(No Model.) 2 Sheets—Sheet 1.

F. COOK.

BAGASSE FURNACE.

No. 362,362. Patented May 3, 1887.

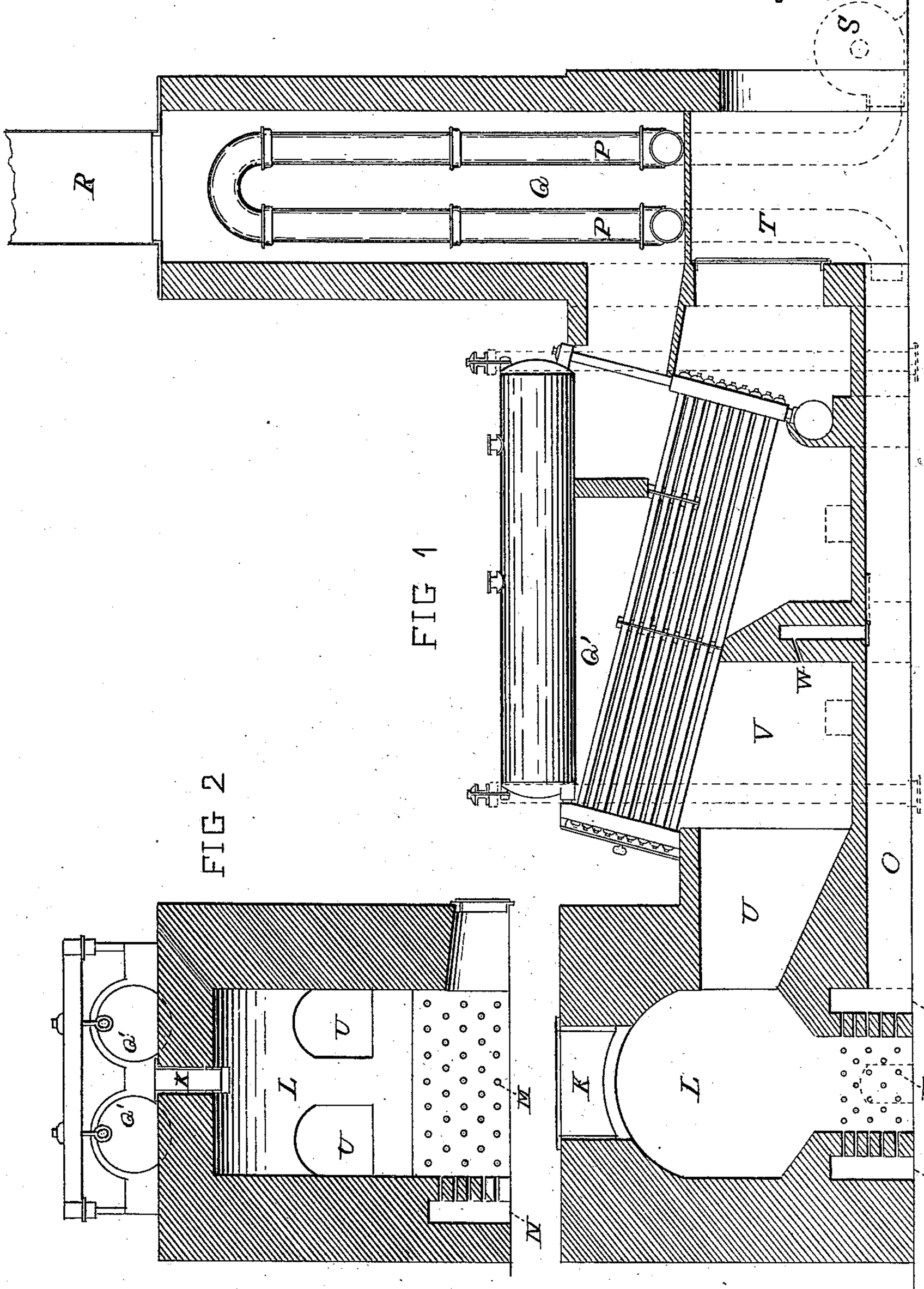

FIG 1

FIG 2

WITNESSES

Percy B. Hills.

Robt. Everett.

INVENTOR

Frederic Cook.

By James L. Norris.

Atty.

(No Model.)

2 Sheets—Sheet 2.

F. COOK.

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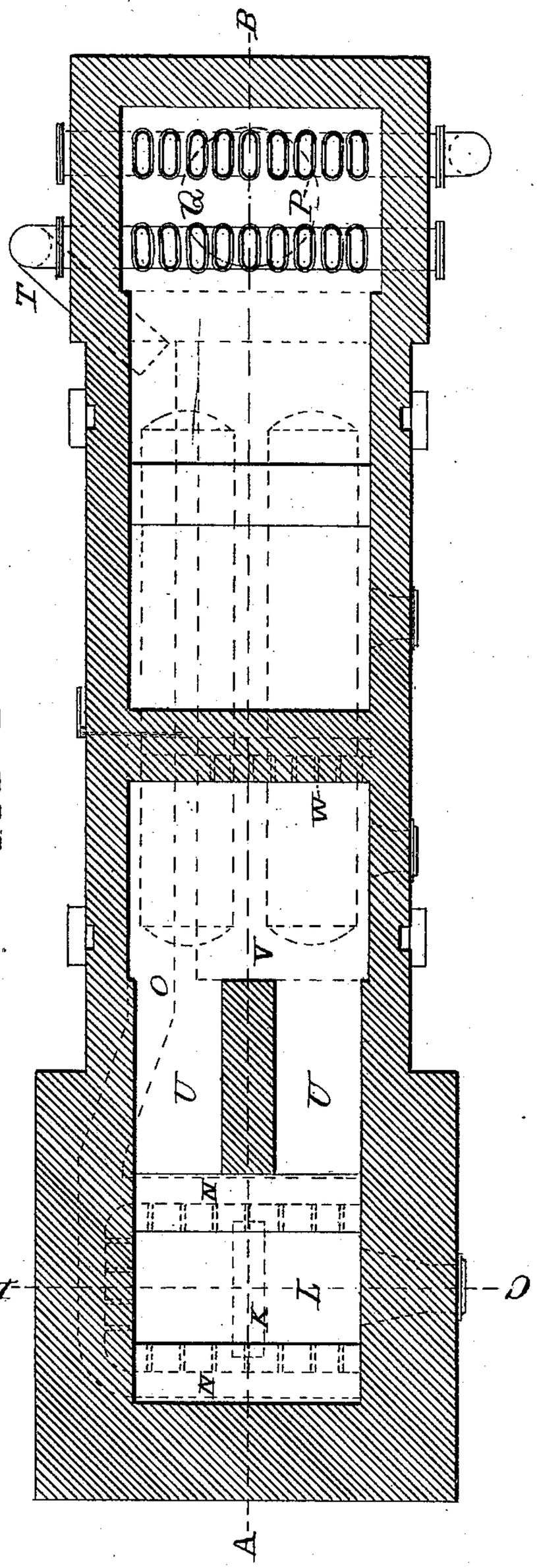

FIG 2

WITNESSES

Percy B. Hills.

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Frederic Cook.

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Atty.

UNITED STATES PATENT OFFICE.

FREDERIC COOK, OF NEW ORLEANS, LOUISIANA.

BAGASSE-FURNACE.

SPECIFICATION forming part of Letters Patent No. 362,362, dated May 3, 1887.

Application filed May 29, 1886. Serial No. 203,643. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC COOK, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Bagasse-Furnaces, of which the following is a specification.

My invention relates to certain improvements in steam-furnaces for burning green bagasse as fuel for generating steam in steam-boilers, to an improved construction of the bagasse-furnace, to the combination therewith of steam-boilers having an air-blast and a very large heating-surface with a short run of the gases of combustion and a very high temperature of the furnace, resulting from heating the blast of air by means of the waste heat from the boiler, by which a hot blast is obtained upon the bagasse in the furnace, a more perfect and quicker combustion is had, the furnace is not continually chilled from introduction of cold air, and more steam is generated in the boiler from the same amount of moist fuel than when cold air is used. I obtain these objects by the arrangement of mechanism shown in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section through line A B of Fig. 3. Fig. 2 is a transverse vertical section through line C D of Fig. 3. Fig. 3 is a horizontal section through Fig. 1.

The bagasse direct from the mill is conveyed by a carrier, usually discharging into a hopper having any suitable feeding arrangement (not shown) over hole K, Figs. 1 and 2, through which it falls into the bagasse-furnace L, which is contracted at its lower portion, where the side walls are provided with tuyere-holes M, for admission of the hot blast. These tuyere-holes M connect with the hot-air passages N, and thence by hot-air flue O to the air-heating pipes P, set in the chamber Q, which receives the waste heat from a steam-boiler, Q′, and on top of which chamber Q the smoke-stack R rests.

The cold air is forced, by means of a blower, S, into and through the pipes P, thence passing as a hot blast to the bagasse-furnace L, its course being through the hot-air pipe T and air-passages O to the tuyeres M and furnace L. The gases of combustion pass from the furnace L through flues U to the mixing-chamber V, where, by means of a regulating-valve, some additional hot air is admitted through tuyeres W, preferably in a downward direction, to cause a more thorough mixing and more perfect combustion of the gases before encountering the heating-surface of the boiler Q′. The gases then pass to the boiler Q′, and from the immense heating-surface of a Babcock and Wilcox Company's water-tube boiler (the kind shown in the drawings) the heat passes several times in a zigzag course transverse to and around the tubes, thus being rapidly absorbed into the water and taken up in a short run without exposing large heat-absorbing surfaces of brick-work, as is the case in old-style boilers having long runs for the gases and having comparatively small water-heating but large brick-heating surfaces; hence but poor results in evaporation have hitherto been obtained from green bagasse as fuel when used in the furnaces of cylinder and flue boilers and with cold air.

Having thus described my invention, what I claim is—

1. In an apparatus for drying and igniting damp bagasse for fuel for the production of heat and steam, the combination of a bagasse-furnace having a narrowed base and provided with side tuyeres, a chamber for thoroughly mixing and combining the gases, flues connecting the furnace and said chamber, a steam-boiler to which the heat passes from said mixing-chamber, a series of pipes arranged within a space which is adapted to carry off the waste gases and products of combustion, a flue connecting said pipes with the bagasse-furnace, and an air-impelling device for forcing heated air to the furnace containing the damp bagasse for the purpose of rapidly drying the same and producing a rapid combustion, substantially as described.

2. In an apparatus for burning green bagasse and utilizing the heat therefrom, the combination, with a water-tube boiler, of an oven-shaped furnace having a narrowed base and provided with side tuyeres, and a combustion-chamber between the furnace and the boiler, said chamber having apertures formed in the walls thereof at an angle for the admission of jets of heated air, whereby a rotary motion of

the gases within said chamber is produced to cause a more perfect mingling thereof and to complete the combustion before coming in contact with the cooling-surface of the boiler, substantially as described.

3. In an apparatus for burning green bagasse and utilizing the heat therefrom, the combination, with a water-tube boiler, of an oven-shaped furnace having a narrowed base and provided with side tuyeres, and a combustion-chamber between the furnace and the boiler, having apertures in the walls thereof for admitting heated air to mingle with the gases from the bagasse to complete the combustion before coming in contact with the cooling-surface of the boiler, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERIC COOK.

Witnesses:
P. J. HEAVEY,
JAMES DAVIS.