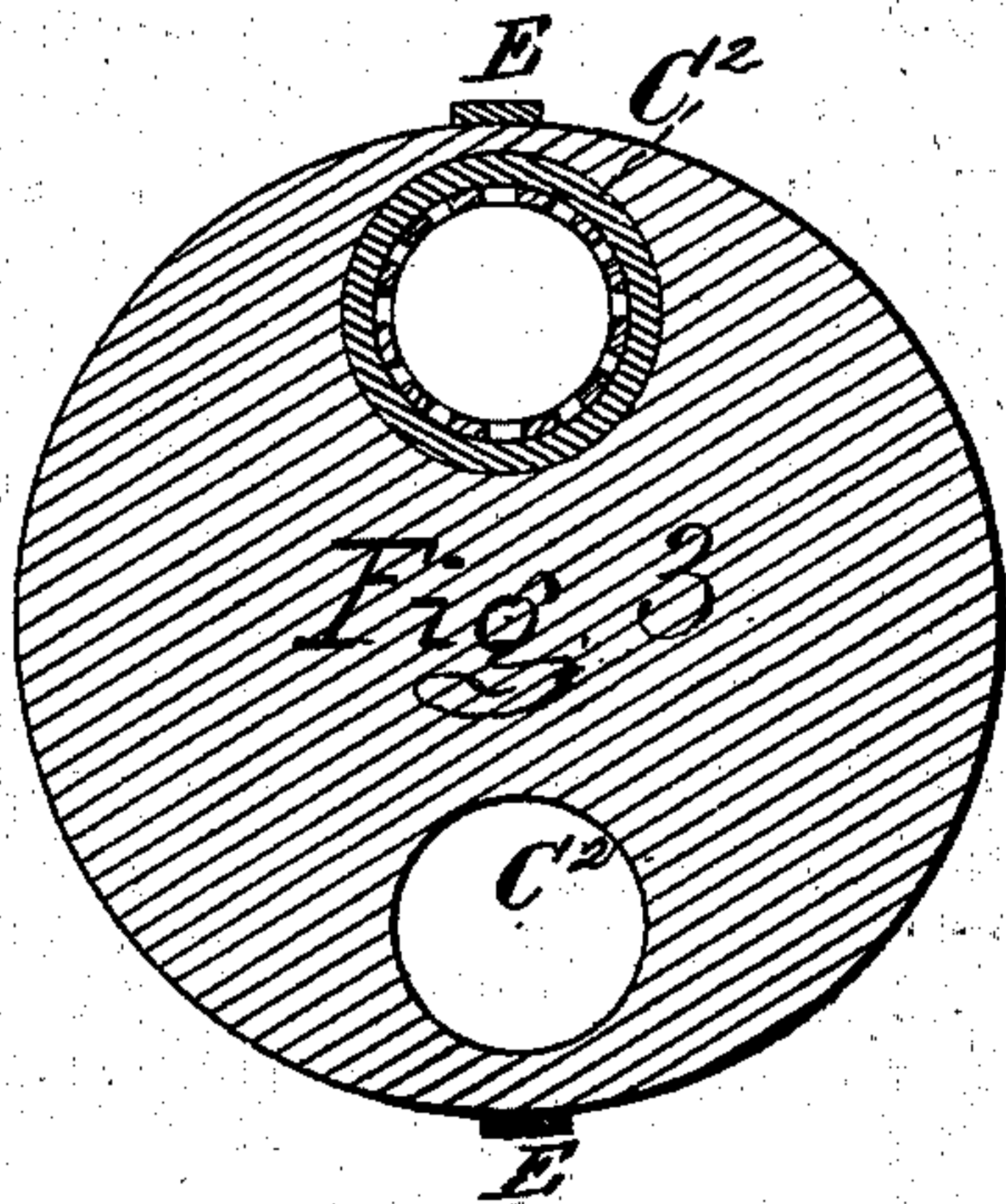
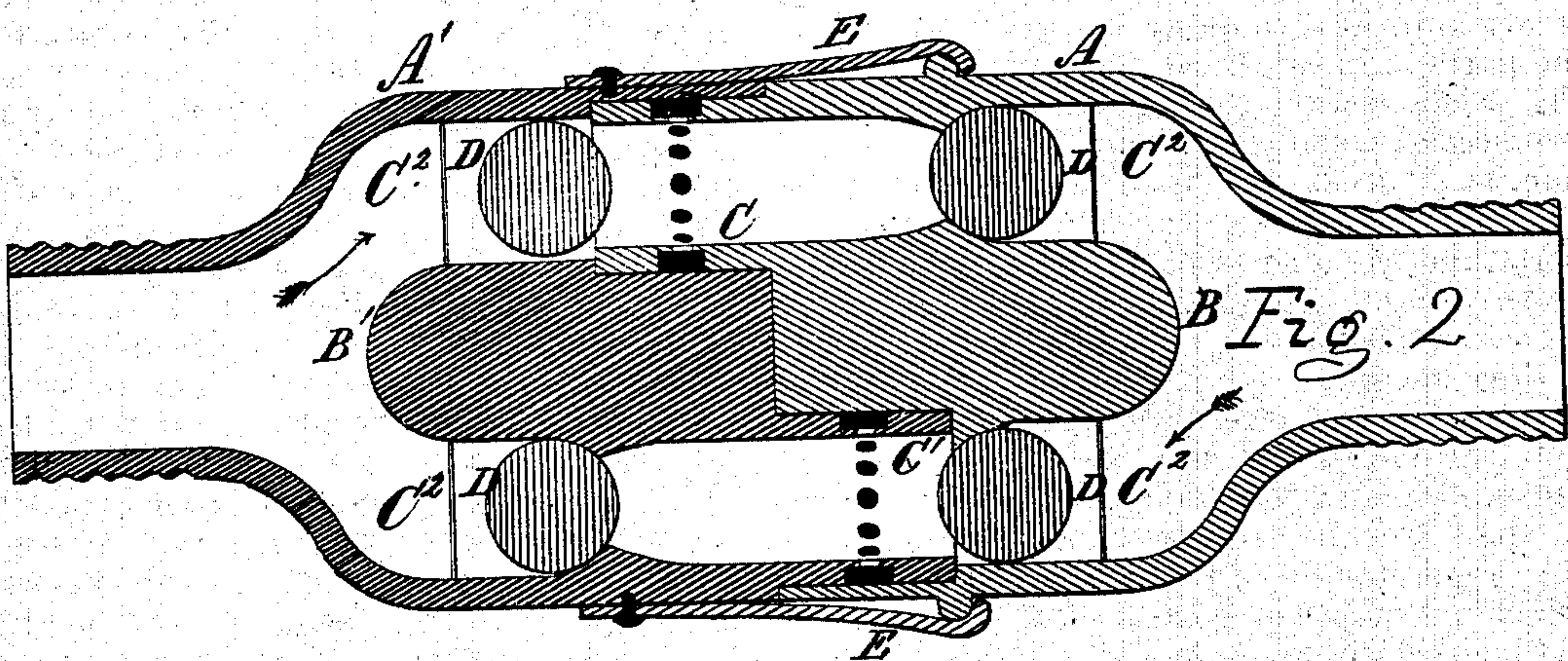
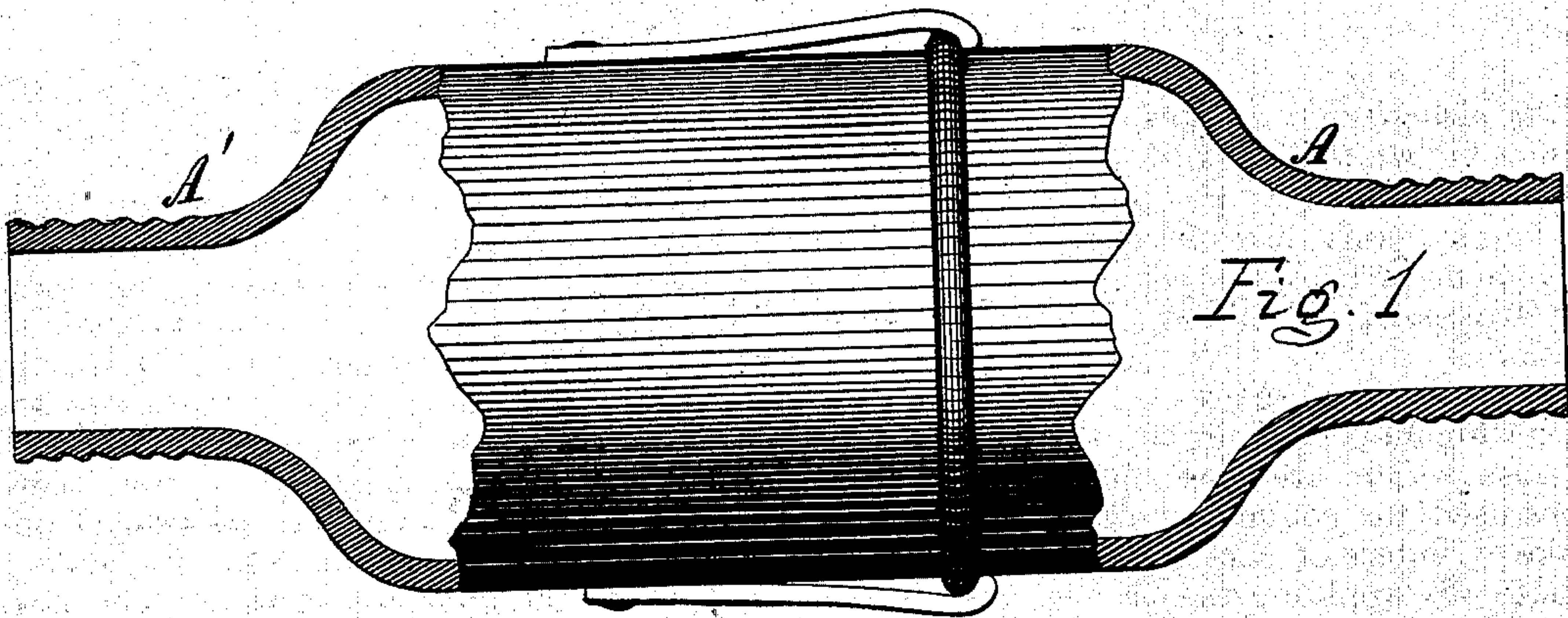


J. Y. SMITH.

Couplings for Steam and Air-Brakes.

No. 146,367.

Patented Jan. 13, 1874.



Attest
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UNITED STATES PATENT OFFICE.

JOHN Y. SMITH, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN COUPLINGS FOR STEAM AND AIR BRAKES.

Specification forming part of Letters Patent No. **146,367**, dated January 13, 1874; application filed November 1, 1873.

To all whom it may concern:

Be it known that I, JOHN Y. SMITH, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain Improvement in Hose-Couplings for Steam and Air Brakes, of which the following is a specification:

This invention relates to that class of devices which are used for coupling the sections of hose which are used for connecting the pipes used for conveying air or steam to the brake-cylinders of cars for the purpose of automatically applying the brakes; and it consists in the construction, combination, and arrangement of the parts of which it is composed, as will be more fully explained hereinafter.

Figure 1 is an elevation, partly in section, of my improved coupling-valve, showing how the parts are held in contact with each other. Fig. 2 is a section through the center of the two sections, showing their interior construction, the valves and their arrangement, the packing for forming the joints between the parts, and the air-passages. Fig. 3 is a transverse section, showing the passages for the air which presses out the packing.

Corresponding letters refer to corresponding parts in the several figures.

In providing for the ready coupling and uncoupling of cars, which have pipes attached to them for the transmission of steam from the generator, or air from a reservoir into which it has been compressed, to the brake-cylinders located upon such cars, it is essential that provision should be made for retaining the steam or air in the pipe of the last car of the train; and also to provide that when the cars are turned around, or their ends are changed, the coupling of the hose may be effected without delay; and, further, that provision should be made for the ready uncoupling of the hose in the event of the cars of the train becoming parted while the train is in motion.

To provide a device which shall serve all of the purposes above named is the object of this invention; and, in constructing it, I use a case made of two sections, A and A'. These sections are alike in construction, and

hence a description of one will answer for both.

By referring to the drawings, it will be seen that the outer end of section A is reduced in diameter, so as to receive the end of connecting-hose, while its inner end is enlarged sufficiently to admit of there being formed in it a partition, B, which divides the air or steam passage into two branches, C² C². Upon the outer end of this enlarged portion there is formed a projection or male portion, C, and a recess or female receptacle for the male portion C' on the opposite section. The branch openings C² C² extend through the male and female portions, so as to allow a free passage of air or steam from one section of the coupling to the other, they being provided with valve-seats for the valves D D to rest upon, as shown in the drawings. The projection C is provided with an annular recess at about the center thereof, into which an annular packing-ring of rubber or other elastic substance is inserted; and from the seat of this ring apertures are formed, which extend through the remaining portion of the metal composing the projection or male portion, and communicate freely with the air or steam passage C², in order that when air or steam is passing through it it may press the packing out into close contact with the female portion of the opposite section, and thus form a tight joint between the two. In each of the two sections of this coupling there are placed two valves, D D, they being so arranged that when air or steam is flowing into the coupling through the section A it shall close one of the valves upon its seat, while the other one is pushed from its seat by the end of the male projection on the other section, or by a bar placed across its outer end, so that the steam or air can pass through one of the passages only; but in the event of the car to which one of these sections is attached being turned so as to have its ends changed, then the air or steam will pass through the opposite opening C², the valves in the opposite section of the coupling being arranged as above described, and acting in the same manner, the valve which in the first instance was forced upon its seat being now

forced from it by the inflowing current, and the corresponding one in the other section will be forced to its seat, which will change the direction of the current to the opposite passage, as shown by the arrows in Fig. 2. Each of the sections A and A' is provided with bars across the passages and in rear of the valves, in order that the one which is forced from its seat by the current of the steam or air may not be driven out of the passage C², and thus prevented from operating when the current is changed.

To provide for the uncoupling of the two sections of this device in the event of the parting of any two cars of a train, as well as for the ready uniting of the parts, one of the sections is provided with an annular projection upon its outer surface, as shown in Fig. 1, while the opposite section is provided with two or more springs, E E, which are riveted or bolted to it in such a manner that the outer hooked ends shall engage the projecting portion of the outer surface of the opposite section, and thus hold the two sections in position with reference to each other, but shall readily unhook, and thus permit the sections to separate, when it is desirable to have them do so.

The advantages of this coupling-valve are obvious, as it will be seen that it furnishes a ready and cheap means for connecting and disconnecting the hose of cars which are provided with cylinders for operating brakes,

while it at the same time provides for coupling any one car to either end of another, and this without any expense or inconvenience from branch pipes upon any of the cars.

It is obvious that the form of the parts of this device may be changed without in any sense changing the invention, and hence I do not confine myself to such form of the parts.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A hose-coupling valve consisting of two sections, each of which is provided with two passages for air, steam, or other fluid, and with valves which control the passage of such fluid, the valves being arranged substantially as shown, as a consequence of which the direction of the current of the passing fluid can be changed, substantially as and for the purpose set forth.

2. The combination of the two sections of the coupling A A', having male or projecting portions with apertures for the passage of the fluid, and the annular packing-rings, substantially as and for the purpose set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN Y. SMITH.

Witnesses:

D. P. HOLLOWAY,
B. EDW. J. EILS.