

Specification of Sutton Thomas Wood : applying steam : applying and using condensed water : constructing boilers : heating the same.

Contributors

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A.D. 1784 N^o 1455.

S P E C I F I C A T I O N

OF

SUTTON THOMAS WOOD.

APPLYING STEAM; APPLYING AND USING
CONDENSED WATER; CONSTRUCTING
BOILERS; HEATING THE SAME.

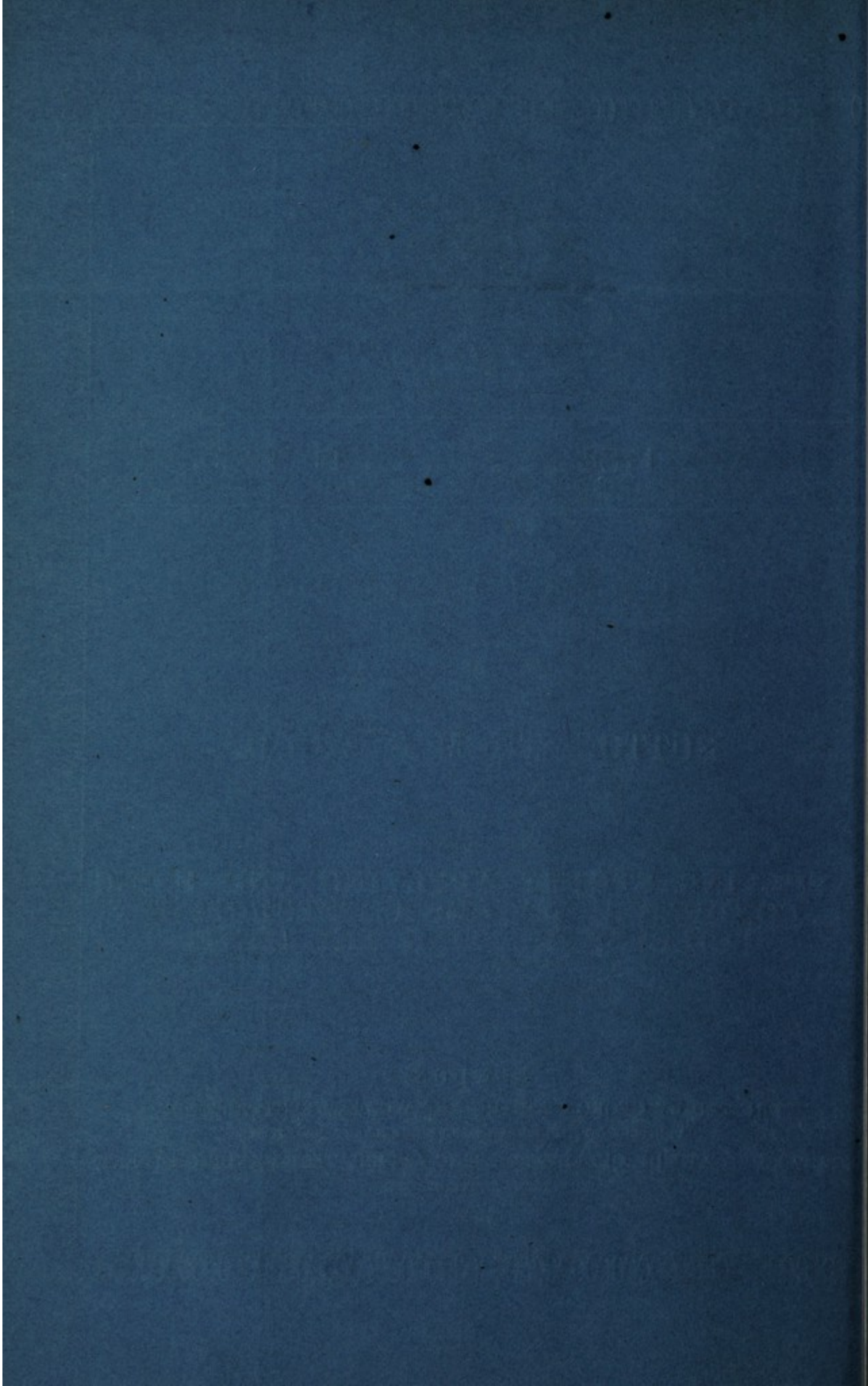
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A.D. 1784 N^o 1455.

**Applying Steam ; Applying and Using Condensed Water ;
Constructing Boilers ; Heating the same.**

WOOD'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, SUTTON THOMAS WOOD, of the City of Oxford, Brewer, send greeting.

WHEREAS His most Excellent Majesty King George the Third, by His Letters Patent under the Great Seal of Great Britain, bearing date the
5 Seventeenth day of November, in the twenty-fifth year of His reign, did give and grant unto me, the said Sutton Thomas Wood, my eñors, adñors, and assigns, His especial license, full power, sole privilege and authority, that I, the said Thomas Sutton Wood, my eñors, adñors, and assigns, should and lawfully might, for the term of years therein expressed, make, use, exercise,
10 and vend, within that part of His Kingdom of Great Britain called England, the Dominion of Wales, and the Town of Berwick upon Tweed, my Invention for "CERTAIN NEW DISCOVERIES IN THE APPLICATION OF STEAM, AND ALSO CERTAIN METHODS OF USING THE WATER PRODUCED FROM CONDENSED STEAM ; AND FOR APPLYING THE WATER FROM THE COPPERS OR BOILERS OF STEAM ENGINES
15 TO OTHER PURPOSES THAN THAT OF WORKING THE STEAM ENGINE ; AND ALSO VARIOUS METHODS OF HEATING AND APPLYING WATER FOR THE SEVERAL PURPOSES OF THE BREWERIES AND DISTILLERIES, AND FOR FORWARDING THE PROCESS OF BREWING ; AND ALSO CERTAIN METHODS OF CONSTRUCTING AND ADAPTING COPPERS, BOILERS, TUBES, AND OTHER HOLLOW BODIES FOR THE MORE EFFECTUAL MEANS OF
20 HEATING WATER AND WORTS, AND OF RENDRING SUCH COPPERS, BOILERS, TUBES, AND OTHER HOLLOW BODIES AS ARE EMPLOYED IN THE BREWERIES AND DISTILLERES, STEAM AND AIR TIGHT ;" in which said recited Letters Patent is contained a

Wood's Impts. in the Application of Steam, Construction of Boilers, &c.

proviso, obliging me, the said Sutton Thomas Wood, by an instrument under my hand and seal, to cause a particular description of the nature of my said Invention, and the manner in which the same is to be performed to be inrolled in His Majesty's High Court of Chancery within four calendar months after the date of the said Letters Patent, as by the said recited 5 Letters Patent, relation being thereunto had, may more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said Sutton Thomas Wood, do hereby declare that the nature of my said Invention, and the manner in which the same is to be performed, is herein-after 10 particularly described and ascertained, that is to say:—

My first application of steam is the application of that steam which arises from the water, liquor, worts, or other solutions which are or may be heated or boiled in all or any of such coppers, pans, kettles, or boilers as are used and employed in breweries, distilleries, the various manufactures of sugar, soap, salt, 15 and allum, and all other trades and manufactures whatever, to those engines commonly called or known by the name of steam or fire engines, so that the same steam which arises either during the process of the trade or manufacture, or from water or liquor heated or boiled for the purposes of the same, may be rendered capable of working the steam engine; and this I do by covering over 20 the top of the copper, pan, or boiler with copper, iron, brass, or any other materials, and by means of pipes, tubes, funnels, or other hollow bodies, or by any other means, forming a communication with the steam engine; to which copper, pan, or boiler I apply safety valves and doors, either upon the same principle as those which are generally applied to the boilers of steam engines 25 or upon any other principle; but I have various ways of adapting and connecting coppers or boilers used in trades and manufactures to the steam or fire engine, in order that the steam arising therefrom may be applied upon the above-mentioned principle, and rendered capable of working the same, many of which methods I have particularly specified and described in a Specification 30 duly inrolled agreeable to and by virtue of certain Letters Patent granted to me, the said Sutton Thomas Wood, by His present Majesty King George the Third, bearing date the Twentieth day of August, in the year of our Lord One thousand seven hundred and eighty-four, "for certain new Improvements on the Steam Engine," and other things therein contained, as in and by the said 35 Specification (relation being thereunto had) may more fully and at large appear. But let it be here observed that it is not of any consequence in what shape, form, or method the coppers, pans, or boilers may be constructed or adapted, provided they are constructed or adapted upon the above-mentioned

Wood's Impts. in the Application of Steam, Construction of Boilers, &c.

- principle, namely, that the same steam which arises from the water, liquor, worts, or solutions heated or boil'd therein may be rendered capable of working the steam engine; nor is it of any signification from what copper, pan, or boiler the steam may arise which is applied to the working of the steam engine,
- 5 provided it arises from any copper, pan, or boiler which is either employed in the carrying on or in anywise applied to the use of any business, trade, or manufacture whatever. Nothing, however, above mentioned is meant to extend to those coppers or boilers which are solely appropriated to and are applied to no other purpose than the working of the steam or fire engine.
- 10 My second application of steam is the application of steam to the making and preparing of sugar, salt, and allum, which I do by placing one pan or vessel over another, and by fastening and connecting them together either by means of doors or shutters, or by means of pipes, tubes, or funnels, or by any other means so as to cause the steam which arises from the lower pan or vessel to heat the
- 15 sugar, salt, or allum in the upper pan or vessel, and make or prepare the same; but in order to hinder any particles of the condensed steam from falling back into the lower pan or vessel and checking the evaporation, I sometimes make the top of the lower vessel, which may likewise serve for the bottom of the upper vessel, somewhat convex, spherical, or inclined, so as to cause the
- 20 drops as they generate to roll down the same into grooves, furrows, or channels, which are made to surround the sides of the lower vessel, and to be conveyed away by means of holes or apertures or cocks or valves placed therein for that purpose. But I have various ways of constructing pans and vessels upon the above principle, which, together with the nature of the grooves, furrows, or
- 25 channels, and the valves and doors, that may be applied upon this occasion, I have more particularly mentioned in the Specification above referred to, wherein I describe my method of adapting and connecting those coppers, pans, or boilers used in trades or manufactures to the steam or fire engine, where the nature of the trade or manufacture requires a quick evaporation.
- 30 My third application of steam is the application of steam to the heating of stoves; either such stoves as are used for the drying of sugar or salt or any other stoves, or to the heating of all or any of such places and things as are in general heated by fire or by any other means, and to heat which steam may be used or applied, which I do by means of tubes, pipes, funnels, or other hollow
- 35 bodies, made in such forms and shapes and thrown in such directions as may be most suitable to the particular places and purposes for which they may be required.

My fourth application of steam is, the application of steam to the heating of water or any liquor for the purposes of trades or manufactures; and this I do

Wood's Impts. in the Application of Steam, Construction of Boilers, &c.

either by causing water, liquors, worts, or other solutions to be placed in vessels or other hollow bodies which are made to surround or to be in contact with the copper, boiler, or vessel in which water or liquor are heated or boiled, so as that the steam arising from such copper or boiler may heat the same; or by conveying the steam by means of pipes, tubes, or other hollow bodies to the sides, 5 top, bottom, or any other part of the vessel or hollow body in which the water or liquor is or may be contained; or by conveying the steam through the water or liquor by means of pipes or tubes, as aforesaid, or by any other means, so as that the water or liquor required to be heated may be heated by steam.

My fifth application of steam is that of condensing such steam as arises 10 from the coppers, pans, or boilers used in trades and manufactures, which I do not only with but also without the power of the steam or fire engine, either by means of cold water or other liquor, or by causing the steam to flow through cold pipes, funnels, or hollow bodies, or to come in contact with cold bodies, or by any other means, and of applying the hot water produced by such 15 condensed steam to the various purposes of trades and manufactures. Let it be remembered also that I apply the hot water which is produced by such steam as is or may be condensed by the power of the steam engine to the like purposes of trades and manufactures.

My sixth application of steam is the application of that steam which arises 20 from sugars, unfermented worts, and all other unfermented solutions, which I not only apply to any of the purposes above mentioned, and condense the same and use the liquor produced by such condensed steam, but I also cause such liquor as is or may be produced by the condensed steam of sugar, unfermented worts, and other unfermented solutions, to be put into a state of fermentation 25 and to pass through the process of distillation, and the liquor produced thereby I use either for the purposes of trades or manufactures, or for any other purpose to which it may be applied.

My first improvement in the constructing and adapting of coppers or boilers consists of the following principle, namely, in causing that heat which is 30 generally absorbed and lost in the sides, back, and other parts of such fires or furnaces as are used in trades and manufactures, to be applied to the heating or boiling of water or liquor in other coppers or vessels than those which are generally used for the purposes of trades or manufactures, so that a greater quantity of water or liquor may be heated and boiled, either for the purposes 35 of the trade or manufacture or for any other purpose, and the process of the trade or manufacture may be thereby greatly forwarded without any extra consumption of fuel; and this I do by adapting, connecting, or applying coppers, boilers, or vessels, near to or in contact with such fires or furnaces,

Wood's Impts. in the Application of Steam, Construction of Boilers, &c.

either on the sides or back or any part of the same, so as that the water or liquor contained in such coppers or vessels may be heated or boiled thereby, which method of constructing and adapting coppers or boilers I have more particularly described in the Specification above mentioned and referred to,
 5 wherein I have explained my method of working the steam or fire engine by means of such separate and detached coppers or boilers as are constructed and adapted upon the above-mentioned principle.

My second improvement is in the adapting and connecting coppers, boilers, or vessels constructed upon the above-mentioned principle to the steam or fire
 10 engine, so that the same fire necessarily used for the purposes of trades and manufactures may at the same time be applied to the use of the steam or fire engine.

My third improvement is in causing the heat of the fire to be conveyed through the water or liquor, either by means of tubes, flues, or other hollow
 15 bodies, or by causing the fire or furnace to be in the middle or in any other part within the body of the liquor, either in the form of a cone or pyramid, or any other form, and the water or liquor to surround the same; nor is it of any consequence in what form or shape the copper or boiler is made or constructed, or in what direction the pipes or tubes are placed, provided it is constructed
 20 upon the above principle, of causing the fire or heat to be conveyed through the body of the water or liquor contained therein. Instead of conveying the heat or fire entirely through the water or liquor in the copper, boiler, or vessel, I sometimes cause the bottom of the copper or boiler to be made in the shape of a cone or pyramid, so as to cause a greater surface to be exposed to the heat of
 25 the fire, and the heating or boiling of the liquor contained therein to be forwarded thereby.

In witness whereof, I, the said Sutton Thomas Wood, have hereunto set my hand and seal, the Fifteenth day of March, in the twenty-fifth year of the reign of our Sovereign Lord George the Third, by the
 30 grace of God, of Great Britain, France, and Ireland, King, Defender of the Faith, and so forth, and in the year of our Lord One thousand seven hundred and eighty-five.

SUT^N THO^S (L.S.) WOOD.

Signed and sealed (being first duly stampd)

35 in the presence of

JOHN SELLON.

Wood's Impts. in the Application of Steam, Construction of Boilers, &c.

ORD. **AND BE IT REMEMBERED**, that on the Fifteenth day of March, in the year of our Lord 1785, the aforesaid Sutton Thomas Wood came before our said Lord the King, in His Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stampt according to the tenor of the Statutes made for that purpose. 5

Inrolled the Fifteenth day of March, in the year of our Lord One thousand seven hundred and eighty-five.

LONDON :

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