(No Model.)

W. M. JACKSON.

TIP FOR GAS BURNERS.

No. 386,984. Patented July 31, 1888.

Fig. 1.

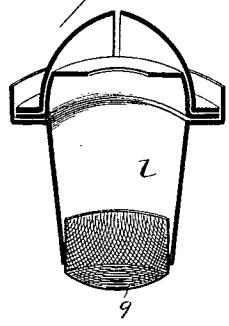
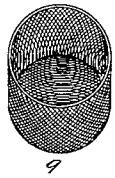


Fig. 3.



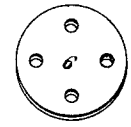


Fig. 4.

Fig. 2.

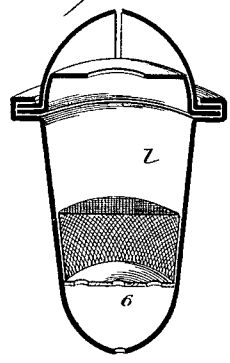
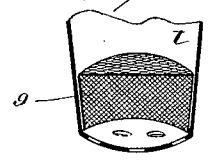


Fig. 5.



Witnesses.
E. D. Nottingham.
G. F. Downing.

Inventor,
Walter M. Jackson.
By his Attorney
H. A. Seymour.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WALTER MARSH JACKSON, OF NEW YORK, N. Y.

TIP FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 386,984, dated July 31, 1888.

Application filed May 17, 1887. Serial No. 238,547. (No model.)

To all whom it may concern:

Be it known that I, WALTER MARSH JACKSON, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Tips 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.

My invention relates to an improvement in tips for gas-burners intended for illuminating purposes, and has for its object to provide a means by which the current of gas entering the body of the gas-tip will be broken up into fine streams and thus be delivered to the outlet slot, slots, or holes in the tip, where combustion is effected in a steady and homogeneous series of waves.

A further object of my invention is to provide a means by which I am enabled to break a small and forced current moving under high pressure and consequent rapidity of flow into a current of less velocity by drawing the gas through a small aperture into a chamber, and thence through a number of apertures of the same size or one hole of greater size, thus reducing the initial force of the moving gas-current, and subsequently breaking this current into a number of fine streams.

With these objects in view my invention consists in certain peculiar forms of construction and combinations of these novel parts to produce a burner-tip that will embody the points of advantage sought.

Referring to the drawings, which illustrate my invention, Figure 1 is a side elevation in section of a gas-tip containing my improved regulating device. Fig. 2 is a side elevation in section of a different form of construction of the gas tip regulator that is adapted to check and regulate gas of high pressure. Fig. 3 is a detached view of the cupped screen shown in position in Fig. 1. Fig. 4 is a detached view of the check-disk used in connection with a burner-tip, constructed as shown in Fig. 2. Fig. 5 is a detail view.

In order to conveniently combine my present improvement in gas-burner tips with the body or shell of the tip it may be necessary to construct the tip proper of sheet metal and connect its shank with the conoidal head or cap by a rimmed edge, this form of construction being already shown in Patent No. 361,161, issued to me April 12, 1887, and also exhibited in my pending patent application filed April 14, 1887. In the latter-named case the sheet-metal shank is provided with slits or fine holes that are located in an integral head of the tip-shank or in the side walls and head of the shank.

Practical experiment has demonstrated the value of the additional regulator that is the subject of this improvement, which I will proceed to describe.

In Fig. 1 is represented a gas-regulating device located in a tip. It consists of a sieve, 9, which is cut out as a disk from wire-gauze of proper mesh, and cupped or raised to correspond in shape to the interior of the tip-shank 1, into which it is inserted, the integral base or head of this tip-shank being provided with a number of holes to allow the passage of gas into the shank; or, in some cases, I may prefer to dispense with the integral head of the tip-shank and simply insert the cupped sieve firmly within the slightly-conical body of the shank 1, the convex head of the gauze-screen forming the lower head of the conical wall of the tip-shank. The form of gas-regulator just described is used when a comparatively low-pressure gas reaches the burner-tip, this volume of gas having previously been reduced in pressure by a gas-check or automatic regulator placed in the pillar of a burner or some other means of controlling or reducing the initial pressure of gas flowing from a main conduit-pipe to which the burner is connected.

I have described the screen 9 as being made of wire-gauze. I prefer this material; but it may also be manufactured of sheet metal that is numerously perforated to furnish a foraminous cup or check screen, by the use of which the current of gas is rendered smooth, and any vibrations or wave-like fluctuations of this current are sub-divided, the gas burning at the exit slit or perforations with a steady flame, the shape of which is controlled by the shape of the burner-tip slit, and other peculiarities of construction of the conoidal head in its interior or an adjunctive piece located in the same, these latter-named devices being the subject of other patents issued to me.

When burners are used in connection with

gas systems of high pressure and no check is employed in the burner-pillar, it is essential that an additional check be furnished. I then prefer to perforate the solid head of the tip-shank with one or more holes of sufficient diameter to pass the requisite amount of gas under high-average pressure to fully supply the maximum flame-capacity of the burner-tip, and in order to correct the excessive irregularity of delivery that causes a vibratory fluctuation of the flame, resulting in imperfect combustion and great loss of possible illuminating-power, I place a disk, 6, (see Fig. 2,) in the base of the tip-shank 1 immediately above the perforated base, which latter is made convex in form. The disk 6 is perforated with a proper number of holes. The speed of the gas thus checked by a perforated disk is in proportion as the sum of the area of the perforations in the disk is to the area of the hole or holes made in the integral convex base of the tip-shank 1. Above the disk 6 a screen, similar in form to the screen shown in Fig. 3 and shown also in Fig. 1, is located, which will so subdivide the current of gas that a smooth regular flame will be afforded at the exit or tip slit.

In some instances the screen may be inverted to locate its head above the base or lower end of the tip-shank. I therefore do not wish to restrict myself to the use of a screen in the position shown in the figures, although this position is preferred, as the screen will be more readily inserted into the tip-shank and be more firmly secured in proper position by reason of frictional contact of its integral side wall with the adjacent interior surface of the tip-shank against which it is forced by the act of insertion into place.

It is obvious that many slight changes might be made in the constructive details of this invention without exceeding its scope; hence I do not desire to restrict myself to the exact forms shown; but,

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

1. As a new article of manufacture, a sheet-metal gas-burner tip, consisting, essentially, of a tapering body or shank, a head secured to the larger end of the shank, and a cup-shaped screen, the side edges of which are shaped to conform to the inner surface of the shank, substantially as set forth.

2. As a new article of manufacture, a sheet-metal gas-burner tip, consisting, essentially, of a tapering shank having its lower or smaller end perforated, a head secured to the larger end of said shank, and a cup-shaped screen located within the tip, the sides of said screen conforming in shape to the inner surface of the tip, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WALTER MARSH JACKSON.

Witnesses:

WILLIAM C. ADAMS,

GEO. M. WARDNY.