

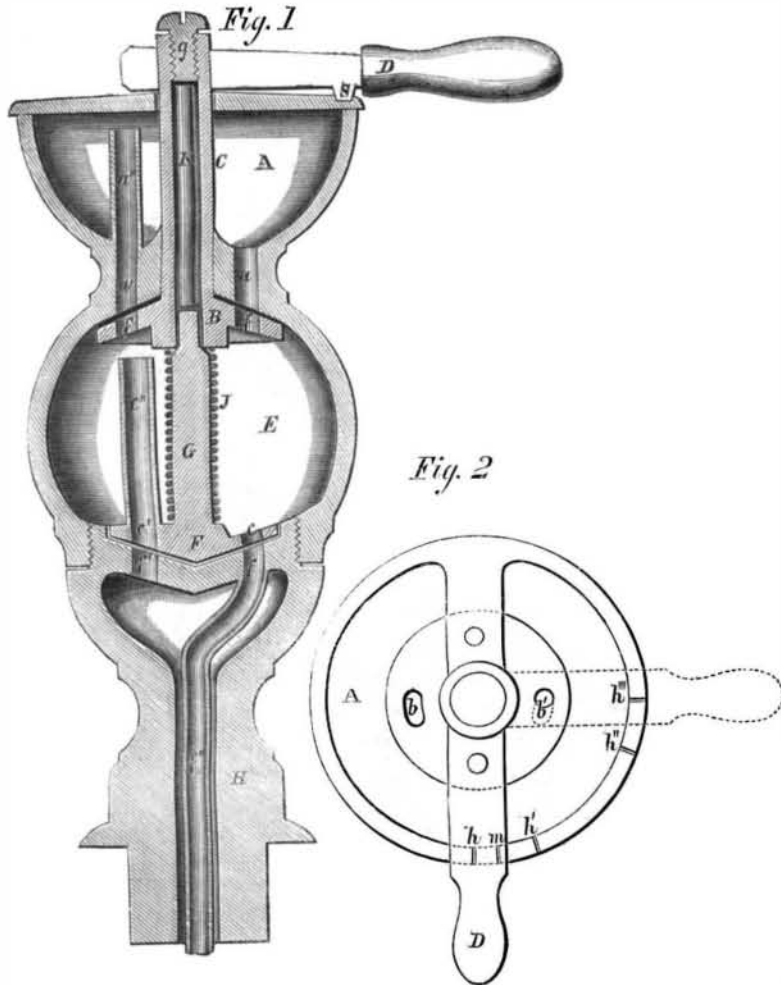
**Improved Lubricator.**

Thorough lubrication of the valves and pistons of steam engines is acknowledged as a necessity by most engineers. For the accomplishment of that object various devices have been employed, viz: the simple cup with a single cock below it; the globe with two and sometimes three cocks; the pump to force the oil into the cylinder, and others more or less complicated in construction and operation called "self-feeding," &c. The merits and demerits of these various devices are well known by those who employ them. Without disparaging any, it is confidently believed that the following engraving and description illustrates a lubricator that will prove equal if not superior to all predecessors.

It is simple and scientific in construction and ar-

and B. H is the neck by which the apparatus is secured to the steam cylinder; *h*, *h1*, *h2*, *h3*, are notches on the top of the rim of the basin; S is a catch on the lever, D, which keeps the said lever in the desired position.

The operation is as follows:—The receiving basin, A, being filled with oil, the lever, D, is moved till it reaches the position indicated by the dotted lines in Fig. 2; the oil will flow down through the aperture, *a*, into the reservoir, E; the air or steam escaping from the latter through the tube, *a2*, without interfering with the descending oil. When it is desired to introduce the oil into the steam cylinder, the lever, D, is returned to the position shown in Figs. 1 and 2, which closes the apertures, *a* and *a'*, above the reservoir, and opens *c f* and *c' f'* below it. The steam will



**DUNHAM'S PATENT LUBRICATOR.**

angement, easily worked and instantaneous in its operation, and belongs to the class of lubricators which works with the same facility under high steam pressure that it would under atmospheric pressure alone. A is the open basin at the top in which the oil is first placed; the bottom of said basin has two apertures, *a a*, on opposite sides from the letter *f*, where a tube, *a2*, rises to the top of the basin. B is a disk valve seated beneath the said basin, A, and perforated to correspond with the apertures, *a a'*. C is a stem which rises through the basin, A, sufficiently to receive the lever, D, for the purpose of rotating the valve; E is the internal reservoir, the bottom of which has also two apertures, *c c'*, which constitute the seat of the valve, F; F is a disk valve seated at the bottom of the said reservoir, and having apertures, *f f'*, at opposite sides, corresponding with the apertures, *c c*, from the letter *f'*, where a tube rises to nearly the top of the said reservoir. G is a stem of the valve, F, which connects it with B, the top of which is flattened to fit into a recess of similar shape in the bottom of B, by means of which both valves revolve simultaneously; *f2* is a bent tube fitted to the bottom of the reservoir, to conduct the oil from the said reservoir to the cylinder below; K is a small rod that passes through (or nearly so) the stem of the valve, B; *g* is a screw pressing upon K, which, resting upon G, presses the valve, F, firmly to its seat, while the valve, B, is raised, and kept firmly to its seat also. J is a strong spiral spring, compressed so as to exactly fill the space on the stem, G, between the valves, F

now rush up through the neck, H, on the outside of the tube, *f2*, and through the passages *f c*, *c2*, into the reservoir, instantly producing a pressure, in the reservoir nearly equal to that in the cylinder. The oil will then run by gravity down through the aperture, *c f*, and the tube, *f2*, into the cylinder until the reservoir is empty, steam passing upward as before explained, to take the place of the oil. The apertures, *b'*, in valve B, shown at the top in Fig. 2, and *f'*, in the seat of valve, F, are elongated, so that when the catch, S on D, reaches notch *h2*, the steam will escape from the internal reservoir, through the tube, *a2*, and aperture *b*; moved forward till it rests in *h3*, the apertures, *a b*, are brought to correspond when the oil will descend. Reverse the lever till the catch rests in *h*; the aperture, *f*, being elongated, *f' c2* are brought to correspond before *e f*, consequently the steam will rush up through the tube, *c2*, and fill the space above the oil before the oil is allowed to descend. Now move the lever backward till the catch rests in *h*, and the operation is complete. This will introduce the whole quantity of oil immediately into the cylinder. To render it self-feeding, we have but to introduce other notches like *m*, between *h h*, to admit the oil more slowly, or even drop by drop, as the exigency of the case may demand.

This invention was patented through the Scientific American Patent Agency, Dec. 2, 1862. For further information address the inventor, O. H. Dunham, Hydrostatic Press Room, U. S. Treasury, Washington, D. C.

How a CROOKED KEEL AFFECTS A SHIP.—The London *Mechanic's Magazine* says in a recent issue:—"I shall now refer to Captain Broadhead's report of the trial in the *Princess Royal*. In this vessel, from some cause or other, which we only found out after she was docked, a difficulty was experienced in making her complete the circle to starboard. It arose from the crookedness of the keel, which had been put on out of the straight, so that she carried, under ordinary circumstances, a strong port helm, and she could not be got round in one way for some time; but at the trial by Captain Coles, and by humoring her, the circle was completed to starboard; that being done, it satisfactorily proved that the rudder acted perfectly; but the fault in steering arose from a malformation of the vessel. This was the opinion of the Government officers."

CHEAP CHEESE.—Near Rome, N. Y., is a cheese factory which manufactures at a cost of one cent per pound. The care of it requires only four hands. The milk is brought from the farms every morning, and the cheese divided among the proprietors in proportion to the number of gallons of milk furnished.

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