

The United States of America  
Letters Patent shall come

Whereas Samuel Hoxey atorney at Law  
the United States at and shall be has invented a new and useful improvement

which, upon arrival at the place has not been in a vessel before his departure. Both parties say that he does not believe that he is the true inventor, or discoverer of the said improvement, but paid into the Treasury of the United States the sum of thirty dollars, obtained a receipt for the same, and presented a petition to the Secretary of State, requesting a patent for the same, upon the said improvement, and praying that a patent might be granted for that purpose. These are therefore to grant, according to law, to the said John A. Thompson, his heirs, administrators, assigns, for the term of fourteen years, from the first day of April next, one thousand eight hundred and thirty-one, the full and entire right and privilege of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said petition, to wit: "I, John A. Thompson, do hereby certify, that the said invention, and is made a part of these presents."

In Testimony whereof, I have caused these Testaments to be made Public, and the Seal of the United States to be hereon affixed.

WAS BORN under my hand, at the City of Washington, this first day of April, in the year of our Lord one thousand eight hundred and twenty six, and of the independence of the United States of America.

*W. S. Alexander*

BY THE RECEIVING OFFICE

Ministry of Justice

City of Washington, D.C. 20543

I DO HEREBY CERTIFY, That the foregoing return has at once been  
sent to me on the \_\_\_\_\_ day of \_\_\_\_\_ in the year of our  
birth was thousand eight hundred and \_\_\_\_\_ and is to be understood;  
that I have received the same, and find same conformable to law, and  
I do hereby return the same to the Secretary of State, within fifteen days  
from the date aforesaid, to wit on the \_\_\_\_\_ day of \_\_\_\_\_  
in the year of aforesaid.

Wm. Lloyd Garrison, in Memorandum of the United States

lancet in these experiments upon a good deal of water, and then  
at last when the temperature of the water in the pan is in  
the shade is about 60° F. the engines are influenced by the  
electric spark. With the addition of a few drops of turpentine  
necessitating the temperature of the water it is being the same  
will work and thus with only a lamp to fire the engines in a  
high proportion of alcohol is used as fuel. Little turpentine  
is required. To reach the more dense the water is mixed  
with sea liquor in the box. The lower temperature will be equal  
to the temperature of the temperature of the box is and is in  
about 70° the spirit of turpentine required to cover over at about  
certain sufficient quantity to give enough to fill the box. The  
of these conditions attached it is the same as the oil of turpentine  
applied to the bottom of the cylinder, about 2 inches and not  
more surrounded with cold water. The boxes and valves are  
perfectly to perfect the vacuum and thus the tension is more  
the fluid when the cylinder are made of, and it is copper  
of put round the piston a drop of turpentine, and from one before  
of the water lamp and a cylinder of leather with a thin sheet  
above two or three inches gently pushed in the body of the cy-  
linder paper is about 40° a small space it will act much the  
better. If the engine be covered to work is equal as to the  
in heat in the water this may be as deep as the  
length of the whole and thus the engine applied at the top of the  
cylinder.

[illegible]

Prüfung in der Fachprüfung für den Grundbesitz

10/10/19

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a tube which round the end is highly expanded the  
ends of the tube vary of form. A description of one of the  
plans which is found to be perfectly safe and probably is the  
most recent one and is made an elongated of line or other material  
which is divided into compartments, into four or six compartments  
by partitions which extend alternately from end and of the  
middle a great deal of the other is that the air con-  
taining the same part will be supplied by the partitioning to  
travel the whole length of the line, each compartment  
is the same as that of the other. The compartments by one  
side, passing through the whole length of the line, but about  
half the space which have the double advantage of rapidly  
by their position of furnishing the motion of the air and  
also with each other and of also of preventing vibration the  
explosion in the line which are here placed. It is larger in  
size and other materials into the same apartments and  
another for letting out the explosive or prepared air from the  
upper one each covered with fine wires gauze to prevent ex-  
plosion and complete the preparing of the.

When taking part of the material or gas  
and results of a very great and rapid combustion. The  
line is in a series of rods. It has a cylinder filled with a  
substance and connected with a shaft in the lower engine  
but the lower end of the cylinder has a valve of at least

end

one half its diameter opening inwards. This valve may be made of thin soft leather of the same diameter of the working cylinder, and may be held or fastened to the lower end of the cylinder, or to the lower end of a rod or wire attached to the lower end of the cylinder, or as to form an extension of the same. The lower part of the heating cylinder or valve is to be flattened as to bring its inner ends together for about a foot or first third of its length as a height and that position by tight springs attached to the two edges of the flat part placing them a pressure round like that of a vice and holding. This valve is supported or prevented from being driven into the cylinder by a plate of metal of sufficient thickness that it is by far superior to atmospheric pressure. It is also perforated with a many holes of about  $\frac{1}{8}$  to  $\frac{1}{4}$  of an inch diameter as can well be made in it. The end of the cylinder or condenser near the abutment to the arched plate. The air valve also opening outwards is fixed to the side of the column just below the piston when down and a pipe from the preparing pipe is inserted or attached to the side of the column at from  $\frac{1}{2}$  to  $\frac{3}{4}$  of the length of the stroke from the top. This pipe should be as short as possible when open is used to prevent its becoming heated that it warms the cylinder and should be furnished with a valve near the preparing vessel to cut off the steam or water when it and a small valve about half an inch diameter near the cylinder to let the flame of a lamp or gas

manifested

communicate with the inflammable air so as to have it take fire  
and communicate by the track to the charge in the cylinder -  
These valves also open rapidly but as the exploded air is under  
little resistance when they are thus thrown up they are soon  
set by down in the track which is also the air is set in motion  
other convenient mode. The piston double stroke is with regard  
the cylinder filled up in there may communicate with the  
preparing vessel and tank except when vapors is introduced  
in use, but a little vacuum is much more useful either alone  
or with the addition of a small part of the pressure is just about  
of hydrogen and water or other gas and is very easily applied  
or variation in the vapor or air is in fact a variable substance  
with which we are to be used in the preparation of the  
ring paper the preparation of which is not very material apply  
a track lamp or other heating substance when it is used the  
temperature is most direct heat and gives the flame of a  
lamp at the igniting valve, care should be taken that the  
temperature of the gas when it comes in contact with the  
heat if it is it seems to be necessary from the fact of the  
vapor being used in the system being used in the system it  
forms a vacuum under it this is given by opening the air  
valve which supplies the cylinder with air while the piston  
moves the piston from the preparing tank at these times and the  
piston valve opens the remainder of the cylinder then the pre-  
paring



passage of air with explosion, and just before the piston is up  
about 1/8 of an inch and vapour valve closed and at the same  
time the expanding valve opens and admits the fresh air then these  
valves close and the steam at the lamp at the firing  
valves close the steam enters the pipe between the valves and  
communicates it instantly to the charge in the cylinder the ex-  
plosion that occurs drives out the air from within the cylinder  
the piston performs a stroke and the valve is closed at bottom  
where valve instantly collapses and prevents the return of the  
air the steam formed by the explosion and formation of the  
charge is condensed by keeping the lower part of the cylinder  
cold and condenser by surrounding them with water and  
suffering the water to inject a narrow stream of hot water  
from the bottom where also keeps the water plate and water  
cylinder cool. The expansion valve the piston instantly follows the  
expansion which occurs by the pressure of the steam and  
water the crank with it while the same process is repeated in  
the second cylinder and the power is taken from the crank  
shaft or piston rod as in the steam engine. When the temper-  
ature of the air is too small the charge will produce no  
effect if instead of water plate of the same diameter of the piston  
be introduced into the cylinder called the charging piston -  
it is pushed into a small hole through the water plate and  
the main piston is light and the piston will support the water



These changing pressures prevented rising higher than three or four feet by its end attaining a stationary point in its ascent and formed a partition between the compressed air in the cylinder and the common atmosphere by thus, insulating the atmosphere of the great proportion of atmospheric pressure in the cylinder as to lessen the effect of the explosion when the temperature of the gas is such as to give off too much vapour the engine works better by the slipping of the working end of this carrying piston.

The piston should be fully perforated with holes about  $\frac{1}{8}$  of an inch diameter, but by means of its weight it should not be so much as to stop the piston at the bottom of the cylinder fully that it be clear to the cylinder. This ring should also be placed between the vapor and the gas valve to prevent explosion in the box should the vapor valve not close in time. When hydrogen gas is intended to be used an apparatus on the principle of Professor Hart's experiment show the gas regulating the proportion of air and gas may be attached to the engine to blow the air and gas into the perforating piston a box of the form before mentioned partitioned into long and gas and a half wide and seven inches deep, with six sufficient with a small lamp to prepare air fast enough to furnish from fifty to one hundred charges per minute for a cylinder 100

at eight inches diameter being a two foot steam boiler being  
used for only about 1/2 part of the time they were about 1/2 off  
in the same way four such cylinders of the same size would  
draw constantly but it is to keep up the temperature of the  
water that would require the application of more heat than  
it appears that the more rapid the current of air is drawn to  
pass over the surface of the liquid the lower the temperature  
of the water at the same temperature and the following are some  
of the reasons by which I have produced a pressure from this source

I have caused currents in by the effect of the air  
pressure to be compressed in a column of water to be compressed  
in a column of water.

I have in a manner reversed it, not by forcing a  
column of water up but about the water would be drawn up by  
the pressure of the atmosphere.

I have caused the expansion to compress  
in a column a quantity of atmosphere and in a column of  
that compressed air for working an engine similar to that of  
a double stroke high pressure steam engine. The expansion  
is perfectly safe in account of force as the compressed air  
is not heated by friction but is not, the engine.

Constructing a pump, valve and the piston  
to give pressure and force the expansion of the piston  
with the pressure air, and when the piston is about half way

up the cylinder it is at the height of the working stroke the explosion takes place, the effect is that the quantity of air above the cylinder is nearly doubled its elasticity or force is also greatly increased by a great increase of its temperature. It now exerts on the piston while the vacuum below adds much to the effect. This mode acts with <sup>great</sup> energy and a small space.

I have stated as the working piston when taken open at top about  $\frac{1}{2}$  of an inch diameter each one of which is directly over and under one of the tubes of the commensurated to the bottom of the cylinder which tubes are about  $\frac{1}{2}$  of an inch diameter. The prepared air is let into the cylinder from the tubes and as the piston rises up it fills with the prepared air. The upper part of these tubes and the spaces around them when the piston is about up the explosion takes place the tubes prevent all violence in the explosion.

It is now as all of these springs which are constantly giving off hydrogen gas engines may be created and utilizing the gas in form of the vapors to work constantly for every domestic or industrial purpose. The quantity of air or gas in the most desirable situation by only conducting the hydrogen gas into tubes and if desired the air and gas may be in any proportion like the tubes together which with a few short tubes will insure its suitable preparation with but a short distance.