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C. I. LUSINK ET AL

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CAST-WELD CENTER FILLER

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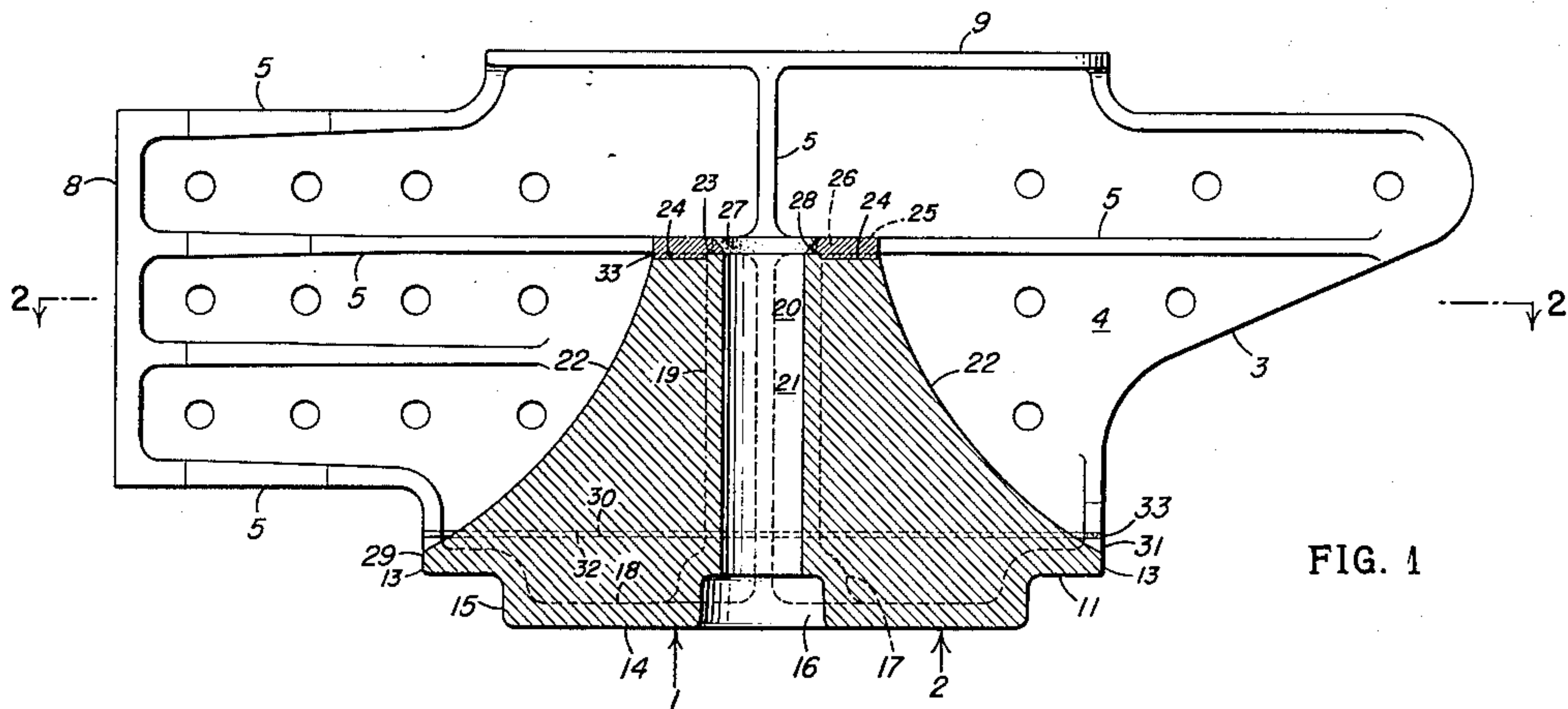


FIG. 1

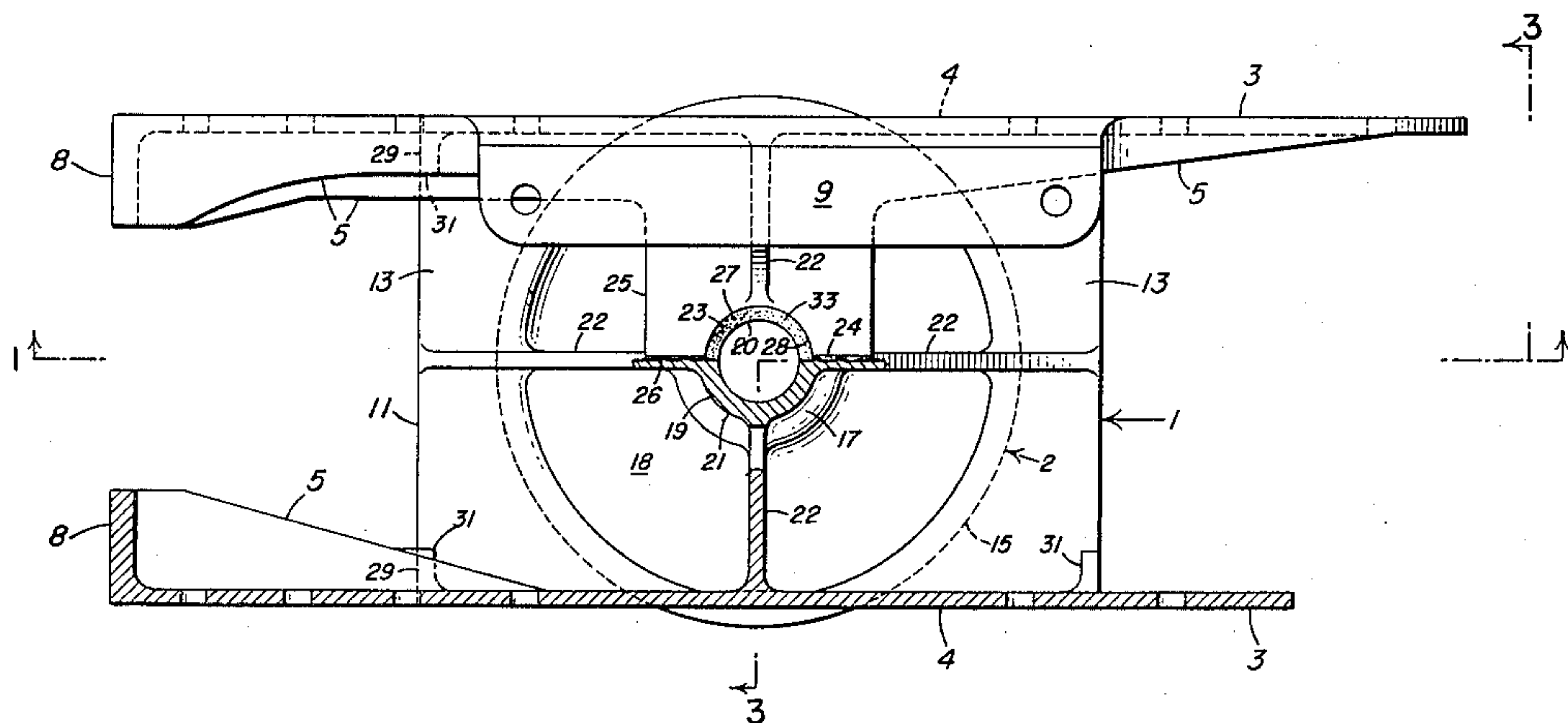


FIG. 2

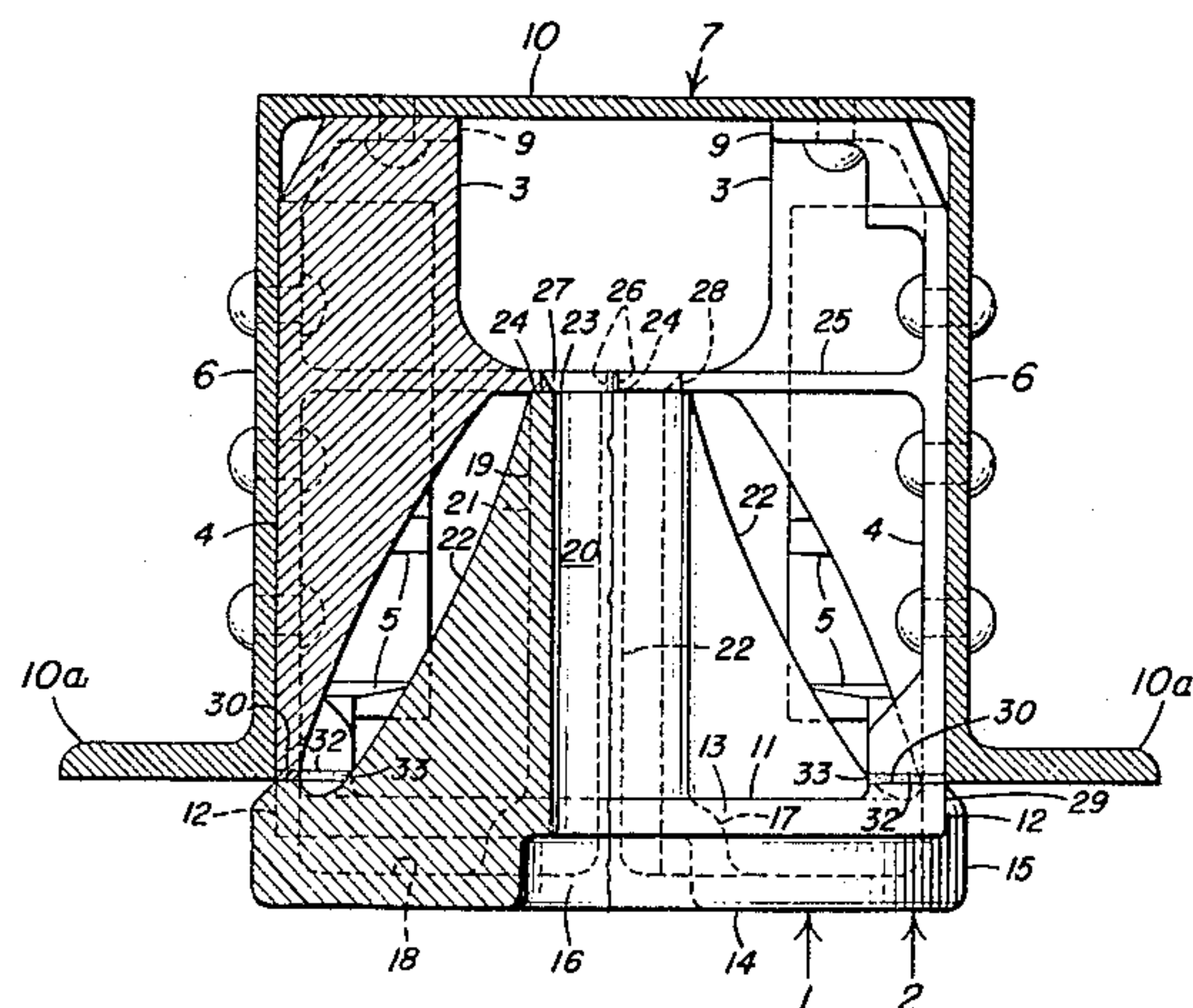


FIG. 3

Inventors:
Clarence I. Lusink
Ernest J. Warnock

By *Wilmer Mecklin*
their Attorney

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CAST-WELD CENTER FILLER

Clarence I. Lusink, Buffalo, and Ernest J. Warnock, Elma, N.Y., assignors to Symington Wayne Corporation, Salisbury, Md., a corporation of Maryland

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This invention relates to center fillers for railway vehicles and has for its primary object to provide an improved cast-weld center filler including a center bearing as an integral part of one of its castings.

The desirability of making a center bearing integral with a center filler has been recognized for some time. However, it thus far has been attempted only in a center filler cast in one piece with consequent expensiveness, due to the necessity of extensive and expensive coring.

It is an object of the present invention to provide an improved cast-weld center filler which not only includes a center bearing as an integral part of one of its castings, but is formed of a plurality of castings all of which are castable without cores with the sole exception of a core for a king post.

Another object of the invention is to provide an improved cast-weld center filler formed of a center casting, incorporating as integral parts a king post and a center bearing, and a pair of side castings joined to each other and the center casting by weld means, the side castings being castable without coring and the center casting requiring a core only for the king post.

Other objects and advantages of the invention will appear hereinafter in the detailed description, be particularly pointed out in the appended claims and be illustrated in the accompanying drawings, in which:

FIGURE 1 is a vertical sectional view of a preferred embodiment of the cast-weld center filler of the present invention, taken along the lines 1—1 of FIGURE 2;

FIGURE 2 is a view of the structure of FIGURE 1, taken partly in plan and partly along the lines 2—2 of FIGURE 1; and

FIGURE 3 is a vertical sectional view taken along the lines 3—3 of FIGURE 2, of the preferred center filler installed in a center sill.

Referring now in detail to the drawings, in which like reference characters designate like parts, the improved cast-weld center filler of the present invention is comprised of a center casting or cast piece or part 1, with which is integrally formed a center bearing 2, and a pair of side castings or cast pieces or parts 3 joined to the center casting 1 and preferably to each other, as well, by submerged arc or other suitable welding. Each of the side castings 3 has a longitudinally extending, substantially vertical or upright side wall 4 suitably reinforced by instanding ribbing 5 and disposed substantially parallel to and forming with the side wall of the other casting the side walls of the center filler. Attachable by welding or, as in the illustrated embodiment, by riveting to the confronting transversely spaced vertical webs 6 of a center sill 7 of a railway vehicle (not shown) on installation of the center filler therebetween, the side walls 4 preferably are projected or extended forwardly and there terminate in a pair of ribbing-reinforcing in-turned flanges 8 adapted to serve as rear stop lugs for an associated cushioning mechanism (not shown). Conventionally, the center filler may have as its upper extremity a pair of top flanges 9 each instanding intermediate its longitudinal extremities from and substantially normal to one of the side walls 4 and connectable by welding or, as here, by riveting to the top horizontal web 10 of the center sill 7.

Disposed below the bottom flanges 10a of the center sill 7 in the installed position of the center filler and ordi-

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narily of greater diameter than the transverse spacing between the center sill's side webs 6, the center bearing 2 in the illustrated embodiment is formed as part of a horizontally disposed bottom wall or base 11 of the center casting 1. Preferably substantially rectangular in plan and somewhat longer than the diameter of the center bearing 2 and of a width to underlie at its sides 12 the side walls 4, the bottom wall 11 has its longitudinal extremities 13 offset upwardly relative to the bearing face 14 of the center bearing 2 to define therebetween and clear the intervening portion of the cylindrical rim 15 of the center bearing. For receiving the usual upstanding hub of the companion bearing on the bolster (not shown) of a railway truck (not shown), the bearing face 14 of the center bearing 2 is interrupted centrally by a downwardly opening cylindrical socket 16 conveniently formed in a central boss 17 upstanding from the upper face 18 of the bottom wall 11. Also formed integrally with the center casting 1 and surmounting the boss 17 and concentric with the socket 16 therein is a king or center post 19 having a cylindrical bore 20 open at both ends and adapted to receive a king pin (not shown) for connecting the associated railway truck through the center filler to the center sill 7.

For strengthening the center casting and reinforcing the upstanding wall 21 of the king post 19 against bending, there are provided a plurality of upstanding or upright ribs or fins 22, each preferably substantially flat and tapering upwardly from an extremity of the bottom wall toward the upper end 23 of the king post. The several reinforcing ribs 22 preferably are disposed or project radially of the king post 19 and arranged in aligned pairs, one extending longitudinally and the other transversely of the center casting 1. Of the plurality of reinforcing ribs 22, those of the longitudinally extending pair preferably have at their upper ends flats or shoulders 24, coplanar with and one extending forwardly and the other rearwardly of the upper end 23 of the king post 19.

Instanding from and substantially normal to the side wall 4 of each side casting 3 is a substantially flat, horizontally directed cross flange, intermediate wall or cross tie element 25 having a preferably straight inner edge 26 substantially paralleling the side wall 4. The cross flanges 25 are designed to be joined together to form the intermediate wall or cross tie of the center filler, as well as to the king post 19. To this end, each cross flange 25 extends substantially to the middle of the center filler, as well as to the king post 19. To this end, each cross flange 25 extends substantially to the middle of the center filler at a level to overlie and rest on the upper end of the king post 19 and the coplanar flats 24 on the longitudinal pair of reinforcing ribs 22 and the contiguous or confronting inner edges 26 of the cross flanges are interrupted intermediate their longitudinal extremities by substantially semicircular apertures or openings 27 of sufficiently greater radius than the cylindrical bore 20 of the king post 19 to permit welding between the bounding edges 28 on the flanges and the upper end 23 of the king post, without encroachment upon the latter's bore. Substantially coextensive longitudinally with the contiguous or abutting edges 26 of the cross flanges 25, the flats 24 not only support but also back up the joint between the cross flanges during welding.

Joined at the center through their cross flanges to each other and the king post 19 and longitudinal pair of ribs 22 of the center casting 1, the side castings 3 are also joined to the center castings at the sides. For this purpose, there is provided at each side of the bottom wall 11 of the center casting an upstanding abutment 29 having a substantially flat upper face 30 and including at either end an instanding lug 31, so that the abutment as a whole is U-shaped in plan. Each of the side castings 3 in turn

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has at the bottom of its side wall 4 a substantially flat underface 32 of corresponding configuration which, in assembly of the center filler, is adapted to overlie and be supported on the upper face 30 of the adjoining or related of the abutments 29 at the sides of the center casting 1. Since formed in one plane, each of the several faces 30 and 32 is readily cleanable by grinding or, if necessary, machining. As in the case of the connection at the center, the joint at the sides between the confronting faces 29 and 32 of the abutments 29 and the side walls 4 are made rigid by a connecting submerged arc or other suitable weld 33.

Constructed in the above manner, the center filler of this invention, when completed, is lighter than and at least as strong as a one-piece cast center filler. Equally important, it is much cheaper to manufacture. With its horizontally and vertically disposed surfaces disposed at numerous different levels, it obviously would be impossible to cast the illustrated center filler without extensive coring. By forming the center filler instead of three castings, the instanding or upstanding elements of each of which are normal to its side or base and are of uniform thickness or, at least, not of progressively increased thickness toward their free ends, it is possible to cast each casting in green sand with the use of but a single hard sand core, one for the bore of the king post 19 in the center casting 1.

It should be understood that the described and disclosed embodiment is merely exemplary of the invention and that all modifications are intended to be included which do not depart from either the spirit of the invention or the scope of the appended claims.

Having described our invention, we claim:

1. A cast-weld center filler comprising a center casting including a center bearing, an upstanding king post surmounting said bearing, a plurality of substantially flat ribs extending from said center bearing upwardly along said king post and outstanding from said king post substantially normal to said center bearing, and abutment means at sides of said center bearing, a pair of side castings each including a side wall and a plurality of ribbing and flange elements each instanding from said side wall substantially normal thereto and unthickened toward its inner end, certain of said ribs and elements being substantially coplanar, and weld means rigidly connecting said abutments to said side castings and certain of said elements to each other and said center casting.

2. A cast-weld center filler comprising a center casting having a bottom wall including a depending center bearing, a king post integral with and surmounting said center bearing and upstanding from said bottom wall, an abutment at each side of and integral with said center casting and having a substantially flat upper face, a pair of side castings, each including a side wall, a substantially flat underface on each side wall conforming in configuration to and resting on the upper face of one of said abutments, and a substantially horizontal cross flange instanding from each side wall substantially to the middle of said center bearing and at a level to rest on an upper end of said king post, and weld means rigidly joining said faces to each other and said flanges to each other and said king post.

3. A cast-weld center filler comprising a center casting having a bottom wall including a depending center bearing, a king post surmounting said center bearing and upstanding from said bottom wall, a plurality of reinforcing ribs extending from said bottom wall upwardly along said king post, certain of said ribs having flats on upper extremities thereof substantially coplanar with an upper end of said king post, an abutment at each side of said center casting and having a substantially flat upper face, a pair of side castings each including a side wall, a substantially flat underface on each side wall conforming in configuration to and resting on the upper face of one of said abutments, a substantially horizontal cross flange

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instanding from each side wall substantially to the middle of said center bearing and at a level to rest on an upper end of said king post, and weld means rigidly joining said faces to each other and said flanges to each other and said king post.

4. A cast-weld center filler comprising a center casting having a bottom wall including a depending center bearing, a king post integral with and surmounting said center bearing and upstanding from said bottom wall, an abutment at each side of and integral with said center casting and having a substantially flat upper face, a pair of side castings each including a side wall, a substantially flat underface on each side wall conforming in configuration to and resting on the upper face of one of said abutments, and a substantially horizontal cross flange instanding from each side wall substantially to the middle of said center bearing and at a level to rest on said upper end of said king post and said flats, and weld means rigidly joining said faces to each other and said flanges to each other and said king post.

5. A cast-weld center filler comprising a center casting including a substantially rectangular bottom wall, a center bearing forming part of said bottom wall, an open-ended king post surmounting said center bearing and upstanding from said bottom wall, a plurality of substantially flat upstanding ribs extending between said bottom wall and a wall of said king post, said ribs projecting substantially radially from said king post wall and being arranged in aligned pairs, flats at upper extremities of a longitudinal pair of said ribs and substantially coplanar with an upper end of said king post, an upstanding abutment at each side of said center casting and having an upper face substantially U-shaped in plan, a pair of side castings each including a side wall having a substantially flat underface at a bottom thereof conforming in configuration to and restable on an upper face of said abutments, a substantially horizontal cross flange instanding from each side wall substantially to the middle of said center filler at a level to rest on said upper end of said king post, said cross flanges being apertured to clear a bore of said king post, and weld means rigidly joining adjoining of said faces to each other and said cross flanges to each other and said king post and longitudinal pair of ribs.

6. A cast-weld center filler comprising a center casting including as an integral part thereof a center bearing, a pair of side castings, means integral with said center casting and contiguous to lower extremities of said side castings, means integral with and instanding from said side castings intermediate vertical extremities thereof, and weld means rigidly connecting said contiguous means to said side castings substantially at said lower extremities thereof and said instanding means to said center casting.

7. A cast-weld center filler comprising a center casting including as an integral part thereof a center bearing, a pair of side castings, means integral with said center casting and contiguous to lower extremities of said side castings, means integral with and instanding from said side castings intermediate vertical extremities thereof, and weld means rigidly connecting said contiguous means to said side castings substantially at said lower extremities thereof and said instanding means to each other and said center casting.

8. A cast-weld center filler comprising a center casting including as an integral part thereof a center bearing, an abutment at each side of and integral with said center casting and having a substantially flat upper face, a pair of side castings each including a side wall, a substantially flat underface on its side wall conforming in configuration to and confronting the upper face of one of said abutments, and one of a pair of substantially horizontal coplanar flanges each instanding from one of said side walls intermediate vertical extremities thereof, and weld means rigidly joining said faces to each other and said flanges to said center casting.

9. A cast-weld center filler comprising a center casting

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having a bottom wall including a depending center bearing, a king post integral with and surmounting said center bearing and upstanding from said bottom wall, an abutment on each side of and integral with said center casting and having a substantially flat upper face, a pair of side castings each including a side wall, a substantially flat underface on its side wall conforming in configuration to and confronting the upper face of one of said abutments, and one of a plurality of substantially coplanar horizontal flanges each instanding from one of said side walls intermediate vertical extremities thereof,

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and weld means rigidly joining said faces to each other and said flanges to said center casting.

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