

(No Model.)

J. REID.
HYDROCARBON BURNER.

No. 388,718.

Patented Aug. 28, 1888.

FIG - II -

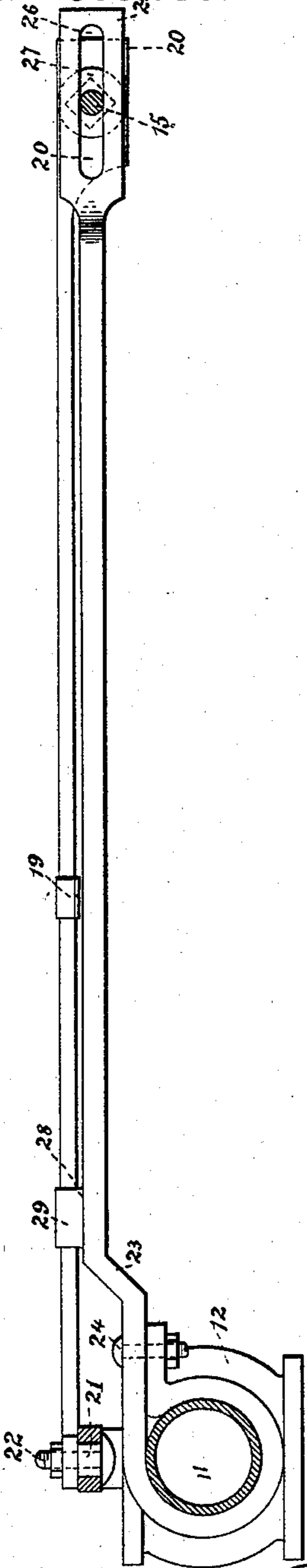
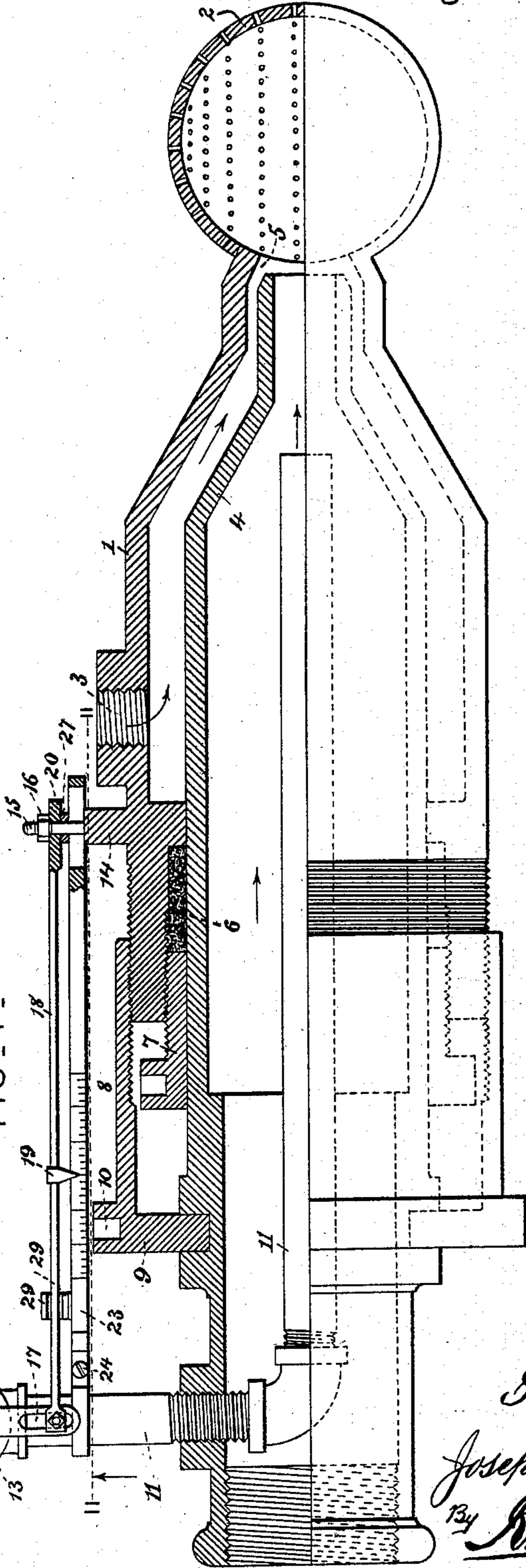


FIG - I -



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HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 388,718, dated August 28, 1888.

Application filed April 18, 1888. Serial No. 271,013. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH REID, a citizen of the United States, residing at Oil City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a full, clear, and exact specification.

My invention relates more particularly to improvements in injector-burners; and it has for its object to provide novel and effective mechanism by which the admission of the oil will be regulated in proportion to the admission of the steam into the combustion-chamber or other place of consumption, and by which the amount of oil passing into the burner or being consumed per hour or other given period will be indicated.

With these ends in view my invention consists, essentially, in connecting the reciprocating nozzle or portion which regulates the exit for steam of the injector of the burner with the cock or valve which governs the admission of the oil, whereby when the said reciprocating nozzle is operated the oil-cock will also be opened or closed, or the amount of oil admitted per given time will be regulated in proportion to the amount of steam being injected during the same space of time, and in providing an index-hand adapted to be operated by the movement of the parts, as above stated, which indicates upon a suitable scale the amount of oil being admitted.

Referring to the accompanying drawings, which form a part of this application, Figure I is a side elevation, partly in section, of an injector-burner, showing my improved device applied thereto. Fig. II is an enlarged detail sectional view on the line II II, Fig. I.

1 is the reciprocating portion or nozzle of the injector, carrying the combustion-chamber 2 at its mouth, and having the port 3 for the admission of steam. This portion 1 has the usual conical or funnel-shaped mouth, which fits over the conical end of the interior member or nozzle, 4, and it will be understood that when this portion 1 is reciprocated the opening 5 between its mouth and that of the nozzle 4 will be varied, and thus regulate the stream of steam issuing therefrom. The rear end of the reciprocating nozzle 1 is screw-threaded,

and is provided with a suitable packing, 6, and "stuff-nut" 7, for preventing the escape of steam, and the fixed nozzle 4 is provided with an internally-screw-threaded collar, 8, which has a flange, 9, set in a peripheral groove in said nozzle 4 in the customary manner. This collar 8 is provided with a wrench-socket, 10, and is adapted to engage the screw-threaded end of the nozzle 1, and when turned reciprocates the latter in the desired manner.

11 is the oil-pipe, which enters the side of the nozzle 4 and extends parallel therewith on the interior, and is provided in its outer portion with a cock, 12, which is operated by a lever, 13.

Rigidly fixed to the reciprocating nozzle 1 is a lug, 14, which has an axial screw-threaded pin, 15, provided with a nut, 16, and the lever 13 of the oil-cock is provided with a longitudinal slot, 17.

18 is the connecting-rod which carries the index-hand 19, and is provided at one end with a broadened area or plate, 20, having a perforation, through which the pin 15 is inserted, and at the other end with an anti-friction roller, 21, held in the slot 17 of the oil-cock lever by means of a bolt, 22, passing there-through and through the rod 18. Thus it will be seen that the oil-cock and steam-regulator are connected together, and therefore compelled to work in unison.

The graduated scale consists of a strip or rod, 23, which is passed around the oil-pipe 11 and riveted to itself at 24, as shown. At the other end of this scale is a plate or flat portion, 25, which is twisted or otherwise formed at right angles to the face of the scale, so as to provide a flat bearing-surface for resting upon the lug 14. This flat portion is also provided with a slot, 26, in which the pin 15 travels when the nozzle 1 is reciprocated. The plates 20 and 25 are held at the desired distance asunder by means of a washer, 27, and the scale 23 is bent upward at one end, as shown, for the purpose of bringing it parallel with the rod 18.

To the one side of the rod 23 is formed a guide, 28, which has two upwardly-projecting fingers or plates, 29, situated one on each side of the rod 18, whereby the latter is guided and maintained parallel with the scale. After the

parts have been put together and tested the rod 23 is marked with suitable graduations to indicate the quantity of oil passing into the burner per any desired space of time.

5 Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination, with the nozzle adapted to reciprocate for regulating the admission of steam, and a pipe having the valve for governing the admission of oil, of a scale and a rod connected to said nozzle and valve and carrying an index-hand, as set forth.

15 2. The combination, with the nozzle capable of reciprocating, and the oil-pipe having a cock, of a lever for operating said cock, a lug on said nozzle, a rod connecting said lever and lug, a fixed strip or rod, 23, and a scale and index-hand carried by said strip 23 and rod, respectively, as set forth.

20 3. The combination, with the nozzle 1, having a lug thereon, and the oil-pipe having a cock therein, of a lever for operating said cock, and two approximately parallel rods having a scale and index-hand, respectively, the one of which rods being secured to said oil-pipe and the other to said lever and lug, substantially as set forth.

25 4. In a hydrocarbon-burner, the combination, with the nozzle 1, adapted to reciprocate

for regulating the admission of the steam, and the oil-pipe 11, having a cock, of a lever having a slot for operating said cock, a lug on said nozzle, a pin projecting from said lug, the rod 18, having a perforation at one end, fitting 35 over said pin, an anti-friction roller journaled to the other end of said rod and working in said slotted lever, the rod or strip 23, secured to said oil-pipe and having a slotted end fitting over said pin, and an index-hand and scale carried by said rods 18 and 23, as set forth. 40

5. In a hydrocarbon-burner, the combination, with the nozzle 1, the oil-pipe 11, having a cock, and a lever, 13, for operating said cock, of the lug 14 on the nozzle 1, having the pin 45 15, provided with a nut, the rod 18, secured to lever 13 and having the index-hand thereon, and perforated plate 20, fitting over said pin, the rod or strip 23, having a scale thereon, riveted around said oil-pipe, and having a 50 plate at right angles to its face, provided with a slot, through which said pin passes, one of said rods being bent to make it parallel with the other, and a washer between said rods, as set forth.

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Witnesses:

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