

No. 682,879.

Patented Sept. 17, 1901.

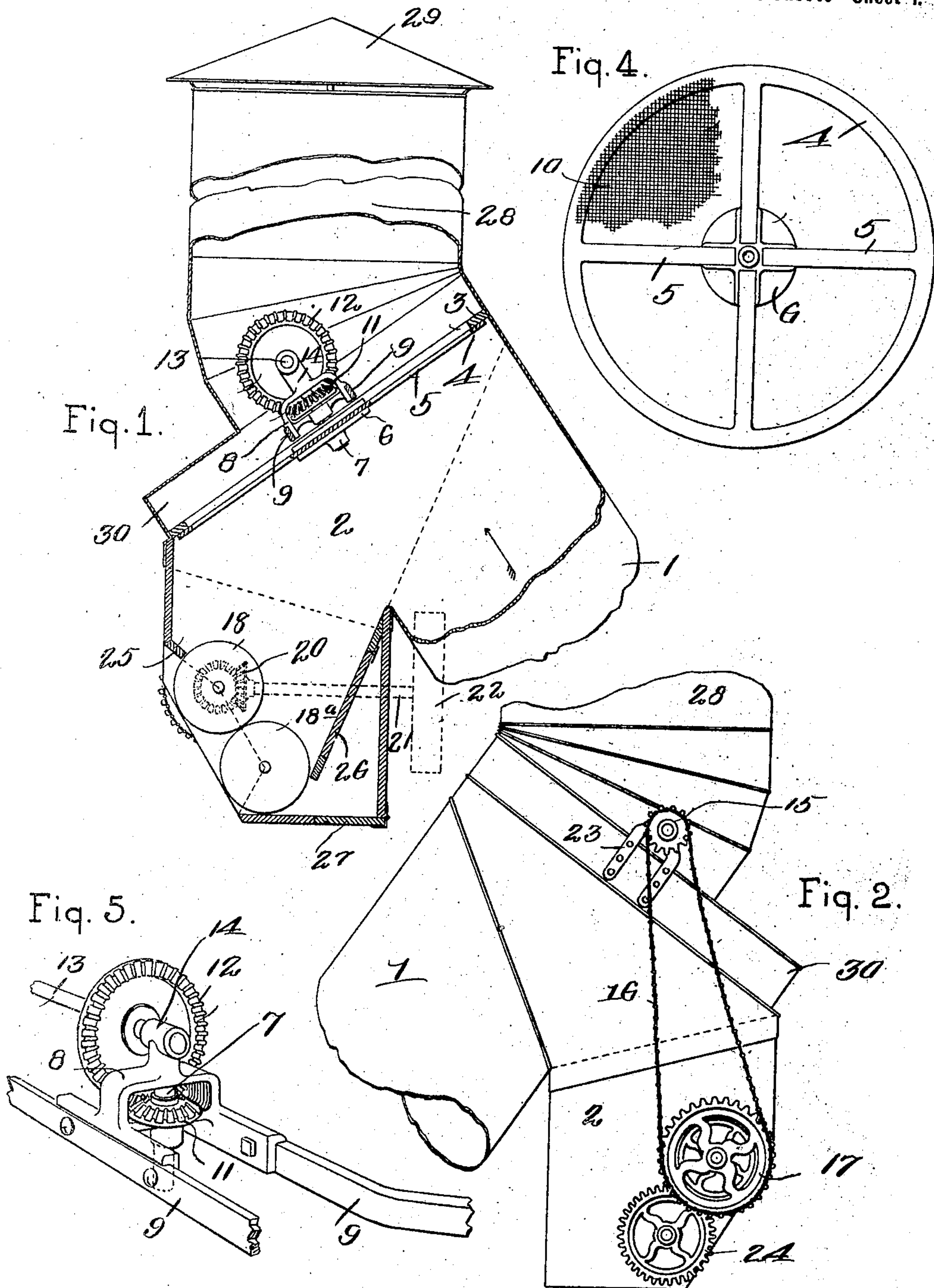
S. D. MURRAY.

CONDENSER FOR COTTON GINS.

(No Model.)

(Application filed July 12, 1900.)

3 Sheets—Sheet 1.



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Fig. 3.

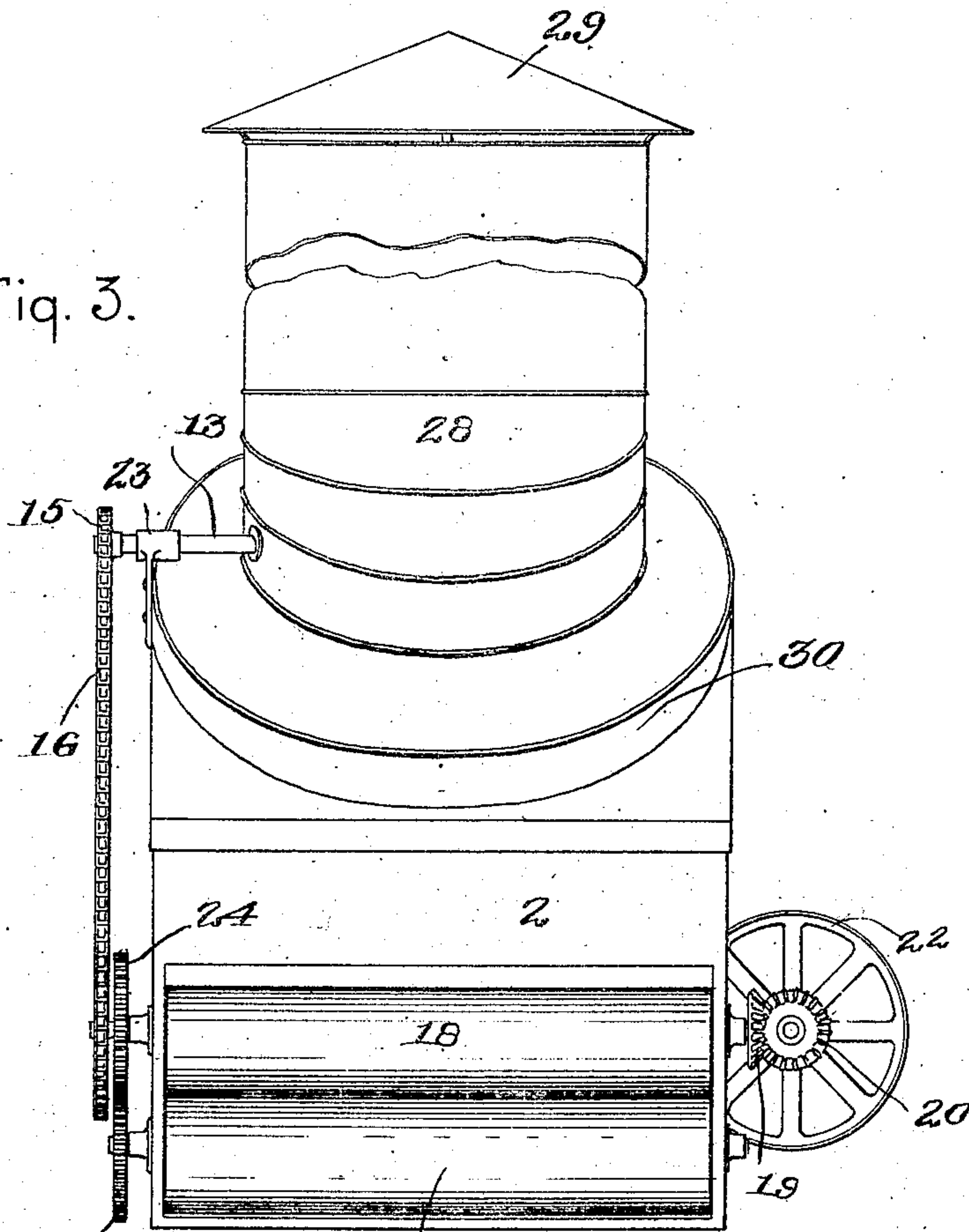


Fig. 6.

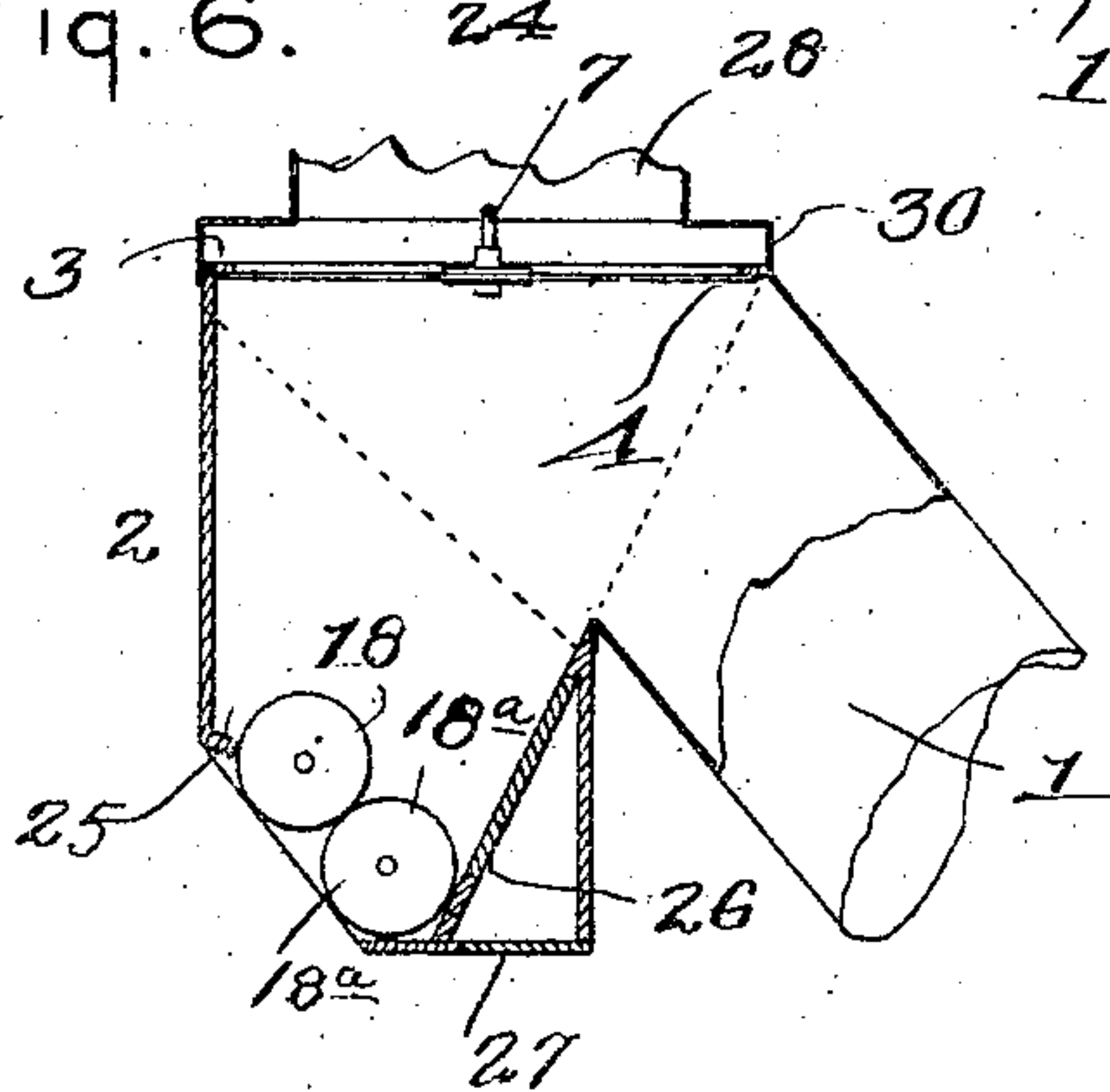
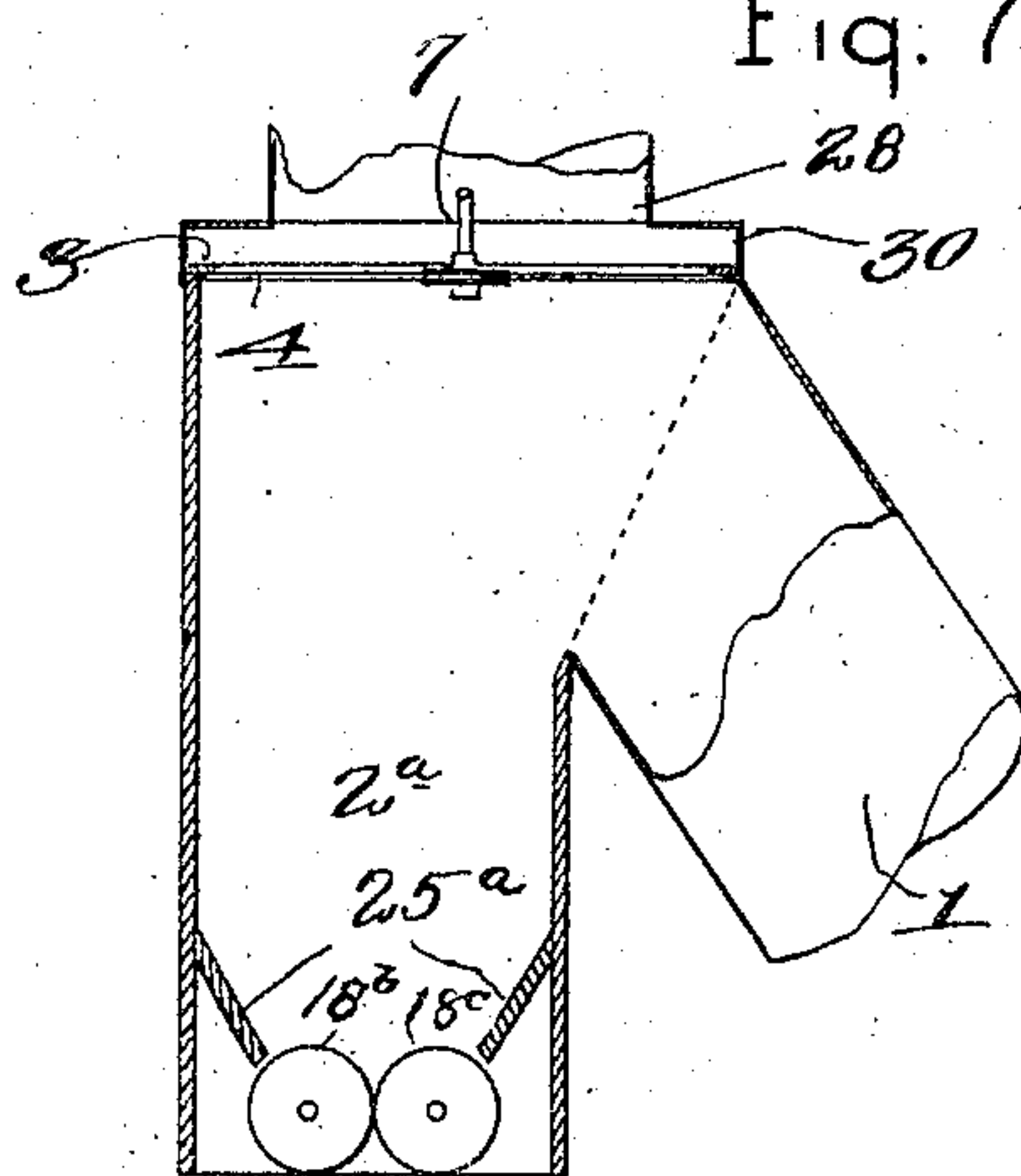


Fig. 7.



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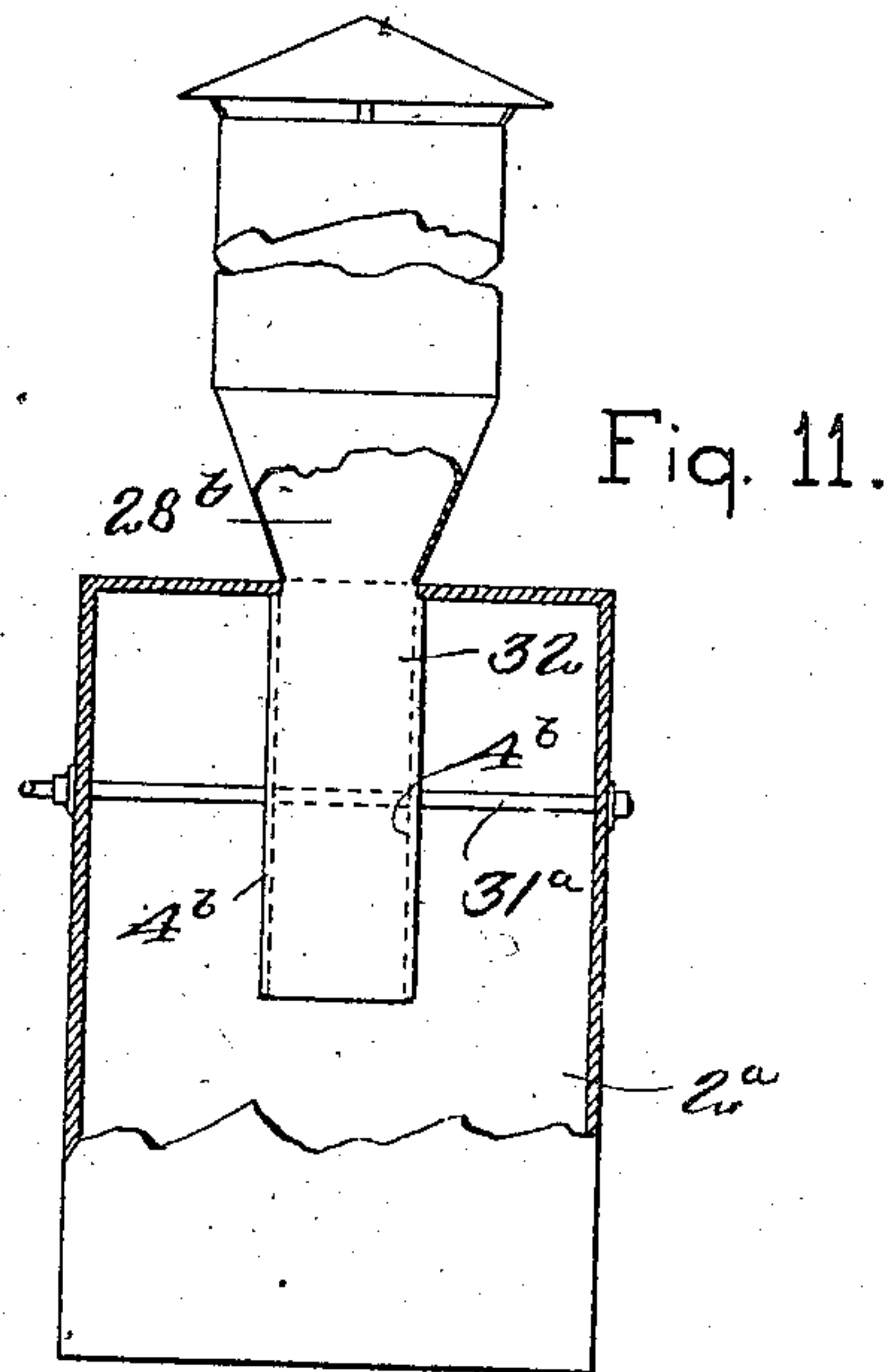
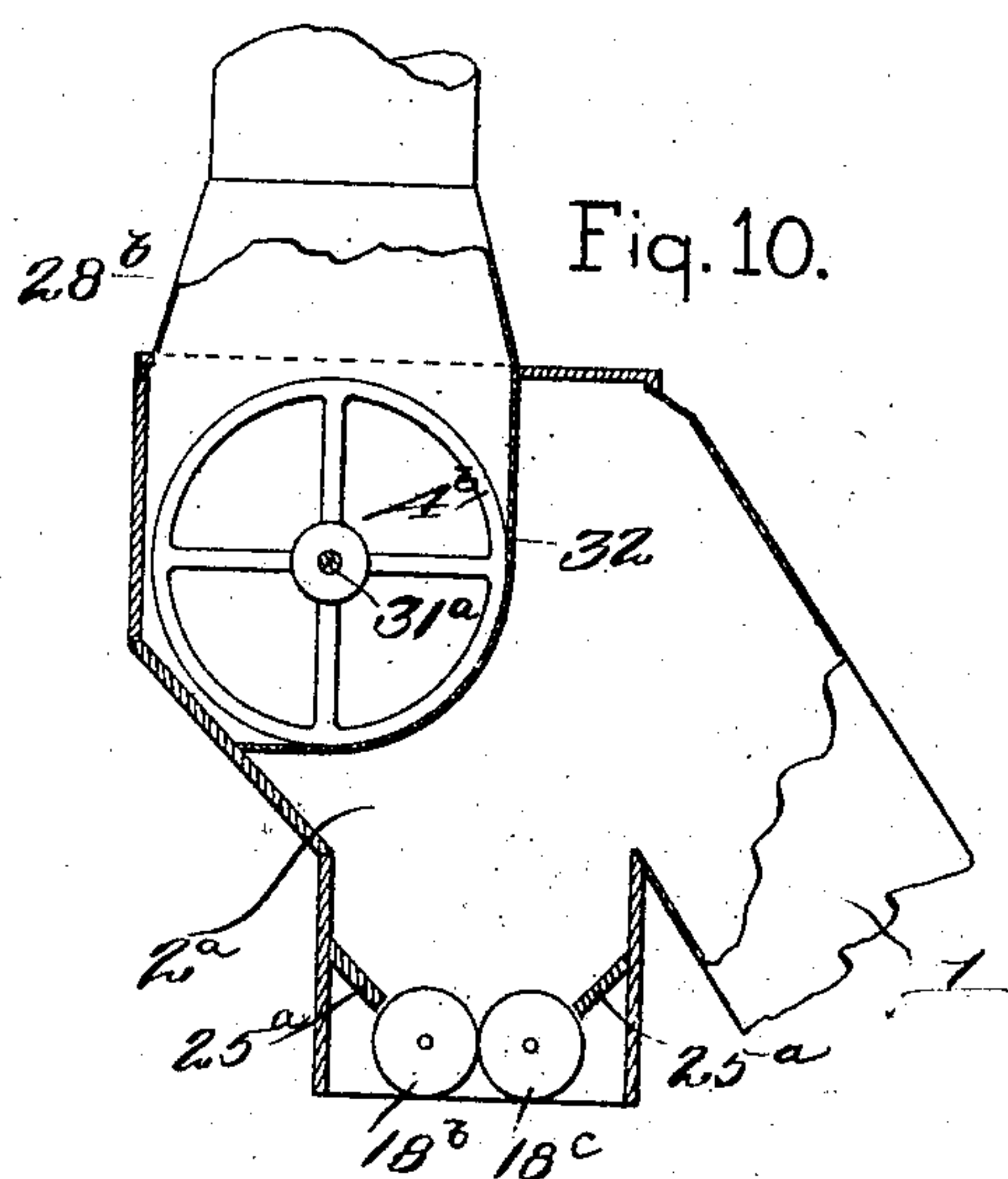
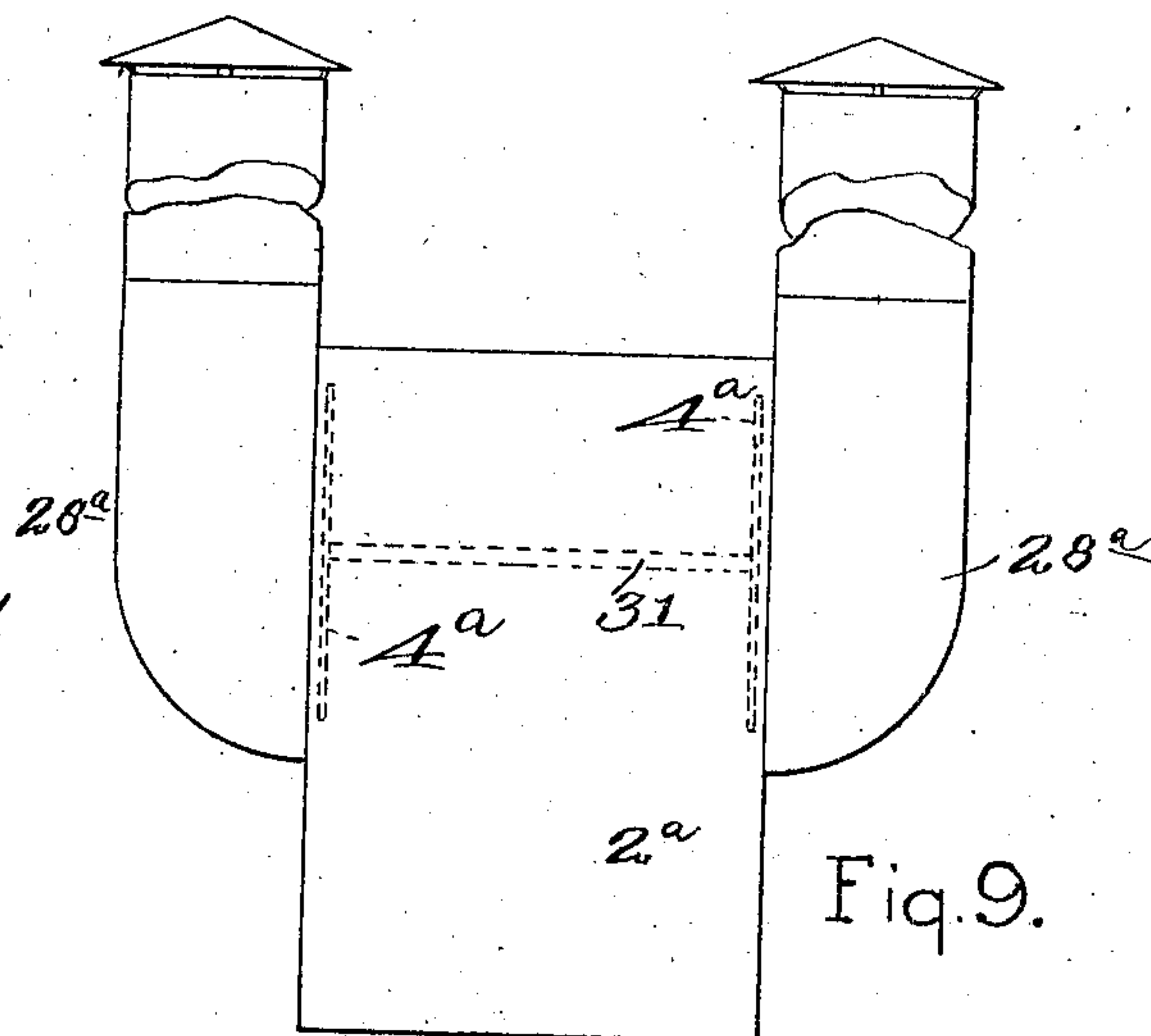
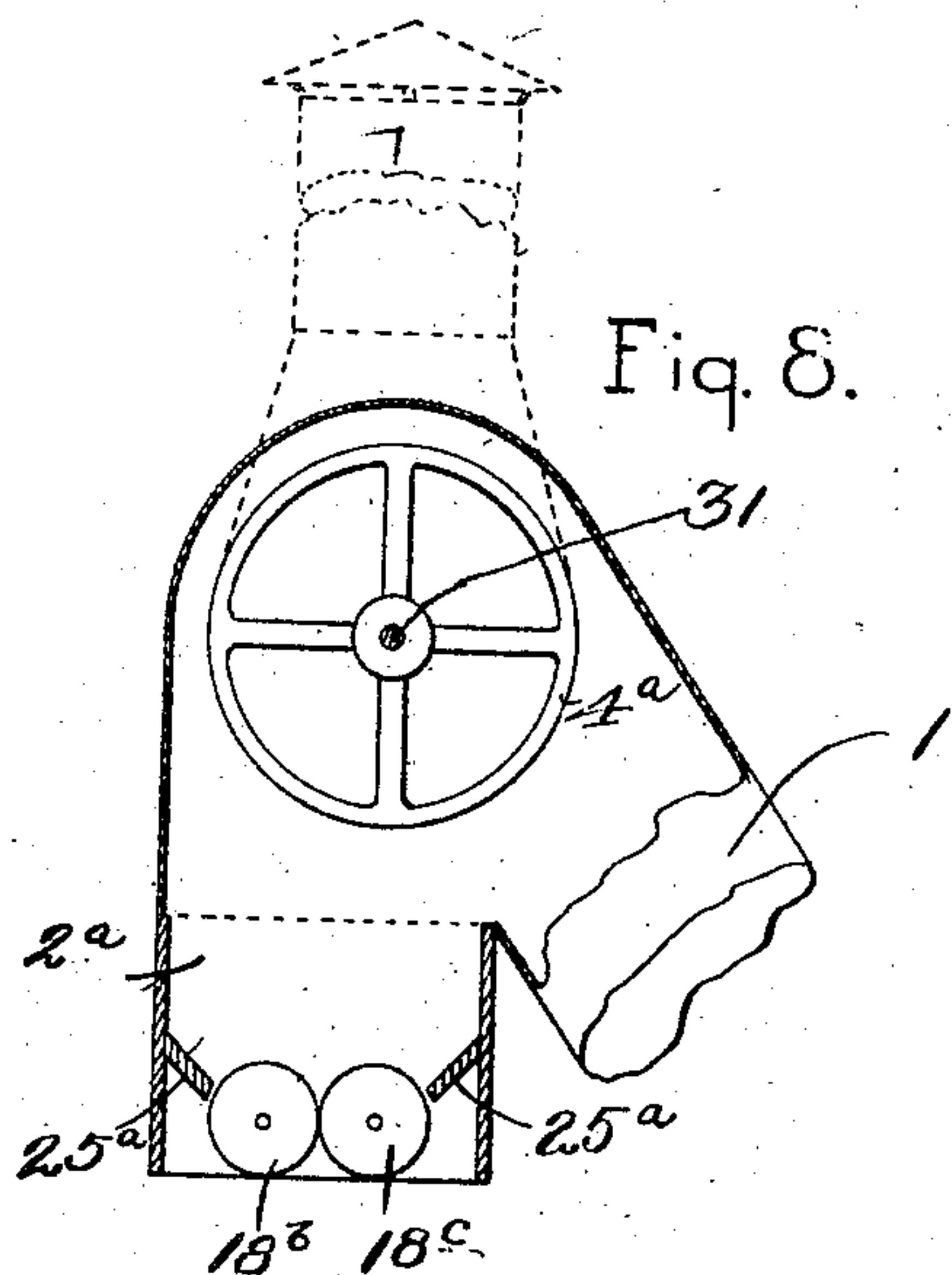
S. D. MURRAY.

CONDENSER FOR COTTON GINS.

(No Model.)

(Application filed July 12, 1900.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

STEPHEN D. MURRAY, OF DALLAS, TEXAS.

CONDENSER FOR COTTON-GINS.

SPECIFICATION forming part of Letters Patent No. 682,879, dated September 17, 1901.

Application filed July 12, 1900. Serial No. 23,376. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN D. MURRAY, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented new and useful Improvements in Condensers for Cotton-Gins, of which the following is a specification.

My invention relates to an improved condenser for cotton-gins, and has for its object to provide novel and thoroughly-efficient means for separating air from the cotton lint and allowing the air to escape while the lint is condensed and payed out into the gin-room to be baled.

Heretofore cotton-condensers have been constructed with one or more revolving-screen cylinders for separating air from the cotton lint while the latter passes over or between said cylinders, this construction, however, being objectionable on account of expense and the difficulty of keeping the devices in repair. In my improved cotton-condenser I employ in place of revolving-screen cylinders a rotary pervious or foraminous disk, that renders it possible to change the general form of the condenser so as to produce a more simple and very much cheaper construction.

My invention consists in a cotton-condenser provided with a rotary foraminous disk for separation of air from the cotton lint and also in certain details of construction and in the combination and arrangement of the several parts of a cotton-condenser, as hereinafter described and claimed.

In the annexed drawings, Figure 1 is a part sectional side elevation of my improved cotton-condenser. Fig. 2 is an elevation of the opposite side of the same. Fig. 3 is a front elevation of the condenser. Fig. 4 is a view of the rotary foraminous disk. Fig. 5 is a somewhat-enlarged detail view of devices through which the foraminous disk is mounted and rotated. Fig. 6 is a part sectional side elevation of a slightly-modified form of the condenser. Fig. 7 is a similar view of another modified form of my cotton-condenser. Fig. 8 is a sectional view of another modification, in which two foraminous disks are employed and mounted vertically instead of horizontally. Fig. 9 is an elevation of the same viewed at a right angle to the preceding figure. Figs. 10 and 11 are sectional views at

right angles to each other, illustrating another modification in the arrangement of two foraminous disks in connection with a cotton-condenser.

Referring first to Figs. 1 and 2, the reference numeral 1 designates a flue leading from a cotton-gin and through which cotton lint is conveyed by the blast of the gin into the cotton-condenser 2, which may have any suitable form. In an upper part of the condenser-chamber 2 there is placed a ring 3, that may be arranged in an inclined position, as shown in Fig. 1. Immediately beneath the ring 3 there is arranged a rotary foraminous disk 4, adapted for the separation of air from the cotton lint that is blown into the condenser-chamber. This foraminous disk may consist of a suitable rim carried by spokes 5, attached to a hub 6 on one end of a spindle 7, Figs. 1 and 5. This spindle 7 is provided with suitable bearings in a bracket 8, mounted on bars 9, that are arranged across the top of the condenser-chamber. Any suitable foraminous material, such as wire-gauze or wire-cloth 10, may be secured to the rim of the foraminous disk, as shown in Fig. 4, or said foraminous disk may be constructed in any other suitable manner whereby it will be adapted to the separation of air from the cotton lint thrown against said disk.

On the spindle 7 of the rotary foraminous disk 4 there is secured a bevel-pinion 11, Figs. 1 and 5. This bevel-pinion 11 is in mesh with a bevel-gear 12 on one end of a shaft 13, that has a suitable bearing at one end in an upper portion 14 of the bracket 8, as shown in Fig. 5. The other end of this shaft 13 is provided with a sprocket-wheel 15, Figs. 2 and 3, and the said sprocket-wheel 15 is connected by an endless chain 16 with a sprocket-wheel 17 on the journal of a roller 18, mounted horizontally in the lower portion of the condenser-chamber, as shown in Figs. 1, 2, and 3. At its other end the roller 18 is provided with a journal having thereon a bevel-pinion 19, meshing with a bevel-pinion 20 on one end of a shaft 21, that has on its other end a pulley or band wheel 22, Fig. 3, through which the roller 18 is rotated, the rotation of said roller being transmitted through the endless chain 16 and sprocket-wheels 15 and 17 to the shaft 13, which, through the bevel-gears 12 and 11,

imparts rotation to the foraminous disk 4 at the top of the condenser-chamber. A suitable bearing 23, Fig. 3, is provided for the outer end portion of the shaft 13 outside the condenser-chamber, the inner end of said shaft being mounted within the chamber, as shown in Fig. 1.

There is arranged in contact with the roller 18 another horizontally-arranged roller 18^a, which is driven from the roller 18 by means of spur-gears 24, Fig. 3, in such manner that the two rollers 18 and 18^a will revolve toward each other and outwardly with respect to the condenser-chamber, thereby condensing and paying out the lint-cotton that falls onto or against said rollers. By reference to Fig. 1 it will be seen that the lint-cotton will pass through the flue 1 in the direction of the arrow, being impelled by the blast of the gin, and thus caused to strike against the rotary foraminous disk 4, from which it will be thrown off by centrifugal force and then fall into the lower part of the condenser and impinge on the condensing-rollers 18 and 18^a. It is preferable to arrange suitable inclined guides 25 and 26 in the lower part of the condenser-chamber adjacent to the rollers 18 and 18^a, so as to cause the cotton lint to be more evenly distributed on said rollers. One of these guides 26 is preferably hinged and is arranged above a hinged door 27 at the bottom of the condenser-chamber to afford access to the inner sides of the condenser-rolls, if required.

The condenser-chamber is provided above or beyond the rotary foraminous disk 4 with an outlet-flue 28 for exit of the air that is separated by said foraminous disk from the cotton lint conveyed into the condenser. The flue 28 may have any suitable form and is provided above or beyond its open outer end with a hood 29, Figs. 1 and 3, to keep out the rain, the said hood being placed at a sufficient distance from the open end of the flue 28 to provide sufficient space for exit of air. By reference to Fig. 1 it will be observed that the diameter of the foraminous disk 4 is a little less than the distance across the top or upper portion of the condenser-chamber, the intervening space being covered by the ring 3, which is in close contact with the walls of the condenser-chamber, so that no air can escape therefrom except by passing through the rotary foraminous disk, while the lint will be disengaged from said rotary disk by centrifugal force. The air-exit flue 28 may be somewhat contracted in its diameter, if preferred, and may be connected with the top of the condenser-chamber 2, as shown in Figs. 1, 2, and 3.

It is sometimes preferable to arrange or set the condensing-rollers 18 and 18^a in the position shown in Figs. 1, 2, 3, and 6, so as to pay out the cotton-bat somewhat to the side of the condenser. This arrangement is very convenient for putting the cotton-bat onto a slide, (not shown,) whence it would pass on

at an incline down into the compress-box, as now frequently used. However, as shown in Figs. 7, 8, and 10, the condensing-rollers 18^b and 18^c, corresponding to the rollers 18 and 18^a, may be arranged in the same horizontal plane with each other at the lower end of a vertically-disposed condensing-chamber 2^a, so as to pay out the cotton-bat directly downward, this being more particularly adapted to delivering cotton to round-bale presses and others. When so arranged, angularly-disposed fixed guides 25^a are employed.

The rotary foraminous disk 4 may be arranged in a more or less inclined position, as shown in Fig. 1, or it may be placed horizontally, as shown in Figs. 6 and 7.

Fig. 6 shows a form of condenser substantially the same as that shown in Fig. 1 except that the rotary foraminous disk 4 is placed in a horizontal position.

Fig. 7 shows a construction that is adapted to afford more storage-room above the condenser-rollers, at the same time delivering the cotton-bat directly downward instead of to one side.

Figs. 8 and 9 illustrate a form of cotton-condenser wherein two rotary foraminous disks 4^a are mounted upon a horizontally-placed shaft 31, this arrangement being adapted more particularly to condensers intended for connection with a long series of gins or where a greater disk-surface may be required to allow a free passage of a large volume of air. In this form of construction there will be employed two exit-flues 28^a, one connecting with each side of the condenser-chamber 2^a beyond each of the rotary foraminous disks.

Figs. 10 and 11 show still another form of cotton-condenser wherein two rotary foraminous disks 4^b are used, the said disks being, however, set closer together on a horizontally-arranged shaft 31, thus requiring only one air-escape flue 28^b, while at the same time occupying less space than the form of construction shown in Figs. 8 and 9. It will be observed that the single flue 28^b, Figs. 10 and 11, communicates with the casing of the condenser at a point between the two rotary foraminous disks 4, a shield 32 of any suitable construction being arranged adjacent to said disks in such manner that air can escape from the condenser-chamber only by passing through said foraminous disks.

The operation of this cotton-condenser will be readily understood. A condenser of this character can be built for less than one-half the cost of the old-style condensers. Its weight is much less than one-third the weight of old-style condensers for from three to six gins, and the space occupied is very much less. Besides, on account of its simple construction it is well adapted to being built of iron at small cost, building the condensers from iron being very desirable.

The employment of a rotary foraminous disk for the separation of air from the lint

in a cotton-condenser is an important and very economical feature of my invention, such disks, so far as I am aware, not having been heretofore employed in a cotton-condenser.

What I claim as my invention is—

1. A cotton-condenser provided with a rotary foraminous disk for separation of air from the cotton lint, substantially as described.

2. A cotton-condenser comprising a condenser-chamber, a flue for conducting cotton lint into said chamber from a gin, a rotary foraminous disk mounted in an upper part of the condenser-chamber to separate air from the cotton lint, an air-exit flue leading from the condenser beyond said disk, and condenser-rollers mounted in a lower part of the condenser-chamber, substantially as described.

3. A cotton-condenser comprising a condenser-chamber having a flue for inlet of cotton lint from a gin, a rotary foraminous disk mounted in said chamber, an air-exit flue leading from the condenser-chamber beyond said rotary foraminous disk for the separation of air from the cotton lint, and condenser-rollers mounted below said rotary foraminous disk, substantially as described.

4. In a cotton-condenser, the combination with the condenser-chamber having an inlet-flue for conducting cotton lint from a gin and into said chamber, and condenser-rollers mounted in a lower part of the condenser-chamber, of a rotary foraminous disk mounted in an upper part of the condenser-chamber for separation of air from the cotton lint, and an air-exit flue leading from the condenser-

chamber beyond said rotary foraminous disk and provided with a hood, substantially as described.

5. In a cotton-condenser, the combination of a condenser-chamber, a flue for conducting cotton lint from the gin and into said chamber, condenser-rollers mounted in the condenser-chamber, gearing for driving said condenser-rollers, a rotary foraminous disk mounted in the condenser-chamber above said rollers for separating air from the cotton lint, means for driving said rotary foraminous disk from one of the condenser-rollers, and an air-exit flue leading from the condenser beyond said rotary foraminous disk, substantially as described.

6. In a cotton-condenser, a rotary foraminous separating-screen having a plane surface.

7. In a cotton-condenser, a condensing-chamber, flues leading into and from said chamber, a rotary foraminous separating-screen having a plane surface located in said chamber between said flues, and condenser-rollers in the lower part of said chamber.

8. In a cotton-condenser, a condensing-chamber, flues leading into and from said chamber, and a rotary foraminous separating-screen having a plane surface located in said chamber and set at an angle to each of said flues.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

STEPHEN D. MURRAY.

Witnesses:

WM. BURR,

IDA L. BURR.