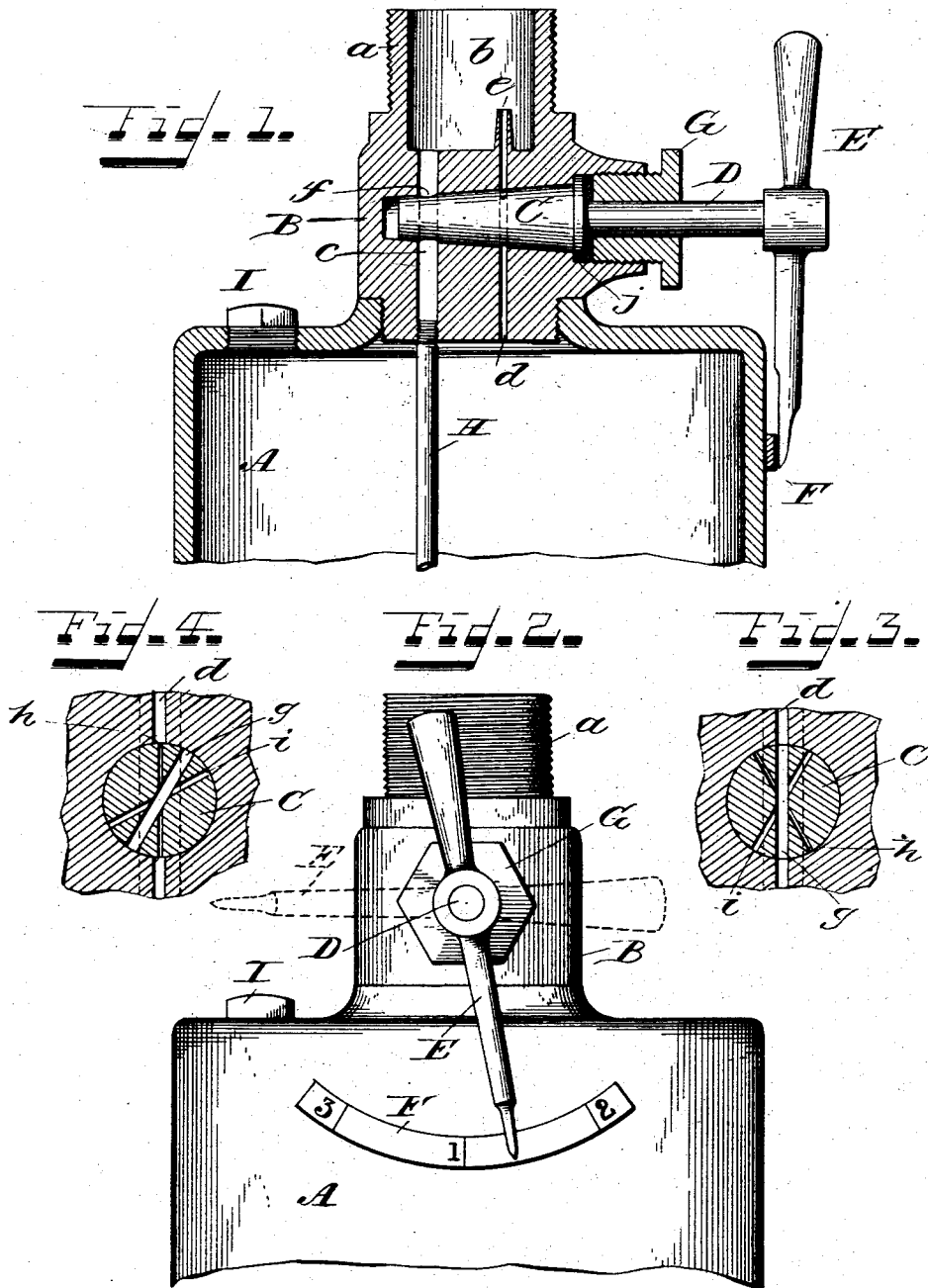


(No Model.)

J. V. MOTTER.  
AUTOMATIC FEEDER TO PREVENT SCALE.

No. 525,504.

Patented Sept. 4, 1894.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC FEEDER TO PREVENT SCALE.

SPECIFICATION forming part of Letters Patent No. 525,504, dated September 4, 1894.

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*To all whom it may concern:*

Be it known that I, JACOB V. MOTTER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Automatic Feeders to Prevent Scale, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to that class of apparatus for automatically feeding to boilers a scale preventing liquid, usually kerosene or a liquid compound lighter than water, and it has for its object the improved and simplified construction of such apparatus.

The novelty of my invention will be hereinafter set forth and specifically pointed out in the claims.

In the accompanying drawings:—Figure 1, is a central sectional elevation of the upper part of an apparatus embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged sectional view through the scale liquid vents of Fig. 1, showing the valve in one position. Fig. 4, is a corresponding view showing the valve in another position.

The same letters of reference are used to indicate identical parts in all the figures.

A represents the metal vessel or cup for containing the scale-liquid, usually kerosene or a compound lighter than water. Into the top of the cup is screwed the attaching neck B whose upper end is exteriorly threaded at *a* so that it can be screwed into the under side of the pipe, not shown, by which the boiler or boilers are fed with water in the usual or any suitable manner. The attaching neck, while mostly solid, has a bore in its upper end to form a chamber *b*, and extending from the bottom of the chamber down into the cup through the neck are two passages *c*, *d*, of which the former is the largest and is to deliver water from the feed pipe and chamber *b* into the cup, and the latter to deliver the scale liquid from the cup up through a nipple *e* projecting into the chamber *b*. There is a transverse bore through the solid part of the neck intersecting the passages *c*, *d* into which bore is fitted a plug valve C having a projecting stem D on which is fast an index han-

dle E whose pointed end can travel over an index F on the side of the cup. The valve is properly packed and held in place by a stuffing box G and it has through it a port or vent *f* in line with the passage *c* and another port or vent *g* in line with the passage *d*. I prefer to construct the vent *g* of the same sized bore as the passage *d* and to bisect it by two other vents or ports *h*, *i* in line with the passage *d* but both smaller in bore and the former *h* smaller than the latter *i* and each of the three *g*, *h* and *i* capable of registering with the passage *d* upon properly turning the valve C. Extending down from the bottom of the passage *c* is a pipe H whose lower end extends to the bottom of the cup and is permanently trapped in water to prevent the escape of scale-liquid up through the same and the passage *c*. The top of the cup is provided with a filling hole closed by a screw plug I.

From the above construction and by reference to Fig. 3, it will be seen that when the valve C is so turned that the vents *f* and *g* are vertical and register with the passages *c* and *d* the greatest amount of water passes down through the passage *c* and the greatest amount of scale-liquid is floated out and passes up through the passage *d* and nipple *e* and on into the feed pipe whence it is carried by the feed water to the boiler. Under this adjustment the index handle is vertical and points to the figure 1 on the index F. Upon turning the valve so that the index handle points to the figure 2 the vent *i* will be caused to register with the passage *d* and the valve at the vent *f* will correspondingly close the passage *c* so as to admit only sufficient water to feed out the scale-liquid through the restricted vent *i*. Again upon turning the valve so that the index handle points to the figure 3 the vent *h* will, as seen in Fig. 4, register with the passage *d* and the valve at the vent *f* will admit just sufficient water to accommodate the feed of scale-liquid through the vent *h*. In this way the desired rate of feed can be regulated as desired and the necessity of a sight feed is entirely avoided. By turning the index handle to a horizontal position, as shown by the dotted lines, Fig. 2, or to a point beyond the index on either side all of the vents are closed and the feed of scale-liquid stopped. In addition to dispensing with the

sight feed glass which in locomotives is sure to freeze in cold weather when feed is cut off, I obtain an advantage by the short connecting neck B with its chamber B so near the heated feed water that there is no liability of freezing even on locomotives when the feed is stopped.

Having thus fully described my invention, I claim—

10 1. In apparatus of the character described, the combination with the cup, having through its top the water and scale-liquid passages communicating with the feed pipe, of the single plug valve for said passages having  
15 through it a vent for the water passages and

a plurality of varying sized vents for the scale-liquid passage, substantially as described.

2. In apparatus of the character described, the combination of the cup A having on its top the short attaching neck B through which  
20 extend the water and scale-liquid passages *c, d*, the valve C provided with the vent *f* for the passage *c* and the vents *g h i* for the passage *d*, the index handle E for the valve and the index F on the side of the cup, substan-  
25 tially as described.

JACOB V. MOTTER.

Witnesses:

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