

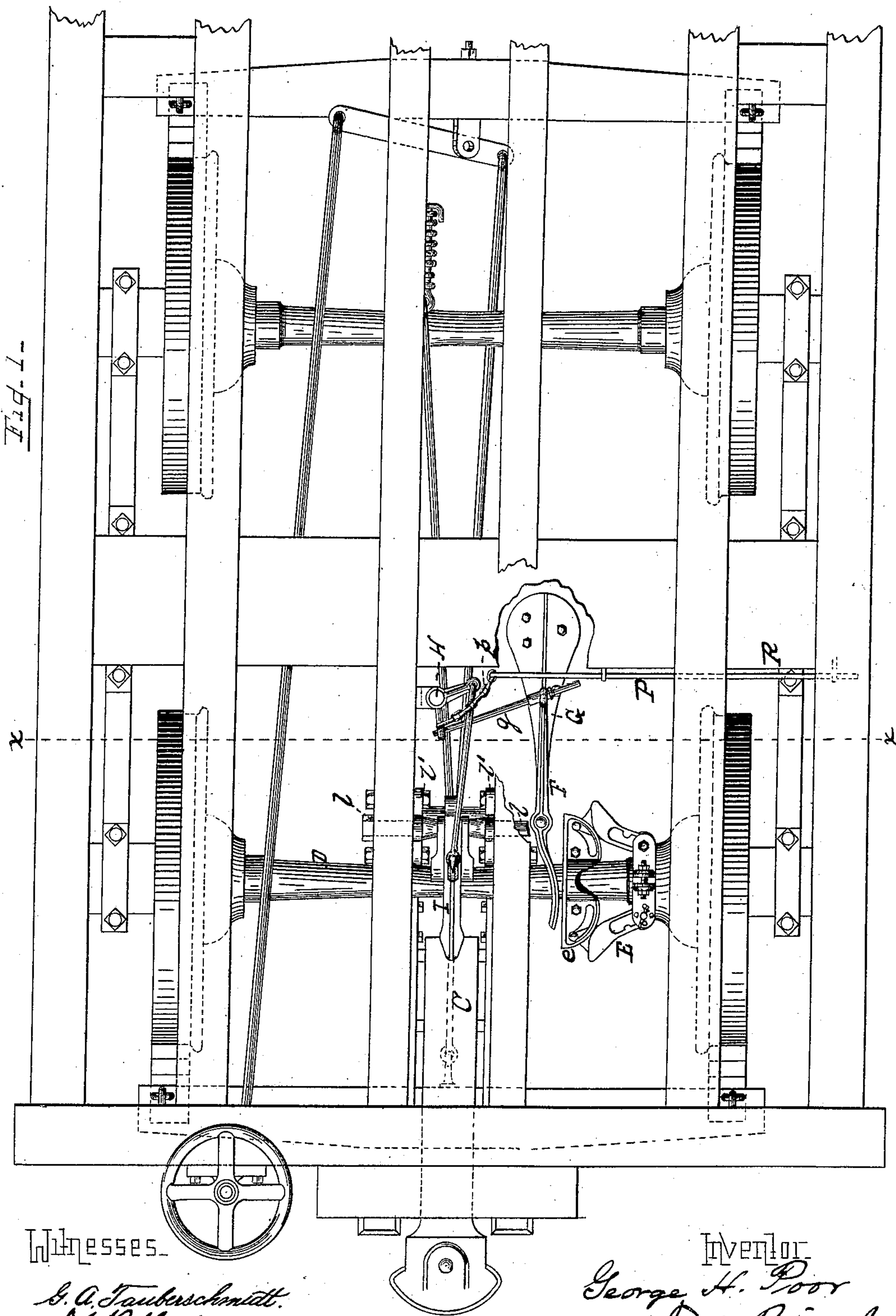
(No Model.)

2 Sheets—Sheet 1.

G. H. POOR.
AUTOMATIC BRAKE.

No. 356,500.

Patented Jan. 25, 1887.



Witnesses.

S. A. Taubenschmidt.
V. P. Metzger.

Inventor.

George H. Poor
by F. W. Ritter, Jr.

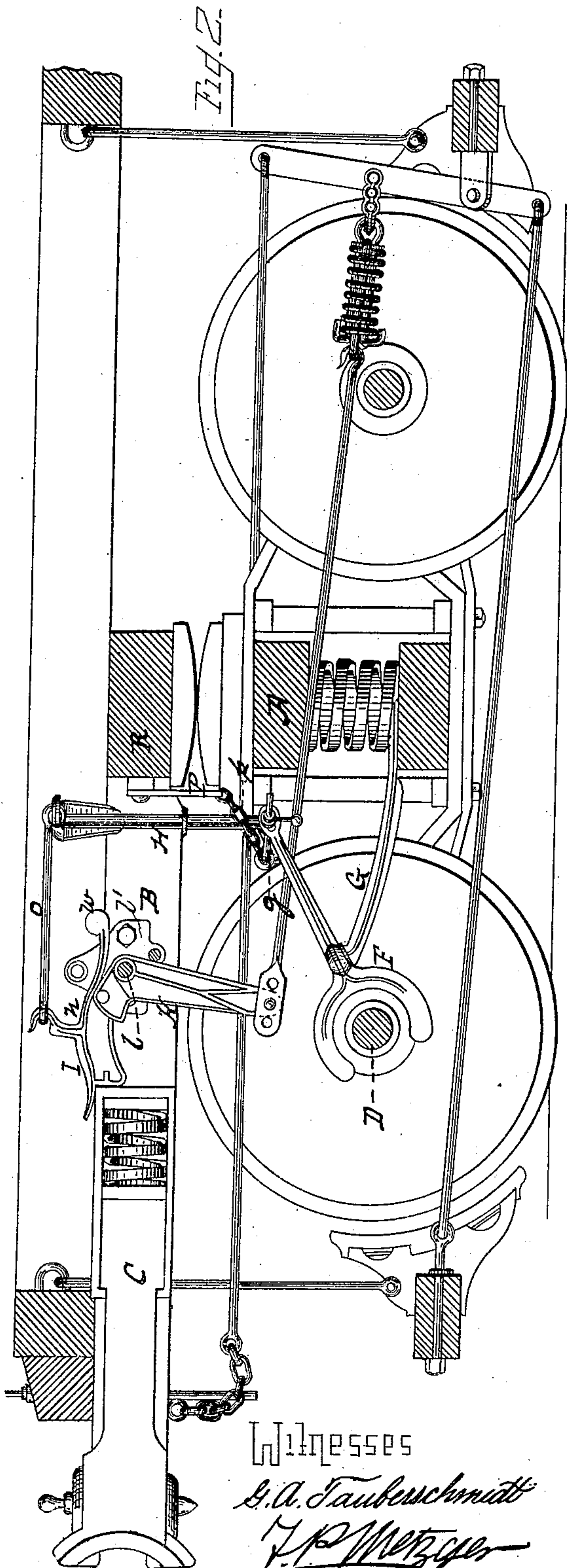
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G. H. POOR.
AUTOMATIC BRAKE.

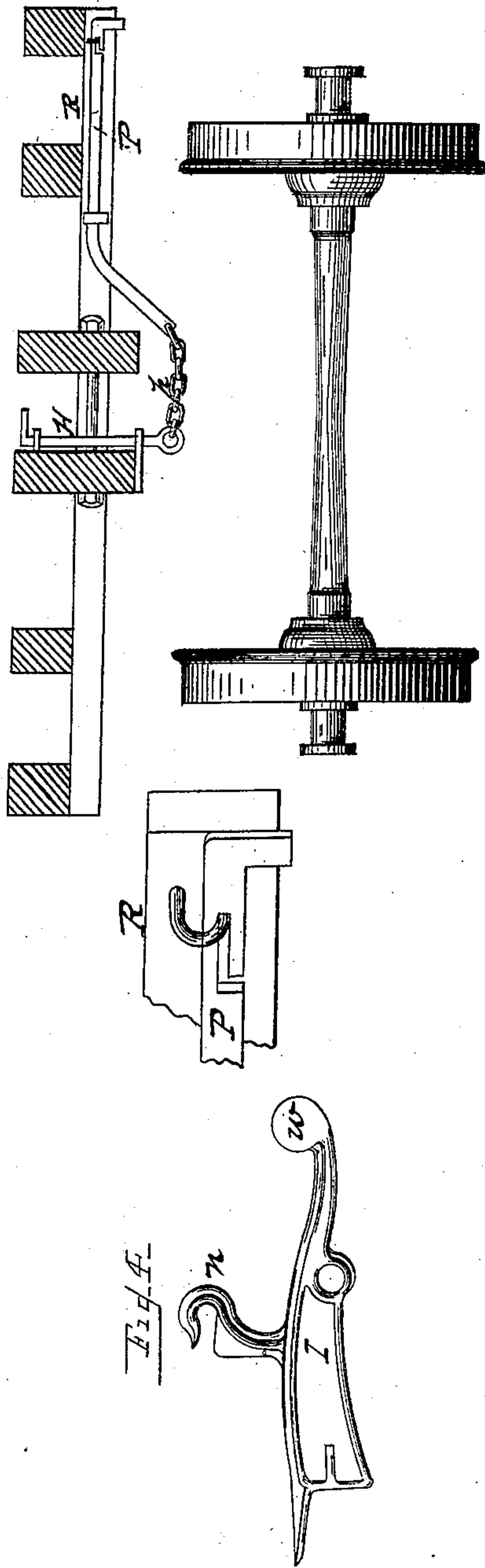
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G. A. Taubenschmidt
J. P. Metzger



Inventor

George H. Poor
by *F. W. Rittenfr*
atty

UNITED STATES PATENT OFFICE.

GEORGE H. POOR, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE AMERICAN
BRAKE COMPANY, OF SAME PLACE.

AUTOMATIC BRAKE.

SPECIFICATION forming part of Letters Patent No. 356,500, dated January 25, 1887.

Application filed January 20, 1886. Serial No. 189,188. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. POOR, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain
5 new and useful Improvements in Automatic Brakes; and I hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, forming a part of the same,
10 wherein—

Figure 1 is a plan view of automatic brake mechanism embodying my invention. Fig. 2 is a longitudinal section of a car bed and truck, showing a side view of the devices in elevation
15 when the car is at speed. Fig. 3 is a transverse section on the line $x x$, Fig. 1. Fig. 4 is a detached view of the latch or push-bar.

Like letters refer to like parts wherever they occur.

20 My present invention relates more especially to certain improvements on the individual elements or details of automatic brake mechanism of a class or character shown in Letters Patent to Randolph, No. 241,156, May 10, 1881,
25 and to Poor, No. 300,132, June 10, 1884, though there are some features generally applicable to automatic brakes of all kinds actuated from a movable draw-bar.

30 The first feature of the present invention relates to the construction and arrangement of devices for switching out the automatic mechanism when it is desired to operate the car-brakes only by hand.

35 A second feature embraces the reduction of power necessary to trip the latch or push-bar.

40 A third feature embraces the utilization of the latch or push-bar fulcrum as a tie for the draw-bar beams, whereby the devices are prevented from derangement by any shrinking, warping, or twisting of the adjacent timbers.

There are other minor features which will hereinafter more fully appear.

45 In the practical working of the automatic brake systems there have been developed certain objectionable features, which, though of minor importance under most conditions, at times and under other conditions assume considerable importance, and the object of the

present invention is to obviate such objection- 50
able features. The first of these arises from the fact that as yet the use of automatic pressure-brakes is not sufficiently general or widespread, and their construction and operation are not sufficiently well understood to insure their 55
receiving even the ordinary care given to other parts of a railroad equipment, and which will prevent possibility of derangement. This will be obviated in due course by general familiarity with the devices, but for the present there 60
is a necessity for a simple and efficient means, which can be operated by unskilled labor, for disengaging the automatic mechanism from the brakes and leaving them so they can be only operated by hand, and this I accomplish 65
by a rod, chain, or lever, which, acting either mediately or immediately on the push-bar or latch, holds it out of engagement with the movable draw-bar.

In automatic brake mechanism the intent of 70
all the mechanism is to cause the push-bar or latch to engage with the movable draw-bar when the train is speeded or in rapid motion and to cause it to disengage when the movement or speed of the train is low—as in yard- 75
work, pulling out and backing—and a desirable feature is that this tripping (or disengagement) of the latch or push-bar should be accomplished with the expenditure of as little power and with as little friction as possible; 80
and this I accomplish by use of a counter-weighted latch and the application of the power thereto at a point close to the fulcrum or center of gravity. Again, where the draw-bar 85
timbers of a car are not well seasoned, where they are or become strained, warped, and alter their relative position, and in some instances of peculiar construction or bracing of the draw-bar timbers, it is difficult to connect and often to maintain the relative position of the push- 90
bar or latch, its lever, and the stops which limit the variation of the lever, and in order to obviate this I make the fulcrum of the push-lever a through or tie bolt, which not only maintains the parts at all times in operative 95
relations, but also strengthens the general construction.

I will now proceed to describe my inven-

tion more specifically, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A indicates the truck; B, the draw-bar timbers; C, the movable draw-bar; D, the axle; E, a centrifugal governor secured to the axle with sliding collar or disk *e*; F, a fork partially encircling the axle and actuated by the movement of the sliding collar or disk *e*, said fork pivoted on a bracket, G, connected by a rod, *g*, with a bell-crank, H, which controls the latch or push-bar I, said push-bar pivoted on the lever K, and the latter connected to and operating the system of brake-levers.

To the extent above described the devices are not herein claimed, and need not be further described, as full particulars can be had by reference to the patents of Randolph and Poor, hereinbefore referred to. Moreover, there is no intention to limit the invention to use with these particular devices, as they may be utilized in any known form of automatic brake. The latch, as shown, its lever, and connections do, however, involve in their present construction two of the novel features, as follows:

Prior to the present invention the fulcrum-lever K terminated or had its bearings in cheek-plates *l'*, bolted to the draw-bar timbers, and the stop to limit the vibration of the lever K was connected with the face-plates. Consequently any working of the draw-bar timbers or change in their relation seriously interfered with if not totally deranged the push-bar or latch and its lever. In many instances it was not desirable or convenient to use additional braces or tie-bolts to prevent or correct this trouble. Consequently I prolonged the fulcrum of the lever K, converting it into a tie-bolt, *l*, which passes through the cheek-plates *l'*, and draw-timbers, and provides a means for adjusting and maintaining the operative relation of the several parts specified.

In previous constructions the rod which controlled the push-bar or latch was connected near the end or nose of the latch. Consequently the power required to lift the latch or push-bar out of engagement with the draw-bar was considerable, as the draft was toward the fulcrum of and from the end of the latch, (or distant end of the lever,) and the source of the power for lifting the latch was derived from the gravity of the parts interposed between the latch and the forked lever, some of which power was lost in the friction of the parts themselves, and more by friction of the fork on the disk of the governor. It became a desirable matter to reduce to the minimum the power necessary to lift or trip said latch, in order to render its action quick and sure. To this end I first provide the latch with a counter-weight or rear extension, *w*, which, though not necessarily a counterpoise, transfers the center of gravity to a point near the fulcrum of the latch, and then provide the

attachment *n* of rod *o*, or the point of applied power adjacent to the center of gravity of the latch. This construction, while it does not interfere with the ready drop or engagement of the push-bar or latch, facilitates the lifting or tripping of it, as before specified. Finally, in order to be able at all times to cut out the automatic brake mechanism and return to the use of the hand-brake devices alone, I provide a movable bar or bolt, P, which may be mounted on one of the cross-timbers R, and connected, by a chain or otherwise, with the latch or push-bar through an intermediate chain or flexible connection, *p*, to the bell-crank H. The bar or bolt P may have a notch to form a gravity-lock with one of the keepers through which it passes; or any desired catch may be used to lock it either in or out, as the case may be. The means for the purpose being substantially such as before specified, the bolt P may be moved to elevate the latch or push-bar out of engagement with the movable draw-bar and then locked in position to hold the latch out of engagement, so that it will no longer be actuated by the governor and the forked lever.

I am aware that in automatic friction-brake mechanism, wherein the brakes are applied by means of a driven friction-pulley which is brought in contact with a driving or power friction-pulley on the car-axle, the hangers of the driven pulley being moved from the draw-bar through an intermediate pivoted push-bar, that said intermediate pivoted push-bar has been provided with a crank-rod which acted directly on the pivoted push-bar to lift the same out of the path of the movable draw-bar, so that a pushing-engine might be used without setting the brakes, and do not herein claim such devices or any devices for such purpose; but,

Having thus fully described the nature, operation, and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an automatic brake mechanism having a movable draw-bar, a power-lever, an interposed detent or push-bar, and a governor for controlling the detent or push-bar, a lock-bar for actuating the push-bar or detent and relieving it from the control of the governor, substantially as and for the purposes specified.

2. In an automatic brake mechanism, the combination, with a movable draw-bar and governor mechanism, of an interposed counterweighted latch or push-bar having the power or tripping attachment adjacent to the center of gravity or fulcrum, substantially as and for the purposes specified.

3. In an automatic brake mechanism, the combination, with a movable draw-bar and the draw-bar timbers, of a latch or push-bar, an operative lever, and a tie-bolt which passes through the draw-bar timbers and constitutes

the fulcrum of the operative lever, substantially as and for the purposes specified.

4. In an automatic brake mechanism, the combination, with a movable draw-bar and
5 governor, of an interposed counterweighted latch or push-bar, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 2d day of January, 1886.

GEORGE H. POOR.

Witnesses:

HENRY A. WAHLERT,
E. B. LEIGH.