E. L. BURKY.

AUTOMATIC SAFETY LATCH FOR FURNACE DOORS.

APPLICATION FILED MAY 12, 1920.

1,371,547.

Patented Mar. 15, 1921.

Fig. 1.

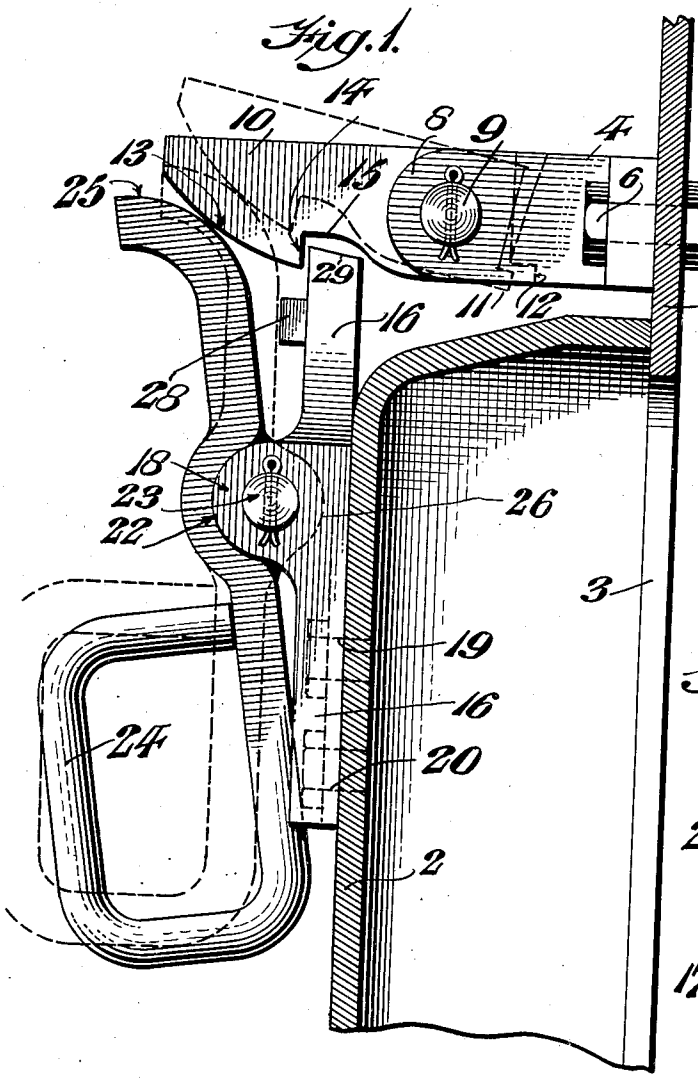


Fig. 3.

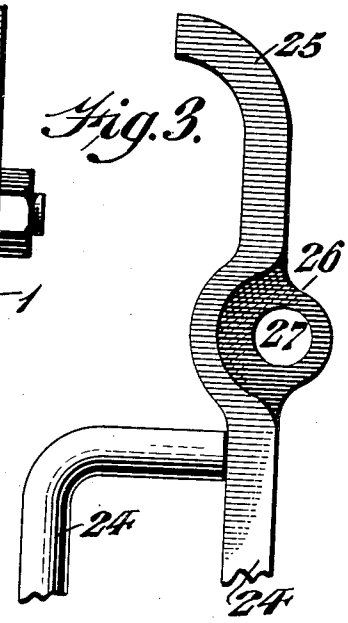


Fig. 4.

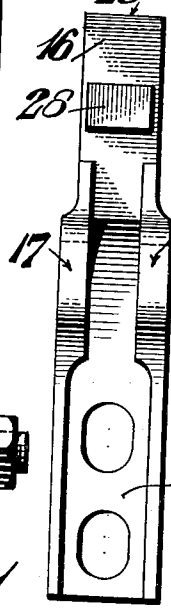


Fig. 5.

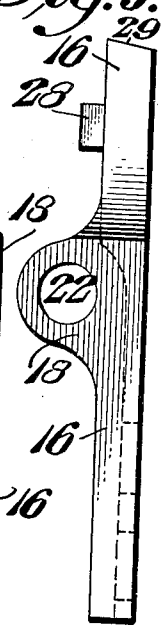
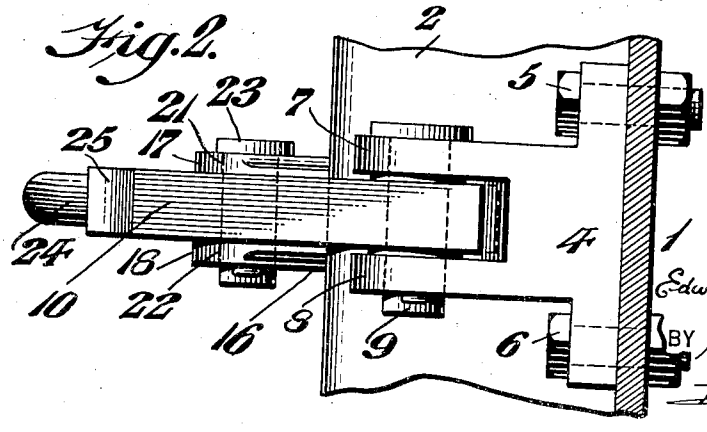


Fig. 2.



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AUTOMATIC SAFETY-LATCH FOR FURNACE-DOORS.

1,371,547. Specification of Letters Patent. Patented Mar. 15, 1921.

Application filed May 12, 1920. Serial No. 380,774.

To all whom it may concern:

Be it known that I, EDWARD L. BURKY, a citizen of the United States, residing at Drexel Hill, in the county of Delaware, State of Pennsylvania, have invented a new and useful Automatic Safety-Latch for Furnace-Doors, of which the following is a specification.

My invention relates in general to a novel construction of an automatic safety latch for hinged or swinging furnace doors and the like, which can be cheaply manufactured and readily applied to existing doors and furnace fronts, its object being the production of a simple, inexpensive, efficient and automatically operated latch which will insure the automatic latching of a furnace door during the closing thereof so as to prevent the possibility of its being blown out, the unlocking of the device being effected simultaneously with the opening of the door, as will be hereinafter described.

For the purpose of illustrating my invention, I have shown in the accompanying drawings one form thereof which is at present preferred by me, since it will give in practice satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a side elevation of an automatic safety latch embodying my invention, the door and furnace front being shown in section, the full lines indicating the latched position, and the dotted lines the parts in unlatched position.

Fig. 2 represents a plan view of Fig. 1.

Fig. 3 represents a fragmentary side elevational detail of handle member removed.

Fig. 4 represents a front elevation of the handle carrying plate removed from the door.

Fig. 5 represents a side elevation of Fig. 4.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings:—

1 designates a boiler front, and 2 a fire door hinged thereto so as to close the fire-box opening 3 in any conventional manner, the location of the hinges not being shown, as the same *per se* form no part of the invention.

4 designates a bracket, conveniently secured to the boiler front above the door by bolts or other fastening devices 5—6, and formed with ears 7—8 which form a fork through which passes the fulcrum pin 9 of a pivoted gravity latch 10, the lower rear end of which is formed with a bottom lug 11 adapted when the latch is in its door-locking position to engage a stop 12 in the bracket 4, which prevents the latch from dropping below its latching position.

The under front face of the latch 10 is formed with a curved surface or cam 13, which terminates rearwardly in a shoulder 14, above which the under surface of the latch is cut away to form a recess 15.

16 designates a plate whose upper end serves as a terminal dog 29 to engage the shoulder 14, and is formed with ears 17—18, which is bolted by bolts 19—20 or the like to the fire door 2, so that said plate and door move as a unit. The ears 17—18 are preferably about mid-way of the length of the plate 16 and formed with apertured bearings 21—22 for a fulcrum pin 23 which constitutes the fulcrum of a swinging handle member or latch operating finger piece 24 which extends vertically and terminates in a curved end 25 the curvature of which, as shown in Figs. 1 and 3, faces inwardly and in the assemblage of the parts is adapted to contact with the cam 13 of the latch 10.

Above the finger piece, or gripping part of the handle member as a whole, and its curved upper end 25, the finger piece is provided with a rearwardly extending lug 26, apertured at 27, which in the mounting of the parts fits between the ears 17 and 18 of the plate 16, and through the introduction of a fulcrum pin 23 through the aperture serves as a means for the mounting of the handle member upon the plate 16 of the door 2.

It will be seen from the foregoing that normally, when the door is locked by the latch, the handle member as a whole occupies the inclined position represented in full lines in Fig. 1. When, then, in order to open the door, the finger piece 24 is grasped by the hand, and pulled forwardly into the position seen in dotted lines in Fig. 1, the contact and inward movement of its curved

end 25 with and against the cam surface 13 of the latch, will first raise the latch to free it from the upper dog 29 on the plate 16, and will then encounter a stop lug 28 on the front face of the plate 16, and in such practically vertical position will retain the latch lifted and temporarily retain the finger piece in fixed vertical relationship with said plate and door, so as to permit of the door being pulled into open position.

Obviously, after the door has been opened and the curved end 25 of the finger piece pulled away from the cam surface 13 of the latch, the latch will drop by gravity into its normal position, and the lug 11, being then in engagement with the stop 12, will retain said latch in its dropped or substantially horizontal position, and ready to be again lifted and permitted to drop to engage within its shouldered recess 14—15 the terminal dog 29 and the top of the plate 16, when the door is again closed.

It will be apparent from the foregoing that my novel device consists of a minimum number of parts, which can be cheaply produced, and which require very little machining and fitting and can be readily applied to existing furnace fronts and doors without necessitating any change or dismantling thereof and when my novel device is installed in position, it is automatic in its operation, a pull on the finger piece 24 first raising the latch 10 whereupon the door can be opened, and when the door is being closed the terminal dog 29 of the plate 16 rides under the cam 13 thereby lifting the latch 10, which automatically drops and interlocks with the dog when the door is closed.

While I have described my device as particularly adapted to furnace fronts and doors, it will be understood that it is adapted for other analogous and kindred uses.

It will now be apparent that I have devised a novel and useful automatic safety latch for furnace doors which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described a preferred embodiment thereof which will give in practice satisfactory and reliable results, it is to be understood that such embodiment is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

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

In an automatic safety latch for furnace doors, a gravity latch pivotally supported and having its outer portion provided with a bottom cam, a shoulder, and a recess and its inner end provided with a stop for holding said latch normally horizontal, a furnace door, a plate attached thereto and having an upper terminal dog adapted to interlock with the recess of said latch, a forwardly projecting stop on said plate below said dog, and a latch operating finger piece pivotally mounted on said plate, and having its lower grasping portion below its pivot, the upper end of said finger piece being deflected and adapted to engage the bottom of said latch cam, and raise said latch when said finger piece is initially rocked to open said door, said finger piece normally standing in an inclined position and the rearward movement of its upper portion being limited by its contact with said stop.

EDWARD L. BURKY.

Witnesses:
E. C. SHUMATE,
D. L. SLESOP.