801,242. PATENTED OCT. 10, 1905.

P. HOCHHEIMER.

SAFETY ATTACHMENT FOR GAS BURNERS.

APPLICATION FILED FEB. 9, 1905.

2 SHEETS—SHEET 1.

Fig. 1

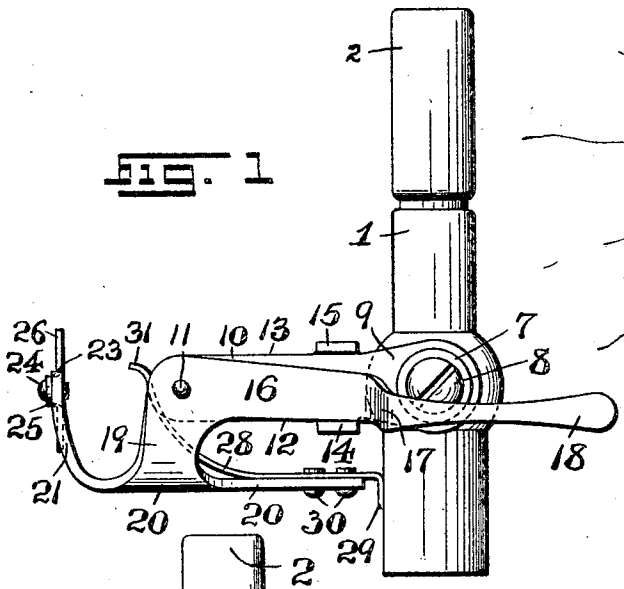


Fig. 4

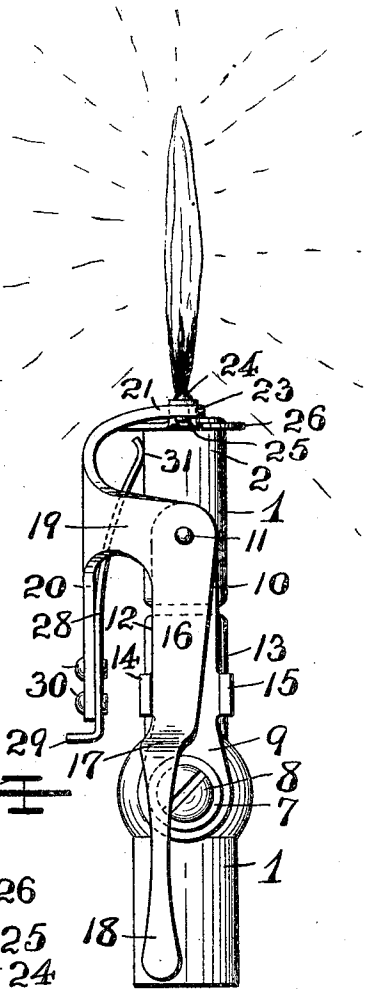


Fig. 2

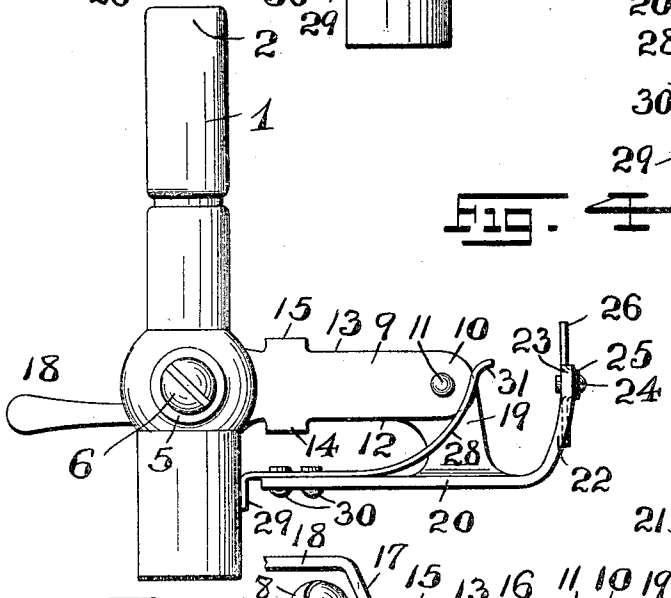
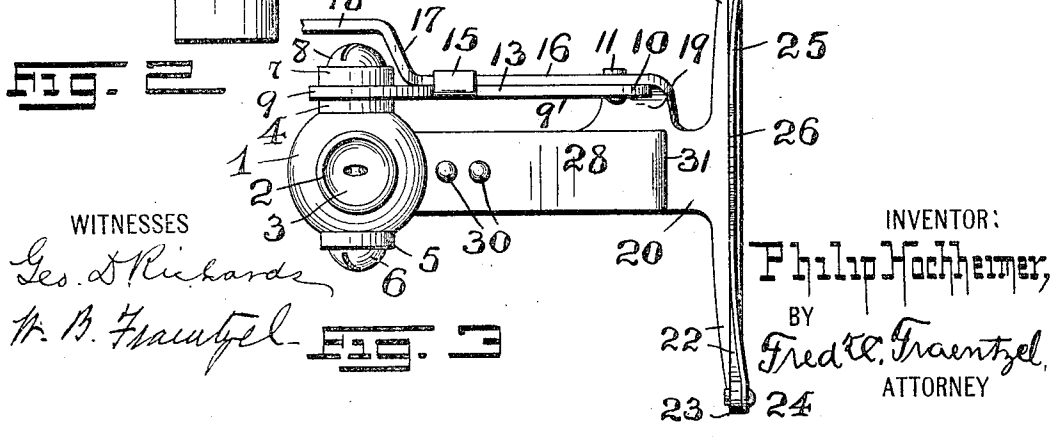


Fig. 3



WITNESSES

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2 SHEETS—SHEET 2.

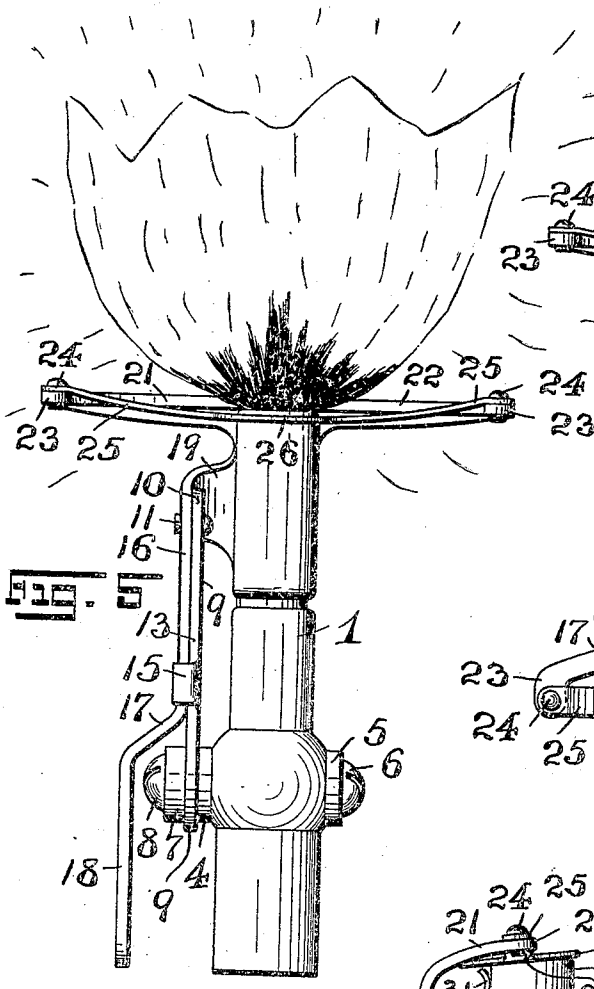


Fig. 5

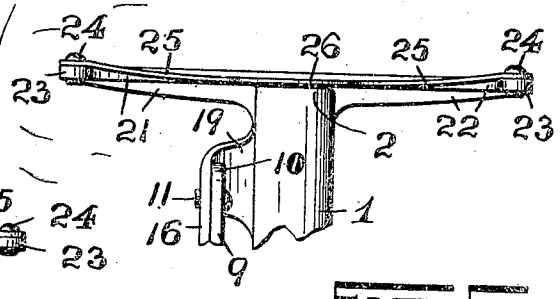


Fig. 6

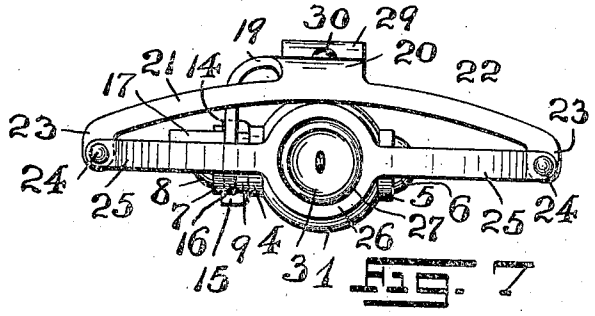


Fig. 7

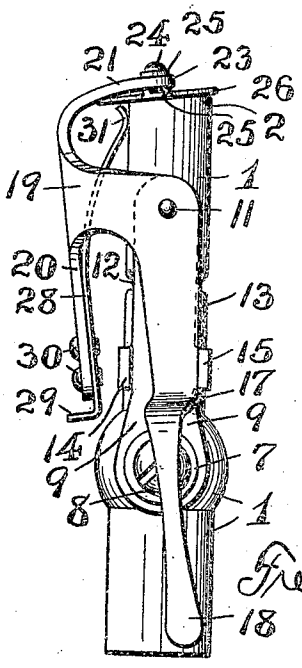


Fig. 8

WITNESSES

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UNITED STATES PATENT OFFICE.

PHILIP HOCHHEIMER, OF NEWARK, NEW JERSEY.

SAFETY ATTACHMENT FOR GAS-BURNERS.

No. 801,242. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed February 9, 1905. Serial No. 244,830.

To all whom it may concern:

Be it known that I, PHILIP HOCHHEIMER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Safety Attachments for Gas-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates generally to improvements in gas cocks or burners; and the invention has reference more particularly to a novel and simply-constructed safety device or attachment which is applied directly to the plug, cock, or valve-spindle of the gas-burner and acts by gravity to operate the said plug, cock, or spindle, and thus under normal conditions maintains a closed relation of the gas-burner to prevent the escape of any gas therefrom, but which may be operated by hand and is retained after the gas is lighted in its operated position to maintain the open relation of the gas-burner by the heat from the gas-flame acting upon a portion of the said attachment and causing the latter thereby to be maintained or held in engagement with a portion of the gas-burner, so as not to interfere with the burning of the gas at the gas-tip.

The present invention has for its primary object to provide a neat and cheaply-constructed device or attachment for a gas-burner combined and movable with the oscillatory movements of the plug, cock, or valve-spindle of the burner for opening and closing the gas-passage in the manner hereinafter more fully stated, and, furthermore, to provide a device or attachment which can be manipulated by hand for shutting off or closing the gas plug, cock, or spindle when it is desired to extinguish the flame and by the arrangements and combinations of the parts of the device or attachment positively closing the plug, cock, or spindle, so that there may be no danger of any possible escape or leakage of gas due to carelessness in turning off the gas.

A further object of this invention is to provide a novel safety device or attachment for gas-burners which maintains the open relation of the burner as long as the gas is burning at the tip of the burner, but which acts automatically by its own gravity to close the gas plug, cock, or spindle as soon as the flame becomes extinguished, whether purposely extinguished by the manipulation of the device or whether the flame is extinguished by accident due to a high wind or the like or when blown out by an ignorant person.

Other objects of this invention not at this time more especially mentioned will be clearly understood from the following detailed description of the same.

With the various objects of my present invention in view the same consists in the novel gas-burner and safety attachment therefor as hereinafter more fully set forth; and, furthermore, this invention consists in the various arrangements and combinations of parts, as well as in the details of the construction of the same, all of which will be fully described in the following specification and then finally embodied in the clauses of the claim, which are appended to and form an essential part of this specification.

My invention is clearly illustrated in the accompanying drawings, in which—

Figures 1 and 2 are face views of the two opposite sides of a gas-burner and the safety device or attachment embodying the principles of this invention, the various parts being represented upon an enlarged scale and in their relatively closed positions. Fig. 3 is a top or plan view of the parts represented in said Fig. 2; and Fig. 4 is a side face view of the parts represented in Fig. 1, but showing the safety device or attachment in its operated relation to the burner, with the gas burning at the tip of the burner. Fig. 5 is a view at right angles from that shown in said Fig. 4. Fig. 6 is a similar view of the upper portion of the gas-burner and upper portion of the safety device or attachment, representing the relative positions of the said parts of the safety device or attachment to the tip of the burner at the time that the light is extinguished and just prior to the return by gravity of the said device or attachment to its normal initial position; and Fig. 7 is a top or plan view of the said parts. Fig. 8 is a view similar to that represented in said Fig. 4 of the drawings, with the representation of the gas-flame omitted and showing the manner of shutting off the gas-burner when the safety device or attachment is manipulated by hand.

Similar characters of reference are employed in all of the said above-described views to indicate corresponding parts.

Referring now to the several figures of the drawings, the reference character 1 indicates a suitable gas-burner provided in its upper and preferably flat end portion 2 with a correspondingly-formed gas or burner tip 3. The said gas-burner has arranged therein in any usual manner an oscillating tapering cock, plug, or spindle 4, forming what may be termed a "valve-spindle," the same being held in its operative position against lateral displacement from the body of the gas-burner by means of a washer 5 and screw 6, arranged upon the one side of the said body, as shown in Figs. 2, 3, and 5 of the drawings. Rigidly affixed to the opposite end portion of the said plug, cock, or spindle 4, extending from the opposite side of the body of the gas-burner 1, is the safety device or attachment, by means of which the said plug, cock, or spindle can be arranged in its opened or closed position by hand across the gas-passage of the burner or is automatically closed when the flame is accidentally extinguished or blown out, as will presently appear. The said device or attachment may be secured to the said end portion of the plug, cock, or spindle 4 by means of a washer 7 and screw 8, as shown in the several figures of the drawings; but it will be understood, however, that the said safety device or attachment may be connected with the said end portion of the plug, cock, or spindle 4 in any other suitable manner. The said safety device or attachment consists, essentially, of an arm 9, secured in the manner stated to the said projecting end portion of the plug, cock, or spindle 4, the same being provided at or near its outer end portion 10 with a pivotal stud or pin 11, and at suitable points along its two marginal edges 12 and 13 the said arm 9 is provided with a pair of outwardly-extending lugs or projections 14 and 15. Pivotally connected with the said pin or stud 11 is a second arm or lever 16, the said arm or lever 16 being slightly smaller in width than the width of the said arm 9, upon which the said arm or lever 16 rests, and is capable of a slight oscillatory movement thereon between the said lugs or projections 14 and 15, as will appear from an inspection of Figs. 1, 4, and 8 of the drawings. Upon its lower end portion the said arm or lever 16 is made with an outwardly-extending portion 17, having an actuating-lever or finger-piece 18 extending therefrom substantially in the manner shown in the drawings. The said arm or lever 16 is also provided at or near its upper end portion with a suitably-bent portion or member 19, with which is connected a plate-like member 20. This member 20 is made upon its upper end portion with a pair of laterally-extending fingers 21 and 22, each finger being provided with an end portion 23, with each of which is connected a holding pin or rivet 24, substantially as shown. Suitably secured in position between the said end portions 23 of the said fingers 21 and 22 by means of the said pins or rivets 24 is a flat bar 25, of a substantially thin metal, the same being of a slight downward curvature concave from above. The said bar 25 is also provided at its middle with a ring-shaped or other suitably-formed enlargement 26, having an opening 27, which is slightly larger in cross area than the cross-section of the cylindrical body of the gas-burner 1. Normally the various parts of the said safety device or attachment just described are retained in their initial and cock or spindle closing positions (indicated in Figs. 1, 2, and 3 of the drawings) by gravity and by an end member 29 of a flat spring-plate 28, bearing against the side of the body of the gas-burner, as shown in Fig. 1. The said spring-plate 28 is secured upon the inner face of the plate-like member 20 by means of screws or rivets 30 or in any other suitable manner, and said spring-plate 28 is also provided with an upwardly-curved end portion 31, as shown.

As has been stated, when the gas-burner is closed the plug, cock, or spindle 4 and the safety device or attachment are in the positions indicated in said Figs. 1, 2, and 3 of the drawings. Now to turn on the gas all that is necessary is to turn the attachment or device by hand into the position indicated in Figs. 4, 6, and 7, thereby bringing the said ring-shaped enlargement 26 of the flat spring-bar 25 directly and slightly above the gas-tip 3 of the burner. The escaping gas is then ignited with a lighted match or taper in the usual manner, causing a flame directly above and in alinement with the said bar 25. The heat from the said flame at once expands the said bar 25 between the fixed end portions 23 of the fingers 21 and 22, whereby the said bar 25 is further bent slightly in a downwardly-curved direction and the said ring-shaped enlargement 26 of the bar 25 enters into holding engagement with the upper and free end portion 2 of the gas-burner 1, substantially as shown in Figs. 4 and 5 of the drawings. In this position the said safety device or attachment will thus be held as long as the gas is burning at the tip 3; but should the gas become extinguished by a strong gust of wind or by being blown out by an ignorant person then the said band or bar 25 will almost immediately contract to its normal initial position, whereby the ring-shaped enlargement 26 is again moved above the gas-burner, as shown in Fig. 6, and the curved end portion 31 of the spring-plate 28, which was previously brought into a bearing engagement with the side of the burner, as indicated in Fig. 4 of the drawings, causes a start of the said device or attachment to its normal initial position, the said device or attachment by its own weight and gravity quickly assuming the hori-

zontal position indicated in Figs. 1, 2, and 3 and once more positively and safely bringing the plug, cock, or spindle 4 into its closed relation with the interior gas duct or passage of the burner and preventing any possible escape of the gas, as will be clearly evident.

That the gas-burner may be closed by hand, I have secured the second arm or lever 16 pivotally upon the arm 9 by means of the pin or rivet 11, the said arm or lever 16 when the ring-shaped enlargement 26 is in its holding engagement with the upper end portion of the burner 1 resting against the lug or projection 14, as shown in Fig. 4. Now by moving the said arm or lever 16 over against the other lug or projection 15, as indicated in Fig. 8 of the drawings, it will be evident that the parts will swing upon the pin or rivet 11 as a center, whereby the said ring-shaped enlargement 26 of the spring bar or band 25 is sufficiently tilted at an angle above the gas-tip 3 of the burner that the entire safety device or attachment can be turned to its normal closing position, (indicated in said Figs. 1, 2, and 3,) and the gas-flame is extinguished by the corresponding movement of the plug, cock, or spindle 4, with which the said device or attachment is connected, as has been previously stated.

From the foregoing description of my present invention it will be clearly evident that I have produced a simply-constructed and efficiently-operating safety device or attachment which is directly applicable to a gas-burner and coöperates with the plug, cock, or spindle of the same for opening and closing the gas duct or passage when worked by hand and which is automatic in its operation for shutting off the supply of gas, that there can be no accidental escape of the gas, nor can the plug, cock, or spindle be accidentally brought into its opened relation to allow the escape of the gas, because of the weight and the distance that the attachment would have to move and the impossibility of the ring-shaped enlargement making a holding connection with the burner unless the gas is subsequently lighted by the person.

I am aware that various changes may be made in the arrangements and combinations of the devices comprising the features of my present invention, as well as in the details of the construction of the same, without departing from the scope of this invention. Hence I do not limit my invention to the exact arrangements and combinations of the various devices and parts as described in the foregoing specification and as illustrated in the accompanying drawings, nor do I confine myself to the exact details of the construction of the said parts.

Having thus described my invention, what I claim is—

1. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of a safety attachment connected with said plug or spindle, and a holding means on said safety attachment adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, substantially as and for the purposes set forth.

2. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of a safety attachment connected with said plug or spindle, a holding means on said safety attachment adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and means connected with the said safety attachment for the disengagement of said holding means from the said end portion of the burner, substantially as and for the purposes set forth.

3. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of a safety attachment connected with said plug or spindle, a holding means on said safety attachment adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and a lever pivotally and movably connected with the said safety attachment for the disengagement of said holding means from the free end portion of the burner, substantially as and for the purposes set forth.

4. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of a safety attachment connected with the said plug or spindle, comprising a yoke-shaped frame, having a pair of fingers, a band supported between the said fingers, and a ring-shaped holding portion connected with said band adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, substantially as and for the purposes set forth.

5. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of a safety attachment connected with the said plug or spindle, comprising a yoke-shaped frame, having a pair of fingers, a band supported between the said fingers, a ring-shaped holding portion connect-

ed with said band adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and means connected with the said safety attachment for the disengagement of said ring-shaped holding portion from the said end portion of the burner, substantially as and for the purposes set forth.

6. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of a safety attachment connected with said plug or spindle, comprising a yoke-shaped frame, having a pair of fingers, a band supported between the said fingers, a ring-shaped holding portion connected with said band adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and a lever pivotally and movably connected with the said safety attachment for the disengagement of said ring-shaped holding portion from the said end portion of the burner, substantially as and for the purposes set forth.

7. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm secured to and extending from the said plug or spindle, a safety attachment pivotally connected with said arm, and a holding means on said safety attachment adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, substantially as and for the purposes set forth.

8. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm secured to and extending from the said plug or spindle, a safety attachment pivotally connected with said arm, a holding means on said safety attachment adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and means connected with the said safety attachment for the disengagement of said holding means from the said end portion of the burner, substantially as and for the purposes set forth.

9. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm secured to and extending from the said plug or spindle, a safety attachment pivotally connected with the said arm, a holding means on said safety attachment adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and a lever pivotally connected with the said safety attachment for the disengagement of said holding means from the said end portion of the burner, substantially as and for the purposes set forth.

10. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm secured to and extending from the said plug or spindle, a safety attachment pivotally connected with said arm, comprising a yoke-shaped frame, having a pair of fingers, a band supported between the said fingers, and a ring-shaped holding portion connected with said band adapted to be moved over the tip end of the burner when the plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, substantially as and for the purposes set forth.

11. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm secured to and extending from the said plug or spindle, a safety attachment pivotally connected with said arm, comprising a yoke-shaped frame, having a pair of fingers, a band supported between the said fingers, a ring-shaped holding portion connected with said band adapted to be moved over the tip end of the burner when the plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and means connected with the said safety attachment for the disengagement of said ring-shaped holding portion from the said end portion of the burner, substantially as and for the purposes set forth.

12. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm secured to and extending from the said plug or spindle, a safety attachment pivotally connected with said arm, comprising a yoke-shaped frame, having a pair of fingers, a band supported between the said fingers, a ring-shaped holding portion connected with said band adapted to be moved over the tip end of the burner when the plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and a lever pivotally and movably connected with the said safety attachment for the disengagement of

the said ring-shaped holding portion from the said end portion of the burner, substantially as and for the purposes set forth.

13. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm 9 secured to and extending from the said plug or spindle, a safety attachment comprising a lever 16 pivotally connected with said arm 9, a bent portion 19 and a plate-like member 20 connected with said arm 16, a pair of oppositely-extending fingers on said member 20, a band supported between said fingers, and a ring-shaped holding portion connected with the said band adapted to be moved over the tip end of the burner when the plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, substantially as and for the purposes set forth.

14. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm 9 secured to and extending from the said plug or spindle, a safety attachment comprising a lever 16 pivotally connected with said arm 9, a bent portion 19 and a plate-like member 20 connected with said arm 16, a pair of oppositely-extending fingers on said member 20, a band supported between said fingers, a ring-shaped holding portion connected with the said band adapted to be moved over the tip end of the burner when the plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and means connected with said arm 16 for producing the disengagement of said ring-shaped holding portion from the end portion of the burner, substantially as and for the purposes set forth.

15. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm 9 secured to and extending from the said plug or spindle, a safety attachment comprising a lever 16 pivotally connected with said arm 9, a bent portion 19 and a plate-like member 20 connected with said arm 16, a pair of oppositely-extending fingers on said member 20, a band supported between said fingers, a ring-shaped holding portion connected with the said band adapted to be moved over the tip end of the burner when the plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and a downwardly-extending finger-piece on said arm 16 for producing the disengagement of said ring-shaped holding portion from the end portion of the burner, substantially as and for the purposes set forth.

16. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm 9 secured to and extending from the said plug or spindle, an outwardly-extending lug projecting from each marginal edge of said arm 9, a safety attachment comprising a lever 16 pivotally connected with said arm 9 and having a limited movement between the lugs of said arm 9, a yoke-shaped frame connected with said arm 16, having a pair of fingers, a band supported between the said fingers, and a ring-shaped holding portion connected with said band adapted to be moved over the tip end of the burner when the plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, substantially as and for the purposes set forth.

17. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm 9 secured to and extending from the said plug or spindle, an outwardly-extending lug projecting from each marginal edge of said arm 9, a safety attachment comprising a lever 16 pivotally connected with said arm 9 and having a limited movement between the lugs of said arm 9, a yoke-shaped frame connected with said arm 16, having a pair of fingers, a band supported between the said fingers, a ring-shaped holding portion connected with said band adapted to be moved over the tip end of the burner when the plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and means connected with the said arm 16 for producing the disengagement of said ring-shaped holding portion from the end portion of the burner, substantially as and for the purposes set forth.

18. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of an arm 9 secured to and extending from the said plug or spindle, an outwardly-extending lug projecting from each marginal edge of said arm 9, a safety attachment comprising a lever 16 pivotally connected with said arm 9 and having a limited movement between the lugs of said arm 9, a yoke-shaped frame connected with said arm 16, having a pair of fingers, a band supported between the said fingers, a ring-shaped holding portion connected with said band adapted to be moved over the tip end of the burner when the plug or spindle is turned into its open relation and arranged to be brought in holding engagement with the upper end portion of the burner when the gas is ignited, and a downwardly-extending finger-piece on said arm 16 for producing the disengagement of said ring-shaped holding portion from the

end portion of the burner, substantially as and for the purposes set forth.

19. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of a safety attachment connected to and movable with the movements of said plug or spindle, and a holding means on said safety attachment adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation, said holding means being expansible by the heat from the ignited gas and being thereby brought in holding engagement with the upper end portion of the burner, said safety attachment by its own gravity returning the said plug or spindle into its closed relation with the gas-passage when the flame is accidentally extinguished and means coöperating with said safety attachment for starting it upon its return movement as soon as the flame is extinguished, substantially as and for the purposes set forth.

20. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of a safety attachment connected to and movable with the movements of said plug or spindle, a holding means on said safety attachment adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation, said holding means being expansible by the heat from the ignited gas and being thereby brought in holding engagement with the inner end portion of the burner, said safety attachment by its own gravity returning the said plug or spindle into its closed relation with the gas-passage when the flame is accidentally extinguished, means coöperating with said safety attachment for starting it upon its return movement as soon as the flame is extinguished, and means connected with said attachment for limiting the return movement of the said parts and retaining the said plug or spindle in its exactly closed relation to the gas-passage of the burner, substantially as and for the purposes set forth.

21. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of a safety attachment connected to and movable with the movements of said plug or spindle, and a holding means on said safety attachment adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation, said holding means being expansible by the heat from the ignited gas and being thereby brought in holding engagement with the upper end portion of the burner, and said safety attachment by its own gravity returning the said plug or spindle into its closed relation with the gas-passage when the flame is accidentally extinguished, and a spring device for assisting the return of said safety attachment to its normal initial position, substantially as and for the purposes set forth.

22. In a gas-burner, the combination, with the body of the burner and an oscillating plug or spindle arranged to open and close the gas-passage of the burner, of a safety attachment connected to and movable with the movements of said plug or spindle, a holding means on said safety attachment adapted to be moved over the tip end of the burner when the said plug or spindle is turned into its open relation, said holding means being expansible by the heat from the ignited gas and being thereby brought in holding engagement with the upper end portion of the burner, and said safety attachment by its own gravity returning the said plug or spindle into its closed relation with the gas-passage when the flame is accidentally extinguished, a spring device for assisting the return of said safety attachment to its normal initial position, and means connected with said safety attachment for limiting the return movements of the said parts and retaining the said plug or spindle in its exactly closed relation to the gas-passage of the burner, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 6th day of February, 1905.

PHILIP HOCHHEIMER.

Witnesses:

FREDK. C. FRAENTZEL,

GEO. D. RICHARDS.