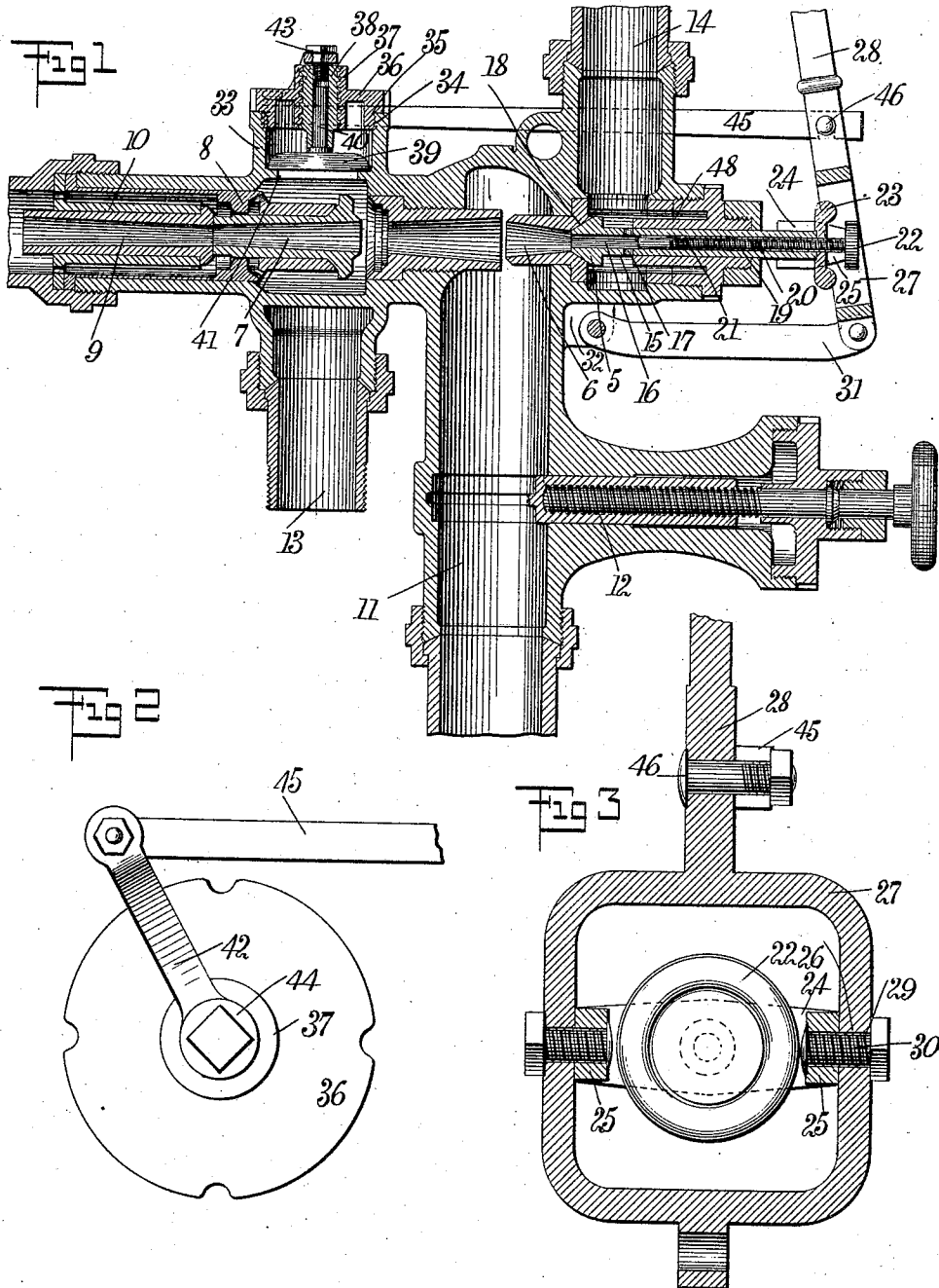


H. E. HASKELL.
 HEATER FOR INJECTORS.
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1,066,271.

Patented July 1, 1913.



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HEATER FOR INJECTORS.

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Specification of Letters Patent.

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Application filed April 26, 1912. Serial No. 693,359.

To all whom it may concern:

Be it known that I, HOMER EMERSON HASKELL, a citizen of the United States, and a resident of Huntington, in the county of Cabell and State of West Virginia, have invented a new and Improved Heater for Injectors, of which the following is a full, clear, and exact description.

My invention relates to injectors, and it has for its object to provide a heater which will automatically heat the injector, when it is not in use, thereby preventing any freezing in the pipes.

Additional objects of the invention will appear in the following complete specification, in which the preferred form of the invention is disclosed.

In the drawings, similar characters of reference indicate corresponding parts in all the views, in which—

Figure 1 is a side sectional elevation of an injector of the Strain-Locke type, which is provided with my heater; Fig. 2 is a plan view showing the top of the check valve chamber, with the arm and the connecting link; and Fig. 3 is a vertical sectional view of the operating lever.

By referring to the drawings it will be seen that the injector is of the well-known type, with the steam valve 5, steam tube 6, combining tube 7, combining tube cage 8, delivery tube 9, delivery tube ring 10, water supply pipe 11, commanded by the water gate 12, an overflow pipe 13, and a steam pipe 14. The steam valve 5 has a valve stem 15, with a longitudinal opening 16 therein, the longitudinal opening extending through the valve 5. Communication is normally afforded between the steam pipe 14, and the longitudinal passage 16, in the valve stem 15, by the lateral openings 17, in the valve stem 15, these lateral openings 17 permitting steam to flow from the steam pipe 14, through the valve 5, to keep the pipes heated, and prevent freezing when the steam valve 5 is seated on the steam valve seat 18. There is a thread 19 in the longitudinal passage 16 in the valve stem 15, and meshing with this thread 19 there is a thread 20, on a valve member 21, the said valve member 21 being adapted to close the lateral openings 17 in the valve stem 15, when desired. The outer terminal of the valve member 21 is provided with a grip member 22, by which it may be rotated, when the engineer desires to close the lateral

openings 17. There is also a lock thumb nut 23, which meshes with the thread 20 on the valve member 21, to lock the valve member 21 in position relatively to the valve stem 15. Secured to the valve stem 15, there is a bracket 24, which is provided with flanges 25, having orifices 26, the said bracket 24 being disposed within the yoke 27 on an operating lever 28. The orifices 26 register with the orifices 29, in the yoke, and in these orifices 26 and 29 there are disposed bolts 30, by which means the bracket 25 is held in position in the yoke. The operating lever 28, is fulcrumed to an arm 31, secured to the casing 32 of the injector. The overflow 13 is provided with the usual check valve casing 33. With a thread 34 in this casing 33, there meshes a threaded flange 35, on the head 36. This head 36 has a sleeve 37, with an inner thread in which meshes an outer thread on a sleeve 38. The check valve 39 has a valve stem 40, which is disposed in the sleeve 38. It will be understood that when this sleeve 38 is rotated, it will engage the check valve 39, and hold it on the check valve seat 41. The arm 42 is secured to the sleeve 38 by the screw member 43, which is disposed through the eye in the eye member 44, on the arm 42. The screw member 43 meshes with an inner thread in the sleeve 38. To this arm 42 there is articulated a link 45, the link 45 being connected with the operating lever 28, by means of the bolt 46, which is disposed through the slot 47 in the said operating lever 28.

When the elements are disposed as shown in Fig. 1 of the drawings, the sleeve 38 will hold the check valve 39 on its seat 41, while a limited supply of steam will be permitted to flow from the steam pipe 14 through the lateral openings 17 in the valve stem 15, and through the longitudinal opening 16 in the valve stem, to the pipes to keep them from freezing. When the valve 5 is moved to the right by means of the operating lever 28, and the valve stem 15, the lateral openings 17 will be closed by the bushing 48, so that the full supply of steam will pass unobstructed through the steam valve seat 18. At the same time that the operating lever 28 is moved to move the valve 5 away from the valve seat 18, the link 45 will be moved to the right by the operating lever 28, the link 45 moving the arm 42 to rotate the sleeve 38, and as the outer thread on the sleeve 38 ro-

tates on the inner thread on the sleeve 37, it will be raised to free the check valve 39. By again moving the operating lever to seat the steam valve 5 on the steam valve seat 18, the link 45 will again be moved by the operating lever to turn the sleeve 38 down and against the check valve, to hold the check valve 39 on the check valve seat 41. After the lock thumb nut 33 has been moved, the grip member 22 may be turned, when desired, to move the valve member 21 to close the lateral openings 17, so that, when desired, the limited supply of steam may be cut off when the injector is not in use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In combination with an injector having a check valve, a steam valve having an opening for permitting the passage of a limited supply of steam when the steam valve is in position to cut off the main steam supply, a member for holding the check valve on its seat, and means for operating the steam valve and the member simultaneously.

2. In a device of the class described, a steam valve seat, a steam valve commanding the seat and having a stem with an opening which extends through the side of the valve stem and also through the steam valve, and a valve member in the opening in the steam valve stem for commanding the opening in the side of the steam valve stem.

3. In combination with an injector having a check valve and a steam valve seat, a member for holding the check valve on its seat, a steam valve for coöperating with the steam valve seat and having a stem with an opening extending laterally through the valve stem and also through the valve, a thread in the opening in the valve stem, a valve member disposed in the opening in the valve stem and having a thread for meshing with the thread in the said opening, a lever connected with the steam valve stem for operating the steam valve, and means connecting the lever with the member for operating the latter.

4. In combination with an injector having a steam valve seat and an overflow, a sleeve having an inner thread, a sleeve having an

outer thread meshing with the inner thread, a check valve connected with the overflow, and having a valve stem disposed in the second-mentioned sleeve, one of the sleeves being adapted to engage the check valve, when it is turned, a steam valve commanding the steam valve seat, and having a stem with an opening which extends through the side of the valve stem, and also through the steam valve, a valve member in the opening in the steam valve stem for commanding the lateral opening in the side of the steam valve stem, and means for operating the steam valve connected with the steam valve stem for operating the steam valve and for operating the last-mentioned sleeve simultaneously.

5. In combination with an injector having a steam valve seat and an overflow, a sleeve having an inner thread, a sleeve having an outer thread meshing with the inner thread, a check valve connected with the overflow, and having a valve stem disposed in the second-mentioned sleeve, one of the sleeves being adapted to engage the check valve, when it is turned, a steam valve commanding the steam valve seat, and having a stem with an opening which extends through the side of the valve stem, and also through the steam valve, a valve member in the opening in the steam valve stem for commanding the lateral opening in the side of the steam valve stem, a lever for moving the steam valve stem to operate the steam valve, an arm on the last-mentioned sleeve, and a link connecting the arm with the lever.

6. In combination with an injector having a steam valve seat, a steam valve commanding the seat, and having a stem with an opening, which extends through the side of the valve stem and also through the steam valve, and a valve member in the opening in the steam valve stem, for commanding the opening in the side of the steam valve stem.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HOMER EMERSON HASKELL.

Witnesses:

F. F. McCULLOUGH,
WM. MARTIN.