Specification of John Stanley : machinery for supplying fuel to furnaces, &c.;

Contributors

Stanley, John.

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A.D. 1822 . . . . . N° 4692.

SPECIFICATION

OF

JOHN STANLEY.

MACHINERY FOR SUPPLYING FUEL TO FURNACES, &c.

LONDON:
PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:
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NEAR FLEET STREET.

Price 9d.

1854.

A.D. 1822 . . . . . N° 4692.

Machinery for Supplying Fuel to Furnaces, &c.

STANLEY'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JOHN STANLEY, of Cholton Row, within the Parish of Manchester, in the County of Lancaster, Smith, send greeting.

WHEREAS His most Excellent Majesty King George the Fourth did, by His Letters Patent under the Great Seal of the United Kingdom of Great Britain and Ireland called England, bearing date at Westminster, the Twenty-seventh day of July, 1822, in the third year of His reign, give and grant unto me, the said John Stanley, my exors, admors, and assigns, His especial licence, full power, sole privilege and authority, that I, the said John Stanley, my exors, admors, and assigns, during the term of years therein mentioned, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick upon Tweed, my Invention of "CERTAIN MACHINERY CALCULATED FOR A MORE EFFICACIOUS MODE OF FUELLING OR SUPPLYING OF FURNACES IN GENERAL WITH FUEL, WHEREBY A CONSIDERABLE REDUCTION IN THE CONSUMPTION OF FUEL, THE APPEARANCE OF SMOKE, AND OF LABOUR, IS EFFECTED;" in which said Letters Patent there is contained a proviso that if I, the said John Stanley, shall not particularly describe and ascertain the nature of my said Invention, and in what manner the same is to be performed, by an instrument in writing under my hand and seal, and cause the same to be inrolled in His Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said Letters Patent, that then the said Letters Patent, and all liberties and advantages whatsoever thereby granted, shall utterly cease, determine, and become void, as in and by the same, relation being thereunto had, will more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said John Stanley, do hereby declare that the nature of my said Invention, and the manner in which the same is to be performed, are particularly described and ascertained by the following description thereof, reference at the same time being had to the annexed Drawings, in which said Drawings the same letters or figures of reference are employed to denote the same thing (that is to say):—

The dotted lines *a*, *b*, *b*, *c*, *c*, *d*, represent a part of a boiler; *a*, *b*, the top; *b*, *c*, the end; and *c*, *d*, the bottom of the said boiler; and as the bottoms of boilers are usually made convex upwards, *c*, *d*, represents the crown or highest part of the bottom; *e*, *f*, *g*, *j*, is a hopper or reservoir for coals, made of plate or wrought iron; *j*, *i*, and *h*, *g*, in Fig. 1, are two plates of iron, forming the bottom of the hopper; the lower edges of these two plates are not brought together, but allowed to be about three inches distant from each other, so as to form an opening or slit all along the bottom of the said hopper in the direction of *j*, *g*, in Fig. 2, in order to allow the coals to fall through the said opening. A, in Fig. 2, represents an end view of the said boiler. *k*, *l*, in Fig. 1, are two rollers placed immediately below the opening in the bottom of the hopper, so as that when the coals fall through the said opening they may fall upon or between the said rollers; those rollers I usually make six inches in diameter, and of a length corresponding to the width of the fire-place or grate to which the said machinery is intended to be applied, and I make the length of the opening or slit in the bottom of the hopper also to correspond with the length of the said rollers. The rollers *k*, *l*, (as represented in the Drawings Fig^{s} 1 and 2,) are fluted; there are ten flutes in each roller, and each flute is one inch in depth; these fluted rollers are employed for crushing or breaking the coals, and for equalizing the quantity required for the supply of the fire in equal and successive periods of time; the absolute quantity of coals required to be supplied in any given space of time is regulated by the number of revolutions made by the said fluted rollers in such space of time, and by the distance at which the said rollers may be placed at from each other. Motion is given to the said rollers by means which I shall herein-after describe, and I regulate the distance between the said rollers by the ordinary and well-known method of applying adjusting screws and sliding brasses or bearings to the axle of one of the said rollers, as shewn at *m*, in Fig. 1. *w* is one of two pinions by which one roller turns the other, as in common use. Immediately below the aforesaid two fluted rollers I place what I shall herein-after denominate a fan; it is composed of an iron axle or spindle *n*, *n*, in Fig. 2, lying horizontally and parallel with the aforesaid fluted rollers. Two or more sets of arms (as the lenght of the fan may require, two only are required for the length exhibited in the Drawing)

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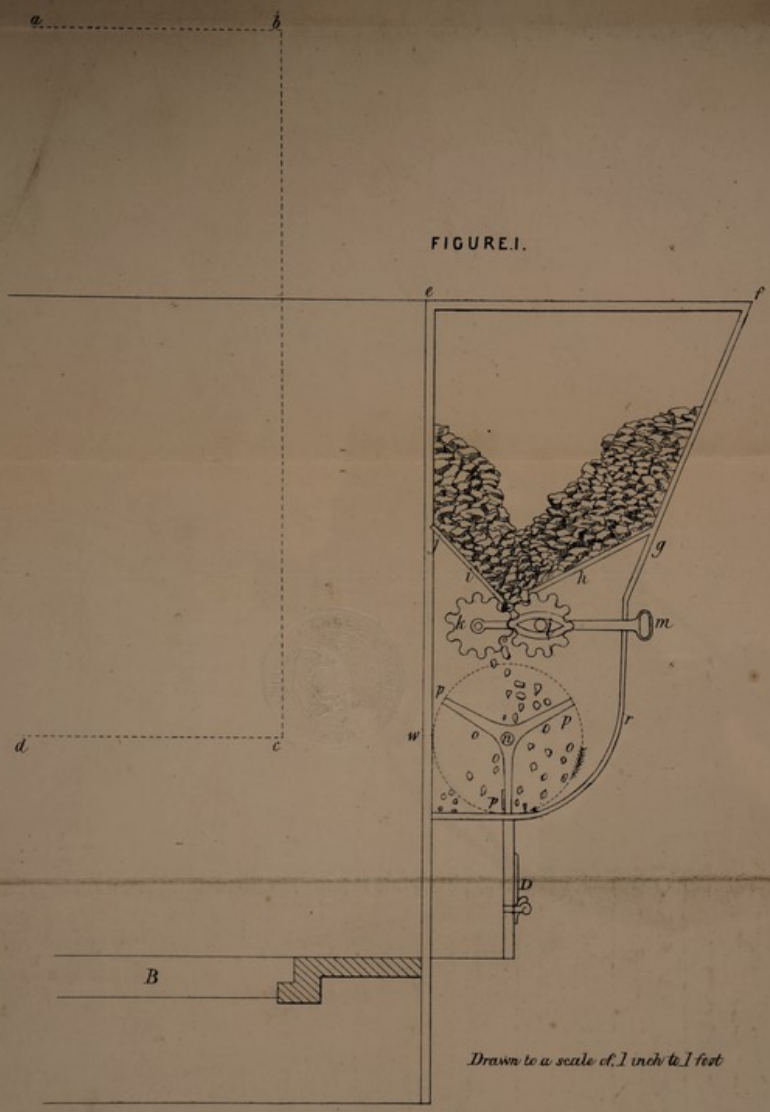
FIGURE 1.



Drawn to a scale of 1 inch to 1 foot

The enrolled drawing is partly colored.

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FIGURE 2.

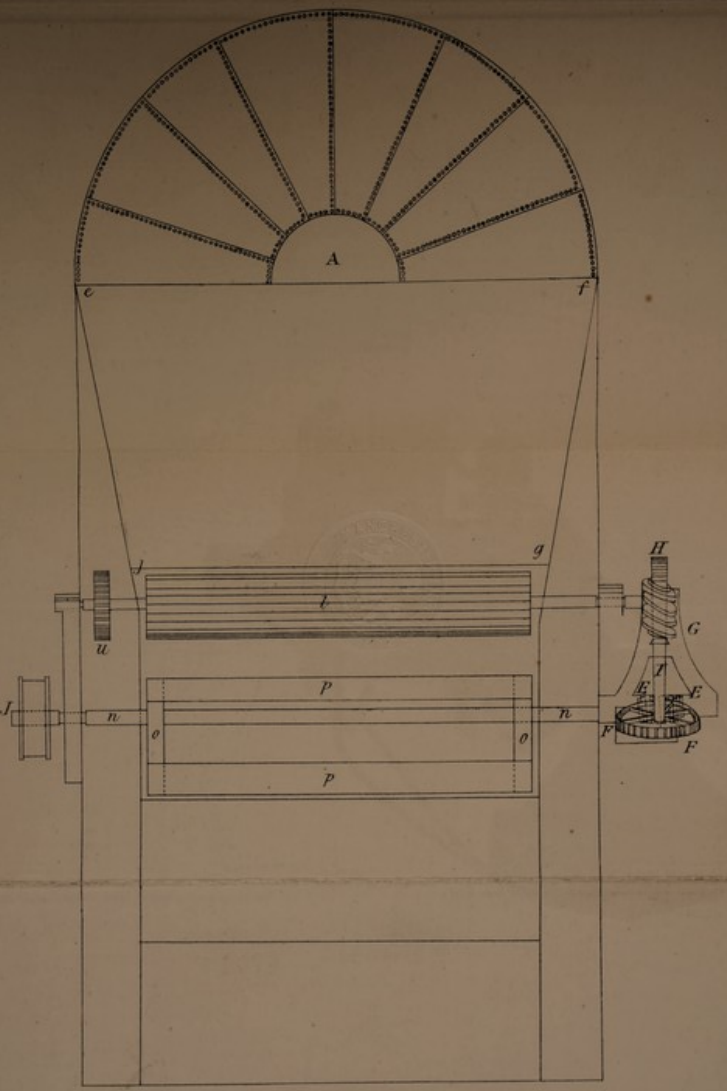

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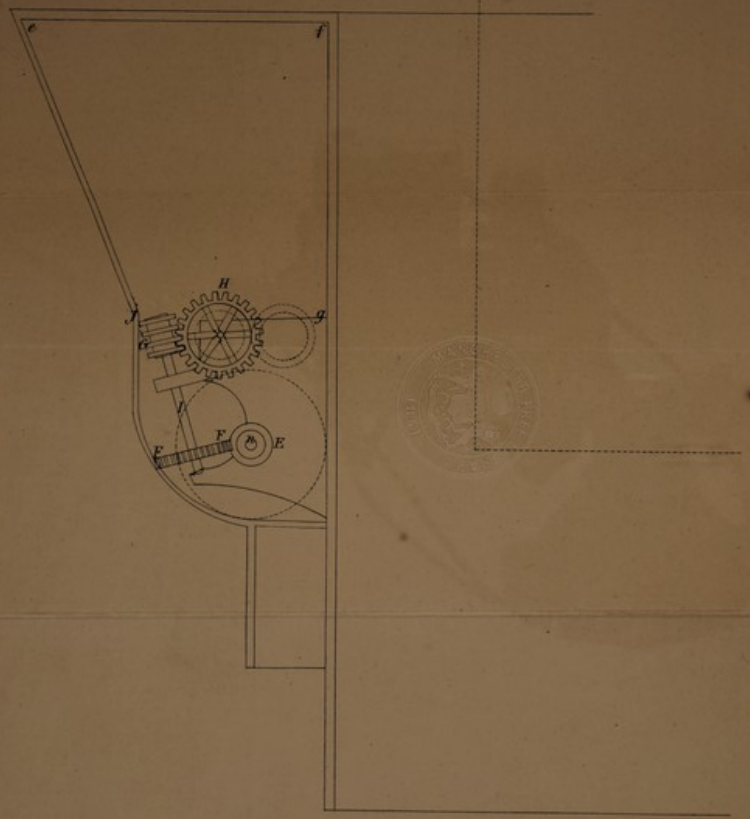
FIG. 3.



The enrolled drawing is partly colored.

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are fixed or hung upon the axle *n*, *n*, as shewn in Fig. 2; each set of arms has three points; these arms are shewn in Figs 1 and 2, at *o*, *o*, &c. Upon the points of these arms I fix, by screws or rivets, three flat plates of wrought iron *p*, *p*, *p*, of the same length of that of the aforesaid fluted rollers, of the breadth of three inches, and about one eigth of an inch in thickness, so that the outside edges of the said flat plates or vanes, when turned round upon the axle *n*, shall describe a cylinder of sixteen inches in diameter. I enclose the aforesaid fluted rollers and fan in an iron case of the shape represented in Fig. 1 by the double lines *g*, *r*, *s*, so as to exclude the air externally as much as possible. On the side next the boiler and fire-place I leave a rectangular opening of the same length as the fan, and about nine inches in height, from *s* to *u*, through which the coals are to be thrown by the fan on to the fire. I place the axis *n* of the fan at the same height as the bottom of the boiler, represented by the line *d*, *c*, and at the distance of two feet from the end of the boiler, denoted by the lines *c*, *d*. The vanes *p*, *p*, *p*, are made to revolve in the direction of the arrow shewn in Fig. 1, between *r* and *s*; each vane will pass the bottom of the case at the distance of one quarter of an inch, and at the distance of about three inches from the front of the case, near *r*, where an horizontal line drawn through the axis of the fan, and at right angles to it, would meet the circular part of the case near *r*. D is the fire door, made in the usual way, and is placed opposite the grate. B represents a part of one of the grate or fire bars in Figs 2 and 3. E is a screw (usually called an endless screw) of four inches in diameter, with a single thread, fixed upon the axle of the fan. F is a wheel nine inches in diameter, having twenty-eight teeth working or taking into the thread of the aforesaid endless screw E; the said wheel F is fixed or hung upon the spindle I, and upon the said spindle I is also hung another endless screw, similar to the one E. H is a wheel hung upon the axle of one of the fluted rollers, and is similar to the wheel F; the said wheel H is turned by the endless screw G. I cause motion to be given to the fan by either toothed or band wheels, as I may find it most convenient in procureing the moving power from some part of the machinery of the steam engine or other machine which I may have an opportunity of employing for giving such motion, and to this end I fix a wheel upon the axle of the fan, as is shewn at J, in Fig. 2, taking care that the diameters of the wheels and the velocity of the machine by which I am to give motion to the fan be such as to cause the said fan to make two hundred revolutions per minute, or thereabouts. I have found that such a velocity will effect an uniform distribution of coals over a fire of five feet six inches in length. The relative velocity of the fan and the fluted rollers are as seven hundred and eighty-four is to one respective, that is, the fan makes seven hundred and eighty-four revolutions

whilst the fluted rollers make one revolution. Machinery of the dimensions herein-before described would answer the purpose of supplying coals of to a fire capable of working a steam engine of from thirty to forty horses power, and for a less or greater power, or for a narrower or wider fire-place, the dimensions of the various parts may be altered accordingly. The velocity of the fan must also be less or more as the fire may be shorter or longer. The hopper for containing the coals may be made of any dimensions suited to the situation and purpose to which the aforesaid machinery may be applied. From reading this Specification, and examining the annexed Drawings, the construction, operation, and use of the machinery herein-before described will be clearly understood by any competent mechanic. Although I have herein-before described the whole of the machinery in order that the nature of my Invention, and the manner in which the same is to be performed, may be better understood, yet I do not claim the hopper, the fluted rollers, the fan, the wheels, screws, or any other part of the machinery, in their individual characters, as forming any part of my Invention, all of them having been before invented and used for a variety of purposes; but I do hereby declare that my Invention consists in the employment and application of the fan similar to the one herein-before described, in conjunction with the hopper, fluted roller or rollers, or with any other mechanical expedient capable of producing a regular supply of coals, so as that the coals so supplied may be, by the fan as aforesaid, thrown upon any fire or furnace.

In witness whereof, I, the said John Stanley, have hereunto set my hand and seal, this 22d day of January, One thousand eight hundred and twenty-three.

JOHN STANLEY. (L.S.)

AND BE IT REMEMBERED, that on the Twenty-second day of January, in the year of our Lord 1823, the aforesaid John Stanley 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 Statute made for that purpose.

Inrolled the Twenty-fourth day of January, in the year of our Lord One thousand eight hundred and twenty-three.

MAKINSON, Extra.

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