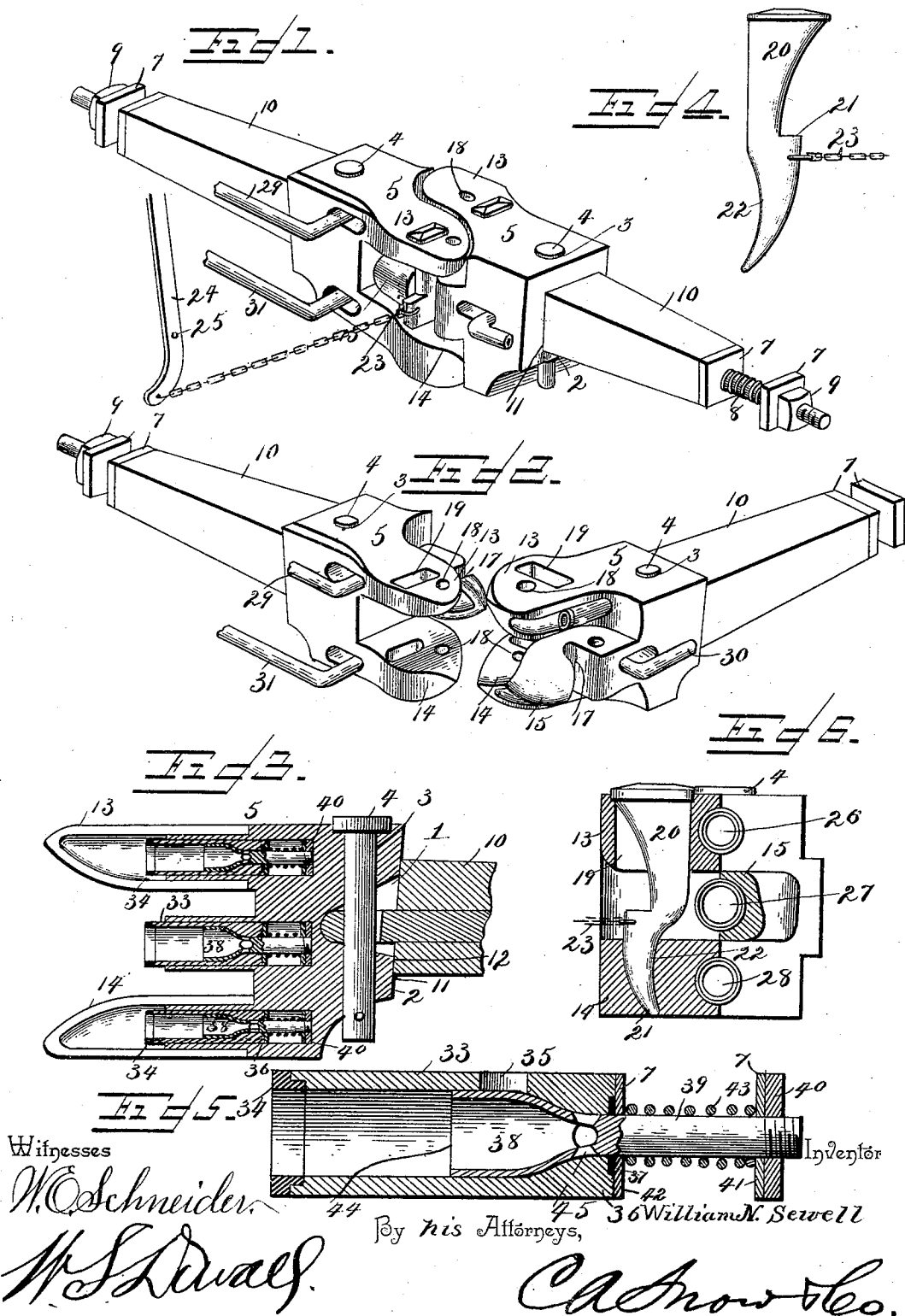


(No Model.)

W. N. SEWELL.
COMBINED CAR AND TRAIN PIPE COUPLING.

No. 513,249.

Patented Jan. 23, 1894.



UNITED STATES PATENT OFFICE.

WILLIAM NAPOLEON SEWELL, OF CLAY CITY, KENTUCKY.

COMBINED CAR AND TRAIN-PIPE COUPLING.

SPECIFICATION forming part of Letters Patent No. 513,249, dated January 23, 1894.

Application filed March 6, 1893. Serial No. 464,764. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM NAPOLEON SEWELL, a citizen of the United States, residing at Clay City, in the county of Powell and State of Kentucky, have invented a new and useful Combined Car, Signal-Pipe, Steam-Pipe, and Brake-Pipe Coupling, of which the following is a specification.

My invention relates to that class of couplers adapted to couple cars and also the signal, brake, and steam pipes thereof.

The objects in view are to produce a coupling-head so constructed as to provide for an efficient coupling with a companion head and to contain therein the valved terminals of the steam-heating, signal, and brake-pipes, whereby when said heads are brought together and coupled an automatic coupling of said pipes will also take place; to provide valves to be located in the pipes whereby when coupled they will automatically open, and when uncoupled they will automatically close, thus preventing the lowering of the pressure therein; to so construct the coupler as to adapt it to automatically couple and to be adapted to be coupled from the side or top of the car or to couple with an ordinary link-and-pin-coupling.

Various other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings: Figure 1 is a perspective view of two coupling-heads constructed in accordance with my invention, the same being coupled. Fig. 2 is a similar view, the heads being uncoupled and slightly separated. Fig. 3 is a vertical longitudinal sectional view of one of the coupling-heads. Fig. 4 is a detail of one of the locking-pins. Fig. 5 is a detail of one of the valves. Fig. 6 is a transverse section through the locking pin receiving slots.

Like numerals of reference indicate like parts in all the figures of the drawings.

In practicing my invention I construct a coupling-head the peculiar form of which will be hereinafter described. The head may be mounted under the car in any suitable manner, but in this instance has its rear end provided with a cavity 1, and is further provided with a superficial, vertically-disposed rib 2.

A pin-hole 3 is formed vertically through the head, and in the same is located a pivoting-pin 4.

5 designates the draw-bar, the same being passed through the usual frame and having mounted thereon washers 7 between which upon the bar is located a coiled spring 8. The draw-bar has its rear end threaded and provided with a nut 9 located in rear of the rear washer 7 and is further provided and is adapted to move loosely within an elongated collar 10, which is interposed between the front washer 7 and the rear end of the coupling head. This collar 10 has a front convexed face 11, and the same is provided with a vertical half round groove 12 which rests between the superficial rib 2 of the coupling head. It will thus be seen that the coupling-head is capable of a longitudinal as well as a universal movement in lateral directions, and hence may readily accommodate itself to the movements necessary in its operation.

The front face of the coupling-head is provided with a series of three prongs or horns, which I have designated as the upper prong 13, the lower prong 14, and the intermediate prong 15. The upper and lower prongs 13 and 14 are arranged vertically opposite each other and have their outer and adjacent sides convexed or beveled as shown, and between the same the face of the head is provided with a cavity for receiving the intermediate prong of a companion coupling-head when said heads are coupled. The intermediate prong 15 is given an external shape somewhat after that of the prongs 13 and 14, and is provided at its outer side with a transverse notch 17. Each of the prongs 13, 14, and 15 is provided with a pin-hole 18, by which in case the automatic lock, hereinafter described, should break a coupling may be effected through the ordinary locking-pins, and, furthermore, should it become necessary to couple one of these heads with a head of the ordinary construction, that is the link-and-pin head, such may be accomplished.

Each of the prongs 13 and 14 is provided with a transverse slotted or elongated opening 19, which openings are in vertical alignment with each other and with the notch 17 formed in the prong 15 of a companion coupling-head. The lower opening 19 has its lon-

gitudinally opposite walls inclined as shown in Fig. 6.

In each of the vertically-opposite pairs of elongated openings 19 there is mounted a locking-pin, and the same is substantially of bayonet-shape. The upper half of the pin is tapered or wedge-shaped, being reduced from its upper end or head 20 along its outer edge to the point 21, and below the same being inwardly curved forming the jaw 22. At the point 21 a shoulder is formed by reason of the ending of the reduced portion, and a chain 23 is connected thereto and has its outer end connected to the lower outwardly curved end of a hand-lever 24, fulcrumed as at 25, upon the end of the car at one side of the coupling-head. By swinging the upper end of the lever inwardly it will be seen that the pin will ascend and at the same time its curved portion will be brought opposite the inner face of the intermediate prong 15, thus enlarging the space formed by these two members so that the intermediate prong of a companion draw-head that is coupled thereto may become disengaged. When the pins are uninfluenced they will of course fall by gravity, and when the two coupling-heads of this description about the intermediate prong of each passes between the upper and lower prongs of the other, and also takes between the locking-pin and intermediate prong of said other. The convexed outer face of each intermediate prong serves to operate against the inner curved side of the locking-pin, and hence elevate the same, which, as before mentioned, during its elevations is caused to move laterally and thus increase the opening. As soon as the notch 17 of the intermediate prong of each head has arrived opposite the pin of the companion-head, the said pin being no longer under pressure falls by gravity and interlocks with said notch. Thus it will be seen that an automatic coupling is produced, which in a manner heretofore described, may be uncoupled.

If perchance one of the locking-pins should become broken or impaired, ordinary straight locking-pins, may be employed temporarily locking the impaired heads together, the said pins being passed through the circular perforations 18 with which, as before stated, each of the prongs is provided. The locking-pins may also be employed when it is desired to couple the improved coupling-head with any of the old-style link-and-pin coupling-heads.

The prongs 13, 14, and 15 are provided with L-shaped chambers 26, 27, and 28, respectively, the transverse branches of said chambers which are elongated in cross section extending to the opposite sides of the draw-heads where they receive the brake, signal, and steam-heating pipes which loosely enter the same. The chamber 26 of the upper prong 13 connects with the signal pipe 29, while the chamber 27 of the intermediate prong 15 connects with the steam-heating pipe 30, and the L-shaped chamber of the prong 14 connects

with the air-brake pipe 31. The longitudinal or inner branches of these chambers stake at the inner sides of their respective prongs and are tubular as shown and extend a short distance in rear of their transverse branches, thus forming seats, said transverse branches, as before stated, being elongated in cross-section and loosely receiving their respective pipes. In each of these longitudinal branches of the aforesaid chambers there is located a cylindrical valve-case 33 and the same is of such length as to extend from a point slightly in advance of the front end of said longitudinal branch beyond the transverse branch thereof and at its front end is provided with a snugly fitting rubber gasket 34, while near its rear end it is provided with a port 35. The valve-casing is provided with a cylindrical bore and at its rear end has an annular seat 36 in which a packing 37 is located.

38 designates a conical valve-body or plug, and the same has a rearwardly extending stem 39 which extends through the opening or seat formed at the rear end of the valve casing and beyond the same terminating in a threaded end upon which is mounted a nut 40. This nut serves as a head for the rear end of the valve-stem and against the same abuts a washer 41, a second washer 42 being located against the rear side of the packing, and between said washers a coiled spring 43 is located upon the stem, thus serving to press the front washer against the packing, maintaining it in position and throwing the valve-casing forward, so that its port is beyond and therefore out of register with the lateral branch of the chamber in which the valve-casing is located and adapted to slide. The valve plug, as before stated, is conical and is adapted exteriorly to fit snugly within the seat at the rear end of the valve-casing. The plug is further provided at its front end with a chamber 44, which communicates with the front chamber of the valve-casing, and ports 45 are formed at the inner end of the chamber, and when the casing is pressed to the rear against the tension of the spring and into alignment with the lateral branch of the chamber of the coupling-head those ports are thus opened so that communication is established between the signal, brake, and steam-heating pipes which it will be understood are connected at their inner ends to the side port of their respective valve casings.

In operation the coupling-heads come together in the ordinary way, and, as before stated, will automatically couple. At the same time the rubber gasket located at the front ends of the valve-casing abuts and thus forms a tight joint. Inasmuch as these valve-casings extend beyond the chambers in which they are located it will be seen that they will be pressed backward against the tension of their springs and thus uncover the ports in the valve plugs located therein, so that communication will be automatically established between the several pipes of two adjacent cars

and in the same manner throughout the train. As soon as an uncoupling is effected the springs instantly throw the valve-casings forward, thus closing the ports in the valve-plugs, and also throwing their own ports beyond the lateral branches of the chambers and hence cutting off all chance of escape of the fluid contained in the pipes and preventing loss of the same and the consequent reduction of pressure therein.

Various changes in the details of my invention will readily suggest themselves to those conversant with this class of inventions and I do not therefore limit my invention to these details but hold that I may vary the same to any degree and to any extent within the knowledge of the skilled mechanic.

Having described my invention, what I claim is—

1. The combination of the companion coupling-heads each provided with a pair of vertically opposite side prongs and with intermediate single central prongs, off-set from the side prongs and notched the prongs of one head being located at variance with those of the opposite head and therefore adapted to interlock, and vertically movable locking-pins for directly connecting the side prongs of each head with the intermediate prong of the companion-head, substantially as specified.

2. The combination of the opposite coupling-heads each having formed at one side and near its upper and lower sides vertically opposite and beveled prongs and at its opposite side an intermediate prong, said prongs being beveled and adapted to interlock, and the prongs of one head being located at variance with those of the opposite head, said intermediate prongs being provided upon their outer sides with transverse notches, and laterally and vertically movable locking-pins mounted in the vertically opposite pairs of prongs and adapted to engage the notches of the intermediate prong of the companion-head, substantially as specified.

3. The combination of opposite coupling-heads provided at their front faces each with a series of three prongs consisting of two vertically-opposite upper and lower prongs, and an intermediate prong arranged out of alignment therewith or at the opposite side of the head, each of said prongs terminating in beveled points, those of one head being located at variance with those of the other head, the intermediate prong of each head being provided at its outer side with a transverse notch, and the vertically-opposite pairs or prongs being provided with transversely disposed elongated openings, and locking-pins having their upper portions provided at their outer edges with inclined faces, and their lower portions shaped to form curved jaws for engaging with the notches of the intermediate prongs and adapted to ride against the inclined faces formed at the outer ends of those

openings formed in the lower prongs, levers at one side of each draw-head, and chains connecting the said locking-pins to the adjacent levers, substantially as specified.

4. The combination with a coupling-head provided at its rear side with a chamber or recess, an external rib, and a vertical perforation in front of the rib and passing through the chamber, of a draw-bar terminating at its front end in an eye entering the chamber, a pin passing through the perforation and eye of the draw-bar, a stop at the rear end of the bar, a collar on the bar in rear of the eye and having its front face provided with a vertical groove for the reception of the rib and otherwise convexed, and a spring coiled upon the bar and located between the stop and rear end of the collar, substantially as specified.

5. The combination with a coupling-head provided with an L-shaped chamber whose longitudinal branch extends beyond the transverse branch thereof, a pipe extending into the outer end of the transverse branch, a sliding valve-casing mounted in the longitudinal branch, projecting beyond the same and connected to the pipe said casing being provided with a transverse port, and a spring in rear of the casing for normally pressing the casing forward, whereby its port is beyond the transverse branch of the chamber, substantially as specified.

6. The combination with a coupling-head having an L-shaped chamber comprising longitudinal and lateral branches, and a pipe extending into said lateral branch, of a cylindrical valve-casing provided at one side with a port communicating with the pipe and mounted in the longitudinal portion of the chamber and provided at its rear end with a valve-seat, a conical valve plug having a cavity at its front end and provided with ports in its side, the stem of said plug extending in rear of the casing, and a spring mounted on the stem and serving to force the casing forward whereby its port is beyond the lateral branch of the chamber and the ports of the plug are in rear of the port of the casing, substantially as specified.

7. The combination with a coupling-head provided with an L-shaped chamber, and a pipe extending into the outer end of said chamber, the longitudinal portion of said chamber extending in rear of or beyond the transverse chamber, the cylindrical valve-casing mounted for reciprocation in the L-shaped portion of the chamber and provided with a lateral port connected to the pipe and a rear conical seat having a packing, a rubber gasket in the front end of the casing, a conical valve-plug mounted in the casing and provided at its rear end with a stem extending through and beyond the seat and having its extremity threaded, a nut mounted on the stem, a washer located in rear of the casing upon the stem, a coiled spring interposed between the nut and washer, a cavity formed

in the front end of the valve-plug beyond the lateral opening in the casing, and ports formed in the plug, substantially as specified.

8. The combination with opposite coupling-
5 heads provided with three prongs 13, 14, and 15, those of one head being arranged at variance with those of the other, each of said prongs being provided upon its inner side with an L-shaped chamber whose lateral
10 branch is elongated, pipes entering the outer branches of said chambers and leading from the signal, heat-supplying and air-supplying resources, cylindrical valve-casings mounted in the longitudinal portions of the chambers,
15 said valve-casings being provided at their sides with ports communicating with and connected to their respective pipes and at

their rear ends with valve seats, rubber gas-kets at the front ends of the valve-casings, springs in rear of the casings for forcing the same normally forward, and conical valve plugs mounted in the casings and having rearwardly-extending stems passing through the springs, and provided in rear of the same with stops against which said springs press, substantially as specified. 20 25

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM NAPOLEON SEWELL.

Witnesses:

THOS. H. HUNTER,
A. W. WOODWARD.