(No Model.) 2 Sheets—Sheet 1.

# W. CROOKS.

## FLUE FOR COTTON CONDENSERS.

No. 490,271. Patented Jan. 24, 1893.

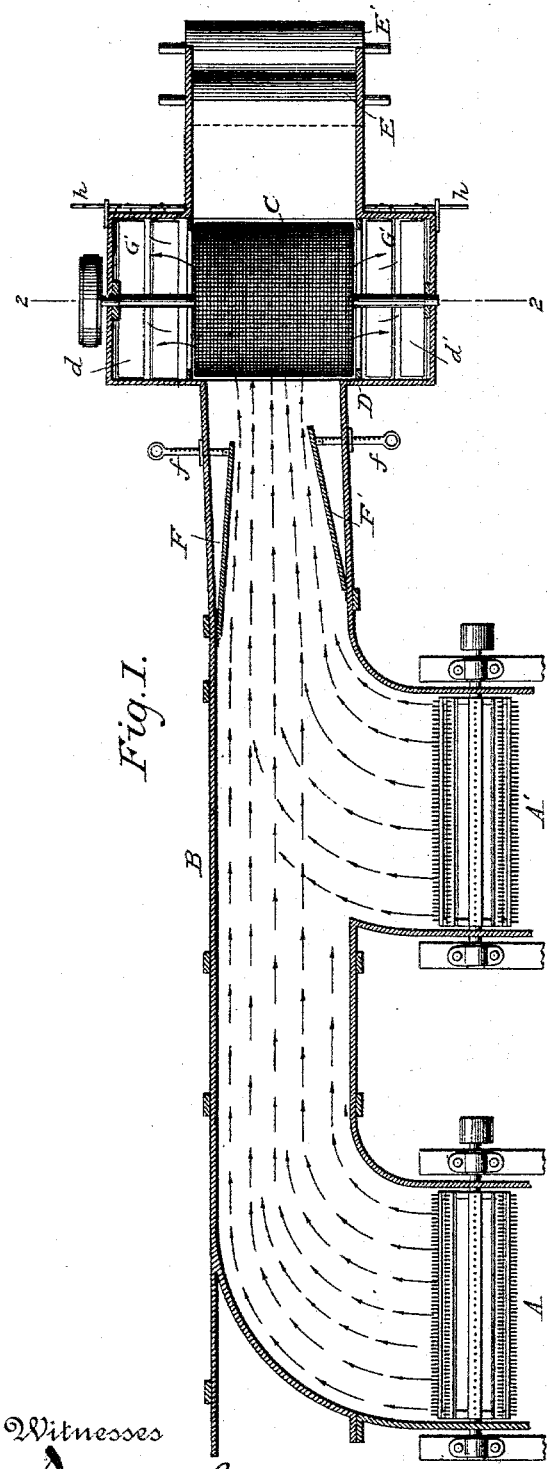


Fig. 1.

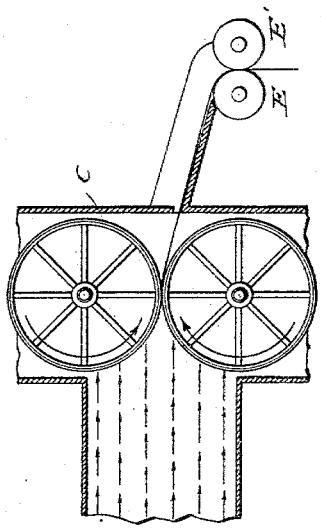


Fig. 3.

Witnesses

Raymond F. Barnes.

Fabius S. Elmore.

Inventor

William Crooks

By his Attorney

P. J. Dodge

(No Model.) 2 Sheets—Sheet 2.

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## FLUE FOR COTTON CONDENSERS.

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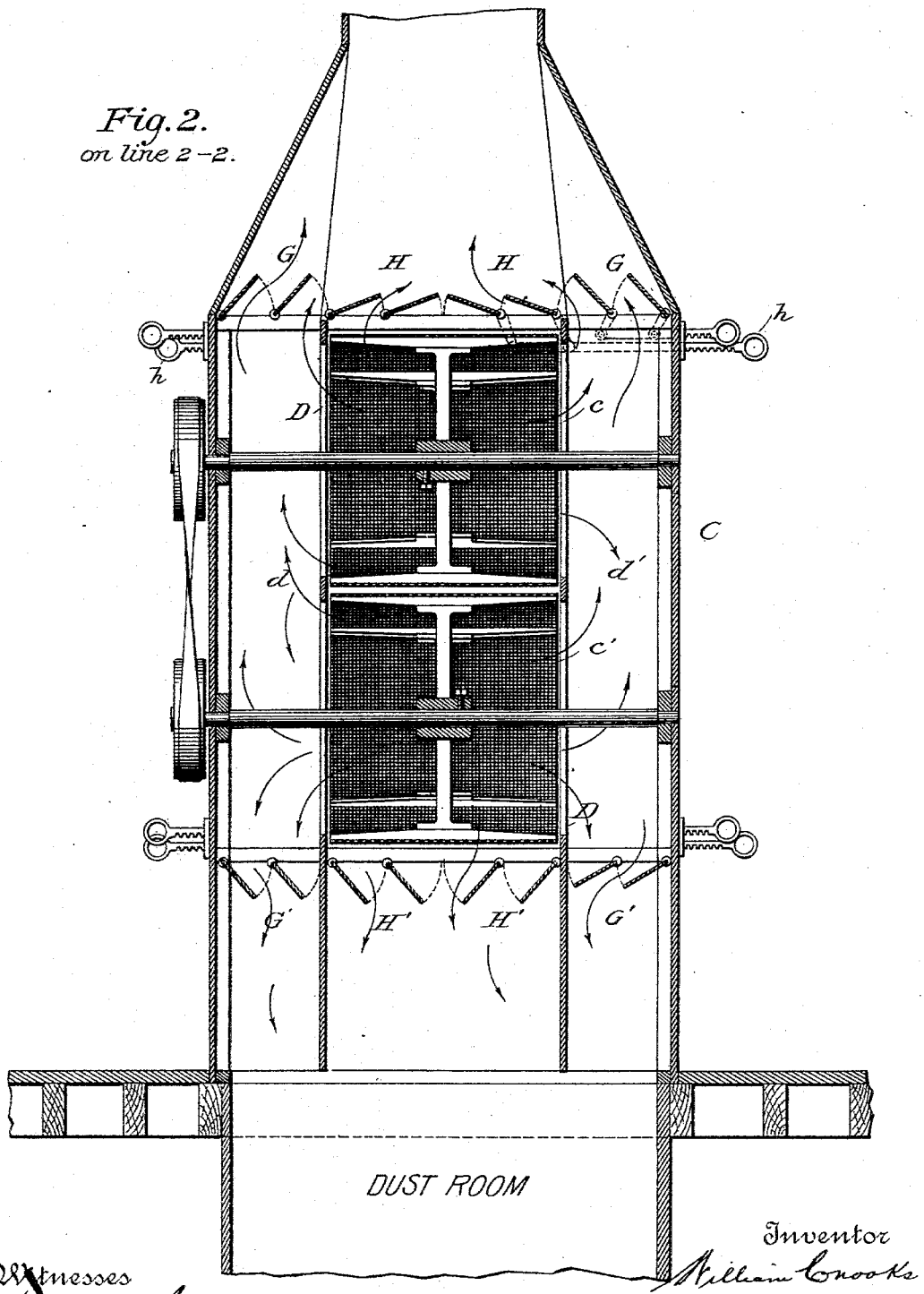
*Fig. 2.*
*on line 2–2.*




Witnesses
Raymond H. Barnes.
Fabius S. Ehuor

Inventor
William Crooks

By his Attorney
P. T. Dodge

# UNITED STATES PATENT OFFICE.

WILLIAM CROOKS, OF GALVESTON, TEXAS, ASSIGNOR TO THE REMBERT ROLLER COMPRESS COMPANY, OF SAME PLACE.

## FLUE FOR COTTON-CONDENSERS.

SPECIFICATION forming part of Letters Patent No. 490,271, dated January 24, 1893.

Application filed February 19, 1892. Serial No. 422,116. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM CROOKS, of Galveston, county of Galveston, and State of Texas, have invented a new and useful Improvement in Flues for Cotton-Condensers, of which the following is a specification.

In what is known in the art as the "Rembert system" of compressing and baling cotton it is the practice to conduct the lint cotton from the gins by an air blast to a condenser by which it is formed into a loose continuous bat. This bat is delivered between metal rolls which subject the same to an extremely high pressure, reducing the fiber to the form of a thin sheet in which the resiliency of the fiber is for the time being suppressed. This sheet, as thus produced, is lapped or laid up into the form of a bale, which is then subjected to a moderate pressure in order to expel the air from between the laminæ, after which it is banded, the result being a bale of high density and great weight in proportion to its size; in short, a bale similar to those produced by the reduction of the ordinary plantation bale in the powerful apparatus known as a "compress."

Now, for the successful carrying out of the Rembert process it is of the highest importance that the fiber shall be uniformly distributed to the condenser, so that the bat and the resulting compressed sheet may be of uniform thickness and density throughout its entire breadth and length, and this to the end that the bale, which is commonly composed of about six hundred laminæ, may preserve a symmetrical shape as demanded by commercial requirements.

My present invention consists in valves or deflectors arranged to control the course and strength of the air currents passing to and through the condenser. In practice it is found that from various causes there is a tendency of the air currents to pursue an irregular course and variable speed and to deposit the fiber unevenly on the condenser. To this end I propose to introduce into the condenser housing or flue or both, at suitable points, either vertically or horizontally movable deflectors or both.

The condenser may be of any approved form, and the flue may also be varied in form according to circumstances. I have represented my improvements in connection with a flue such as represented in the patent of J. G. Goldthwaite, dated November 3, 1891, No. 462,444.

In the accompanying drawings,—Figure 1 is a horizontal section through a flue and condenser with my improvement applied. Fig. 2 is a vertical cross-section on the line 2—2, Fig. 1. Fig. 3 is a section through the condensing cylinders and pressure rolls, on the line 3—3 in Fig. 1.

Referring to the drawings,—A A′ represent two gins, arranged to deliver their blast laden with lint cotton into the side of a transverse flue B, which extends in a horizontal or approximately horizontal direction, thence to a condenser C. The condenser in the form shown, consists of two horizontal pervious cylinders *c c′*, of wire cloth or similar material, arranged one above the other, at the end of the flue, and combined with mechanism for turning them toward each other, as indicated by the arrows.

D represents a housing or casing in which the condenser cylinders are mounted. It contains in its sides two vertical flues *d d′*, which communicate with the open ends of the cylinders, so that as the lint-laden air is delivered from the flue against the cylinders, the air will pass through into the interior and thence out at the ends through the side flues, as well as through the open spaces of the wire netting, both above and below, while the fiber deposited on the surfaces of the cylinder is united, carried between them and delivered on the rear side in the form of a loose continuous bat.

E E′ are a pair of horizontal metal rollers arranged to turn in close proximity to each other, and mounted in a strong supporting frame immediately behind the condenser, in order to receive the slightly coherent bat as it issues from the condenser and subject it to an extremely high pressure as it passes between them, the effect being to so compress and condense the fiber as to suppress for the time being its elasticity, and deliver it in the form of a thin continuous sheet which is adapted to be laid up into the form of a bale after the Rembert system.

The foregoing parts are constructed in substantially the same way and operate in essentially the same manner as those now in use.

My first improvement consists in providing the flue B, in advance of the condenser with one or more horizontally adjustable deflectors F F′, mounted in opposite sides of the flue and arranged to turn or swing on vertical pivots or journals at the ends nearest the gins, so that their opposite ends may be swung inward and outward in order that their inner vertical faces may be extended into the flue a greater or less distance and arranged at a greater or less angle to the advancing air current. By means of these deflectors, the size and number of which may be varied at will, I am enabled to so control the course of the passing current as to secure a uniform distribution of the fiber, throughout the length of the condenser cylinders. The deflectors may be arranged at any suitable points in the length of the flue and in any suitable relations to each other, and they may be provided with adjusting and fastening devices of any suitable character, such, for example, as the notched rods *f*, attached to them, and projected outward through the sides of the flues, as shown.

My second improvement consists in valves and deflectors for the purpose of checking or controlling the delivery of the air after being deprived of the fiber, from the interior of the condenser cylinders. The valves for this purpose may be located either above or below the cylinder or both, and arranged to control the delivery from the interior of the cylinders through their ends, and also to control independently the delivery or discharge through the pervious surface of the cylinders.

G, G, represent valves or deflectors located in the vertical side flues above the upper cylinder and serving mainly to control the discharge or delivery of the air through the ends of the upper cylinder from its interior.

G′ G′ are similar valves located in the vertical side flues below the lower condenser cylinder to control the delivery of air through its open ends.

H, H, represent a series of valves or deflectors located in the housing or casing directly over the upper condenser cylinder and independently adjustable so that the passage of the air through the pervious surface of the cylinder at different points in its length may be accurately controlled.

H′, H′ are a corresponding series of valves located in the trunk or housing below the condenser cylinder to control the discharge of the air through its surface at different points in its length. By means of the valves H, H′ I am enabled to permit the escape of the filtered air directly through the surface or circumference of the upper and lower cylinders to a greater or less extent. In other words, I am enabled to permit the escape of the air in part through the open ends of the cylinders and in part through their surfaces, and to control the discharge at the various points independently so as to secure, under all conditions, a uniform precipitation of the fiber throughout the length of the cylinders.

The valves H, H, are preferably hinged, as shown, and arranged so that when closed they will compel the air to escape wholly at the ends of the cylinder, but it is to be understood that they may be varied in form and arrangement at will, provided only they control the escape of the air through the surface of the cylinders. They may be combined with controlling rods *h*, or other equivalent devices.

It will of course be understood that my improvements are adapted for use with trunks through which one or more gins deliver the lint cotton, and that in place of the double cylinder condenser herein shown I may employ the ordinary single cylinder condenser or a condenser of any other appropriate form having a pervious surface to permit the passage of the air and retain the fiber.

While I have represented and prefer to employ an air delivery, and controlling valves at both ends of the condenser cylinders, it is to be understood that in cylinders delivering at one end only a single valve may be used.

Having thus described my invention, what I claim is:—

1. In combination with a cotton gin, a condenser having a pervious surface, and a flue through which the lint cotton is delivered from the gin to the condenser, one or more laterally-adjustable deflectors located in the flue and serving to control the currents passing to the condenser.

2. In combination with a gin, the cylinder condenser having a pervious surface, and a flue through which the lint cotton is delivered from the gin to the condenser, two independently adjustable deflectors located at opposite sides, of the flue, whereby the course of the current to the condenser may be modified to effect a uniform distribution of the fiber thereon.

3. In combination with the cylinder condenser and means for delivering a lint-laden blast to said condenser, the casing or housing having flues through which the air is delivered from the ends of the condenser, and valves to control the escape of the air from the respective ends of the cylinder.

4. In combination with a condenser cylinder arranged to receive a lint laden blast on its outer surface and to discharge the air through its ends, a casing or housing to compel the escape of the air at the ends of the cylinders and a valve or valves whereby the air may be permitted to escape in part through the surface of the cylinders.

5. In combination with the two condenser cylinders, the housing or casing inclosing the same to compel the escape of the air at the ends of the cylinders, and independent valves, substantially as described, acting respectively to control the delivery of the air from the

ends of the cylinder and to control the delivery of air through its surface.

6. The combination with a condenser cylinder arranged to deliver the air at its two ends, of adjustable valves arranged to control the delivery through its respective ends whereby the course of the air and the distribution of the fiber may be controlled.

7. The combination with a condenser cylinder arranged to deliver the air at its ends, of independent valves to control the escape of the air through the surface of the cylinder at its respective ends.

8. In combination with the two condenser cylinders and a housing or casing inclosing the same with flues at the ends of the cylinders, valves arranged to control the delivery of air through the surfaces of the upper and lower cylinders respectively.

In testimony whereof I hereunto set my hand, this 28th day of November, 1891, in the presence of two attesting witnesses.

WILLIAM CROOKS.

Witnesses:
F. B. VON HARTEN,
CHAS. KELLICE.