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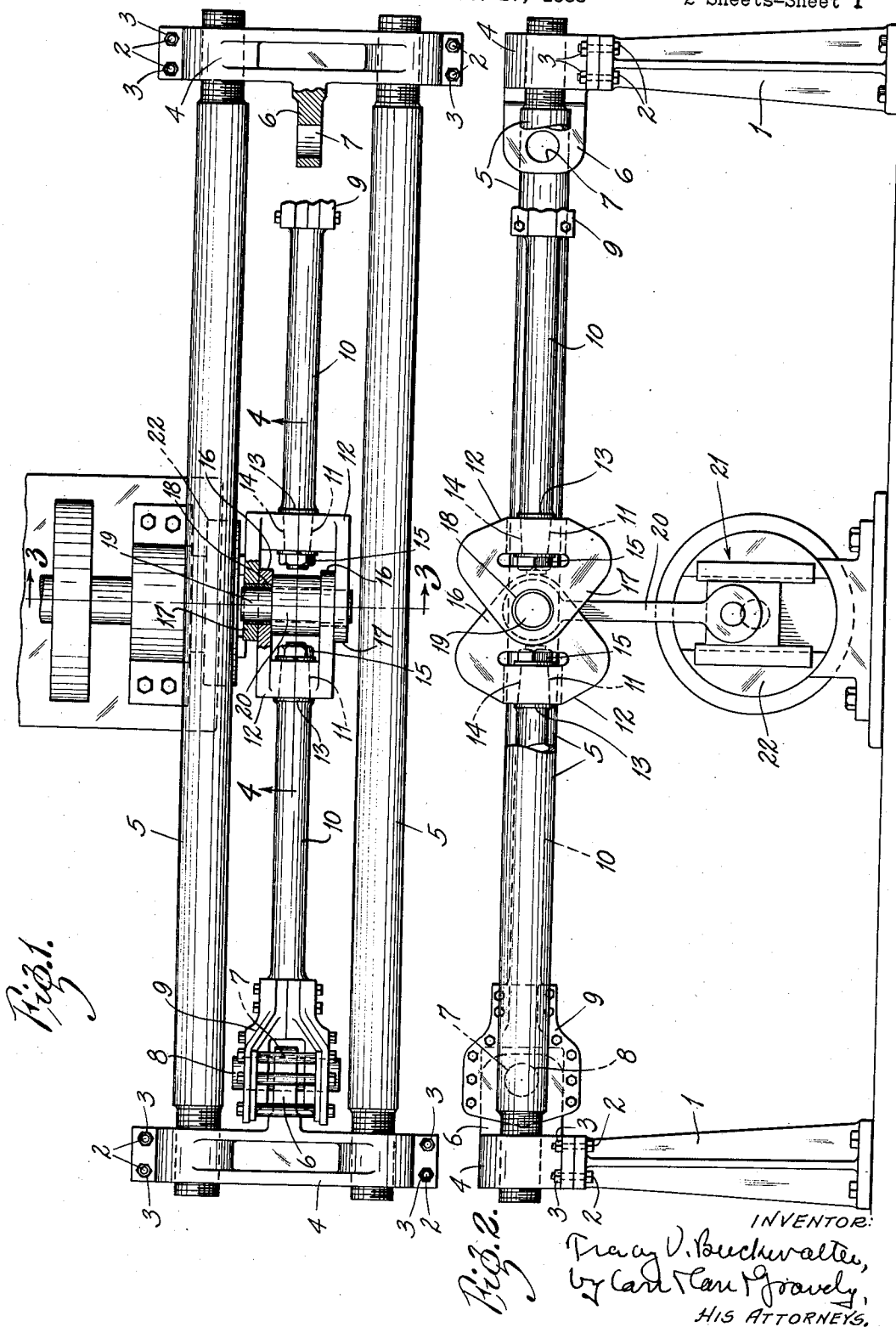
T. V. BUCKWALTER

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PISTON ROD TESTING APPARATUS

Filed Oct. 17, 1938

2 Sheets-Sheet 1



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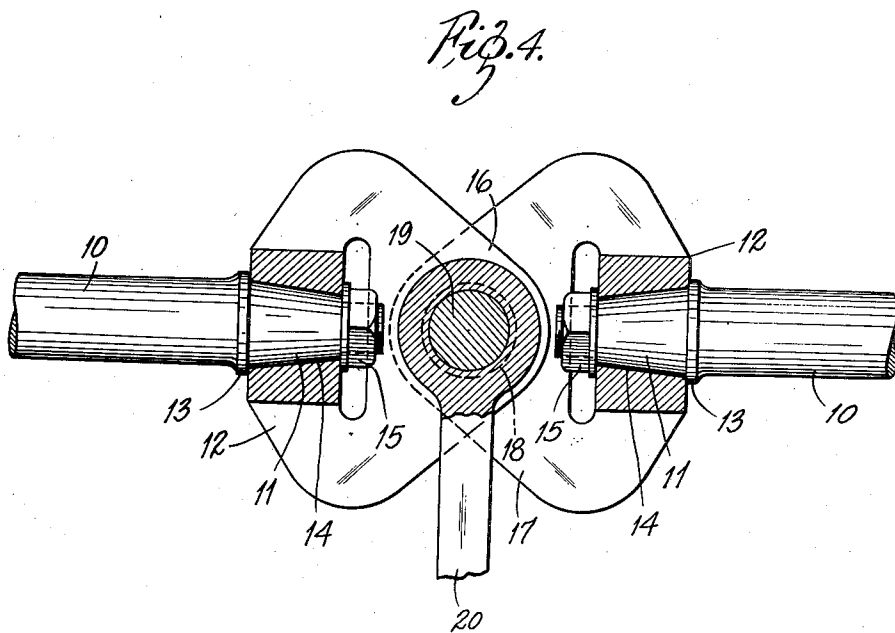
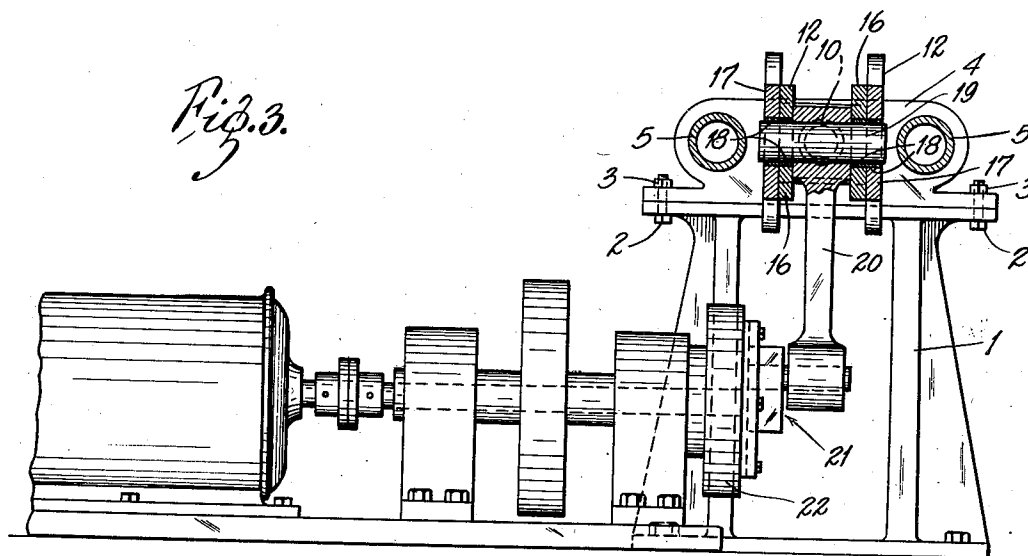
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,188,853

PISTON ROD TESTING APPARATUS

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Application October 17, 1938, Serial No. 235,427

6 Claims. (Cl. 73—51)

My invention relates to the testing of locomotive piston rods and the like and has for its principal object an apparatus for that purpose which will provide for the rapid alternation of stress in said piston rod between tension and compression, thereby simulating the stressing of such piston rods in actual service.

The invention consists principally in a frame whereby two piston rods are held in endwise alinement with their adjacent ends slightly spaced apart and with their remote ends pivotally mounted, pivotally interconnected members mounted on said adjacent ends and means for rapidly reciprocating the pivot between said members, such rapid reciprocation rapidly alternating the stress in the piston rods between compression and tension. The invention further consists in the piston rod testing apparatus and in the parts and combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawings

Fig. 1 is a plan view of a piston rod testing apparatus embodying my invention,

Fig. 2 is a side elevation,

Fig. 3 is a vertical sectional view on the line 3—3 in Fig. 1; and

Fig. 4 is a vertical sectional view on the line 4—4 in Fig. 1.

Secured to end frame members 1, as by bolts 2 and nuts 3 are stationary heads 4 which are connected by means of rigid tie rods 5. Each of said heads 4 has an outstanding vertically disposed ear 6 having a horizontal opening 7 there-through. In each of said openings 7 is pivotally supported the main rod receiving portion of the wrist pin 8 of a locomotive crosshead 9 to which is secured a locomotive piston rod 10. Said piston rods 10 are disposed in endwise alinement with a space between the adjacent ends thereof and to said adjacent or piston ends 11 of said piston rods are secured clamp members 12.

In the construction illustrated, the piston ends 11 of said rods are tapered and have shoulders 13 adjacent to said tapered portions. Said clamp members 12 have conical openings 14 mounted on said piston rod ends and are held in place by means of nuts 15. One clamp member has vertically disposed projecting jaws or plates 16 and the other clamp member has similar jaws or plates 17 spaced somewhat further apart and overlapping the outer faces of said jaws of said first clamp member. Said plates 16 and 17 are provided with openings 18 through which is disposed a pin 19 to whose middle portion, between said jaws, is secured the upper end of a drive rod

20 whose lower end is secured to an eccentric 21 on a drive disk 22 driven by any suitable means, as an electric motor.

Rotation of said drive disk 22 imparts a rapid reciprocating movement to the drive rod 20, which thus rapidly raises and lowers the jaw members 12. Such reciprocating movement tends to swing the piston rods 10 back and forth about the centers of the crosshead pins 8 but the jaw-connected ends of said rods, being tied together, are forced to move up and down vertically, thereby imposing compression and tension strains in rapid alternation on the two piston rod and crosshead assemblies. The test may be continued until one of the rods, or a crosshead portion, breaks. Conditions of the test can be varied as needed by changing the throw of the eccentric and the speed of rotation.

Obviously the above described arrangement affords an excellent test for locomotive piston rods, subjecting them to rapidly alternating compression and tension simulating service conditions.

What I claim is:

1. A machine for testing locomotive piston rods and the like, comprising a frame stationary heads rigidly secured to said frame and each adapted to pivotally support one end of a piston rod, said rods being in endwise alinement with their adjacent ends slightly spaced apart, jaw members adapted to be rigidly secured to said adjacent ends of said rods, a pin for pivotally securing said jaws together and means for giving said jaws a reciprocating movement.

2. A machine for testing locomotive piston rods and the like, comprising a frame stationary heads rigidly secured to said frame and each adapted to pivotally support one end of a piston rod for vertical swinging movement said rods being in endwise alinement with their adjacent ends slightly spaced apart, jaw members adapted to be rigidly secured to said adjacent ends of said rods, a pin for pivotally securing said jaws together and means for giving said jaws a vertical reciprocating movement.

3. A machine for testing locomotive piston rod and crosshead assemblies and the like, comprising a frame stationary heads rigidly secured to said frame and each adapted to pivotally support the crosshead of a piston rod, said rods being in endwise alinement with their adjacent ends slightly spaced apart, jaw members adapted to be rigidly secured to said adjacent ends of said rods, a pin for pivotally securing said jaws together and means for giving said jaws a reciprocating movement.

4. A machine for testing locomotive piston rods and the like comprising spaced stationary heads connected by rigid tie rods, ears projecting from said heads, each ear having an opening for receiving the main rod receiving portion of the wrist pin of a locomotive crosshead having a piston rod fixed thereto and with said rods disposed in endwise alinement with their adjacent ends spaced apart, jaw members adapted to be rigidly secured to said ends of said rods, a pin for pivotally connecting said jaw members, a drive rod secured to said pin and means for reciprocating said drive rod.

5. A machine for testing locomotive piston rods and the like comprising spaced stationary heads connected by rigid tie rods, vertically disposed ears projecting from said heads, each ear having a horizontal opening for receiving the main rod receiving portion of the wrist pin of a locomotive crosshead having a piston rod fixed thereto and with said rods disposed in endwise alinement with their adjacent ends spaced apart, clamp members adapted to be rigidly secured to said ends of

said rods, said clamp members having vertically disposed overlapping plates, a pin pivotally connecting said plates, a drive rod secured to said pin and means for reciprocating said drive rod.

6. A machine for testing locomotive piston rods and the like comprising spaced stationary heads connected by rigid tie rods, ears projecting from said heads, each ear having an opening for receiving the main rod receiving portion of the wrist pin of a locomotive crosshead having a piston rod fixed thereto and with said rods disposed in endwise alinement with their adjacent ends spaced apart, clamp members adapted to be rigidly secured to said ends of said rods, one clamp member having vertically disposed spaced plates integral therewith and the other clamp member having vertical plates overlapping the outer faces of said first plates, a pin extending through said plates and pivotally connecting them, a drive rod secured to said pin in the space between said first plates and means for reciprocating said drive rod.

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