

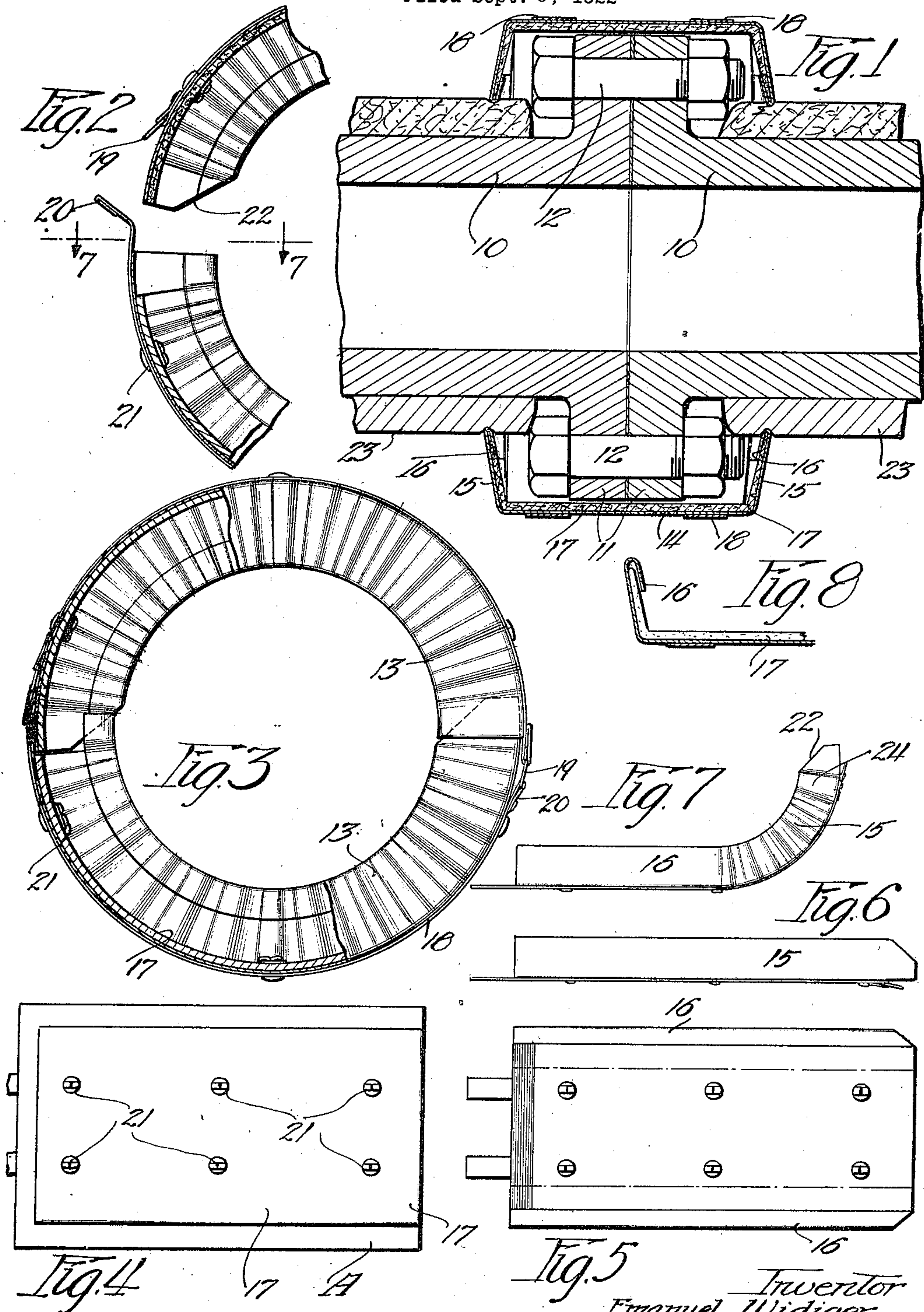
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PIPE FLANGE PROTECTOR

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PIPE-FLANGE PROTECTOR.

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To all whom it may concern:

Be it known that I, EMANUEL WIDIGER, a citizen of the United States, and resident of Hammond, in the county of Lake and State of Indiana, have invented certain new and useful Improvements in Pipe-Flange Protectors, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to pipe flange protectors, and particularly to pipe flange protectors which may be manufactured as a complete device at a central point, and which may be readily and quickly applied to pipe flanges by the ordinary workman.

One of the features of the invention resides in the provision of curved, substantially channel-shaped members which may be quickly secured about the flanges of pipes by simple and easily operable securing means.

Another feature of the invention is the manner of securing the lining of asbestos, or other suitable material, within the protector.

A still further feature of the invention resides in the unique method of forming the protector.

Other features and advantages will appear as the description of the invention progresses.

Generally stated, the device of the present invention consists of two substantially semi-circular channel-shaped members formed of sheet metal, means being provided by which, after the devices have been placed about the flange of a pipe, the abutting or overlapping ends may be quickly and firmly secured together.

It has been customary for a long time to cover the sections of steam pipes or pipes conveying hot water with sleeves formed of asbestos or other suitable heat insulating material. On account of the difficulty, however, of wrapping the flanges which occur between the sections of pipe, ordinarily no insulating cover has been provided for the flanges, and where it has been provided it has been merely a makeshift which was clumsy in appearance and was with difficulty applied or removed, as is oftentimes necessary in order to tighten the flanges. Thus, in a large manufacturing establishment, a great deal of heat, amounting oftentimes in value to thousands of dollars, is lost due to the fact that the flanges are not suit-

ably protected. Applicant's invention provides a protector which may be quickly and easily applied to pipe flanges, and which will act to suitably insulate them and prevent the loss of heat therefrom.

It is believed the details of the invention will be best understood by a description thereof taken in connection with the accompanying drawings, in which—

Figure 1 is a longitudinal section through the flange at the abutting ends of two sections of pipe, showing the protector in position thereon;

Figure 2 is a side view of two adjacent ends of the protector;

Figure 3 is a side elevation of the two parts of the protector clamped together as they would be when positioned about a pipe flange;

Figure 4 is a plan view of the blank from which the metal portion of the protector is formed, showing the asbestos lining in position thereon;

Figure 5 is a view similar to Figure 4, but shows the rebent flange at the edge of the blank;

Figure 6 is a side view of the blank after the sides thereof have been turned at right angles to form a channel-like member;

Figure 7 shows a channel shaped member, such as illustrated in Figure 6, with the corrugations formed therein at one end, as is done in giving the device its semi-circular shape, and

Figure 8 is a cross sectional view through one edge of one of the devices, showing the side flange of the protector with its rebent edge and the asbestos lining within the metal shell.

Referring now to the drawings, in which like reference characters indicate like parts in the several views, 10—10 indicates adjacent sections of pipe provided with the clamping flanges 11 secured together by means of the bolts 12. The protector consists of two like substantially semi-circular members 13 (see Figure 3). In cross section, each of these members 13 consists of a web portion 14 and the side flanges 15, each of which has a rebent edge 16. Positioned within each of the channel-shaped members is a sheet 17 of asbestos or other suitable insulating material.

Extending about the outer circumference of each of the halves and adjacent to the outer edge thereof is a sheet metal strap

18, to one end of which is secured the wire loop 19, the other end of the strap 18 being arranged to extend freely beyond the edge of the section of the protector. If desired, the free end of the strap 18 may be rebent, as indicated at 20. The edges of the asbestos lining strip 17 will preferably be positioned under the rebent portions 16 at the edges of the channels. If desired, the asbestos strip 17 may be secured to the web 14 of the protector shell, by means of the split rivets 21.

As above explained, the two halves of the protector are substantially alike, and in positioning the protector about the pipe coupling or flange, as indicated in Figure 1, the two halves are placed together, as indicated in Figure 3, the free ends of the straps 18 being inserted through the loops 19 and rebent as shown in Figure 3, thus permitting the protector to be quickly and securely fastened in position. The asbestos lining 17 will ordinarily terminate slightly short of one end of the metal shell. The side flanges 16 at the opposite end of the metal shell will be cut off or beveled, as indicated at 22. In placing the two halves of the protector together, the end of the protector having the beveled flange will preferably be slightly inserted within the opposite end of the other half of the protector. This arrangement is clearly indicated in Figure 3.

In applying the protector about a pipe flange, the edges of the flanges 16 are preferably brought firmly into engagement with the asbestos covering 23 which is ordinarily positioned about the pipe sections between the flanges. When thus applied, the protector makes a comparatively tight fitting about the flange, and the lining 17 of asbestos or other material, together with the air spaces between the protector and portions of the flange, act to prevent the escape of heat by radiation from the pipe flange. If desired, further packing material of asbestos or other substance may be inserted about the flange within the protector in order to provide more perfect insulation.

The method of forming the protector will now be described. The sheet metal from which the protector shell is formed is indicated at A in Figure 4. Upon the sheet A is placed the asbestos lining 17. The edges of the sheet A are then returned, as indicated in Figure 5, to form the flanges 16, the flanges 16 being arranged to loosely overlap the edges of the sheet 17. The outer edges of the device, as illustrated in Figure 5, are next pressed into a position at right angles to the body of the shell, as indicated in Figure 6, thus forming the side flanges 15. After the beveled portions 22 are formed, the flanges 15 are run between pairs of co-operating cone gears. The pairs of gears

have their teeth so arranged that they form the corrugations 24 in the flanges 16. The corrugations 24 are arranged so that at the edges of the flanges 16 the corrugations are rather deep and taper out at a point adjacent to the web 14 of the shell. By this corrugating process, the edges of the asbestos lining 17 are firmly secured within the flanges 15, and also the blank is caused to assume a substantially semi-circular form.

At least one pair of the split rivets 21 will be placed in position before the crimping and corrugating process. If desired, the other rivets 21 need not necessarily be inserted until after the device is formed. As a matter of fact, it is not necessary that more than a single pair of rivets 21 be employed, although the additional rivets act to more securely hold the lining within the shell. The rivets 21 which are employed to hold the lining 17 in position may also be used to secure the straps 18 to the circumference of the shell.

The pipe flange protector above described may be readily adapted for use in insulating the flanges of water or refrigerating pipes. In preparing the protector for use with pipes of this character, some material such as tarred paper or felt impregnated with an asphaltting compound should be used as a lining.

Although it is generally preferable that the lining be fixed within the sheet metal shell, in certain instances it may be found desirable to loosely insert the lining.

While in the above description, applicant has disclosed but a single set of details which he considers the preferred embodiment of his invention, it is to be understood that he contemplates various modifications, and the scope of the invention should, therefore, be limited merely by the appended claims.

Having now described the invention, what is claimed is:

1. A device for insulating and protecting pipe flanges comprising a pair of semi-annular halves of channel cross section, each of said halves comprising two principal elements, namely, a lining of sheet insulation having an arcuate web and inwardly bent flanges at its arcuate edges, and a sheet metal jacket lying around and against said lining, said jacket having web and flange portions corresponding to those of the lining, the edges of the flanges of the said metal jacket being rebent inwardly over the edges of the said flanges of the lining, each lining flange and its associated jacket flange being crimped together by substantially radial corrugations.

2. A pipe flange protector and insulator comprising in combination a pair of arcuate members and means for holding said members together in the form of an annulus en-

circling a pair of attached pipe flanges, each of said members comprising an arcuate web of sheet metal provided at its edges with integral inwardly bent and radially corrugated flanges, and a lining of sheet insulation lying within and against said web and having integral flange portions lying within and against the metal flanges and likewise corrugated, the edges of said metal flanges being rebent inwardly around the edges of said insulation flanges.

3. The method of forming a pipe flange protector and insulator which consists in providing a substantially straight channel-shaped member of sheet insulation with a substantially straight metal sheath of channel shape which snugly receives said channel of sheet insulation, and which has side flanges of substantially greater width than

the said flanges of the channel of sheet insulation, turning each side flange of the metal channel to lie over and inside of the adjacent flange of the channel of sheet insulation and then giving the composite structure thus formed a substantially semi-circular shape, and simultaneously firmly securing the metal and sheet insulation together, by forming interlocking corrugations in each flange of the insulation channel and the metal which lies on opposite sides of said flange.

In witness whereof, I hereunto subscribe my name this 5th day of September, 1922.

EMANUEL WIDIGER.

Witnesses:

DAGMAR PETERSON,
ALICE W. BERTONCINI.