

April 14, 1964

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3,128,886

CAR COUPLER

Filed Sept. 5, 1961

2 Sheets-Sheet 1

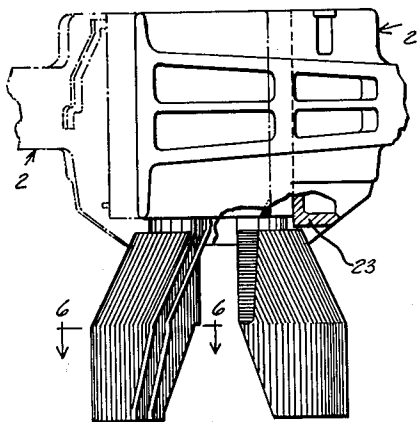


Fig. 2

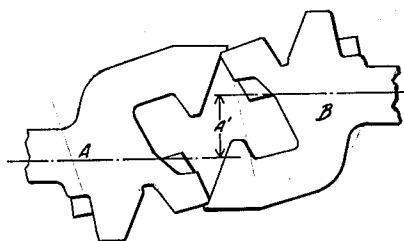


Fig. 3

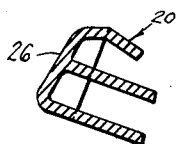


Fig. 6

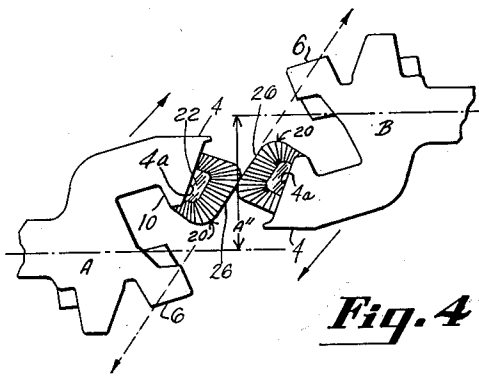


Fig. 4

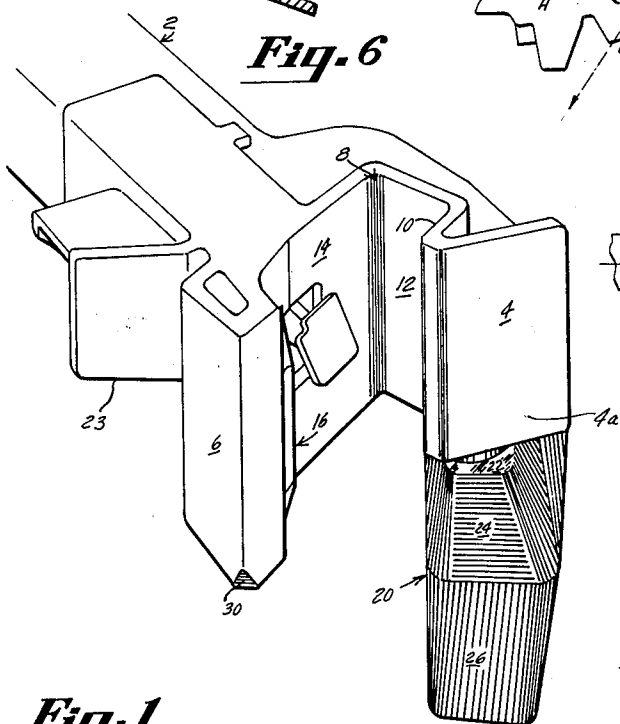


Fig. 1

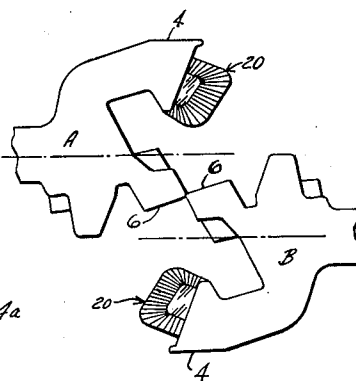


Fig. 5

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2 Sheets-Sheet 2

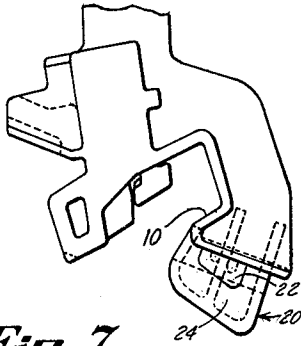


Fig. 7

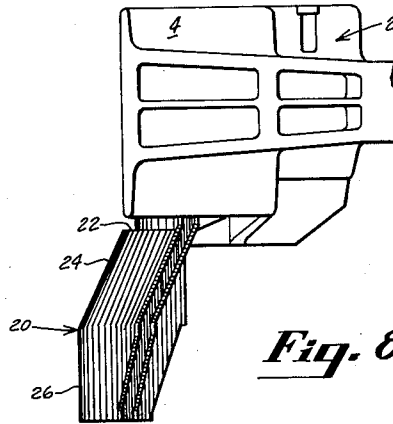


Fig. 8

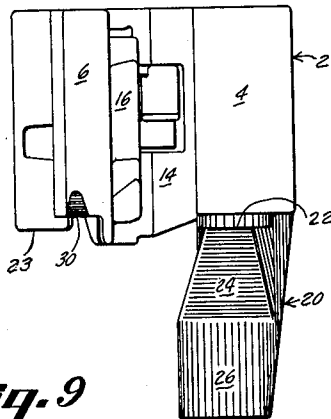


Fig. 9

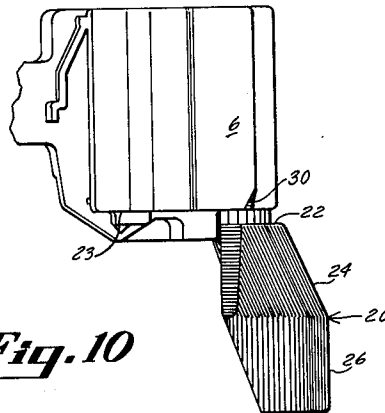


Fig. 10

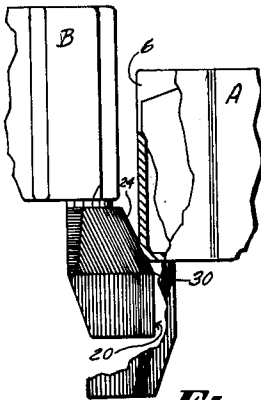


Fig. 11

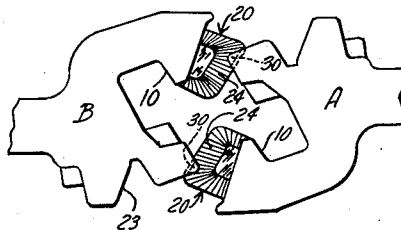


Fig. 12

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5 Claims. (Cl. 213—100)

This invention relates to an improved automatic railway car coupler of the fixed-jaw type that is equipped with an aligning horn providing greater as well as improved gathering range during coupling operations.

There is a need today for a railway car coupler of the fixed-jaw type that has a greater range of horizontal and vertical gathering than is currently provided by presently available couplers. The herein disclosed coupler offers a distinct advance over prior art devices in that the coupler has a greater range of horizontal gathering than has been hitherto possible with existing couplers without adding materially to the lateral extent of the coupler or interfering with train service line connections.

In accordance with the invention, this increase in gathering range was made possible by the addition of an aligning horn on the underside of the coupler head. The aligning horn is mounted on the coupler beneath the pulling jaw and projects generally forwardly toward the longitudinal center line of the coupler. By thus positioning the aligning horn, a maximum of horizontal and vertical gathering is made possible which is substantially greater than that on presently existing couplers without adding materially to the size of the coupler.

It is therefore the primary object of this invention to provide an automatic coupler of the fixed-jaw type with horn means for increasing the horizontal and vertical gathering range of the coupler without altering the shape of the buffing and pulling jaws.

It is a specific object of this invention to provide an aligning horn for an automatic coupler of the fixed-jaw type having a supporting surface and an aligning surface, said surfaces cooperating with surfaces of an opposing similar coupler to provide guidance and support for the opposing coupler.

It is a more specific object of this invention to provide an aligning horn for an automatic coupler of the fixed jaw type, said horn being mounted beneath the pulling jaw and having surfaces for aligning an opposing coupler during coupling operations, and a support surface for supporting an opposing coupler when the couplers are in coupled relation.

These and other objects will be more apparent from the following description and claims in which:

FIG. 1 is a perspective view of a fixed jaw coupler embodying the invention.

FIG. 2 is a side view of two intercoupled couplers of the type shown in FIG. 1.

FIG. 3 is a plan view of two couplers that are in horizontally offset relation and do not embody the invention.

FIG. 4 is a plan view of two couplers embodying the invention, showing the couplers in horizontally offset position.

FIG. 5 is a plan view of two couplers embodying the invention horizontally offset in a direction opposite to that shown in FIG. 4.

FIG. 6 is a horizontal section taken along line 6—6 of FIG. 2.

FIG. 7 is a plan view of a coupler embodying the invention.

FIG. 8 is a side view of the pulling jaw side of a coupler embodying the invention.

FIG. 9 is a front view of the coupler embodying the invention.

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FIG. 10 is a side view of the buffing jaw side of the coupler.

FIG. 11 is a vertical section of two opposing couplers embodying the invention that are vertically offset.

FIG. 12 is a plan view of the two couplers portrayed in FIG. 11.

Referring to FIG. 1, there is illustrated a car coupler 2 of the fixed-jaw type having a pulling jaw 4 and a buffing jaw 6. Between these jaws is a recess 8 defined by a pulling surface 10, side wall 12 and rear wall 14, into which the lock 16 extends. Mounted beneath the pulling jaw 4 on the same side of the longitudinal center plane (see FIGURES 4 and 5) as the pulling jaw is an aligning horn 20. The horn is preferably securely bolted or welded to the coupler head so as to form an integral part thereof. If desired, the horn may be cast as an integral part of the coupler head.

The horn 20 has a horizontal supporting surface 22 that extends forwardly from the lower extremity of the front face 4a of the pulling jaw 4. This can be seen most clearly in FIG. 1. The horizontal upward-facing supporting surface 22 is adapted to underlie portion 23 of an opposing coupler to support the latter when in coupled relationship with the illustrated coupler. Sloping downwardly and forwardly from the supporting surface is a front-facing aligning surface 24 which extends downwardly to a point where it intersects with front-facing substantially vertical buffing face 26 of the horn 20. Buffing jaw 6 is modified by the addition of surface 30 on the bottom of the jaw. This surface can best be seen in FIGS. 9 and 11.

When two opposing conventional couplers are offset horizontally, as shown in FIG. 3, without being equipped with the herein disclosed aligning horn, their maximum gathering range is limited to the width of the pulling jaw 6. However, when the couplers are equipped with the aligning horn, as shown in FIG. 4, the range of horizontal gathering is substantially increased as is shown by a comparison of the gathering range A' and A'' of FIGS. 3 and 4.

Referring to FIG. 3, the limit of horizontal gathering is shown by the letter A' which indicates the distance between a vertical longitudinal center plane of coupler A and a similar vertical center plane drawn through coupler B. In FIG. 4, two fixed jaw couplers are shown equipped with aligning horns and in horn-to-horn engagement. As FIGS. 3 and 4 are drawn to the same scale, the difference between distance A' shown in FIG. 3 and corresponding distance A'' in FIG. 4 can be readily compared. These two figures reveal that the range of gathering to one side of the coupler is substantially increased over a coupler not equipped with an aligning horn.

FIGS. 3 and 4 illustrate the type of horizontal displacement wherein the pulling jaw of one coupler tends to be shifted from its normal side of the vertical center plane of an opposed coupler coupled therewith toward the other side of the center plane. FIG. 4 represents an extreme condition of misalignment wherein the pulling jaws of two couplers are opposed in the lengthwise direction of the couplers. Obvious in FIG. 4 is that the aligning horns 20 of the similar couplers A and B engage along the buffing faces 26 thereof and that the aligning horn of each coupler extends forwardly relative to its respective supporting jaw to enable it, when engaging the buffing face of the horn of a similar coupler, to maintain the couplers apart. That is, the buffing jaw 6 of coupler A is prevented from catching on the forwardmost tip of the pulling jaw 4 as the couplers move in the direction of the full-line arrows toward a coupling position. The path of relative movement is further indicated by the double-headed dotted-line arrow drawn in the plane of the buffing faces 26.

From FIG. 4 it is further apparent that in effecting horizontal gathering, the horns are of a width along the buffing faces 26 as measured in a direction toward the vertical center plane of the coupler to carry out an initial stage of gathering until a second stage is reached wherein the pulling jaw of each coupler and the buffing jaw of the other coupler may engage as illustrated by FIG. 3. Then the second and final stage of gathering may be effected in the conventional manner wherein the forward tips of the buffing jaws slide along the backwardly and inwardly canted front faces 4a of the pulling jaws. As this movement is completed, the buffing jaw of each coupler is received between the fixed jaws of the opposing coupler.

The gathering range on the buffing jaw side of the coupler is unaffected by the addition of an aligning horn to the pulling jaw side of the coupler. It is an inherent defect of the fixed jaw coupler that its range of gathering on the buffing jaw side of the coupler is less than its gathering on its pulling jaw side. This can best be seen by comparing FIGS. 4 and 5. FIG. 5 shows two fixed jaw couplers at their extreme horizontal gathering range when offset on their buffing jaw sides. It should be apparent that the aligning horn performs no function under these circumstances.

In vertical gathering, the aligning horn offers considerable assistance in that it permits the lower of two couplers to ride up on the horn of the higher coupler into coupling engagement with the higher of the two couplers. This is shown in FIGS. 11 and 12 wherein the buffing jaw of coupler A engages the aligning horn on coupler B in a manner adapting the surface 30 of coupler A to slide upwardly over the horn surface 24 of coupler B. The resultant force of the two couplers being forced together causes the coupler A to slide upwardly into coupling engagement with coupler B so as to effect final coupling. Thus, there is an increase over existing couplers in the vertical gathering range of the coupler by the addition of the aligning horn.

Some prior art couplers are equipped with somewhat similar structures, but on these couplers the structure that would be equivalent to the horn herein disclosed is angled outwardly from the longitudinal center line or plane of the coupler and is generally mounted on the buffing jaw. By canting the aligning horn inwardly and by mounting it beneath the pulling jaw, interference is avoided between the horn and the trainline connector that is normally mounted beneath the coupler head. Such trainline connectors are commonly mounted on couplers to effect automatic connection of the train service lines during coupling operations.

The prior art structures that have been employed to increase the gathering range of the coupler either increase the gathering range of the coupler either increase the width of the coupler head beyond a desirable amount, or they interfere with the trainline connector during coupling or uncoupling operations. The herein disclosed aligning horn avoids interference, in general, with conventional subtermounted trainline connectors and does not increase the width of the coupler head beyond a desirable amount.

The invention as disclosed herein has resulted in a novel coupler providing a considerable increase in coupler gathering range without substantially altering the horizontal and vertical configuration of the coupler head and without interfering with the operation of the trainline connector.

The terms and expressions which have been employed are used as terms of description and not of limitation and there is no intention of excluding such equivalents of the invention described or of the portions thereof as fall within the scope of the claims.

What is claimed is:

1. A car coupler of the fixed-jaw type comprising: a buffing jaw and a pulling jaw spaced on opposite sides of the longitudinal vertical center plane of the coupler to

receive the buffing jaw of a similar coupler therebetween; and an aligning horn mounted beneath the pulling jaw and at the same side of said plane as the pulling jaw; said horn having a front buffing face canted inwardly and rearwardly toward said plane; said buffing face disposed forwardly of said pulling jaw to guide a similar coupler into coupling relation with said coupler without interference of the buffing jaw of the similar coupler with the pulling jaw of said coupler.

2. A car coupler of the fixed-jaw type comprising: a buffing jaw and a pulling jaw horizontally spaced on opposite sides of a longitudinal vertical center plane of the coupler to receive the buffing jaw of a similar coupler therebetween; and an aligning horn mounted beneath said pulling jaw and on the same side of said plane as the pulling jaw; said horn having a buffing face canted inwardly and rearwardly toward said plane, and an upwardly-facing surface for supporting an opposing similar coupler when coupled to said coupler; said buffing face being spaced forwardly of said pulling jaw a distance maintaining, when the horn buffing faces of said coupler and a similar coupler are engaged, said pulling jaw apart from the buffing jaw of the similar coupler; said horn having an aligning surface sloping forwardly and downwardly from said pulling jaw for engaging the buffing jaw of a similar coupler in effecting vertical alignment of the couplers.

3. A car coupler of the fixed-jaw type comprising: a buffing jaw and a pulling jaw horizontally spaced on opposite sides of a longitudinal vertical center plane of the coupler to receive the buffing jaw of a similar coupler therebetween; said pulling jaw having a usually-vertical front face canted inwardly and rearwardly toward said plane; and an aligning horn mounted beneath said pulling jaw on the same side of said plane as the pulling jaw; said horn having a buffing face canted inwardly and rearwardly toward said plane and disposed forwardly relative to said front face a distance which maintains said pulling jaw apart from the pulling jaw of a similar coupler in horn-to-horn engagement with said coupler; said horn buffing face being of a width in a direction toward said plane which guides the pulling jaw of an opposed similar coupler into guiding engagement with the buffing jaw of said coupler.

4. A car coupler of the fixed-jaw type comprising: a buffing jaw and a pulling jaw horizontally spaced on opposite sides of a longitudinal vertical center plane of the coupler to receive the buffing jaw of a similar coupler therebetween; said buffing jaw having a usually vertical front face canted inwardly and rearwardly toward said plane; and an aligning horn mounted beneath the pulling jaw at the same side of said plane as the pulling jaw; said horn having a buffing face canted inwardly and rearwardly toward said plane, a substantially flat upwardly-facing surface spaced upwardly from the buffing face and adapted to receive an undersurface of the buffing jaw of an opposed similar coupler, and an aligning surface sloping downwardly and forwardly from said flat surface to said buffing face.

5. The car coupler of claim 4 wherein: said buffing face is disposed forwardly relative to said front face to an extent maintaining the buffing jaw of an opposed similar coupler apart from said pulling jaw at all positions of engagement of opposed horns; and the width of said buffing face in a direction toward said plane is of a magnitude for disposing the buffing jaw of an opposed similar coupler in engagement with said front face during relative horizontal aligning movements thereof.

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