





# UNITED STATES PATENT OFFICE.

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## ADJUSTABLE GAS-CHECK.

SPECIFICATION forming part of Letters Patent No. 714,454, dated November 25, 1902.

Application filed April 24, 1902. Serial No. 104,436. (No model.)

*To all whom it may concern:*

Be it known that I, MELVIN D. COMPTON, a citizen of the United States, residing at New York city, in the county and State of New York, have invented certain new and useful Improvements in Adjustable Gas-Checks, of which the following is a specification.

One object of the present invention is to provide for obtaining practically the maximum efficiency in the application of gas to so-called "incandescent gas-lighting."

Another object of the invention is to deliver the gas for admixture with air under conditions favorable for the production of an advantageous mixture.

Another object of the invention is to provide a comparatively simple, reliable, and efficient adjustable gas check and spreader.

Another object of the invention is to provide means whereby natural gas under commercial conditions can be satisfactorily employed in incandescent gas-lighting.

Another object of the invention is to obviate the employment of diminutive openings such as are used in needle-valves and such as are subject to becoming clogged.

Other objects of the invention will appear from the following description.

To these and other ends hereinafter set forth the invention comprises the improvements to be presently described and finally claimed.

The nature, characteristic features, and scope of the invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is an elevational view showing a mixing-tube equipped with an adjustable gas-check embodying features of the invention. Fig. 2 is a central sectional view drawn to an enlarged scale and illustrating the parts of a gas-check embodying features of the invention. Fig. 3 is an elevational view, and Fig. 4 is a plan view, of the gas-check shown in Fig. 2. Fig. 5 is a top or plan view of the base of the apparatus which is shown at the lower part of Fig. 2. Fig. 6 is a view, principally in section, illustrating a gas-check embodying a modification of the invention; and Figs. 7 and 8 are views illustrating rep-

resentative forms of bodies which may be used in connection with the gas-check.

In a device embodying features of the invention and with reference to the drawings, more particularly to Figs. 1 to 5, there is a base 1, adapted for application to a gas-pipe or to the fitting which is usually provided on gas-fixtures and by which the burners are applied to them, and there is a part 2, which is movable in respect to the part 1—as, for example, by having screw-and-thread connection with it—and by "movable" is meant movement up and down, or, in other words, the part 2 can be raised and lowered in respect to the part 1. The part 2 is fitted with a seat 3, and the internal edge of this seat, which is designated by the reference-line from 3, is sharp. As shown, this is accomplished by cutting off the part 2 at right angles with its axis; but such expedient is not necessary, the object being to have the edge 3 of the seat sharp for a purpose that will be described.

4 is a body, the form of which may be variously modified, examples of such modifications being shown in Figs. 7 and 8. This body coöperates with the seat 3, and in obtaining the best results up to the present time I have employed a body which extends substantially above and below a horizontal plane passed through its center of figure, or, in other words, a body of spherical or generally spheroidal or ovoid shape. As shown, the body 4 is connected with a pillar or support 5, which extends up from a spider 6, carried by the base 1. The mixing-tube 7, of which the form may be widely varied, is mounted above the gas-check, as shown in Fig. 1, and it may have air-inlets 8 of sufficient size to introduce as much air as the incoming gas and other conditions can possibly consume. In fact, I have attained up to this time the best results by not attempting to control the quantity of the incoming air, but simply to be sure that there is an opportunity for as much air to come in as could possibly be used. It will be observed that there is a free space in the air-mixing tube 7 above the body 4. In other words, there is a clearance at that part of the apparatus, so that the passage of the air and gas or the mixture thereof



is absolutely unobstructed above the body 4. By shifting the collar 2 upward or downward, or, in other words, by raising or lowering it, the size of the opening, which in this case is  
 5 annular and which is between the body 4 and the edge 3 of the seat, is increased or diminished, and thus the supply of gas is increased or diminished. Obviously the incoming gas is introduced into the mixing-tube in the form  
 10 of a very thin sheet, and this thin sheet travels up around the central horizontal zone of the body, and in doing so is spread and draws in advantageously a supply of air, for example, through the air-inlets 8. The portion of  
 15 the body above its central zone when present serves to prevent this cylindrical sheet of gas from curling in over the top of the body. The incoming gas is spread, entering as a sheet of generally cylindrical or conical form,  
 20 and thus not only advantageously draws in the air, but also becomes thoroughly mixed with it, thus insuring efficiency of the burner. The fact that the edge 3 of the seat is sharp permits the gas to escape by it with a mini-  
 25 mum of friction and loss of pressure. Thus the available pressure of the gas is substantially preserved and not lost by friction and other causes.

The construction and mode of operation of  
 30 the modification of the invention illustrated in Fig. 6 are substantially as have been described, with the exception that the collar 9 is mounted upon the outside of the base 10, and the support 11 for the body is connected  
 35 with the collar and spans the base.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details without departing from the spirit thereof. Hence I do  
 40 not limit myself to the precise construction and arrangements of parts hereinabove set forth, and illustrated in the accompanying drawings; but,

Having thus described the nature and ob-  
 45 jects of the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A combined spreader and adjustable gas-check comprising an internally-sharp-edged seat, a generally spheroidal part adapted to  
 50 said seat, a support connected with and extending downward from said spheroidal part for positively adjusting it in respect to said seat, and means for relatively raising and lowering one of said elements to regulate the  
 55 flow of gas, substantially as described.

2. A combined spreader and adjustable gas-check comprising an internally-cylindrical sharp-edged seat, a generally spheroidal part adapted to said seat, and positive means for  
 60 shifting one of said elements in respect to the other to regulate the flow of gas, substantially as described.

3. A combined spreader and adjustable gas-check comprising an internally-cylindrical seat, a generally spheroidal part, a support  
 65 connected with and extending downward from said spheroidal part for positioning it above and in proximity with the seat, and means for raising and lowering one of said elements, in respect to the other to regulate  
 70 the flow of gas, substantially as described.

4. A combined spreader and adjustable gas-check comprising an internally-cylindrical sharp-edged seat, a generally spheroidal part  
 75 arranged above and in proximity with the seat, and means for holding said spheroidal part captive and for shifting one of said elements in respect to the other to regulate the flow of gas, substantially as described.

5. A combined spreader and adjustable gas-check comprising a cylindrical gas-tube hav-  
 80 ing a sharp discharge edge which constitutes a seat, a captive spheroidal part above and in proximity with said seat, and means for raising and lowering the one in respect to the  
 85 other to regulate the supply of gas, substantially as described.

6. In combination, a gas-tube and collar, a screw-thread connection interposed between  
 90 them whereby they are movable in respect to each other, a seat carried by one of said parts, a check and spreader arranged above and in proximity with the seat, a device extending  
 95 downward from the check and spreader and connected with one of said movable parts, and an air-mixing tube mounted above said parts and provided with air-inlet openings and surrounding said device, substantially as described.

7. In combination, a base, a part capable  
 100 of being raised and lowered on the base and provided with a seat, a support extending up from the base through said seat, and a check and spreader detachably connected with said support, substantially as described. 105

8. In combination, a base, a part capable  
 110 of being raised and lowered on the base and provided with a seat, a support extending up from the base through the seat, and a check and spreader connected with said support, substantially as described.

9. The combination with a gas-tube the  
 115 mouth of which constitutes a seat, of a generally spheroidal check and spreader adapted to said seat, and means for effecting a positive adjustment of said check and spreader in respect to said seat to regulate the flow of gas, substantially as described.

In testimony whereof I have hereunto signed my name.

MELVIN D. COMPTON.

In presence of—

K. M. GILLIGAN,  
 W. J. JACKSON.