

(No Model.)

E. WATTS.
STEAM HEATING APPARATUS.

No. 521,093.

Patented June 5, 1894.

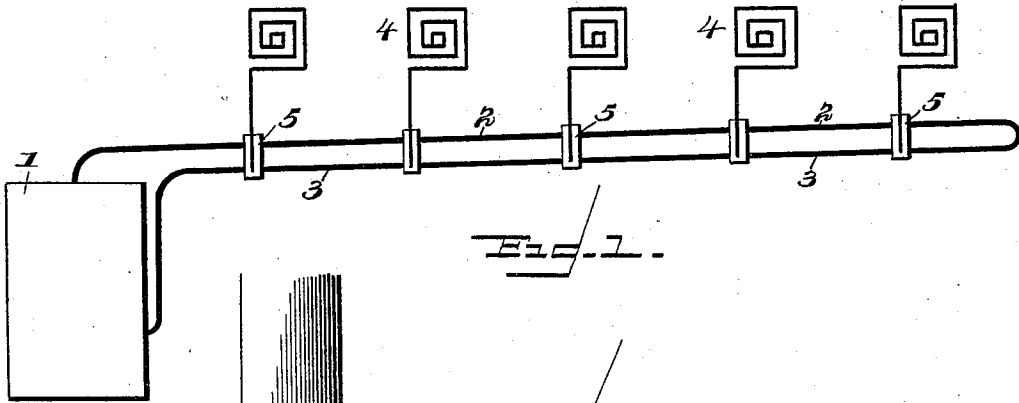


Fig. 1.

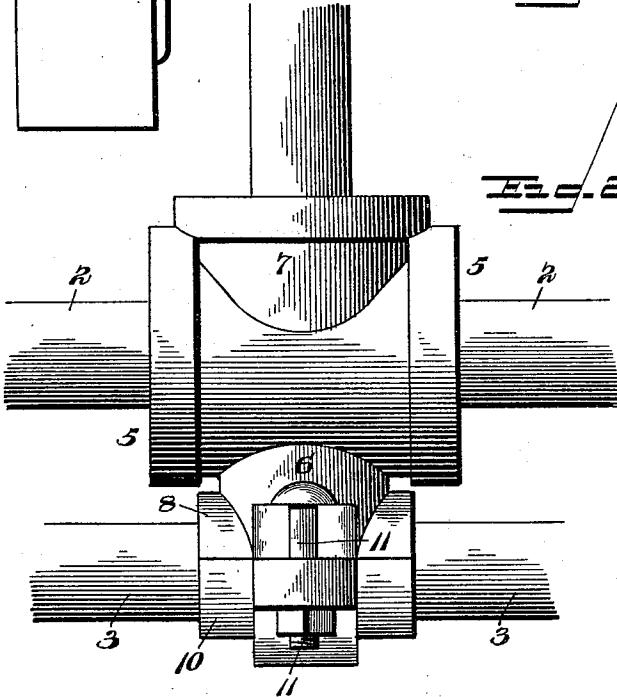


Fig. 2.

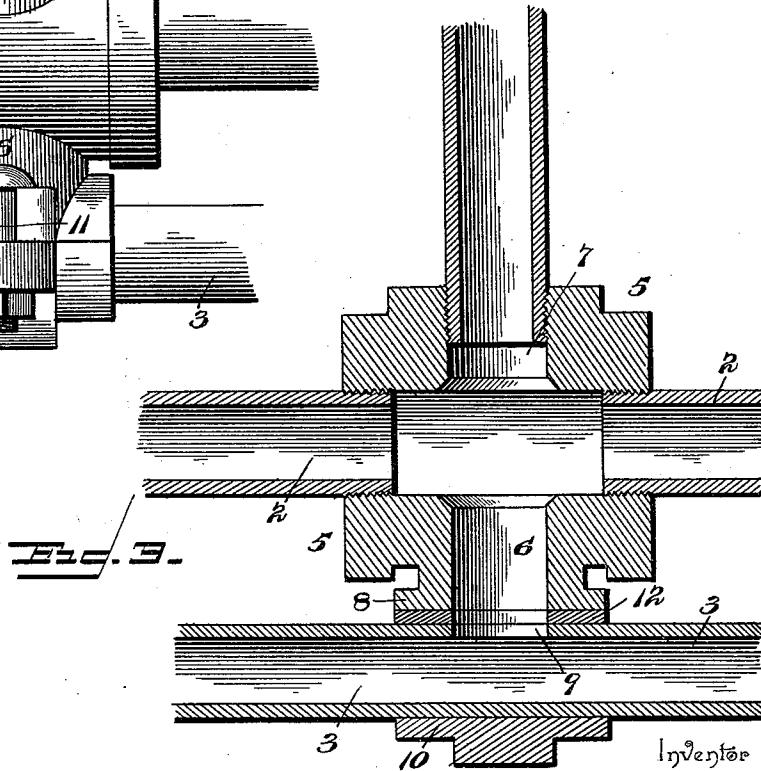


Fig. 3.

Inventor

Elias Watts

Witnesses
C. H. Stewart
[Signature]

By his Attorneys.

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

ELIAS WATTS, OF KEYPORT, NEW JERSEY.

STEAM HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 521,093, dated June 5, 1894.

Application filed November 20, 1893. Serial No. 491,467. (No model.)

To all whom it may concern:

Be it known that I, ELIAS WATTS, a citizen of the United States, residing at Keyport, in the county of Monmouth and State of New Jersey, have invented a new and useful Steam Heating Apparatus, of which the following is a specification.

My invention relates to steam heating apparatus, and has for its object to provide improved means whereby the water of condensation from steam radiators may be returned to the boiler by a direct route and without following or flowing through the steam-supply pipe, in order to avoid the cooling of said supply pipe, and in order to return the water to the boiler before it has reached a temperature sufficiently low to detract materially from the temperature of the boiler.

A further object of my invention is to provide means for arranging the steam-supply pipe and the waste-water or return pipe parallel with each other throughout their lengths to avoid placing such pipes at widely different elevations, and to enable the sections of the two pipes, to be connected by common couplings and unions.

A further object of my invention is to so arrange the steam-supply and return pipes that the radiated heat from the former may be utilized to maintain a high temperature of the latter to avoid unnecessary cooling of the water of condensation in its passage to the boiler.

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

In the drawings: Figure 1 is a diagrammatic view of a steam-heating system embodying my invention. Fig. 2 is a side view of a coupling employed in connection with my improved heating system. Fig. 3 is a longitudinal section of the coupling.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

Referring to Fig. 1 of the drawings, 1 represents a boiler, 2 a steam-supply pipe, which is inclined upward as it recedes from the boiler, 3 a return or waste-water pipe, which is arranged parallel with the steam-supply pipe and is connected with the latter at the

end most remote from the boiler, and 4 the radiators which are connected to the steam-supply pipe.

5 represents a coupling, which is employed at each point of connection of a radiator. It is a four-way coupling, of which the aligned lateral arms are connected to the parts or sections of the steam-supply pipe, and the upper arm is connected directly to the radiator. The lower arm 6 of the coupling, which is aligned with the upper or radiator arm 7 thereof, terminates in a seat 8, which is arranged parallel with the horizontal or lateral arms of the coupling and is adapted to receive the return or waste-water pipe 3. The return pipe is provided, in alignment with the bore of the arm 6, with an opening 9, which is thus disposed vertically beneath the bore of the upper or radiator arm of the coupling. A cap 10 is secured to the seat by means of bolts 11, to fasten the return pipe in place, and a suitable gasket 12, of rubber or other material, is arranged in the seat to form a steamtight joint between the return pipe and the coupling.

By the form of coupling above described I am enabled to employ a continuous return pipe, the sections of which are connected at their terminals without reference to the points at which such connections occur, and thereby avoid the use of unions in connection with the couplings above described; but it will be understood that, when preferable, unions of an ordinary or well-known construction may be employed for the attachment of the extremities of the return-pipe sections.

From the above description it will be understood that the water of condensation passes through the steam-supply pipe and finds its way to the return or waste-water pipe, and thence passes directly and by the shortest route to the boiler. Thus, the water instead of following the bore of the steam-supply pipe crosses the same transversely, and flowing into the return pipe relieves the supply pipe from obstruction. Furthermore, by arranging the supply and return pipes parallel with each other I am enabled to utilize a common opening in extending the pipes through a wall or partition, and in providing the pipes with a clothing or wrapping the two may be wrapped together, thus avoiding individual wrappings

and enabling the radiated heat from the supply pipe to assist in maintaining a high temperature in the return pipe.

5 The fact that there is open communication between the steam-supply and the return-pipes allows the steam in the former to enter the latter, but the interior of the former is relieved of the obstruction offered by the return water upon condensation.

10 Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

15 Having described my invention, what I claim is—

1. The combination with a steam-supply pipe, of a coupling having an upper arm for the attachment of a radiator and a lower arm
20 terminating in a seat which is provided with a removable cap, and a return or waste-water pipe fitting in said seat and provided with an opening registering with the bore of said lower arm, substantially as specified.

25 2. In a steam-heating system, the combina-

tion with a steam-supply pipe inclined upward from the supply-boiler, and a juxtaposed parallel return or waste-water pipe, of a coupling having lateral registering arms for attachment to the adjacent terminals of the sections
30 of the steam-supply pipe, an upper arm for attachment to a radiator, and a lower arm in alignment with said upper arm and terminating at its lower end in a concaved seat for the reception of said return pipe, a gasket ar-
35 ranged upon the seat in contact with said return pipe, the latter being provided with an opening registering with the bore of the lower arm of the coupling, a removable cap secured to the lower arm of the coupling and embrac-
40 ing the lower side of said return pipe, and means for detachably securing said cap to the coupling, substantially as specified.

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

ELIAS WATTS.

Witnesses:

JOHN H. SIGGERS,

E. G. SIGGERS.