

C. W. LEVALLEY.
SHAFT HANGER.

APPLICATION FILED MAY 24, 1906. RENEWED MAR. 29, 1910.

974,502.

Patented Nov. 1, 1910.

2 SHEETS-SHEET 1.

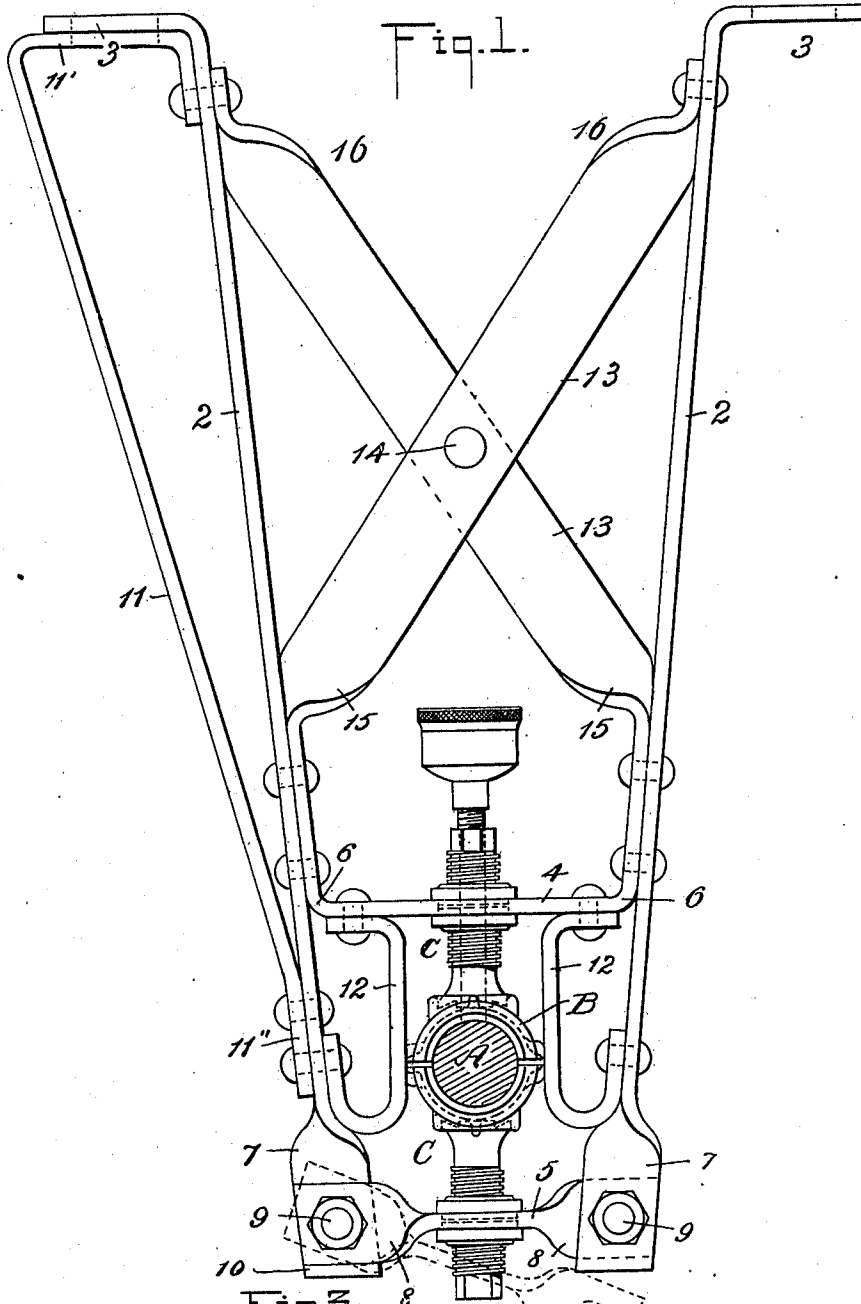
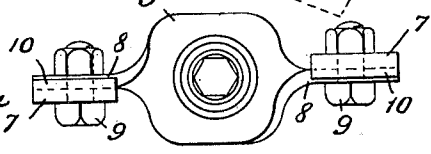


Fig. 3

Witnesses.

H. N. Low
Arthur B. Jenkins



Inventor.

C. W. Levalley
By J. S. Barker
his atty.

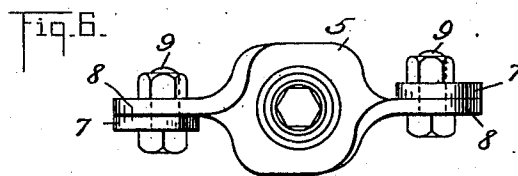
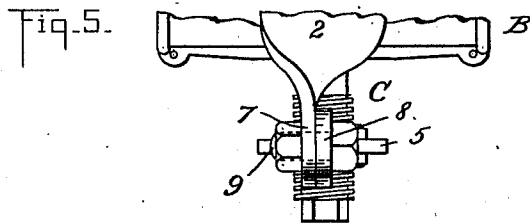
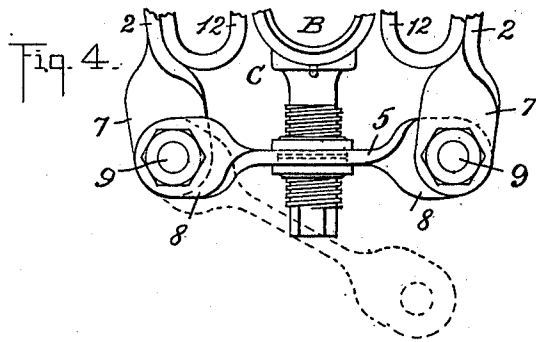
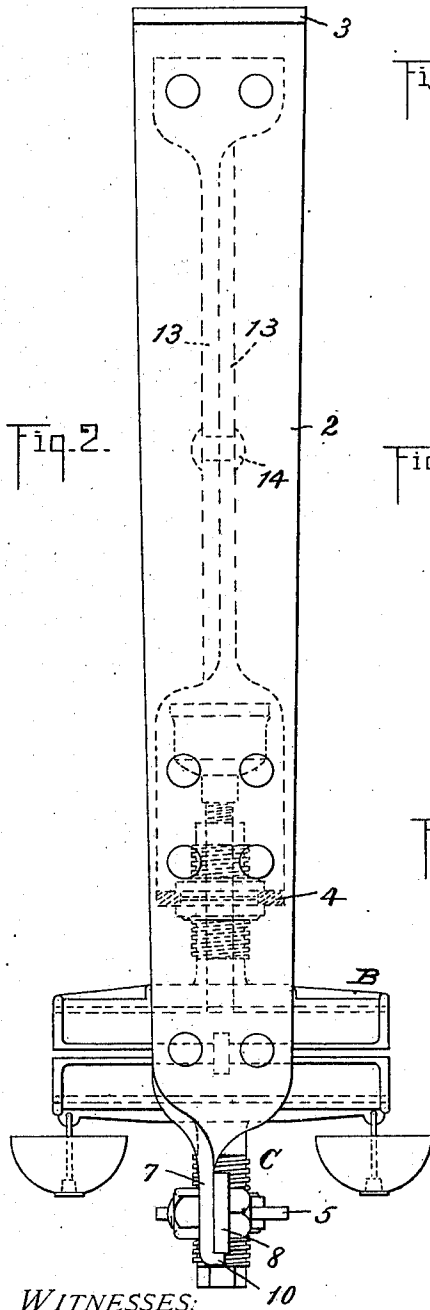
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WITNESSES:

H. N. Low
Arthur B. Jenkins

INVENTOR
C. W. Levalley
BY *J. S. Backer*
his Attorney

UNITED STATES PATENT OFFICE.

CHRISTOPHER W. LEVALLEY, OF MILWAUKEE, WISCONSIN.

SHAFT-HANGER.

974,502.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed May 24, 1906, Serial No. 318,508. Renewed March 29, 1910. Serial No. 552,235.

To all whom it may concern:

Be it known that I, CHRISTOPHER W. LEVALLEY, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Shaft-Hangers, of which the following is a specification.

This invention relates to hangers or supports for line-shafting, and has for its object to produce an article of this character possessing great strength and rigidity and in so doing to employ a minimum of material and that of a character that may be easily fabricated, such as bar steel.

In the accompanying drawings I have represented my improvements as applied to a ceiling or overhead shaft-hanger, though it is apparent that by inverting the parts shown a floor support or bracket will be produced, so that, therefore, my invention is not limited to the exact arrangement of parts shown.

In the drawings, Figure 1 is an elevation of a shaft-hanger embodying my improvements, the shaft being represented in vertical section and the bearing therefor in end view. Fig. 2 is an edge view. Fig. 3 is an inverted plan view of the lower part of the hanger. Fig. 4 is an elevation, Fig. 5 an edge view and Fig. 6 an inverted plan view of the lower parts of a hanger of somewhat different construction from that shown in the other views.

The shaft-hanger that I have illustrated embodies the following members or parts, viz.: two depending side members, two cross members, and supports for the shaft-bearing carried by the cross members. The side members are designated 2, 2, and are provided with out-turned or feet portions, 3, by which the hanger is attached to its carrier or support. The cross members extend between the side members and are secured thereto so as to form a rigid structure, the upper cross member being designated 4, and the lower one 5. These four parts, when assembled, inclose an open space in which is situated the line-shaft A, and the bearing therefor, B. The screw adjusting devices, C, between which the shaft-bearing is supported are carried by the cross members of the hanger.

To insure a rigid connection or union between the side and the cross members and to form a stiff hanger from a minimum of

material, the portions of these parts that come together should possess considerable expanse, that is they should have relatively broad meeting faces. So far as the upper cross member, 4, is concerned this result is easily attained by bending the ends of the cross member, as at 6, so that they lie parallel with and against the inner faces of the side bars, 2, to which they are secured by bolts or rivets.

It is desirable that the lower cross member, 5, should be so attached that it may be swung out of the way of the line-shaft, when that is to be moved into or out of the hanger, without entirely disconnecting it from both the side members; and in order to permit this, as well as to retain the broad-faced connection between this part and the side members I construct these parts as shown in the drawings, that is, the lower or outer end of each side bar, 2, is twisted or bent so as to occupy a plane at right angles to the main part of the bar and transverse to the axis of the line-shaft, as indicated at 7. The end portions of the cross plate or bar 5 are likewise twisted or bent to occupy planes at right angles to the middle part in which the screw adjusting device C is mounted, so that these end parts, 8, may lie flat against the bent parts, 7, of the side bars, to which they are secured by the bolts, 9. By loosening one of these bolts and removing entirely the other the cross bar or plate, 5, may be swung down, as indicated in dotted lines in Figs. 1 and 4, to open the space in which are situated the shaft and its bearing. Where the line-shafting is so heavy as to make it undesirable that the bolts 9 should carry the entire weight thereof, the extreme end portions of the depending hangers, 2, may be bent, as indicated at 10, Figs. 1, 2 and 3, to constitute lips or flanges directly below the twisted end parts of the cross member, 5, upon which the latter may rest. When thus constructed the bolts are relieved of most of the strain from the weight of the shaft, but it is necessary to loosen the bolt, on which the cross piece turns to open the space into the hanger, somewhat more than when the ends of the side bars are not flanged; the latter construction being represented in Figs. 4, 5 and 6, and being preferable under some circumstances.

In constructing a shaft-hanger from bar metal, it is practically imperative that the

broader faces of the bars that constitute the side members of the hanger should be arranged in planes substantially parallel with the axis of the line of shafting, with the result that the side bars, alone and of themselves, do not always impart to the hanger the necessary strength and stiffness to resist lateral or transverse strains. I therefore, when circumstances make it desirable, brace and stiffen the side members of the hanger. As represented in Fig. 1, I arrange a pair of crossed brace pieces, 13, between the side members, 2, these being located between the foot portions of the hanger and that part in which the shaft is situated. I prefer that the braces, 13, should be formed integrally with the cross member 4, these parts being formed from a single piece of bar metal shaped as follows: its central part is left flat to constitute the cross member, 4, on each side of the cross member the bar is bent to form the parts, 6, that lie against and are secured to the inner faces of the side members of the hanger, while beyond the parts, 6, the legs of the bar are each given a quarter twist or turn, as indicated at 15, and at the same time bent so that the two parts, 13, that constitute braces, cross each other like the letter X and extend between the opposite side bars of the hanger. The ends of the braces, and of the bar being described, are twisted, as indicated at 16, to constitute feet or bearings that are adapted to be secured to the side members, 2, near the foot portions, 3, thereof. Where the braces, 13, which lie against each other flatwise, cross they are preferably united by a bolt or rivet, 14.

I have represented one of the side members of the hanger as being further strengthened and stiffened to resist lateral or transverse strains, for which purpose I form it of a truss-like construction. It is evident that both of the side members could be thus constructed, if that were found desirable, but ordinarily the transverse strains on a shaft-hanger are principally in one direction. 11 indicates a brace member extending from the outer end of the foot portion of the side member to the main body part thereof adjacent to the space in which the shaft is located, preferably to just above where the twist to form the part 7 begins. This brace has its ends bent, as at 11' so as to lie flat against the foot, 3, and as at 11'' to lie against the outer face of the side bar 2, and is secured to the side member by bolts or rivets. It is evident that this brace need not be a part entirely distinct from the side member with which it is associated, but that instead it might be integral therewith, the foot portion being continued to form the brace.

12, 12 indicate vertically disposed guides between which the shaft-bearing B is ar-

ranged, and with which it engages. I prefer that these guides should be formed of bar steel and that they should be so shaped as to have the vertically disposed middle portions, and the bent end portions that are united respectively with the upper cross member and with the side members. The parts 12 operate not only as guides for the shaft-box or bearing, but also to strengthen and stiffen that part of the hanger in which the shaft is located, while the braces 11 and 13 operate to strengthen and stiffen the hanger between the part stiffened by the guides 12 and the foot portions 3.

By giving to the members, 2, 5 and 13, of the hanger the quarter turns so as to permit the engaging parts to be brought together flatwise as described, the full strength of the material from which these parts are constructed is maintained and utilized.

Having described my invention what I claim and desire to secure by Letters Patent is:

1. A shaft-hanger having side members formed of bar metal, each of which is, near its outer end, transversely twisted so as to give to the immediate end portion a one fourth turn to cause it to lie in a plane substantially transverse to the axis of the shaft, and a cross member secured to the said turned end portions of the side members, substantially as set forth.

2. A shaft-hanger having side members formed of bar metal the outer end portions of which are disposed in planes substantially transverse to the axis of the shaft, a cross member for supporting one of the supports for the shaft-bearing transversely twisted so as to have its end parts disposed to lie flatwise against the said end portions of the side members, and its intermediate portion disposed in a plane that is substantially at right angles to those in which are located its end portions and means for uniting the side and cross members, substantially as set forth.

3. A shaft-hanger having side members formed of bar metal the outer end portions of which are each given a one fourth turn to cause them to lie in planes substantially transverse to the axis of the shaft, a cross member for carrying one of the supports for the shaft-bearing having each of its end portions given a one fourth turn whereby they are adapted to lie flatwise against the turned end parts of the side members, and means for uniting the side and the cross members, substantially as set forth.

4. A shaft-hanger having side members the outer end portions of which lie in planes substantially transverse to the axis of the shaft and are provided with the flanges 10, and the cross member arranged to be secured to the said end portions of the side members and to rest upon the said flanges, substantially as set forth.

5. A shaft-hanger having side members and upper and lower cross members, one of the cross members being bent and secured to the inner face of one of the side members, and extending from its connection there-
5 with across the hanger to the other side member to which it is connected near its foot portion, substantially as set forth.

6. A shaft-hanger comprising a pair of
10 side bars, a cross member extending between the side bars near their outer ends, and another cross member extending between the side bars intermediate between their ends, the opposite ends of the last said cross member being bent to lie against the inner faces
15 of the side bars to which they are connected, and extending thence across the hanger to the side bars to which they are connected near the attaching end, substantially as set forth.
20

7. A shaft-hanger having side members, cross members arranged between the side members for supporting the shaft, and arranged to inclose a space in which are situated the shaft and its bearing, and guides
25 having vertically disposed parts with which the shaft-bearing is adapted to engage, arranged within said inclosed space and secured to the said members of the hanger, substantially as set forth.
30

8. A shaft hanger comprising side members, and cross members between the side members, these parts being arranged to inclose a space in which are situated the shaft
35 and its bearing, in combination with guides having vertically disposed parts with which the shaft bearing is arranged to engage, each guide at one end being connected with the upper cross member and at its opposite end
40 connected with a side member.

9. A shaft-hanger the parts of which are formed of bar metal, and comprising the side members 2, the ends of which are given each a quarter turn to cause their end portions to occupy planes substantially trans-
45 verse to the axis of the shaft, an upper cross member, a lower cross member, 5, the ends of which are each given a quarter turn and lie flatwise against the turned end portions of the side members, and the vertically dis-
50 posed guides 12, substantially as set forth.

10. A shaft-hanger having side members of bar metal and crossed braces formed of bar metal and extending between the side bars, portions of these braces located be-
55 tween the side bars lying in planes transverse to those occupied by the side bars, and the braces having their ends bent to present bearing or attaching feet secured to the inner faces of the side bars, substantially as
60 set forth.

11. A shaft-hanger having side members formed of bar metal, a cross bar, 4, and braces 13, between the side bars, the cross bar and the braces being integral, and the
65 metal of which they are formed being bent to form attaching faces that are adapted to lie against the inner faces of the side members and be secured thereto, and to cause the braces to have their flat faces in contact
70 where they cross, and to lie in planes transverse to those occupied by the side members, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTOPHER W. LEVALLEY.

Witnesses:

H. H. SARGENT,
VLASTA I. KLOFANDA.