

APPLICATION FILED MAR. 25, 1910.

Patented Dec. 12, 1911.

2 SHEETS—SHEET 1.



Arthur F. Randall.

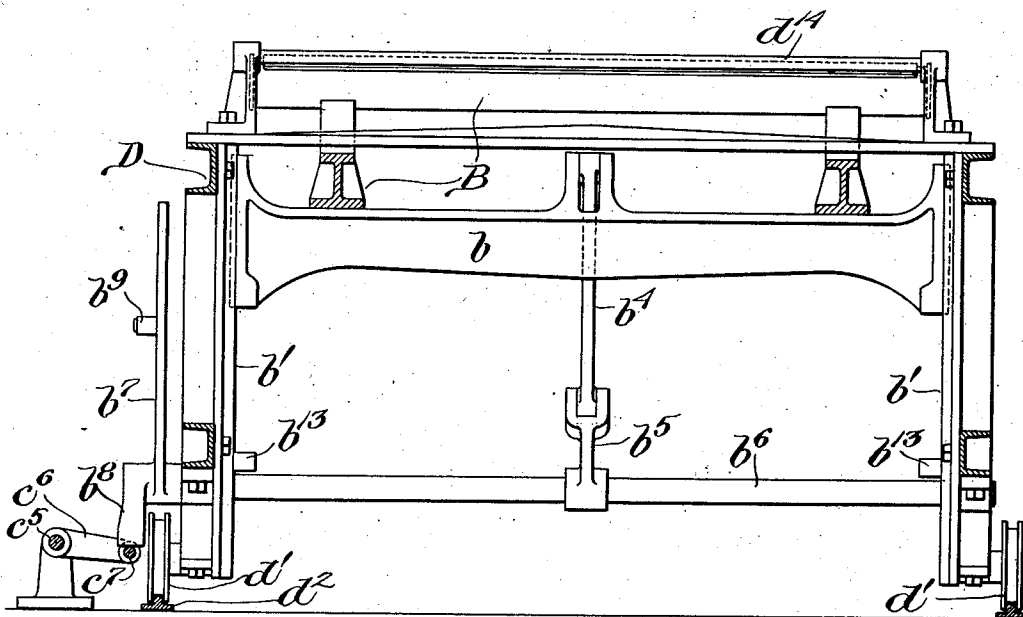
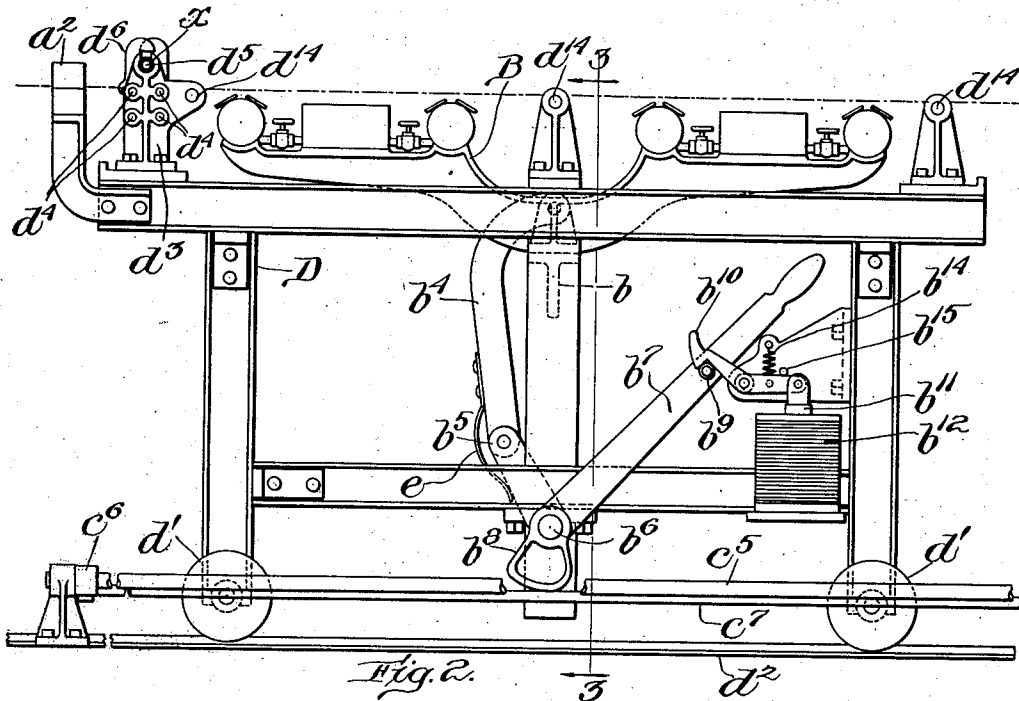
*Atty.*

1,011,356.

J. O. McKEAN.  
GASSING APPARATUS.  
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2 SHEETS—SHEET 2.



Witnesses:  
A. B. Lindsay  
Arthur V. Randall

Fig. 3. Inventor: J. O. McKean  
by Mitchell, Chastwick & Kent,  
Attys.

# UNITED STATES PATENT OFFICE.

JOHN O. McKEAN, OF WESTFIELD, MASSACHUSETTS, ASSIGNOR TO FOSTER MACHINE COMPANY, OF WESTFIELD, MASSACHUSETTS, A CORPORATION OF MAINE.

## GASSING APPARATUS.

1,011,356.

Specification of Letters Patent. Patented Dec. 12, 1911.

Application filed March 25, 1910. Serial No 551,516.

*To all whom it may concern:*

Be it known that I, JOHN O. McKEAN, a citizen of the United States, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Gassing Apparatus, of which the following is a specification.

My invention relates to gassing apparatus for trimming threads and the like and has for its object to provide an improved apparatus of this kind, and particularly to improve upon the construction and operation of the apparatus shown and described in my Patent No. 948,934, granted February 8, 1910, so that the apparatus will be automatically stopped upon the breaking or failure of a thread. To this end I provide means, controlled by the thread, which acts automatically, upon the breaking or failure of a thread, to first throw the burner out of action and thereafter stop the thread drawing or feeding means, thus retaining the peculiar sequence of operation in stopping the apparatus which is one of the distinguishing features of the apparatus of the patent referred to, and at the same time making it unnecessary for the operator to watch the apparatus while it is in operation and manually stop it when a thread breaks.

In the accompanying drawings:—Figure 1 is a plan view of my improved gassing apparatus. Fig. 2 is a side elevation of the burner forming part of the apparatus shown in Fig. 1. Fig. 3 is a section on line 3—3 of Fig. 2. Fig. 4 is a detail of the stop motion hereinafter described.

As herein shown the thread supply A is a stationarily supported creel holding a plurality of cops *a* from which the thread or yarn *a'* extends through a comb or reed *a''* and then over the burner B to a baller or other suitable thread drawing or feeding means C. The main shaft *c* of the thread means C carries fast and loose pulleys *c'* and *c''* respectively, and is driven by a belt *c'''* engaged by a shipper arm *c''''* fast to a rock shaft *c'''''*. The shaft *c'''''* is journaled in bearings fixed to the floor and extends alongside of the carriage D with arms *c''''''* projecting therefrom, which carry a rod *c'''''''*.

The burner B comprises a frame *b* mounted in vertical ways *b'* provided on a carriage D and connected by a link *b''* with an arm *b'''* fixed to a rock shaft *b''''* journaled in bear-

ings on carriage D. To one end of the shaft *b''''* is fixed a control member or lever *b'''''* formed with a cam *b''''''* that coöperates with the rod *c'''''''*. The cam *b''''''* is so made that when lever *b'''''* is swung to the left, Fig. 2, the arm *b'''''* first lowers burner B into an inoperative position and thereafter cam *b''''''* is lifted away from rod *c'''''''* allowing a spring *c''''''* (Fig. 1) to swing shipper arm *c'''''* so as to shift belt *c'''* onto loose pulley *c''* and stop the thread drawing means C. When the lever *b'''''* is swung back (toward the right) the cam *b''''''* first depresses rod *c'''''''* thereby swinging shipper arm *c'''''* so as to shift belt *c'''* back onto the driving pulley *c'* and thereafter the burner B is brought by arm *b'''''* into its operative position again (Figs. 2 and 3). It will thus be seen that the burner B occupies its operative position with relation to the threads *a'* only while the latter are in motion and therefore said threads cannot be scorched or burned while the apparatus is being started or stopped. Owing to this sequence of operations in starting and stopping, it is necessary, as explained in the patent above noted, to provide for relative adjustment of the burner B and threads *a'* in a direction lengthwise of the latter and therefore the carriage D is provided with wheels *d'* mounted on rails *d''* secured to the floor and disposed parallel with the threads *a'*. As the carriage D is moved back and forth along the rails *d''* the cam *b''''''* slides along the top of rod *c'''''''* and, as will be clear, remains in coöperative relation therewith at all times.

The lever *b'''''* carries a roll *b''''''* and when said lever is swung by the operator to the right (Fig. 2), to start the apparatus, said roll rides under a latch *b'''''''* which, by its engagement with said roll, holds lever *b'''''* in that position. The latch *b'''''''* is pivotally connected with the core *b''''''''* of a solenoid *b'''''''''* and, when one of the threads *a'* breaks the solenoid *b'''''''''* is automatically energized, as described later, and pulls its core *b''''''''* downward, thus lifting the latch *b'''''''* and freeing lever *b'''''* whereupon the burner B falls by gravity into its inoperative position where it rests upon stops *b''''''''''*.

If desired the burner B may be assisted at the start of its downward movement by a leaf spring *e* fastened to arm *b'''''* and adapted to press against link *b''* when the burner occupies its operative position. As the

burner B descends it acts through link  $b^4$  and arm  $b^5$  to turn shaft  $b^6$  and as said burner nears stops  $b^{13}$  the cam  $b^8$  is raised from rod  $c^7$  allowing spring  $c^8$  to shift belt  $c^3$  onto loose pulley  $c^2$  thus stopping the apparatus. A spring  $b^{14}$  serves to hold latch  $b^{10}$  in its operative position against a stop  $b^{15}$  with core  $b^{11}$  elevated.

Mounted upon the top of carriage D are two brackets  $d^3$  which support four guide rods  $d^4$  and a contact bar  $d^5$ , the latter being electrically insulated from the brackets  $d^3$  as shown at  $x$  in Figs. 1 and 2. Mounted upon the guide rods  $d^4$  are a number of sheet metal drop members  $d^6$ , one for each thread each made with a hook  $d^7$  resting upon its respective thread and with a head  $d^8$  to cooperate with the contact bar  $d^5$ .

The hooks  $d^7$  are bent laterally slightly so that the thread is not deflected from a straight line. Normally, however each thread, by its engagement with the hook  $d^7$  of its drop  $d^6$  holds the latter elevated and out of contact with bar  $d^5$ , but when a thread breaks, its drop falls by gravity, bringing its head  $d^8$  into contact with bar  $d^5$ . In order to provide for vertical movement of the drops  $d^6$  as well as to prevent lateral displacement thereof by the pull of the threads, each drop is made with a slot  $d^9$  and straddles one pair of the two pairs of guide rods  $d^4$  with which pair it is always in electrical contact. The contact bar  $d^5$  is connected by a wire  $d^{10}$  with one pole of a battery  $d^{11}$  whose opposite pole is connected by a (wire  $d^{12}$ ) with one end of the winding of solenoid  $b^{12}$ . The other end of the winding of solenoid  $b^{12}$  is connected by a wire  $d^{13}$  (or the frame of carriage D) with both pairs of guide rods  $d^4$ . It will thus be seen that when a thread breaks and its drop  $d^6$  falls onto contact bar  $d^5$  a circuit is completed through solenoid  $b^{12}$  which energizes the solenoid and effects, as above described, the peculiar sequence of operations which results in stopping the apparatus immediately upon the breakage or failure of a thread.

An important feature of my invention consists in utilizing the falling movement of the burner to effect the stopping of the thread drawing means because by this arrangement I am enabled to produce a very simple and efficient apparatus whose starting and stopping is characterized by the

peculiar sequence of operations which is required. Also it is a feature of my invention that the downward movement of the burner solely controls the stopping of the thread feeding means and that as a practical matter the apparatus cannot be stopped either automatically or by hand without first permitting the burner to descend.

What I claim is:—

1. A gassing apparatus comprising a burner; means to feed the thread past the burner and automatic means controlled by the threads for stopping the apparatus when a thread breaks by first throwing the burner out of action and thereafter stopping the thread feeding means.

2. A gassing apparatus comprising a burner; means to feed the thread past the burner; means to start the apparatus by first starting the thread feeding means and thereafter throwing the burner into action, and automatic means controlled by the threads for stopping the machine by first throwing the burner out of action and thereafter stopping the thread feeding means.

3. A gassing apparatus comprising a burner; means to feed the thread past the burner; means to start the apparatus by first starting the thread feeding means and thereafter throwing the burner into action; automatic means controlled by the threads for stopping the apparatus by first throwing the burner out of action and thereafter stopping the thread feeding means, and means to provide for relative adjustment back and forth between the burner and threads in a direction lengthwise of the latter.

4. A gassing apparatus comprising a burner movable vertically into and out of operative position; means to support the burner in its operative position; automatic means to cause the burner to fall into inoperative position when a thread breaks, and means through which the thread feeding means is stopped by the movement of the burner into inoperative position.

Signed by me at Westfield, Mass., this nineteenth day of March 1910.

JOHN O. McKEAN.

Witnesses:

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