

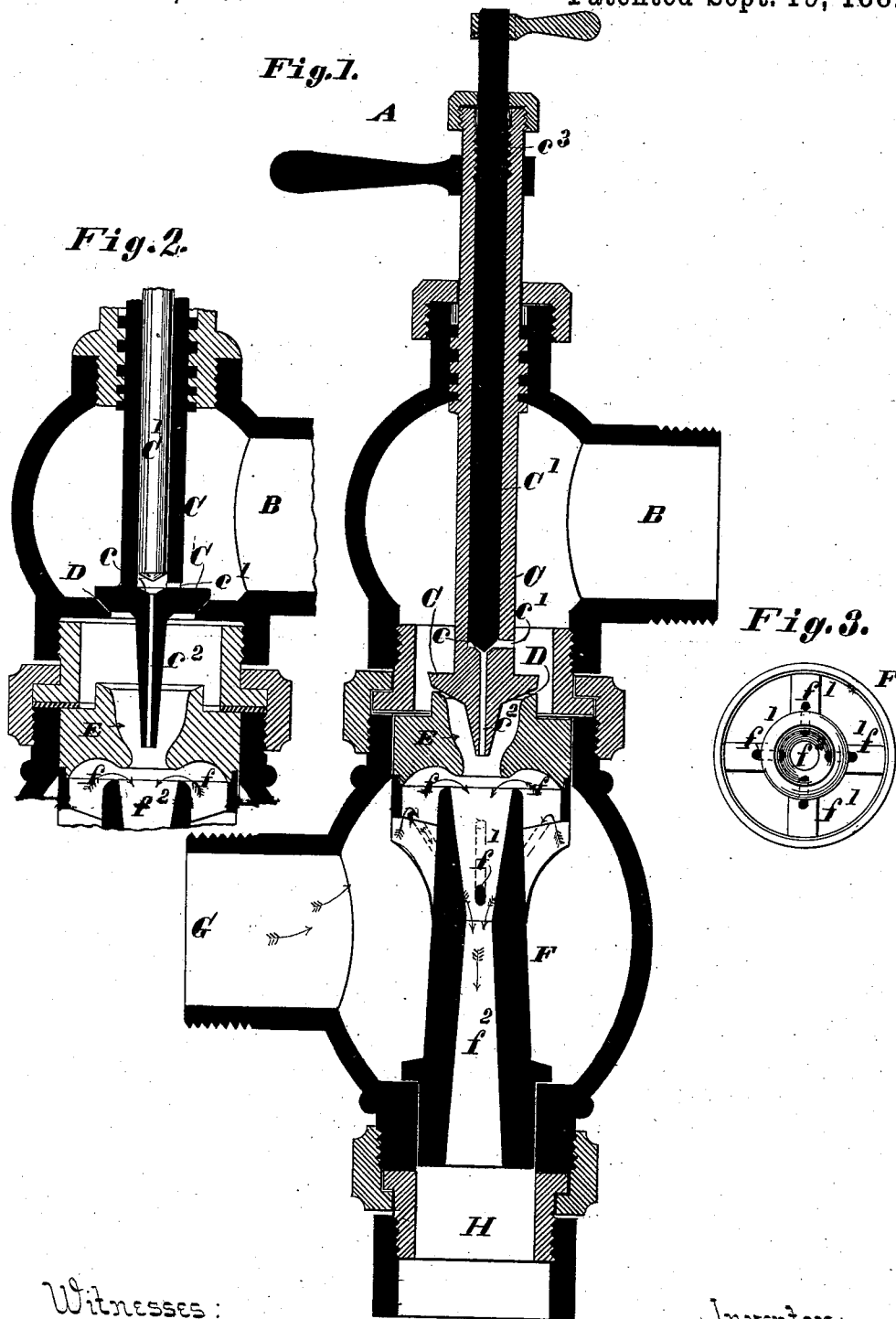
(Model.)

M. D. STRICKLAND.

INJECTOR.

No. 264,489.

Patented Sept. 19, 1882.



Witnesses:
Charles Pickles
John N. Straat

Inventor:
Morgan D. Strickland
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Attorney.

UNITED STATES PATENT OFFICE.

MORGAN D. STRICKLAND, OF ST. LOUIS, MISSOURI.

INJECTOR.

SPECIFICATION forming part of Letters Patent No. 264,489, dated September 19, 1882.

Application filed March 16, 1882. (Model.)

To all whom it may concern:

Be it known that I, MORGAN D. STRICKLAND, of St. Louis, Missouri, have made a new and useful Improvement in Injectors, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a longitudinal section of the improved injector; Fig. 2, a longitudinal section of a portion of the injector, showing the inner steam-valve lifted. This view also illustrates a modification of the construction in respect to the location of the seat of the steam-valve. Fig. 3 is a top view of the combining-tube.

The same letters denote the same parts.

I have heretofore (September 24, 1878, and July 29, 1879) had Letters Patent of the United States granted to me for improvements in injectors.

The present invention is an improvement upon the construction referred to. It relates partly to the means for more effectually condensing the steam entering the combining-tube.

Referring to the drawings, A represents the improved injector, having the steam-inlet B, the steam-valve C, the valve-seat D, the steam-tube E, the combining-tube F, the water-inlet G, and the water-outlet H, all substantially as in the former injectors, saving the steam-tube E and the combining-tube F, which are as follows: The steam-tube, in place of having a nozzle projecting below the body of the tube, is formed substantially without one, and the combining-tube, in addition to the usual orifice, f , at its upper end, has one or more series, f' , of auxiliary water-passages. The object of thus constructing the steam-tube is to prevent the water entering through the inlet G from becoming heated by coming too closely into the vicinity of the steam before entering the combining-tube. This difficulty is apt to occur when a nozzle depends from the steam-tube,

as thereby a chamber is formed around the nozzle in which the water circulates and becomes heated. In the present construction the intention is to conduct the water as directly as is practicable to the combining-tube as well as the steam, and not to let the two come either directly or indirectly in contact until the mouth of the combining-tube is reached. Even then the water is apt to be too highly heated. Accordingly the passages $f' f'$ are brought into use. They serve to admit the water into the combining-tube at other points than at the top thereof. The passages f' incline downward or toward the direction in which the steam is moving, passing through the shell of the tube F and entering the perforation f^2 in the latter, one or more series of passages, entering the perforation f^2 at various points, can be used. The effect of the construction is to thoroughly condense the steam and to increase the efficiency of the injector.

The main valve C is preferably perforated longitudinally to receive an inner valve, C' , which seats at c . The main valve also has a passage, c' , admitting the steam when the valve C' is lifted to and past the seat c , and thence through a passage, c^2 , into the tube E. On lifting the valve C' , which is effected by unscrewing at c^3 the valve in the outer valve, C, a fine jet of steam is admitted into the tube E, operating to set the injector in operation, after which the main valve C is lifted in the usual manner and with the usual effect.

I claim—

In an injector, the combination of the steam-tube E, made, as described, without a nozzle, and the combining-tube F, having the auxiliary passages $f' f'$, substantially as described, and for the purpose set forth.

MORGAN D. STRICKLAND.

Witnesses:

C. D. MOODY,
CHARLES PICKLES.