

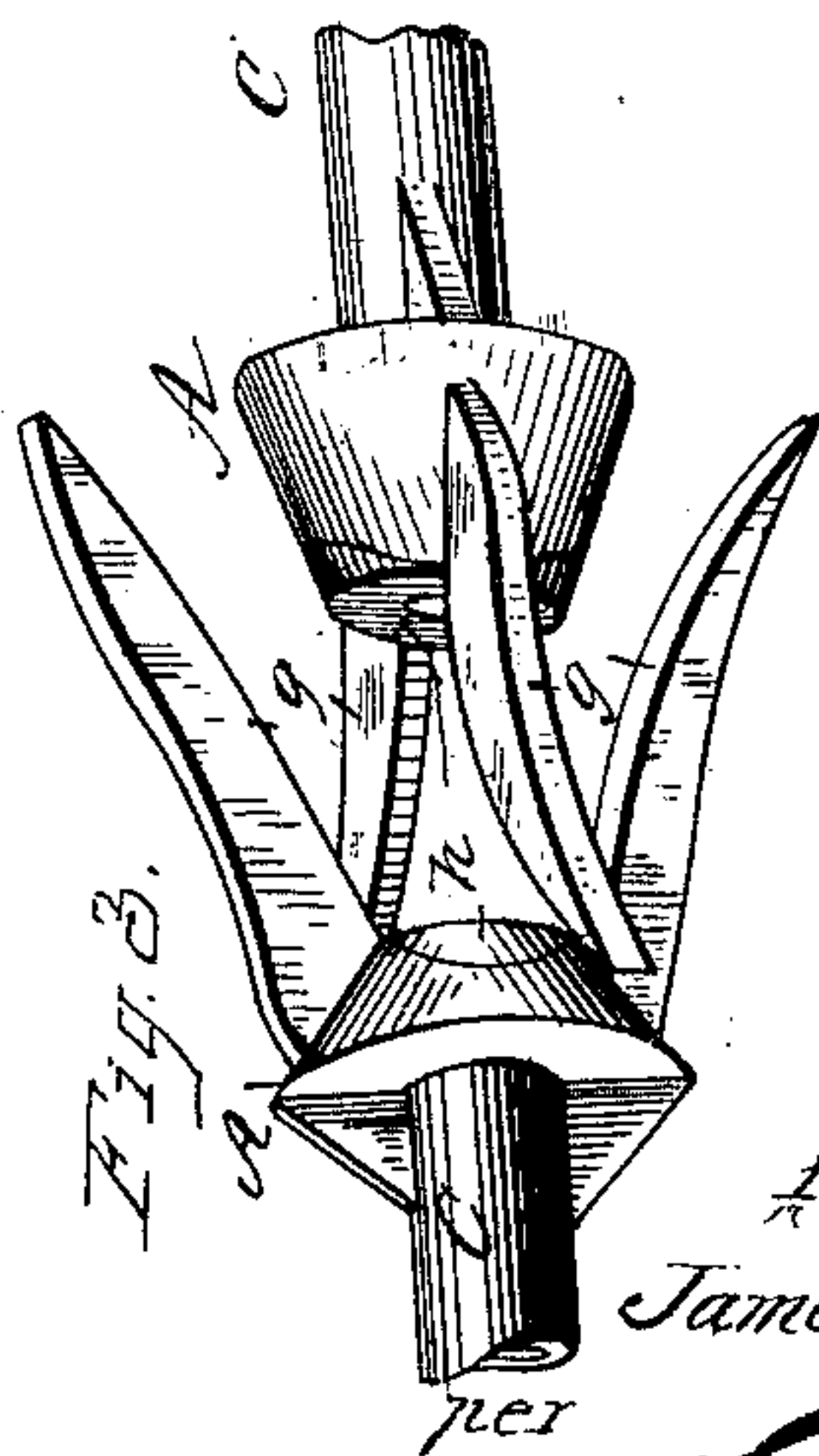
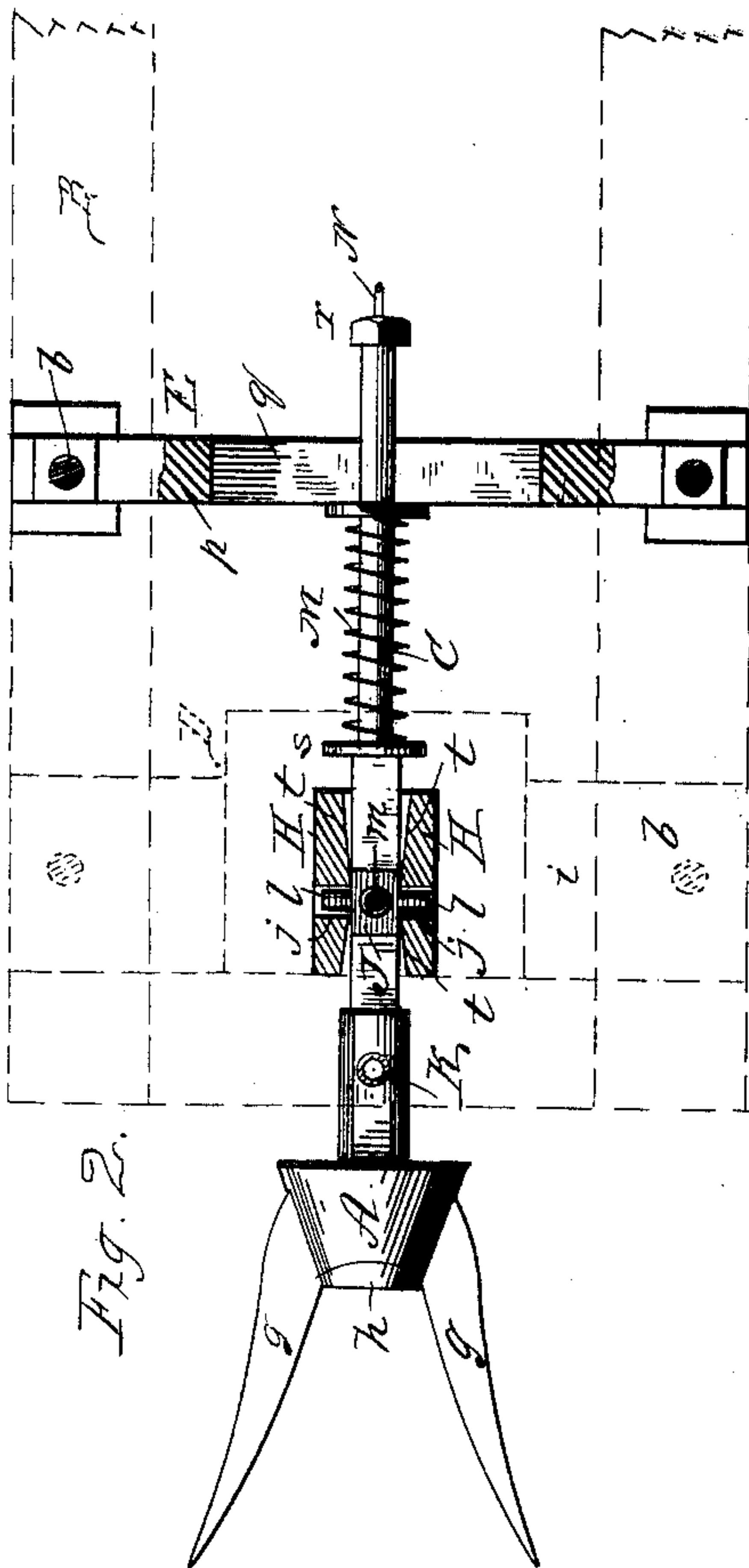
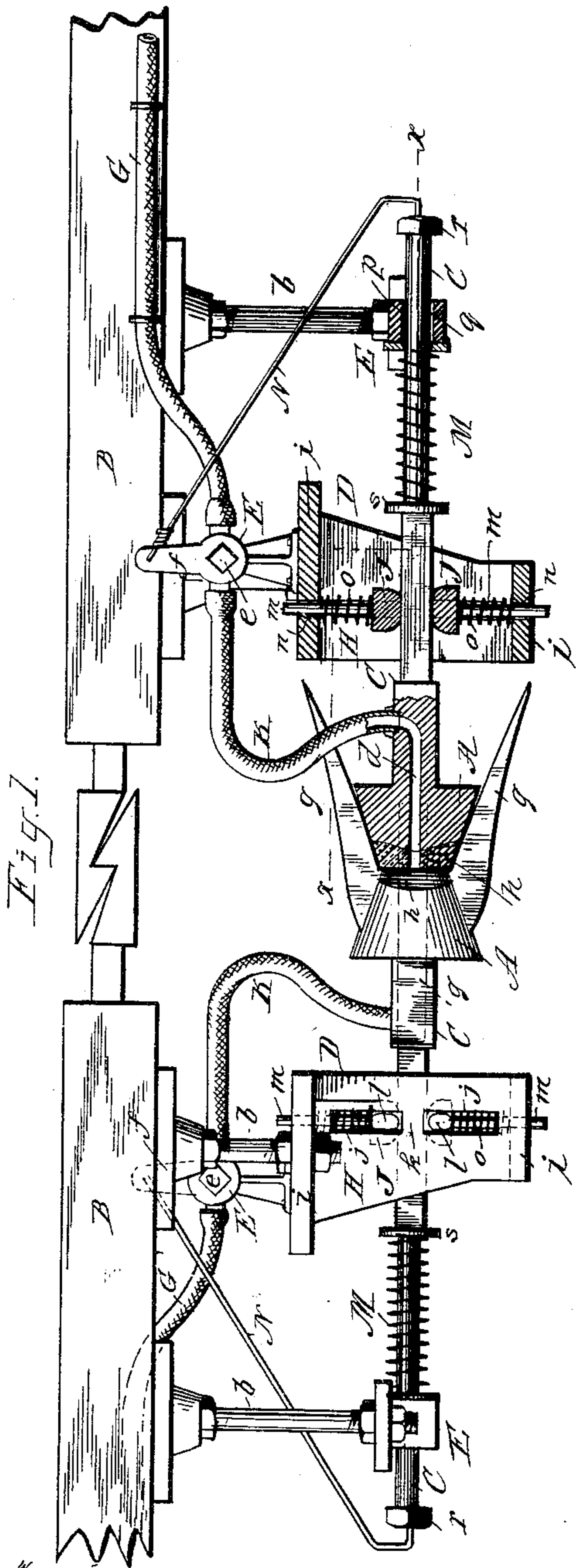
(No Model.)

J. D. BAGG.

AUTOMATIC COUPLING AND VALVE CONTROLLING MECHANISM FOR
THE STEAM OR AIR PIPES OF CARS.

No. 407,148.

Patented July 16, 1889.



Witnesses:

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UNITED STATES PATENT OFFICE.

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AUTOMATIC COUPLING AND VALVE-CONTROLLING MECHANISM FOR THE STEAM OR AIR PIPES OF CARS.

SPECIFICATION forming part of Letters Patent No. 407,148, dated July 16, 1889.

Application filed December 4, 1888. Serial No. 292,679. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. BAGG, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Automatic Coupling and Valve-Controlling Mechanism for the Steam or Air Pipes of Cars, of which the following is a specification.

10 This invention relates to couplings for the pipes of railway-cars that are used as conduits for the steam, hot water, or air that is employed for heating the cars or operating the brakes, the object being to provide means
15 for coupling the pipes at each end of the car that will be entirely automatic, and also means operating in conjunction with said coupling mechanism and with the valve near the coupling end of the pipe for automatically open-
20 ing said valve at the time of coupling and for automatically closing said valve at the time of uncoupling, and for so maintaining the said valve open or closed during the required periods of its use; and the invention consists
25 in the various constructions and combinations of parts, all substantially as will hereinafter fully appear, and be set forth in the claims.

In the drawings accompanying and forming part of this specification this improved mechanism is illustrated, and Figure 1 represents
30 two of the coupling mechanisms as applied at the adjacent lower end portions of two railway-cars in their coupled relations, and one thereof being in side elevation and the other
35 in central vertical section. Fig. 2 represents in plan and horizontal section below the line $x x$, Fig. 1, the said mechanism for one car, with parts thereof in the positions seen in Fig. 1. Fig. 3 is a perspective view of the
40 coupling-heads of two sets of couplings separated from each other.

I provide coupling-heads A at and under each end of the car-bottom frame B, which heads are formed integrally with and carried
45 by and at the outer ends of longitudinal metal bars C, supported by and movable endwise in and through bearings of frames D and E, suspended by pedestals or hangers b from the car.

50 Each coupling-head, as shown, is made in the form of a truncated cone, through which is an axial passage d , which preferably ex-

tends rearwardly a short distance through the coupling-bar C, communicating laterally with which is a flexible pipe K, which is also in
53 communication with the outlet-passage of a valve E, of any common or approved construction, said valve having, as usual, on its plug a stem e , there being rigidly connected with
60 said valve-stem a radially-projecting arm f , and to the inlet-passage of said valve the end of the main steam or air conduit G for the car is connected.

The coupling-head is provided with forwardly and outwardly projecting horns $g g$,
65 oppositely arranged, and in applying the couplings to cars the horns of one head will be disposed in a vertical plane, while those of the head on the meeting end of another car will be normally in a horizontal plane, and
70 as the heads approach end to end, if considerably out of axial alignment, one or the other of the horns of one head will slide upon the inclined edge of a horn on the other head, or
75 upon a nearer approach the horns will bear along the inclined wall of the relatively-opposite conical head, bringing the noses of the coupling properly together, so that the passages thereof will be the one in continuation
80 of the other; and each coupling-nose is to be formed by a block h , of considerable thickness of rubber or other elastic compressible material, secured in place on and to form a
85 part of the coupling-head in any suitable manner.

The frame D comprises centrally-disposed vertical walls H H, carried by and between the cross-girders i , above and below, in which walls are oppositely-disposed vertical ways j ,
90 said ways in each wall being preferably divided the one end portion from another by the cross-web k , and above and below the coupling-bar which passes between said walls H H are slide-blocks J, having lateral lug-extensions l , projecting into said vertical slide-
95 ways j , and vertical guide-spindles m , formed on said upper and lower blocks, and, extending, respectively, upwardly and downwardly therefrom, play through guide-sockets n in the cross-girders $i i$ of the frame. The said
100 blocks are spring-supported or held under pressure toward each other and on the coupling-bar by the spiral springs o , encircling said guide-rods m and bearing on and between

the cross-girders and said blocks. The surfaces of said blocks in contact with the coupling-bar are preferably formed rounding, as shown in Fig. 1. The rear frame E embodies the horizontal beam *p*, having through it a horizontal aperture *q*, which is of considerable transverse extent at each side of the central line coincident with the axis of the coupling-bar when in its normal position, as seen in Figs. 1 and 2, and said coupling-bar rearwardly projects loosely through said aperture *q*, and is provided behind said beam with a collar or shoulder *r*. A stiff spiral spring M encircles the coupling-bar between the forward edge of the apertured beam *p* and a shoulder *s* on the said bar in advance thereof, said spring forcing the coupling-head to its outermost extent, which is limited by the abutment of the shoulder *r* against the rear edge of the beam.

A rigid connecting-rod N extends from the rear or other suitable portion of the coupling-bar C to engagement with the radial arm *f* of the valve-stem. When the two coupling-heads come together and before the car-couplings are engaged, the said coupling-bars C are forced rearwardly against their springs M M, moving the connecting-rods in unison therewith and automatically opening the valves E, and the rubbers at the front ends of the coupling-heads are at this time under more or less compression, forming a close joint. When the coupling-connection for the cars is broken, the coupling-bars move forward and the valves will be automatically closed.

In addition to their mounting for an endwise movement, and as will now be plain from the foregoing description and the illustration of the constructions embodied in this invention, the coupling-heads may move vertically, the coupling-bars swinging from their rear bearing in the beam *p* as a fulcrum, the spring-supported blocks J J forming a yielding support and resistance to the intermediate portion of said bars; and again each of said coupling-heads is capable of a lateral movement in either direction, said bar swinging from its intermediate portion between and in contact with the walls H H, its rear end having a traverse as necessary in the horizontally-extending aperture *q* of the said beam *p*, it being noticed that the inner surfaces of the said walls H are outwardly-flaring, as particularly noticed at *t*, in the horizontal section, Fig. 2.

It will be noticed on an inspection of the drawings that the angle and distance between the opposing inner faces of the diverging horns *g g* correspond to the inclination of the truncated conical head, whereby in addition to the guiding action of the horns of one head on and by the opposing conical head into coupling alignment when the heads are in endwise contact, they are, by the engagement of said horns with the respectively opposing heads, prevented from tilting or swinging, the coupling-heads, by the springs M, being held

together as one, and under the provision of the described means for hanging the coupling-bars the jolting and swinging motion of the car will not be imparted to the heads in any such degree to throw them out of coupling alignment as will not be withstood by the engagement of the horns and heads described and shown.

What I claim as my invention is—

1. The steam or air pipe of a car and the frames D E, one in advance of the other, the former comprising the upper and lower cross-girders *i i* and the longitudinal vertical walls H, and the latter the suspended cross-beam *p* with the transverse aperture *q* therein, in combination with the coupling-bar having in its head a longitudinal passage open at its outer end and connected with said pipe and provided with the shoulders *s r*, and extending between said walls H H and through said beam-aperture *q*, the vertical springs *o o*, bearing between the said girders and the said bar, and the spring M between the bar-shoulder *s* and the said beam, substantially as described.

2. The steam or air pipe of a car and the frames D E, one in advance of the other, the former comprising the upper and lower cross-girders *i i*, provided with the guide-socket *n*, and the longitudinal vertical walls having the ways *j j* therein, and the latter comprising the cross-beam transversely apertured, in combination with the coupling-bar having in its head a longitudinal passage open at its outer end and connected with said pipe and provided with the shoulders *r s*, and extending between said walls H and through the said beam-aperture, the bearing-blocks J J above and below the said bar, guided in said ways *j* and having the guide-spindle *m* playing through said sockets, and the springs *o o*, substantially as described.

3. In combination, the steam or air pipe of a car provided with a valve having a radial arm *f* on its stem, the frames D E, one in advance of the other, the former comprising the upper and lower cross-girders *i i*, provided with the guide-sockets *n*, and the longitudinal vertical walls having the ways *j j* therein, and the latter comprising the suspended cross-beam having the transverse aperture *q*, the coupling-bar having a head the nose of which is formed of rubber and provided with a longitudinal passage open at its outer end, and the shoulders *s* and *r*, and extending between said walls and through the said beam-aperture, the bearing-blocks J J above and below said bar, guided in said ways *j*, and having the guide-spindles *m* playing through said sockets, the springs *o o*, the flexible pipe K connecting said valved pipe with the passage in the coupling-head, and the connecting-rod N between said coupling-bar and said valve-arm, all substantially as described and shown.

4. The combination, with the steam or air pipe of a car, of a coupling-bar spring sup-

ported from the car and adapted to have an
endwise and vertical and horizontal swinging
movements, provided at its forward end with
a coupling-head of truncated conical form the
5 taper of which is outward, provided with op-
positely-disposed forwardly-projecting and
outwardly-diverging horns having the angle
and distance between the inner faces thereof

corresponding to the angular surface of said
conical head and having a longitudinal pas- 10
sage open at its outer end and connected with
said pipe, substantially as described.

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Witnesses:

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