Oct. 22, 1957 C. E. ANDERSON 2,810,537

PIVOTED HANGER CLAMP

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Fig. 1.

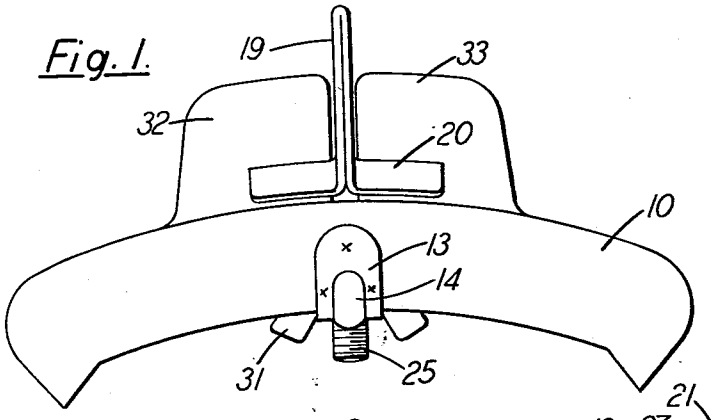


Fig. 2.

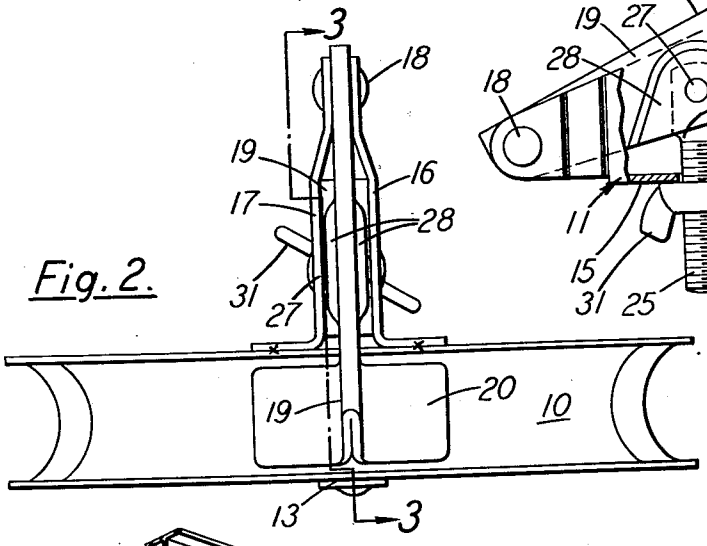
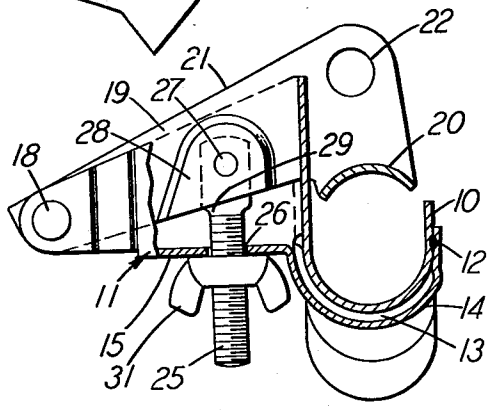


Fig. 3.



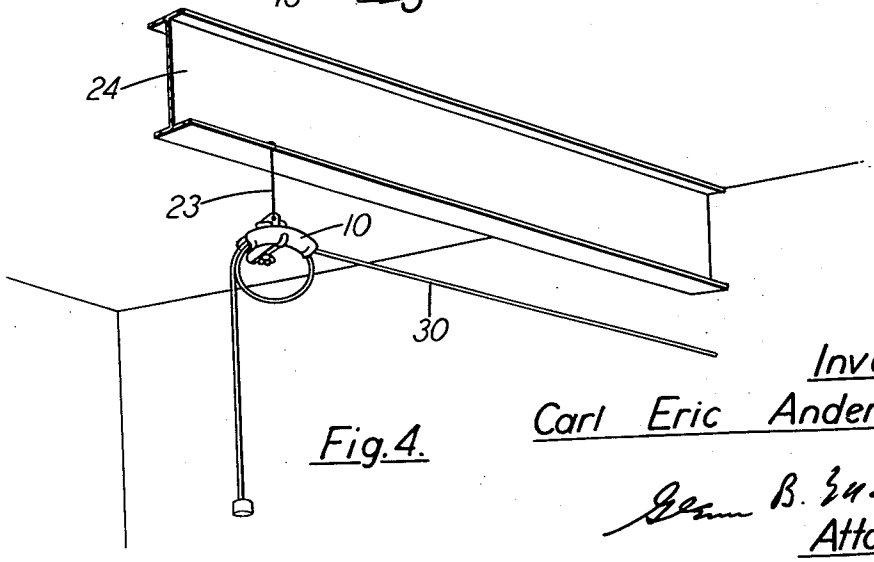


Fig. 4.

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PIVOTED HANGER CLAMP

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3 Claims. (Cl. 248—63)

This invention relates to the construction of hanger clamps used for the suspension of electric wires and other flexible lines. The frequent need for the rearrangement of machinery and other equipment on the floor of a factory complicates the distribution of power. The provision of enough permanent power outlets distributed around the floor to provide energy for the equipment no matter where it is to be positioned is a very expensive system. It is much less expensive to use a relatively few primary power outlets, and to connect them to the machines with temporary wires suspended from the superstructure with hanger clamps of the type described herein. Essentially, these devices include a clamping unit and some type of a hanger from which the clamp is suspended from the building structure. The installation of these units ordinarily involves applying enough tension to the wires to reduce the amount of sag to the point where the wire does not interfere with the working area around the machines.

The process of clamping a wire in position with the requisite amount of tension is a rather troublesome operation unless the clamp is properly designed with consideration given to the installation procedure. Since tension on the wire should be maintained while the clamp is being tightened, it follows that the clamp must be capable of being manipulated easily with one hand. Ordinarily, the wires are installed while the workman is standing on a ladder, and the job should most certainly be capable of being performed by one man.

The matter of the cost of the unit is also a very important consideration in the design of these devices, since the clamps should be used in considerable number in any sizable factory area to support the network of wires without excessive tension and without interfering with the machines and working areas. This invention provides a construction for a hanger clamp which is based upon components formed of sheet metal, and approaches maximum simplicity of operation. Basically, the unit includes a line-receiving member (preferably a trough) over which the wire is laid. Prior to tightening of the clamp, the wire is preferably looped once around so that it passes twice through the line-receiving member. A laterally-extending arm is connected to this line-receiving member, and another arm is pivoted thereto. A clamping member is connected to this latter arm, and is positioned opposite the line-receiving member so that clamping action is generated as the arms are rotated with respect to each other. A bolt is disposed to apply force between the two arms to generate the clamping action. One of the arms is preferably U-shaped in cross-section, with the other arm received therein. One end of the bolt is connected to the inner arm by a pivot pin which is axially retained in position by the presence of the walls of the outer arm.

The several features of the present invention will be analysed in detail through a discussion of the particular

embodiments illustrated in the accompanying drawing. In the drawing,

Figure 1 presents a side elevation of a hanger clamp constructed according to this invention.

Figure 2 is a top view of the device illustrated in Figure 1.

Figure 3 is a section taken on the plane 3—3 of Figure 2.

Figure 4 is a view showing the installation of a hanger clamp and the support of a wire therewith.

Referring to the drawing, a trough **10** forms a line-receiving member, and is preferably formed of sheet metal. A laterally-extending arm **11** is rigidly connected thereto, preferably by welding as indicated at **12**. The arm **11** is provided with the arcuate section **13** which conforms to the cross-sectional shape of the trough **10**, with the portion **14** being "beaded" for increased rigidity. The laterally-extending portion of the arm **11** is formed with a U-shaped cross-section including the web **15** and the spaced side walls **16** and **17**. A pin **18** is mounted at the outer extremity of the arm **11**, and provides a pivot for the inner arm **19** received between the walls **16** and **17**. The clamping member **20** is firmly secured to the arm **19**, and is disposed opposite the trough **10**. Preferably, the arm **19** and the clamping member **20** are integrally formed of sheet metal folded along the edge **21**. A hole **22** provides a means for attaching the hanger **23**, which supports the clamp from an overhead girder **24** as shown in Figure 4.

Clamping action sufficient to securely retain the wire in the position indicated in Figure 4 is generated by the bolt **25**. This bolt passes through an opening **26** in the web of the arm **11**, and is connected to the arm **19** by a pin **27**. The layers of metal forming the double thickness resulting from the fold at the edge **21** are separated at **28** to admit the end **29** of the bolt **25** to receive the pin **27**, which is axially retained in position by the presence of the spaced walls **16** and **17** of the arm **11**. The pin **27** traverses suitable apertures in the opposite sides which form the separated portion **28**, in the illustrated modification. The assembly of the device in the first instance takes place with the arm **19** rotated counterclockwise with respect to the arm **11** to a point where the pin **27** emerges from between the walls **16** and **17**.

The installation of the clamping unit may be as indicated in Figure 4. A hole is machined at a convenient location in the lower flange of the girder **24** to receive the hooked end of the rod-shaped hanger **23**. A similar hook at the lower end engages the hole **22**. Preferably, the wire **30** is looped so that it passes twice through the trough **10**, and thereby increases the ability of the device to generate adequate clamping action. After the wire **30** has been placed in position, the wing nut **31** is tightened to generate the necessary clamping action between the member **20** and the trough **10**. It is also preferable that one side of the trough **10** be extended as indicated at **32** and **33** to provide guides for the arm **19** to maintain the alignment of this member and to provide a stop to aid in the insertion of the wire when the clamp is in the open position.

The particular embodiments of the present invention which have been illustrated and discussed herein are for illustrative purposes only, and are not to be considered as a limitation upon the scope of the appended claims. In these claims, it is my intent to claim the entire invention dsclosed herein, except as I am limited by the prior art.

I claim:

1. A hanger clamp for the suspension of flexible lines, said clamp comprising: means forming a line-receiving trough; a first laterally extending arm, said first arm hav-

ing a U-shaped cross-section and also having an arcuate portion formed to receive said trough and secured thereto, and having an opening in the web of said U-shaped cross-section; a second arm, said second arm being formed of a double thickness of material and pivotally connected to said first arm, and received within said U-shaped cross-section, said second arm having aligned apertures opposite said opening, said double thickness of material being separated over an area surrounding said apertures and extending to at least the side of said second arm adjacent said web; a clamping member formed of oppositely-turned portions of said double thickness of material and disposed opposite said trough; pin means engaging said apertures and normally axially confined between the sides of said U-shaped cross-section; bolt means having an end thereof disposed between said separated thicknesses of material and connected to said pin means, and extending through said opening; and nut means engaging said bolt means and disposed outside said first arm.

2. A hanger clamp for the suspension of flexible lines, said clamp comprising: means forming a line-receiving trough; a first laterally extending arm, said first arm having a U-shaped cross-section fixed with respect to said trough, and having an opening in the web of said U-shaped cross-section; a second arm, said second arm being pivotally connected to said first arm and received within said U-shaped cross-section, said second arm having an aperture opposite said opening; a clamping member secured to said second arm and disposed opposite and normally above said trough; pin means extending substantially parallel to said web and engaging said aperture and normally axially confined between the sides of said

U-shaped cross-section; bolt means connected to said pin means and extending through said opening; and nut means engaging said bolt means and disposed outside said first arm.

3. A hanger clamp for the suspension of flexible lines, said clamp comprising: means forming a line-receiving member; a first laterally extending arm, said first arm having a U-shaped cross-section fixed with respect to said line-receiving member, and having an opening in the web of said U-shaped cross-section; a second arm, said second arm being pivotally connected to said first arm and received within said U-shaped cross-section and having hanger-attaching means thereon, said second arm having an aperture opposite said opening; a clamping member secured to said second arm and disposed opposite and normally above said line-receiving member; pin means extending substantially parallel to said web and engaging said aperture and normally axially confined between the sides of said U-shaped cross-section; bolt means connected to said pin means and extending through said opening; and nut means engaging said bolt means and disposed outside said first arm.

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