

No. 672,917.

Patented Apr. 30, 1901.

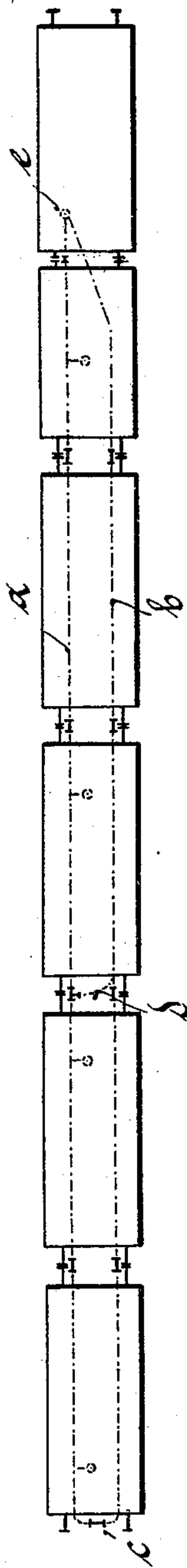
W. SCHMID.  
BRAKE FOR RAILWAY TRAINS.

(Application filed Feb. 7, 1901.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



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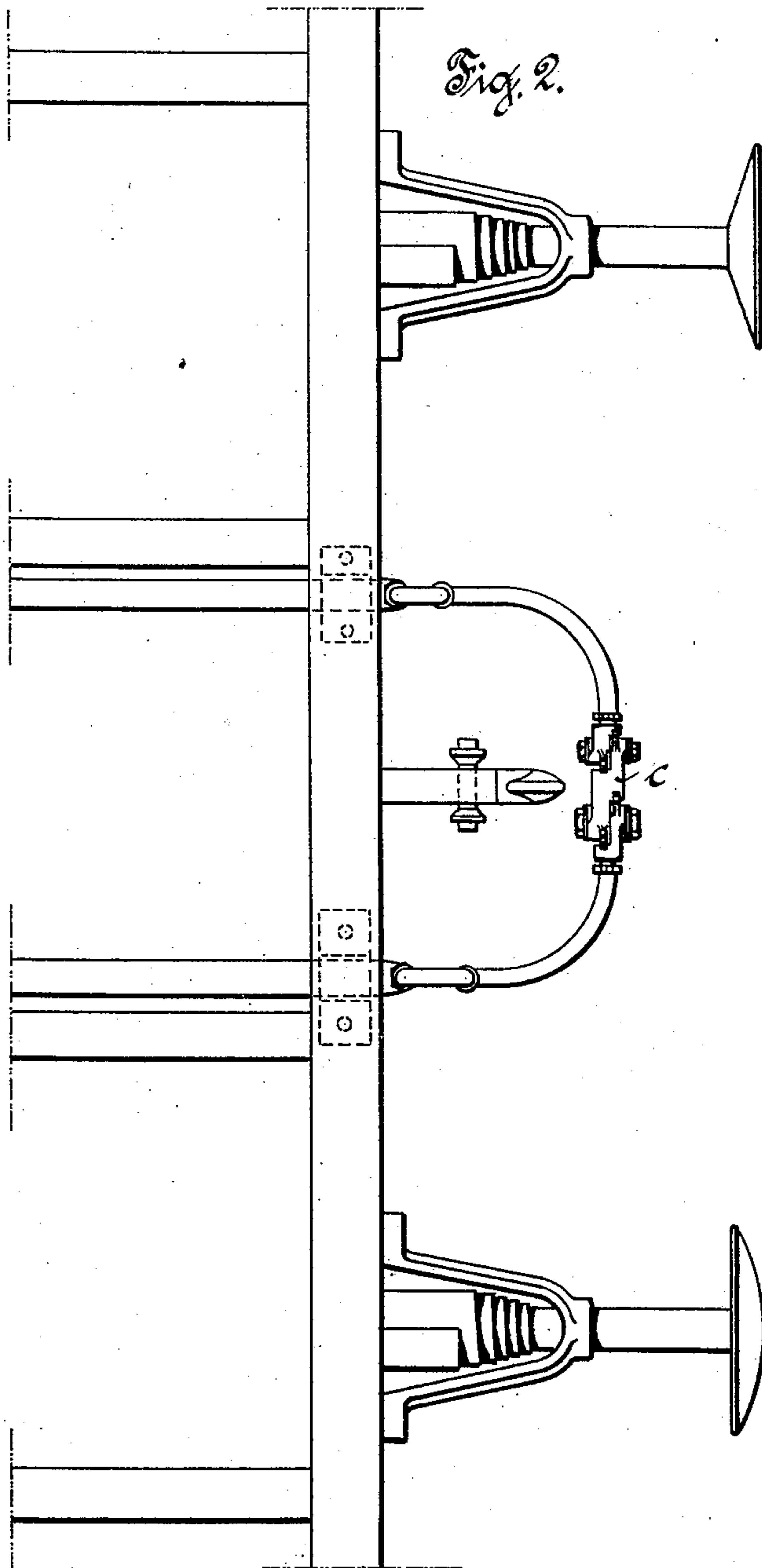
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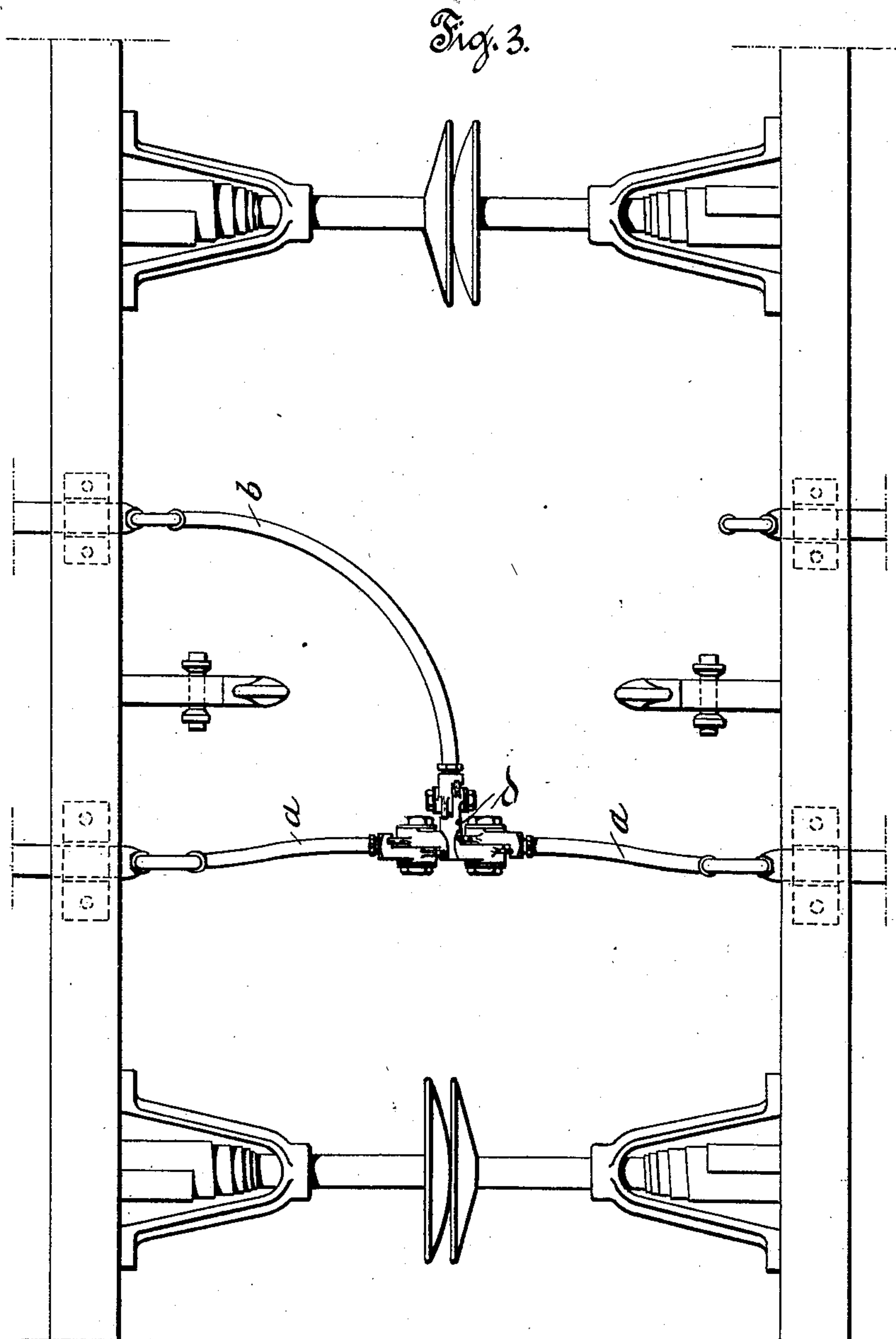
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4 Sheets—Sheet 3.



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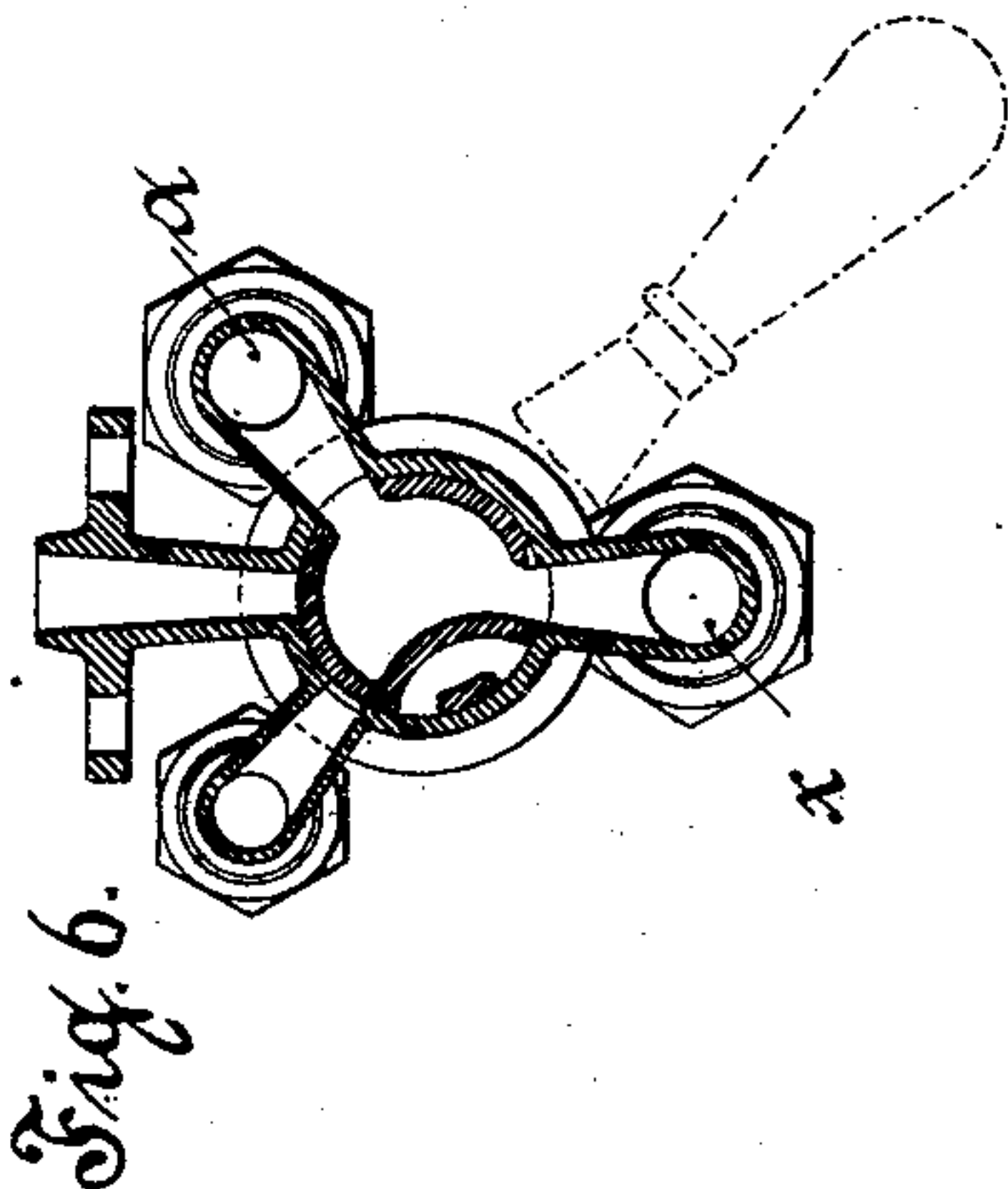
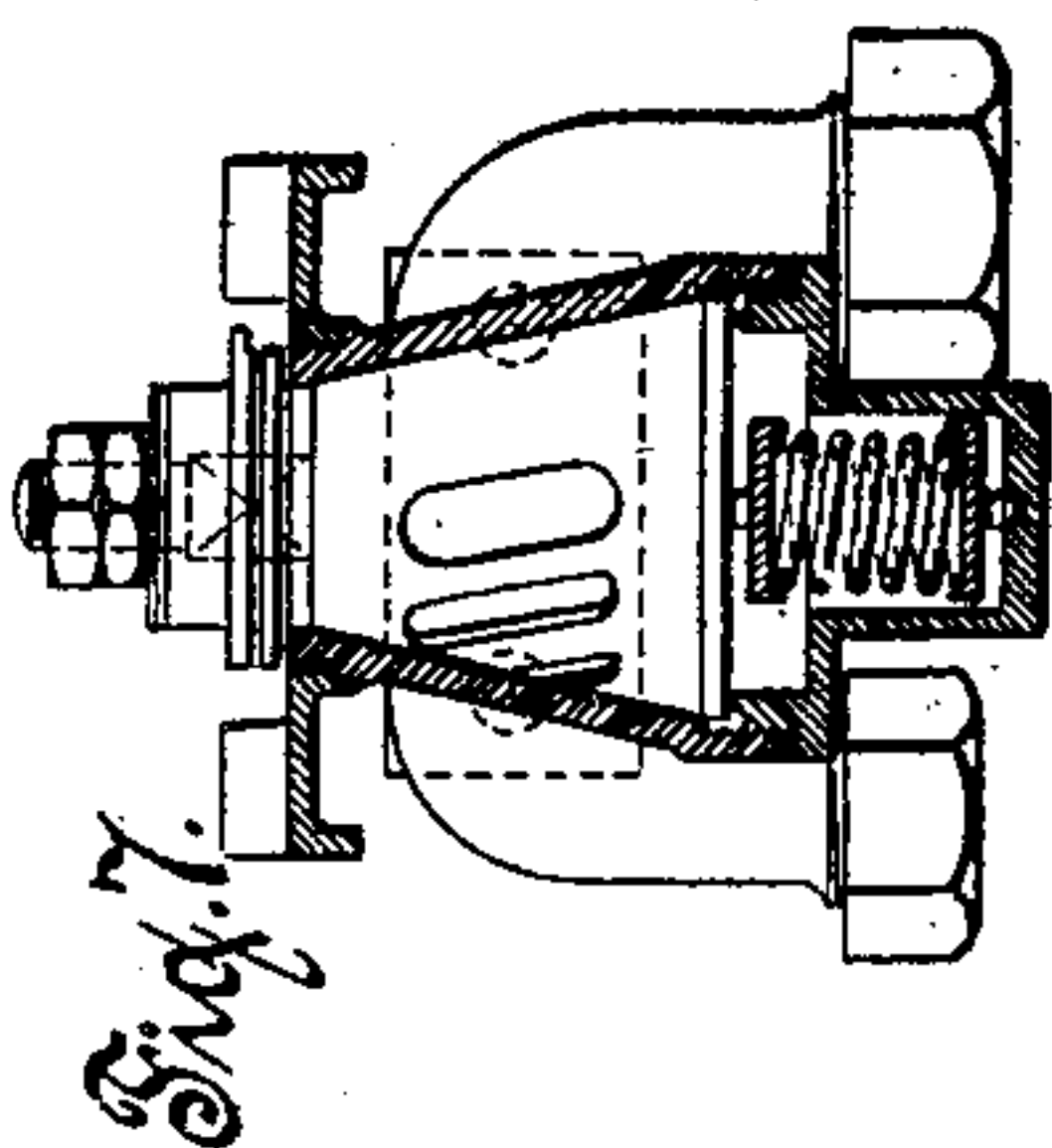
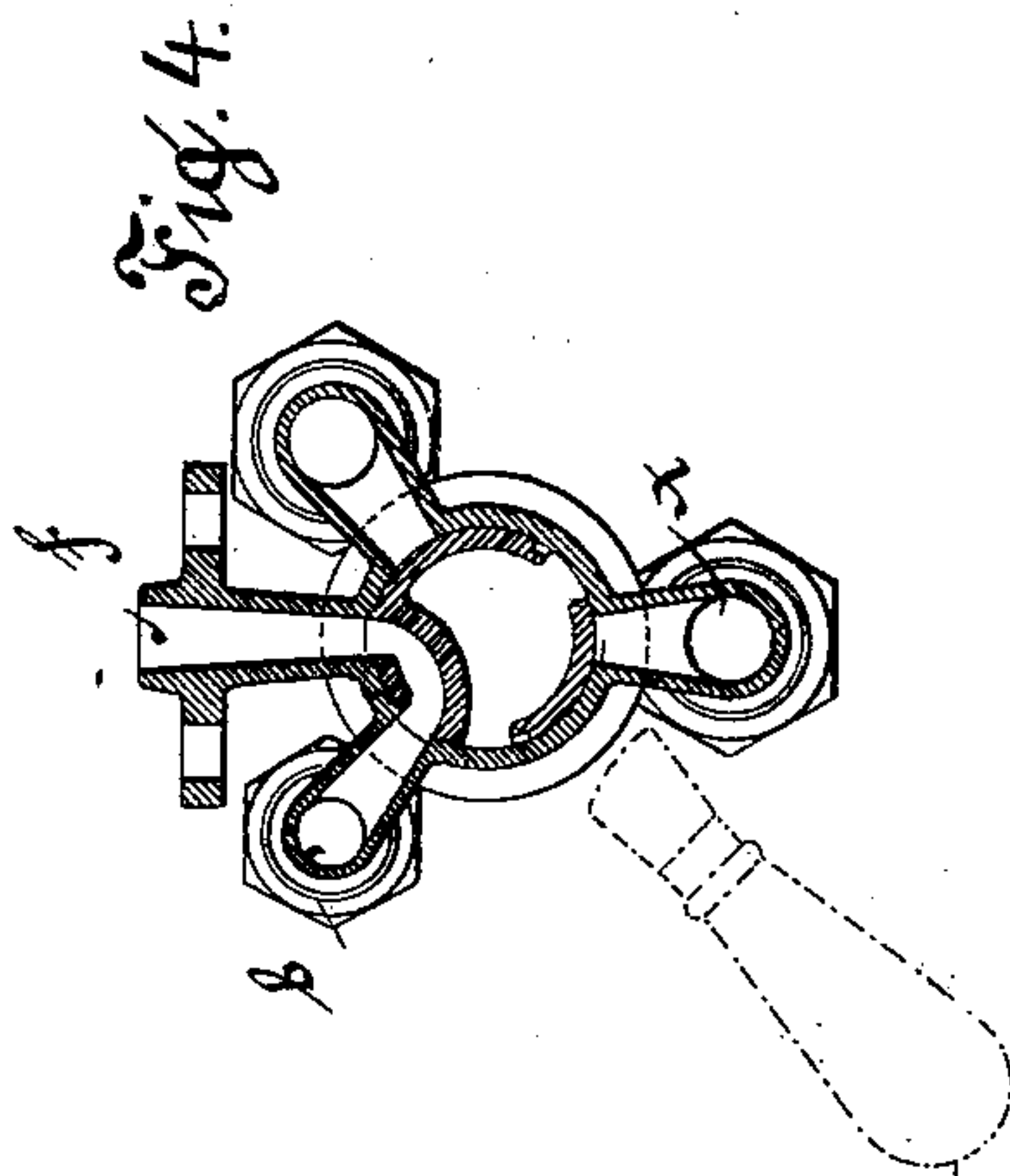
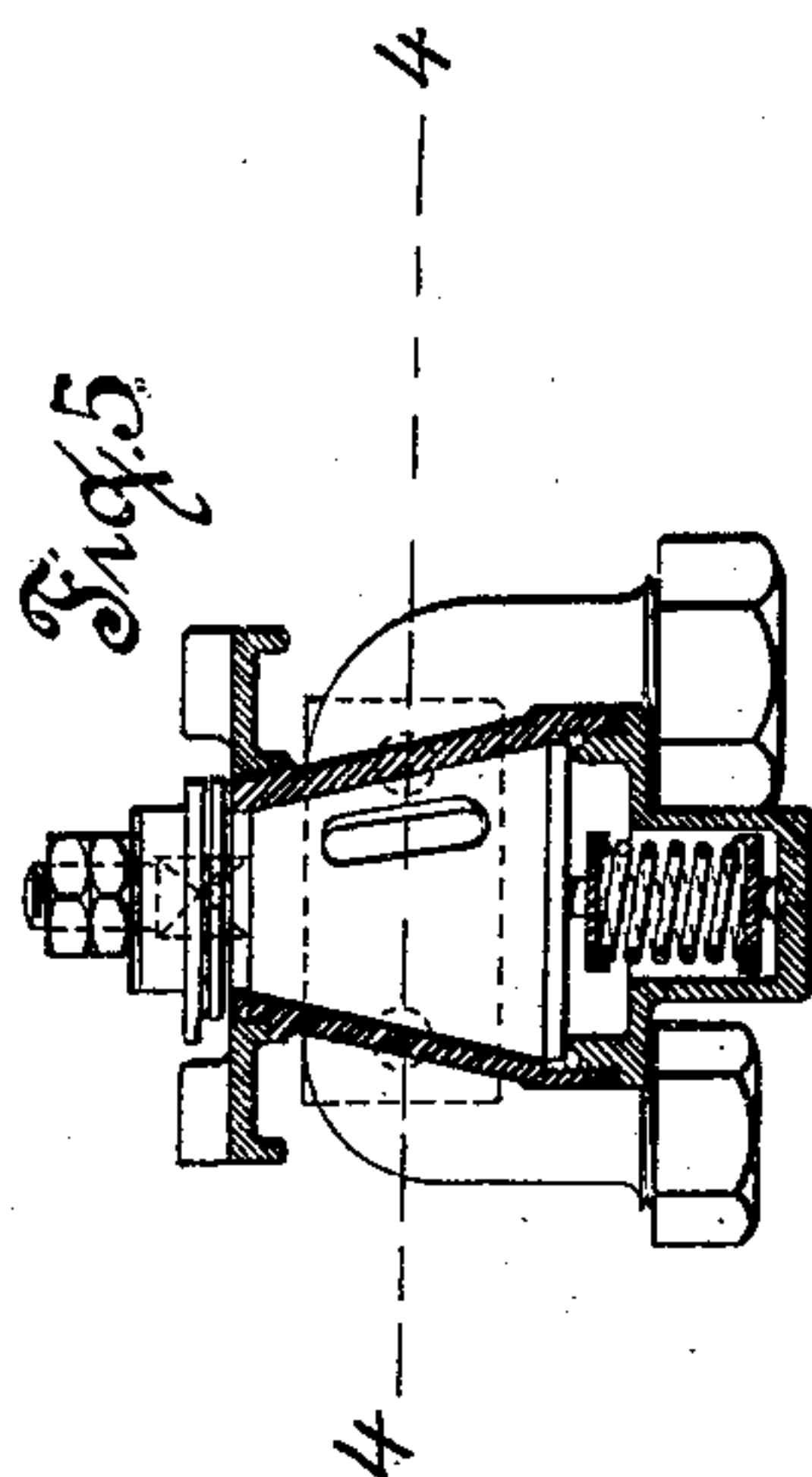
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(No Model.)

4 Sheets—Sheet 4.



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# UNITED STATES PATENT OFFICE.

WOLFGANG SCHMID, OF MUNICH, GERMANY.

## BRAKE FOR RAILWAY-TRAINS.

SPECIFICATION forming part of Letters Patent No. 672,917, dated April 30, 1901.

Application filed February 7, 1901. Serial No. 46,342. (No model.)

*To all whom it may concern:*

Be it known that I, WOLFGANG SCHMID, a subject of the King of Bavaria, residing at Munich, Kingdom of Bavaria, Germany, have  
5 invented a certain new and useful Improved Brake for Railway-Trains, of which the following is a full, clear, and exact description.

The present invention relates to improved means for braking railway-trains in a  
10 stretched or drawn-out condition, or to use the language of train operators, when the trains are "on the draw."

The object of the invention is to apply the brakes by means of the engineer's valve in  
15 such a way that the brakes are applied to the cars of the train consecutively forward, beginning at any intermediate car of the train, and are released consecutively from the front of the train to the said car. By this mode of  
20 operation one is enabled when traveling over inclines to stop the train without any shocks or jars, said forward portion of the train remaining in a drawn-out condition.

Long freight-trains, in which the cars must  
25 be coupled loosely because it is impossible to start a drawn-out train with couplings under tension, can in no case be braked without shocks with the present braking devices when riding over inclines when only a part  
30 of the cars have the auxiliary braking-pipe.

Under the present invention the above objects are accomplished by the introduction of a second auxiliary train-pipe, which may  
35 be connected with the principal or ordinary train-pipe, to which the brake-actuating devices are connected at any intermediate car of the train. Preferably the same is connected to the principal train-pipe at the head of the train by the engineer's valve and at any  
40 intermediate point between any two of the cars by special coupling devices having triple coupling-heads.

I will now describe my invention in such full, clear, and exact terms as to enable those  
45 skilled in the art to fully understand the same.

In the accompanying drawings, Figure 1 shows a diagrammatic plan view of a train with my invention in brake apparatus ap-  
50 plied thereto; Fig. 2, an enlarged plan view showing the connection of the principal train-

pipe with the auxiliary train-pipe at the rear end of the train as now in use; Fig. 3, a similar view showing such connection between two cars that make up the train; Fig. 4, a sectional plan on the line 4 4 of Fig. 5 of the en-  
55 gineer's valve provided with means for connecting the two train-pipes through the same; Fig. 5, a sectional elevation of the same; Figs. 6 and 7, sectional plan views and sec-  
60 tional elevations of the same valve and connections, showing the parts in different relative positions from Figs. 4 and 5.

As shown in the drawings, particular reference being had to Fig. 1, the train under  
65 my invention is provided with a double train-pipe comprising the usual train-pipe *a*, together with an auxiliary *b*. The main train-pipe *a* is connected with the brakes in the usual or any convenient way, while the aux-  
70 iliary train-pipe *b* is not so connected.

*c*, Figs. 1 and 2, represents the coupling-head for connecting the pipes *a* and *b* at the end of the train. This coupling-head is in the form of a double coupling-head, as shown.  
75 The coupling devices employed, aside from this change, are those usually employed.

At *d*, Figs. 1 and 3, is shown a triple coupling-head serving to connect the two train-  
80 pipes between two cars or coaches.

At *e*, Figs. 1 and 4 to 7, is represented the means for connecting the two train-pipes with the engineer's valve at the head of the train.

The coupling-heads for the main train-pipe  
85 may be those usually employed; but the coupling-heads of the new auxiliary train-pipe must have a different form and arrangement in order that the two pipes can never be coupled without the aid of their own coup-  
90 ling-heads, so that an erroneous coupling will be rendered impossible. For this purpose the coupling-heads of the auxiliary pipe may be made to turn to the left instead of to the right, or they may be made smaller or larger  
95 than the coupling-heads of the main train-pipe. A number of these coupling-heads are carried along as reserve pieces in the baggage-car.

The triple coupling *d* between two cars of  
100 the train, as shown in Fig. 3, is employed instead of the coupling *c* at the end of the train,



Fig. 3, wherever a number of cars are attached to the train which are not provided with the second train-pipe.

In Figs. 4 to 7 is represented an engineer's valve and the mode of connecting the same with the train-pipes *a* and *b*. In controlling the train with compressed air or with brakes controlled by compressed air the engineer's valve is set in the position indicated in Figs. 4 and 5, so that the auxiliary pipe *b* is put in communication with the escape-opening or vent *f*. Thereby the air from the main pipe *a* at the end of the train is caused to flow through the auxiliary pipe *b* and to escape through the engineer's valve, which action results in the application of the brakes in succession from the end of the train to the front. Thereby a portion of the train is maintained on a draw or in a stretched condition and is arrested or braked in that condition. Hence the cars are prevented from closing up, and the jars and shocks resulting therefrom are effectively eliminated.

In order to release the brakes, the engineer's valve is so set, according to Figs. 6 and 7, that the compressed air from the main air-tank *x* flows into the main pipe *a*, whereby the brakes are successively released from the head of the train to the rear. Thereby the danger of a rupture of the train is effectually forestalled, because on releasing the brakes the same does not draw out or stretch toward the front, since it already occupies a drawn-out condition in the state of rest.

When employing suction-brakes, whether they be automatic or not, and also brakes

which are controlled by suction or exhaust air, this new arrangement enables the brakes to be applied first at the end of the train and to be released first at the head of the train with the usual equipment and by means of ejectors or two openings *a* and *b*.

In the last-mentioned system of brakes and when employing mechanical brakes this new arrangement dispenses with the quick-acting valves.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a brake system, the combination with a portion of the train having a service brake-pipe and an auxiliary brake-pipe, and a portion of the train having a service brake-pipe, of means for so coupling the terminals of said three pipes together as to establish communication between all of said pipes.

2. In a brake system, the combination with a portion of the train having a service brake-pipe and an auxiliary brake-pipe, and a portion of the train having a service brake-pipe, each of said pipes having means for coupling it with either of the other said pipes, of a three-part coupling member having its parts arranged to be coupled respectively to one of said pipes and thereby establish communication between all of said pipes.

In witness whereof I have hereunto set my hand in presence of two witnesses.

WOLFGANG SCHMID.

Witnesses:

RUDOLPH W. HIEBL,  
KARL KAMMERER.