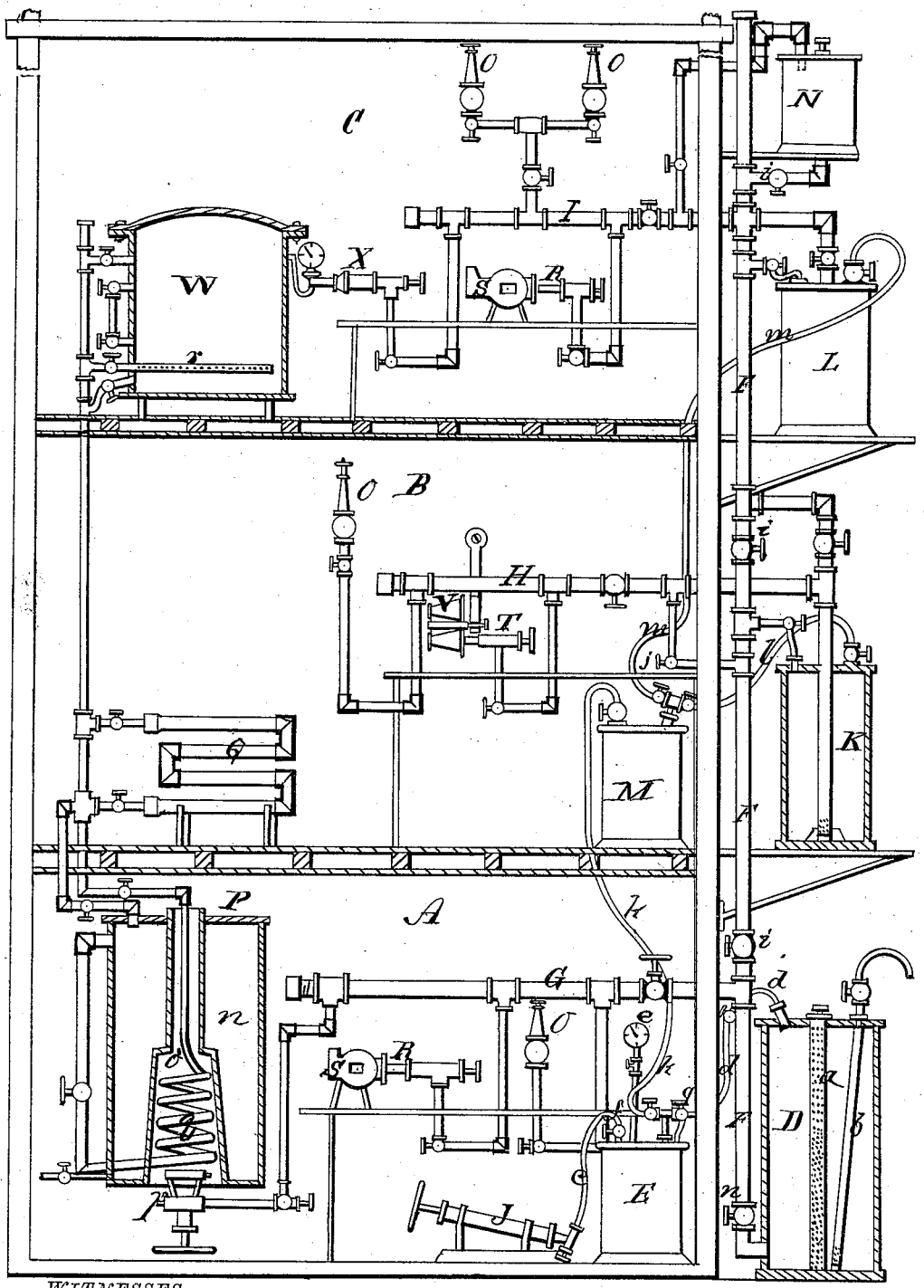
J. S. HULL.

Apparatus for Supplying Hydrocarbon Oils to Buildings.

No. 196,360. Patented Oct. 23, 1877.



WITNESSES

Arthur S. Brown

F. B. Townsend

INVENTOR,

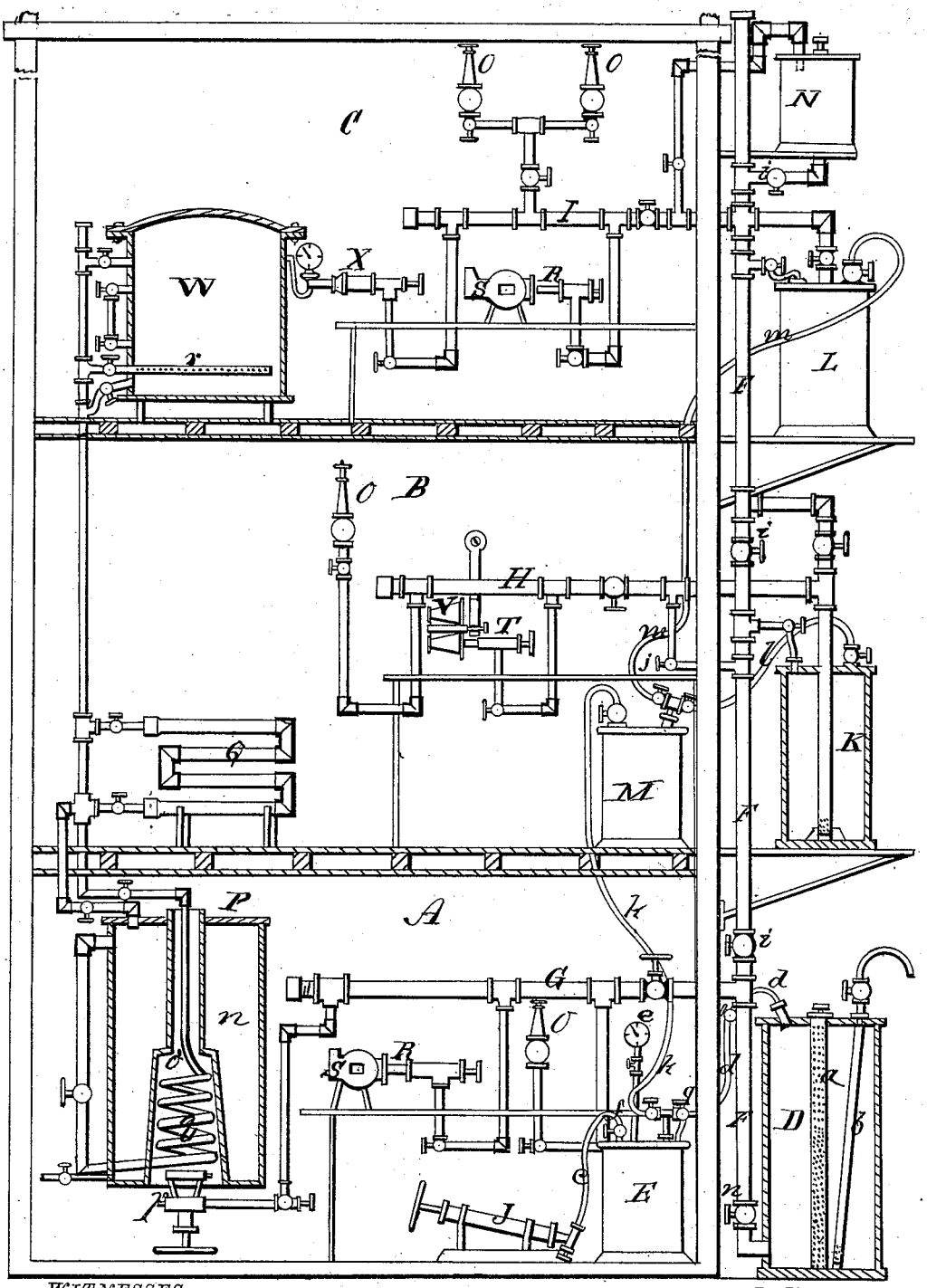
John S. Hull,

By J. S. Brown his Attorney

J. S. HULL.

Apparatus for Supplying Hydrocarbon Oils to Buildings.

No. 196,360. Patented Oct. 23, 1877.



WITNESSES

Arthur S. Brown

F. B. Townsend

INVENTOR,

John S. Hull,

By J. S. Brown, his Attorney

UNITED STATES PATENT OFFICE.

JOHN S. HULL, OF CINCINNATI, OHIO.

IMPROVEMENT IN APPARATUS FOR SUPPLYING HYDROCARBON OILS TO BUILDINGS.

Specification forming part of Letters Patent No. **196,360,** dated October 23, 1877; application filed November 12, 1875.

To all whom it may concern:

Be it known that I, JOHN S. HULL, of Cincinnati, in the county of Hamilton and State of Ohio, have invented an Improved Apparatus for Supplying Hydrocarbon Oils to Buildings for Heating and Illuminating Purposes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, making part of this specification, and representing an inside view of a building provided with the apparatus, parts of which are shown in vertical section.

The object of my invention is to furnish a practical, convenient, economical, and safe means of supplying hydrocarbon oils to the various parts of a building, for various heating and illuminating purposes, the fluid being supplied to the burners under sufficient pressure for producing light, and to produce a flowing and intensely-hot flame. The force employed to raise the oil to the various parts of the building and produce the pressure at the burners is that of compressed air upon the oil in the containing vessel or tank. The oils are conducted to the different parts of the building by means of pipes.

Special features of improvement will be hereinafter specified.

In the drawing, A, B, and C indicate the first, second, and third stories of a building provided with my apparatus. Any greater number of stories may be similarly provided.

The tank or reservoir D, which receives the supply of the hydrocarbon oils, and from which they are distributed to all parts of the building, is located outside of, and safely isolated from, the building.

A further precaution against accident by fire is provided by locating in the tank a safety filling-tube, *a*, made of finely-perforated sheet metal, reaching from the top to the bottom thereof inside, to prevent the possibility of communicating flame to the oil inside of the tank or reservoir. A drawing-tube, *b*, also reaches nearly to the bottom side, being perforated at the lower end.

In combination with the tank or reservoir D, I employ another reservoir or close vessel, E, for containing a supply of compressed air for the oil-tank. This air-tank is preferably placed in the building in a convenient position. It is provided with a condensing air-pump, J, either as a permanent attachment or separate, as shown in the drawing, and communicating with the air-reservoir by a pipe or tube, *c*. Occasionally this pump is operated to keep up the requisite pressure in the air-reservoir, and consequently in the oil-tank, which communicates with the air-reservoir by a pipe or tube, *d*, the pressure being indicated by a gage, *e*. Not a large amount of air is requisite to be supplied, since only enough needs to be added to fill the space emptied by the consumption of the oil. Stop-valves *f* and *g*, respectively, are employed to prevent the return of the air from the air-reservoir to the pump, and from the oil-tank to the air-reservoir.

From the oil-tank D a supply-pipe, F, extends, drawing from the same, near the bottom thereof, and provided with a globe or stop valve, *n*. This supply-pipe may first extend to the requisite height to supply all the stories of the building, and from this pipe branches G H I extend to the several stories. Stop-valves *i i i* are located in the pipe F, at various heights, to cut off any of the stories when desired.

In many cases I prefer to have supplementary oil-tanks K L on a level with the several upper stories, preferably situated on platforms outside of the building. They may be much smaller than the main tank D, and contain only a present supply each for its own story. By means of such supplementary tanks, the great pressure of the oil in the pipes in high buildings is relieved, and the pressure equalized in the different stories. They also increase the tank capacity, or enable a smaller main tank to be used. They are connected with the main supply-pipe F by branch pipes, and through the said supply-pipe they are filled from the main tank by the pressure of the air in the latter. They may be separately connected with the branch supply-pipe, as between the tank K and pipe H, from which the main supply-pipe E may be cut off by a stop-valve, *j*.

There may also be an additional air-reservoir, M, as shown, or more, if desired, one for each additional oil-tank. Thus the tank M is

supplied with compressed air from the main reservoir E through a pipe or tube, *k*, and from the reservoir a pipe, *l*, extends to the tank K, and another pipe, *m*, from the same reservoir to the tank L. All these communications are capable of being closed by stop-valves. Above the upper pneumatic-pressure tank, or the upper-story supply-pipe, I also locate a static-pressure tank, N, which may be of moderate size. It communicates with the supply-pipes, and is filled, as are the other supplementary tanks, from the main tank. It serves to keep up a supply of oil in the service-pipes while filling the other tanks, or in case of repairs being done to the tanks or air-reservoir. The oil therein may be ordinarily cut off from the pipes by a stop-valve, being thus held as a reserve supply.

The uses of this apparatus for heating and lighting are exemplified in the drawing, which also shows the method of applying the same for special purposes. Thus, O O O O O in the several stories represent gasifying-burners, for lighting the rooms connected directly with the supply-pipes. A steam-heating apparatus, P, for heating the building is represented, *n* being a steam-generator, through which a heating-flue, *o'*, extends to apply the heat from a self-gasifying pressure-burner, *p*, one or more, connected with the supply-pipe G, there being also a steam-superheating coil and pipe, *q*, in the flue. The steam-pipe is represented as continuing upward to a steam-radiator, Q, in the story above, and it may continue to as many radiators as desired. The remaining heating devices represented in the drawing are special applications for the various processes of a canning establishment, to which this apparatus is peculiarly adapted. Thus, R R represent self-gasifying heating-burners, connected with the supply-pipes, and S S tinners' fire-pots combined therewith, for heating soldering-irons for seaming, floating, and capping preserve-cans. As many of these burners and fire-pots may be used as there is room for in the building or as may be desired for the purpose. T represents a similar burner, and V a double shifting or revolving fire-pot to heat soldering-irons for tipping preserve-cans. The two fire-pots composing the device are mounted on a supporting-shaft, so located that first one fire-pot can be brought before the burner and then the other, so that one soldering-iron can be in process of heating while the operator is using the other. Finally, a processing chamber or chest, W, is employed for processing the filled cans. This is supplied with steam inside, introduced therein through a pipe, *r*, finely perforated, and connected with the steam-pipe of the steam-heating apparatus. In connection with the processing-chest W, another self-gasifying burner, X, connected with the supply-pipe, is employed for use in processing.

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

1. The combination, in a building, of an oil-tank, D, a separate air-reservoir, E, for supplying compressed air to said tank, and pipes F G H I, for conducting the oil from the tank to different parts of the building, for heating and illuminating purposes, substantially as herein specified.

2. The combination of an oil-tank, D, situated outside of the building which it supplies with oil, and a separate compressed-air reservoir, E, connected therewith by a suitable pipe or passage, *d*, substantially as and for the purpose herein specified.

3. One or more elevated pneumatic-pressure auxiliary oil-tanks, K L, in combination with the main oil-tank D and connecting-pipe F, substantially as and for the purpose herein specified.

4. In combination with a pneumatic-pressure oil-tank, D, and supply-pipes F G H I, an elevated static-pressure auxiliary oil-tank, N, substantially as and for the purpose herein specified.

Specification signed by me this 3d day of May, 1875.

JOHN S. HULL.

Witnesses:
J. S. BROWN,
JNO. D. PATTEN.