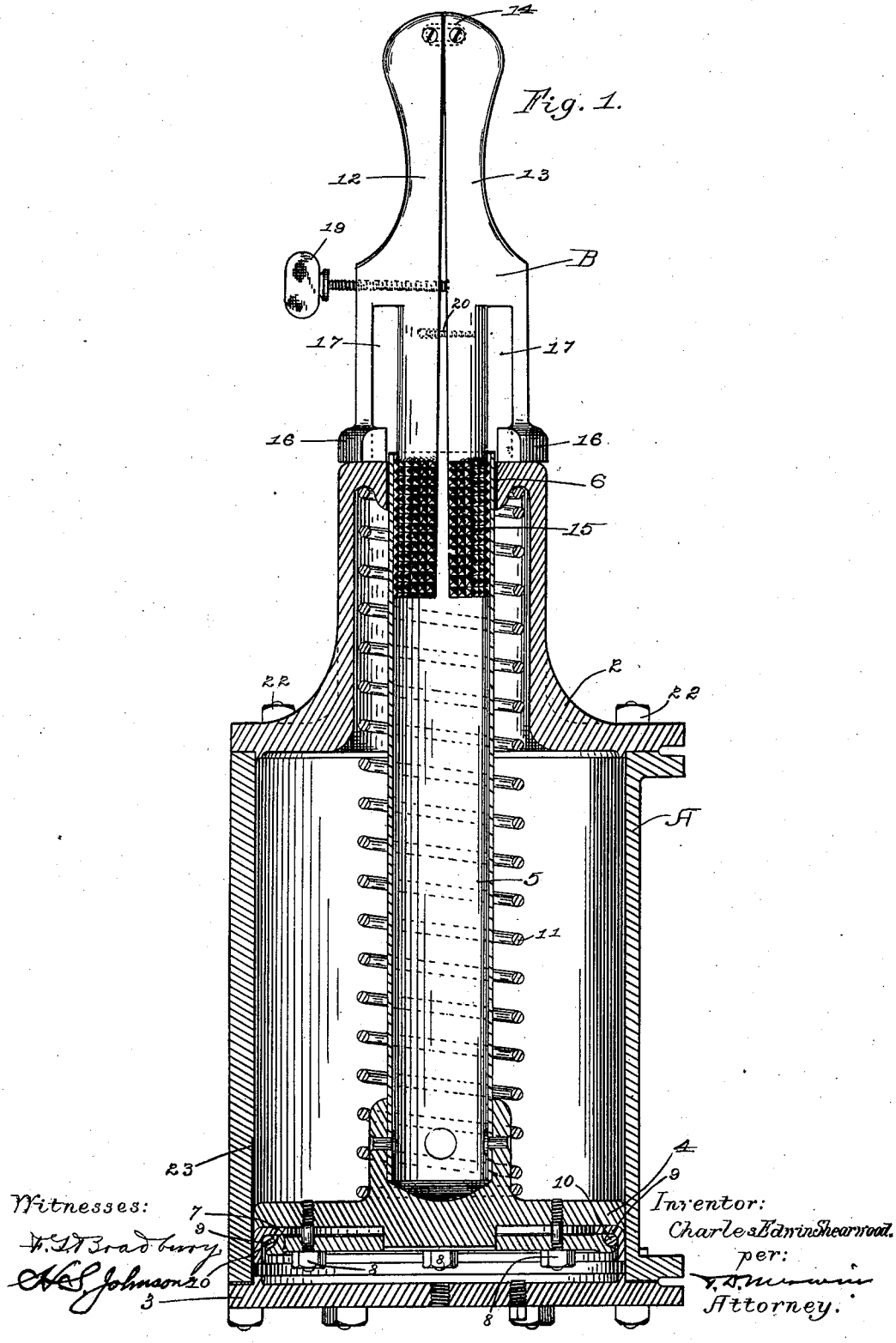
(No Model.) 2 Sheets—Sheet 1.

C. E. SHEARWOOD.

AIR BRAKE PISTON REMOVER.

No. 574,498. Patented Jan. 5, 1897.

Fig. 1.



Witnesses:
H. T. Bradbury
H. C. Johnson

Inventor:
Charles Edwin Shearwood.
per:
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Attorney.

(No Model.) 2 Sheets—Sheet 2.

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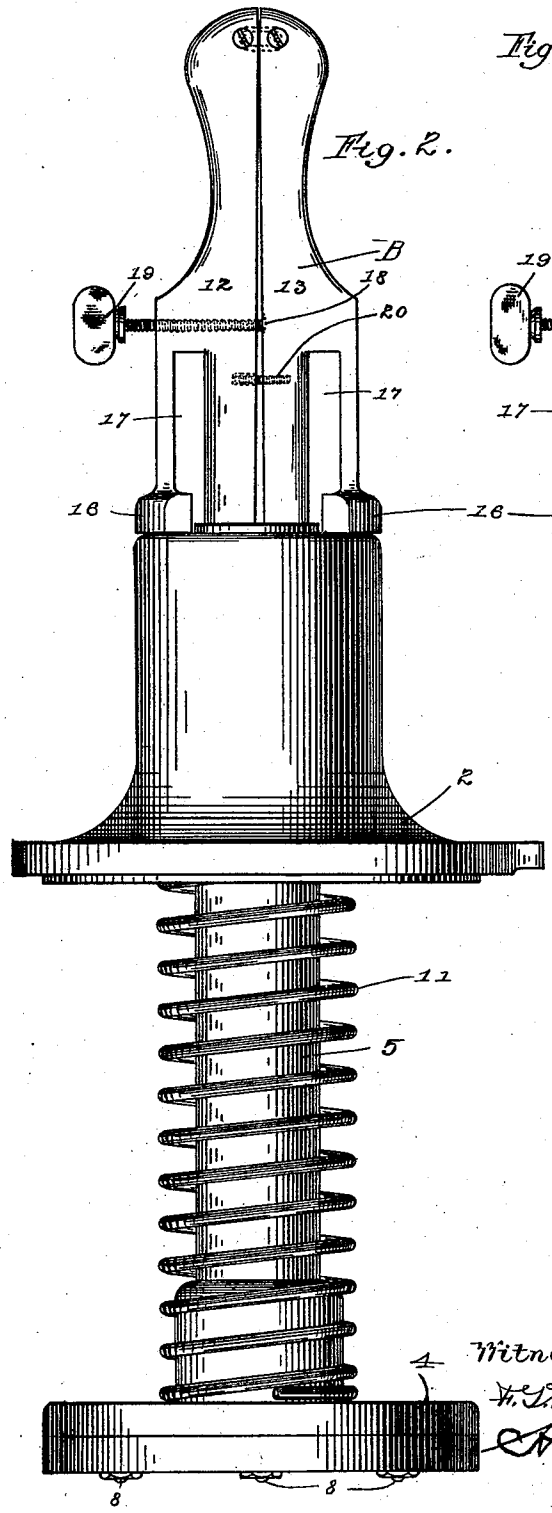

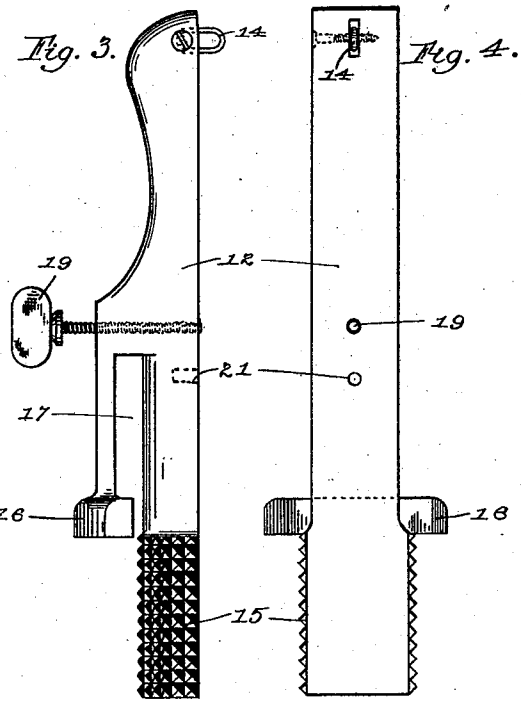

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UNITED STATES PATENT OFFICE.

CHARLES EDWIN SHEARWOOD, OF ST. PAUL, MINNESOTA.

AIR-BRAKE-PISTON REMOVER.

SPECIFICATION forming part of Letters Patent No. 574,498, dated January 5, 1897.

Application filed December 23, 1895. Serial No. 573,062. (No model.)

To all whom it may concern:

Be it known that I, CHARLES EDWIN SHEARWOOD, of St. Paul, Ramsey county, Minnesota, have invented certain Improvements in Air-Brake-Piston Removers, of which the following is a specification.

My invention consists of an improved device for removing the piston from the brake-cylinder of railway-train air-brake systems, its object being to provide means for locking together the cylinder-head and piston-rod sleeve, so as to restrain the release-spring while unbolting the cylinder-head and removing it and the piston from the cylinder.

To this end my invention consists in providing a clamping device which is adapted to be inserted into the outer end of the piston-rod sleeve and to be expanded, so as to firmly grip the same. The device outside of the sleeve is formed with shoulders or stops adapted to bear against the cylinder-head, thus holding the piston-rod sleeve and cylinder-head locked together and restraining the release-spring. The cylinder-head can thus be unbolted and, together with the piston and connected parts, removed, so as to allow of cleaning or other work upon the inside of the cylinder.

My invention further consists in the construction and combination hereinafter particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical central cross-section of a brake-cylinder and its included parts, showing my device applied thereto. Fig. 2 is a side elevation of the cylinder-head and piston-rod sleeve removed from the cylinder and held locked together by my improved device, and Figs. 3 and 4 are detail views of one member of my device.

In the drawings, A represents the ordinary construction of air-brake cylinder provided with the back head 2 and front head 3. 4 represents the piston, and 5 the piston-rod sleeve, which, as shown, projects through the opening 6 in the back head 2. The piston is provided with the ordinary follower 7, secured to it by means of the bolts 8, and interposed between the outer edge of the follower and piston is the packing-leather 9, held in engagement with the cylinder-body by means of the expander 10. The piston is normally held against the front head of the cylinder by means of the release-spring 11, inclosing the piston-rod sleeve and having its ends bearing upon the cylinder-head 2 and piston 4, respectively. Adapted to be used in connection with this and similar constructions of brake-cylinders to remove the piston is my improved device B. This is made up, as shown, of the two similar clamp members 12 and 13, joined together at one end by the link-and-pin hinge 14. The opposite ends or jaws 15 of the clamp members, which are adapted to be inserted into the end of the piston-rod sleeve, are roughened, so as to firmly grip the wall of the sleeve. Each member of the clamp is provided with a shoulder 16, adapted to abut upon the cylinder-head when the device is in place, as shown in Fig. 2. In order to receive the projecting end of the piston-rod sleeve, which sometimes projects some distance beyond the head, I form the notch 17 between the clamp members and shoulders 16.

Threaded transversely through the member 12 of the device and bearing against the bed 18 in the opposite members is the thumb-screw 19, whereby by the turning of the screw the jaws of the clamp are expanded, as shown in Fig. 1. In order to prevent slipping of the members, I preferably provide the pin 20, fixed in one member and being of such length as to project into the opening 21 in the opposite member.

In the use of my device with the parts in the position shown in Fig. 1 the jaws are inserted into the end of the piston-rod sleeve until the shoulders bear against the cylinder-head. The thumb-screw is then turned until the jaws are sufficiently expanded in the sleeve to firmly grip the wall of the same, thus locking the cylinder-head and sleeve together and preventing relative movement between them under the pressure of the release-spring. The bolts 22 may then be taken off and the piston and cylinder-head removed from the cylinder, so as to allow the groove 23 in the cylinder to be cleaned or any other necessary work performed.

In the ordinary manner of removing the piston the strength of the release-spring is such that it is necessary for one man to hold the

head while the other removes the bolts. The head then being taken off in order to remove the piston, the parts are separated under the tension of the spring, and it is much more difficult to replace them after the necessary cleaning has been done.

With my device, by means of the jaws firmly gripping the piston-rod sleeve and the shoulders abutting against the cylinder-head, the same are held from disengagement, and the tendency of the spring to force off the head restrained. The parts can thus be easily removed and replaced by a single person.

I claim—

1. In a clamp of the class described, in combination, the clamp members adapted to be inserted into the piston-rod sleeve, the stops or shoulders relatively fixed with relation to the jaws of said members, for engaging the cylinder-head, and the means for expanding said members so as to cause their jaws to tightly grip said sleeve and lock said sleeve and cylinder-head together.

2. In a device of the class described, in combination the similar clamp members adapted to be inserted into the piston-rod sleeve, the fixed stops carried by each of said clamp members for engaging the cylinder-head, the hinged connection for said clamp members, and the means for expanding them so as to cause their jaws to grip said sleeve, and lock said sleeve and cylinder-head together.

3. In an air-brake-piston remover, the combination of the pair of clamp members, their jaws being adapted to engage the piston-rod sleeve, the means upon each of said members for independently engaging the cylinder-head, the hinge connection for said clamp members, and the transverse screw carried by one member and engaging the other for separating the jaws of said members.

4. In a device of the class described, the pair of similar clamp members having the faces of their jaws roughened the shoulder upon each of said members adapted to engage the cylinder-head, the hinged connection for said clamp members, and the means for turning said members upon their hinge, so as to separate their jaws and cause them to engage the piston-rod sleeve, whereby said clamp is fixed to said sleeve and relative outward movement of the cylinder-head prevented by said shoulder.

5. In an air-brake-piston remover, the combination of the similar clamp members adapted to engage the piston-rod sleeve, the hinged connection for said clamp members, the exterior relatively-fixed shoulder or stop carried by each of said members, and abutting against said cylinder-head, the notch between each of said stops and its member to receive the projecting end of the piston-rod sleeve, and the means for separating said members.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES EDWIN SHEARWOOD.

Witnesses:
T. D. MERWIN,
H. S. JOHNSON.