

G. Merrick.
Drying Fibre.

N^o 3,994.

Patented Apr 10, 1845.

Fig. 3.

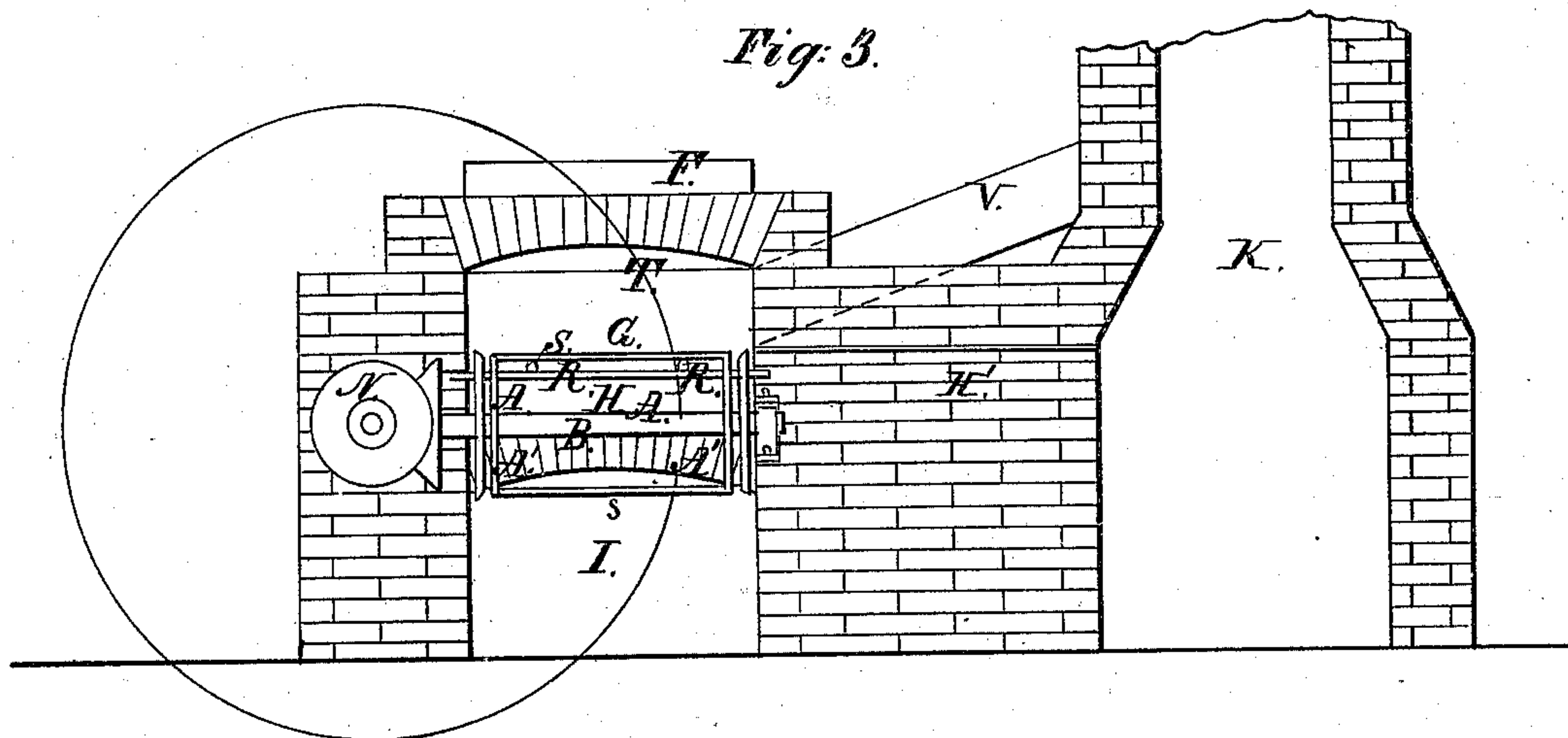
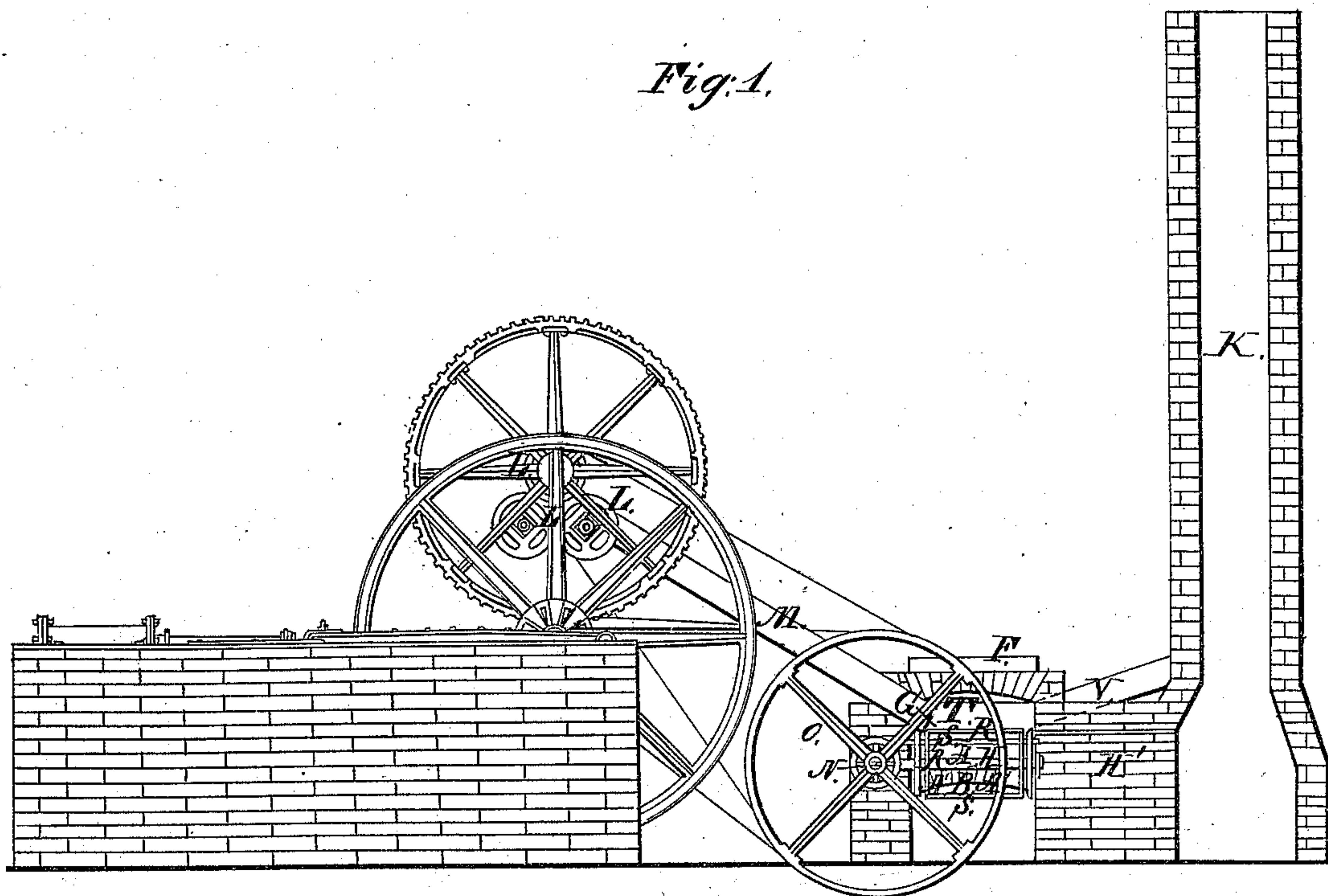


Fig. 1.



Witnesses.

J. W. Smith
John C. P. Wedekind

Inventor

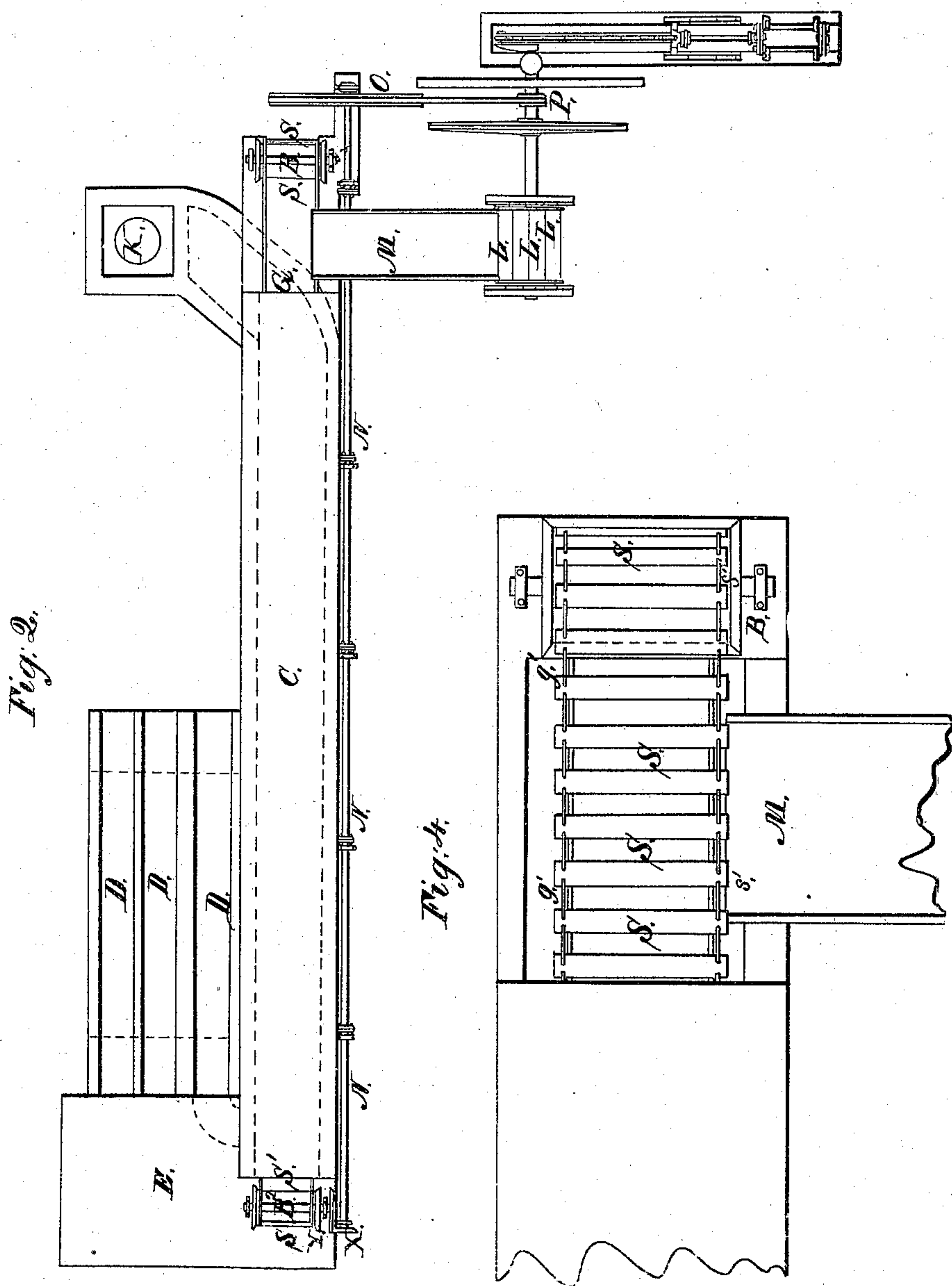
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Inventor

George Merrick

UNITED STATES PATENT OFFICE.

GEO. MERRICK, OF NEW ORLEANS, LOUISIANA, ASSIGNOR TO WM. WHITE.

DRYING BAGASSE.

Specification of Letters Patent No. 3,994, dated April 10, 1845; Antedated September 10, 1844.

To all whom it may concern:

Be it known that I, GEORGE MERRICK, of the city of New Orleans, in the State of Louisiana, civil engineer, have invented a new and useful apparatus for the purpose of drying bagasse or the refuse sugar-cane after the juice thereof has been expressed by rollers in the ordinary way; and I do hereby declare that the following is a full and exact description thereof.

The bagasse as it leaves the rollers by which the juice has been pressed out, is received onto an inclined slide, or chute, down which it passes on to an endless apron formed of slats of iron which are connected together by suitable links. This apron is kept in motion by power derived from the steam engine employed in the works, or by any other adequate means. The endless apron passes around reels, or drums, at each end of a range of horizontal flues through which the apron, with the bagasse deposited on it, is to be conducted. The flue, also, which is intended to convey the heated air and smoke into the chimney, from the steam boiler furnace, or from that under the boilers used in the manufacture of sugar, is made to extend along, and through, the same range through which the endless apron is to pass, said range of horizontal flues being thereby divided into three flue spaces, or compartments; along the uppermost of these compartments the endless apron, with the bagasse upon it, is to pass, and said apron is to return along the lower compartment after having deposited the dried material upon a receiving plate, or platform, in front of the furnace, or otherwise conveniently situated for that purpose.

The fire flue, for the conducting of the heated air from the furnace to the chimney, is situated between those along which the endless apron, passes. The top of this fire flue is to be formed of sheets of cast-iron, or of other suitable material, which will allow of the passing of heat through it into the upper, or bagasse-drying, flue. Upon these plates there should be projecting ribs, or ways, upon which the slats of the endless apron may slide; which will not only enable them to do so unobstructedly, but will allow the heated air to pass freely around the material to be dried. The length of the horizontal flue must be varied according to the circumstances of the particular case, as in

some works the escape heat will be much greater than in others; for this, therefore, no particular rule can be given, but the point must be decided by the judgment and experience of the constructor. When the heat is great, the flue may be of less length than when it is moderate; and the effect may be regulated by increasing, or diminishing the motion of the endless apron; it is desirable, however, that the motion of this should be the same with that of the carrier that supplies the mill with cane. The escape steam may be used to increase the draft should it be found necessary; or this may be effected by means of a fan, or other apparatus used for that purpose.

In the accompanying drawing, Figure 1, represents a side elevation of a steam engine foundation, and an end view of the fire flue, and bagasse flues, with the reel, or drum, around which the endless apron is to pass. Fig. 2, is a plan, or top view, of the same, with the range of horizontal flues, and the receiving plate, or hearth, for the dried bagasse. Fig. 3, is an end view of the flues, &c., as shown in Fig. 1, but drawn on a larger scale.

In these figures, the endless apron is not represented, but the manner in which the slats and links may be connected is shown in Fig. 4.

In each of these figures where the same parts occur they are designated by the same letters of reference.

L, L, L, are the rollers made use of to express the juice from the cane.

M, is a chute, or slide, inclined downward to cause the bagasse when it leaves the rollers to pass onto the endless apron, or bagasse carrier. A portion of this apron, or carrier, is shown in Fig. 4, where S, S, are the iron slats, connected together by the links S', S'. The reels, or drums, around which the endless apron passes are shown at B, B², one of them being placed at each end of the range of horizontal flues, C, Fig. 2.

D, D, may represent the boilers of a steam engine, or the place of a range of sugar kettles, from the furnace of which the heat for drying the bagasse is to be derived; the escape heat from such furnace is to enter the fire flue H, which constitutes the middle flue of the range C, as shown in Figs. 1, and 3. A, A, represents the cast-iron plates which may constitute the top of this flue; R, R,

being the ribs, or ways, to sustain the endless apron, and its load. A', A', is an arch which may constitute the bottom of said flue.

The flue G, immediately above the fire flue, 5 H, is for the passage of the endless apron with its load of bagasse; and the flue, I, below the fire flue, is for the return of said apron after it has deposited its load on the receiving plate E, or into any convenient 10 receptacle.

H', is a flue leading from the flue H, to the chimney K, into which it conducts the heated air and smoke after they have traversed the length of the flue H.

15 Into the bagasse, or drying, flue, G, atmospheric air is to be admitted, to carry off the vapor given out in the process; and at each end of said flue I place a sliding shutter, or register, F, T, of iron, for the purpose of 20 regulating the quantity that shall be allowed to enter; the lower edge, T, of these registers may be brought as low down, particularly at the end where the bagasse enters, as the endless apron and its load will admit.

25 V, is a flue leading from the bagasse flue into the chimney K, to carry off the vapor extricated in the drying process.

The bagasse carrier, or endless apron, may be made to revolve in various ways; in the 30 drawing, P, is a pulley attached to the shaft of the engine, or, if preferred, to the shaft of the rollers. O, is a pulley attached to the small shaft N, N, upon the end of which is

affixed the bevel-wheel X, that gears into the bevel-wheel Y, upon the end of the shaft, B², 35 which, it will be seen, will produce the desired effect.

The bagasse should be delivered on to the endless apron at a short distance before it enters the flue, to admit of the falling 40 through between the slats, and on to the ground, of any pulpy matter, and of such shreds as may be too small to be sustained on them.

Having thus fully described the manner in 45 which I construct and arrange my apparatus for drying bagasse, what I claim therein as new, and desire to secure by Letters Patent, is—

The combining with a steam engine, or, 50 other furnace used in manufacturing sugar, of a horizontal range of triple flues, in such manner as that an endless apron, or bagasse carrier, may be made to traverse through two of said flues, while the heated air and 55 gaseous products of combustion are made to pass through the third, or middle, flue, on its way to the chimney, the respective parts being arranged, and operating, substantially in the manner and for the purpose herein 60 fully set forth.

GEORGE MERRICK.

Witnesses:

J. W. SMITH,

JOHN C. P. WEDERSTRANDT.