

W. W. ADAM.
MANTLE TRIMMING APPARATUS.
APPLICATION FILED JULY 28, 1903.

2 SHEETS—SHEET 1.

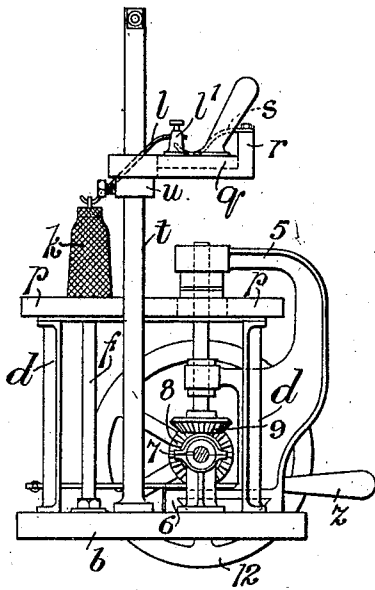


Fig. 5.

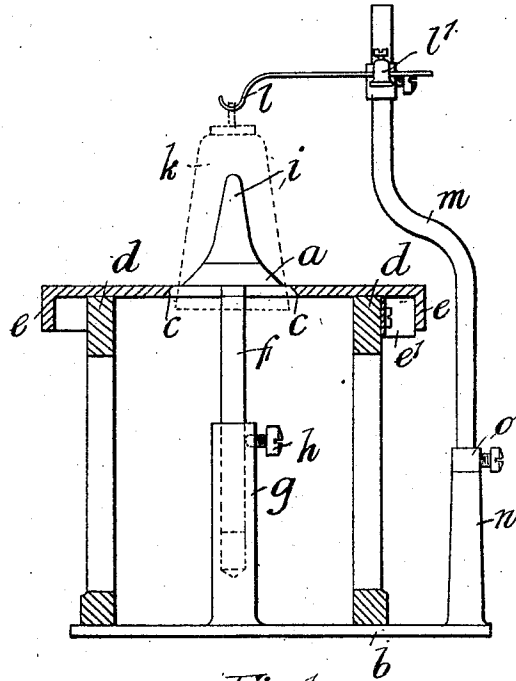


Fig. 1.

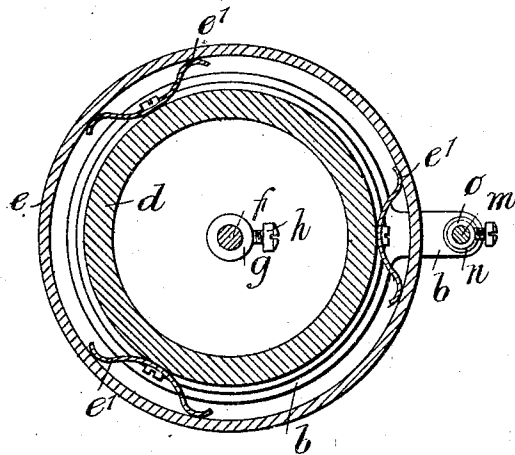


Fig. 2. Inventor

Attest
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J. Newlinney.

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2 SHEETS—SHEET 2.

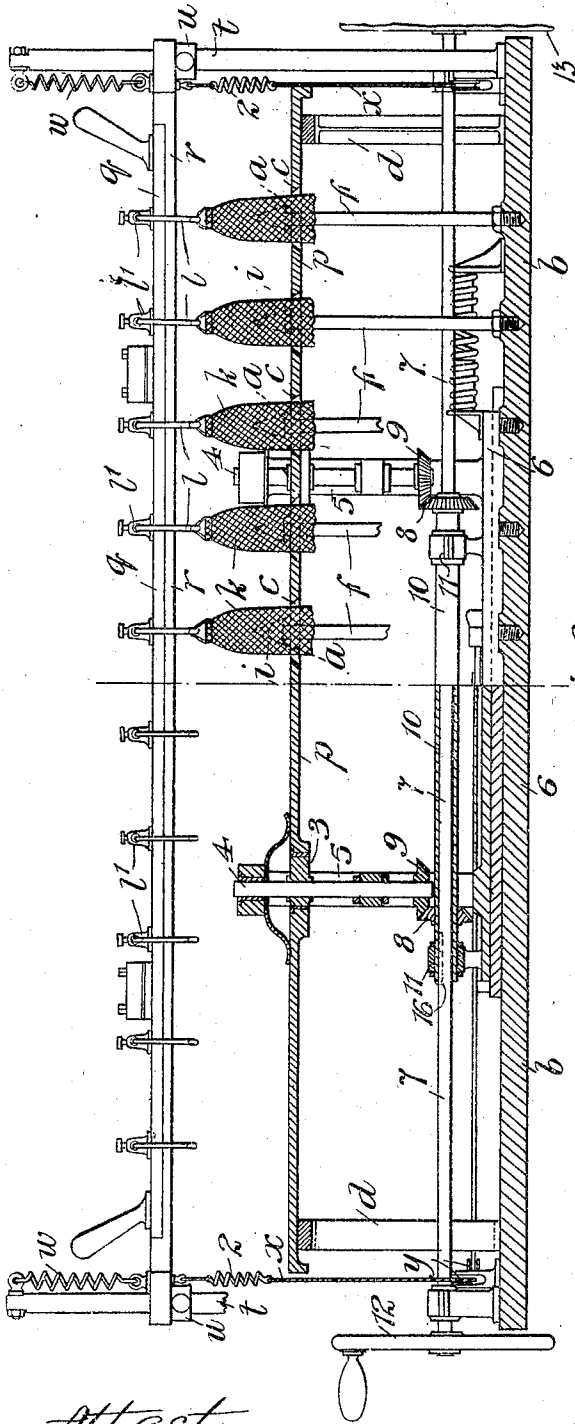


Fig. 3.

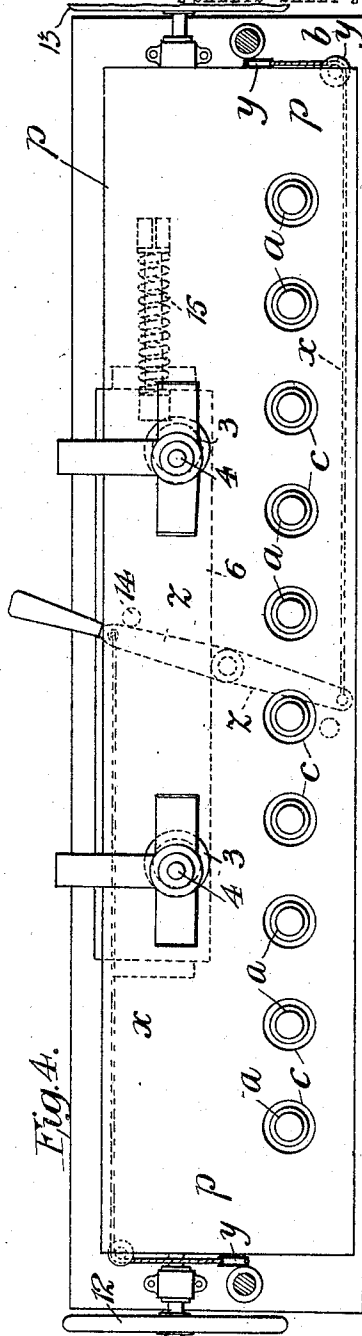


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM WAKEFIELD ADAM, OF WEST HAMPSTEAD, LONDON, ENGLAND.

MANTLE-TRIMMING APPARATUS.

No. 795,805.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed July 28, 1903. Serial No. 167,327.

To all whom it may concern:

Be it known that I, WILLIAM WAKEFIELD ADAM, a subject of the King of Great Britain and Ireland, residing at 145 Fordwych road, West Hamstead, London, N. W., England, have invented a certain new and useful Mantle-Trimming Apparatus, (for which I have made application for Letters Patent in Great Britain, No. 17,318, bearing date August 6, 1902, and in Germany, dated June 10, 1903,) of which the following is a specification.

This invention relates to processes for facilitating the manufacture of incandescent mantles on a large scale, and has for its object to enable mantles to be cut off to length rapidly either individually or a number at a time.

The invention consists in a new method of cutting off incandescent mantles to the proper length without damage by means of ring and disk knives of the character hereinafter described.

In the accompanying drawings, Figures 1 and 2 show in elevation and sectional plan one form of cutting-machine according to the invention adapted to be operated by hand for cutting one mantle at a time. Figs. 3, 4, and 5 are respectively front elevation, plan, and end elevation of another form of machine adapted to be operated either by hand or power for cutting a number of mantles at each operation.

In carrying the invention into effect according to one modification as applied for the cutting off of individual mantles to the correct length and as illustrated in Figs. 1 and 2 a disk knife *a* is centrally supported on a stand *b*, the disk being somewhat less in diameter than the inside of a mantle at its bottom. On the same stand a ring knife *c* is supported, such knife being tapered or beveled in a similar direction to the disk knife and having a cutting edge of a diameter somewhat larger than that of a mantle at its bottom. The ring knife *c* is free to move in any direction in the horizontal plane, being supported on a guide-ring *d* and having a flange *e*, which limits the movement of the knife. Two or more springs *e'* are fitted between the flange *e* and ring *d* to return the knife *c* to its normal position central with the disk *a* after each operation. The disk knife is adjustably supported on a stem *f*, which may be screwed at different heights in a socket *g*, fitted with a set-screw *h*, in order that the disk may be accurately set relatively to the edge of the ring knife. The disk knife is preferably fitted

with a conical cap *i* to guide the mantle over the cutting edge. The mantle *k* is suspended from a wire hook *l*, detachably secured by a set-screw in a small clamp or terminal *l'*, carried by a stem *m*, adjustably secured as regards height in a socket *n*, the stem being fitted with an adjustable collar *o*, by which the height of the stem, and therefore the length of mantle to be cut, can be predetermined.

When the mantle has been adjusted in position, it is cut off to the proper length without damage by an orbital motion being given to the ring knife *c*.

Instead of supporting the mantle from a hook the height of which can be adjusted the mantle may be suspended on a central rod or crutch projecting above the disk knife and adjustably secured thereon. Again, the ring knife may be fixed and the disk knife moved.

In carrying out the invention according to another modification in the application to the cutting of a number of mantles at one operation and as illustrated in Figs. 3, 4, and 5 a number of disk knives *a* are arranged upon stems *f*, secured to a stand *b*, the number of knives corresponding to the number of mantles required to be cut at one operation. An equal number of ring knives *c* are formed in a single plate *p*, supported on brackets *d*, so that it is free to move in any direction in a horizontal plane. The mantles *k* are suspended from wire hooks *l*, carried by terminals *l'* on a board *g*, which latter is detachably secured to a plate *r* by springs *s*. The plate *r* is adapted to slide on vertical guides *t*, which are provided with adjustable stops *u*, limiting the downward movement of said plate *r*, and thereby determining the length to be cut off the mantles. The plate, which is normally held in its upper position by springs *w*, is brought down onto the stops *u* when required by cords *x*, which, passing over guide-pulleys *y*, are secured to an operating-lever *z*. The cords are attached to the plate *r* through the medium of springs *2*, for a purpose hereinafter referred to. The cutter-plate *p* receives the necessary orbital movement when required to cut the mantles by eccentrics *3*, mounted on shafts *4*, supported in brackets *5*, cast on or secured to a sliding bed-plate *6*. The eccentrics are rotated by the main shaft *7* through bevel-gearing *8 9*, the pinions *8* being secured to a sleeve *10*, journaled in bearings *11*, so as to be carried by the bed-plate *6*, the sleeve sliding on the shaft *7*, but being caused to rotate therewith by a feather *16*. The shaft *7* is

rotated by a hand-wheel 12 and is fitted with a heavy fly-wheel 13, (partly shown in Figs. 3 and 4,) preferably weighted in a position adapted to bring the plate *p* always back to the same normal position with the ring knives *c* concentric with the disks *a*. A fast and loose pulley may be substituted for the hand-wheel when power is available. In order that the cutter-plate *p* may be moved with its ring cutters *c* against the cutter-disks *a* before the orbital movement is imparted to it by the eccentrics, the operating-lever *z* is adapted to contact with a pin 14 on the sliding bed-plate 6, the latter being returned after each cutting operation by a spring 15. The operation of the device is as follows: The board *q*, with a number of mantles suspended therefrom, is placed on the plate *r*. The lever *z* is then moved, and during the first part of its movement, acting through the cords *x*, brings the plate *r* down onto the stops *u*, the mantles being thereby lowered between the cutters *a* and *c*. The lever *z* in its further movement contacts with the pin 14 on the bed-plate 6, and therefore the plate *p*, being thereby moved laterally until all the cutter edges *c* and *a* are in contact. The shaft 7 is then rotated, whereby the orbital motion of the plate *p* causes all the mantles to be cut, a release of the lever *z* permitting the plate *p* to resume its normal position under the action of the spring 15, the weighted fly-wheel at the same time bringing the plate *p* into such normal position with all the cutting edges *c* concentric with the cutter-disks *a*, ready for the reception of another set of mantles after those cut have been removed.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An apparatus for cutting or trimming incandescent gas-mantles, consisting of a circular cutting-disk, a ring knife surrounding the same and adapted to receive an eccentric orbital movement in relation to the disk for the purpose of producing a continuous shear and automatic means for returning the cutters to a normal concentric condition.

2. An apparatus for cutting or trimming incandescent gas-mantles, consisting of a circular cutting-disk, a conical guide for the mantle on said disk an adjustable support for the latter and an adjustable support for the mantle, a ring knife surrounding the disk adapted to receive an eccentric orbital movement in relation to the disk and automatic means for returning the cutters to a normal concentric condition, substantially as and for the purposes hereinbefore set forth.

3. An apparatus for cutting or trimming incandescent gas-mantles, consisting of a series of circular cutting-disks, a corresponding series of ring knives or cutters surrounding

the same, mechanism for imparting an eccentric orbital motion to one series of cutters in relation to the other series and automatic means for returning the cutters to their normal concentric condition substantially as hereinbefore set forth.

4. An apparatus for cutting or trimming incandescent gas-mantles consisting of a series of circular cutting-disks, a corresponding series of ring knives surrounding the same, means for initially causing a relative displacement of the cutters from the normal concentric positions, means for imparting an orbital motion to one series of cutters and automatic means for returning the cutters to their normal concentric condition substantially as hereinbefore set forth.

5. An apparatus for cutting or trimming incandescent gas-mantles consisting of a series of circular cutting-disks, a plate having a corresponding series of ring knives surrounding said cutting-disks, a support for said plate, eccentrics adapted to impart an eccentric orbital motion to said plate in relation to the cutting-disks, and means for returning said plate to its normal position with the cutting knives and disks relatively concentric substantially as hereinbefore set forth.

6. An apparatus for cutting or trimming incandescent gas-mantles, consisting of a series of circular cutting-disks, a plate having a corresponding series of ring knives surrounding said cutter-disks, eccentrics adapted to impart an orbital motion to said plate, shafts carrying the eccentrics, brackets carrying the said shafts, a sliding bed-plate to which the brackets are secured, gearing for rotating said shafts, a lever adapted to engage the sliding bed-plate to impart an initial movement to the cutter-plate and a spring for returning said plate in order to return the cutters to their normal concentric condition, substantially as hereinbefore set forth.

7. An apparatus for cutting or trimming incandescent gas-mantles, consisting of a series of circular cutting-disks, a corresponding series of ring knives surrounding the same, means for imparting an orbital motion to one series of cutters eccentric in relation to the other series of cutters, a carrier for mantles, vertical guides for the same, adjustable stops on the guides for limiting the movement of the carrier, means for moving the carrier against said stops and springs for returning the carrier to its initial position, substantially as hereinbefore set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

WILLIAM WAKEFIELD ADAM.

Witnesses:

ALBERT E. PARKER,
FRANCIS J. BIGNELL.