

Coffee Pot.

Patented Jan. 25, 1859.



INVENTOR  
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# UNITED STATES PATENT OFFICE.

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## COFFEE-POT.

Specification forming part of Letters Patent No. 22,716, dated January 25, 1859; Reissued May 10, 1859, No. 713.

*To all whom it may concern:*

Be it known that I, W. H. ELLIOT, of Plattsburg, in the county of Clinton and State of New York, have invented a new and useful Improvement in Coffee-Pots; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon, similar letters of reference indicating the same part in each figure.

The nature of my invention consists in so constructing a condensing coffee-pot that the vapor may be prevented from escaping therefrom by means of a water joint, and in so arranging said water joint within the boiler and in connection with the condenser, that the condensed vapor shall first fall into the water joint and afterward into the boiler with the boiling coffee, and also, so that the water, in the water joint, may be poured out of the boiler with the coffee. And it further consists in placing a non conductor of heat between the water joint and the body of the condenser.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 is a perpendicular section of my improved coffee-pot. Fig. 2 is a plan of the condenser, showing within it, the still worm. Fig. 3 is a perpendicular section of a condenser, showing a different arrangement of the non conductor.

*a*, boiler portion of the coffee-pot, *b*, condenser, *c*, water-joint, *d*, spout, *e*, jacket of the condenser, *f*, tube, through which the vapor enters the still worm, *g*, tube which conducts the condensed vapor from the still worm into the water-joint, *h*, steam space within the still worm, *i*, height of the water in the water-joint, *m*, *m*, still worm, *n*, non conducting material, *o*, line of section of Fig. 1.

This coffee-pot is used exactly in the same manner that the common one is used, without a condenser, with the exception that, when the coffee is ready for boiling, instead of closing the top of the coffee-pot with the cover, the condenser must be placed upon the boiler, and filled with cold water. It should then be set over the

fire and boiled steadily for thirty minutes. If the fire be too hot, like any other coffee-pot, it will boil over, but this may be prevented in most cases by filling the boiler only about two thirds full before boiling. After the coffee has been boiled, as much boiling water as is required may be poured in without reference to the water-joint. It is well to pour a little water into the water-joint, before placing the condenser upon the boiler, though the condensed vapor would soon fill the joint, if this were neglected. After the coffee has been boiled sufficiently, the condenser may be removed from the boiler, and the cover placed upon it. It is now ready for use.

The vapor which is created by the boiling coffee passes up tube *f*, thence into the still worm *m*, and before it reaches the discharge tube *g*, the vapor is condensed to a liquid, and is discharged by tube *g*, into the water joint *c*, below the surface of the water, so that if any vapor were to be discharged from tube *g*, it would be condensed by the water in the water-joint.

Many advantages are gained by employing a water-joint for connecting a coffee boiler with its condenser. In the first place very little mechanical skill is necessary to construct a water-joint and when done even in the roughest manner, its operation is positively perfect as a joint, until a certain amount of pressure is produced, when it is safer that the vapor should escape than be confined. While on the other hand, it is a difficult matter to construct out of the material commonly used for coffee-pots, a steam-tight joint between the boiler and condenser, by fitting one into the other, and, though a joint might be so made at first a slight bruise would cause a leak, so as to render the condenser useless.

A coffee boiler must always be subject to sudden changes in the amount of heat applied to it, in consequence of the necessity of moving it from place to place, but from this cause, no fear need be entertained, as the water-joint is always ready to act as a safety valve against either explosion or collapse, which might result from suddenly creating or condensing vapor, and a boiler for this purpose must be so constructed, that the top



of the boiler, or feed opening, may readily be opened and closed again in the most perfect manner by persons possessing no mechanical skill, so that the several purposes of  
 5 filling the boiler, watching the process of boiling, cleaning the boiler, &c., may be accomplished without that difficulty and danger which always attends the opening of a  
 10 steam tight joint large enough to surround the feed opening of a coffee boiler, when constructed in the ordinary way, as experience has proven. By the arrangement of a water-joint around the feed opening of a  
 15 coffee boiler, these indispensable objects are attained, as it is only necessary to lift the cover or condenser off to open the boiler, and set it on again to cover the feed opening steam tight.

By enlarging the water-joint and covering  
 20 the feed opening by a cover in such a manner as to pass all the vapor through the water-joint, the condenser *b* might be dispensed with, as the water-joint, when so employed, would condense all the vapor, if it  
 25 were large enough.

The water-joint *c*, serves three important purposes: First, that of closing, in the most perfect manner, all the outlets for vapor from the boiler; second, it is thoroughly reliable as a safety valve; third, it acts as a  
 30 condenser on any vapor that may escape from the still worm.

By arranging the water-joint below the spout, two important purposes are served.  
 35 First, no vapor can pass out at the spout without first passing through the water-joint; second, the water from the joint may be poured out through the spout with the coffee. Another important purpose is served  
 40 by placing the water joint within the boiler. It has been found in use, that moving the boiler, while the coffee is boiling, from the fire to a table, or even, to change its position on the fire, creates a sudden condensation of  
 45 vapor within the boiler, and a consequent suction upon the water in the joint, which causes the water to flow from the joint into the boiler until the lower end of tube *g*, is exposed, when the air rushes in through the  
 50 still worm, to fill the vacuum. The constant discharge of liquid from the condenser, not only keeps the water-joint full, but causes it to overflow into the boiler, but, when from either of these causes, the water passes out of  
 55 the joint, no disturbance is created, as it falls into the boiling coffee, which it would not do if the water-joint were not placed within the chamber of the boiler.

By the employment of a nonconducting  
 60 material *n*, *n*, between the hot liquid in the boiler, and the cold water in the condenser, the heat is prevented from passing from the hot to the cold liquid, either by conduction or radiation, so that the coffee boils  
 65 much sooner, and the water in the condenser

remains cool much longer, than they would if the non conductor were not introduced between them. In a condenser formed as represented at Fig. 1 gypsum would be the most suitable nonconductor, but in case the  
 70 condenser be constructed as shown at Fig. 3, a plate of wood would be preferable.

In closing the coffee pot at any time, a considerable quantity of atmospheric air must always be shut up in the boiler. Any  
 75 change in the amount of heat applied to the boiler by moving to a cooler position, will cause the steam to be condensed suddenly, and consequently the atmosphere will force  
 80 itself into the boiler, at any opening, to fill the vacuum. Gases not condensable are also evolved by heating the coffee grounds. It is therefore necessary that there should be  
 85 provided an opening for air and gases between the interior of the boiler and the external air. So that they may find ingress and egress, without passing through the water  
 90 joint, as in that case they would partially, if not entirely force the water out of the joint, and thereby interrupt the operations of the condenser. Opening *g* effects this purpose,  
 95 and it is so arranged that nothing can pass from the interior of the boiler out, without first passing over a greater part of the condensing surface, so that the condensable  
 100 gases may be reduced to a liquid before they reach the external air, and then turned into the boiler again by the conductors. For the accomplishment of these ends, a still  
 105 worm condenser is particularly applicable. In such a condenser, the vapor which contains the aroma, does not mix with the condenser water, but is sent back into the coffee pot pure, and in a liquid state, after having  
 110 been separated from the noncondensable gases. In this condenser the water may be changed as often as is necessary to keep it at the required temperature, without throwing away the aroma, nor is there any aroma  
 115 lost by the steaming of the condenser water, while the coffee is boiling. The tube *g*, must not open so far below the surface of the water in the joint as to obstruct the passage of uncondensed vapor through the  
 120 still worm.

I do not claim condensing the vapor of coffee so as to prevent the aroma from passing off, independent of the peculiar devices, and the method of employing them, as here-  
 125 in set forth, but

What I do claim, and wish to have secured to me by Letters Patent, is—

1. The combination of boiler *a*, still-worm condenser *b*, conducting or discharge tube *g*, the external opening of the still worm at *g*,  
 125 when these devices are so arranged in relation to each other, that an opening to the external air shall be provided for the non-condensable gases, when the condensable  
 130 vapors are reduced to a liquid without com-



ing in contact with the condensed water, and then turned by conductors into the boiler, as and for the purpose specified.

2. The arrangement of the joint *c*, below  
5 the spout, so that no vapor can pass through the spout without first passing the joint, as set forth.

3. The employment of conductors in com-

bination with the condenser for the purpose of filling the water-joint or keeping it full, 10 as and for the purpose specified.

W. H. ELLIOT.

Witnesses:

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[FIRST PRINTED 1911.]