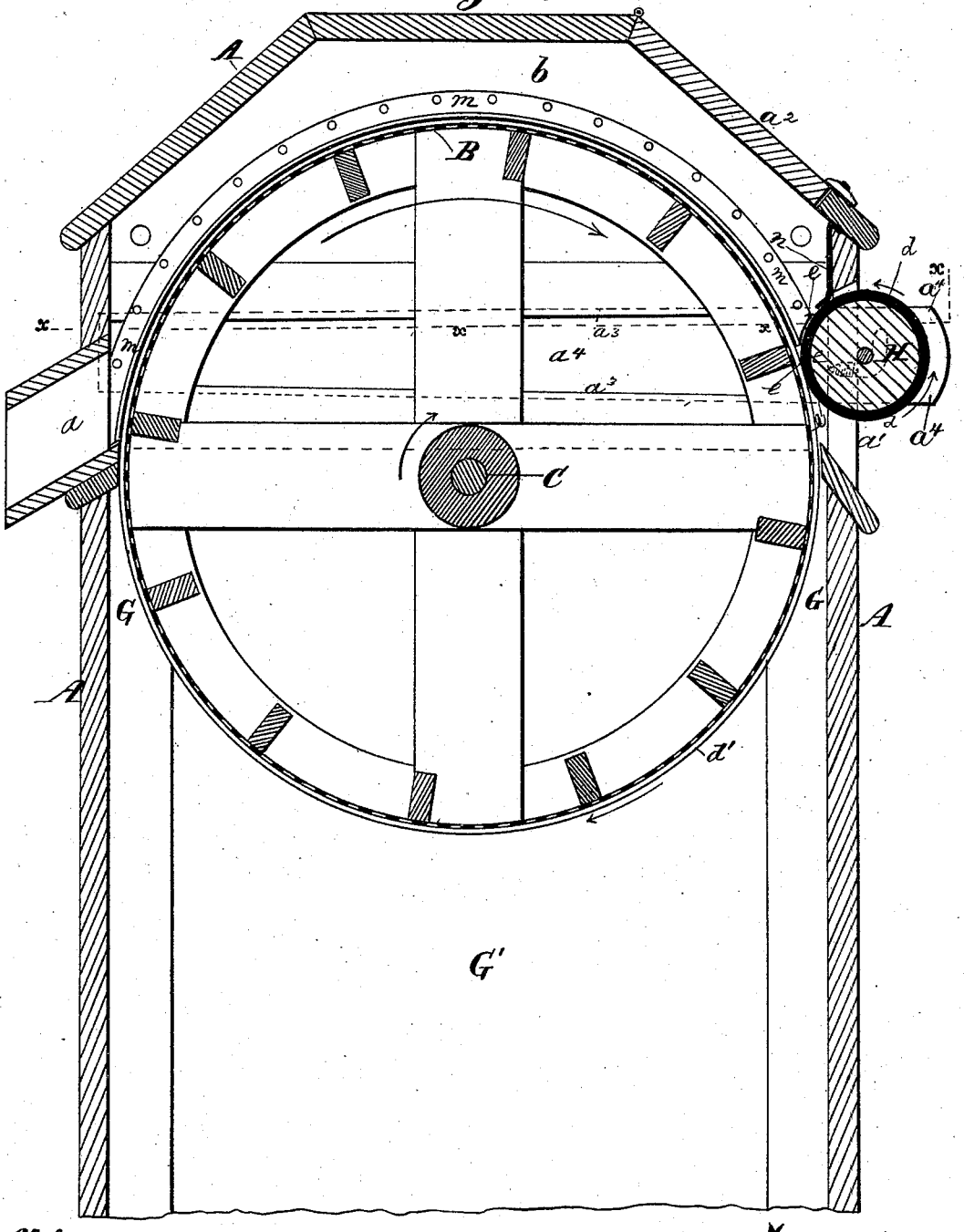
(No Model.) 3 Sheets—Sheet 1.

J. KNOTT.

COTTON CONDENSER.

No. 305,695. Patented Sept. 23, 1884.

Fig. 1.



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Inventor:
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(No Model.) 3 Sheets—Sheet 2.

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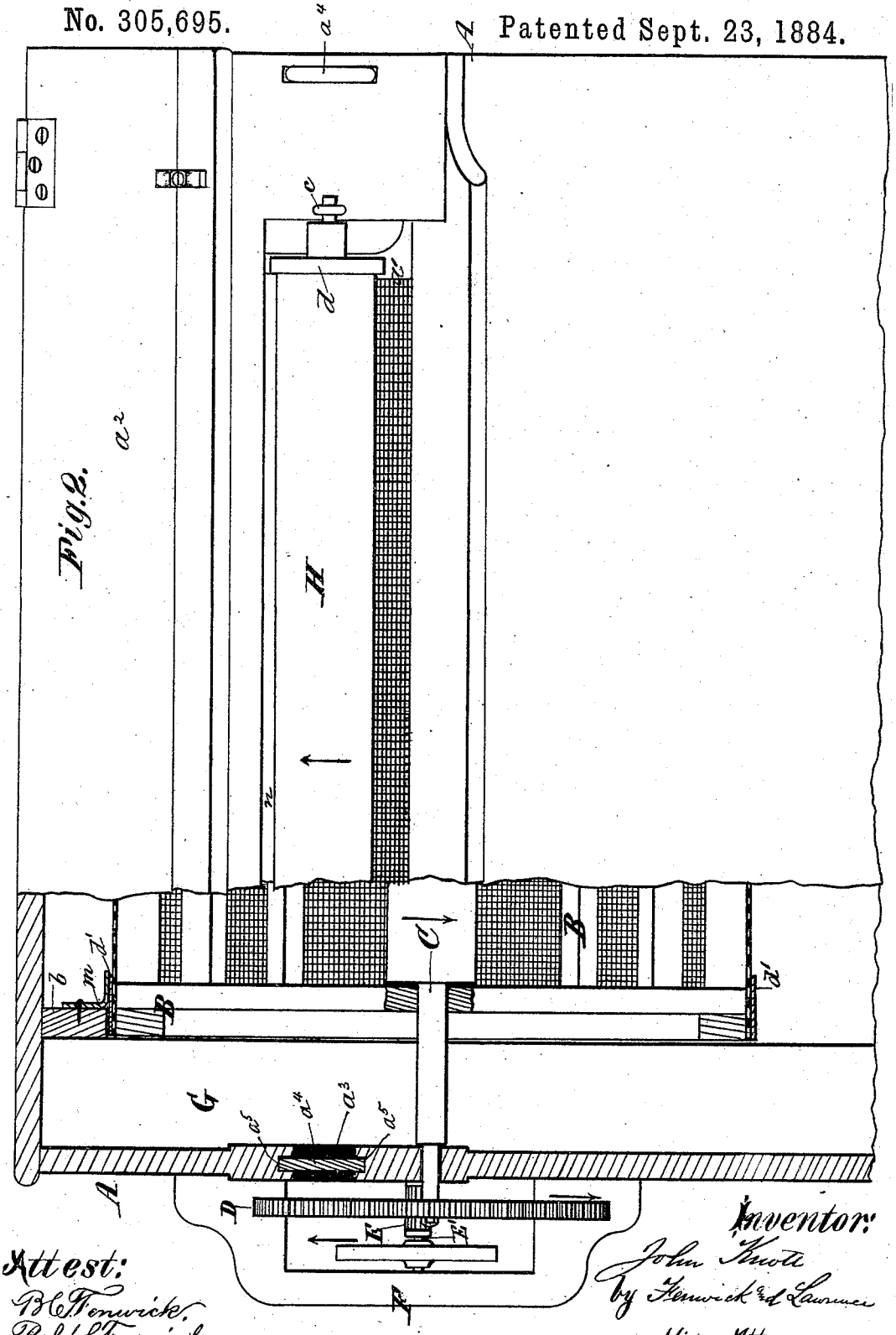

Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

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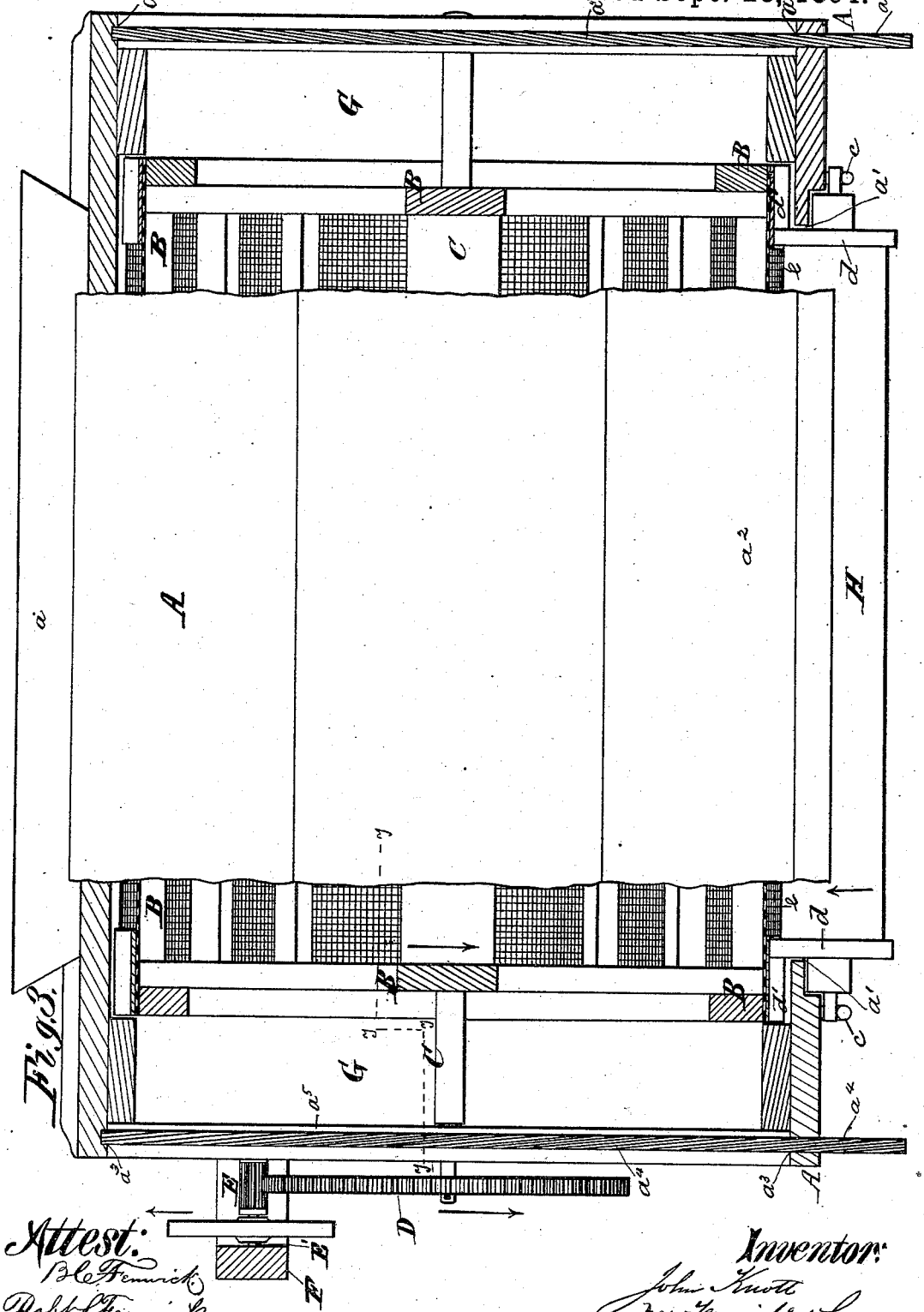

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UNITED STATES PATENT OFFICE.

JOHN KNOTT, OF MADISON, GEORGIA.

COTTON-CONDENSER.

SPECIFICATION forming part of Letters Patent No. 305,695, dated September 23, 1884.

Application filed November 1, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN KNOTT, a citizen of the United States, residing at Madison, in the county of Morgan and State of Georgia, have invented a new and useful Improvement in Cotton-Condensers, of which the following, in connection with the accompanying drawings, and letters of reference thereon, is a specification.

My invention relates to machines used for separating such dust and trash from cotton as are not removed therefrom in the operation of ginning, for smoothing or laying cotton in bats, and for doffing or feeding it from the condenser.

My invention consists in certain combinations of parts, as will be hereinafter described, and specifically claimed, whereby certain beneficial results are secured.

In the accompanying drawings, Figure 1 is a vertical cross-section of a condenser for cotton-gins with my invention applied. Fig. 2 is a partial vertical longitudinal section in the line *y y* of Fig. 3, showing the outer case, screen, one of the slides, and a passage covered by the slide in section, and the balance of the condenser in side elevation from the delivery side. Fig. 3 is a partial horizontal section and elevation of the condenser, the line of section being indicated by *x x*, and the same being a correct indication, except that the section is extended the entire length of the slides.

A in the drawings represents a dust-tight outer case for inclosing the revolving screen or drum B. This case is provided with the usual flaring induction-passage, *a*, on one side, and eduction-passage *a'* on the other or opposite side. The revolving screen B, having both its ends open and of a length considerably less than the casing A, is hung loosely, so as to revolve freely within the case A, its shaft C being suitably boxed in the framing of said casing, as shown, and one of its ends is extended to receive thereon a gear-wheel, D, which gears into a barrel-pinion, E, on a pulley-shaft, E', said pulley-shaft being supported by a suitable bearing-bracket, F, on the outside of the case, as shown, or in any other more suitable manner. The boxes of the shaft C are fixed—that is, are not sliding—and in order to have the gearing above described drive both the screen and the ordinary condensing and doffing roller, H, said roller is provided with india-rubber bands *d*, for a purpose hereinafter described. The top part of the case A is preferably made in the form of a part of an octagon, and from its under surface are extended downward a suitable distance two narrow transverse ribs or partitions, *b b*, of semicircular form on their lower edges corresponding to the upper half of the screen and fitting it snugly. The ends of the cylindrical screen extend under the ribs *b*, and between the top of the case and the wire-surface portion of the periphery of the screen B sufficient room for the passage of cotton and the circulation of air is provided, as shown, and to this top portion a hinged door or lid, a^2, is applied, for the purpose of affording access into the case A above the screen B. At each end of the case a passage, a^3, is formed, which passages are closed by slides a^4. These passages are to afford entrance for the operator's hands into the case and the cylindrical screen B whenever it is necessary to remove any clogging substances from the interior of the screen, and they can be either opened or closed by the slides a^4, which are fitted in guides a^5, and have one of their respective ends extended outside the case, so as to be conveniently manipulated. As the screen B is of considerable less length than the case A, there are dust-escape flues G G formed between its ends, the ribs *b b*, and the end walls of the case A when the screen is fitted in position, and the said flues extend down to the bottom of the screen, and there unite with the single dust or trash flue G', below the screen. The dust or trash flue G' may connect with conductors leading outside the building, or discharge into suitable receptacles at any desired place. In the exit-passage *a'* of the outer case the condensing and doffing roller H is applied, being hung in open hook-bearings *c c* on the outside of the case A. The bearings *c c* resemble an L or hook shaped staple, and are provided with gimlet-screw points at their entering ends, so that by turning one of the hooks or bearings a quarter of a revolution the roller H can be readily inserted into the eduction-opening *a'* in proper bearing relation

to the screens, or withdrawn when necessary. This construction of bearing is cheap, offers very little friction, and is very useful in connection with this special machine. The driving-bands *d d* of the roller H are made of thick india-rubber, in order to be compressible to a proper extent, and they are placed near each end of the roller, and bear with frictional contact upon metallic rims *d'* of the screen B, and by this means the screen is enabled to impart a positive revolving motion to said roller H without any adjustment of the shaft of the screen being necessary, and thus other gearing for driving this roller is dispensed with.

Between the screen B and the roller H a space, *e*, is formed sufficient for the passage of the cotton between the screen and the condensing-roller, while at the same time the frictional driving contact between the screen and roller is maintained; and in order to prevent the cotton, which passes over the cylindrical screen from entering into the flues G G or collecting and clogging between the rimmed ends of the screen and the ribs or partitions of the case A, and thereby retarding the revolution of the screen, leather flap-guards *m*, forming about half-circles, are applied at the respective ends of the screen, they being fastened to the inner sides of the ribs and allowed to rest down close upon the rim ends of the screen, so as to close the joints between the said ribs and screen; and to prevent the condensed cotton from passing out above the roller H, another flap-guard, *n*, of leather or suitable material, is fastened upon the case A, as shown, and allowed to rest down upon the roller, so as to close the passage-way out of the case above the said roller. In addition to these leather flaps the induction and eduction surfaces or bottom boards are respectively made inclined, so as to insure the perfect direction of the cotton into and out of the condenser.

Operation: The screen being caused to revolve by a belt leading to the pulley on shaft E' from the gin-power, the roller H is set in motion by frictional contact of the screen with its rubber bands *d*. The cotton being blown from the gin into the condenser through the opening *a*, is forced in thin layers by the pressure of air from the beater of the gin over the screen, and by the revolution of the screen it is carried around to the condensing-roller, and being compelled by flap *n* to descend it passes under the roller and is doffed by the combined agency of said roller and the inner edge of the inclined bottom board of the eduction-passage *a'* and is discharged. By the combined action of the air and revolution of the screen upon the cotton in its passage through the condenser, the dust or dirt is forced through the upper meshes of the screen into the screen, and out of the screen through the lower meshes and the open ends of the screen into the end flues, G G, and therefrom into the conducting-flue G', whence it goes to any suitable receptacle or place.

My invention herein described and shown, whereby the dust is confined within the outer case, is allowed to pass both through the screening material and out at the ends of the screen into dust-flues, and whereby access to the interior of the screen by means of the end passages and slides is afforded, and whereby all the dust by its gravity and the pressure of the blast is allowed to pass away from the operators, is very important and has not heretofore been known.

I am aware that machines have been devised for condensing cotton and separating dust and trash therefrom; also, that cylindrical screens and condensing-rollers have been applied in a case open at its ends; but I am not aware that dust-flues, slides, an open-ended screen, a tight outer case, and flap leather packing-strips have been employed for the purposes and in the manner I have shown and described.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The revolving screen B, formed with open ends, in combination with the tight case A, provided with dust-flues G G at the ends of the screen, and the slides a^4 for closing and opening passages a^3 at the ends of the said case, substantially as and for the purpose described.

2. The combination of the outer case, A, the screen B, having rims *d'*, the gearing for driving the screen, and the roller H, having india-rubber bands *d*, bearing on the rims *d'*, substantially as and for the purpose described.

3. The cotton-condenser comprising the tightly-closed case A, the slides a^4, passages a^3, induction and eduction passages *a* and *a'*, the ribs *b b*, the passage *e*, the flues G G G', the screen B with open ends, the flap packing-strips *m n*, the roller H, having rubber friction-bands *d*, and the gearing for operating the screen, substantially as and for the purpose described.

JOHN KNOTT.

Witnesses:
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JOSEPH C. FEW, JR.