three or more superposed flat folds for receiving the duct section ends in overlapped relation, resilient packing material in the bottom of the U shaped groove between adjacent folds, lock engaging means on the duct sections, and detachable locking members cooperating with said means to lock adjacent ends of the duct sections between said folds resiliently against said packing material.

HANS J. ZACK.

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