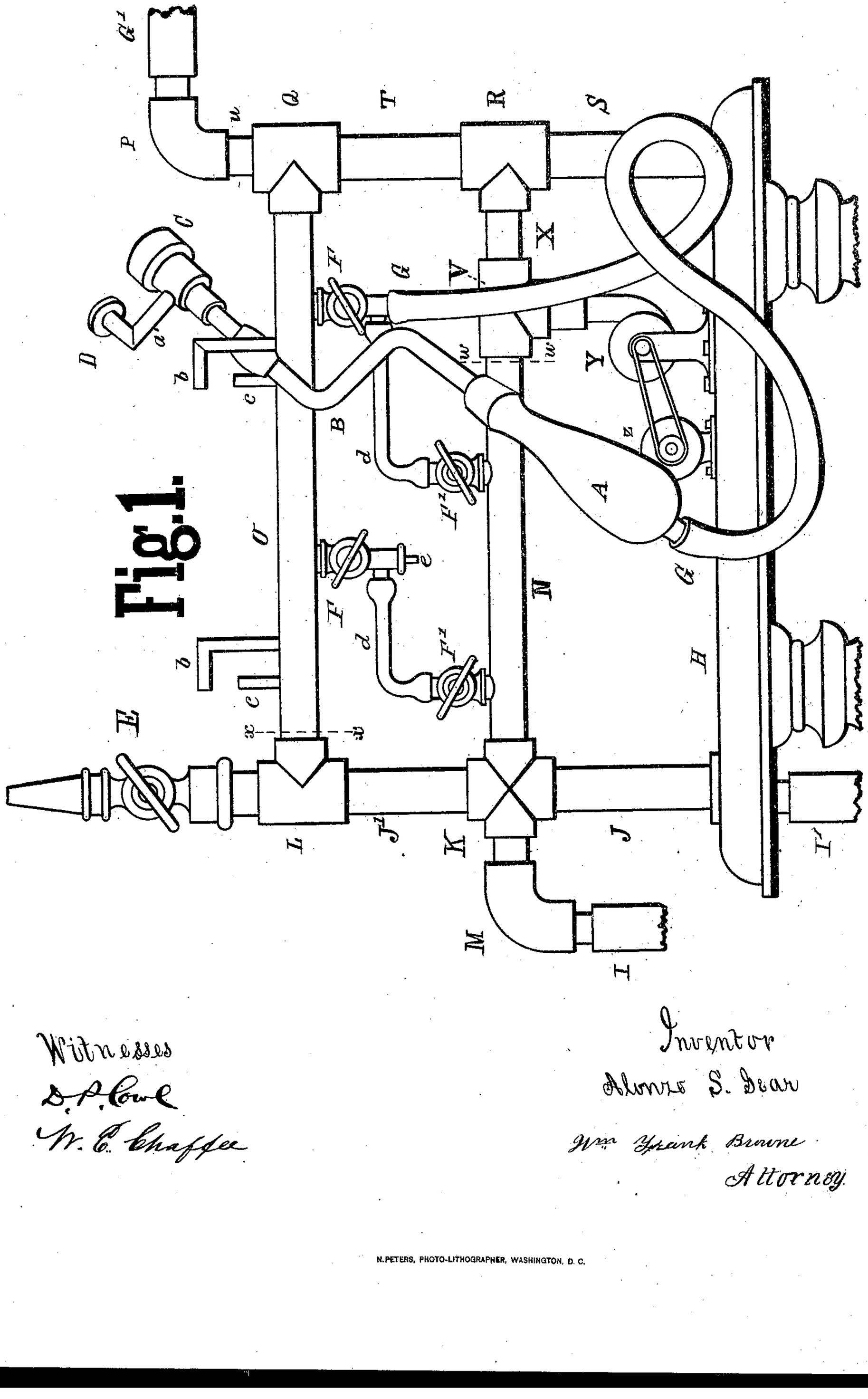
2 Sheets—Sheet 1.

A. S. GEAR.

Pyro-Canceling Device.

No. 227,424. Patented May 11, 1880.

Fig. 1.



Witnesses
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W. C. Chaffee

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Attorney

2 Sheets—Sheet 2.

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Fig. 4.

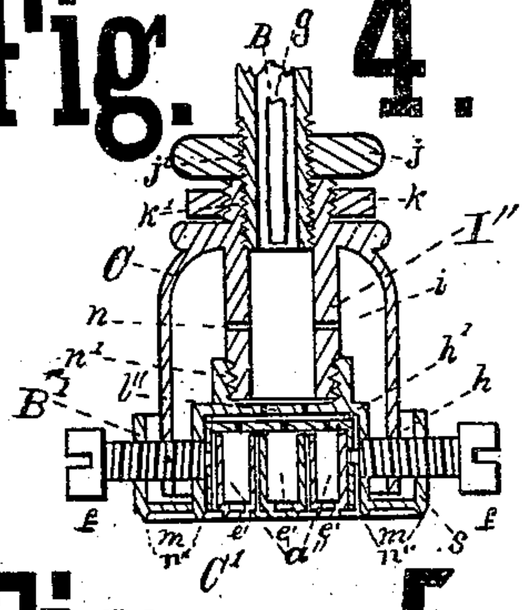


Fig. 5.

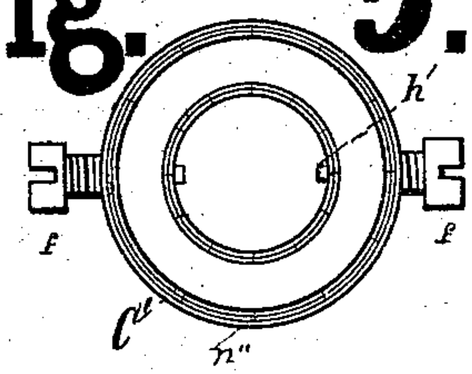


Fig. 2.

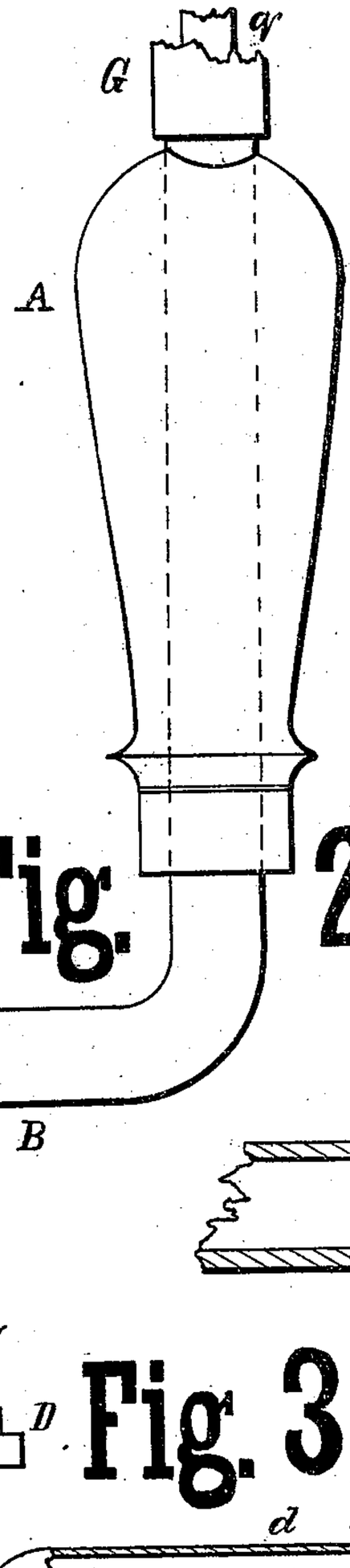


Fig. 6.

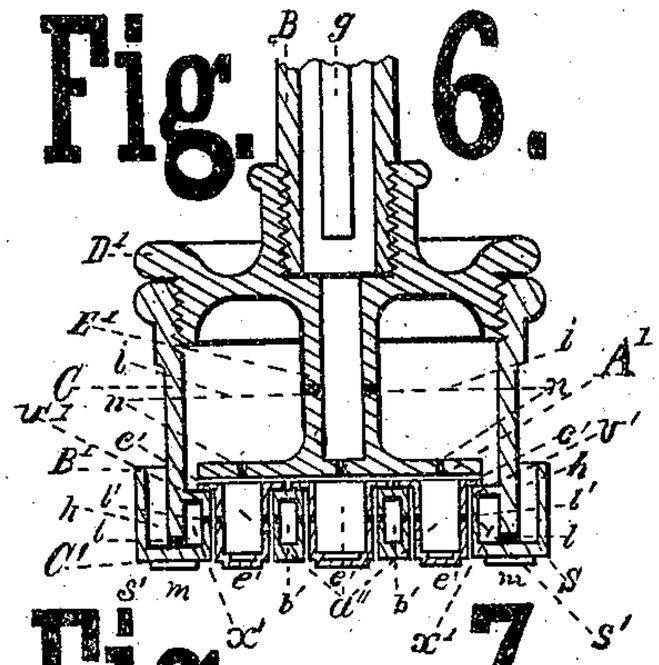


Fig. 7.

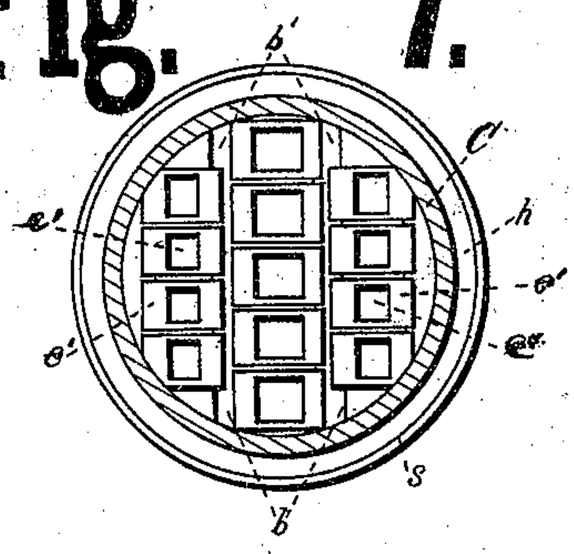


Fig. 3.

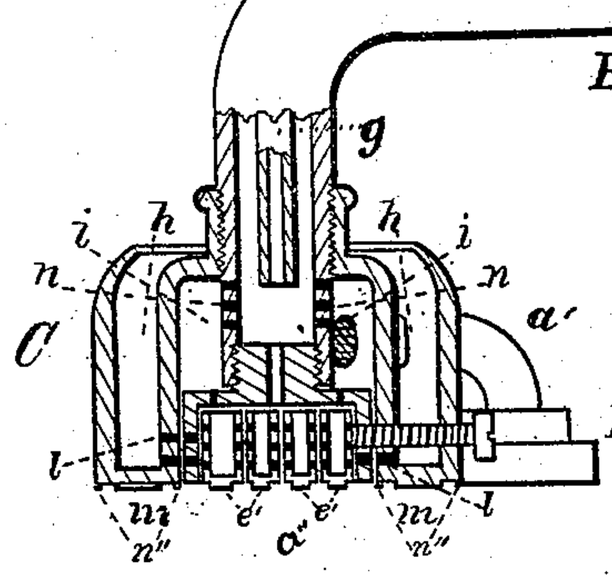
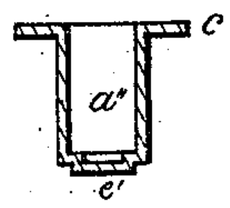


Fig. 8.



WITNESSES

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N. C. Chaffee

INVENTOR

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UNITED STATES PATENT OFFICE.

ALONZO S. GEAR, OF NEW YORK, N. Y.

PYRO-CANCELING DEVICE.

SPECIFICATION forming part of Letters Patent No. 227,424, dated May 11, 1880.

Application filed January 8, 1880.

To all whom it may concern:

Be it known that I, ALONZO S. GEAR, of the city, county, and State of New York, have invented a new and useful Improvement in Pyro-Canceling Devices; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

This invention relates to the means for post-marking letters and canceling postage and revenue stamps by heat, and for all other analogous purposes, the object of which is to insure a rapid and destructive cancellation of postage and revenue stamps, and to prevent the alteration of checks and other commercial papers.

This invention consists in a branding or canceling stamp, whereby the heat from gas, or gas and air, can be applied for the destructive cancellation of postage and revenue stamps, and also to the art of printing letters, words, figures, and designs.

Figure 1 represents a supporting-frame with a pyro-canceling device resting thereon. Fig. 2 represents a duplex pyro-canceling device. Fig. 3 represents a detached section of the device employed for introducing or conducting air and gas into an external and internal tube and pipe. Fig. 4 is a sectional view of a pyro-canceling device with type therein. Fig. 5 represents a plan of the face of the die shown in Fig. 4. Fig. 6 is a sectional view of a pyro-canceling device with flanged hollow type therein. Fig. 7 is a cross-section of Fig. 6 on a line just above the flanges of the hollow type. Fig. 8 represents hollow type in section.

Like letters designate corresponding parts in all of the figures.

In Fig. 1, H represents a stand or table, on which the supporting-frame is secured. Said frame is constructed of metal pipe and standard fittings. J and S are standards or nipples, to which the cross K and T R are secured. Said fittings are connected by the horizontal pipe N, T V, and nipple X. T and J′ are nipples screwed into the run of T R and the vertical run of cross K.

To the upper end of said nipples one end of the run of two T's, L and Q, are screwed with their outlets facing each other, and are connected by the horizontal pipe O. The upper run of T L is provided with an ordinary gas-burner, E, while the upper run of T Q is provided with the close nipple *u* and L P, to which is attached the flexible tube G′.

F F are two cocks screwed to the under side of pipe O, while cocks F′ F′ are screwed to the upper side of pipe N. Said cocks are connected by pipes *d d*, which are for the purpose of conducting gas from pipe N to cocks F F, and from thence to an internal flexible tube within the external flexible tube, G.

c and *b* are devices for holding the pyro-canceling device when not in use, one of which is suspended therefrom, as shown in the figure, C being the burner, B the pipe, and A the handle thereof. G is a flexible tube connecting said canceling device with one of the cocks F, from which it receives hydrocarbon gas and air, and conducts said gas and air to the pyro-canceling device. The conducting pipes or tubes I or I′ are to connect with a service-pipe or other receptacle for holding gas, or from an apparatus by which the above-named gas can be generated.

The air for supporting the combustion of the gas within the pyro-canceling device is forced, by means of the blower Y or by some other mechanical equivalent, through T-connection V, thence through T R and nipple T to T Q, and from thence into pipe O, from whence it is distributed and conducted through the regulating-cocks F.

e is a continuation of the small gas-pipe *d*, and to which the internal flexible tube is attached, while the external flexible tube, G, is attached to the end of the cock, as shown in the adjoining attachment.

It is not necessary that one pipe be placed within the other, for they can both be independent of each other and attached separately to the chamber or furnace of the die-burner; but for simplicity in appearance and compactness, and by reason of less trouble while in operation, I prefer the former device.

Another important feature of my invention consists in a hollow or tubular stand or holder, constructed of pipe and fittings, or otherwise suitably constructed, for the purpose of holding or supporting the pyro-canceling device when not in use. This feature I find to be quite necessary for holding said device when the gas or gas and air are burning, for without it, or an equivalent device therefor, the

flame would have to be extinguished when said die-burner is not in the hand of the operator. This hollow supporting-frame is also employed for the reception and distribution of gas, or gas and air, to the several canceling devices connected thereto.

Fig. 2 represents a double pyro postmarking and canceling device, for canceling and postmarking mail-matter, which is done in one operation.

C represents the postmarking-die, and D the canceling-die, which is attached to die C by means of the arm *a'*.

The postmarking device C is made with an exterior and an interior compartment, *h* and *i*, said interior compartment communicating directly with the exterior and interior pipes, B and *o*. Said exterior pipe projects, as shown, below the upper plane of the chamber *i*. The end of said projection is provided with a screw-thread thereon or therein, for the purpose of attaching interchangeable dies and designs. Said dies or designs, or die and design holder with dies and designs therein, should fill the area of the interior chamber, so as to prevent the escape of the flame from said chamber at or beneath the face of the die or type and designs, excepting at such points within the face of the interchangeable die as may be deemed desirable.

The intervening space between the interchangeable die-stem and the top of the interior chamber on the projected end of pipe B is provided with perforations *n n*, for the purpose of emitting hydrocarbon gas and air from said pipe B and interior pipe, *g*, into said interior chamber, *i*, where complete combustion is effected. The products of said combustion escape or are forced through the annular wall of said chamber into the exterior annular chamber, *h*, whence they make their exit through the open top thereof. The bottom of the said exterior annular chamber is provided with letters, figures, and designs engraved, stamped, cast, or otherwise affixed thereon or thereto.

Whenever it is desirable or necessary to use an auxiliary or duplex canceling die or stamp for making scorched impressions simultaneously I affix the secondary stamp or die by means of the pipe *a'*, or by some equivalent means, to which the die D is attached, while the other end thereof pierces the outer and inner walls of the pyro-canceling device C, from whence it conducts flame or heated decomposed gas to die D, whereby its heat is derived to produce scorched impressions. This die can be made interchangeable, thus producing an infinite variety of designs; and, also, said die with its connecting-pipe can be removed when only the pyro-canceling device is required to be used; and, furthermore, several dies D can be arranged radially around the central pyro-canceling device, C, if necessary.

The circular form need not be strictly adhered to, for a variety of forms which varying uses may require can be substituted; and also where still more complex patterns or work is required, the secondary dies can be provided with attendant satellites radiating therefrom, and the canceling-die system receive its heat from the central pyro-canceling device.

The internal pipe, *g*, is inserted into pipe B, after which said pipes are bent at or near a right angle, and thence extend radially from the axial line of the pyro-canceling device parallel, or nearly so, to the plane of the face of said die, but within a plane above the plane of the face of said die, to the distance required to keep the hand of the operator so far removed from the heat rising from said pyro-die burner that the hand will not be affected thereby, whence said pipes are bent upward at a right angle, or nearly so, to said radial extension, and a handle affixed thereon, after which the pipes are attached to their respective internal and external flexible tubes. Said tubes are subsequently connected to the respective sources from whence gas and air are supplied, as shown in Figs. 1 and 3.

In the broken section, Fig. 3, N represents the gas-supply pipe, to which the cock F′ is attached. *d* is a pipe leading from said cock, and connecting with a nipple on or near the end of cock F. Said nipple continues or connects with the nipple *r* on the interior of the cock, and extends below the end thereof, and connects with the interior flexible tube, *g*, while the exterior end of said cock connects with the external flexible tube, G. O is a pipe to which cock F is screwed, and from whence air is conducted to said cock. The flow of said air is regulated by the valve or plug *o*.

I do not limit myself to the use of the two pipes and tubes as shown and described above, for the pyro-canceling device will, when gas alone is used, furnish all of the heat required to scorch many substances; but when only gas is admitted into the interior of the canceling device no combustion will take place therein, and not until it escapes through the passages to the exterior of said device, where it will burn and heat the incoming gas prior to its exit.

Fig. 4 is a vertical section of another form of my pyro-canceling device. C represents the burner thereof, and C′ the die or printing-face of said canceling device. This device is made in two parts, by casting or otherwise. The part C is made in a cup-shaped form, with a central hollow stem, which projects at a suitable or fixed distance toward the mouth of said cup, while its other end projects beyond the upper end of said cup sufficiently far to admit of a lock-nut to be screwed thereon. The inner end is provided with a screw-thread, to which the annular cup-shaped part B′ is screwed.

When the two parts C and B′ are screwed together the open end of C projects within the annular chamber *h* and nearly to the bottom thereof, thus forming a very narrow space or outlet between the edge of the cup C and the bottom of B′ for the escape of heated gas

through their perforated sides l', into the small annular chamber x', from whence they make their escape through openings l into the annular chamber h, and from thence to the open air.

The small annular chamber is not a necessity, for the wall S′ and side of chamber C can coincide, and with the inwardly-projecting rim v' the same function would be performed as by the device shown.

Fig. 7 is a cross-section of Fig. 6, cutting through on a plane just beneath the follower A′. This view shows the hollow type e' as being suspended by their flanges c'.

Fig. 8 is a section of a hollow type, e', with flange c' thereon. This type, with or without flanges thereon and perforations therein, can be cut from sheet metal in blank form, and then struck up with suitable dies; or said type, with or without flanges, can be cast from suitable metal; but the way I prefer to make them is to deposit copper or other suitable metal upon requisite forms, after which they are taken therefrom in a suitable condition for the canceling device. Where one word or two or more figures or a design is to be used continuously, or at alternating periods of time, said words, figures, and designs can be deposited in one piece, whereby a saving of time in selecting and adjusting separately the number of letters and figures necessary for the imprinting required is accomplished.

When these types are made by the deposition of metals the thickness thereof will be uniform, thus conforming to the varying configuration of the letters, designs, &c. By this method of constructing types any required thickness can be obtained; but when used with the pyro-canceling device they should be made as thin at the face portion as the nature of the work will admit of, whereby heat will be more readily transmitted to the substance to be scorched, and the metal in the upper part of the device should be much thicker, for the purpose of retaining a reservoir of heat, which is afterward transmitted through said type. Without this feature of thick and thin metal the canceling device would be slow in its action, while with it imprints are made in a rapid manner.

I do not limit myself to any form or size, as the principle involved in the construction of said type is applicable to all phases of the art of printing, either by heat or any printing-ink now in use.

This pyro-canceling device can be constructed and adapted to meet all of the varying requirements for which, when the nature of the material or substance to be used is duly considered, such canceling-die burners may be employed. Therefore I do not limit myself to the construction or to the area of the printing-face of the die-burner, nor to the form or shape thereof, as shown; but I do propose to vary the form or shape, and to increase said area to a size sufficient for printing all matter to which this system and process may be applicable and wherever said system can be made available.

What I claim, and desire to secure by Letters Patent, is—

1. The supporting-frame constructed of pipe and fittings for holding the pyro-canceling device and for conducting gas or gas and air from their respective sources to pipes or tubes connecting with said canceling device, in combination with the induction-pipes to said frame and pipes leading therefrom and the said pyro-canceling device.

2. A pyro-canceling device provided with an interior and an exterior chamber, i and h, with die-holder and dies therein, in combination with an external and an internal pipe, B and g, connected to said inner chamber, and from whence hydrocarbon gas and air are discharged and burned within said inner chamber, and thence transmitted through said die-holder and dies or type therein, substantially as described, and for the purpose specified.

3. In combination with the pyro-postmarking device C and connecting gas-pipe therewith, the canceling-die burner D and connecting-pipe a', substantially as and for the purpose described.

4. The plug-cock F, provided with a nipple, p and r, situated between the plug and discharge end of said plug-cock, in combination with gas-pipe d and internal gas-tube, q, and external air-tube, G, for conducting gas and air to the pyro-canceling device, as and for the purpose specified.

5. In combination with a pyro-canceling device, a hollow type the sides of the body and the face of which are of equal thickness, or nearly so, substantially as described.

6. A pyro-canceling device provided with an interior and exterior chamber, i and h, and a type-holder with type therein, in combination with a tube connecting therewith, whereby gas is conducted to said inner chamber, i, where it becomes heated prior to its exit from said chamber, whence it escapes into the exterior chamber and through the outlet thereof, where it is burned, as and for the purpose specified.

7. A pyro-canceling device consisting of an upper and lower section, the lower section of which is provided with type or designs, the printing-faces of which are composed of thin metal for the purpose of transmitting heat rapidly, the upper section of which is composed of thick metal for the purpose of accumulating and radiating heat which is generated in or around the canceling device, whereby the heat which is radiated downward from said thick metal will be transmitted through the thin metal composing the faces of the type or designs, and keep said faces in a sufficiently heated condition to make scorched impressions in a rapid and continuous manner.

ALONZO S. GEAR.

Witnesses:
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