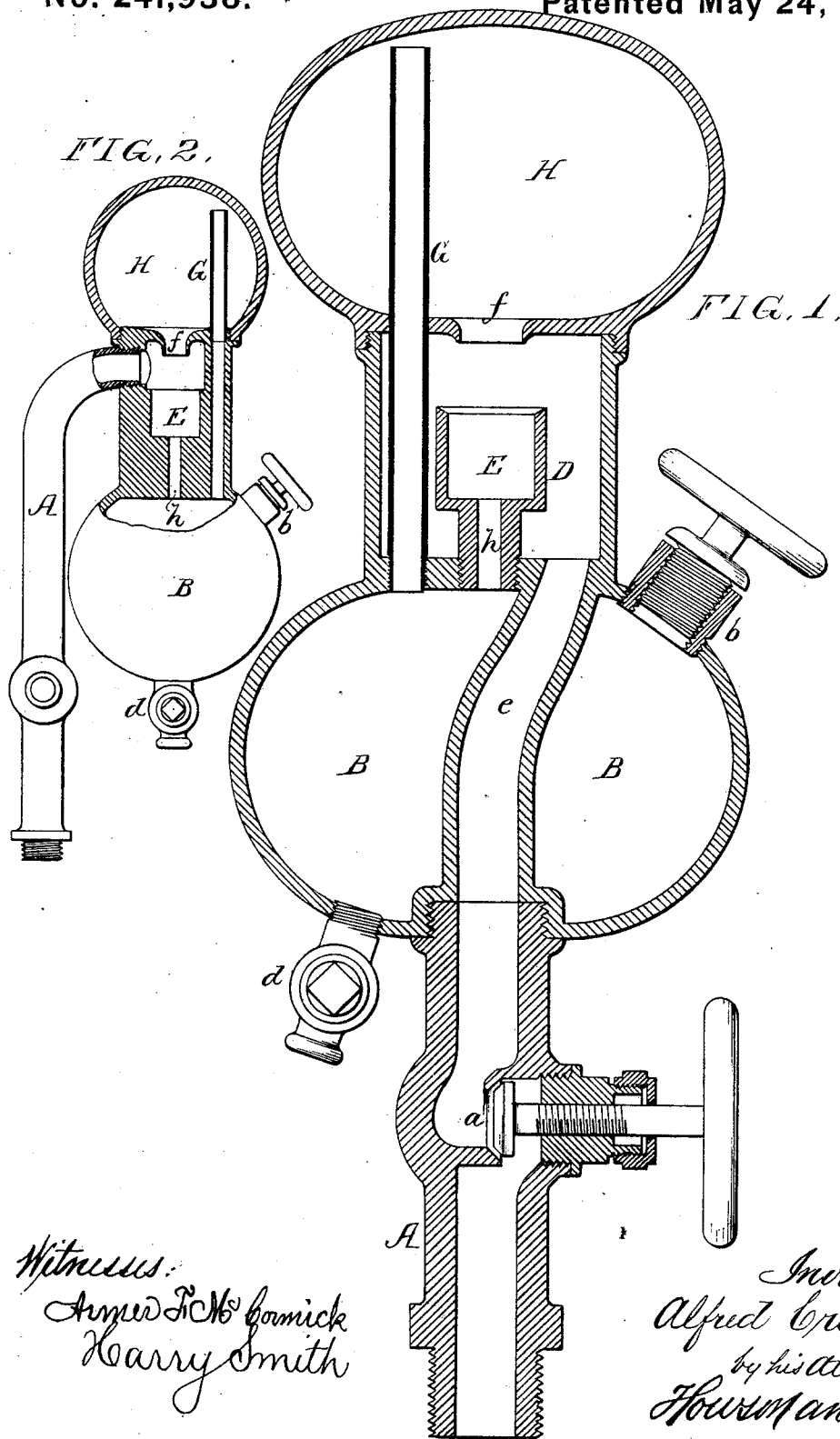


(No Model.)

A. CRAFT.
Lubricating Device for Steam Engines.

No. 241,936.

Patented May 24, 1881.



Witness:
Amos F. McCormick
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Inventor
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UNITED STATES PATENT OFFICE.

ALFRED CRAFT, OF NORRISTOWN, PENNSYLVANIA.

LUBRICATING DEVICE FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 241,936, dated May 24, 1881.

Application filed April 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, ALFRED CRAFT, a citizen of the United States, residing in Norristown, Montgomery county, Pennsylvania, have invented certain Improvements in Lubricating Devices for Steam-Engines, &c., of which the following is a specification.

My invention relates to the lubrication of the valves of steam-engines; and its main object is to so construct a lubricator or oil-cup that its action shall be dependent upon the opening and closing of the throttle-valve of the engine.

Figure 1 in the accompanying drawings represents an oil-cup by which my invention may be carried into effect, Fig. 2 being a modified form of oil-cup.

It will be seen hereinafter that the construction of the cup may be varied without losing its functions of automatically discharging oil into the chest and excluding it therefrom in obedience to the opening and closing of the throttle-valve.

In Fig. 1 the tubular stem A of the cup is threaded at its lower end for attachment to the steam-chest of the engine, and this stem is provided with a valve, *a*. To the upper end of the stem is attached an oil-reservoir, B, having a suitable outlet-opening, *b*, provided with a detachable plug, and having a discharge-cock, *d*. Above the reservoir B is a chamber, D, communicating directly with the tubular stem through a pipe or passage, *e*, which has no direct communication with the oil-reservoir B. Within the chamber D is another reservoir, E, which I will term the "receiver," and this has a direct communication with the oil-reservoir through a contracted passage, *h*. A vent pipe or passage, G, extends from the oil-reservoir nearly to the top of the condenser H, the latter having a central opening, *f*, immediately above the receiver E.

Oil having been poured into the reservoir B through the inlet *b*, and the latter having been closed by its screw-plug, the valve *a* is opened, thereby permitting steam from the chest of the engine, which we will suppose to be in motion, to pass into the chamber D and condenser H, where a partial condensation of steam takes place, the water of condensation falling into

the receiver E, taking its course through the contracted passage *h*, and finding its way to the bottom of the oil-reservoir, and thus raising the oil in the vent-tube G. This goes on until the receiver E is filled with water and the oil rises in the vent-tube to a level with the water in the said receiver E, after which no more water can find its way into the oil-reservoir, for water will not exchange places with or displace the oil in the contracted passage *h*; hence all further water of condensation must overflow into the chamber D, and must pass thence into the valve-chest of the engine. This will be the condition of affairs when the throttle-valve is open and the engine is in motion; but as soon as the throttle-valve is closed and the interior of the oil-cup is released from the pressure of steam (the engine still running) the water in the receiver E will be instantly converted into steam, the oil in the vent-tube G will fall, and oil will ascend through the contracted passage *h* into the receiver E and partly fill the same. When the throttle-valve is again opened steam will be admitted to the oil-cup, as before, condensation will take place in the chamber H, and water will fall into the receiver E, and, displacing the oil therein, will cause it to pass into the chamber D, and thence to the steam-chest. The receiver E will be filled with the water of condensation and the oil will rise in the pipe G to a corresponding level prior to a repetition of the above-described operations, when steam is again shut off.

The quantity of oil discharged on each closing of the throttle-valve can be regulated by properly proportioning the capacity of the receiver E in respect to that of the lower portion of the tube G.

The tube G serves two purposes: First, it causes the oil to maintain the same level as the water, and, second, it serves the purpose of a vent-tube for the oil-reservoir B, without which the pulsations of steam in the chest, due to the action of the valve in respect to the ports of the cylinder, would cause such action in the contracted passage *h* as to detract from the uniformity of the above-described action.

I claim as my invention—

1. An oil-cup in which the following elements are combined, namely: first, an oil-res-

ervoir; second, a condenser communicating with the steam-chest or steam pipe or space of a steam-engine; and, third, a receiver for the water of condensation, the said receiver
5 communicating with the oil-reservoir through a contracted passage, all substantially as set forth.

2. The combination, in an oil-cup, of the oil-reservoir, condenser, and receiver with the
10 vent-pipe G, as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED CRAFT.

Witnesses:

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WM. HAYWOOD.