J. W. BREADY.

CONNECTING ROD COUPLING.

APPLICATION FILED APR. 4, 1908.

947,567.

Patented Jan. 25, 1910.

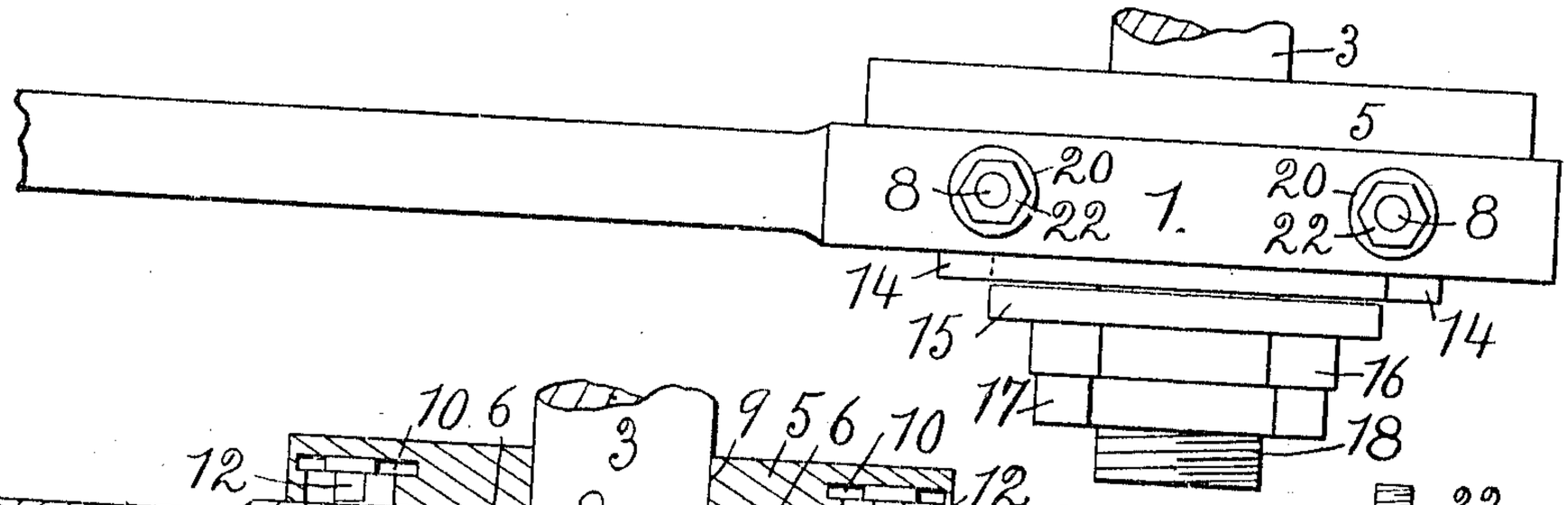

FIG. 1.

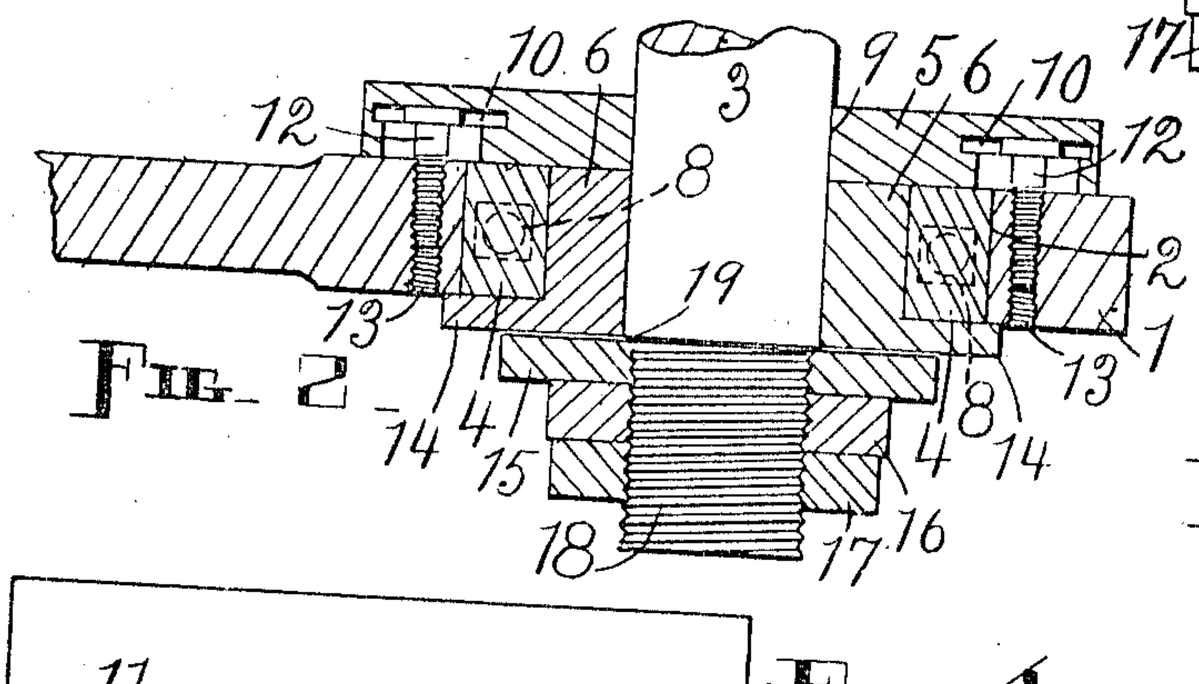

FIG. 2.

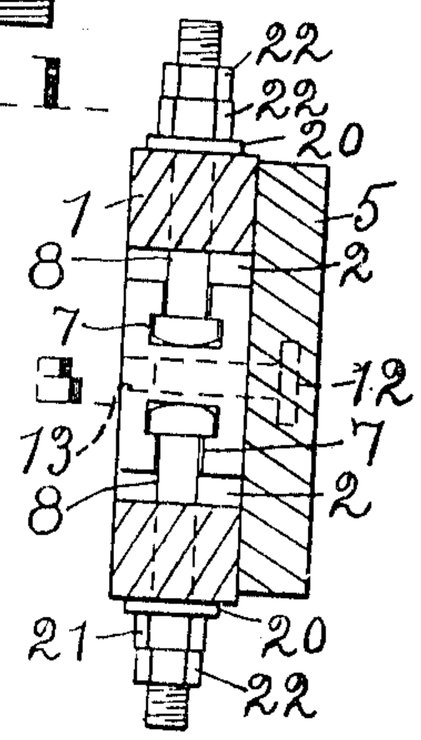

FIG. 3.

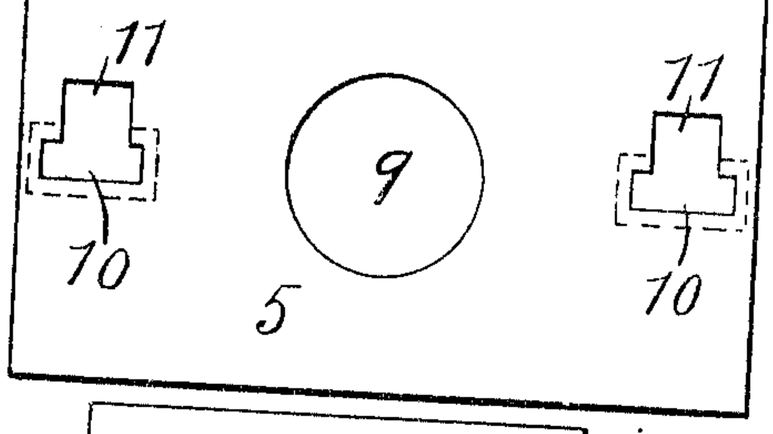

FIG. 4.

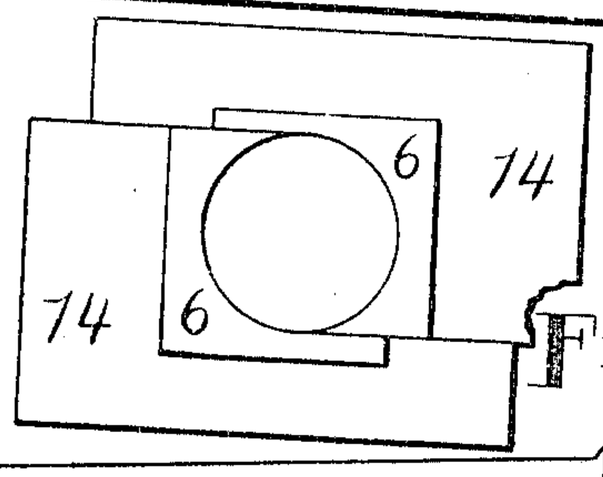

FIG. 5.

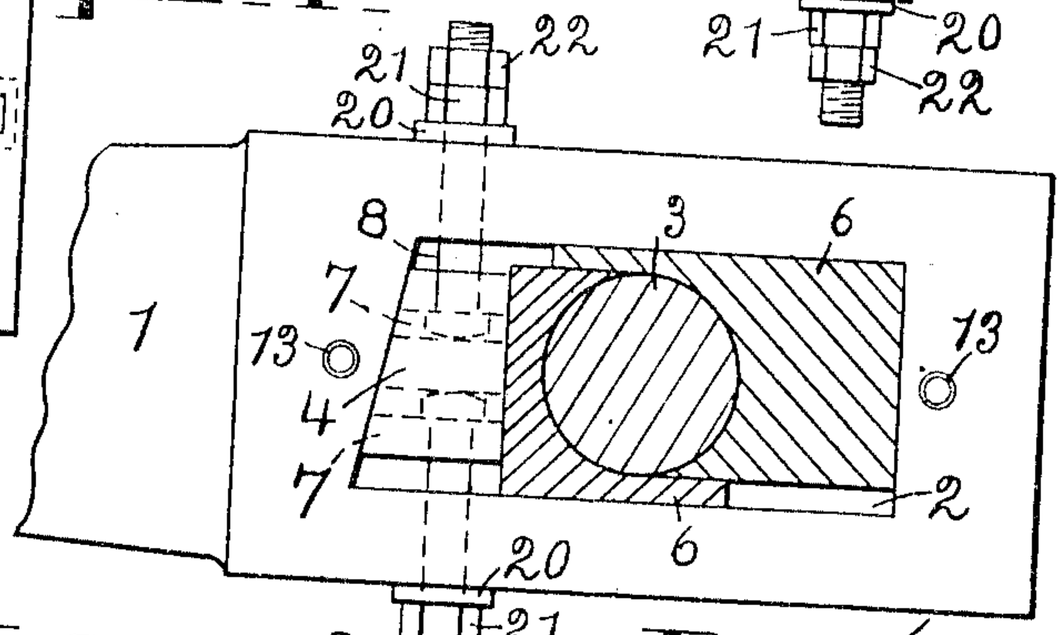

FIG. 6.

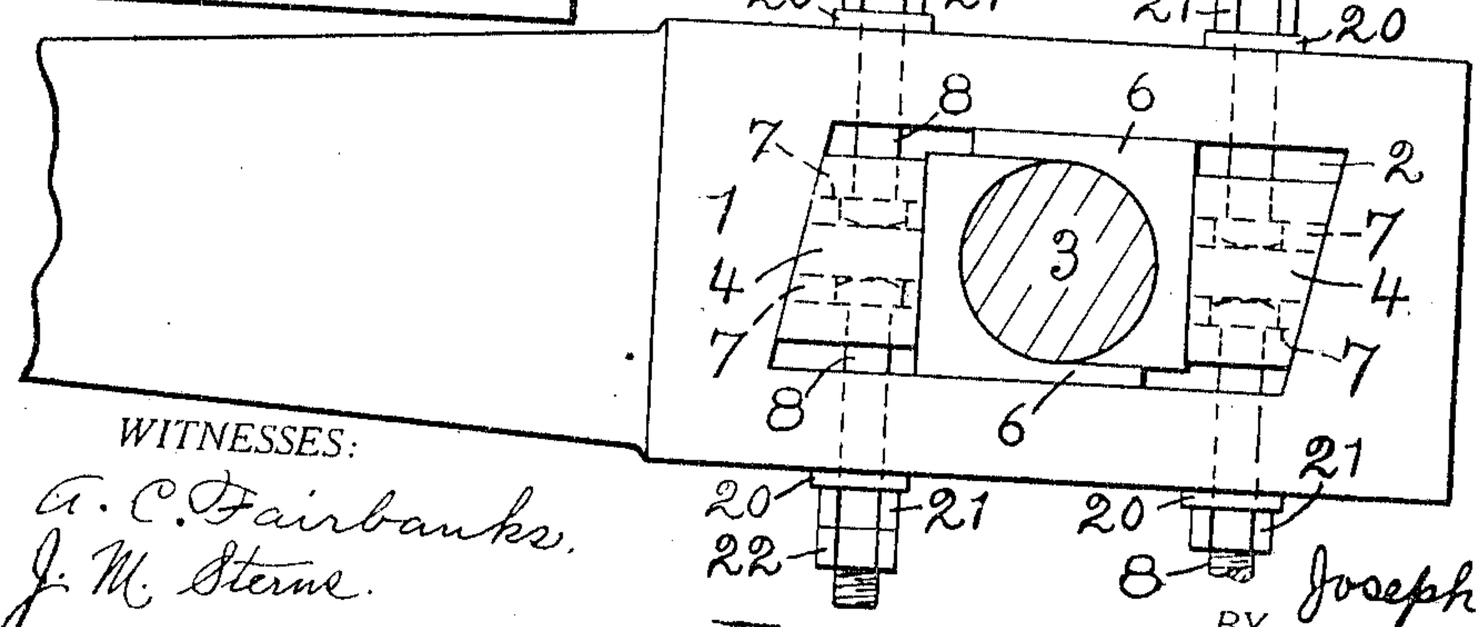

FIG. 7.

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CONNECTING-ROD COUPLING.

947,567. Specification of Letters Patent. **Patented Jan. 25, 1910.**

Application filed April 4, 1908. Serial No. 425,219.

To all whom it may concern:

Be it known that I, JOSEPH W. BREADY, a citizen of the United States of America, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Connecting-Rod Coupling, of which the following is a specification.

My invention relates to improvements in couplings for locomotive and stationary engine connecting-rods, in which certain peculiarly constructed means to adjustably secure the box-sections (commonly termed "brasses") for the crank-pin within the connecting-rod terminal and to render such box-sections removable, together with such auxiliary members as may be required or desired, are employed, all as hereinafter set forth.

The object of my invention is to produce a connecting-rod coupling which is strong and durable yet comparatively simple in construction, and which can be easily and quickly adjusted for the purpose of taking up wear or for shortening or lengthening the connecting-rod with which it is incorporated, and can be readily taken apart when new brasses are required, so that a saving in time, labor and expense ensues from its use.

Other objects of said invention are to do away with straps and strap bolts, keys, and set-screws, to reduce clearance, and to avoid the necessity of removing, filing and replacing brasses in order to refit them after they become worn.

I attain these objects by the means illustrated in the accompanying drawings, in which—

Figure 1 is an edge view of my coupling as applied to one terminal of a connecting-rod; Fig. 2, a horizontal longitudinal section through said coupling; Fig. 3, a vertical section through the coupling without the box-sections and crank-pin; Fig. 4, an inside elevation of the face-plate; Fig. 5, an inside elevation of the box-sections arranged as they would appear encircling a crank-pin; Fig. 6, a side elevation of a modified form of the coupling, the box-sections and the crank-pin being in section, and, Fig. 7, a side elevation of still another modified form of said coupling.

Similar figures refer to similar parts throughout the several views.

Referring to the first five views, it will be observed that I have there shown a terminal portion of a connecting-rod 1 having a quadrilateral opening 2 therein which extends from side to side, a part of a crank-pin 3, wedge blocks 4—4, a face-plate 5, and box-sections 6—6, together with certain bolts, nuts, etc., to be mentioned in detail hereinafter. The upper and under sides of the opening 2 are parallel with each other, and the ends of such opening also are parallel with each other, but while said upper and under sides are parallel with the horizon said ends which connect them are oblique. This opening 2 is best shown in Fig. 7. The wedge blocks 4 and the box-sections 6 are adapted to be received in the opening 2, said box sections encircling the crank-pin 3 which extends through said opening at or near the center thereof, and said wedge blocks partially filling the spaces between the ends of the box-sections and the ends of the opening. Each wedge-block has a perpendicular face for contact with the adjacent box-section, and an oblique face for contact with the adjacent end of the opening 2, and there are two T-slots 7 formed in said block, which slots open through both faces of the block and the narrow parts of the slots also open through the top and bottom, respectively, of the block. These T-slots 7 are designed to receive the heads and portions of the shanks of bolts 8.

The face-plate 5 has a central opening 9 therein for the crank-pin 3, and a T-slot 10, near each end in the center, with an entrance recess 11 at one side for the head and part of the shank of a bolt 12. The bolts 12, one for each end of the face-plate 5, are screwed into threaded openings 13—13 in the connecting-rod 1, and left with their heads protruding the proper distance to engage said plate and hold it in place. To engage the face-plate 5 with the bolts 12, it is first necessary to so place said plate that the bolt heads can be received into the recesses 11, and then after they are so received either to raise or lower the plate as may be required until said heads are in the T-slots 10; now said plate is securely fastened to the connecting-rod, but it is left free to move endwise within the limits determined by the ends of said slots, so as not to interfere with any adjustment of the coupling which shall change the position of said rod relative to

the crank-pin. The face-plate is attached to the connecting-rod before being placed on the crank-pin. The openings 13 are tapped clear through the connecting-rod 1 for the purpose of enabling the bolts 12 to be inserted from either side, thus making provision for applying the face-plate to either side of said rod, and since the box-sections can be introduced into the opening 2 from either side the coupling becomes reversible—this is a valuable feature of my invention.

The box-sections 6 are both provided on one side with face-plate flanges 14 which are designed to lie against the side of the connecting-rod opposite to that to which the face-plate 5 is fastened. The box-sections 6 are divided by two division lines which are tangent to the top and bottom of the bearing, and the long end vertically of each flange 14 extends beyond the short end vertically of its companion, all of which is clearly apparent in Fig. 5. This construction of the box-sections insures a complete and continuous bearing for the crank-pin between said sections while enough of the latter remains to afford a bearing after repeated adjustments.

When the parts above described are assembled, with the face-plate 5 against one side of the connecting-rod and the box-section flanges 14 against the other side of said rod and the crank-pin 3 projecting through said plate and the section 6, a washer 15, a nut 16 and a check-nut 17 are placed on the screw-threaded terminal 18 of said pin to prevent lateral displacement of said sections. A shoulder 19 is provided on the crank-pin to receive the washer 15 and prevent it from being crowded against the flanges 14 by the nut 16 and so interfering with the adjustment of the box-sections. The bolts 8 extend from the wedge-blocks 4, some upward and some downward, through the top and bottom edges of the connecting-rod 1, holes being made in such edges to accommodate said bolts, and washers 20, nuts 21 and set-nuts 22 are placed on the terminals of said bolts which project above and below said rod. The holes in the connecting-rod for the bolts 8 are large enough to afford a loose fit for the bolts so that they can be easily adjusted. After the parts are all thus assembled, the bolts 8 are adjusted in and out to force the box-sections 6 tight against the crank-pin 3 through the medium of the wedge-blocks 4, the left-hand block being moved upward and the right-hand block being moved downward for this purpose, and then the nuts 21 and 22 are tightened. As the box-sections wear away they are tightened in the same manner as before. The connecting-rod is lengthened or the distance between its centers increased by moving both wedge-blocks upward, and said rod is shortened or the distance between centers decreased by moving said blocks downward, the connected bolts and nuts being first loosened and then tightened in each case.

In the construction illustrated in Fig. 6 one of the wedge-blocks 4, with its bolts and nuts, only is used, hence one of the box-sections 6 is caused to bear against the contiguous end of the opening 2, which end may be vertical if desired, instead of against a wedge-block, otherwise the construction is the same as that already described. A similarly constructed coupling should be provided at the other end of the connecting-rod in order to maintain the same distance between centers when the box-sections are adjusted to take up wear, unless recourse be had to filling strips or blocks between the end of the opening 2 which is opposite the wedge-block and the end of the adjacent box-section, but such an expedient is old and forms no part of my invention.

In the last view the face-plate and its appurtenances and the box-section flanges are omitted, and such an omission might be made from the Fig. 6 coupling.

Numerous changes of minor importance in detail of construction may be made in my invention, in addition to those pointed out, without departing from the nature thereof, and changes in the shape and size of some or all of the parts will necessarily be required.

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

1. The combination, in a connecting-rod coupling, of a perforated connecting-rod, a crank-pin extending through the opening in said rod, flanged box-sections in such opening for said pin, the box-section flanges being adapted to close either side of said opening, a face-plate independent of said sections for the remaining side of said opening, and means to attach said face-plate to either side of the connecting-rod, the arrangement of parts being such that the box-sections can be adjusted or changed without disturbing the face-plate.

2. The combination, in a connecting-rod coupling, of a connecting-rod having an opening therein with two parallel sides, a crank-pin extending through the opening in said rod, flanged box-sections in said opening for said pin, the box-section flanges being adapted to close either side of the opening, wedging devices at the outer ends of said sections adapted to move them endwise toward either end of the opening, an independent face-plate for the remaining side of the opening, and means to attach said plate to either side of said connecting-rod and to permit the plate to move endwise.

3. The combination, in a connecting-rod coupling, with a connecting-rod having an

opening therein with parallel sides and an oblique end, the upper and under or parallel sides of said opening being perforated, and a crank-pin, of flanged box-sections, for said pin, in such opening with their flanges over one side of the same and having parallel ends, the box-sections being so constructed that adjacent ends are of different heights with each higher end beyond the companion lower end when said sections are in place on the pin, a wedge-block in said opening between the oblique end thereof and said sections, said block having T-slots in the top and bottom thereof to receive the heads of bolts, bolts and nuts for said block, said bolts passing through the perforations in the aforesaid upper and under sides of the opening in said connecting-rod, and an independent face-plate on said pin to close the other side of said opening.

4. The combination, in a connecting-rod coupling, with a connecting-rod having an opening therein with an oblique end, and a crank-pin, of flanged box-sections, for such pin, in such opening with their flanges over one side of the same, a wedge-block in said opening between the oblique end thereof and said sections, bolts and nuts for said block, the latter having a sliding connection with the heads of said bolts, and an independent face-plate removably attached to said rod on the side opposite to said box-section flanges and encircling said pin, the arrangement of the parts being such that the box-sections can be adjusted or changed without disturbing the face-plate.

5. The combination, in a connecting-rod coupling, with a connecting-rod having an opening therein with an oblique end, and a crank-pin, of flanged box-sections, for such pin, in such opening with their flanges over one side of the same, a wedge-block in said opening between the oblique end thereof and said sections, bolts and nuts for said block, the latter having a sliding connection with the heads of said bolts, a face-plate on said pin to close the other side of said opening, and means to fasten said plate to said rod and to permit the plate to move endwise.

6. The combination, in a connecting-rod coupling, with a connecting-rod having an opening and lateral holes extending clear through the same, and a crank-pin, of box-sections, for said pin, in such opening, adjustable means to retain such sections in place, bolts adapted to be inserted in said lateral holes in the connecting-rod, and a face-plate having slots therein to receive said bolts and permit said face-plate to be attached to or detached from the connecting-rod.

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