Specification of Charles James Richardson : chimneys or flues.

Contributors

Richardson, Charles James.

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A.D. 1859, 28th MARCH. N° 772.

SPECIFICATION

OF

CHARLES JAMES RICHARDSON.

CHIMNEYS OR FLUES.

LONDON:
PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:
PUBLISHED AT THE GREAT SEAL PATENT OFFICE,
25, SOUTHAMPTON BUILDINGS, HOLBORN.
Price 1*s.* 10*d.* 1859.

A.D. 1859, 28th *March*. N° 772.

Chimneys or Flues.

LETTERS PATENT to Charles James Richardson, of No. 34, Kensington Square, and of No. 9ª, King Street, Whitehall, both in the County of Middlesex, Architect, for the Invention of "IMPROVEMENTS IN APPARATUS TO BE APPLIED TO CHIMNIES OR FLUES OF BUILDINGS, FOR PREVENTING DOWN DRAUGHT OR RETURN SMOKE, FOR THE INSURING UPWARD VENTILATION, AND FOR REDUCING THE QUANTITY OF SMOKE, OR THE BLACKS FROM THE SMOKE PASSING INTO THE ATMOSPHERE."

Sealed the 8th September 1859, and dated the 28th March 1859.

PROVISIONAL SPECIFICATION left by the said Charles James Richardson at the Office of the Commissioners of Patents, with his Petition, on the 28th March 1859.

I, CHARLES JAMES RICHARDSON, of No. 34, Kensington Square, and of No. 9ª, King Street, Whitehall, both in the County of Middlesex, Architect, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN APPARATUS TO BE APPLIED TO CHIMNIES OR FLUES OF BUILDINGS, FOR PREVENTING DOWN DRAUGHT OR RETURN SMOKE, FOR THEIR INSURING UPWARD VENTILATION, AND FOR REDUCING THE QUANTITY OF SMOKE, OR THE BLACKS FROM THE SMOKE PASSING INTO THE ATMOSPHERE," to be as follows:—

The Invention has for its object improvements in apparatus to be applied to chimnies or flues of buildings, for preventing down draught or return smoke, for their insuring upward ventilation, and for reducing the quantity of smoke or blacks from the smoke passing into the atmosphere. For this

purpose apparatus is constructed and applied to the upper part of the flues of a building, in such a way as to fold the flues over, against, or near to each other, so that the heat from one flue in use shall be taken up by the flue or flues adjoining to it, rendering the whole mass of such flues, when a few only are in action, a strong ventilating power, drawing a constant upward current of air from the rooms to which they belong. In applying such apparatus to the upper part of a flue, a tube, by preferance of iron, of the exact size of the flue at the base is placed upon it, this gathers it up to a reduced size, shape, or form, and passes it in a splayed direction to the next flue, to which a similar apparatus is applied, the two flues side by side are then taken either in an upright or splayed direction towards the stack. If the wall is of sufficient thickness three flues can be thus brought together, a wyth of half a brick is allowed between pairs of coupled or tripled flues, and this it is preferred should be of the kind known as hollow brickwork. In the stack the whole of the flues pass upward in a vertical direction in as close connexion as can be obtained, so as to reduce the size of the stack. In order to seperate the blacks from the smoke the flues have perforated tops or strainers, which are covered with a case that protects the smoke from the action of the wind, from whatever direction it may blow, the rain falling in this case washes the strainers, and is collected in a trough in the lower part; into this trough the smoke is projected, and a portion of the blacks are retained. The water in the trough is permitted to remain always at a certain height, only to be lessened by evaporation; when above this height, the upper surface with the floating soot is removed by a suitable pipe, and the soot is passed to any receptacle prepared for it. Provision may also be made for supplying water from the building to aid the operation.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Charles James Richardson in the Great Seal Patent Office on the 28th September 1859.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, Charles James Richardson, of No. 34, Kensington Square, and No. 9a, King Street, Whitehall, both in the County of Middlesex, Architect, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-eighth day of March, in the year of our Lord One thousand Eight hundred and fifty-nine, in the twenty-second year of Her reign, did, for Herself, Her heirs and successors, give and grant unto

me, the said Charles James Richardson Her special licence that I, the said Charles James Richardson, my executors, administrators, and assigns, or such others as I the said Charles James Richardson, my executors, administrators, and assigns should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN APPARATUS TO BE APPLIED TO CHIMNEYS OR FLUES OF BUILDINGS FOR PREVENTING DOWN DRAUGHT OR RETURN SMOKE, FOR THEIR INSURING UPWARD VENTILATION, AND FOR REDUCING THE QUANTITY OF SMOKE, OR THE BLACKS FROM THE SMOKE PASSING INTO THE ATMOSPHERE," upon the condition (amongst others) that I, the said Charles James Richardson, my executors, or administrators, by an instrument in writing under my or their or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Charles James Richardson, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, reference being had to the Drawings hereunto annexed, that is to say :—

The first part of my Invention is for preventing down draught or return smoke in flues; the second is for securing a steady constant upward ventilation in all the flues of a building, when only a small number of fires communicating with the flues are burning; and the third is for reducing the quantity of dense smoke or blacks from the smoke passing into the atmosphere. My Invention is thus composed of three parts or portions, all or any two of which can be used together, and each of which can be used alone for its separate purposes. The contrivance for the prevention of down draught, I call the "wind cap;" that for securing ventilation the "iron stack flue;" and that for reducing the quantity of dense smoke or blacks passing into the atmosphere the "rain vase." The iron stack flue is thus formed:—The upper part of the flue or flues for a length of about 15 or 20 feet is formed of tubing, by preference of iron, in square or oblong sections; each tube at its base is of the size of the flue in which it is placed, the tube gathers it up to a reduced size, shape, or form, and passes it in a splayed direction to the next flue, to which a similar tube is applied; the two flues, side by side, are then taken up in a

splayed direction towards the stack; they are in direct contact with each other, having no brick wyth between them, only one brick wyth of the kind known as open brickwork being between each group of such flues, four such tubes can be made to occupy the space of the old fashioned flue of 14 ins. by 9 ins. When only one of the flues is in use, that is, the fire communicating with it, burning its iron tube, would warm the other three, and thus an upward draught or ventilating power would be obtained in all. My rain vase for reducing the quantity of smoke or blacks from the smoke passing into the atmosphere, and which likewise acts for the prevention of down draught in flues, chimneys, and shafts, consists of a case or capping constructed as hereafter explained; it stands or is suspended or held over the top of a flue, chimney or shaft; the smoke or vitiated air escapes either upward or sideward. The case is spread out at the base to form troughs, and is provided with perforated metal tops or strainers; the rain falling in strainers washes them and falls, and is collected in the troughs; over these the smoke is projected, and a great portion of the blacks retained. The water in the troughs remains at a given level, only to be lessened by evaporation; the upper surface with the floating soot is passed away by a suitable pipe clear of the chimney or flue. When it is not considered necessary to retain the blacks or prevent them passing into the atmosphere, the troughs and strainers are omitted, and the capping slightly altered; it then becomes what I call my wind cap.

Description of the Drawings.

Figure 1 is an elevation in section of the upper part of a stack of chimneys, furnished with my iron stack flue; Figure 2 is a plan of the stack; and Figure 3 is a section of the metal tubes on the line A, B, Figure 1. The wall is a two-brick wall at the base of the tubes, and a brick and a half wall above the front circular bend of the tubes. *a* is the wyth of open brickwork between the two groups of metal tubes. Figures 4, 5, and 6, on an enlarged scale, show the several pieces of tubing, by which I obtain the various directions and turns necessary for the construction of such a stack as aforesaid; Figure 7 is a plan of Figure 4; and Figure 8 is an elevation of the side on the line C, D, Figure 7; Figure 9 is a cross section of Figures 5 and 6; Figure 10 is an elevation in section, showing four metal tubes, combined in one group; Figure 11 is a plan of the same; and Figure 12 is a section through the tubes on the line E, F, Figure 10; the wall is a two-brick wall the whole height; Figure 13 is an elevation in section, showing six metal tubes combined in one group; Figure 14 is a plan of the same; and Figure 15 is a

section through the tubes on the line G, H, Figure 13; the wall is a two-brick and a half wall the whole height. The flues *b*, *b*, are shewn as ventilating flues only, the rest have doors *c*, *c*, for the facility of cleaning. Figure 16 is an elevation or front view of one of my rain vases, applied to a chimney stack with three flues; Figure 17 is a plan of the same on the line *y*, *z*, Figure 16; Figure 18 is a section on the line *z*, *z*, Figure 17; and Figure 20 is an end elevation; *d* is a dwarf iron railing secured on the top of the stack in any convenient way; this I prefer to have with plain upright standards, as shewn at *e*, Figure 18; *f* is a top rail fastened to the standards; *g* is a lower rail also fastened to the standards; *h* is the top of a flue or chimney or chimney pot, supplied with a cover *i* to prevent the passage of wind downwards; a plate *k* forming a trough is attached to the rail *g*, protecting the top of the flue *h* sideways; *l* is a curved plate attached to the top rail *f*, which protects the outlet formed by the upper part of the plate *k* from the action of the wind; *l* is formed of perforated metal of small openings; the lower part of the cover *i* is formed of metal perforated strainers of a large pattern; *m*, *m*, are partitions placed between the flues to prevent the smoke from one escaping down the other. In Figure 19, which is a section of a single cap or vase, the arrows show the different outlets provided for the escape of the smoke. Figure 21 is the plan of a single rain vase, to which Figure 20 would form an elevation, and Figure 19, without the partitions *m*, would form a section on the line *r*, *s*, Figure 21; *o*, Figure 19, is a pipe by which water may be supplied from the house to maintain the level in the troughs; and *p* is the pipe by which the upper surface of the water with the floating soot is conveyed away.

My wind cap is, as before stated, a modification of the rain vase last described. Figure 22 is an elevation of one of my wind caps applied to a stack of three flues; Figure 23 is a plan through the line *x*, *x*, of Figure 24; Figure 24 is a section on the line I, K, Figure 23; Figure 25 is an elevation of the end, and Figure 26 a cross section. The greater part of my rain vase and the whole of my wind cap may be constructed either in stoneware, terra cotta, or metal. Figure 27 is an elevation of the wind cap in stoneware, a simple case protecting the smoke from the action of the wind; Figure 28 is a plan, and Figure 29 is a section of the same in the line *y*, *z*, Figure 28.

In order that these contrivances may be properly understood, as to the manner they can be introduced into a building, I have added two additional Figures. Figure 30 is an elevation in section of a party wall to a first-class house, as usually constructed; the flues being fourteen inches by nine inches. Figure 31 is the representation of the same wall, with the flues nine inches by

nine inches, the size recommended in a late Government Blue Book; the kitchen flue alone, 14 ins. × 9 ins., with my iron stack flues, rain vase and wind cap applied; *q* is the receptacle provided for the soot descending by the pipes *p*, *p*; the iron stack flues are shewn of the simplest construction, as shown in Figure 1.

And having now described the nature of my said Invention, and the manner in which the same is to be performed, I declare that I do not confine myself to the precise details herein-before described, as the same may be varied without departing from the general features of my Invention, and that I claim, constructing flues, and what I term rain vases and wind caps, in manner and for the purposes herein-before described.

In witness whereof, I, the said Charles James Richardson, have hereunto set my hand and seal, this Twenty-sixth day of September, One thousand eight hundred and fifty-nine.

C. J. RICHARDSON. (L.S.)

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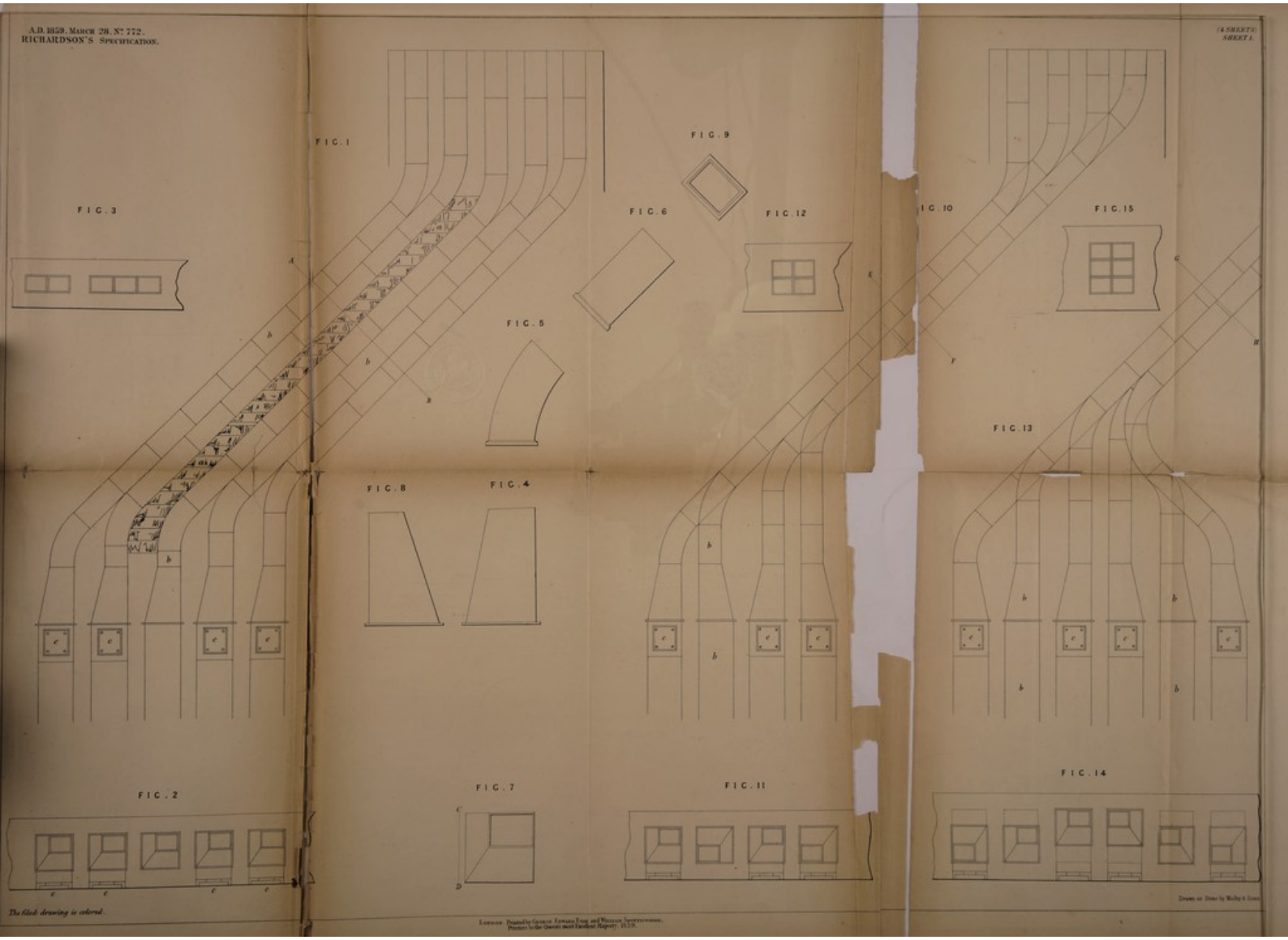
Printers to the Queen's most Excellent Majesty. 1859.

A.D. 1859. March 28. N° 772.
RICHARDSON'S Specification.

(4 SHEETS)
SHEET 1.



The black drawing is colored.

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RICHARDSON'S Specification.

SHEET 2.
(9 SHEETS)

FIG. 25.

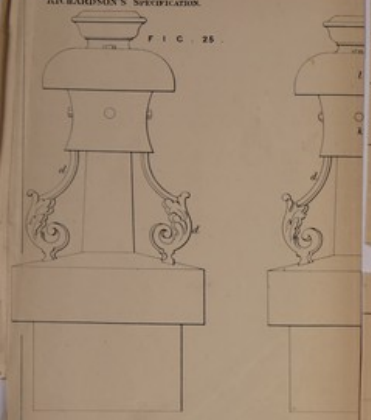

FIG. 22.

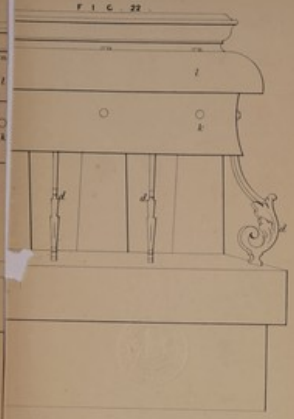

FIG. 27.

FIG. 20.

FIG. 16.

FIG. 26.

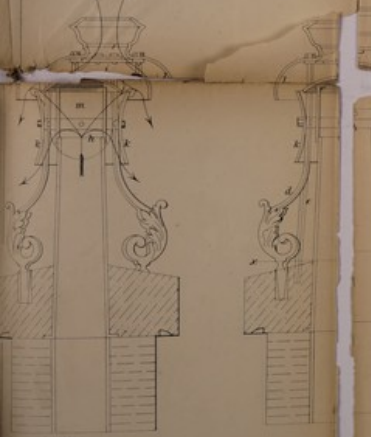

FIG. 24.

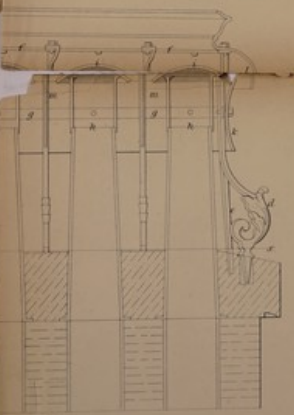

FIG. 29.

FIG. 19.

FIG. 18.

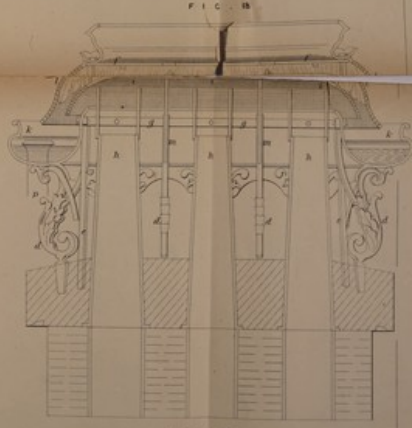

FIG.

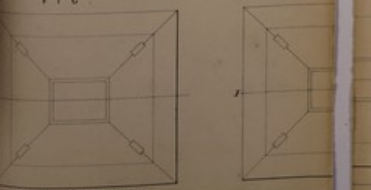

FIG. 23.

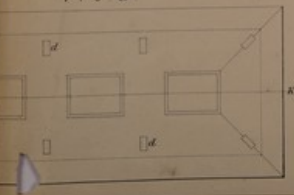

FIG. 28.

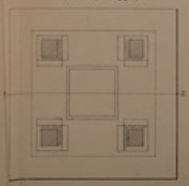

FIG. 21.

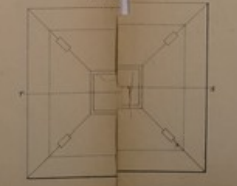

FIG. 17.

The black drawing is partly colored

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(4 SHEETS)

FIG. 30.

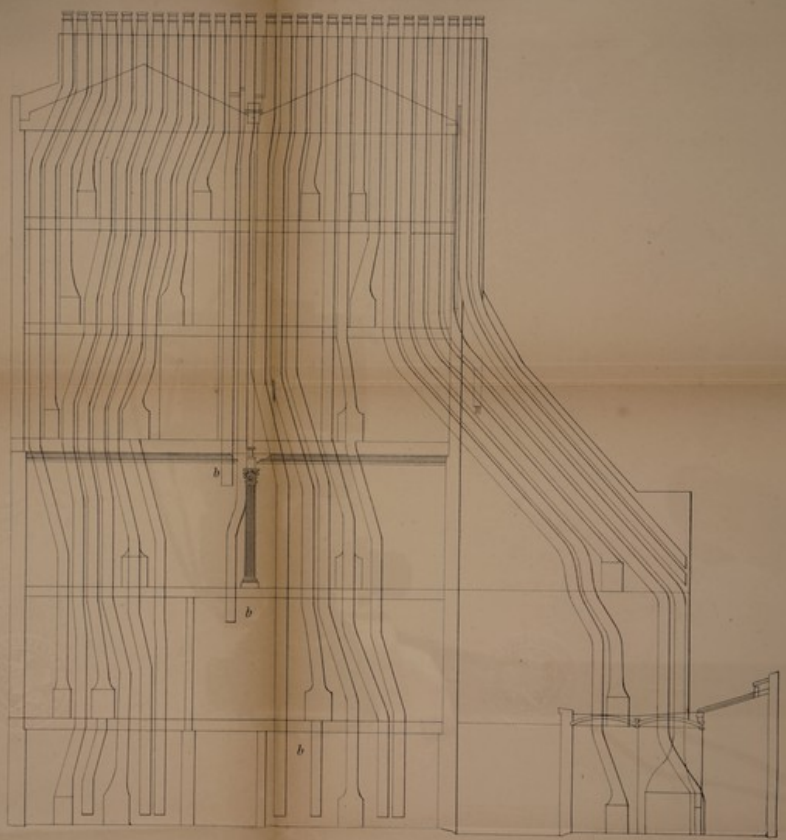

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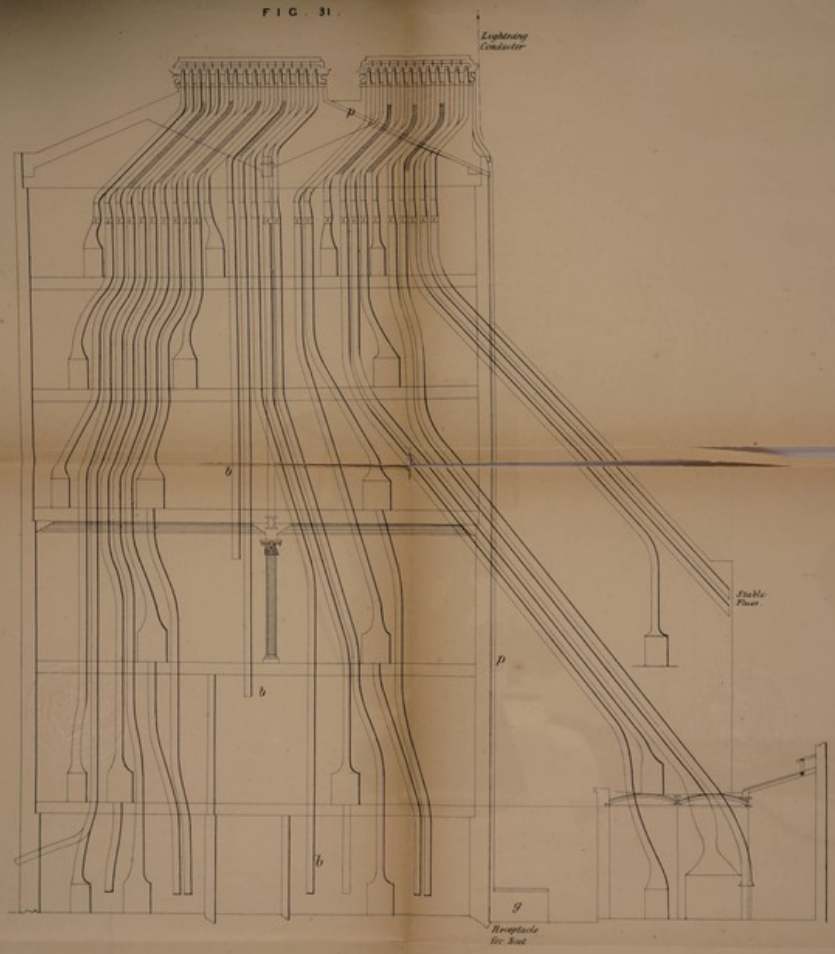
FIG. 31.



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