

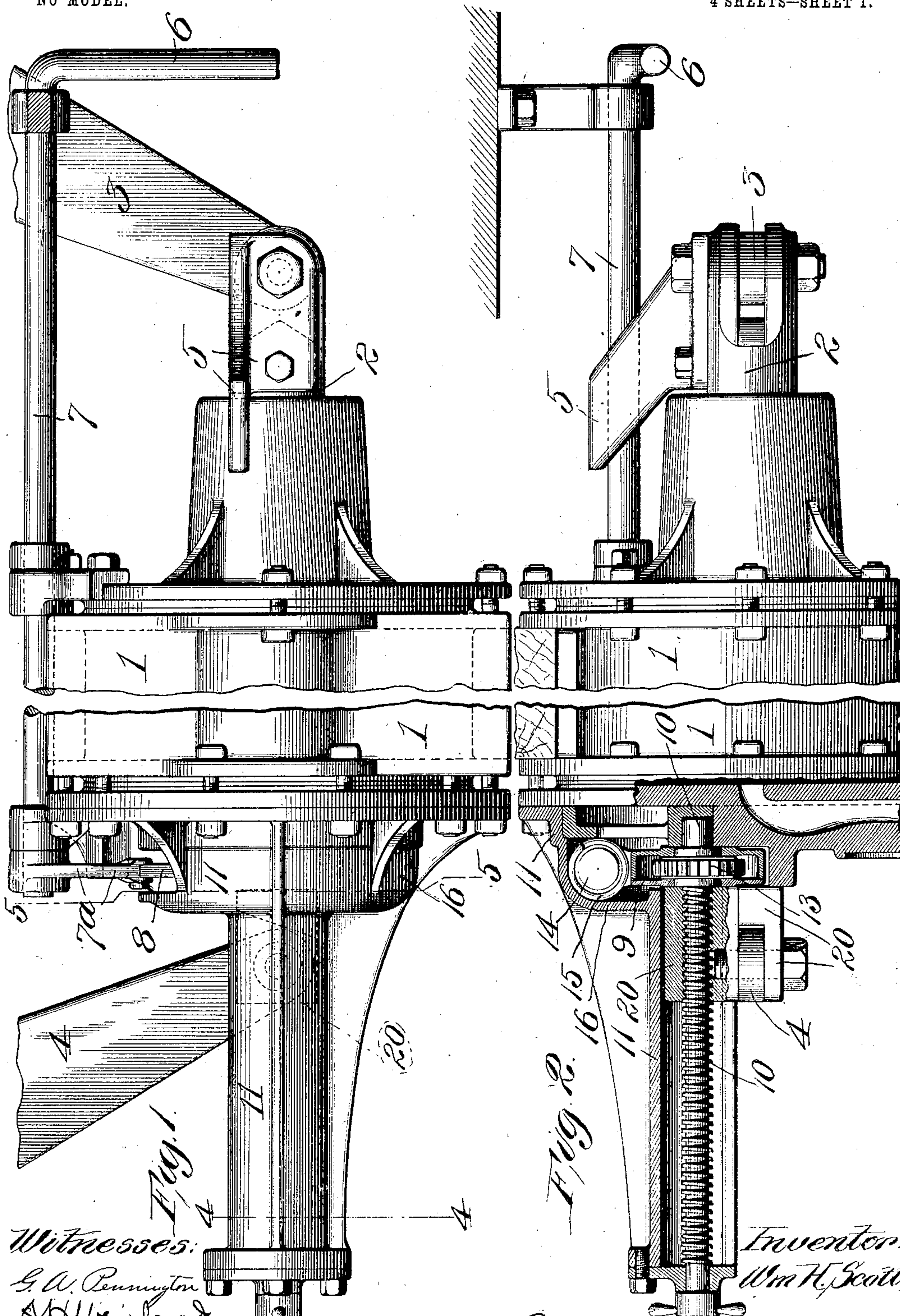
No. 754,246.

PATENTED MAR. 8, 1904.

W. H. SCOTT.  
AIR BRAKE CONTROLLER.  
APPLICATION FILED DEC. 24, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses:  
G. A. Pennington  
J. H. Weisbrod

Inventor:  
Wm H. Scott,  
by *Edmund Cornwall* atty.



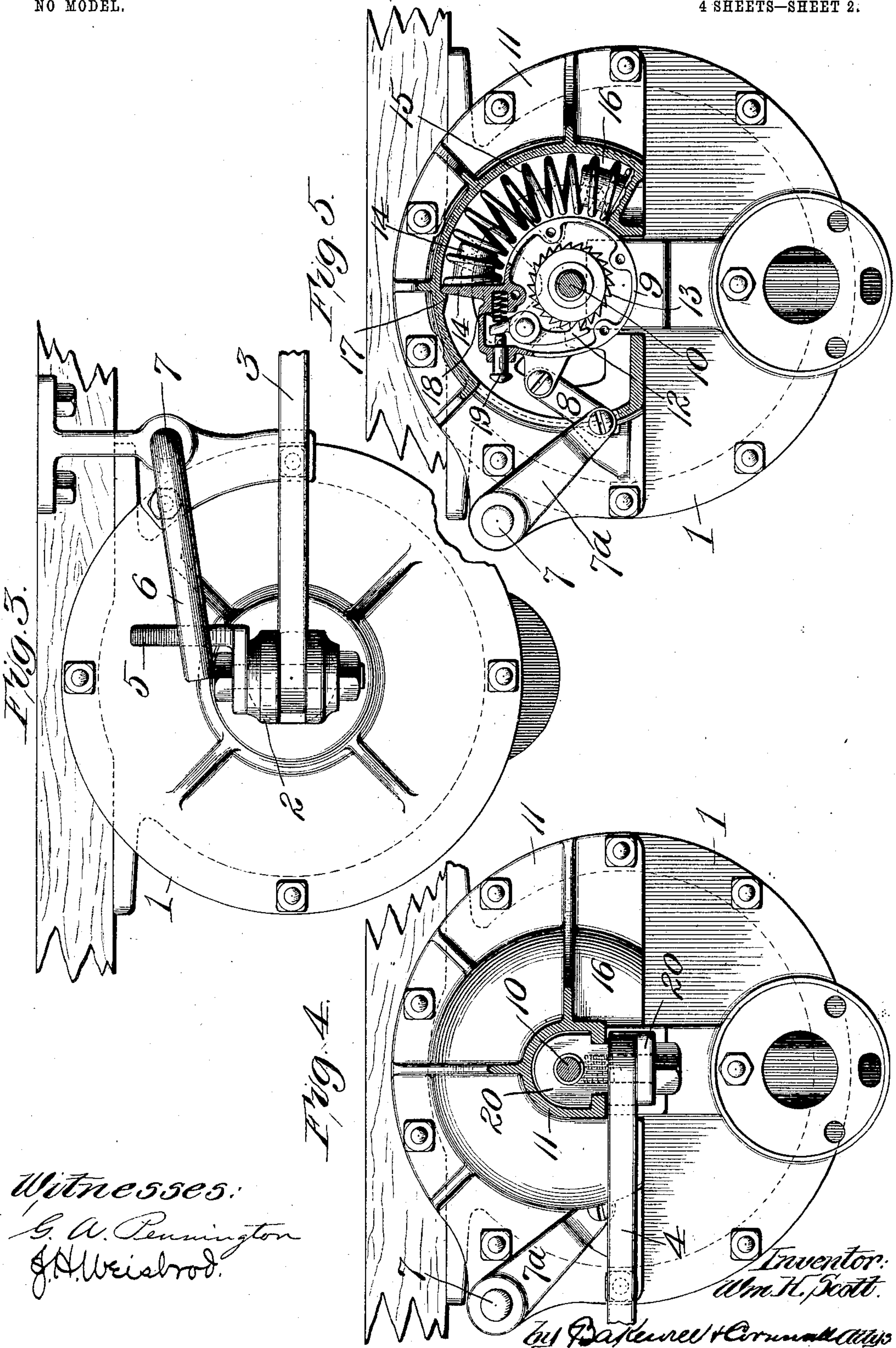
No. 754,246.

PATENTED MAR. 8, 1904.

W. H. SCOTT.  
AIR BRAKE CONTROLLER.  
APPLICATION FILED DEC. 24, 1903.

NO MODEL.

4 SHEETS—SHEET 2.





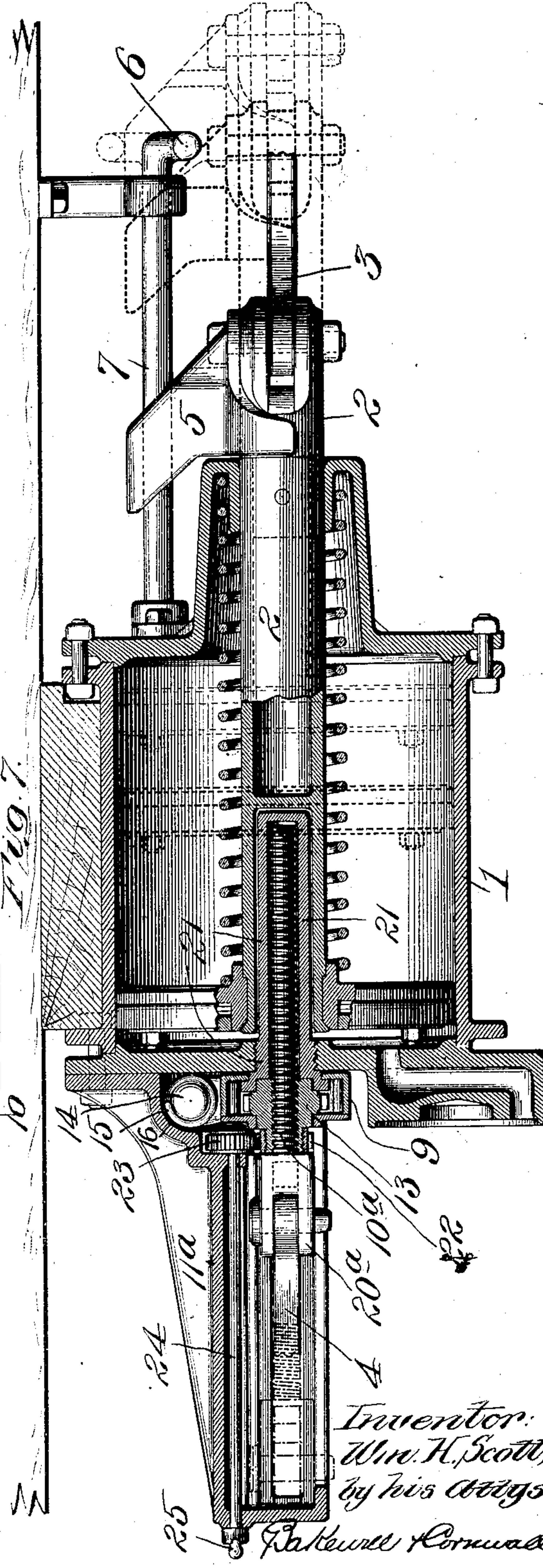
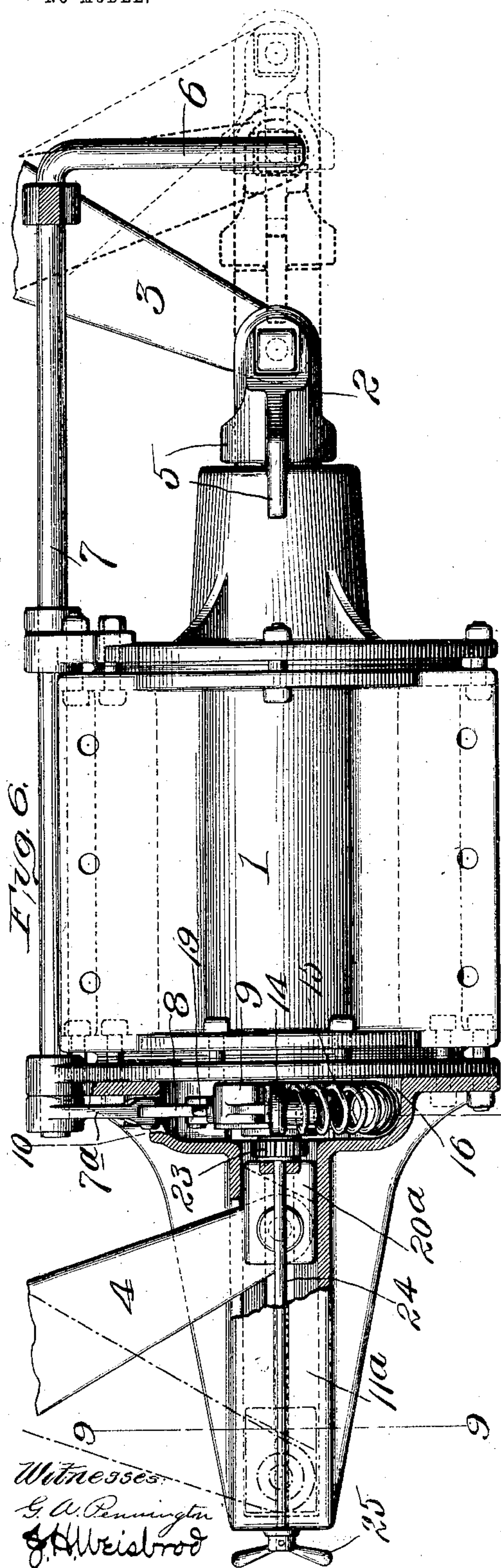
No. 754,246.

PATENTED MAR. 8, 1904.

W. H. SCOTT.  
AIR BRAKE CONTROLLER.  
APPLICATION FILED DEC. 24, 1903.

NO MODEL.

4 SHEETS—SHEET 3.



Inventor:  
Wm. H. Scott,  
by his Atty.  
Lucas Cornwall



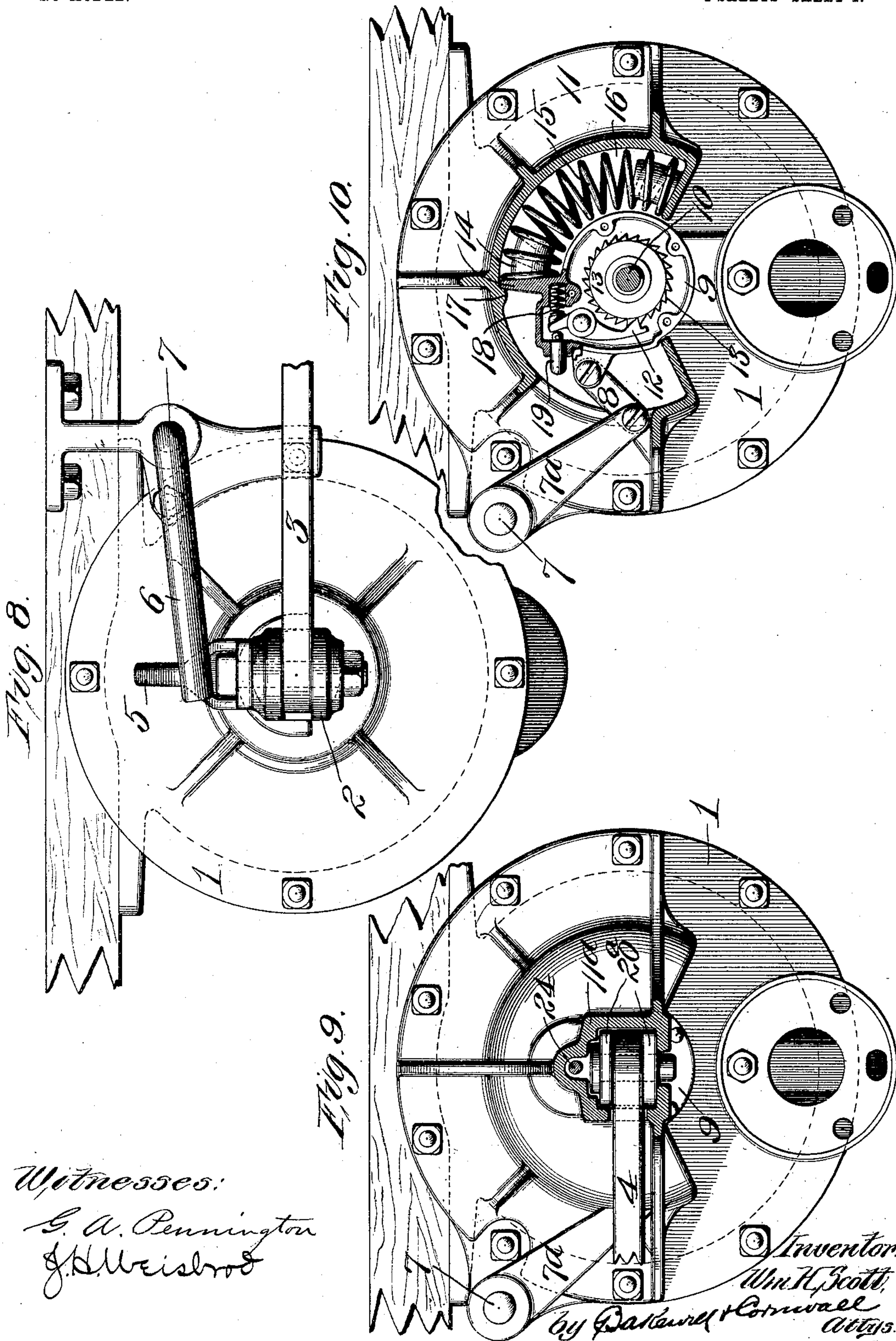
No. 754,246.

PATENTED MAR. 8, 1904.

W. H. SCOTT.  
AIR BRAKE CONTROLLER.  
APPLICATION FILED DEC. 24, 1903.

NO MODEL.

4 SHEETS—SHEET 4.





# UNITED STATES PATENT OFFICE.

WILLIAM H. SCOTT, OF ST. LOUIS, MISSOURI, ASSIGNOR TO JOHN C. WANDS, OF ST. LOUIS, MISSOURI.

## AIR-BRAKE CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 754,246, dated March 8, 1904.

Application filed December 24, 1903. Serial No. 186,428. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. SCOTT, a citizen of the United States, residing at St. Louis, 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 my improved air-brake controller, part of the cylinder being broken away. Fig. 2 is a side elevational view of the same, part of the controlling mechanism being shown in vertical section. Fig. 3 is a front elevational view. Fig. 4 is a sectional view on the line 4 4 of Fig. 1, showing the cylinder in rear elevation. Fig. 5 is a sectional view on the line 5 5 of Fig. 1. Fig. 6 is a top plan view of a modified form of apparatus. Fig. 7 is a vertical sectional view through said modified form of apparatus. Fig. 8 is a front elevational view of the construction shown in Fig. 6. Fig. 9 is a sectional view on the line 9 9 of Fig. 6, and Fig. 10 is a sectional view on the line 10 10 of Fig. 6.

This invention relates to a new and useful improvement in air-brake controllers, the object being to employ mechanism capable of adjusting the fulcrum-block in which the cylinder-lever is mounted, whereby when the brake-shoes become worn or for other causes the brakes are not applied properly upon the application of power resulting from the designed movement of the piston-rod the controlling mechanism becomes operative to so adjust the fulcrum-block and the cylinder-lever as to compensate for the wear of the brake-shoes, &c. By this mechanism when the brake-shoes are worn the slack in the system is taken up, the excessive travel of the piston-rod being utilized as a controlling medium to control the amount of take-up in the system.

With these objects in view the invention consists in the construction, arrangement, and combination of the several parts of the device,

all as hereinafter described and afterward pointed out in the claims.

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

Referring to the construction shown in Fig. 1, the piston-rod carries a nose-plate 5, having an inclined upper face forming a striker which is designed upon excessive travel of the piston to contact with a rock-arm 6, arranged in its path and connected to a rock-shaft 7, mounted in suitable bearings. The motion imparted to the rock-shaft 7 under these conditions is utilized to advance the fulcrum-block of the cylinder-lever to take up the slack in the system, and in accomplishing this the following instrumentalities are employed: A rock-arm 7<sup>a</sup> is on the rear end of shaft 7, and said arm 7<sup>a</sup> is connected by a link 8 to a rotatable housing 9, said housing being mounted on a rod 10, finding a bearing at one end of the rear cylinder-head, while its other end fits a bearing in the outer end of a housing-casting 11, bolted to the said cylinder-head. The housing 9, before referred to, may be termed a "pawl-carrier," as it contains a pawl 12, which coöperates with a ratchet 13, fixed upon the end of rod 10. This pawl-carrier also has a projection 14 extending outwardly therefrom, against which projection bears a spring 15, having its other end seated against the end wall of a housing 16, formed upon the base-plate of the casting, which is integral with the guideway extension 11. A shoulder 17 is arranged in this housing for coöperating with the projection 14 to determine the normal position of the pawl-carrier.

A spring 18 bears against the pawl to hold the same against its ratchet, while a push-button 19 may be employed to raise the pawl out of engagement with its ratchet when it is desired to restore the parts to normal position.

20 indicates the fulcrum-block for the cylinder-lever, which block has a threaded engagement with the rod 10. Thus when said rod 10 is rotated the block is adjusted along



its guideway extension 11, as will be readily understood.

The operation of the above parts is as follows: Assuming that the travel of the piston-rod is excessive and that the striker engages the arm so as to rock the shaft 7, this rocking movement is communicated through the arms 7<sup>a</sup> and 8 to the pawl-carrier, and said pawl-carrier is thus caused to be rotated, the pawl taking a new bite on the ratchet and in so doing compressing the spring 15. As soon as the brakes are released the spring 15 exerts its power to restore the parts to normal position and in so doing rotates the ratchet and its connected threaded rod 10 and moves the fulcrum-block 20 outwardly with respect to the cylinder, and such movement compensates in part for the wear of the brake-shoes or other inequalities in the system which have to be taken up.

It is obvious that instead of employing a rock-arm and link connection 8 with the pawl-carrier said rock-arm could be in the form of a toothed segment in mesh with teeth on the pawl-carrier and accomplish exactly the same results.

When it is desired to restore the parts to normal position, as when new brake-shoes are introduced, it is only necessary to raise the pawl from its ratchet by pressing the push-button 19 and reversely rotate the rod 10 through the medium of a handle on its outer end.

In Figs. 6 to 10, inclusive, I have shown a modified form in which the ratchet-wheel 13 is not fixed to the threaded rod 10, but has a threaded engagement with said rod, and thus becomes a nut, which when rotated will cause the rod 10<sup>a</sup>, which in this construction is fixed to the fulcrum-block 20<sup>a</sup> of the cylinder-lever, to move, with its fulcrum-block, outwardly from the cylinder. In this manner it is possible to arrange the fulcrum-block on the end of the threaded rod so as to locate the end of the cylinder-lever in alinement with the threaded rod, thus relieving the fulcrum-block of the torsional strain which is exerted in the preferred form. Furthermore, it is possible in this modification to shorten up the apparatus by providing a housing or pocket in the brake-cylinder for receiving the threaded rod, such pocket being introduced into the rear cylinder-head and being indicated by the numeral 21.

The guideway 11<sup>a</sup> for the fulcrum-block must be provided as mentioned in the preferred construction, and in order to restore the parts to normal position I form teeth 22 on the ratcheted nut, with which meshes a pinion 23 on a rod 24, having a handle 25 at its outer extremity, whereby when the pawl is disengaged from the ratcheted nut the operation of the handle 25 will rotate the nut 13 and restore the fulcrum-block to its normal position.

I am aware that minor changes in the con-

struction, 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 claimed by Letters Patent, is—

1. In an air-brake controller, the combination with the cylinder and its piston-rod, of an inclined striker-plate on the piston-rod, a rock-arm in its path, a rock-shaft to which said arm is connected, a rockable pawl-carrier operated by said shaft, a ratchet, a threaded rod, and a fulcrum-block for the cylinder-lever, which is adjusted by the operation of the above-mentioned parts to take up the slack in the brake system; substantially as described.

2. In an air-brake controller, the combination with a cylinder and its piston-rod, of an inclined striker-plate mounted on the end of the piston-rod, a rock-arm in the path of said striker-plate, a rock-shaft to which said arm is connected, a movable fulcrum-block for the cylinder-lever, a spring for moving said fulcrum-block, and means operated by the rock-shaft for storing up power in said spring when the piston-rod exceeds its ordinary limit of travel; substantially as described.

3. In an air-brake controller, the combination with a cylinder, of a fulcrum-block for the cylinder-lever, a threaded rod connected to said fulcrum-block, a ratchet connected to said rod, a rockable pawl-carrier, a stop for determining the normal position of said pawl-carrier, a spring tending to return said pawl-carrier to normal position at all times, and means controlled by the excessive movement of the piston-rod for displacing said pawl-carrier; substantially as described.

4. In an air-brake controller, the combination with a cylinder-head, of a casting secured thereto and forming a housing, said casting extending rearwardly to form a guideway, a fulcrum-block for the cylinder-lever mounted in said guideway, a threaded rod for moving said fulcrum-block outwardly from its cylinder, a ratchet on said threaded rod, a pawl-carrier housing in said ratchet and containing a pawl engaging the same, a projection on said pawl-carrier forming a spring-seat and coöperating with a shoulder in the housing for determining the normal position of said pawl-carrier, a spring interposed between said projection and the seat in said housing, and means for rocking said pawl-carrier in one direction whereby the spring returns the same in the opposite direction and drives the ratchet; substantially as described.

5. In an air-brake controller, the combination with a cylinder, of a fulcrum-block for the cylinder-lever, a threaded rod upon which said fulcrum-block is mounted, a ratcheted nut

engaging said threaded rod, gear-teeth arranged on said ratcheted nut, a pinion in mesh with said gear-teeth, means for manually operating said pinion, a pawl in engagement  
5 with said ratcheted nut, and means for lifting said pawl from engagement with its ratchet; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 21st day of December, 1903.

WILLIAM H. SCOTT

Witnesses:

F. R. CORNWALL,  
GEORGE BAKEWELL.