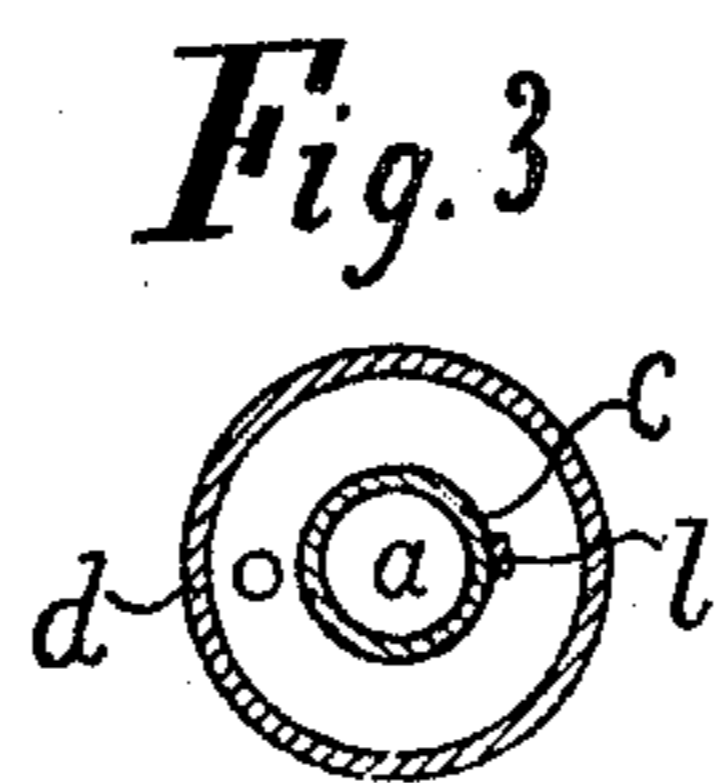
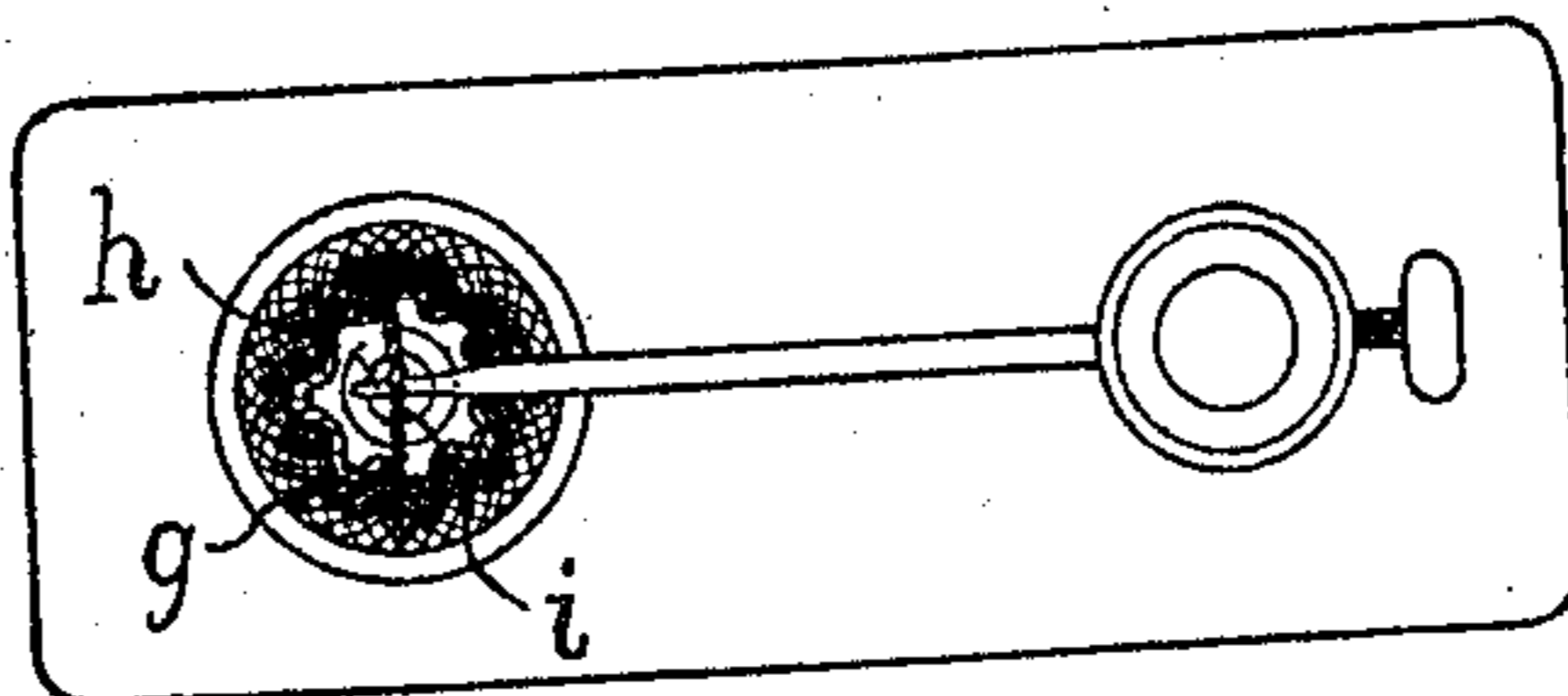
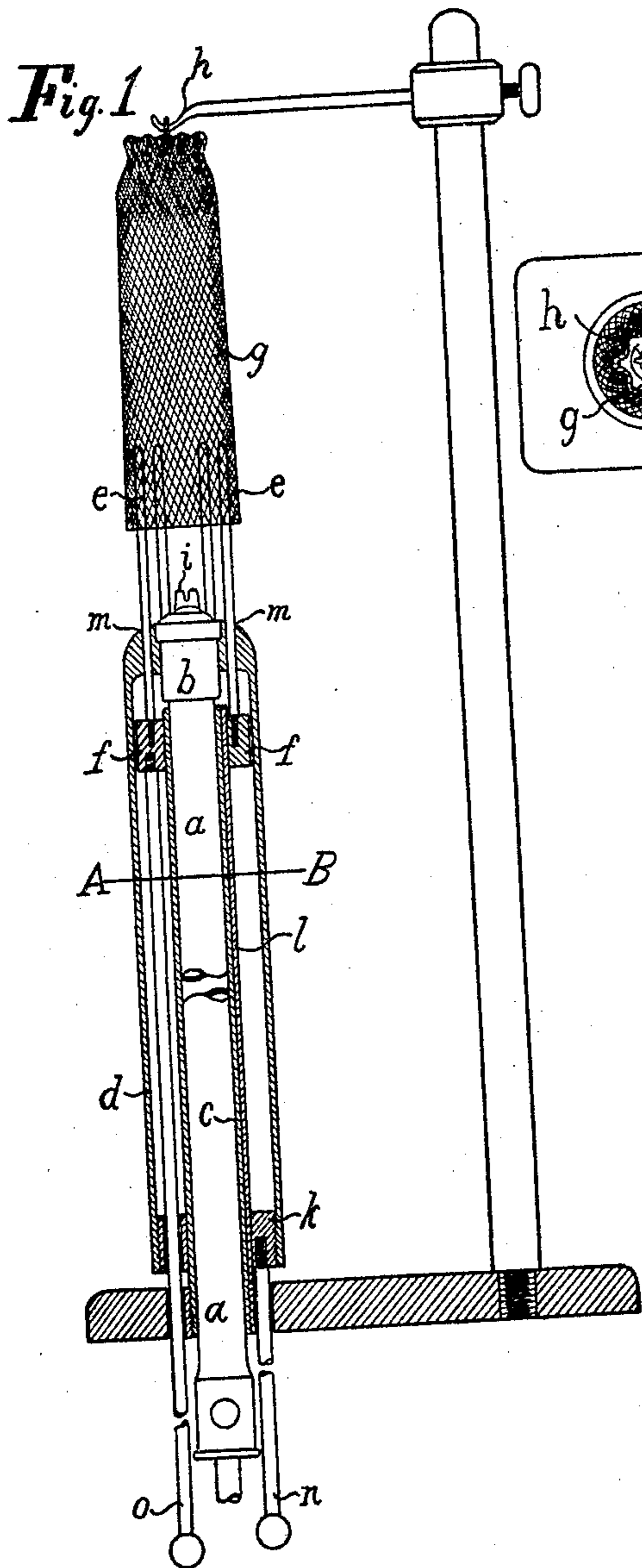


No. 812,743.

PATENTED FEB. 13, 1906.

H. HEIDORN.  
APPARATUS FOR FIRING INCANDESCENT MANTLES.  
APPLICATION FILED SEPT. 29, 1904.



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# UNITED STATES PATENT OFFICE.

HUGO HEIDORN, OF HAMBURG, GERMANY.

## APPARATUS FOR FIRING INCANDESCENT MANTLES.

No. 812,743.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed September 29, 1904. Serial No. 226,599.

*To all whom it may concern:*

Be it known that I, HUGO HEIDORN, a subject of the German Emperor, residing in Hamburg, Germany, have invented new and useful Improvements in Apparatus for Firing Incandescent Mantles, of which the following is a specification.

This invention relates to apparatus for firing incandescent mantles, by means of which the mode of working, especially when firing-machines are employed, is rendered more effectual and simpler and at the same time the utmost security afforded against breakage and waste. I bring about this result by connecting the smoothing-out spindle with the tempering-burner, so that after being smoothed out the mantle does not require to be hung afresh, and, moreover, by arranging centering-pins between the burner and the smoothing-out spindle, which insures the retention of the mantle when incinerated in the form necessary for the further treatment and its remaining during the whole time of the subsequent tempering in a position central to the axis of the tempering-burner, so that it is uniformly exposed to the flame.

One form of the invention is illustrated, by way of example, in the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section; Fig. 2, a plan; Fig. 3, a section through A B in Fig. 1.

*a* is the burner; *b*, the head of the burner; *c*, a guide-tube for the burner *a*; *d*, the smoothing-out spindle, *e* being the centering-pins arranged between the guide-tube *c* and the smoothing-out spindle *d*. The lower ends of these pins are fixed in a ring *f*, which can be suitably adjusted on the guide-tube. The mantle *g* is suspended at *h*.

The method of working with this device is as follows: The smoothing-out spindle *d* is pushed out somewhat beyond the centering-pins, in which position it is retained by friction merely. The mantle is put onto the smoothing-out spindle *d* and hung at *h*. The smoothing-out spindle *d* is then pushed into the head of the mantle and so that in the case of mantles the heads of which are tied with asbestos threads the pin *i*, seated on the head *b* of the burner, rounds off this head-fastening. In this (its highest) position now occupied by this smoothing-out spindle it is retained by the holding device in order that the workman may have both hands free for the smoothing-out operation. After the mantle

has been smoothed out the smoothing-out spindle is caused to slide down again. The centering-pins *e* must be placed at such a height that after the incineration and tempering of the mantle they project into the lower part thereof. The incineration of the mantle is effected in the usual manner by means of a flame from above—for example, by a circular burner. The tempering-burner is moved upward and downward several times in the incinerated mantle with a varying intensity of flame, and all parts of the mantle are suitably exposed to the action of the flame until a thorough tempering of the mantle is effected. The centering-pins are now pulled down and the finished mantle removed for further treatment.

In order that when the smoothing-out spindle is raised and lowered the centering-pins *e* may pass exactly through the openings *m m*, formed in the upper part of the spindle, a longitudinal groove is formed in the ring *k*, on which the spindle is fixed, while a bar *l*, Fig. 3, is fixed on the guide-tube *c*. On the bar *l* also the ring *f* is guided, in which the lower ends of the centering-pins are fixed. The smoothing-out spindle is raised and lowered by means of the rod *n* and the centering-pins by means of the rod *o*. The centering-pins may also be immovably fixed to the guide-tube *c*; but it is more convenient for removing the mantle when the tempering is finished that the centering-pins should be arranged to move vertically in order that the suspension-hook *h* after being precisely adjusted in the axis of the burner-tube may remain in that position.

The smoothing-out spindle is made interchangeable in order that a suitable spindle may be put on, according to the texture and form of the mantle. The spindle is screwed on to the ring *k*. It is also possible, as will be seen from the foregoing, to make use of the apparatus without the suitable set-up spindle—that is, to hang up the mantle and protect the mantle by means of the centering-pins against injury when the firing and the tempering operations are carried out. The intended purpose, however, is fully effected if the spindle, as well as the centering-pins, are arranged concentrically to the guide-tube *c*.

What I claim as new, and desire to secure by Letters Patent, is—

Apparatus for firing incandescent mantles composed of a standard with a hook for suspending the mantles, of a burner centrally

movable in a direction toward the suspension-hook, of a tube guiding said burner within and having a longitudinal guide-rib on the outer surface, of a ring *k* guided on said rib and carrying a smoothing-body adapted to be pushed into the mantle, of a second ring *f* guided on said rib, and of pins *e* secured in the ring *f*, the rings *k* and *f* being provided

with means to move them axially and concentrically to the burner.

In testimony whereof I affix my signature.

HUGO HEIDORN.

In presence of—

OTTO W. HELLMRICH,  
J. CHRIST. HAUFERMANN.