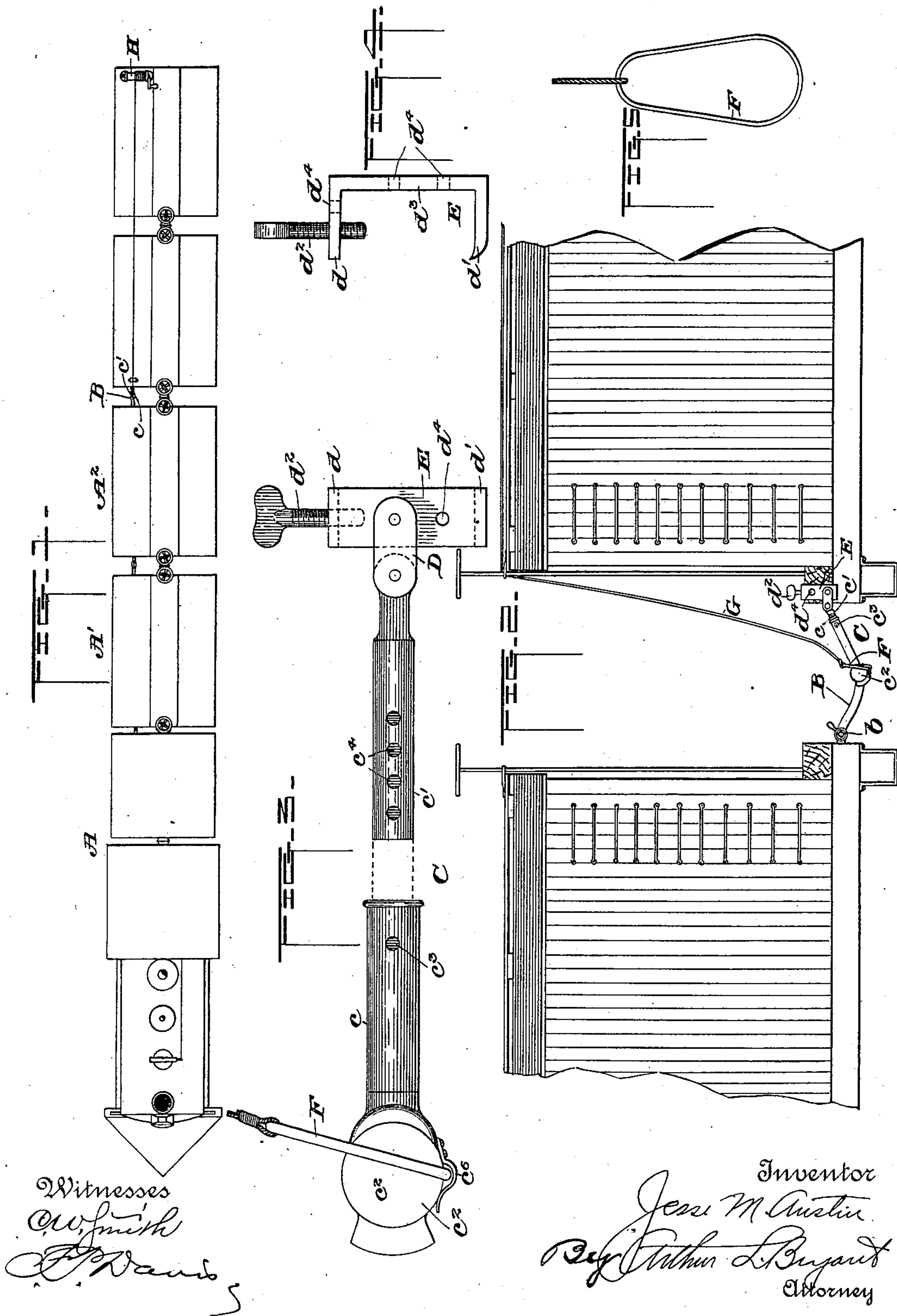


Patented July 7, 1896.



UNITED STATES PATENT OFFICE.

JESSE M. AUSTIN, OF WOODSTOCK, ILLINOIS.

RAILWAY-BRAKE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 563,353, dated July 7, 1896.

Application filed April 21, 1896. Serial No. 588,488. (No model.)

To all whom it may concern:

Be it known that I, JESSE M. AUSTIN, a citizen of the United States, residing at Woodstock, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Railway-Brake Mechanism, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in devices for preventing accidents from the breaking or separating of a train of freight-cars when all of the cars in a train are not provided with automatic brakes.

While the freight-cars on many lines of railroad at the present time are provided with air-brakes, it is commonly necessary to make up a train consisting in part of cars provided with air-brakes and partly of cars without such, or any other style of, automatic brake apparatus. In making up such a train it is customary to arrange all of the cars having air-brakes in a series immediately following the engine, with the other cars, which are not provided with automatic brakes, in rear thereof. A common cause of accident in connection with the moving of such trains is caused by the breaking of a coupling at a point in rear of the last car provided with automatic brakes, whereby the train is separated into two sections, the rear one of which is entirely uncontrollable from the engine. It frequently happens that the separation is not noticed for some time, and the rear section often collides with the rear car of the forward section, when the speed of such section has been checked, causing serious damage. Were the brakes applied to the forward section of the train immediately on the breaking or parting of the coupling, and while both sections of the train were moving with the same velocity, the entire train could be easily brought to a standstill without damage.

The object of my invention is to provide means for insuring the setting of the brakes on the cars provided with automatic brakes immediately on the parting of a coupling in rear of the last car of the train which is provided with such automatic brake apparatus.

In the accompanying drawings, Figure 1 is a diagrammatic view illustrating my improvements. Fig. 2 is an elevation, on an en-

larged scale, of the adjacent ends of the last car of the train which has automatic brakes and the first car of those without such brakes. Figs. 3 to 5, inclusive, are detail views.

In the drawings, A, A', and A² designate the forward cars of a train, each of which is provided with a set of air-brakes of any desired style, all of such brakes being connected to a common train-pipe, which in turn is connected with the controlling apparatus on the engine in the usual manner.

B designates the coupling-hose at the rear end of the last of said cars A², it being provided with the ordinary valve or cut-off *b* and terminating in a coupling-head in the ordinary manner. To this coupling-head I connect a coupling device, (indicated as a whole by C) it comprising two sections *c c'*, the section *c* being provided with means, such as a head *c²*, for attachment to the said coupling on the air-pipe, and being adjustably connected with the section *c'*. As shown, this section *c* is provided at its rear end with a socket to receive the forward, preferably tapered, end of the section *c'*, and in opposite walls thereof are formed aligned apertures *c³*.

The section *c'* is provided with a series of apertures or transverse passages *c⁴*, and the two said sections are connected together by means of a pin extending through the aligned apertures *c³ c⁴*. The rear end of the section *c'*, which is preferably reduced somewhat, is pivoted to a plate D which is provided with means for attachment to a clamp E, adapted to be secured firmly to the projecting frame-bars at the end of a car. As shown, it consists of a casting having the top and bottom jaws or clamping-plates *d d'*, through the upper of which extends a binding-screw *d²* and a vertical side *d³*. In the latter and in the top plate or arm *d'*, there are formed a series of apertures *d⁴*, designed to receive a bolt or fastening-pin connected with the said plate D.

As said above, the clamp E can be secured to any of the projecting frame-bars of the car which is best suited for the purpose, and the plate D is secured thereto in such position that the parts shall occupy the relative positions indicated in Fig. 2. The sections *c c'*, being adjustably connected together, as described, can be regulated and the length of the coup-

ling varied according to the distance between the cars. If desired, the socket at the rear end of the section *c* may be provided with an interior thread, and the forward portion of the coacting section *c'* be threaded externally.

The head *c*² of the section *c* may be of any suitable style so as to be adapted for attachment to the particular style of coupling used on the air-brake pipes, and it is provided with means for sustaining a ring or loop *F*, to which is attached one end of a cord or cable *G*, that extends to the rear of the last car of the train, where it is connected to a reel *H* or other suitable tension device.

In the construction illustrated the head *c*² has secured thereto, on its under side, a spring-arm *c*⁶.

By the construction above described it will be seen that the coupling *C* is pivoted and supported in such manner as not to interfere with the movements of the cars, but if a draft or pull is exerted on the cord or cable *G* the head *c*² will be detached from its coacting coupling, and thereby the train-pipe of the air-brake apparatus will be opened, through the section *b*, and the brakes will be automatically applied to those cars of the train which are provided with air-brakes.

The operation of my improvements may be briefly stated as follows: When the train is made up, the coupling *C* is connected with the forward end of the first car of the series of cars unprovided with automatic brakes, or the rear end of the last car provided with such brakes, and the head *c*² thereof is connected with the head of the coupling-hose section *B*, the valve *b* in which is opened. The rope or cable *G*, which, if preferred, may be composed partly of rods, is drawn relatively taut by the devices at *H* on the last car. Should the coupling between any two cars in rear of the last car provided with air-brakes separate, the strain on the rope or cable *G* will instantly exert such a pull on the head *c*² of the coupling *C* as to detach it from the head at the rear of the air-pipe *B* and the reducing of pressure in the train-pipe, caused thereby, will instantly actuate the brakes on the forward cars and gradually bring the entire train to a standstill. Again, should any other form of accident happen at the rear of the train and the attendants there be unable to communicate with the engineer in the ordinary manner they can, by exerting a pull on the rope *G*, actuate the brakes in the same manner.

I am aware that prior to my invention it has been proposed in the making up of "mixed" trains to arrange the cars unprovided with automatic brakes between two groups of cars provided with air-brakes, and to connect the two sets of automatic brakes by a hose or tube extending alongside of the intermediate cars, which have not such brake mechanism. By this construction the engineer can control the application of the brakes both in front and in rear of the intermediate

group of cars; but such a mechanism is not designed nor practically adapted for accomplishing the ends attained by my invention. In case of a separation of the train at a point between two of the cars not provided with air-brakes the connecting-pipe would have to be broken and therefore before the train could be again properly made up a new pipe would have to be substituted or, at least, considerable repair work would be necessary. By employing a detachable coupling at the end of the air-pipe, however, and connecting such coupling by a rope or cable with each of the cars unprovided with automatic brakes no damage is done to the air-pipe on the separating of the train into two sections, as pointed out in the specification.

What I claim is—

1. In a railway-brake mechanism, the combination with a car provided with a system of automatic brakes, of a car, or cars, arranged in rear of the first said car and unprovided with automatic brakes, a coupling detachably connected to the rear end of the supply-pipe of the automatic brake mechanism, and means connecting each of the cars last referred to with the said detachable coupling whereby on the separating of any two of the cars the said coupling will be detached from the air-pipe and automatic brakes on the forward car will be put into action, substantially as set forth.

2. The combination, in a railway-brake mechanism, with a car provided with air-brakes, of a series of cars arranged in rear of such car, a coupling detachably connected to the rear end of the supply-pipe of the brakes on the forward car, and a cable connecting such coupling with the rear car of the train, substantially as and for the purpose set forth.

3. In a railway-brake mechanism, the combination with the supply-pipe of a system of air-brakes, of a coupling having a clamp by which it can be secured to a car, and also having means for closing an outlet in the said air-supply pipe, and a flexible connection between such coupling and a car in rear of the air-brake system, substantially as set forth.

4. In a system of train-brakes, the combination with a car provided with air-brakes, of a coupling having a clamp, by which it can be secured to a car, and means for closing the passage in the supply-pipe for the air-brakes, and a cord or cable having one end connected to said coupling and extending longitudinally of the train to and having its other end connected with the rear car, substantially as and for the purpose set forth.

5. In a railway-brake mechanism, the combination with the air-supply pipe of a system of air-brakes, of a coupling having at one end a cap for closing the end of the said supply-pipe and at its other end a clamp, adjustably connected to the cap-piece and adapted to be secured to a car, and means on the cap-piece for connecting one end of a draft rope or cable therewith, substantially as set forth.

6. In a railway-brake mechanism, the combination with the air-supply pipe of a system of air-brakes, of a cap adapted to close an outlet in said pipe, a clamp adapted to be attached to and supported from a car, connecting devices interposed between the cap and clamp, and adapted to be adjusted longitudinally of the former, and means for attaching to the cap-piece one end of a rope or cable by means of which the cap can be disengaged from the air-pipe, substantially as set forth.

7. In a railway-brake mechanism, the combination with the air supply of a system of air-brakes, of a device adapted to be supported from a car and provided with means for closing an outlet in the said air-pipe, and a spring-holder connected to said device and adapted to connect therewith one end of a rope or cable, substantially as and for the purpose set forth.

8. In a railway-brake mechanism, the combination with the air-supply pipe of a system of air-brakes, of a head-piece, c^2 , adapted to be connected with said pipe and close an outlet therein, a clamp adapted to be connected to a car, a bar having one end pivotally connected with said clamp and its other end connected with and adjustable toward and from the head, c^2 , a spring-arm connected to said head, and a ring or loop extending between said arm and the body of the head to enable a rope or cable to be connected thereto, substantially as and for the purpose set forth.

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

JESSE M. AUSTIN.

Witnesses:

V. S. LUMLEY,

FRANK N. BLAKESLEE.