

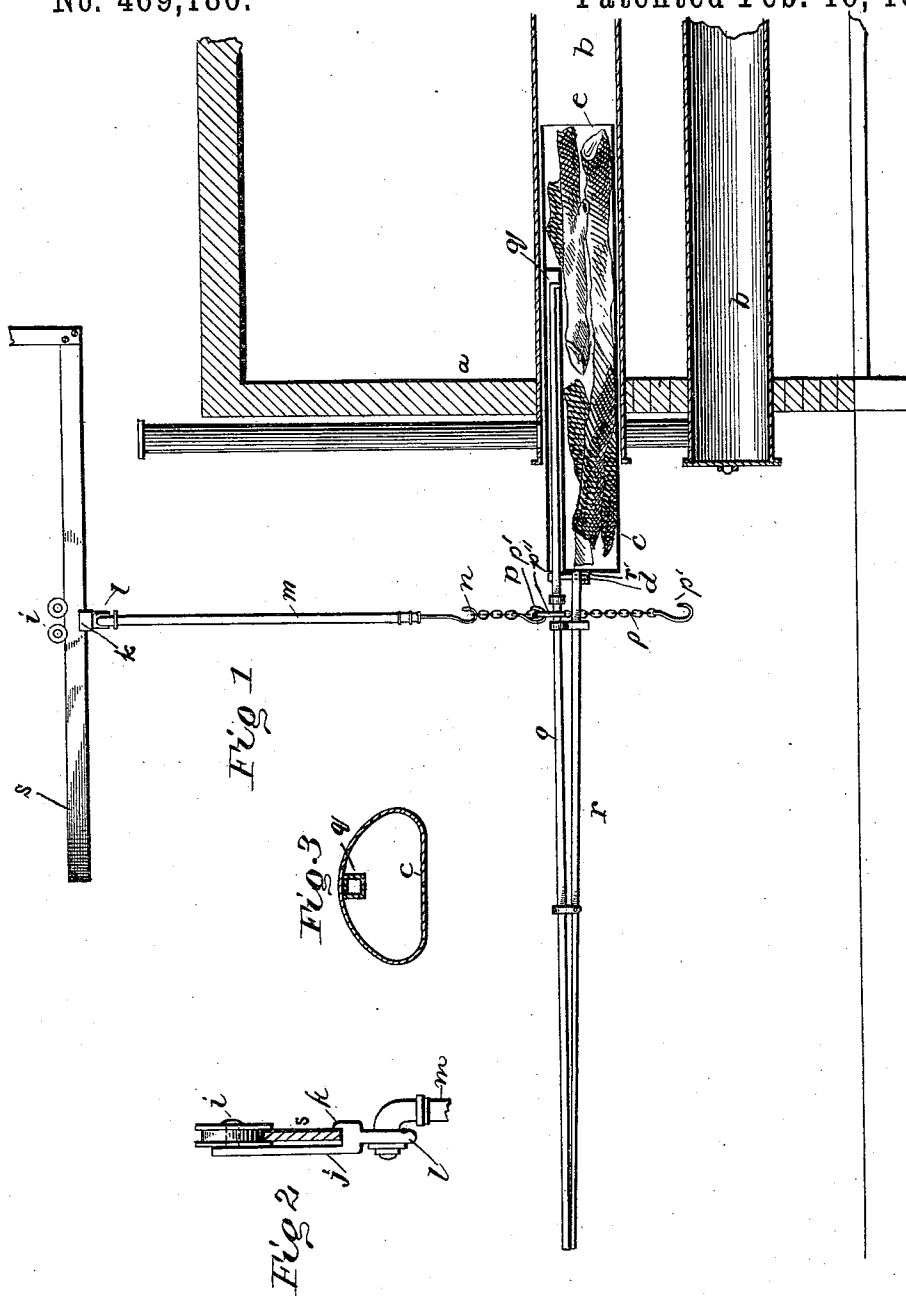
(No Model.)

3 Sheets—Sheet 1.

G. R. WAITE.
GAS APPARATUS.

No. 469,180.

Patented Feb. 16, 1892.



Witnesses
C. C. Burdine
H. E. Peck

Inventor
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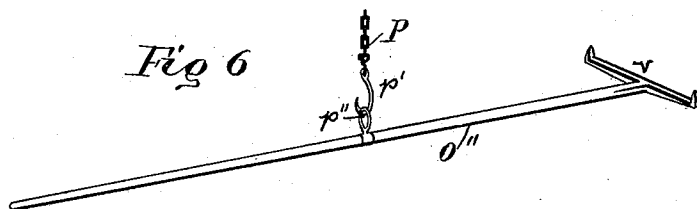
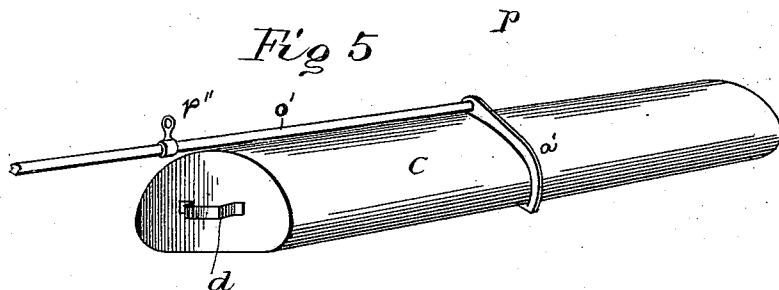
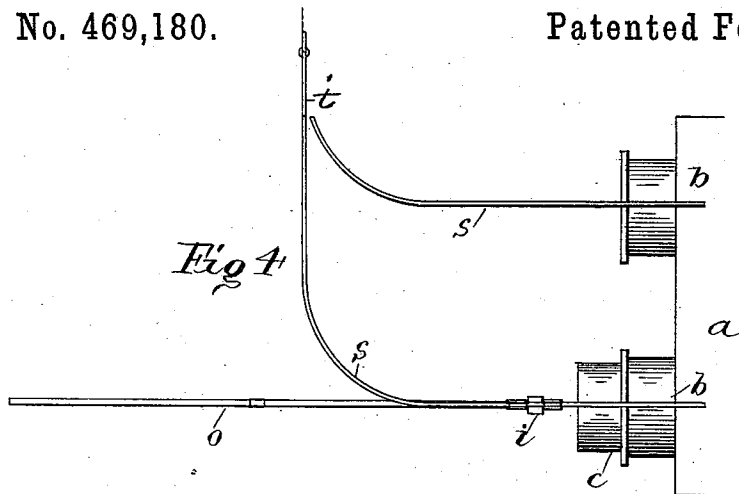
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UNITED STATES PATENT OFFICE.

GEORGE R. WAITE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE PROVIDENT GAS PROCESS COMPANY, OF SAME PLACE.

GAS APPARATUS.

SPECIFICATION forming part of Letters Patent No. 469,180, dated February 16, 1892.

Application filed March 21, 1891. Serial No. 385,878. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. WAITE, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Gas Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in gas apparatus.

The object of the invention is to provide improved, strong, cheap, and durable means whereby cartridges employed in the manufacture of gas can be readily and quickly inserted or withdrawn from the retorts in which they are to be located and conveyed where desired when hot or charged. These objects are accomplished by and my invention consists in certain novel features of construction, and in combination of parts more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 illustrates a retort-bench in section, also showing the apparatus in the act of inserting or removing a cartridge. Fig. 2 is a detail sectional elevation of the trolley carrying the device which holds the cartridges. Fig. 3 is a cross-section of a form of cartridge. Fig. 4 is a plan showing an arrangement of tracks. Figs. 5, 6, 8, and 9 illustrate varied devices for grasping the cartridges. Fig. 7 shows a bench and the present apparatus in the act of manipulating a cartridge.

In the drawings, reference-letter *a* indicates any suitable gas-bench provided with the retorts *b*. The upper retort shown is intended to contain a cartridge *c*, closed at its outer end and there provided with a suitable loop or other handle *d*, and preferably open at its inner end *e*, as shown. This cartridge is strongly constructed and is adapted to receive wood, as shown in Fig. 1. In the operation of the apparatus the wood is distilled in this cartridge, releasing all of the gases, &c., therefrom, so that pure and commercial char-

coal remains in the cartridge. After the gas, &c., has been extracted from the wood the hot cartridge is immediately withdrawn and its open end sealed, so that the contents thereof cool gradually while the cartridge is closed and the charcoal is preserved in a commercial condition.

This invention further consists in means whereby these cartridges can be easily and quickly inserted or removed and readily manipulated while hot or charged.

One or more elevated tracks *s* are arranged in planes above the bench and extending from suitable portions of the building or yard to the bench. For instance, the tracks *s* might extend from the portion of building or yard where the wood to be distilled is stored to the gas bench or benches and from thence to the locality where the cartridges and their contents are carried to cool and be discharged. Ordinarily, where the benches contain a number of cartridge-receiving retorts *b*, or where there is a number or series of benches, branch tracks extend from a main track up to the bench directly above each retort, (see Fig. 4,) and switches *t* are located where necessary, so that the wheeled trolley *i*, carrying cartridge-grasping means and traveling upon such tracks, can be guided to the proper retort. This trolley *i* consists of the metal frame *j*, having a suitable number of wheels, preferably two, at its upper end traveling upon the upper edge of the rail or track *s*. The lower end of the metal frame *j* is provided with a lateral and upwardly-bent end or projection bearing against the outer side of the rail *s*, thereby forming a guide or stop *k* and confining the trolley upon said rail. The frame *j* has a depending lug or arm *l*, transversely perforated to form a bearing, and a long depending rod or bar *m* has its upper end bent laterally and journaled in said arm *l* by strong connections, so that the bar *m* can swing to and fro toward and from the gas-bench. The lower end of bar *m* is preferably provided with the hook *n*. The long lever *o* is supported by rod *m*, preferably by means of the chain *p*, secured to said lever between its ends and suspended by means of hook *n*; but of course any suitable means other than that shown can be applied to suspend the

means for grasping the cartridge from the bar *m*.

If desirable, the wood cartridge can be provided with a socket or pipe *q* rigid therewith, open at its outer end and preferably closed at its inner end, and located longitudinally of the cartridge, either on the exterior or interior thereof, preferably the interior, as shown in Figs. 1 and 3. The purpose of this socket is to receive the end of lever *o*, so that the lever can support and manipulate the cartridge. The lever *o* is preferably provided with a supplemental pivoted lever or rod *r*, provided with the bent end pin or catch *r'*, adapted to drop into the loop or handle *d*, as shown in Fig. 1, and prevent lever *o* drawing out of its socket *q* when pulling out cartridge.

In operation trolley *i* is moved on the particular track *s* to bring the trolley opposite and above the proper retort, so that the lever *o* can be thrust into the socket or tube *q* of the cartridge to be removed from such retort. When this lever is passed in a suitable distance, the supplemental lever *r* is dropped into and grasps the handle *d*, the trolley *i*, moving, if necessary, upon the track *s* during this operation, and when the levers *o* and *r* have properly engaged the cartridge the same can be easily drawn out of the retort and balanced from the trolley by means of the lever *o* and bar *m* and connections, the lever *r* preventing the lever *o* from drawing out of the socket *q* during this withdrawing operation and the trolley *i* rolling outwardly on the track *s*. When the cartridge is entirely withdrawn, the same is held balanced in a horizontal or other suitable position by lever *o* with great ease and a minimum amount of exertion, and the cartridge can be readily, easily, and quickly conveyed to the desired locality by the trolley on the track and dropped in a vertical or other position.

By means of the chain or other loose connection *p* and hook *n*, the lever *o* or other cartridge can be held at various vertical positions to operate on cartridges belonging in retorts at various heights. This same result can also be accomplished by providing chain *p*, several hooks *p'* to support or suspend lever *o* by eye or ring *p''* at various heights.

The trolley can be provided with suitable cartridge-grasping means, such as before described or such as hereinafter set forth in Figs. 5 to 9, inclusive.

In Fig. 5 the lever *o'*, suspended horizontally from the trolley, is provided at its inner end with a rigid curved or bent arm *a'*, extending laterally and downwardly and inwardly from end of lever *o'* to partially embrace and firmly hold the cartridge when slipped upon the same, and so that the cartridge can be easily balanced and manipulated by the operator at the free end of lever *o'*.

Fig. 6 shows an arrangement wherein the lever *o''* is provided with a cross-head *v* on its inner end, having upturned outer ends, as

shown. In operation the inner end of the lever carrying the cross-head is slipped under the cartridge, so that the cartridge rests on and is supported by the cross-head and the cartridge is balanced by the lever.

In Figs. 7 and 9 the cartridge is shown provided with one or more exterior sockets *c'*, arranged longitudinally of the cartridge, to receive the straight lever *o³*, as shown in these figures.

Fig. 7 shows the elevated track *s*, forming the horizontal upper arm of a swinging crane *s'*, the various positions of the same being shown in dotted lines.

Fig. 8 shows the cartridge-grasping means composed of a pair of levers *o⁴*, pivoted together to co-operate as a pair of tongs, being centrally suspended from the trolley at a substantially central point between their ends, the inner ends of the levers being bent laterally at *d'*, with their extremities bent in at *d²*, so that in operation the levers *o⁴* will extend longitudinally above the cartridge and the ends *d'* will embrace the cartridges and the inner ends *d²* will extend beneath the cartridge. With this construction the levers can be easily and quickly attached to or detached from the cartridge and will firmly grip the same. These various forms of levers having cartridge grasping or holding means are so suspended that the cartridge can be easily and quickly balanced in any position or moved without touching the cartridge and with a minimum amount of strength.

By means of this invention these cartridges can be handled with the greatest ease and rapidity, and it is of the utmost importance and utility and a great improvement.

It is evident that various changes might be made in the form and arrangements of the parts described without departing from the spirit and scope of my invention.

What I claim is—

1. The combination, in a gas apparatus, of a bench having a retort and the cartridge having a longitudinal socket with the lever arranged to enter said socket and thereby support and balance and carry the cartridge, and a movable support for such lever, substantially as described.

2. The herein-described wood-distilling cartridge, having a longitudinal socket secured to the side of the cartridge and closed to the interior of the cartridge and open at its front end, for the purpose described.

3. The combination of a bench having a retort, a cartridge having a longitudinal socket and an eye at its outer end, the main lever adapted to enter said socket of the cartridge, and the supplemental rod provided with a pin or catch to enter said eye of the cartridge, as and for the purpose set forth.

4. In combination, a gas-bench having the retorts, cartridges for such retorts, the elevated tracks above and having branches opposite the retorts, the trolley movable on said tracks, and the cartridge-supporting lever sus-

pended between its ends from such trolley, substantially as described.

5 In a gas apparatus, the combination of a bench having retorts, removable cartridges for such retorts, each having a socket or sockets, the elevated track, the trolley confined on such track, the depending rod at its upper end, pivotally united to the trolley-frame, and the cartridge-supporting lever between its

ends hung from the lower end of such rod, to operate as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEO. R. WAITE.

Witnesses:

WM. J. DIVINE,
FRANK F. BELL.