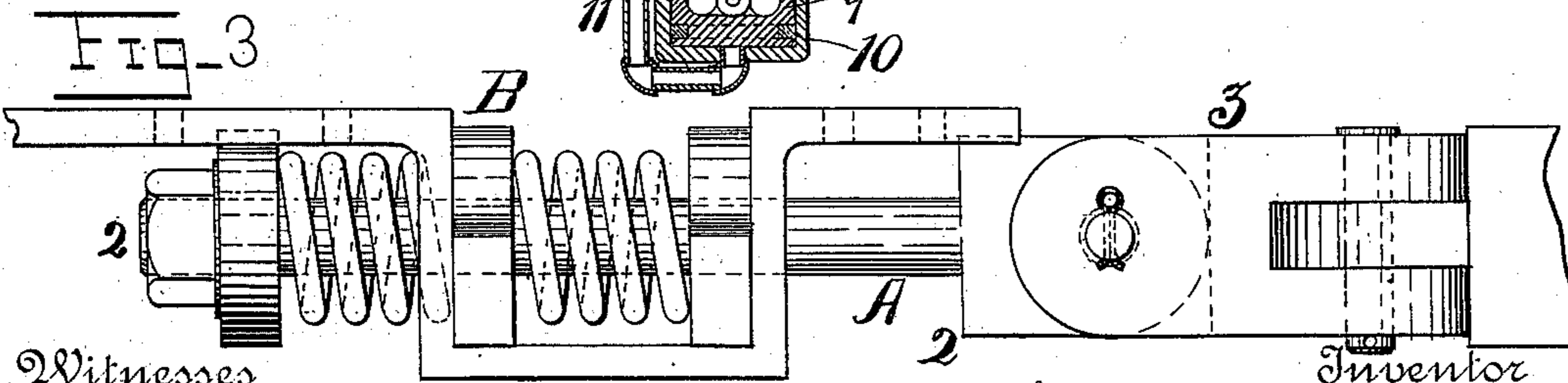
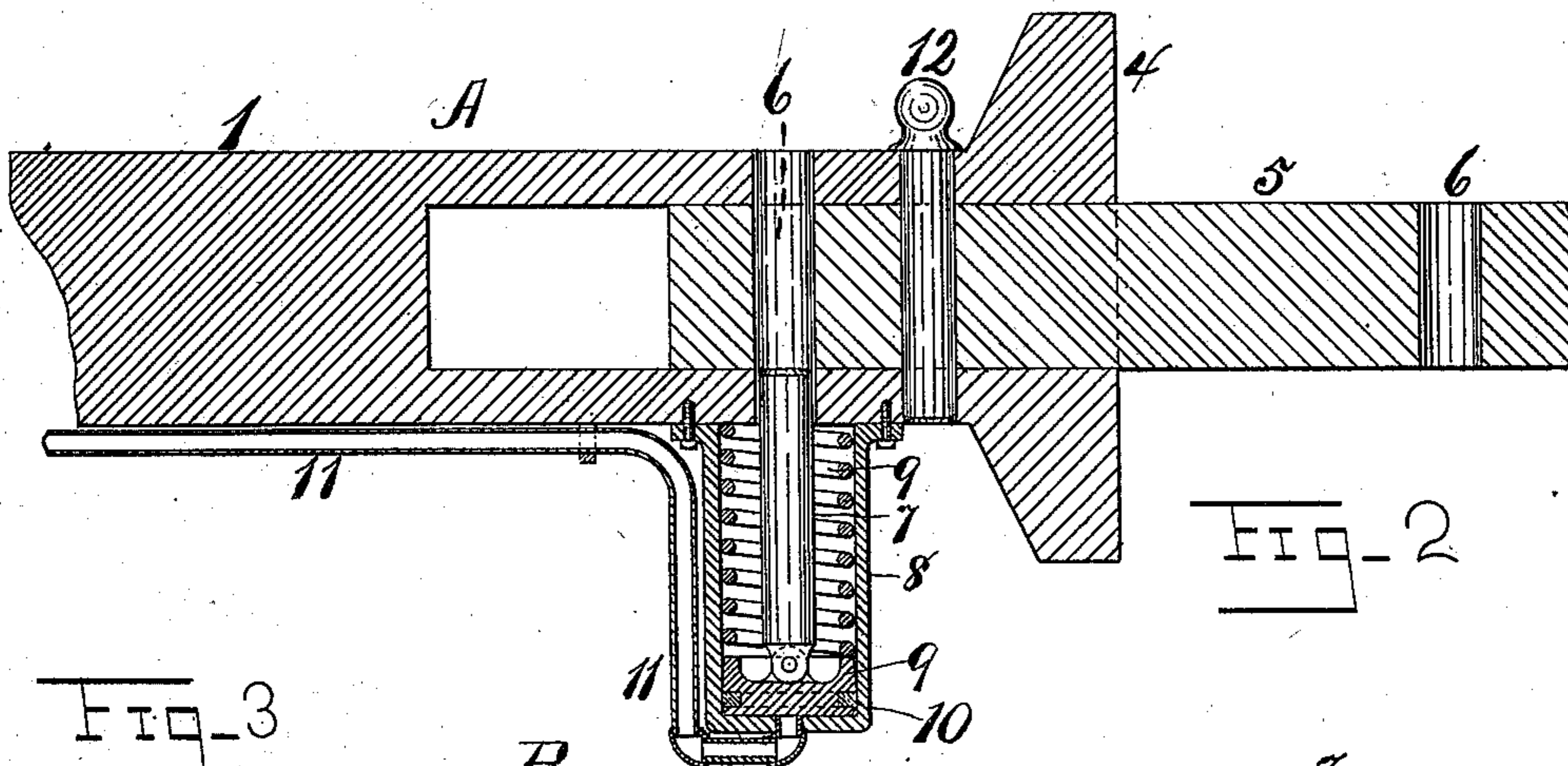
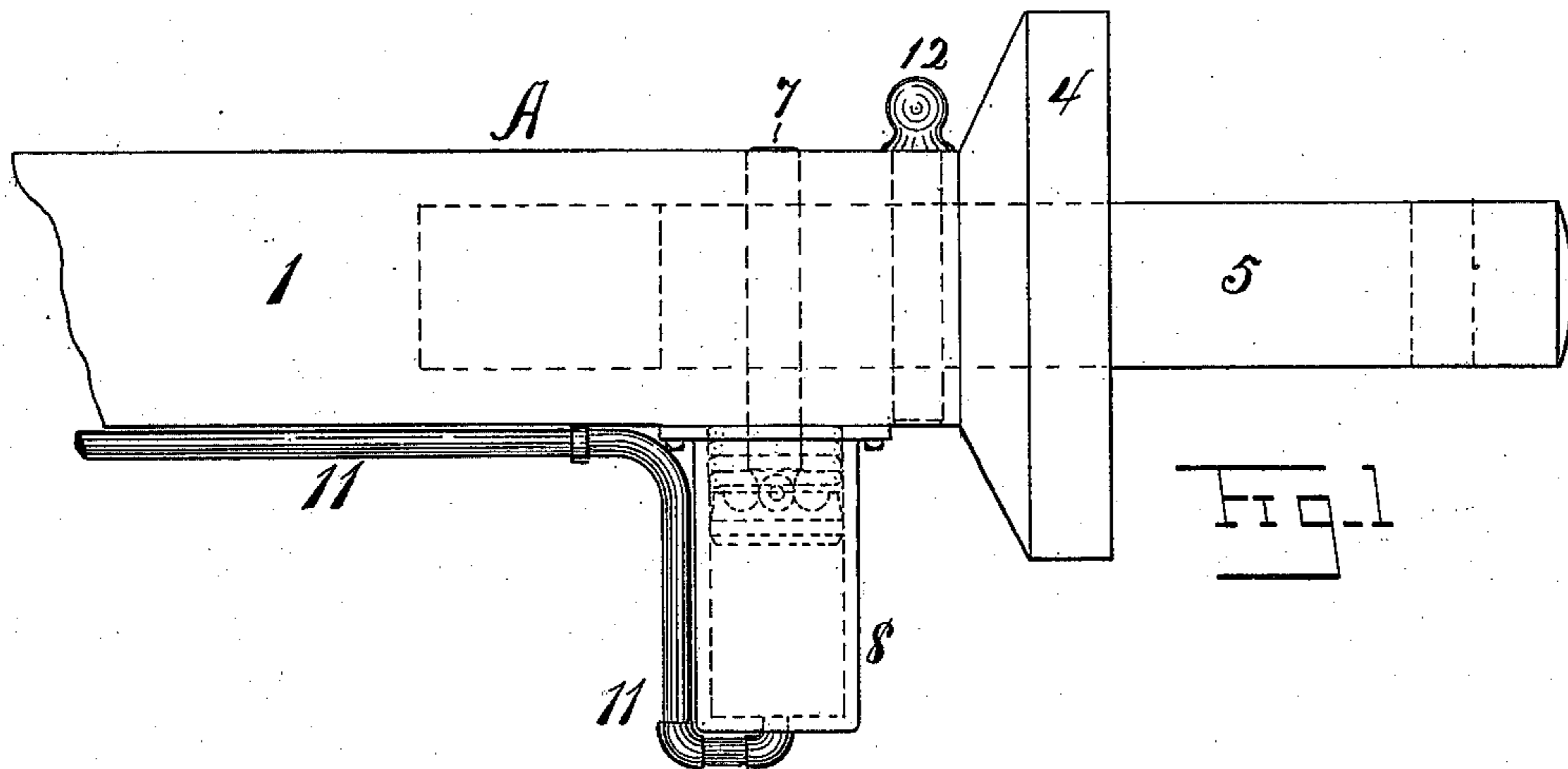


(No Model.)

E. J. KNAPP.
CAR COUPLING.

No. 402,021.

Patented Apr. 23, 1889.



Witnesses

Howard P. Demison
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By his Attorneys
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UNITED STATES PATENT OFFICE.

EDWARD J. KNAPP, OF SYRACUSE, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 402,021, dated April 23, 1889.

Application filed June 23, 1888. Serial No. 277,989. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. KNAPP, of Syracuse, county of Onondaga, in the State of New York, a citizen of the United States, have

5 invented certain new and useful Improvements in Car-Couplings, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the coupling.

10 Fig. 2 is a longitudinal vertical section of Fig. 1. Fig. 3 is a side elevation of the rearward extension of the parts shown in Fig. 1, the parts in Figs. 1 and 3 together constituting the bumper adapted to my coupling.

15 This invention relates to that class of car-couplings in which the coupling-pin is operated by compressed air or steam or upon the vacuum principle, the pin being properly connected to an air-compressor, steam-generator,

20 ator, or vacuum-producing mechanism.

The object of my invention is to produce a car-coupling which can be operated by the engineer to couple or uncouple the cars directly from the cab of the locomotive, or which

25 will uncouple itself whenever the car is derailed; and also in connection therewith, or without connection therewith, to produce a bumper-beam provided with a universal joint in the beam itself to permit the outer end to

30 oscillate vertically and sidewise with the motion of the cars, while the inner end of the beam remains stationary.

My invention consists in the several novel features of construction and operation hereinafter described, and which are specifically set forth in the claims hereunto annexed. It is constructed as follows:

A is the bumper-beam, in which 1 is the outer section, and 2 is the rear section, which

40 sections are united by the universal joint 3. Upon the front end of section 1 is the bumper-head 4, and this head and section are mortised to receive the coupling-pin 5, which coupling-pin, or, rather, coupling-link, 5 is

45 provided with holes 6 to receive the pin 7. The inner end of the bumper is provided with or connected to the ordinary recoil-spring mechanism, B. The mortise in the bumper may be adapted to receive an ordinary link or

50 a bar provided with pin-holes 6, and the coupling-pin 7 may be of any form desired. Beneath the section 1 of the bumper I secure the

air-cylinder 8, within which I place the piston-head 9, provided with a packing, 10, and to this piston-head I connect the coupling-pin 7; 55 and 9 is the spring interposed in the cylinder between the piston-head and the bumper, and 11 is an air-tube suitably connected to the cylinder 8 below the piston-head 9. This tube extends forward to the air-compressor 60 upon the locomotive, and when air is forced through this tube into the cylinder 8 it raises the piston-head up into the cylinder, compressing the spring and carrying upward the coupling-pin through the link and making 65 the coupling complete, and as soon as the air-pressure is removed or by any means reduced the spring will force down the piston-head, which will draw down the coupling-pin and uncouple the coupling, leaving the link 70 ready to be withdrawn from the bumper. I also show at 12 an ordinary pin inserted through the link to illustrate the fact that with my invention couplings may be made by hand, if desired, in which case the air mech-

anism would not be used. The above description describes the construction and operation by the use of compressed air, and it will be readily seen that to operate this mechanism upon the exhaust 80 principle or vacuum principle I need only connect the pipe 11 to the upper part of the cylinder 8, placing a suitable box or packing around the pin 7 and leaving a small hole in the bottom of the cylinder, and then, when 85 air is exhausted through the pipe 11 from the cylinder, the piston will rise and raise the pin 7 upward to make the coupling, and then, when air is let into the top of the cylinder, the spring will force the piston down and 90 withdraw the pin, as above described.

It will be readily observed that on account of the bumper-sections being united by a universal joint the section 2 can be rigidly secured to the bottom of the car, and that the 95 section 1 will be free to oscillate vertically and sidewise to take up the vertical and lateral motion of the car.

What I claim as my invention, and desire to secure by Letters Patent, is— 100

1. A coupling-pin connected directly to a piston-head and operated vertically through the draw-bar, and a link inserted horizontally into the draw-bar by the introduction or with-

drawal of air behind the piston-head, substantially as described.

2. In a car-coupling, a coupling-pin directly connected to a piston-head mounted in a cylinder secured to the draw-bar or bumper, and a pipe connected to an air compressor or ex-
5 hauster, in combination, substantially as described.

3. In a car-coupling, a cylinder secured to
10 the bumper, a piston-head within the cylinder, a coupling-pin connected directly to a

piston-head, and means for forcing air into the cylinder or exhausting it therefrom, and a spring around the coupling-pin between the piston-head and bumper, substantially as de- 15 scribed.

In witness whereof I have hereunto set my hand this 18th day of June, 1888.

EDWARD J. KNAPP.

In presence of—

H. P. DENISON,

C. W. SMITH.