

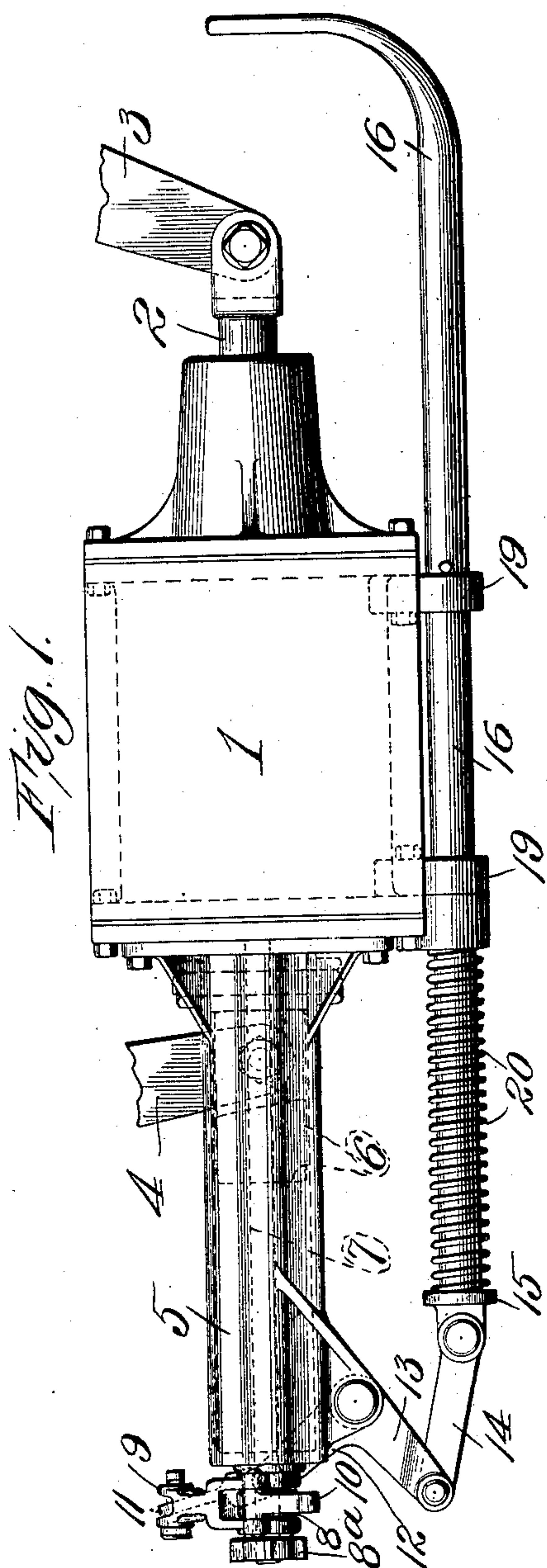
No. 753,649.

PATENTED MAR. 1, 1904.

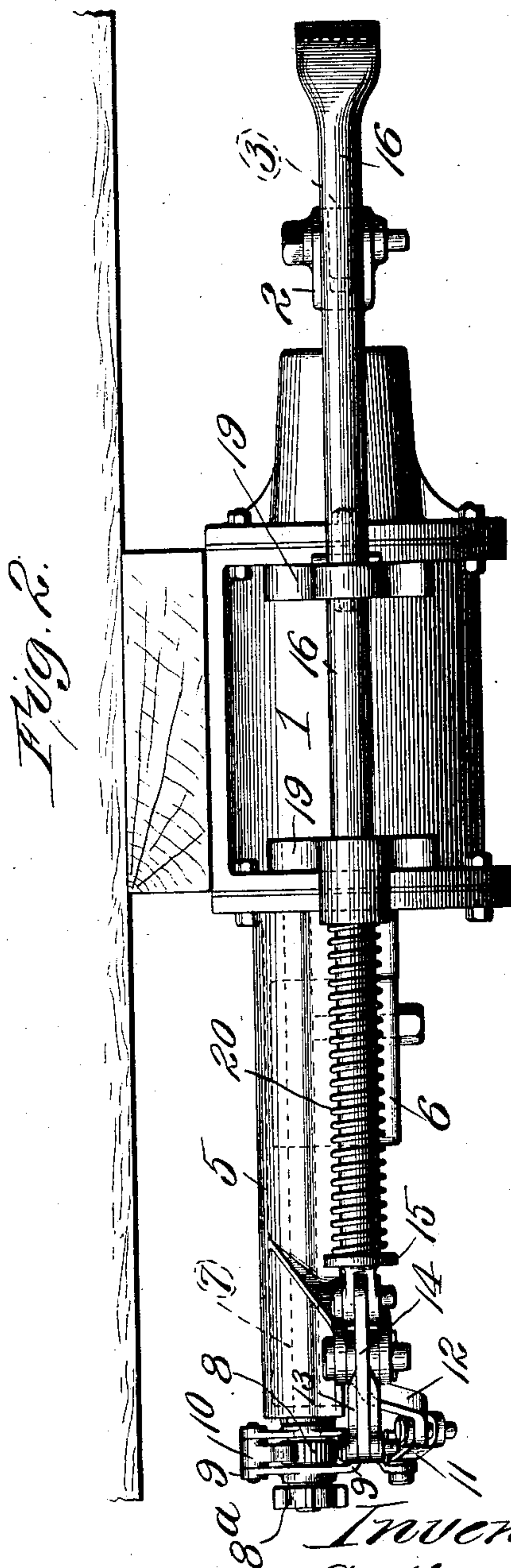
J. C. WANDS.
AIR BRAKE CONTROLLER.
APPLICATION FILED OCT. 21, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
G. A. Pennington



Inventor:
John C. Wands,
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attys.

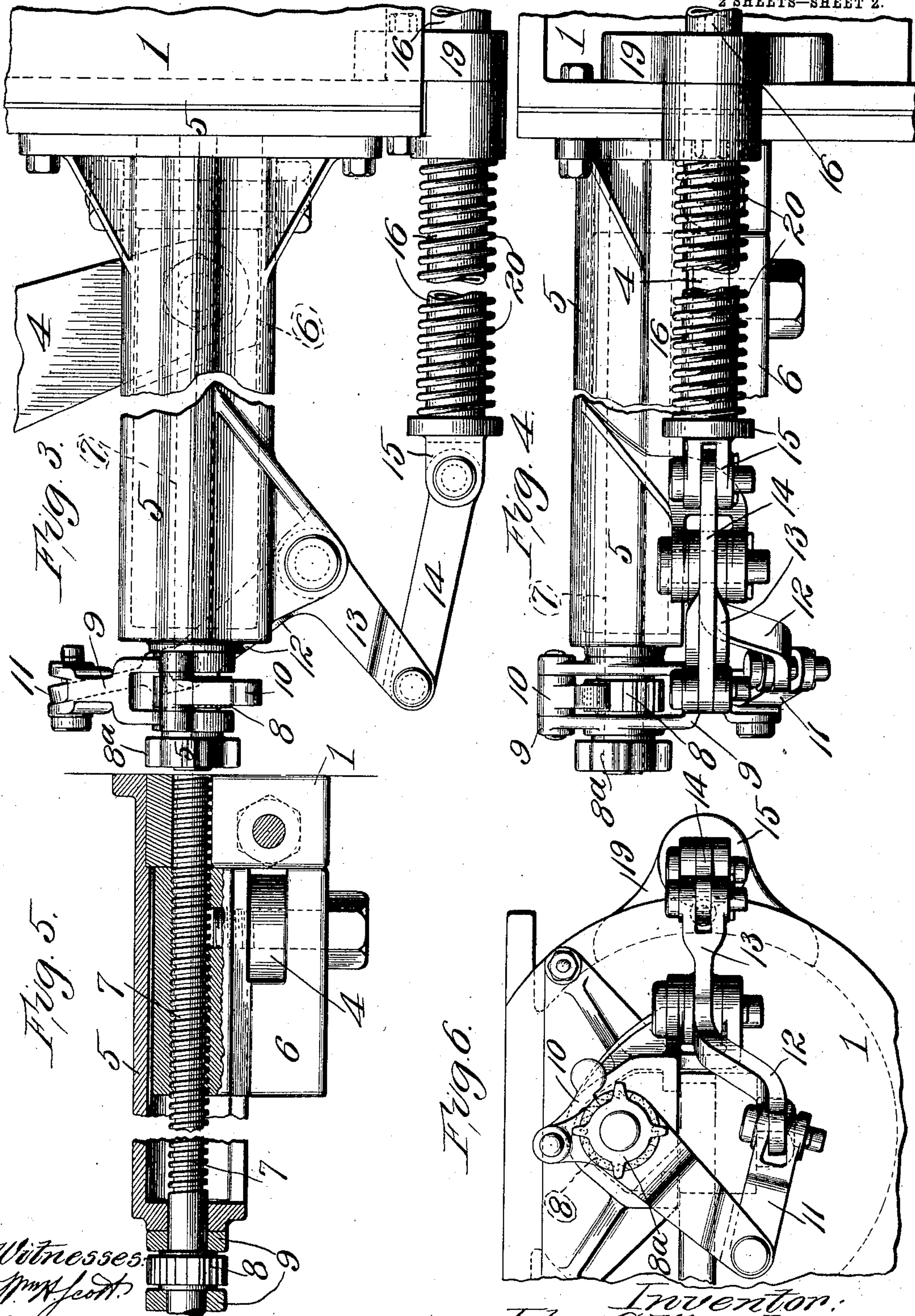
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2 SHEETS—SHEET 2.



Witnesses:
Wm. H. Scott
G. A. Pennington

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UNITED STATES PATENT OFFICE.

JOHN C. WANDS, OF ST. LOUIS, MISSOURI.

AIR-BRAKE CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 753,649, dated March 1, 1904.

Application filed October 21, 1903. Serial No. 177,903. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. WANDS, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Air-Brake Controllers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of an air-brake cylinder, showing my improved controller in position thereon. Fig. 2 is a side elevational view of the same. Fig. 3 is an enlarged top plan view of a controlling device, parts thereof being broken away. Fig. 4 is a side elevational view, partly in section, of the controlling mechanism. Fig. 5 is a sectional view on line 5 5 of Fig. 3. Fig. 6 is an end elevational view.

This invention relates to a new and useful improvement in air-brake controllers, the object being to take up the wear on the brake-shoes, so that the braking power of the cylinder will be effective. This is accomplished by adjusting the fulcrum of the cylinder-lever, which fulcrum is movable with respect to the cylinder, its movement being controlled by mechanism located in part in the path of the piston, whereby when the piston exceeds its normal stroke devices will be set in operation to cause the travel of a fulcrum-block for the cylinder-lever, which fulcrum-block is mounted in suitable ways.

With these objects in view the invention consists in the construction, arrangement, and combination of the several parts, all as will be hereinafter described and afterward pointed out in the claims.

In the drawings, 1 indicates a brake-cylinder, 2 the piston-rod, 3 the piston-lever, and 4 the cylinder-lever, all of said parts being of usual construction.

5 indicates a casting secured to the rear cylinder-head, which casting forms a housing and provides a way in which the fulcrum-block 6 of the cylinder-lever is mounted.

7 indicates a rod having a threaded connection with the fulcrum-block 6, said rod being mounted at its inner end in a suitable socket-bearing, whereby upon the rotation of the rod in the proper direction the fulcrum-block will be adjusted outwardly from the cylinder, so as to change the relation between the levers 3 and 4, this changed relation taking up the wear of the brake-shoes. The outer end of this screw-rod 7 finds a bearing in the outer end wall of casting 5, and said rod carries at its extremity a ratchet-wheel 8.

8^a indicates a hand-wheel on the rod, by which the same may be manually rotated. So far as the movable fulcrum-block and the threaded rod for operating the same is concerned this is shown in a former United States patent, No. 680,091, granted to me August 6, 1901, and my present invention relates particularly to improved means for rotating this threaded rod, whereby I am enabled to dispense with the cables shown in my former patent.

Upon the outer end of the threaded rod in the construction shown in the accompanying drawings I arrange a lever 9, whose bifurcated end embraces the ratchet 8. This lever 9 carries a weighted pawl 10 for coöperating with the ratchet. The lower end of lever 9 has a link 11 connected therewith, the opposite end of said link being connected by swivel connection to the end 12 of a bell-crank lever pivoted on the casting 5, the opposite end 13 of which bell-crank lever is connected by a link 14 to a casting 15, secured in the end of a rod 16. This so-called "rod" 16 is preferably hollow, in the form of a pipe, and is loosely mounted in bearings 19, secured to the cylinder 1, preferably by means of the same bolts which secure the cylinder-heads in position. The rear end of this pipe 16 is surrounded by a compression-spring 20, interposed between bearing 19 and casting 15. The forward end of pipe 16 is flattened and bent inwardly in the path of the piston 2, as shown in Fig. 1.

In operation the parts are set originally as shown in Fig. 1, wherein the fulcrum-block is adjusted close to the cylinder. In apply-

ing the brakes the piston 2 in practice has an outward movement of about six inches, and if in service this movement is not exhausted the piston will not operate the controlling devices. However, should this movement be exceeded by the piston it will contact with the bent end of pipe 16 and move said pipe longitudinally its bearings. As soon as the pipe is released, as when pressure is exhausted from behind the piston, and the piston returns the spring 20 exerts its power to force the pipe to its normal position. We will assume that the piston 2 comes in contact with the bent end of pipe 16 and moves the same forward. By the link connection with the arm 9 said arm is swung on its shaft, and if the movement is sufficient the pawl 10 will ride over one or more teeth of the ratchet 8. When the pipe 16 is released, the spring 20 restores the same to its normal position, and in so doing, through the medium of the pawl 10, forces the ratchet-wheel 8 to make a partial revolution. By reason of the threaded connection between rod 7 and the fulcrum-block it will be seen that the rotation of rod 7 will move the block outwardly. This movement of the block in an outward direction is of course comparatively slight at each operation, but is repeated as often as the piston 2 exceeds its movement. It will be noticed that the pitch of the threads on rod 7 will not permit the power applied to the fulcrum-block 6 to reversely rotate the ratchet 8, and therefore it is possible to utilize this period of time when the brakes are applied in causing the pawl 10 to take a new bite on the ratchet in readiness to move the parts when the brakes are released.

In the event that it is desired to restore the fulcrum-block to its inner position—as, for instance, when new brake-shoes are applied—it is only necessary to raise the pawl 10 out of engagement with the ratchet 8 and through the hand-wheel 8^a rotate the rod 7 in the opposite direction.

I am aware that minor changes in the construction, arrangement, and combination of the several parts of my device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In an air-brake controller, the combination with a fulcrum-block, a rod having threaded engagement therewith, a ratchet-and-pawl mechanism for driving said rod, and a spring-pressed rod operated by the excess travel of the piston for operating said pawl-and-ratchet mechanism; substantially as described.

2. In an air-brake controller, the combination with a movable fulcrum-block, a brake-lever mounted therein, a rod having threaded engagement with said fulcrum-block, a ratchet-wheel on said rod, a pawl coöperating with said ratchet-wheel, an arm for vibrating said pawl, a bell-crank lever, a link connection between said bell-crank lever and said arm, and a spring-pressed rod also connected to said bell-crank lever, said spring-pressed rod being operated by the excess travel of the piston; substantially as described.

3. In an air-brake controller, the combination with a brake-cylinder and its piston, bearings secured to the side of the cylinder, and a guideway secured to the end of the cylinder, a fulcrum-block movable in said guideway, a brake-lever pivoted in said fulcrum-block, a threaded rod journaled in said guideway and in threaded engagement with said fulcrum-block, a ratchet-wheel mounted on said rod, pawl-and-ratchet mechanism driving said threaded rod, and a spring-pressed rod mounted in the bearings on the side of the brake-cylinder, said spring-pressed rod being connected to said pawl-and-ratchet mechanism and carrying a part in the path of travel of the piston whereby the excess movement of the piston will operate the spring-pressed rod whose restoration upon the release of the brakes will actuate the pawl-and-ratchet mechanism to rotate the threaded rod and move the fulcrum-block outwardly with respect to the cylinder; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 22d day of September, 1903.

JOHN C. WANDS.

Witnesses:

F. R. CORNWALL,
GEORGE BAKEWELL.