

E. P. DOUGHERTY, C. L. EMERSON & W. A. BE DELL.
CROSS HEAD.

APPLICATION FILED MAY 22, 1909.

933,634.

Patented Sept. 7, 1909.

Fig. 1.

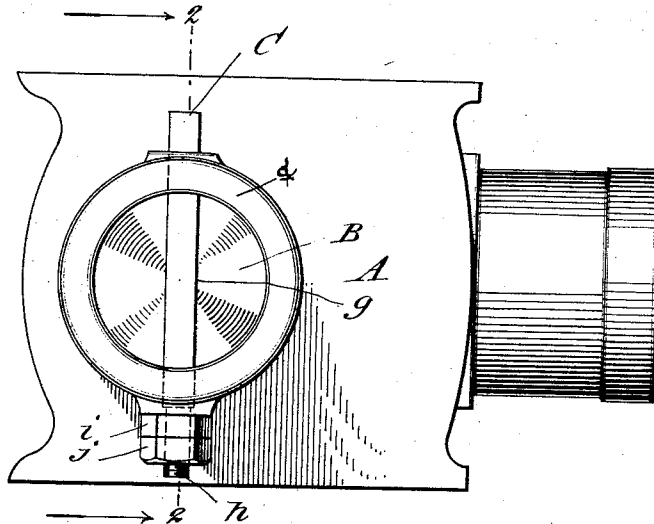


Fig. 2.

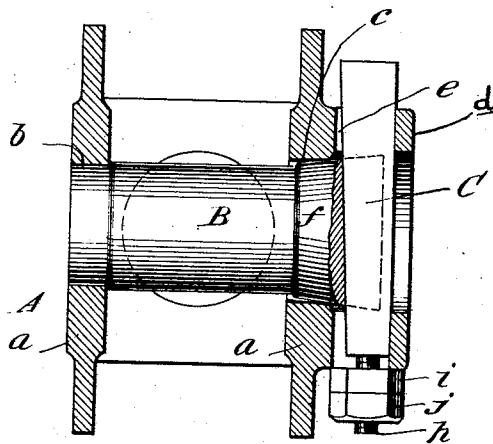
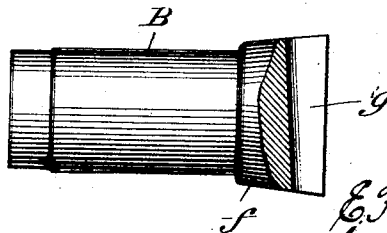


Fig. 3.



Witnesses

Phil. E. Barnes
W. C. O'Kealy

By

Inventors

E. P. Dougherty
C. L. Emerson
W. A. Be Dell
James J. Shuby Attorney

UNITED STATES PATENT OFFICE.

EDWARD P. DOUGHERTY, CLYNE L. EMERSON, AND WILLIAM A. BE DELL, OF VAN BUREN, ARKANSAS.

CROSS-HEAD.

933,634.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed May 22, 1909. Serial No. 497,782.

To all whom it may concern:

Be it known that we, EDWARD P. DOUGHERTY, CLYNE L. EMERSON, and WILLIAM A. BE DELL, citizens of the United States, residing at Van Buren, in the county of Crawford and State of Arkansas, have invented new and useful Improvements in Cross-Heads, of which the following is a specification.

Our invention pertains to cross-heads and more particularly to means for securing wrist pins in cross-heads; and it contemplates the provision of simple and strong means for securing a wrist pin in a cross-head in such manner that there is no liability of the pin being accidentally displaced, and yet when it is desired to remove the pin the same can be expeditiously and easily accomplished.

With the foregoing in view, the invention will be fully understood from the following description and claims when the same are read in connection with the drawings, accompanying and forming part of this specification, in which:

Figure 1 is a side elevation of a cross-head constructed in accordance with our invention. Fig. 2 is a transverse section taken in the plane indicated by the line 2—2 of Fig. 1. Fig. 3 is a view, partly in elevation and partly in section, of the wrist pin removed from the cross-head.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which:

A is the cross-head; B, the wrist pin; and C, the key for securing the pin in the cross-head and against casual displacement. The cross-head is provided in its sides *a* with the alined transverse apertures *b* and *c*, the latter of which is tapered inwardly to a slight extent, and at its side adjacent said aperture *c* the cross-head has a lateral boss *d* in which are diametrically opposite apertures *e*.

As shown in Figs. 2 and 3, the wrist pin B is slightly reduced at its forward end to snugly occupy the aperture *b* in the cross-head, and at its rear end said pin is provided with a tapered head *f* and a diametrical kerf *g* therein; the head *f* being of a size to tightly fit in the aperture *c* of the cross-head.

The parts are assembled as best shown in Fig. 2, and the key C, which is tapered in conformity with the inclination of the bottom wall of the kerf *g*, is placed in the aper-

ture *e* of the boss *d* after which the nut *i* and the jam nut *j* are turned on the threaded end *h* of the key. With the parts arranged as stated, it will be manifest that there is no liability of any of the parts working loose or being displaced. When, however, it is desired to disconnect the main rod (not shown) from the cross-head, such disconnection may be readily accomplished, irrespective of the position in which the engine stands; it being simply necessary to remove the nuts and key from one side of the cross-head and then displace the wrist pin by applying blows to the end thereof adjacent the opposite side of the cross-head. It will also be gathered from the foregoing that the cross-head as a whole is simple and compact in construction, and is well adapted to withstand the usage to which devices of corresponding character are ordinarily subjected.

Having described our invention, what we claim and desire to secure by Letters-Patent is:

1. The combination with a cross-head having sides and alined apertures therein and also having a lateral boss on one side, around the aperture therein, and diametrically opposite apertures in said boss; of a wrist pin removably arranged in said apertures of the cross-head sides and having a head disposed in the boss and also having a diametrical kerf in said head and alined with the apertures of the boss, a tapered key removably arranged in the apertures of the boss and the kerf of the pin head, and means on the reduced end of the key, removably securing the same in position.

2. The combination of a cross-head having sides in which are alined apertures one of which is tapered inwardly and also having a boss on one side surrounding the tapered aperture and diametrically opposite apertures in said boss; of a wrist pin removably arranged in the cross-head and having a tapered head disposed in the tapered aperture and the boss, and a diametrical kerf in the head, the inner wall of which kerf is inclined, a tapered key removably arranged in the apertures of the boss and the kerf of the pin and having a reduced and threaded end, and a nut on said end.

3. The combination with a cross-head having sides and alined apertures therein and having a lateral boss on one side, around the aperture therein, and diametrically opposite

apertures in said boss; of a wrist pin remov-
ably arranged in said apertures of the cross-
head sides and having a head disposed in the
boss and also having a diametrical kerf in
5 said head and alined with the apertures of
the boss, and a key removably arranged in
the apertures of the boss and the kerf of the
pin head.

In testimony whereof we have hereunto

set our hands in presence of two subscribing 10
witnesses.

EDWARD P. DOUGHERTY.
CLYNE L. EMERSON.
WILLIAM A. BE DELL.

Witnesses:

J. A. SHIBLEY,
H. W. HALLEY.