

(No Model.)

E. B. THOMPSON & C. A. SCHROYER.

PISTON TRAVEL INDICATOR.

No. 444,077.

Patented Jan. 6, 1891.

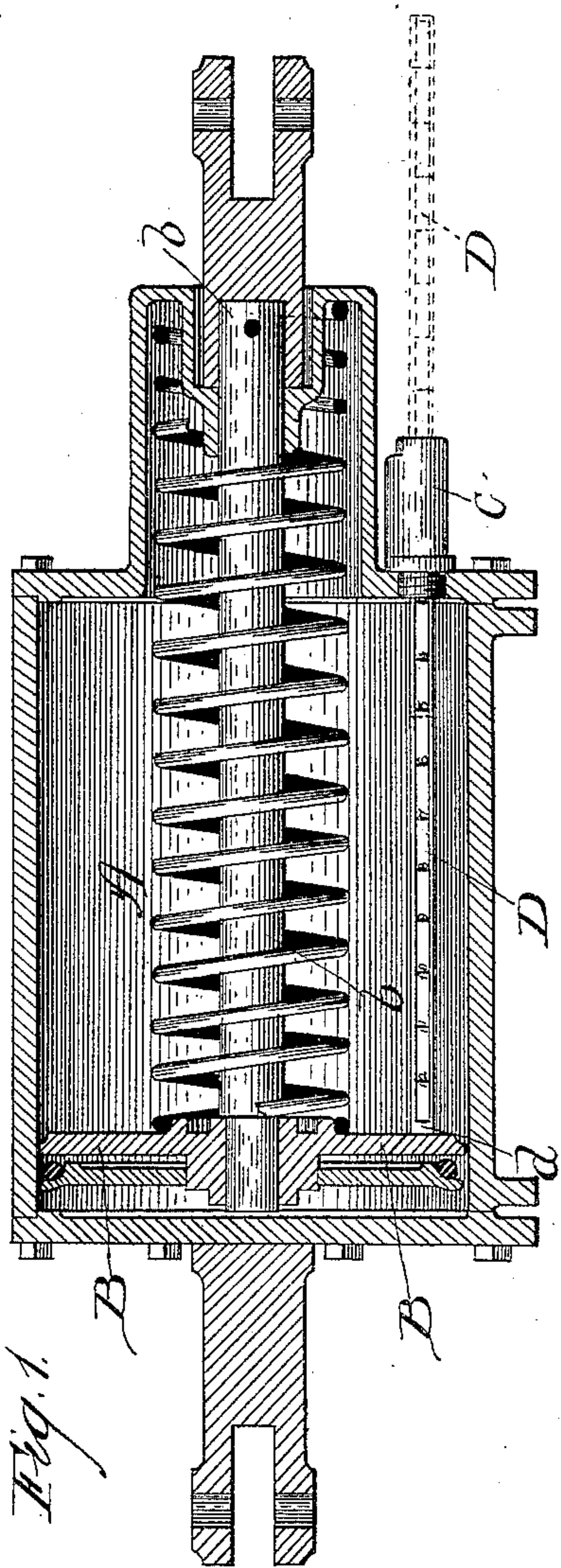


Fig. 1.

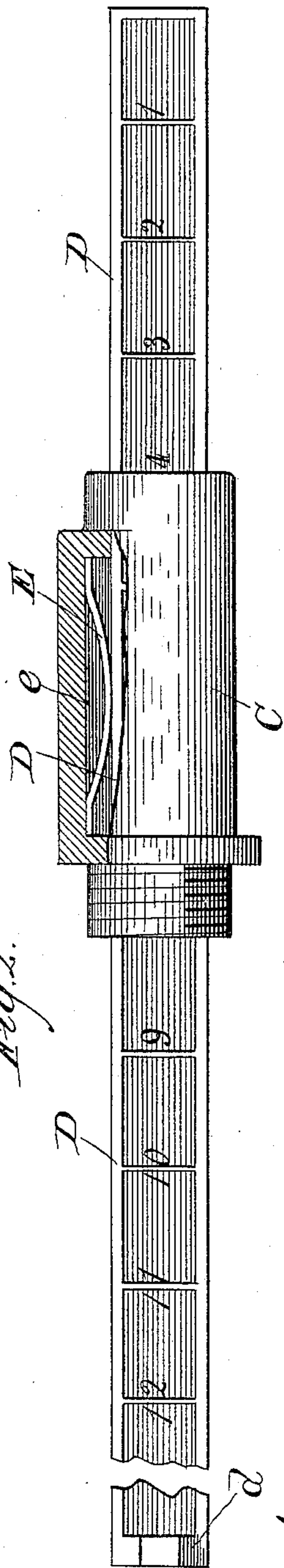


Fig. 2.

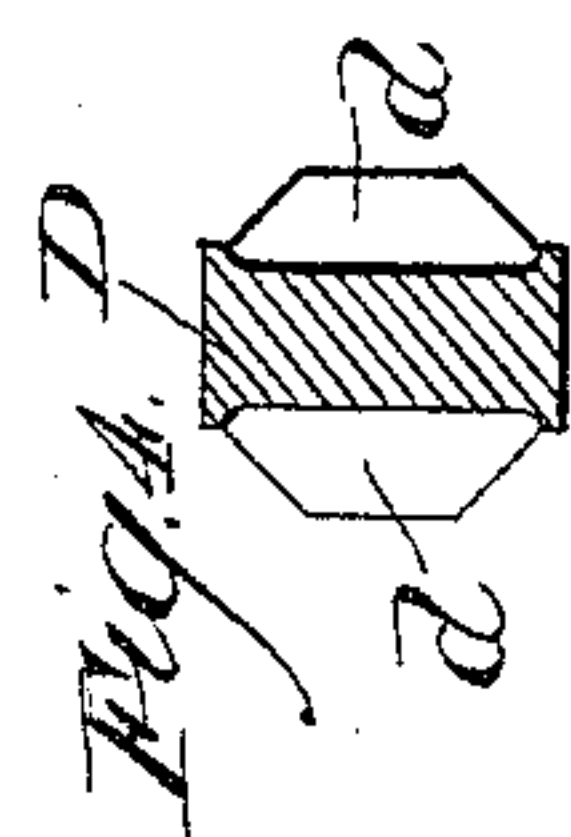
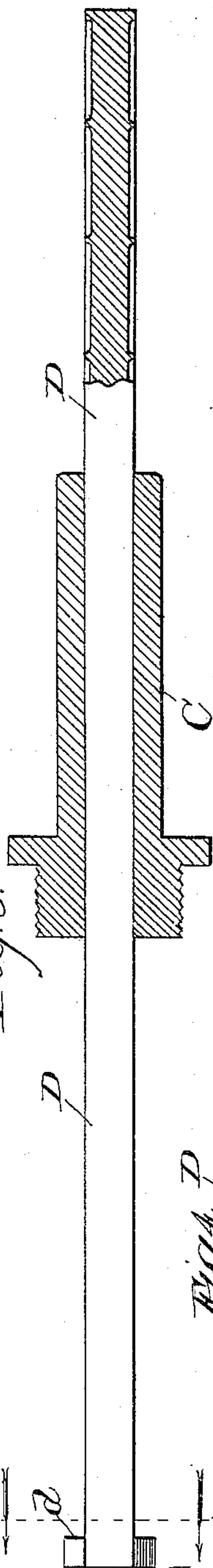


Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

EDGAR B. THOMPSON AND CHARLES A. SCHROYER, OF CHICAGO, ILLINOIS.

PISTON-TRAVEL INDICATOR.

SPECIFICATION forming part of Letters Patent No. 444,677, dated January 6, 1891.

Application filed November 21, 1889. Serial No. 331,086. (No model.)

To all whom it may concern:

Be it known that we, EDGAR B. THOMPSON and CHARLES A. SCHROYER, citizens of the United States, residing at Chicago, Cook county, Illinois, have invented a new and useful Improvement in Piston-Travel Indicators, of which the following is a specification.

For brevity and convenience we shall describe our device as applied to an air-brake cylinder, although it is obvious that it is capable of being used to indicate the travel of any piston, the necessary alterations as to dimensions, &c., being made. It is a well-known fact that if the travel of the piston in the air-brake cylinder is too short the air-pressure will be increased and the danger of "skidding" the wheels or wearing them unevenly will be increased correspondingly. On the other hand, if the piston-travel be too great the pressure will be decreased, thereby decreasing the efficiency of the braking service. To get at the amount of this travel it has heretofore been customary to make an application of the brakes and then measure the travel with a rule—a very laborious and troublesome method.

It is our object to provide a simple and effective apparatus for obtaining the indication desired, which is operated by the movement of the piston; and our invention consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is a vertical central section of an air-brake cylinder with our improvement attached thereto; Fig. 2, a side elevation, partly in section, of the indicating device; Fig. 3, a plan view of the same, also partly in section; and Fig. 4, a section on line 4 4 of Fig. 3, looking in the direction of the arrows. The last three figures are on an enlarged scale.

A is the air-brake cylinder; B, the piston; b, the piston-rod; C, a barrel or stuffing-box attached to the cylinder; D, a graduated bar sliding in such barrel; *d d*, lugs on such bar, and E a spring bearing against the bar D.

The cylinder to which our device is attached is constructed in the usual way, as are also the piston, piston-rod, &c., and being well known require no further description.

The barrel or stuffing-box C is made of any suitable material and screwed into the rear-

ward cylinder-head, projecting outward, as shown in Fig. 1, and serves as a guide and support for the bar D. We then make the bar D. This bar is made preferably of metal and slides back and forth in the barrel C. To keep it from being drawn or forced entirely out of the barrel, we prefer to provide it with lugs *d d*, as shown, which strike against the inner end of the barrel. The bar D is graduated along one or both sides. In the drawings an inch scale is represented; but any other may be used as desired. A spring E is placed in the barrel, which preferably has a recess *e* to receive it. This spring bears against the bar D, and is intended to insure the steady motion of the bar to prevent its being thrown forward farther than the piston travels and to hold the bar in the place to which it moved, so as to preserve the record made.

The operation is as follows: When the piston is in the position shown in Fig. 1, the graduated bar should be pushed inward until its end rests against the piston. When the brakes are applied, the piston will be driven toward the right, Fig. 1, carrying the bar along. The latter will be brought into the position shown by dotted lines in Fig. 1, and will indicate the travel of the piston, the distance the bar is forced out of the barrel being equal to the distance traveled by the piston. As above stated, the spring E holds the bar so firmly that it can only move through the application of positive force. It will move only while pushed by the piston and will travel no farther than the latter. When the piston returns to its original position, Fig. 1, the spring will hold the bar in the position indicated by dotted lines until again pushed back against the piston.

While we have shown and prefer a flattened bar, it will be obvious that a differently-shaped one may be used with equal advantage, and that similar changes in form and construction may be made without departing from the spirit of our invention.

We claim—

1. A piston-travel indicator comprising a barrel or stuffing-box attached to the end of the cylinder, a bar sliding in such barrel and entering the cylinder, and means for retaining such bar in the position to which it is

moved by the travel of the piston, substantially as described.

2. The combination of a cylinder, a piston, a barrel attached to the head of the cylinder, and a graduated bar passing through the barrel into the cylinder and adapted to be forced out of the cylinder by the movement of the piston, whereby the travel of such piston is indicated, substantially as described.

10 3. The combination of the cylinder A, piston B, barrel c, graduated bar D, having lugs d d, and spring E, substantially as described.

4. In a piston-travel indicator, a bar entering the cylinder and adapted to be pushed out therefrom by the movement of the piston and remaining in the position into which it is brought, whereby the travel of the piston is indicated, substantially as described. 15

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