

No. 840,834.

PATENTED JAN. 8, 1907.

H. P. FIELD, JR.
CAR TRUCK BOLSTER.

APPLICATION FILED NOV. 9, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

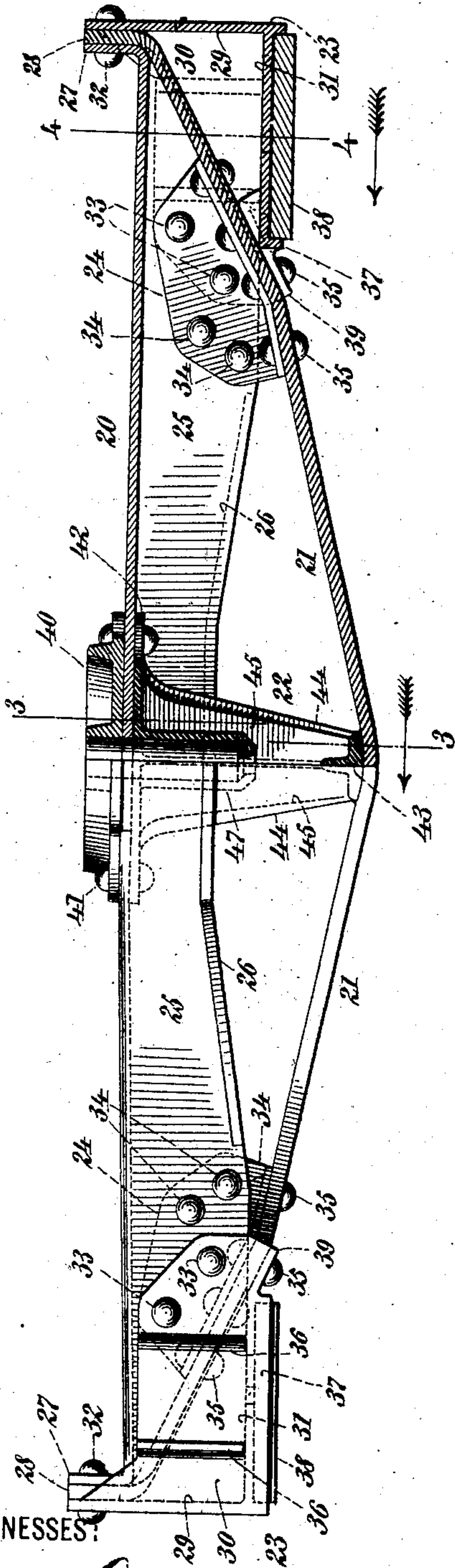
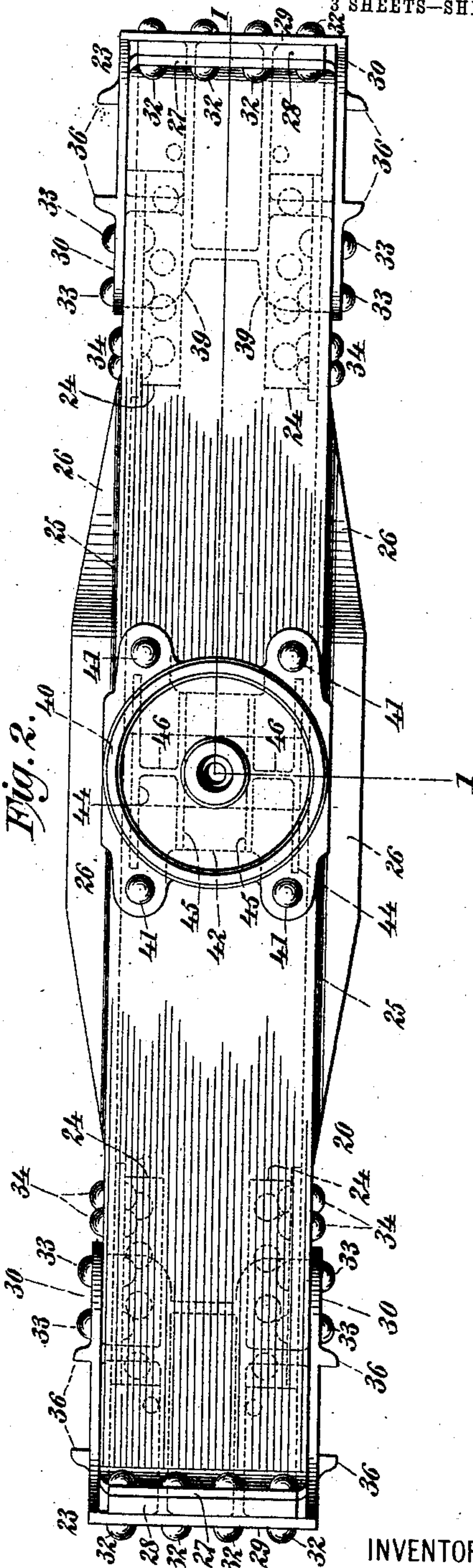


Fig. 2.



WITNESSES:

Gustave Dietrich.
Arthur Marion.

INVENTOR
Henry P. Field, junior.
BY *Chas. C. Gill*
ATTORNEY

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3 SHEETS—SHEET 2.

Fig. 3.

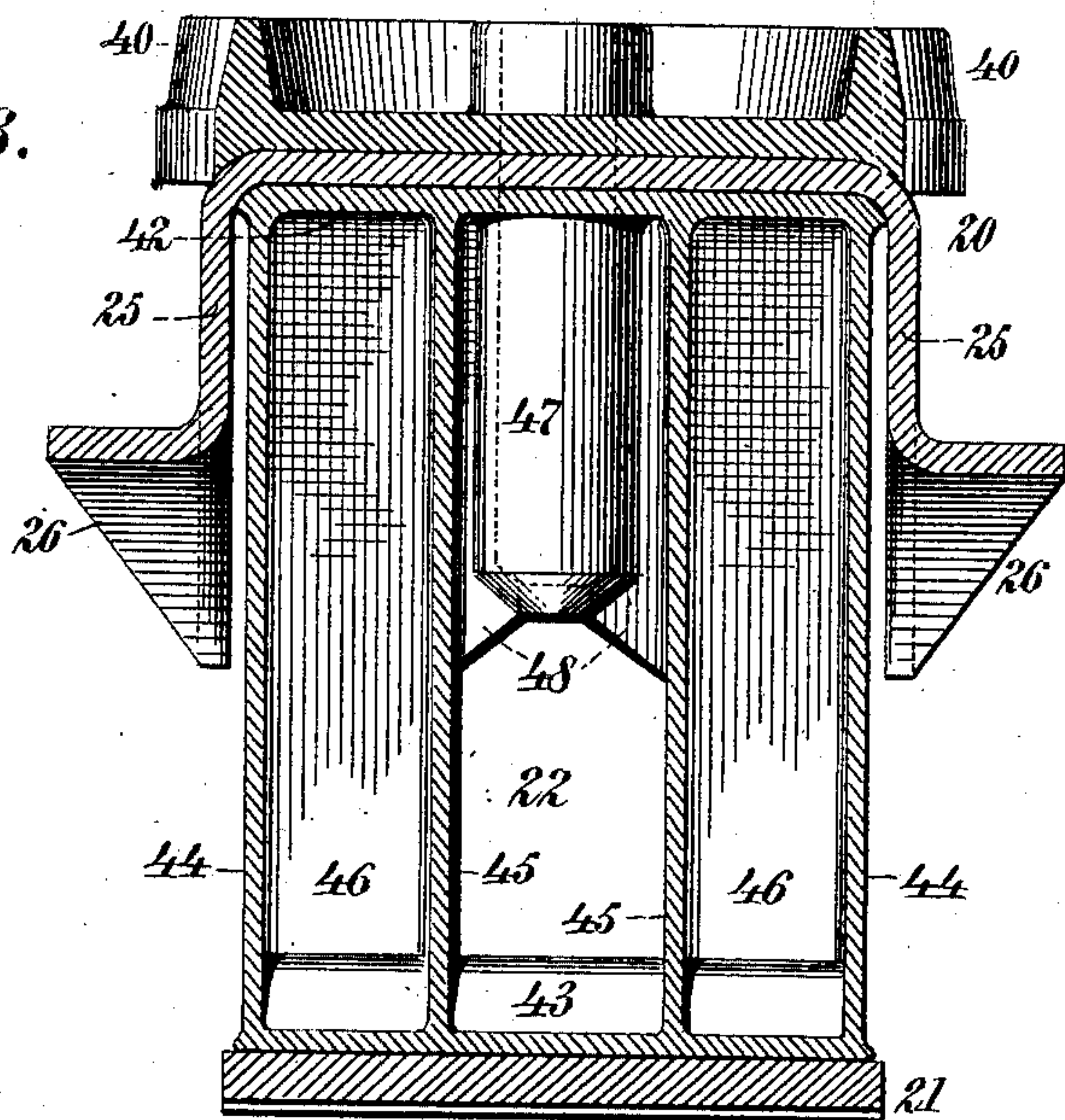
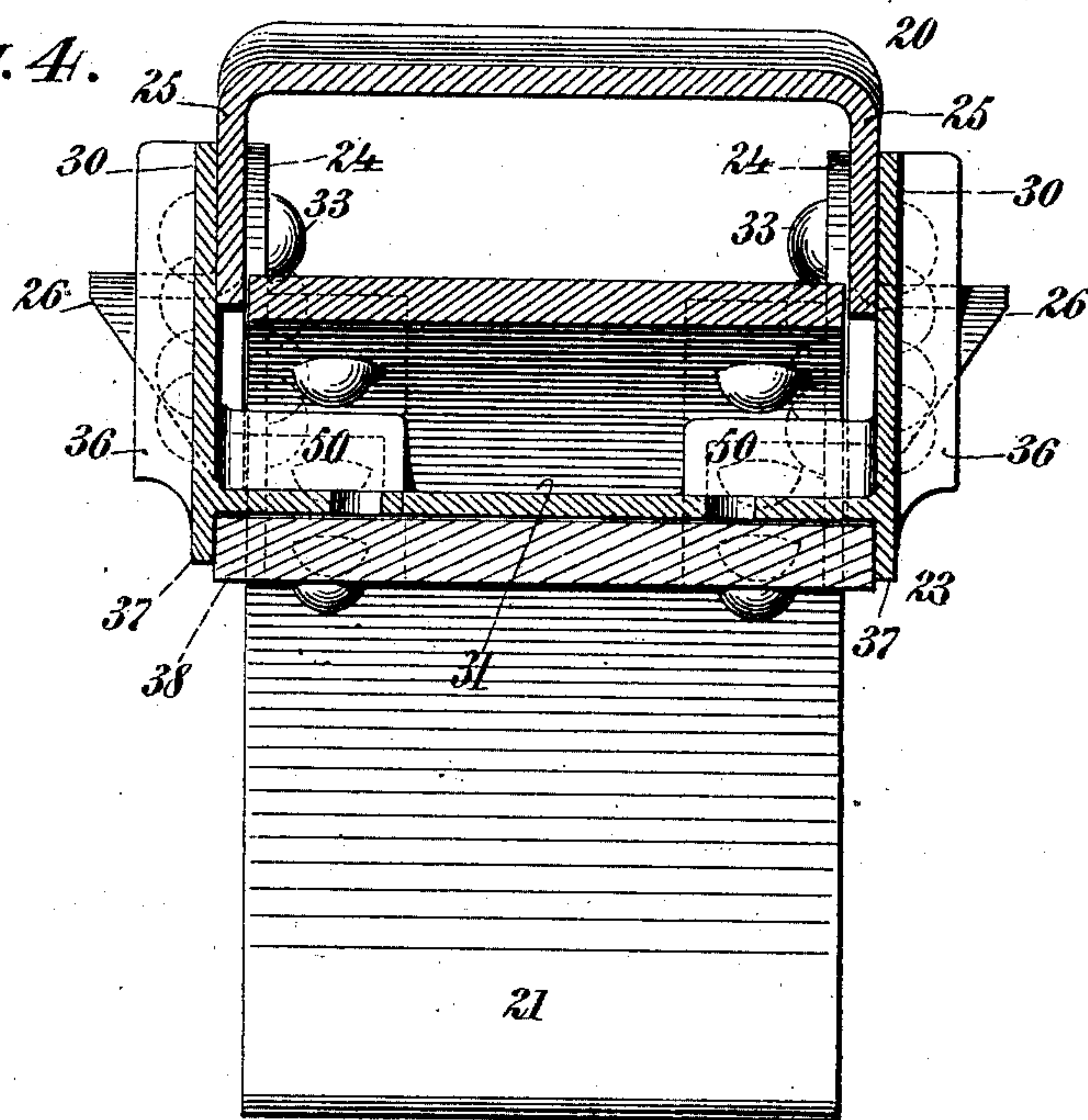


Fig. 4.



WITNESSES:

Gustave Dietrich
Arthur Marion

INVENTOR

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BY

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ATTORNEY

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3 SHEETS—SHEET 3.

Fig. 5.

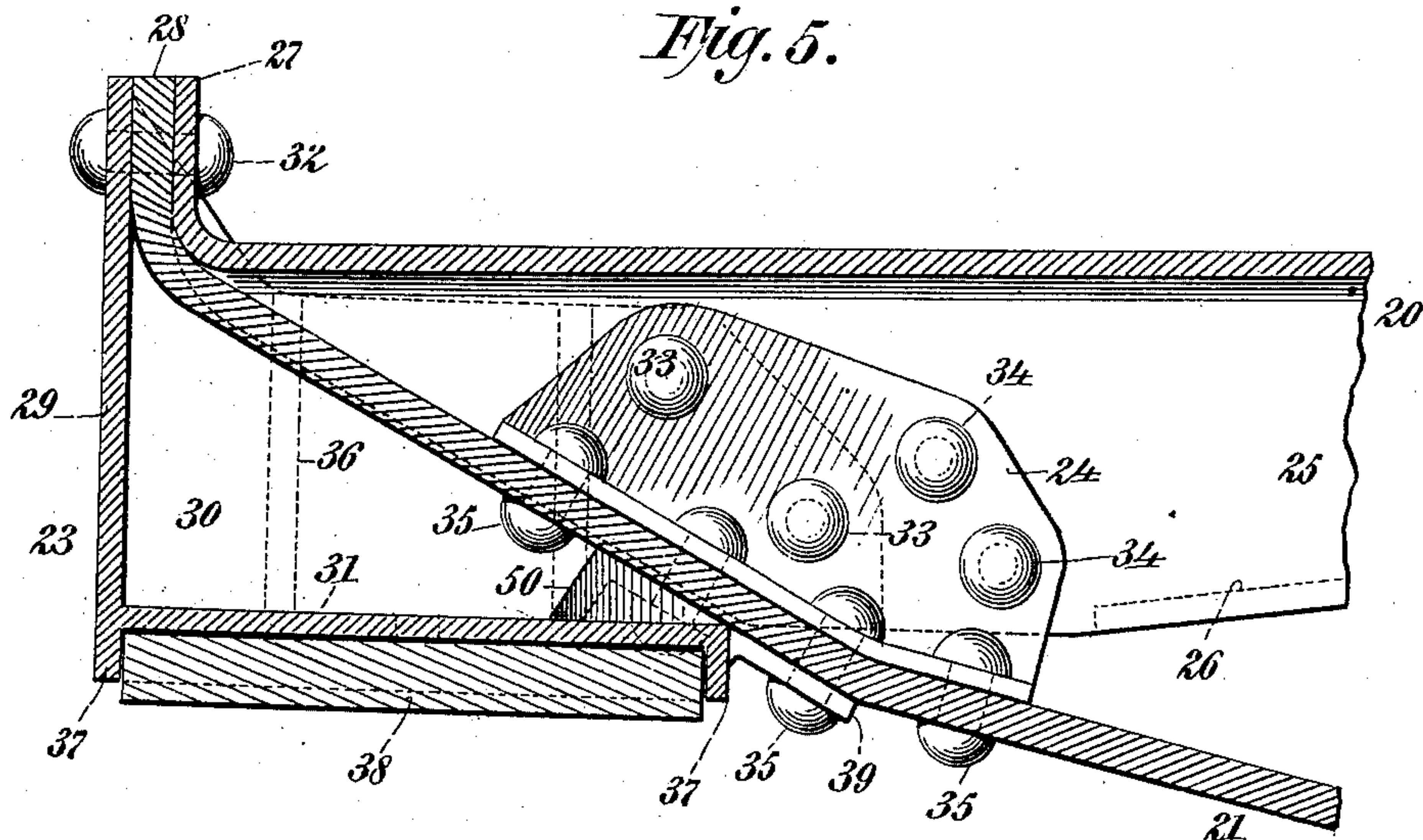
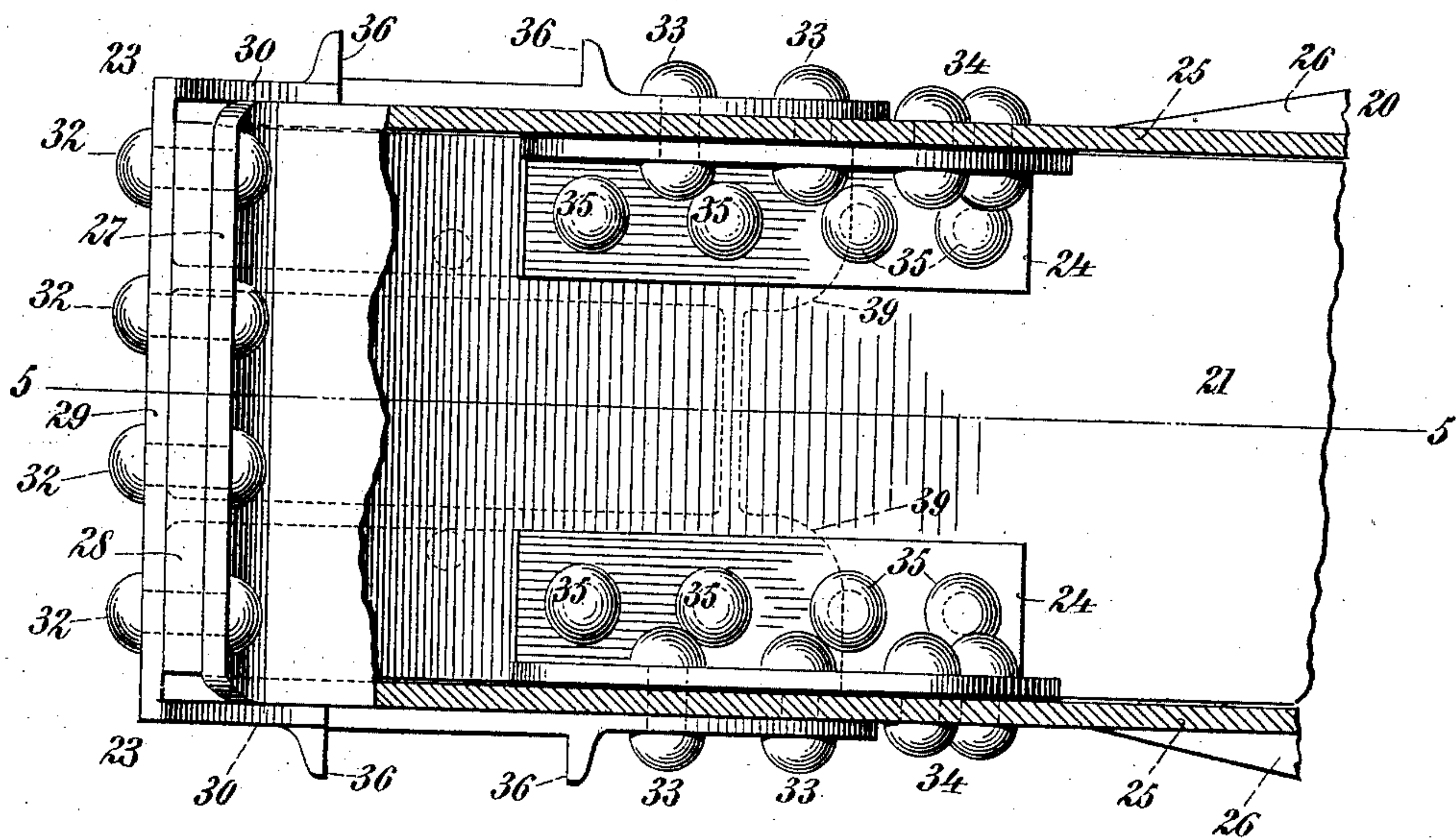


Fig. 6.



WITNESSES:

Gustav Dietrich.
Arthur Marion.

INVENTOR

Henry P. Field, junior.

BY

Chas. C. Gill

ATTORNEY

UNITED STATES PATENT OFFICE.

HENRY P. FIELD, JR., OF BERWICK, PENNSYLVANIA, ASSIGNOR TO
BENJAMIN A. HEGEMAN, JR., OF NORTH PLAINFIELD, NEW JERSEY.

CAR-TRUCK BOLSTER.

No. 840,834.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed November 9, 1906. Serial No. 342,601.

To all whom it may concern:

Be it known that I, HENRY P. FIELD, Jr., a citizen of the United States, and a resident of Berwick, in the county of Columbia and State of Pennsylvania, have invented certain new and useful Improvements in Car-Truck Bolsters, of which the following is a specification.

The invention relates to improvements in car-truck bolsters; and it consists in the novel features, arrangements, and combinations of parts hereinafter described, and particularly pointed out in the claims.

The object of the invention is to produce a highly-efficient bolster capable of ready manufacture and possessing great strength and rigidity and designed to meet all of the conditions which may be imposed upon it in service of the roughest kind.

In the preferred construction the bolster of my invention comprises a pressed-steel top or compression member of such shape as to offer the greatest resistance to compression, a bottom or tension member of pressed steel, a central strut under the center plate, end castings to serve as bearings for the springs and furnish column-guides and also to strengthen and stiffen the joints between the top and bottom members at the ends of the bolster, and inner plates secured to the sides of the top member, to the bottom member, and to said end castings and disposed below the usual location for the side bearings. The top and bottom members and inner connections are made from open-hearth steel plates, and the central strut and end castings are shown as formed of malleable iron, but may be made of open-hearth steel, if desired, although it is more advantageous to construct said end castings of malleable iron in order to produce integral column-guides on the vertical sides thereof and open pockets at the bottom thereof to receive wooden blocks for the upper ends of the springs.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation, with one longitudinal half in central vertical section, of a bolster constructed in accordance with and embodying my invention. Fig. 2 is a top

view of same, the dotted line 1 1 denoting the cut on which the sectional portion of Fig. 1 is taken. Fig. 3 is an enlarged vertical transverse section of same, taken on the dotted line 3 3 of Fig. 1. Fig. 4 is an enlarged vertical transverse section of same, taken on the dotted line 4 4 of Fig. 1. Fig. 5 is an enlarged central vertical longitudinal section of one end portion of the bolster, taken on the dotted line 5 5 of Fig. 6; and Fig. 6 is a top view, partly broken away and partly in section, of same.

In the drawings, 20 designates the top or compression member; 21, the bottom or tension member; 22, the central strut under the center plate; 23, the end castings, and 24 the inner-plate connections.

The compression member 20 is arched upwardly to an appropriate degree and comprises a top and depending sides 25, which are less in depth at their central portions and formed with the lateral outwardly-extending flanges 26 at their lower edges, said flanges being widest at their central portions and thence tapering inwardly toward their ends, which are at a convenient distance from the inner edges of the end castings 23. The flanges 26 by following the lower edges of the sides 25 form upwardly-bowed arches and very greatly strengthen the bolster. At its ends the top of the compression member is flanged upwardly, as at 27.

The tension member 21 is a plain-steel downwardly-arched plate of uniform width, and from its center below the central strut said plate extends upwardly toward the ends of the bolster, at its end portions passing upwardly between the inclined edges of the sides 25 of the compression member and at its extreme ends being flanged, as at 28, to match and engage the flanges 27 at the extreme ends of said compression member. The tension member 21 inclines upwardly from its center toward the inner lower ends of the castings 23 or the lower end edges of the sides 25 at one angle and then extends upwardly between said sides to the flanges 28 at a more abrupt angle, as shown.

The end castings 23 are of box shape open at their top and inner end and each comprising a solid outer end 29, vertical sides 30, and bottom 31, and said castings are adapted to

pass upon the ends of the bolster. The ends 29 of the end castings extend upwardly to the upper edges of the flanges 27 28 of the compression and tension members and are
 5 secured thereto by rivets 32, these rivets securely fastening the compression and tension members and end castings together at the upper end portions of the bolster. The outline of the sides 30 of the end castings is
 10 clearly illustrated at the left-hand end of Fig. 1, and these sides are securely riveted to the sides 25 of the compression member by means of rivets 33, which in addition to passing through the sides of the end castings and
 15 the sides of the compression member also pass through the vertical sides of the inner angle-plate connections 24, which, as shown in Figs. 5 and 6, are located one at each side of the center of the bolster at each end of the
 20 latter and are secured by the said rivets 33 and also by rivets 34 and 35, the latter firmly securing the lower members of said connections 24 to the tension member 21, and the rivets 34 securing the vertical sides of said
 25 connections 24 to the sides of the compression member 20, while the rivets 33 secure the vertical sides of said inner connections 24 to the said sides of the compression member and also to the sides of the end cast-
 30 ings 23, whereby the parts of the end portions of the bolster become very rigidly and durably secured together. The ends 29 of the end castings extend upwardly above the sides 30 thereof to match and engage the
 35 flange 28 of the tension member, while the upper edges of the outer portion of said sides 30 terminate slightly below the upper surface of the compression member. The sides 30 of the end castings are formed integrally with
 40 vertical flanges 36, which afford the usual column-guides. The bottom of each end casting 23 is formed with a downwardly-extending flange 37, which is of box outline and adapted to receive the block 38 for the upper
 45 ends of the usual carrying-springs, those portions of the end castings receiving the blocks 38 forming inverted pockets or receptacles therefor and being horizontal, as shown in Figs. 1 and 5, while at the side edges of the
 50 inner end of the bottom 31 of each end casting are formed inwardly and downwardly extending flange portions 39, which engage the lower inclined surface of the tension member 21 and are secured thereto by some of the
 55 rivets 35, which secure the inner connections 24 to the said tension member. The end castings 23 are thus secured by the rivets 32 to the compression and tension members, by the rivets 33 to the sides of the compression member and vertical sides of the inner con-
 60 nections 24, and by rivets 35 to the tension member and said inner connections. The inner connections 24 are below the locations for the usual side bearings, and they are se-

cured by the rivets 33, 34, and 35 to the com- 65
 pression and tension members and to the end castings.

The end members 23 are preferably cast with inner projections or lugs 50 to form seats for the lower edges of the sides 25 of the com- 70
 pression member and for the tension member, as shown in Figs. 4 and 5.

The central strut 22 is disposed between the top of the compression member and the upper surface of the tension member directly 75
 below the standard center bearing 40, and this strut is secured by the rivets 41, by which said center plate is secured upon the compression member. The strut 22 comprises a top plate 42, base 43, vertical sides 80
 44, Fig. 3, and vertical partitions 45, which with said sides connect the top plate 42 and base 43. The sides 44 and partitions 45 incline downwardly on converging lines, as indicated in Fig. 1, and they are connected to- 85
 gether along their vertical centers at each side of the longitudinal center of the bolster by means of integral webs 46. (Shown more clearly in Fig. 3.) Between the upper por-
 90 tions of the partitions 45 the strut is formed with the integral sleeve 47, whose sides are connected by webs 48 with the partitions 45, said sleeve 47 being directly below the central opening in the center bearing 40 and the
 95 strut below the sleeve 47 being entirely open between the partitions 45 and down to the upper edge of the base 43. I do not limit my invention to the special construction of
 100 strut 22 shown in the drawings; but the construction shown is durable, rigid, effectual, and novel in design, and I recommend its use.

It will be seen that the bolster of my invention is capable of ready manufacture, that it possesses strength and rigidity, and is economical in the use of materials. The bol- 105
 ster is interchangeable with other bolsters, and it is of a design adapting it to fully meet the conditions which may be imposed upon it in service of the roughest kind.

The compression member 20 by reason of 110
 its form and integral sides 25 and flanges 26 is adapted to offer the greatest resistance to compression, and said flanges are in the construction presented formed without waste of materials and constitute upwardly-extend- 115
 ing arches, which strengthen the compression member and increase its resisting power. The end castings 23 afford column-guides and bearings for the carrying-springs and strengthen the ends of the bolster and con- 120
 125 nect the parts thereof and in conjunction with the inner connections 24 said end castings connect the compression and tension members at points below the locations for the usual side bearings, whereby in service the strains exerted on the compression member by pressure at the side bearings will be transferred to the tension member.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A bolster comprising a compression member, a tension member, a strut and means connecting said members at the ends of the bolster, said compression member being of pressed steel, and having a top and sides, and said sides having laterally-extending flanges along their lower edges which flanges define upwardly-extending arches; substantially as set forth.

2. A bolster comprising a compression member, a tension member, a strut and means connecting said members at the ends of the bolster, said compression member being of pressed steel and having a top and sides, and said sides having laterally-extending flanges along their lower edges which flanges define upwardly-extending arches and are widest at their middle portions, whence they taper toward the ends of the bolster; substantially as set forth.

3. A bolster comprising a pressed-steel compression member having a top and sides and being flanged upwardly at its ends and laterally along the lower edges of its sides, a tension member formed of a downwardly-arched steel plate whose end portions extend upwardly to the ends of the compression member and thence turn upwardly in the form of flanges to match the flanges on the ends of said compression member, a central strut, and end box-like members fitted upon the ends of the bolster and riveted to said compression and tension members and securing the same together; substantially as set forth.

4. A bolster comprising a pressed-steel compression member having a top and sides and being flanged upwardly at its ends and laterally along the lower edges of its sides, a tension member formed of a downwardly-arched steel plate whose end portions extend upwardly to the ends of the compression member and thence turn upwardly in the form of flanges to match the flanges on the ends of said compression member, a central strut, and end box-like cast members fitted upon the ends of the bolster and riveted to said compression and tension members and securing the same together, said end members affording column-guides and inverted pockets for the bearing-blocks for the carrying-springs; substantially as set forth.

5. A bolster comprising a pressed-steel compression member having a top and sides and being flanged upwardly at its ends and laterally along the lower edges of its sides, a tension member formed of a downwardly-arched steel plate whose end portions extend upwardly to the ends of the compression member and thence turn upwardly in the form of flanges to match the flanges on the ends of said compression member, a central

strut, end box-like members fitted upon the ends of the bolster, and inner connections at each side of each end of the bolster and riveted to said compression and tension members, said end members being also riveted to said tension and compression members; substantially as set forth.

6. A bolster comprising a pressed-steel compression member having a top and sides and being flanged upwardly at its ends and laterally along the lower edges of its sides, a tension member formed of a downwardly-arched steel plate whose end portions extend upwardly to the ends of the compression member and thence turn upwardly in the form of flanges to match the flanges on the ends of said compression member, a central strut, end box-like members fitted upon the ends of the bolster, and inner connections at each side of each end of the bolster and riveted to said compression and tension members, said end members being also riveted to said tension and compression members and being of cast metal and affording column-guides and inverted pockets for the bearing-blocks for the carrying-springs; substantially as set forth.

7. A bolster comprising a pressed-steel compression member having a top and sides, a downwardly-arched steel-plate tension member whose end portions extend upwardly and are secured to the ends of said compression member, a central strut, end box-like members fitted upon the ends of the bolster, and inner connections at each side of each end of the bolster and riveted to said compression and tension members, said end members being also riveted to said tension and compression members; substantially as set forth.

8. A bolster comprising a pressed-steel compression member having a top and sides, a downwardly-arched steel-plate tension member whose end portions extend upwardly and are secured to the ends of said compression member, a central strut, end box-like members fitted upon the ends of the bolster, and inner connections at each side of each end of the bolster and riveted to said compression and tension members, said end members being also riveted to said tension and compression members and being of cast metal and affording column guides and inverted pockets for the bearing-blocks for the carrying-springs; substantially as set forth.

9. A bolster comprising a pressed-steel compression member having a top and sides, a downwardly-arched steel-plate tension member whose end portions extend upwardly and are secured to the ends of said compression member, a central strut, end box-like members fitted upon the ends of the bolster, and inner connections at each side of each end of the bolster and riveted to said

compression and tension members, said end
members being also riveted to said tension
and compression members and having inner
lugs forming seats for the end portions of the
5 sides of the compression member and for the
inclined end portions of said tension member;
substantially as set forth.

In witness whereof I have hereunto set my
hand, this 31st day of October, 1906, at Ber-
wick, Pennsylvania.

HENRY P. FIELD, JUNIOR.

Witnesses:

WILL T. LEWIS,

N. W. BLOSS.