(No Model.) 2 Sheets—Sheet 1.

S. P. PHELPS.

TOBACCO CURING FURNACE.

No. 498,858. Patented June 6, 1893.

Fig. 1.

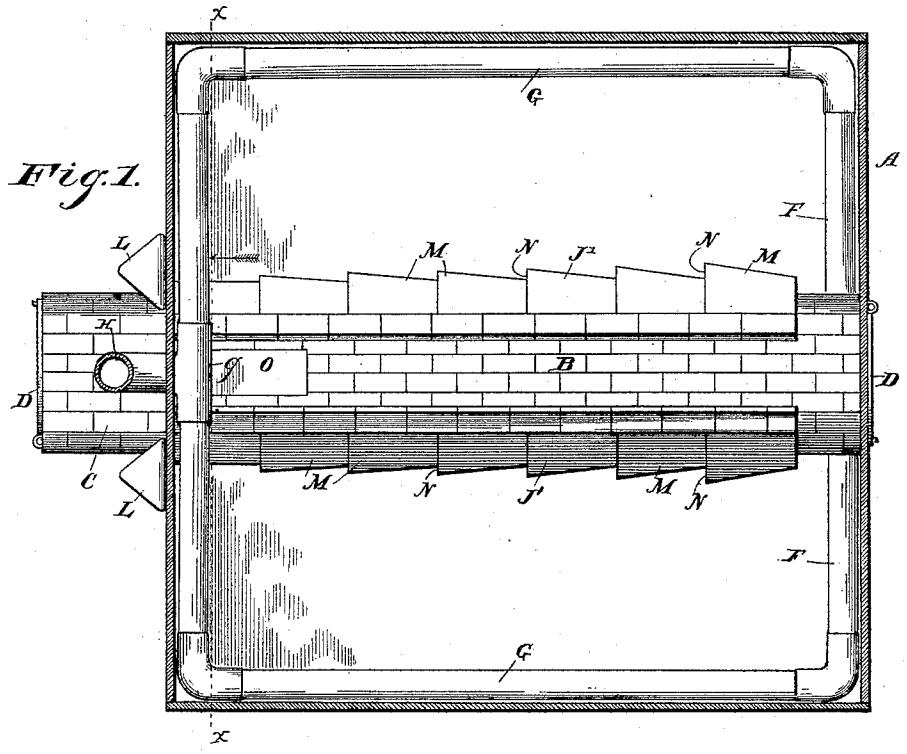
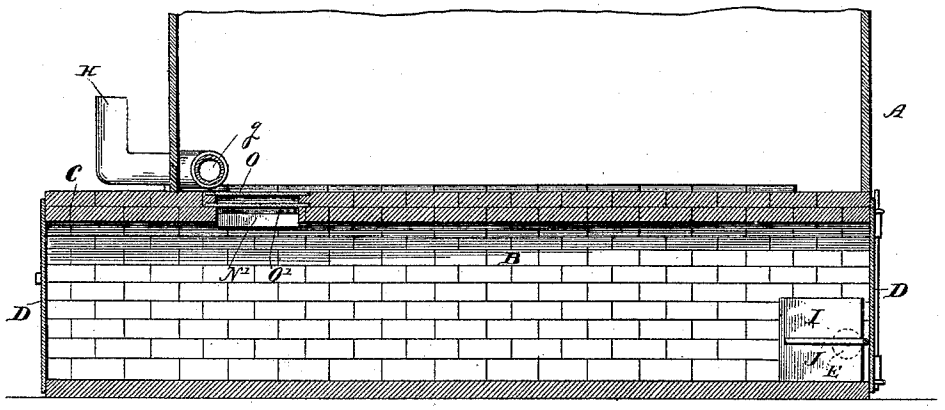


Fig. 2.



Witnesses;

J. M. Witherow

S. P. Wolhaupter.

Inventor,

Smith P. Phelps,

By his Attorneys,

C. A. Snow & Co.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

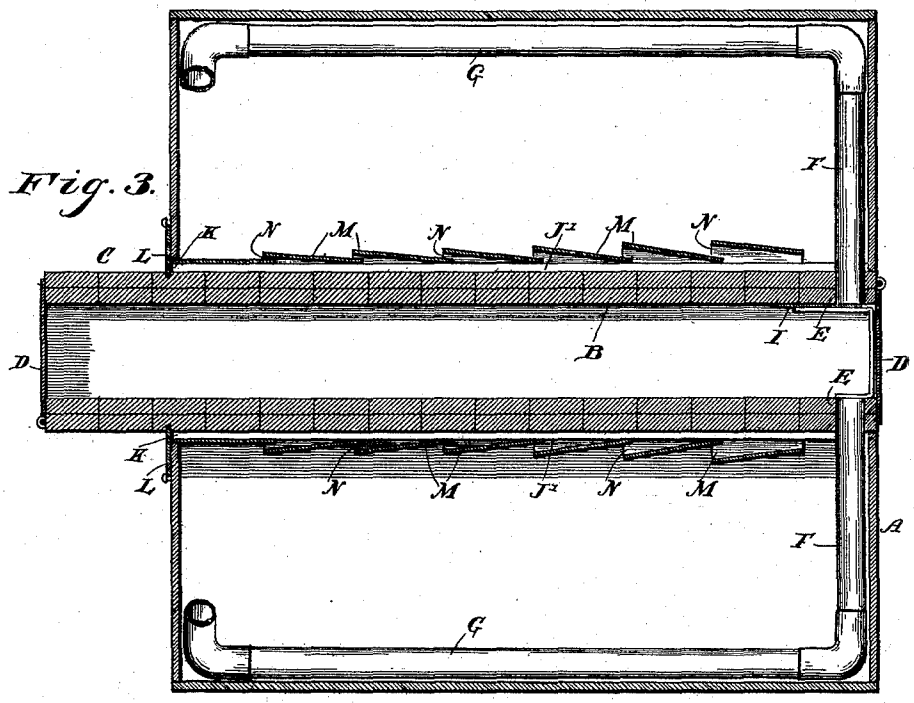
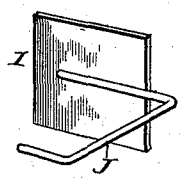
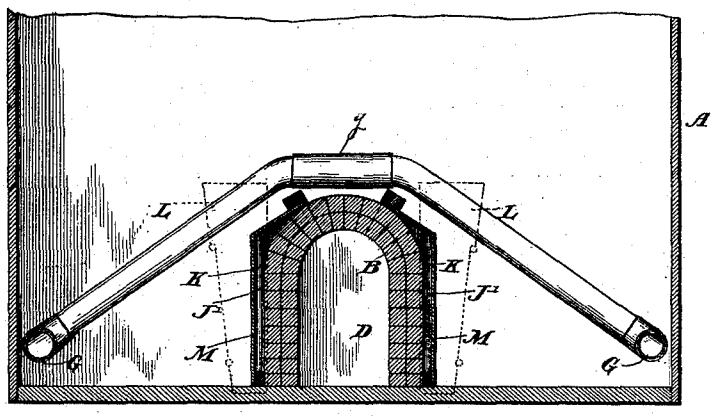


Fig. 5.

Fig. 4.





Witnesses;

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Inventor,

Smith P. Phelps,

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UNITED STATES PATENT OFFICE.

SMITH P. PHELPS, OF GREENVILLE, NORTH CAROLINA, ASSIGNOR OF ONE-HALF TO EDWARD O. McGOWAN, OF SAME PLACE.

TOBACCO-CURING FURNACE.

SPECIFICATION forming part of Letters Patent No. 498,858, dated June 6, 1893.

Application filed July 12, 1892. Serial No. 439,821. (No model.)

To all whom it may concern:

Be it known that I, SMITH P. PHELPS, a citizen of the United States, residing at Greenville, in the county of Pitt and State of North Carolina, have invented a new and useful Tobacco-Curing Furnace, of which the following is a specification.

This invention relates to tobacco curing furnaces; and it has for its object to provide a furnace of this character adapted to be used in tobacco barns, and by the particular construction of which the operator has perfect control of the heat in the barn, either to maintain a different degree of heat upon either side or at the ends of the barn, at the same time, or to maintain a uniform degree of heat over the entire barn as may be found necessary.

With these and many other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a top plan view of a tobacco curing furnace constructed in accordance with my invention and arranged in a tobacco barn, shown in horizontal section. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a horizontal sectional view of a tobacco curing furnace and the barn within which it is located. Fig. 4 is a detail in perspective of the sliding gate or valve. Fig. 5 is a detail vertical sectional view on the line *x*—*x* of Fig. 1.

Referring to the accompanying drawings:—A represents an ordinary tobacco barn in which is centrally arranged the continuous tubular furnace flue B, constructed of brick or other suitable material laid to the desired thickness according to the needs of the barn. The said elongated tubular furnace is of the same diameter throughout its entire length and is extended at its front as at C, slightly beyond one end of the barn, while the rear open end of the flue terminates flush with the opposite end of the barn. The wood or other fuel employed is placed in the furnace at the front end thereof, and the particles of combustion are disseminated throughout the furnace from end to end thereof, and the degree of heat passing through the furnace may be confined to intensify the heat radiated to the interior of the barn, or reduced at the option of the operator, by the means hereinafter described and also by the furnace doors D, located at each open end of the furnace flue B, and adapted to close or open the ends of the furnace as may be found necessary or as desired.

The heat and other products of combustion from the fire near the front end of the furnace pass to the rear end of the same, and at such point may be disseminated to one or both sides of the barn as may be necessary, through the side heat openings E, arranged in opposite sides of the furnace near the rear end thereof. The said side heat openings E receive the inner ends of the opposite heat pipes or tubes F, leading from said side openings to points near the sides of the barn, and are provided with the horizontal side portions G extending along the sides of the barn and within the same to the front thereof, and at such point meeting at the front and center of the barn, above the furnace as at *g*, and terminating in a common escape pipe H, through which the escaping smoke and products of combustion pass.

Now in order to direct the heat to one side of the barn at a time, or to both sides, if necessary, I employ a sliding gate or valve I, fitted in the rear end of the furnace and adapted to work against the sides thereof and over the heat openings E therein. A spring arm J is secured to said sliding valve I and bears against the opposite side of the furnace to that over which the slide valve works and presses, and thus holds the valve to its place over either of the heat openings, when it is desired to heat one side of the barn to a greater degree than the other side, but when it is desired to equalize the temperature, the said sliding valve may be entirely removed.

Upon opposite sides of the furnace B are formed the opposite air passages or flues J′ extending from the front end of the barn nearly the entire length of the furnace, and terminating short of the other end thereof.

Said air passages are open at their front ends K, on each side of the front extended portion C of the furnace proper, as well as at their rear ends, and are inclosed by the sliding doors or dampers L, working thereover and controlling the admission of air into said side passages or flues. The said side passages or flues are formed by a series of overlapping metallic sections M secured to the sides of the furnace, and having their edges overlapped to form a series of independent heat escape openings N, extending the entire length of the passages or flues thus formed, said heat escape openings regularly increasing in width from the front ends K to the inner or rear ends thereof. It will be readily seen that as the air from the outside of the barn is drawn through the front openings K by the heat of the furnace, the same is heated as it comes in contact with the sides of the furnace, and is forced through the several escape openings of said side flues or passages, it being of course readily understood that by means of the dampers or doors L one or both of said side air passages or flues may be employed at the same time, and that the air being heated before reaching the tobacco all sweating and blotching are avoided.

The furnace B is further provided near the front end and the top thereof with the heat opening N′, which is inclosed by the stationary metallic heat radiating plates O and O′ respectively arranged one above the other in said heat opening N′ and built into the furnace body. Now it will be seen that by the use of this plate inclosed front heat opening, the temperature of the barn can be raised at either end as desired. If it is desired to have the heat greater at the front end than at the back end, this result is secured by placing the fuel in the furnace in front of said plate inclosed opening at the front end of the furnace, thereby bringing the fire first in contact with said metallic heat radiating plates to heat the same so that they radiate their heat through the front end of the barn, two heat radiating plates being employed in order to prevent the heat being radiated too suddenly thereby. If it is desired to have a higher temperature at the back end of the barn, the fuel is placed in the furnace beyond the plates as will be at once apparent, thus causing the heat to pass directly to the rear end of the furnace, and not directly under and in contact with said plates. On the other hand if it is desired to keep the temperature in the barn stationary, it is accomplished by partially closing the front and rear doors as will also be apparent to those skilled in the art.

The construction and many advantages of the herein described tobacco curing furnace having been set forth it is thought that further description will be unnecessary.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a barn; of a continuous tubular horizontal furnace open at both ends, opposite swinging heat regulating doors working over each open end of the furnace, a plate-inclosed heat opening disposed in the top of the tubular furnace near one end thereof, connected pipes leading from opposite sides of the furnace near the other end thereof opposite to the location of the plate-inclosed heat opening, and longitudinal air circulating passages arranged at opposite sides of the furnace, substantially as set forth.

2. In a tobacco curing furnace, the combination with the barn; of the continuous tubular flue arranged centrally within the barn, and projecting beyond the front end thereof, said flue being open at both ends, opposite swinging heat regulating doors inclosing the opposite open ends of said flue, opposite combined smoke and heat pipes leading from opposite sides of the furnace near the rear end thereof and having horizontal side portions extending along the sides of the barn, said pipes meeting at their front ends in a common escape, and a regulating gate or valve adapted to inclose the open ends of either of said pipes within the furnace, substantially as set forth.

3. In a tobacco curing furnace, a continuous horizontal flue open at both ends, doors working over said open ends of the horizontal flue, opposite combined smoke and heat pipes opening into and leading from opposite sides of the horizontal flue near the rear end thereof, and a flat sliding regulating gate or valve adapted to work over either of the open ends of said pipes at the rear end of the horizontal flue and having a spring arm adapted to bear against one side of the flue, substantially as set forth.

4. In a tobacco curing furnace, the combination with a barn, of the horizontal flue arranged within said barn and extending beyond the front end thereof, said flue being open at both of its ends, heat regulating doors working over said open ends pipes leading from opposite sides of the flue near the rear end thereof, a series of overlapping metallic sections secured to opposite sides of the furnace to form opposite longitudinal air passages opening at the front on opposite sides of the projecting portion of the furnace flue, one of the walls of said air passages being the side of the flue and a series of heat escape openings regularly increasing in width from the front to the rear ends of said passages, and regulating dampers working over the front open ends of said side air passages, outside of the barn substantially as set forth.

5. In a tobacco curing furnace, the combination of the furnace flue open at both ends, and having a heat opening in the top thereof

in its front end, separate stationary metallic heat radiating plates arranged one above the other within said heat opening, doors inclosing the open ends of the furnace, and smoke pipes leading from the furnace near the end opposite to the location of the plate-inclosed heat opening, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my mark in the presence of two witnesses.

his
SMITH P. × PHELPS.
mark

Witnesses:
JOHN H. SIGGERS,
E. G. SIGGERS.