

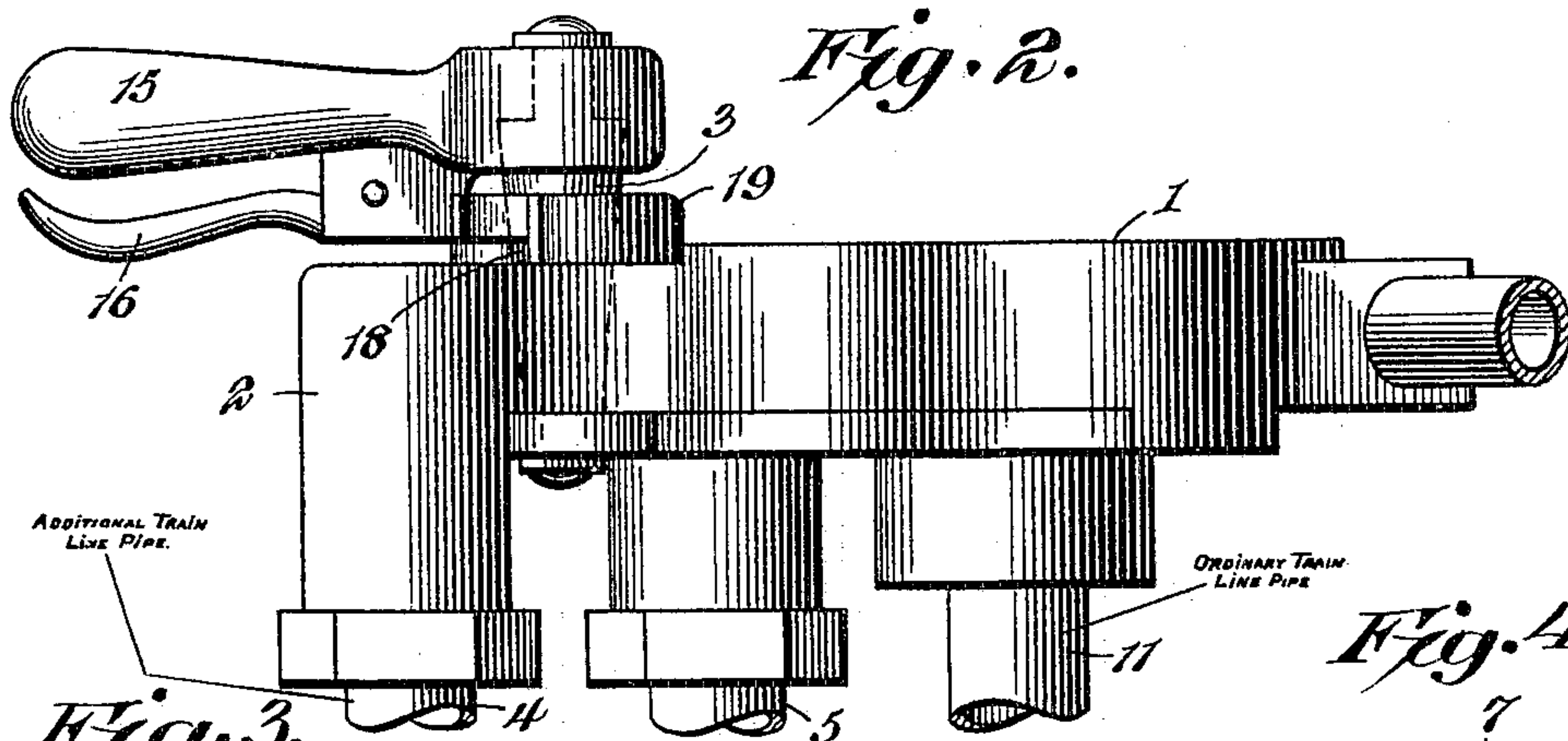
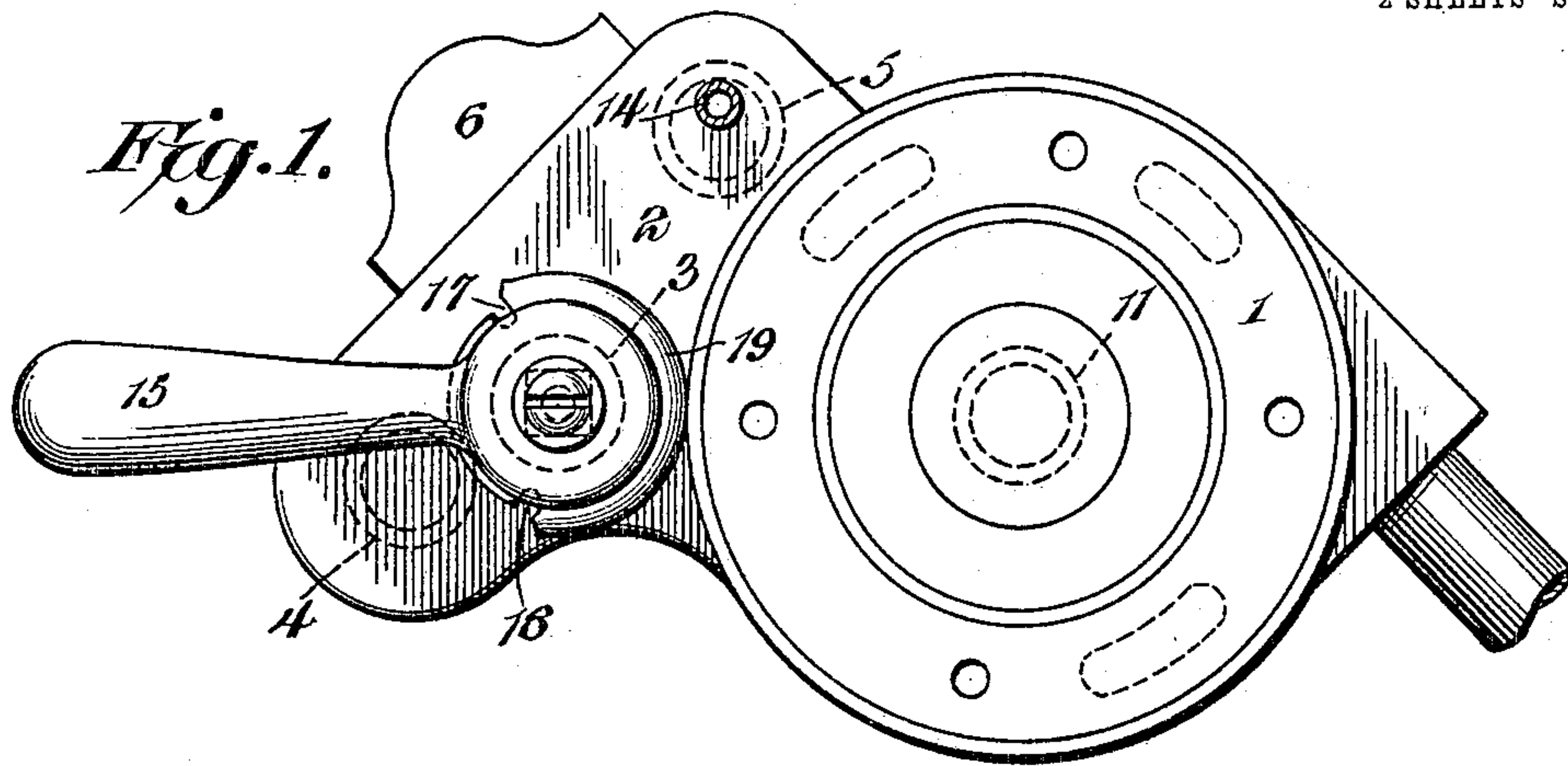
No. 819,726.

PATENTED MAY 8, 1906.

D. M. CASKEY.
ENGINEER'S EQUALIZING AND DISCHARGE BRAKE VALVE.

APPLICATION FILED JAN. 28, 1905.

2 SHEETS—SHEET 1.

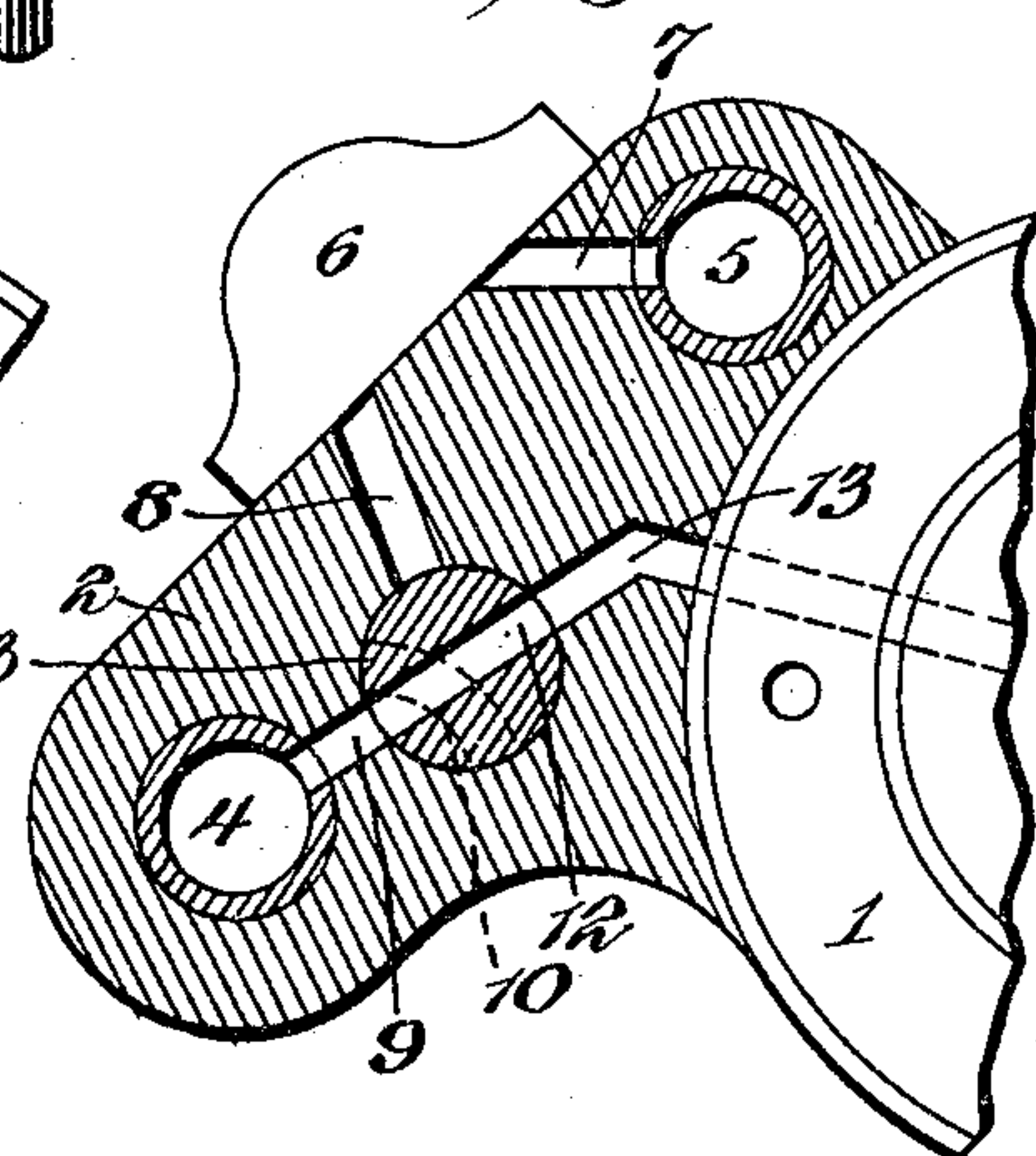
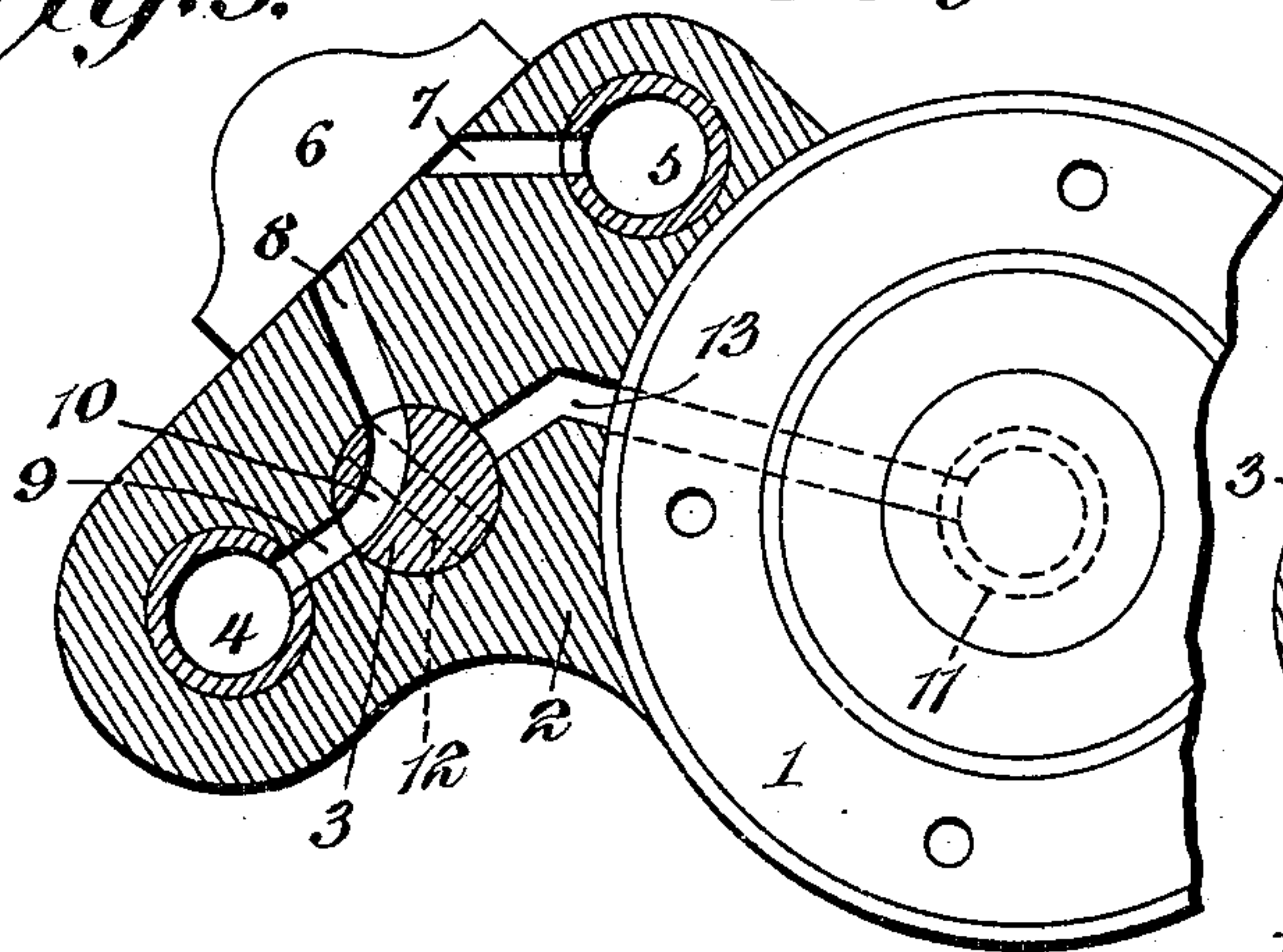


ADDITIONAL TRAIN
LINE PIPE.

ORDINARY TRAIN
LINE PIPE

Fig. 3.

Fig. 4.



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Witnesses

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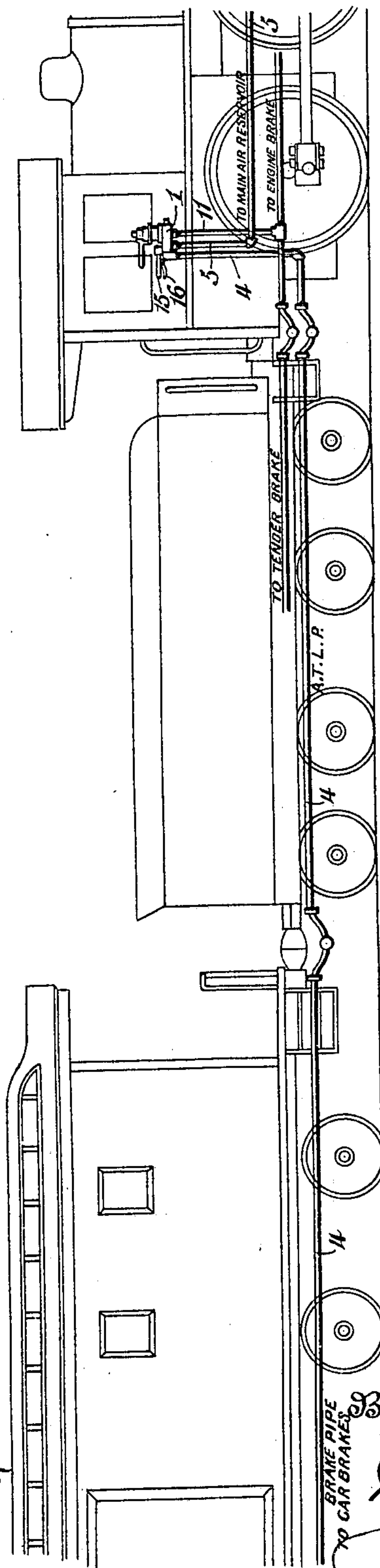
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2 SHEETS—SHEET 2.

Fig. 5.



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UNITED STATES PATENT OFFICE.

DAVID M. CASKEY, OF JONESBORO, ARKANSAS.

ENGINEER'S EQUALIZING AND DISCHARGE BRAKE-VALVE.

No. 819,726.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed January 28, 1905. Serial No. 243,055.

To all whom it may concern:

Be it known that I, DAVID M. CASKEY, a citizen of the United States, residing at Jonesboro, in the county of Craighead and State of Arkansas, have invented new and useful Improvements in Engineers' Equalizing and Discharge Brake-Valves, of which the following is a specification.

The invention relates to improvements in engineers' equalizing and discharge brake-valves.

The object of the present invention is to improve the construction of engineers' equalizing and discharge brake-valves and to increase the efficiency of the same and to enable the brakes to be applied on the engine and tender independently of the rest of the train, at the same time keeping the train-line charged with the required pressure, thereby enabling long passenger-trains to be brought to a gradual and even stop and in the event of long freight-trains preventing the drawbars from pulling out.

A further object of the invention is to provide a construction designed to dispense with the retention-valve and adapted to save the air-pump and enable the operation of switching to be performed with a minimum use of the air-pump.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a plan view of the lower section or base of an engineer's equalizing and discharge brake-valve provided with my improvements. Fig. 2 is a side elevation of the same. Fig. 3 is a horizontal sectional view illustrating the arrangement of the three-way cock for applying the brakes on the engine and tender only. Fig. 4 is a similar view illustrating the arrangement of the three-way cock for applying the brakes on the entire train. Fig. 5 is a diagrammatic view showing the arrangement of the device in a brake system.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates the lower section or base of an engineer's equalizing and discharge brake-valve, which lower section is provided with an extension 2. The extension is cast integral with the lower section or base, and the improvements are adapted to be applied to an ordinary engineer's brake-valve by substituting a new casting for the one now in use. The extension of the base or lower section 1 is provided with a three-way cock 3, and it has an additional air-pipe 4 connected with the train-line, the main or original pipe to the train-line being cut off at the back of the tender and affecting only the brakes on the engine and tender. The three-way cock is adapted to maintain the normal pressure within the additional train-line pipe when the engineer wishes to operate only the brakes on the engine and tender, and, as hereinafter fully explained, it cuts the additional train-line pipe out from the engineer's brake-valve, so that when the pressure in the main or ordinary train-line pipe is reduced the pressure within the additional train-line pipe will be unaffected. The three-way cock is also adapted to connect the additional train-line pipe with the engineer's brake-valve, so that the brakes may be simultaneously applied throughout the entire train.

The extension of the lower section or base is provided with an air-passage extending from the additional train-line pipe to the main reservoir-pipe 5, which passage is intersected by a feed or reducing valve 6 and by the three-way cock. The feed or reducing valve, which is adapted to admit the required air-pressure to the additional train-line, may be of any preferred construction, and as it does not constitute a portion of the present invention a detail description and illustration is deemed unnecessary. The passage extending from the main reservoir-pipe to the additional train-line pipe is composed of three branches, sections, or portions 7, 8, and 9. The branch or portion 7 extends from the main reservoir-pipe to the feed or reducing valve 6, and the branch 8 extends from the latter to the three-way cock. The branch 9 extends from the three-way cock to the additional train-line pipe. The three-way cock is provided with a curved port or passage 10,

adapted to establish a communication between the branches 8 and 9, as illustrated in Fig. 3 of the drawings. When the valve is in this position, the additional main-line pipe is in communication with the main reservoir-pipe, and through the feed or reducing valve the normal pressure is maintained within the said additional train-line pipe. The pressure may then be reduced in the main or ordinary train-line pipe 11, and the brakes will be applied on the engine and tender without affecting the brakes on the rest of the train. The three-way cock is also provided with a straight passage or port 12, arranged at an angle to the passage or port 10 and adapted to establish a communication between the branch passage 9 and a passage 13, which communicates with the passage of the engineer's equalizing and discharge brake-valve leading to the main or ordinary train-line pipe, and when the three-way cock is rotated to bring the port or passage 12 into communication with the branch passage 9 and the passage 13 the other port or passage 10 is carried away from the branch passage 8 and the supply of air from the feed or reducing valve is cut off. The brakes of the entire train are then under the control of the engineer's brake-valve and are adapted to be operated in the usual manner. A suitable gage is designed to be connected with the main reservoir-pipe by a pipe or tube 14 for indicating the air-pressure.

By enabling an engineer to apply the brakes on the engine and tender while keeping the additional train-line pipe charged long passenger and freight trains may be brought to a gradual and even stop. In the system of air-brakes in present use it frequently happens that the brakes of an entire train do not release at the same time and that the brakes of some of the cars are applied when the engineer goes ahead. As a natural result of this condition the train pulls apart either through the pulling out of a draw-bar or the breakage of a coupling or other portion of the draft-rigging. Also by the means herein described switching and similar operations may be effected with a minimum use of the air-pump.

As the construction and operation of the engineer's equalizing and discharge brake-valve is well understood in the art, further illustration and description thereof are unnecessary. The three-way cock is provided with an operating-handle 15, having a latch-lever 16 adapted to engage opposite notches 17 and 18 of a flange 19, whereby the three-way cock is locked in either of its positions.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with an engineer's

equalizing and discharge brake-valve having a main train-line pipe and an extension, of an additional train-line pipe connected to the extension, and means carried by the extension for establishing a communication between the two pipes to permit both of them to be controlled by the said equalizing and discharge brake-valve, and also for cutting off the additional train-line pipe to permit only the main train-line pipe to be controlled by the said valve, said means also serving to maintain the pressure in the additional train-line pipe when the latter is cut out from the engineer's brake-valve.

2. The combination with an engineer's equalizing and discharge brake-valve having a main train-line pipe, and an extension provided with passages, of an additional train-line pipe connected to the extension, and a single valve carried by the extension for establishing a communication through the passages of the extension between the two pipes to permit both of them to be controlled by the engineer's equalizing and discharge brake-valve, and also for cutting out the additional train-line pipe to permit only the main train-line pipe to be controlled by the said brake-valve, said single valve also serving to place the additional train-line pipe in communication with the main reservoir-pipe when the said additional train-line pipe is cut out from the engineer's brake-valve.

3. The combination with an engineer's equalizing and discharge brake-valve, of a main train-line pipe, an additional train-line pipe, passages for connecting the additional train-line pipe with the said valve and with the air-supply, and a three-way cock provided with ports or passages arranged to connect the additional train-line pipe either with the air-supply or with the said valve.

4. The combination with an engineer's equalizing and discharge brake-valve, a main reservoir-pipe, and a main train-line pipe, of an additional train-line pipe, passages for connecting the additional train-line pipe with the main reservoir-pipe and with the said valve, and a three-way cock provided with ports or passages arranged to connect the additional train-line pipe with either the main reservoir-pipe or the said valve.

5. The combination with an engineer's equalizing and discharge brake-valve, of a main train-line pipe, an additional train-line pipe, a feed or reducing valve, a three-way cock, a branch passage connecting the main reservoir-pipe with the feed-valve, and other passages connecting the three-way cock with the feed-valve, the engineer's equalizing and discharge brake-valve and the additional train-line pipe.

6. The combination with an engineer's equalizing and discharge brake-valve having

a main train-line pipe, of an additional train-
line pipe, a feed or reducing valve, and a
three-way cock for establishing a communica-
tion between the said pipes to permit both of
5 them to be controlled by the said valve and
for cutting out the additional pipe to permit
only the main train-line pipe to be controlled
by the brake-valve, said three-way cock be-
ing arranged to connect the additional train-

line pipe with the feed or reducing valve 10
when the former is cut out from the equaliz-
ing and discharge brake-valve.

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

DAVID M. CASKEY.

Witnesses:

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D. W. GRAMLING.