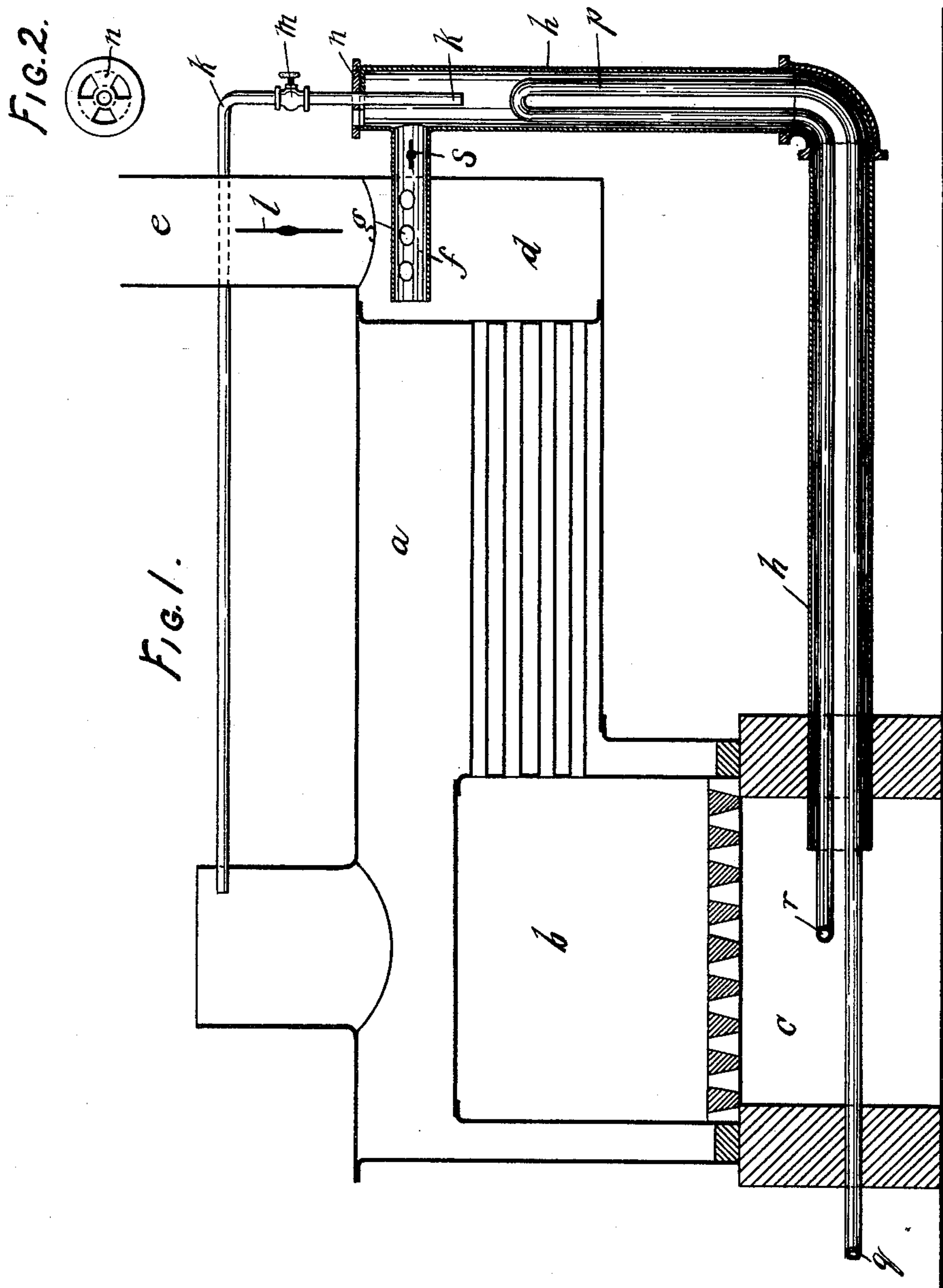


(No Model.)

J. G. MOHN & A. YELLES.
SMOKE CONSUMING APPARATUS.

No. 407,026.

Patented July 16, 1889.



WITNESSES

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JOHN G. MOHN AND AARON YELLES, OF READING, PENNSYLVANIA.

SMOKE-CONSUMING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 407,026, dated July 16, 1889.

Application filed May 10, 1889. Serial No. 310,236. (No model.)

To all whom it may concern:

Be it known that we, JOHN G. MOHN and AARON YELLES, citizens of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Smoke-Consuming Attachments; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an apparatus the object of which is to convey a portion of the products of combustion from the stack or smoke-chamber to the ash-pit by the action of a steam-jet in such a manner that any desired proportion of fresh air may be combined therewith.

A further object is to utilize the pipe-connection between the stack and ash-pit as a water-heater by causing the boiler-supply to circulate through a system of piping inclosed therein.

The invention consists in the general arrangement of parts, as herein set forth.

Figure 1 is a sectional view of an ordinary form of boiler adapted for stationary purposes and provided with my improved apparatus. Fig. 2 is plan view of the cap for regulating the fresh-air inlet.

a represents the waist of the boiler; b , the fire-box; c , the ash-pit; d , the smoke-chamber, and e the stack. A pipe f , provided with openings g , enters the smoke-chamber, and is arranged so as not to interfere with the passage of the gases from the tubes to the stack. This pipe f enters another pipe h , which runs at right angles to it and terminates eventually in the ash-pit. The end of pipe h above its junction with f is closed by a movable plate n , through the center of which a small steam-pipe k , which is connected with the steam-dome of the boiler, enters a proper distance into the pipe h . The plate n is preferably arranged, as shown in Fig. 2, so as to con-

veniently regulate the size of the opening in the top of the pipe h by turning it, as desired. A damper s is placed in the pipe f , as shown, so as to regulate or entirely cut off communication between the pipe h and the smoke-chamber, and in connection with the usual damper l in the stack places the draft completely under control, so that whether a new fire is to be built or more or less rapid combustion maintained the apparatus may be properly regulated. Fresh air alone may be forced under the grate by closing the damper s and opening the register-plate n and the valve m of the steam-pipe k . By reducing the fresh-air inlet and opening the damper s the heated gases from the smoke-chamber are drawn into the pipe h , where, after mixing with the fresh air in any desired proportion, they are returned through the grate to the fire-box, where the gases are more completely consumed and the draft at the same time accelerated.

We have arranged to further utilize the highly-heated gases passing through the pipe h , in combination with the steam-jet, by converting said pipe h into a water-heater. To accomplish this in the simplest manner, we prefer to coil the water-pipe p within the pipe h in such manner that the hot gases and steam are in contact with it until they enter the ash-pit, where the ends r and q of this pipe p branch off, respectively, to the water-supply and the boiler; or, if desired, this pipe may by extending it be used for housewarming purposes also.

We are aware that smoke-consuming apparatus has been heretofore employed, and do not broadly claim this feature. It is evident, however, that the special arrangement described may be considerably modified without departing from the spirit of our invention, and we do not, therefore, limit ourselves to the exact construction set forth; but

What we claim is—

1. The combination, with a steam-boiler, of a pipe f , communicating with the smoke-flue and also with a pipe h , arranged at right angles to said pipe f and extending into the ash-pit, a steam-jet pipe k , extending through an

adjustable cover *n* into said pipe *h*, and a damper *s*, all arranged substantially as set forth.

2. In combination with a steam-boiler, the
5 pipes *f*, *h*, and *k*, arranged substantially as described, said pipe *h* inclosing a water-circulating conduit, substantially as and for the purpose set forth.

3. The combination, with a steam-boiler, of
10 smoke-pipe *f*, blast-pipe *h*, steam-jet pipe *k*,

water-pipe *p*, and dampers *l* and *s*, and adjustable cover *n*, all arranged and adapted to operate substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN G. MOHN.
AARON YELLES.

Witnesses:

JAS. E. REDCAY,
JOHN M. FIES.