2 Sheets—Sheet 1.

J. G. RUGER.

Box-Iron.

No. 198,314. **Patented Dec. 18, 1877.**

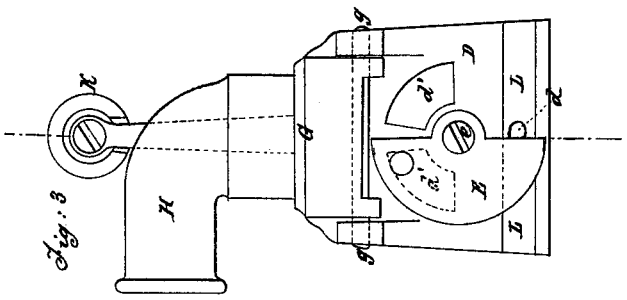


Fig. 3

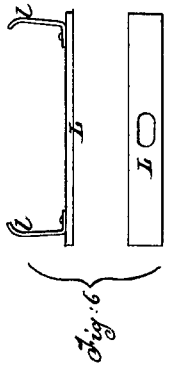


Fig. 6

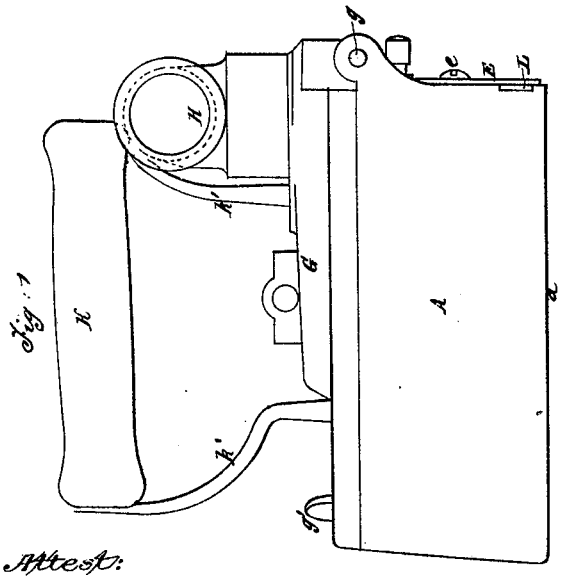


Fig. 1

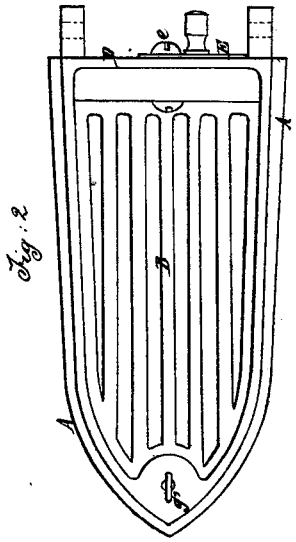


Fig. 2

Attest:

Jean Baptiste Rolland

Inventor:

Jean Georges Ruger.

2 Sheets—Sheet 2.

J. G. RUGER.
Box-Iron.

No. 198,314. **Patented Dec. 18, 1877.**

Fig: 4

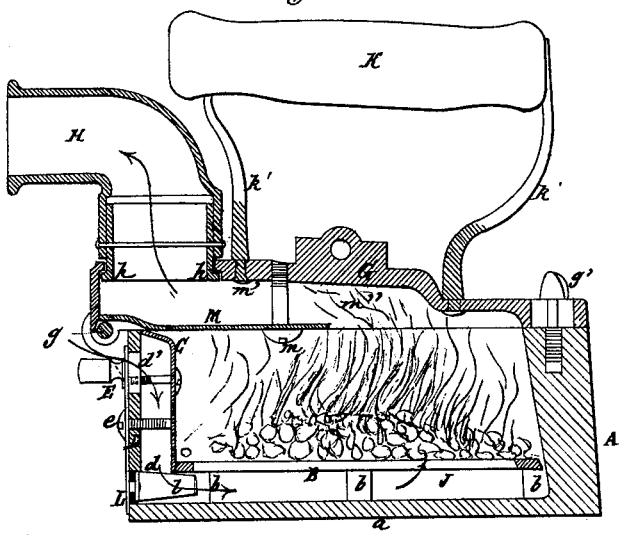
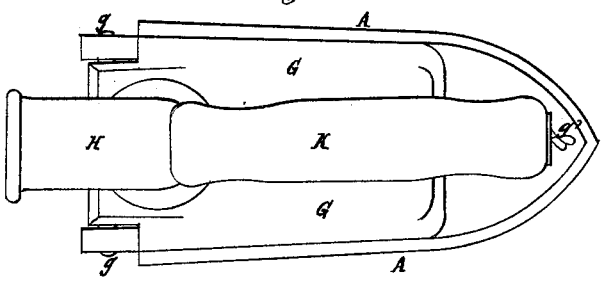


Fig 5



Witnesses.

1. Robt. H. Hensler

2. Jean Baptiste Rolland

Inventor.

Jean Georges Ruger.

UNITED STATES PATENT OFFICE.

JEAN GEORGES RUGER, OF PARIS, FRANCE.

IMPROVEMENT IN BOX-IRONS.

Specification forming part of Letters Patent No. **198,314**, dated December 18, 1877; application filed August 4, 1877; patented in France October 8, 1874.

To all whom it may concern:

Be it known that I, JEAN GEORGES RUGER, of Paris, France, mechanist, have invented an Improvement in Box Sad-Irons; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed sheets of drawing, making a part of the same.

This invention relates to that class of sad-irons called "box-irons," which are heated by combustibles within them.

The improvements have for their object to so regulate the combustion as to enable the heat of the iron to be varied at will.

The improvements consist, first, in providing one end of the iron with a partition-plate, so arranged as to form an air-inlet passage or chamber; and, second, in a movable chimney for the escape of the gaseous products of combustion, the chimney being adjustable to discharge the gases in the direction least liable to interfere with the operator or to injure the material. The chimney has the further advantage of being out of the way of the iron handle, which is not liable to become heated by its proximity.

The iron is a metal box, heated internally by fuel burning upon a grate, the combustion being governed by regulating the air-supply.

Figure 1 of the accompanying drawing shows a side elevation of a box-iron, the chimney being turned toward this side. Fig. 2 is a plan, with the top of the iron removed. Fig. 3 is a rear-end elevation; Fig. 4, a section taken through the longitudinal axis of the iron, the chimney being turned backward. Fig. 5 is a plan of the entire iron; Fig. 6, a plan and face view of the door of the ash-pan.

The same letters of reference indicate the same parts in all the figures.

The iron shown is of the kind used by hat-makers; but it will be understood that the form may be varied *ad libitum*.

A, box-iron, with a polished face, *a*; B, grate for the fuel, supported on small blocks *b*, cast or fixed to A; C, partition, by which the air is conducted beneath the grate B, the partition separating what I will call an inlet-air chamber from the fuel-chamber, with which it can only communicate between the grate-bars B, so that the incoming air for combustion is separated from the outgoing products of combustion. The air-supply is regulated by the rotary plate or valve E, covering the air-inlet openings d' d' formed in the heel-plate D of the box-iron, the one above and the other below the level of the fire-grate. The plate E turns on a center, *e*, and is adjusted to cover more or less the inlet-orifices d d'; G, cover hinged at *g* to the heel end of the iron, and locked at the front end by a thumb-screw, g'. The chimney H is mounted over an aperture in cover G at the back part, in which it is secured by the flanged thimble *h*; J, ash-pan; K, handle made of non-conducting material, mounted to turn between uprights k' k' fixed on or formed with cover G; L, Fig. 6, cover-plate, with spring-catches *l l* for the opening *d*, at which the ash-pan is emptied; M, sheet-iron baffle-plate, fixed by screws *m* to cover G, the burnt gases escaping through m'' m' to the chimney H. The gases are thus obliged to traverse the whole length of the iron, so as to impart the maximum amount of heat, the air-supply being also distributed equally through the whole area of the grate-surface, thus rendering the combustion uniform at all points.

I claim—

1. The combination, with the box-iron, having the heel-plate D, provided with air-openings and regulating-valve, as described, of the partition C, arranged substantially as shown and described, for the purpose specified.

2. The combination, with a box-iron, as described, of the horizontally-adjustable chimney, substantially as and for the purpose specified.

JEAN GEORGES RUGER.

Witnesses:
ROBT. M. HOOPER,
JEAN BAPTISTE ROLLAND.