(No Model.)

G. W. ROGERS.

CRANK PIN.

No. 454,229. Patented June 16, 1891.

Fig. 1.

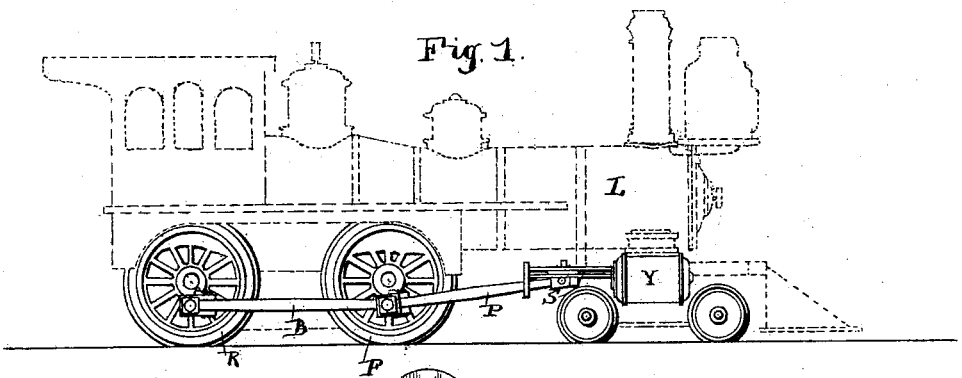


Fig 2.

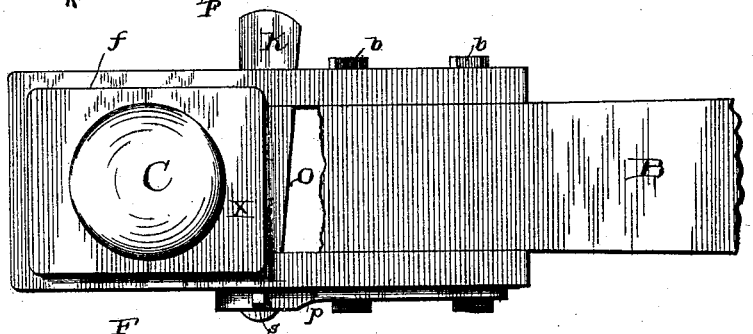


Fig. 3.

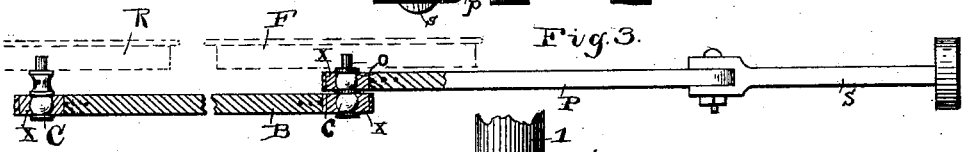


Fig. 6.

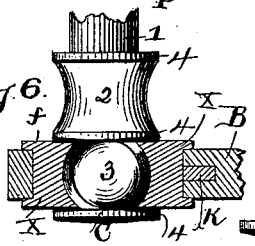


Fig. 4.

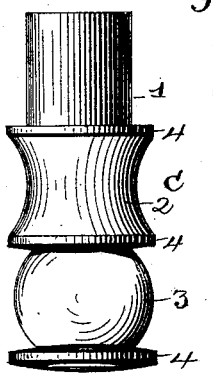
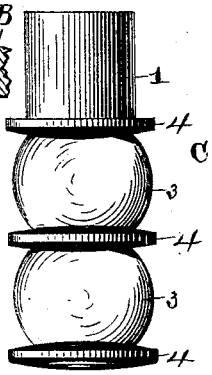


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE W. ROGERS, OF KENDALLVILLE, INDIANA.

CRANK-PIN.

SPECIFICATION forming part of Letters Patent No. 454,229, dated June 16, 1891.

Application filed October 1, 1890. Serial No. 366,733. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. ROGERS, a citizen of the United States, residing at Kendallville, in the county of Noble and State of Indiana, have invented a new and useful Crank-Pin, of which the following is a specification.

This invention relates to machine elements, and more particularly to that class thereof known as "cranks;" and the object of the same is to provide a crank-pin capable of being used upon the driving-wheels of locomotives, and upon which the main rod or the side rod is to be pivoted or capable of analogous use in stationary steam-engines or other machines where the crank-pin on the wheel is liable of being thrown out of alignment with the pivotal connection at the other end of the connecting-rod.

To this end the invention consists of a crank-pin and the journal-box in the rod turning on said crank-pin, all of the construction hereinafter more fully described and claimed, and illustrated in the drawings, in which—

Figure 1 is a side elevation of the two driving-wheels and the cylinder at one side of a locomotive, showing the main rod connecting the cross-head with the front driver and the side rod between the two drivers. Fig. 2 is an enlarged elevation of one end of the main rod, showing the devices for holding the brasses of the box therein. Fig. 3 is a central horizontal section through the side rod and a portion of the main rod. Figs. 4 and 5 are enlarged details in plan of the crank-pin in two forms. Fig. 6 is a sectional detail through one crank-pin and its box.

Referring to the said drawings, the letter L designates a locomotive in the present instance, although it will be understood that my invention is applicable to other forms of steam-engines. It is well known, however, that in locomotives, where the front and rear driving-wheels are connected, when one driver passes onto a switch or over an obstruction or is by any means thrown out of direct vertical alignment with the other, the side bar between the crank-pins must twist and bend to a slight degree, or else the crank-pins or the boxes in which they turn are unduly and unevenly worn. Such twisting of the bar tends to crystallize the metal or to destroy the fiber thereof, and soon renders it unfit for use. In order to overcome this objection and provide means whereby the ends of the main rod or the side rod can be thrown out of direct alignment with each other and yet will not cramp in their bearings, I have provided the devices hereinafter described.

I have illustrated my invention as applied to a locomotive, because it is most useful in that connection; and in the drawings F and R are respectively the front and rear drivers; Y, the cylinder; S, the piston-rod; P, the main rod connecting the cross-head at the rear end of the piston-rod with the crank-pin of the front driver, and B the side rod between the crank-pins of the two drivers. The main rod preferably turns upon the crank-pin C of the front driver nearer the wheel, while the side rod turns upon the outer ends of the crank-pins of the drivers, all as is common in this class of devices.

Coming now to the present invention, each end of the side rod and the rear end of the main rod are provided with an opening O of the rectangular shape, in which slide the two halves or brasses of the journal-box X, said brasses having flanges *f* embracing the body of the rod around said opening O. Passing vertically through the rod and across the opening O are a wedge-shaped key K and a number of bolts *b*. Beneath the nuts of the bolts is clamped a plate *p*, whose outer end is perforated so as to permit the passage therethrough of the smaller end of the key. The brasses being placed around the crank-pin C, the key is inserted and driven tightly into place to hold them in position and make a tight box, and a small set-screw *s* is passed through the side of the plate *p* and bears upon the key K to prevent its displacement. When it is desired to remove the brasses of the box, as for cleaning or repair, the key is withdrawn and the brasses are moved inwardly within the opening O in a manner which will be readily understood.

The crank-pin C comprises a tenon 1, by which it is attached to the wheel next a shank 2 if it be for the rear driver, and then the bearing proper 3, upon which the box turns, if it be the crank-pin for the front driver. There are two bearings 3, the inner one taking the place of the shank 2, as will be read-

ily understood. At each side of each bearing is a collar or flange 4, whose inner faces—that is, the faces next to the bearing—are beveled or inclined slightly away from each other. The face of each bearing curves outwardly between its ends on the arc of a circle which, if complete, would follow the face diametrically opposite—that is to say, the entire bearing is spherical in shape with about one-eighth of its diameter cut off at each end and the collars or flanges 4 project from the ends outwardly radial to the crank-pin C. The bearing-faces of the brasses are of course concave, so as to fit closely upon the spherical faces of the bearings, whereby the oil is evenly distributed and the wear equally sustained by all parts of the journal and box.

What is claimed as new is—

1. The combination, with a wheel and a crank-pin seated therein, its outer end being spherical and having flanges at the inner and outer sides of the sphere, of a rod having a box journaled upon said sphere and loosely between said flanges, substantially as described.

2. The combination, with a driver-wheel and a crank-pin C, fast at its inner end therein and having a spherical outer end 3 and at each end of the sphere flanges 4, whose inner faces diverge outwardly, of a main or side rod having a box journaled upon said spherical end and loosely between said flanges, substantially as described.

3. The combination, with the crank-pin C, of the main rod P, having an opening O in one end, brasses X, moving in said opening and having flanges *f* engaging the sides thereof, bolts *b*, connecting said sides, a plate *p*, mounted on certain of the bolts, a wedge-shaped key K, passing through the sides and through a hole in said plate and holding the inner brass in place, and a set-screw S in the edge of said plate abutting against the smaller end of said key, as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEORGE W. ROGERS.

Witnesses:

J. S. COULOGUE,

JOHN D. REICK.