Dec. 2, 1947. J. J. GALLA 2,431,867

CHOKE OR BALLAST AND FRAME THEREFOR

Filed July 26, 1945

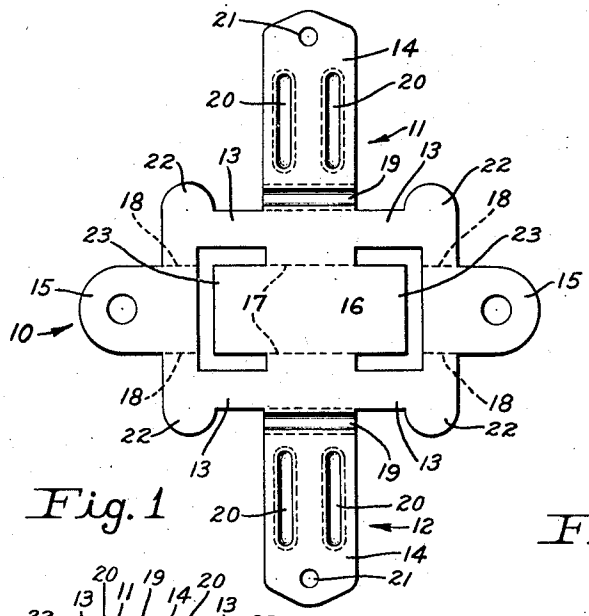


Fig. 1

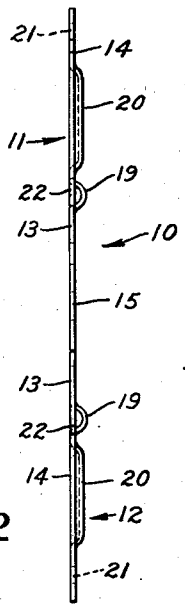


Fig. 2

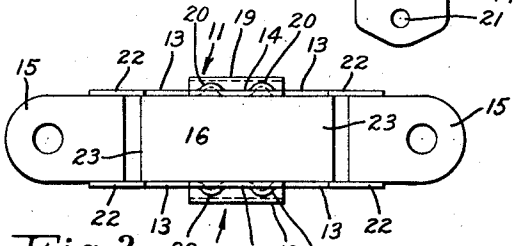


Fig. 3

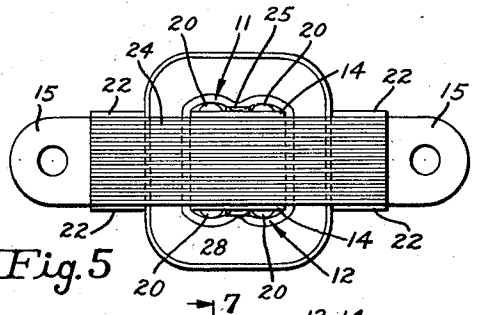


Fig. 5

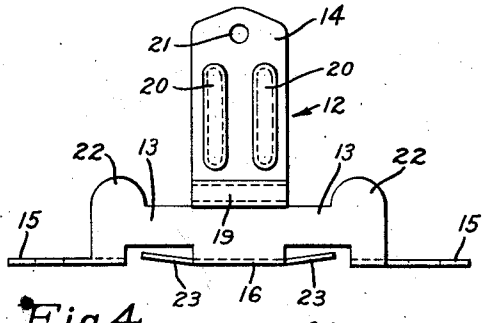


Fig. 4

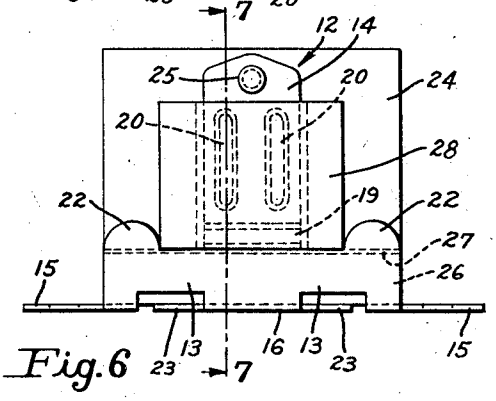


Fig. 6

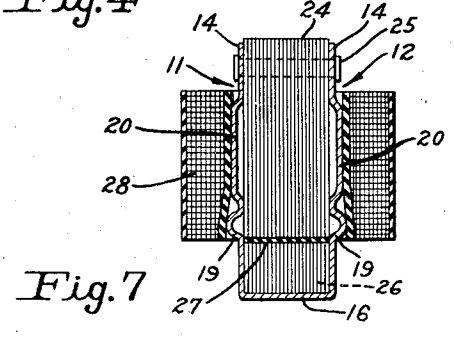


Fig. 7

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CHOKE OR BALLAST AND FRAME THEREFOR

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This invention relates to new and useful improvements in chokes or ballasts and frame therefor.

An object of the invention is to provide a choke or ballast including a mechanical construction or frame for holding the coil together with the E- and I-laminations firmly in place whereby the space or air-gap between such laminations is maintained constant to the end that there is a constant output from the device.

Another object is to provide a choke or ballast, as stated, and wherein the mechanical construction or frame provides for the secure wedging of a center arm of the E-laminations in the surrounding coil and the tight clamping together of the free ends of the outside arms of the E-laminations whereby hum or vibration is prevented.

Other objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing wherein a satisfactory embodiment of the invention is shown. However, it is to be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawing:

Fig. 1 is a plan view of the blank from which the frame of the invention is to be formed;

Fig. 2 is an edge view of the same;

Fig. 3 is a view looking into the open end of the formed or bent-up frame;

Fig. 4 is a side elevational view of such frame;

Fig. 5 is a top plan view of the completed ballast or choke;

Fig. 6 is a side elevational view of the same; and

Fig. 7 is a sectional view taken as along the line 7—7 of Fig. 6.

Referring in detail to the drawing, the blank, generally designated 10, of Figs. 1 and 2, comprises a pair of side portions 11 and 12, each including a rail or wall-like portion 13 and an arm or extension 14. Between the side portions 11 and 12 is a bight portion including mounting ears 15, each perforated, as shown, for the passage of securing screws or the like and a spring tongue portion 16.

The side portions 11 and 12 are connected with portion 16 along the fold lines indicated by the dotted lines 17 in Fig. 1 so that the end portions of 16 are free and such end portions provide spring lugs as will hereinafter appear. Additionally, side portions 11 and 12 are connected

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with the ears 15 along the fold lines 18, which lines are, of course, in alignment with the fold lines 17 at the respective edges of portion 16.

Each of the extensions 14 has a bead 19 pressed outwardly therefrom adjacent its inner end in parallel relation with the portion 16 and outwardly of such bead has a pair of longitudinally extending beads 20 placed outwardly therefrom and arranged in parallel relation with one another. Adjacent its outer or free end each extension 14 has an opening or perforation 21 for the passage of a rivet or the like as will appear. Side portions 13 adjacent their ends include ear-like extensions 22.

When the blank is folded as along the fold lines 17 and 18, a generally U-shaped structure is provided and prior to the actual folding the portion 16 is set up whereby its free end portions 23 comprise spring lugs. In the completed choke or ballast the E-laminations 24 have their connecting portions located between the free end portions of the extensions 14 and a rivet 25 passes through the openings 21 in such extensions and through such portions of the laminations forcing the latter tight together and securing the frame in place.

The I-laminations 26 are disposed between the side wall portions 13 of the frame and are separated from the free ends of the arms of laminations 24 by any suitable separator 27. The coil 28 is not only about the center arm of the E-laminations but is also about the extensions 14 of the mechanical frame. In making the assembly, the I-laminations 26 are forced against the spring lugs 23 flattening or substantially flattening the latter and so when the rivet 25 is in place the E-laminations are held and the spring lugs exert a continuous pressure on the I-laminations 26 forcing them against the spacer 27.

This result is further enhanced by the expansion loops or beads 19 which are somewhat flattened when holding the parts together to position the rivet 25. The beads or embossed webs 20 of the extension 14 result in the creation of a pressure between the inner walls of the coil 28 and the central leg of the E-laminations.

Additionally, the ears or extensions 22 of the frame press against the free end portions of the outer arms of the E-laminations so that such portions are, in effect, clamped between the ears or extensions 22 at one side of the laminations 24 and those at the other side thereof. Thus, the entire assembly is tightly held and the clamping action by the ears 22 prevents vibration or hum.

With the described construction, it will be ap-

parent that the laminations 24 and 26 are held tightly against the spacer or insulator 27 so that a constant air-gap is provided and in addition it will be apparent that the E-laminations are all held tightly against one another and that same treatment is accorded the I-laminations 26. In addition, the coil is tight against the extensions 14 and particularly the beads or webs 20 thereof. Thus, in the present construction, all parts are securely held in place and the laminated structures are held against relative vibration.

Having thus set forth the nature of my invention, what I claim is:

1. In a choke or ballast, a body of E-laminations and a body of I-laminations, a U-shaped frame, said body of I-laminations disposed on the bight portion of said frame, said body of E-laminations disposed with their center arms between the side walls of said frame, means rigidly securing the free end portions of said side walls to said body of E-laminations, a spacer between the body of I-laminations and the free ends of said body of E-laminations, said frame including means resiliently urging one of said bodies toward the other thereof, and a coil about the center arms of said E-laminations and the side wall portions of said frame and wedged against the latter.

2. In a choke or ballast, a first body of laminations, a second body of laminations, a coil on one of said bodies, insulation between said bodies, a frame including a bight portion and arms connected by said bight portion, said frame receiving said bodies with one of the bodies against the bight portion of the frame, means rigidly securing the free end portions of the arms of said frame to the other of said bodies, and resilient lugs integral with said frame and yieldingly urging one of said bodies toward the other and against the insulation between the bodies.

3. In a choke or ballast, a first body of laminations, a second body of laminations, a frame including an elongated bight portion and relatively narrow arms extending from the longitudinal edges of said bight portion substantially midway the ends thereof, said bodies disposed between the arms of said frame with one of the bodies on said bight portion, means rigidly connecting said arms to the other of said bodies, insulation between said bodies, and a coil on one of said bodies and about the arms of said frame.

4. In a ballast or choke, a first body of E-laminations, a second body of I-laminations, a frame including spaced arms and a connecting bight portion, said bodies disposed between the arms of the frame with the second body against said bight portion, means passing through the free end portions of said arms and the back portion of the first body and rigidly connecting said arms and portion, insulation between the free ends of the arms of the first body and the second body, a coil about the arms of said frame and the central arm of the first body, and said bight portion of the frame including spring lugs bearing against the second body and constantly urging the same against said insulation.

5. The device as in claim 4 wherein said frame includes perforated mounting ears located one at each end of its bight portion.

6. The choke or ballast as in claim 4 wherein said frame includes portions spaced from opposite edges of each of its side arms and pressing against the respective sides of the free end portions of the outer arms of the first body structure and holding them against vibration.

7. The choke or ballast as in claim 4 wherein

said arms of the frame include outwardly pressed longitudinally extending beads wedgingly engaged by said coil.

8. The choke or ballast as in claim 4 wherein said frame is of sheet metal and wherein each of said arms toward its inner end is provided with an outwardly offset transversely extending bead lending resilience to the arms to assist in drawing the respective laminated bodies toward one another.

9. A frame for use in a choke or ballast, said frame comprising a pair of elongated substantially parallel side portions and an elongated bight portion connecting such side portions, an extension on the intermediate portion of each of said side portions substantially midway the ends thereof, said side portions and extensions substantially parallel with one another, and said bight portion including a pair of integral spring lugs.

10. A frame for use in a choke or ballast, said frame comprising a pair of elongated substantially parallel side portions and an elongated bight portion connecting such side portions, an extension on the intermediate portion of each of said side portions substantially midway the ends thereof, said side portions and extensions substantially parallel with one another, said bight portion including a pair of integral spring lugs, and a mounting lug on the outer edge of each end of said bight portion.

11. A frame for a ballast or choke, said frame comprising a body including side portions and a bight or connecting portion, an extension on the intermediate portion of the outer edge of each of said side portions, said side portions and extensions arranged in parallel relation, and an outwardly pressed longitudinally extending bead in each of said extensions.

12. A frame for a ballast or choke, said frame comprising a body including side portions and a bight or connecting portion, an extension on the intermediate portion of the outer edge of each of said side portions, said side portions and extensions arranged in parallel relation, and an outwardly pressed transversely extended bead substantially at the juncture of each of said extensions with its side portion.

13. A frame for a ballast or choke, said frame comprising a one piece body including side portions and a bight or connecting portion, a long relatively narrow extension from the intermediate portion only of the outer edge of each of said side portions, said side portions and extensions arranged in parallel relation, and a short upwardly extending ear on the upper edge of each of said side portions toward each end thereof whereby each side portion is provided with two upwardly extending ears located one at each edge of and in spaced relation to the respective extensions.

14. A frame for a ballast or choke, said frame comprising a body including side portions and a bight or connecting portion, an extension on the intermediate portion of the outer edge of each of said side portions, said side portions and extensions arranged in parallel relation, an outwardly pressed longitudinally extending bead in each of said extensions, and a spring lug integral with said bight portion.

15. A frame for a ballast or choke, said frame comprising a body including side portions and a bight or connecting portion, an extension on the intermediate portion of the outer edge of each of said side portions, said side portions and ex-

tensions arranged in parallel relation, an outwardly pressed transversely extended bead substantially at the juncture of each of said extensions with its side portion, and a spring lug integral with said bight portion.

16. In a ballast or choke, a first body of E-laminations, a second body of I-laminations, a frame including spaced arms and a connecting bight portion, said bodies disposed between the arms of the frame with the second body against said bight portion, means passing through the free end portions of said arms and the back portion of the first body and rigidly connecting said arms and portion, insulation between the free ends of the arms of the first body and the second body, a coil about the arms of said frame and the central arm of the first body, and resilient means carried by said bight portion and constantly urging the second body against said insulation.

JOSEPH J. GALLA.

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