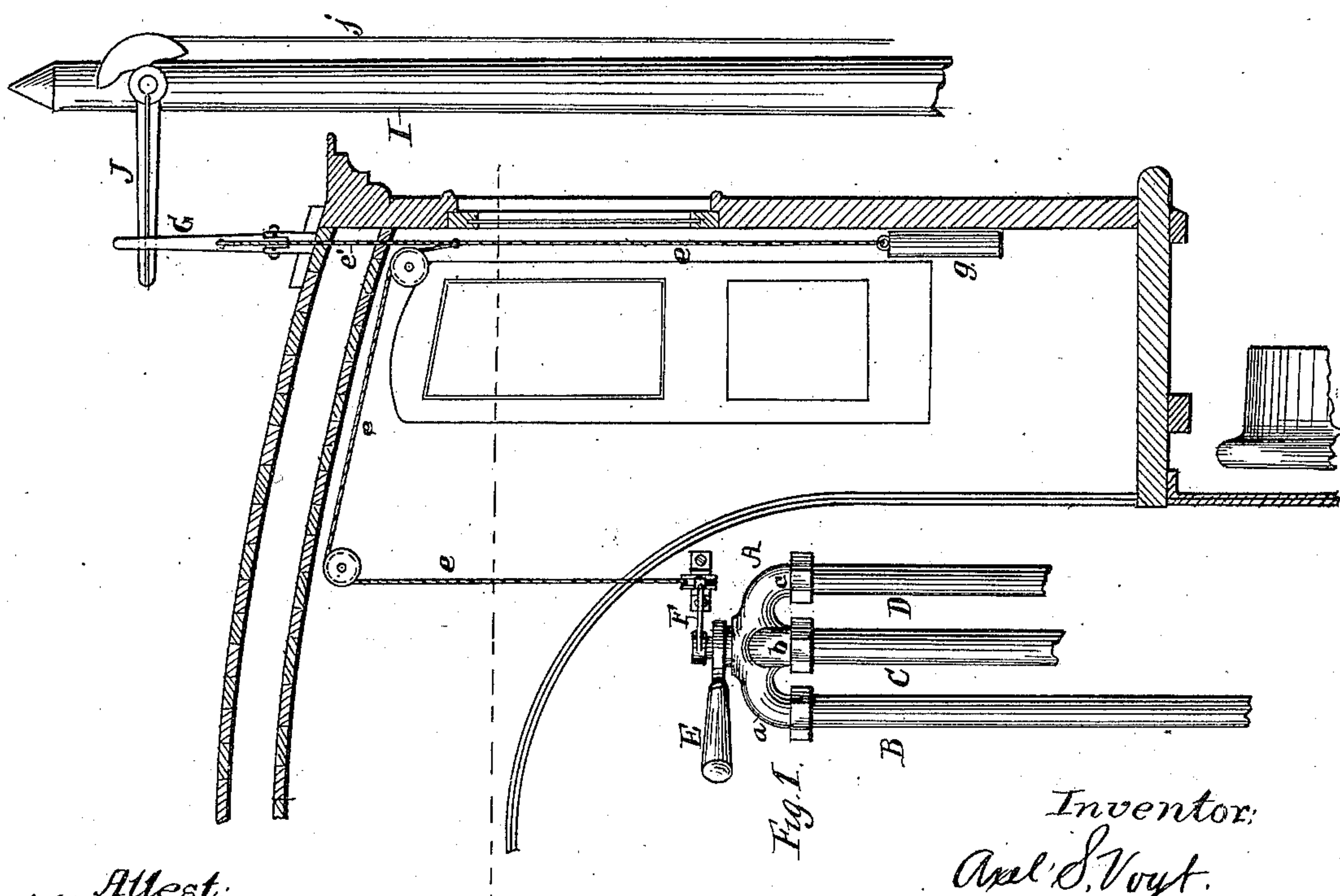
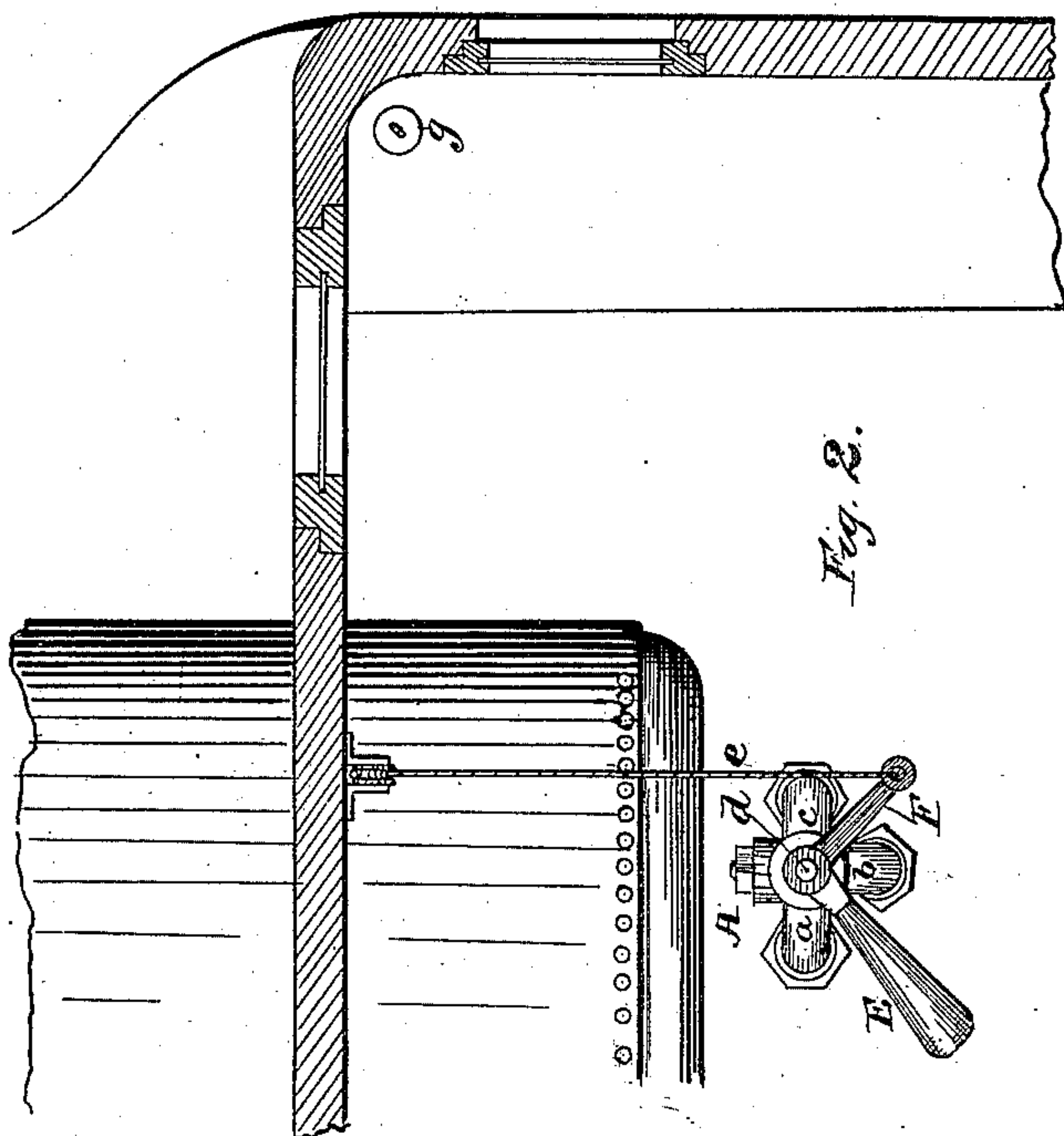


(No Model.)

2 Sheets—Sheet 1.

A. S. VOGT.
Automatic Railroad Brake.
No. 231,511. Patented Aug. 24, 1880.



Attest:
W. M. Hamway
W. A. Bartlett

Inventor:
A. S. Vogt.
by
Hamway & Brock
Attys.

(No Model.)

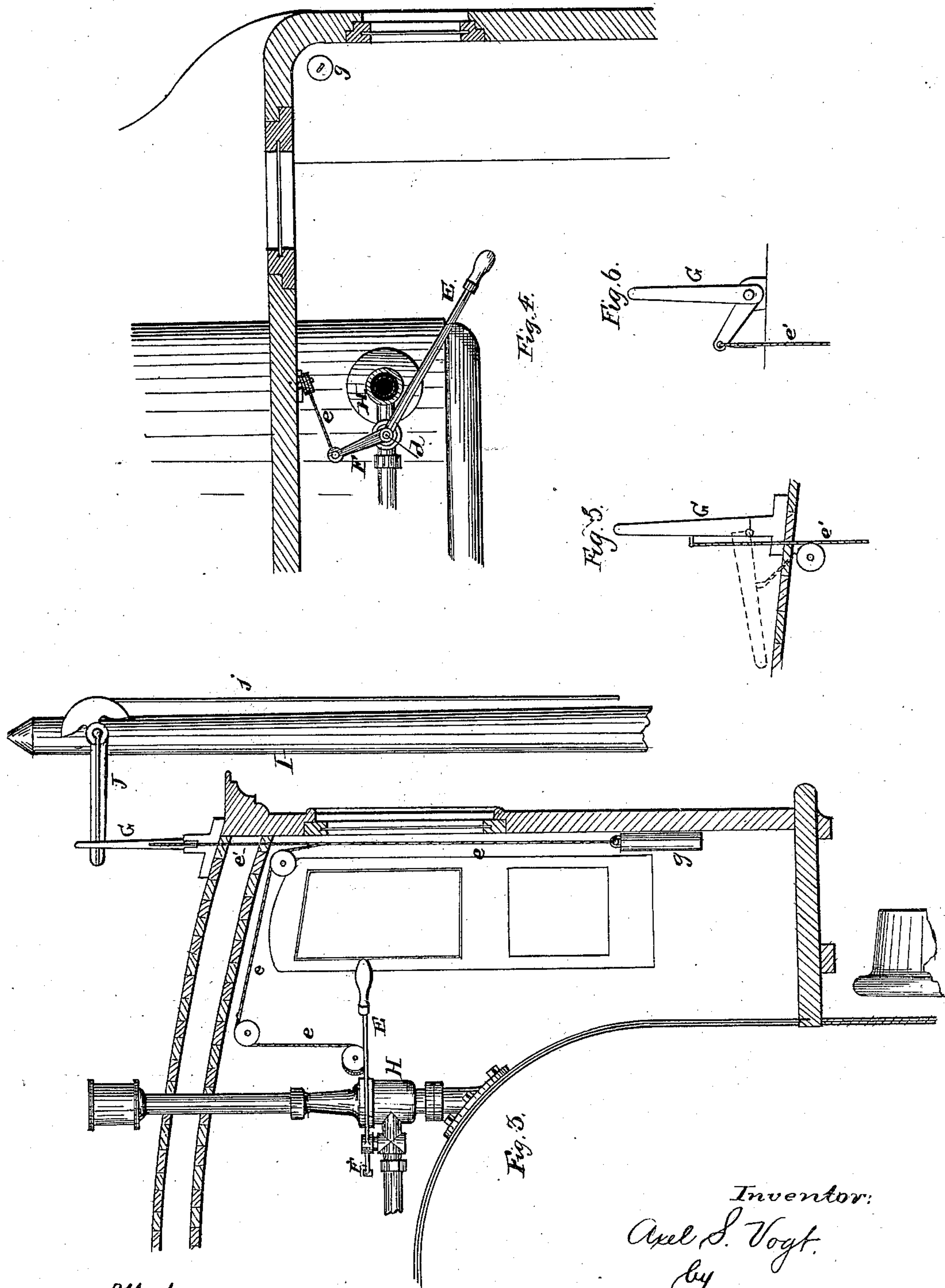
2 Sheets—Sheet 2.

A. S. VOGT.

Automatic Railroad Brake.

No. 231,511.

Patented Aug. 24, 1880.



Attest:
W. M. Hannay
W. A. Bartlett

Inventor:
Axel S. Vogt.
by
Hannay & Brock
Attys.

UNITED STATES PATENT OFFICE.

AXEL S. VOGT, OF ALTOONA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF OF
HIS RIGHT TO JOSEPH WOOD, OF SAME PLACE.

AUTOMATIC RAILROAD-BRAKE.

SPECIFICATION forming part of Letters Patent No. 231,511, dated August 24, 1880.

Application filed July 6, 1880. (No model.)

To all whom it may concern:

Be it known that I, AXEL SAMUEL VOGT, a subject of the King of Sweden, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Railroad-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, 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, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to the automatic braking or stopping of railroad-trains in the event of danger.

The object of my present invention is to provide a steam, vacuum, compressed-air, or other system of power-brakes of a railroad-train with a device by means of which, in the event of danger—such as the misplacement of a switch, danger at a railroad-crossing, an open draw-bridge, or other point of danger—the momentum of the train will be automatically stopped, independently of the control of the engineer, before entering the switch, railroad-crossing, draw-bridge, &c.

To effect these objects my invention consists, first, in providing the controlling-valve of an air, steam, vacuum, or other pneumatic-power brake apparatus with a weighted cord or equivalent having connection with a pivoted or hinged lever or arm projecting from the cars, the device being adapted to be operated, in case of danger, so as to shift the valve to its open or operative position by an arm or projection arranged along the road-bed of the track at the desired point or points.

It consists, secondly, in providing an air-ejector of a vacuum-brake apparatus, or the air-injector of a compressed-air brake apparatus, with a weighted cord or equivalent having connection with a hinged or pivoted lever or arm, and adapted to be operated, in the event of danger, so as to allow the weighted cord to shift the valve of the ejector or injector to an open position by arms or projections arranged along the track at the desired points.

It consists, thirdly, in providing the controlling or operating valve or valves of any steam, vacuum, or compressed-air system of brakes with a weighted cord or equivalent having connection with a hinged or pivoted lever projecting from the car, the lever or arm being adapted to be operated so as to allow, in the event of danger, of the weighted cord to shift the valve to its operating position by an arm or projection at the desired point or points along the track, said arms or projections being put into position by being connected to a signal-switch or locking-bolt, draw-bridge, &c., or operated directly from a signal cabin or tower.

Figure 1 represents a transverse vertical section through one side of the caboose of a locomotive, the other parts being broken away and showing a portion of a compressed-air system of brakes and its three-way cock to which my improvements have been applied. Fig. 2 represents a horizontal sectional plan view of the same. Fig. 3 represents a transverse vertical section through one side of the caboose of a locomotive, the other parts being broken away and showing a vacuum system of brakes and its air-ejector to which my present improvements have been applied; and Fig. 4 represents a horizontal sectional plan view of the same. Figs. 5 and 6 represent different forms of the hinged or pivoted lever.

To enable others skilled in the art to make and use my improvements, I will now proceed to describe them in detail, omitting a particular description of such parts of a locomotive and brake apparatus as are unnecessary to a full understanding of the present improvement.

In the accompanying drawings, in which the same letters of reference indicate the same parts, A represents the three-way cock of a compressed-air brake, the branch *a* of which communicates with the brake-pipe B throughout the train, the branch *b* having communication with the pipe C, leading to the main reservoir, located upon the locomotive, and the branch *c* communicating with the exhaust D.

E represents the operating-lever of the three-way cock, mounted upon the valve-stem *d*. To

the valve-stem *d* is also attached, for the purposes of my improvement, another lever, *F*, to the outer end of which is attached a cord or chain, *e*, or equivalent, passing over suitable pulleys arranged within the cab, the other end of the cord *e* being attached to a pendent weight, *g*. At the point *f* the cord or chain *e* is provided with a branch cord or chain, *e'*, leading and attached to the hinged lever, arm, or projection *G* above. This lever *G* may be of any construction suitable for the purpose, so that it projects from the car, and arranged so that when the lever is in its upright or normal position the weight or equivalent will be held in suspension by the cord or chain, and when in a horizontal or operative position, or thereabout, a limited fall will be allowed the weight, such as will be sufficient to operate the valve attached to the cord or chain.

Instead of a weight being used to operate the valve, a spring or other known and suitable device may be employed for the purpose.

In Figs. 5 and 6 are shown two forms of constructing the lever *G*; but it is obvious that the lever may be made in a variety of ways. Instead of the lever being hinged so as to move in a plane with the length of the train, it may be so pivoted as to operate in a plane transverse the line of the track.

In Figs. 3 and 4 my improvements are shown applied to the ejector *H* of a vacuum-brake apparatus. The construction and arrangement of my improvements in connection with a vacuum-brake system (shown in these Figs. 3 and 4) are substantially the same as shown in connection with a compressed-air brake, (shown in Figs. 1 and 2.)

I represents a post, of which there may be any desired number, and at any desired points, arranged along the road-bed of the track, and provided with a semaphore arm or projection, *J*. This arm *J* is provided with a segment at one end, to which a rope, wire, or chain, *j*, is secured, by means of which it may be attached to a signal, switch, locking-bolt, or draw-bridge, &c., or connected directly with a signal cabin or tower, so as to be operated thereby.

The operation of my device is as follows: Upon a switch, signal, locking-bolt, draw-bridge, &c., being misplaced, so that it will cause derailment to a coming train, said switch, signal, &c., having connection with arm or projection *J* by means of the rope, wire, or chain *j*, will cause the arm *J* to assume a horizontal operative position, as shown in Figs. 1 and 3 of the drawings.

A train equipped with my improvement passing one of these semaphore-arms thus placed in danger position, the hinged lever of the cars will be brought in contact therewith, thus bringing the lever to a horizontal position, and carrying the upper end of the cord *e'* to a lower position or plane, whereby the weight *g* will be precipitated, and which, having connection with the controlling-valve

of the brake apparatus through cords *e e'*, opens said valve to its operative position by its gravity. Immediately upon this operation being effected the brakes will be applied and the train arrested in its motion before entering the switch, draw-bridge, railroad-crossing, or other point to which the arm *I* is connected. These arms *I* may be operated directly from a signal cabin or tower, if desired, and are located at a distance sufficiently far away from the danger-points to enable the train to be brought to a stop after the brakes are put on, and before entering or reaching said danger-points. These arms may be arranged in any known and suitable way along the road-bed of the track at the side, so as to project over and above the train, or at the side of the car, or the arm may be arranged in the road-bed between the rails, the arrangement of the hinged lever, weight, and cords being modified to suit the construction or location of the arm or projection.

If desired, a valve may be located in the brake-pipe in any member of the train having my improvement attached thereto and operating in the same manner; but I prefer to apply my improvement to the brake-pipe located upon the locomotive.

I do not wish to confine myself to the application of my improvement to any particular valve of a power-brake apparatus, nor to any precise construction or arrangement of the hinged lever, weight, or spring and their connecting cords or chains attached thereto and to the valve of the brake apparatus, as my improvement may be applied to any power-brake apparatus, and said improvements may be constructed and arranged in a variety of ways.

Having described my invention, what I claim is—

1. The controlling or operating valve of a steam, vacuum, or compressed-air system of railroad-brakes provided with a cord or chain attached thereto and to a weight or spring held in counterpoise by a branch of said cord or chain secured to a hinged or pivoted lever or arm projecting from the car, and operating substantially as set forth.

2. The controlling or operating valve of a steam, vacuum, or compressed-air system of railroad-brakes provided with a cord or chain attached thereto and to a weight or spring held in counterpoise by a branch of said cord or chain secured to a hinged or pivoted lever or arm projecting from the car, in combination with an arm or arms arranged along the road-bed of the track, adapted to operate the device by coming in contact, in case of danger, with said hinged lever, whereby the counterpoise of the weight is destroyed and the valve shifted thereby to an open position, substantially as set forth.

3. A hinged or pivoted lever or arm projecting from a railroad-train and connected,

by means of a weighted or spring cord or chain, with the controlling or operating valve of a steam, vacuum, or compressed-air system of brakes, in combination with an arm or arms
5 arranged along the road-bed of the track and put into position to be operated by being connected to a signal, switch, locking-bolt, draw-bridge, or other point, all operating substantially as set forth, whereby, in cases of dan-

ger, the brakes of the train are automatically applied, for the purpose specified.

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

AXEL SAMUEL VOGT.

Witnesses:

W. D. COUCH,
JOSEPH WOOD.