

No. 887,273.

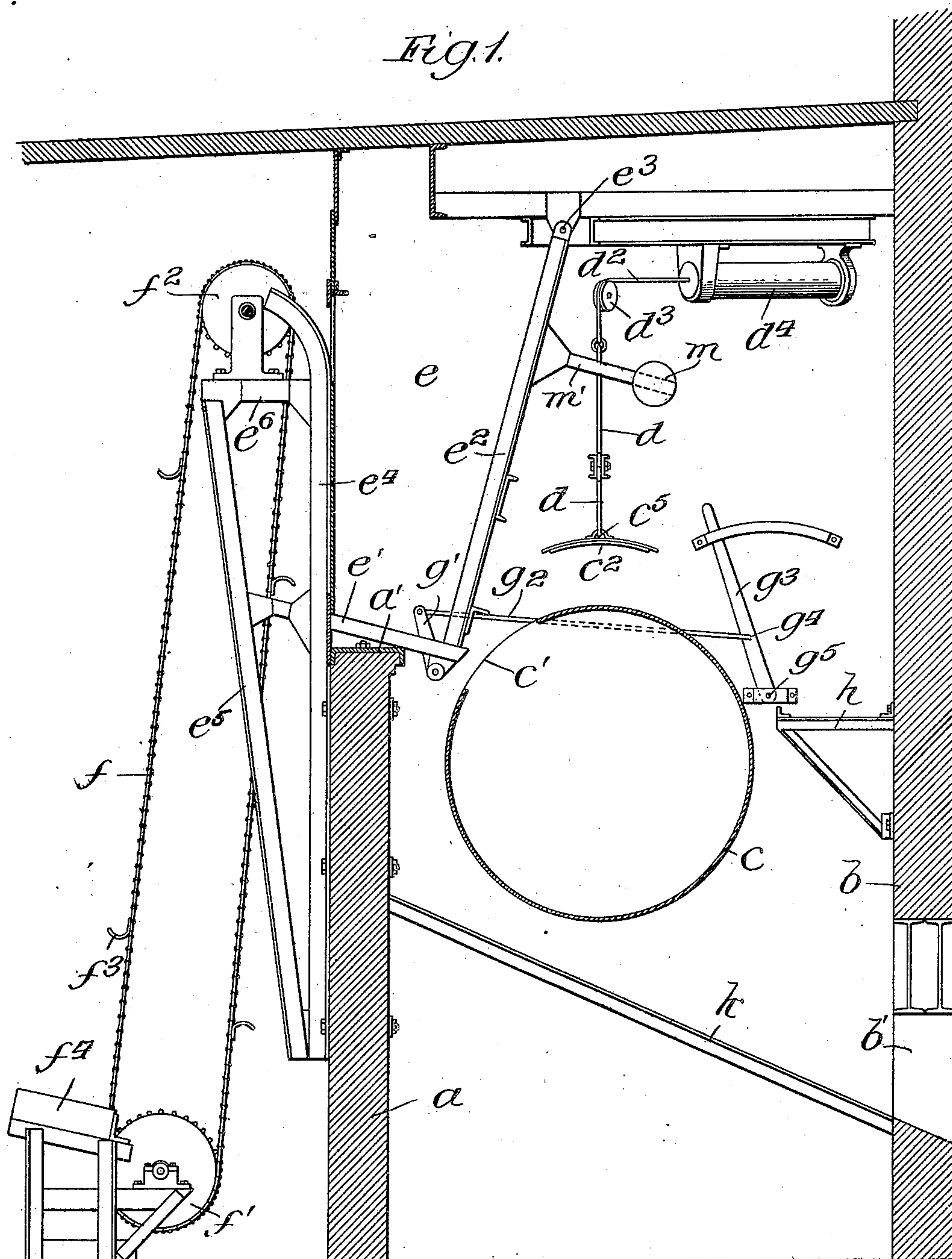
PATENTED MAY 12, 1908.

W. H. V. ROSING.  
FLUE RATTLER.

APPLICATION FILED MAR. 12, 1906.

4 SHEETS—SHEET 1.

Fig. 1.



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John Enders.

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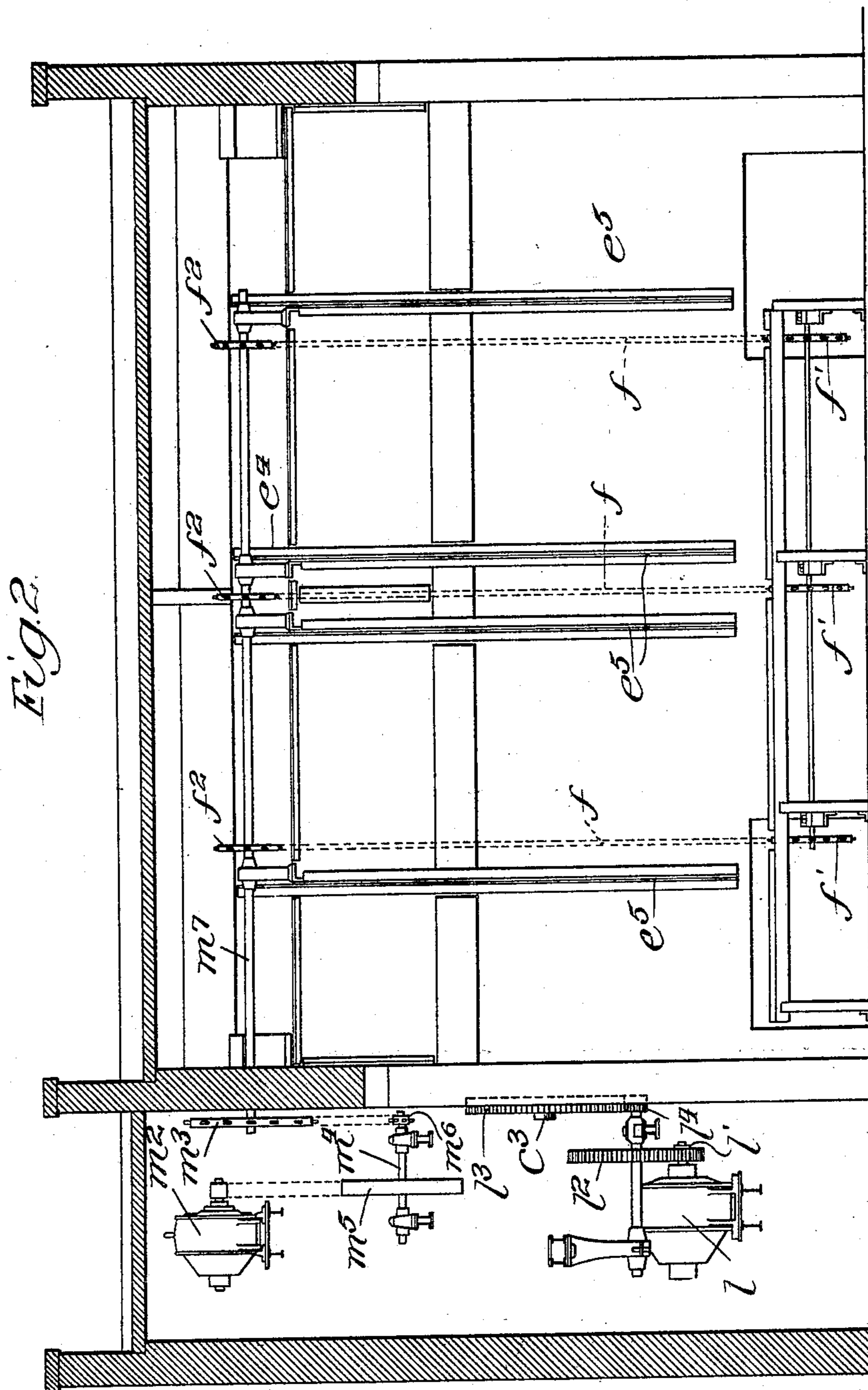
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4 SHEETS—SHEET 2.



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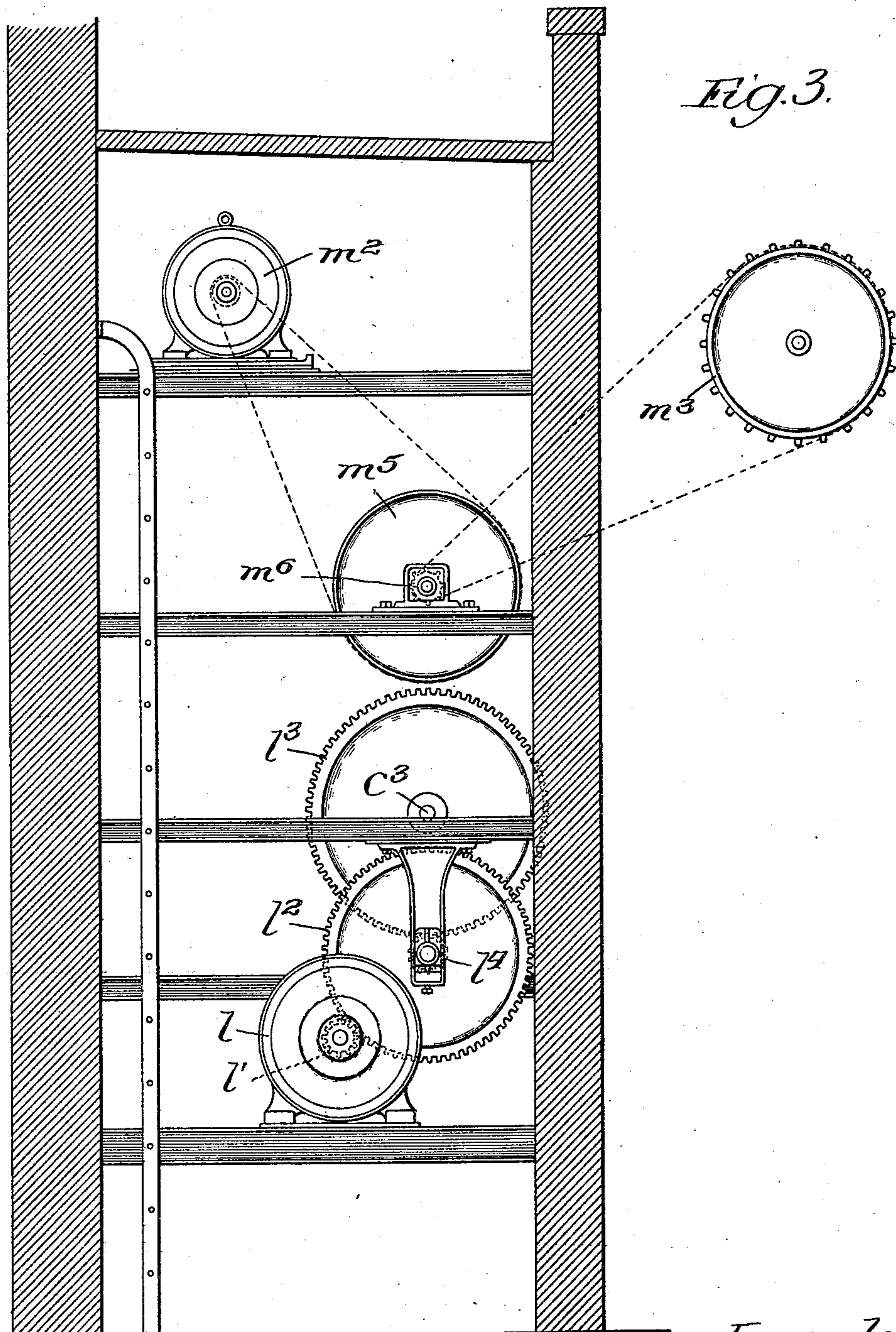
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4 SHEETS—SHEET 3.



Witnesses:

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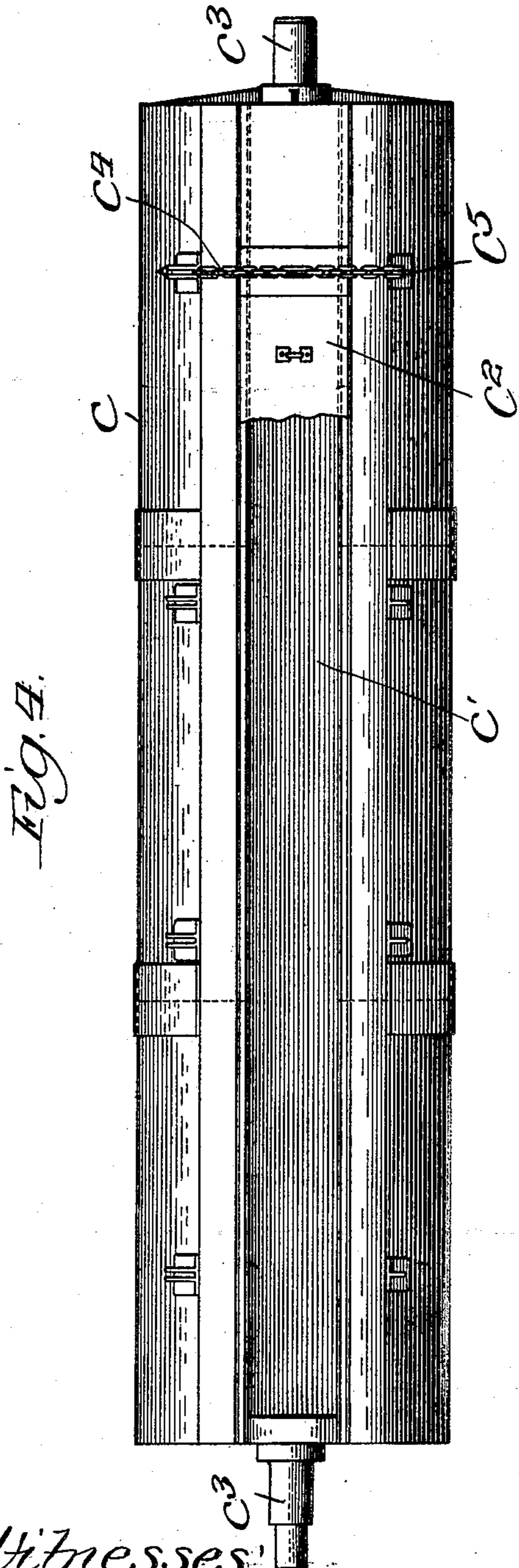
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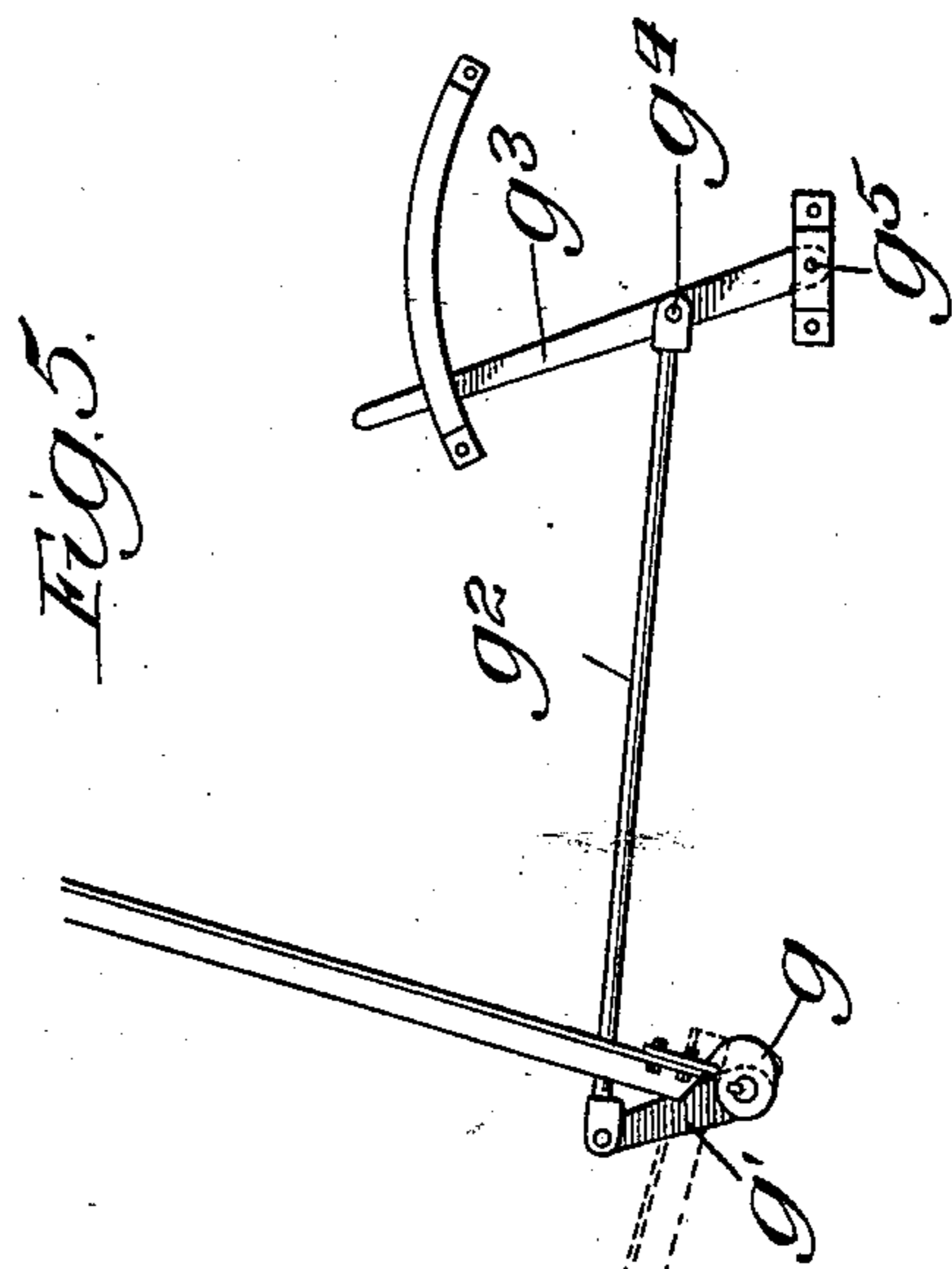
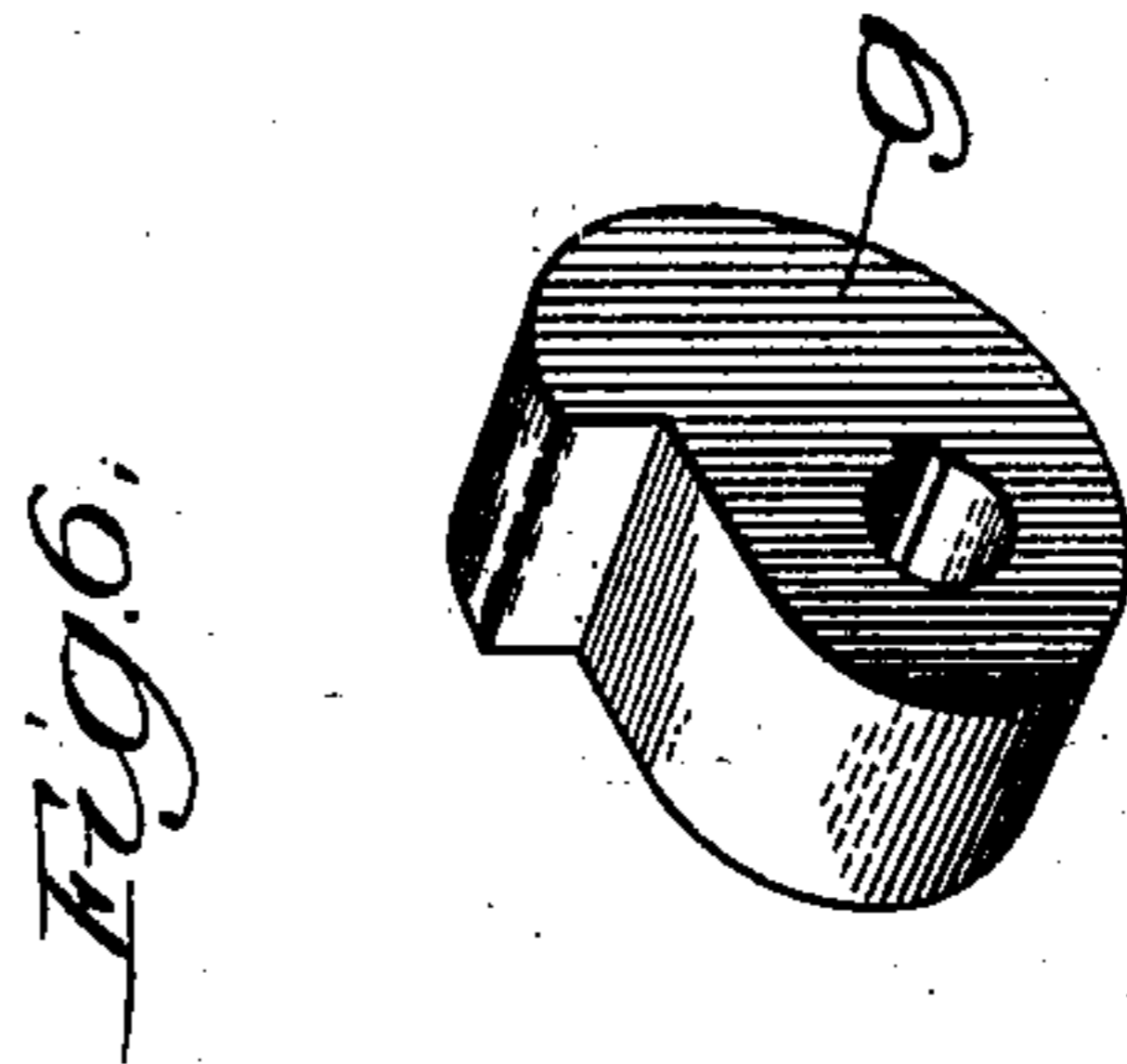
PATENTED MAY 12, 1908.

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4 SHEETS—SHEET 4.



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# UNITED STATES PATENT OFFICE.

WILLIAM H. V. ROSING, OF ST. LOUIS, MISSOURI.

## FLUE-RATTLER.

No. 887,273.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed March 12, 1906. Serial No. 305,605.

*To all whom it may concern:*

Be it known that I, WILLIAM H. V. ROSING, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Flue-Rattlers, of which the following is a specification.

My invention relates to flue rattlers, and has for its object to produce a flue rattler in which the operation of rattling flues to remove the scale therefrom may be produced with the minimum expenditure of labor.

With this and other objects, which will hereinafter appear in view, my invention consists in the details and combinations hereinafter described and claimed.

In the drawings—Figure 1 is a transverse section of my improved flue rattler. Fig. 2 is a side elevation thereof partly in section. Fig. 3 is an end elevation, showing the connections between the motors and the flue rattling mechanism. Fig. 4 is a top plan view of the barrel. Fig. 5 is a detail view of a door and retaining device and its operating means. Fig. 6 is a detail perspective view of the latch.

In the drawings, *a* and *b* indicate the walls of the flue rattling chamber, the wall or partition *a* extending from the floor to a point intermediate the floor and the ceiling. The wall *b* is provided with an opening *b'* through which the flues, after the rattling operation, are conveyed to the boiler room.

*c* represents a cylindrical barrel, which is rotatably mounted in the walls of the flue rattling chamber, and is provided with journals *c'*. This barrel is provided with a longitudinal opening *c'* extending the entire length thereof, and a cover *c''* is provided for closing this opening. When the cover is in position to close the opening in the barrel, it may be retained there by any suitable means. I have shown a chain *c''* suitably attached to eyes *c''* on opposite sides of the opening.

*d* is a pneumatic cylinder having a piston therein, said piston being suitably connected by flexible connections *d'* passing over a pulley *d'* with links *d'*, which may be attached to suitable eyes *c''* on the cover section. Instead of a pneumatic, a hydraulic cylinder or any other suitable means may be used for raising the cover, as will be readily understood.

On the outside of the wall *a* are secured standards of angle bars *e* outwardly turned at their upper ends, as indicated in Fig. 1,

and a shelf *e'* is supported near the upper ends of these standards by angle bar braces *e'*. An endless chain conveyer *f* passes over sprockets *f'* secured to the flue receiving table *f'*, and the sprockets *f''*, mounted upon the shelf *e'*. There may be as many of these chain conveyer mechanisms as is required to take flues of different lengths. In the drawings, I have shown three of them. It will be understood that more of them may be used if necessary. The flue receiving table *f'*, is inclined as shown in Fig. 1, so that the flues placed thereon will roll down to the chain conveyers and be taken from the table by the hooks *f''* attached to these conveyers. Secured to the angle braces *e'* and the standards *e* and passing over the top *a'* of the wall *a* are downwardly inclined tracks *e'*, forming the bottom of a flue receiving storage chamber. The wall of this chamber adjacent the rotating barrel is formed by a swinging door *e''* pivoted at its upper end at *e''* at a point adjacent the ceiling. In its closed position, the door *e''* is inclined somewhat towards the wall *a*, and is retained in this position by a pivoted latch *g*, which is keyed to a link *g'* pivoted on the lower side of the track *e'*. This link *g'* is connected by a connecting rod *g''* with an operating lever *g''*, which is pivoted near the operator's stand *h* secured to the wall *b* of the flue rattling chamber. The latch *g* engages the lower edge of the door *e''*, as clearly shown in Fig. 5. As will be readily understood, when the latch *g* is turned to permit the door to open, the latter will normally swing outwardly. In order to counteract this normal tendency, I provide the door at a point above the middle thereof with a weight *m* mounted upon a rod *m'*, which is fixed to the door and projects outwardly therefrom. By sliding the weight along the rod it may be suitably adjusted. Below the rotating barrel, I provide an inclined track *k*, by means of which the flues are conveyed from the barrel through the opening *b'* into the boiler room. It will be observed that the rotating barrel is mounted at some distance above the floor of the flue rattling chamber, for a purpose presently to be described. Any suitable means may be used to operate my flue rattling devices.

I have shown a motor *l*, suitably secured by gears *l'*, *l''*, *l'''* to one of the journals *c'* of the barrel. A second motor *m* is connected to a pulley *m'* mounted upon a shaft *m'* having a sprocket wheel *m''* at one end

thereof, suitably connected by a chain to a sprocket wheel  $m^3$  upon a shaft  $m^7$ . Upon this shaft the sprocket wheels  $f^2$  are mounted. By this means the conveying devices are operated.

In operation, an attendant places the flues upon the inclined table  $f^4$ , whence they are picked up by the chain conveyers and carried to a point adjacent the upper ends of the upright guides  $e^4$ . At this point they are discharged from the conveyer and dropped into the storage chamber  $e$ , resting upon the floor thereof formed by the inclined tracks  $e'$  and against the swinging door  $e^2$ . The cover of the rotating barrel, having been lifted, by the lifting means hereinbefore described, the opening in the barrel is brought around to a point adjacent the lower edge of the swinging door. When a suitable number of flues have been delivered to the storage chamber, the conveying mechanism is stopped and the operator goes to the operating stand  $h$  in the flue rattling room, and by means of the lever  $g^3$  releases the latch, thus permitting the door  $e^2$  to open, owing to the pressure of the flues against it. The flues drop through the opening thus formed at the lower edge of the storage chamber into the rotatable barrel. When its full load has been received, it is turned so that the opening therein comes into proper position to receive the cover which is lowered thereon and secured thereto. The rattling is then carried on by rotating the barrel for a suitable length of time. When the flues in the barrel have been treated sufficiently, the barrel is turned so that the cover is raised, as before described, and the barrel turned so that the flues will drop out upon the inclined track  $k$ , whence they will roll into the boiler room. The operation may then be repeated.

It will be seen that my improved flue rattler requires the service of but one attendant. By mounting the barrel at some distance above the floor of the chamber, I provide a space beneath the barrel from which the scale, dust and waste products may be readily removed.

I claim:

1. In a flue rattler, a rotatable barrel, operating means therefor, a flue storage chamber, means for retaining flues in said storage chamber or for delivering them therefrom to the barrel, and means for conveying the flues from the barrel after treatment therein.

2. In a flue rattler, a flue rattling means, a storage and delivering chamber above the rattling means, comprising an inclined bottom and outwardly swinging side means for holding the swinging side in closed position and for releasing it to permit the delivery of flues to the rattling device.

3. In a flue rattler, a rotatable barrel having a longitudinal opening, an inclined track above the barrel, means for retaining flues on

the track and releasing them therefrom, and a second inclined track below the barrel.

4. In a flue rattler, a rotatable barrel provided with a longitudinal opening, a storage chamber above the barrel having an inclined bottom and an outwardly swinging side, a latch pivoted below the swinging side having a portion engaging the edge of the side, and means turning the latch to release the swinging side.

5. In a flue rattler, a conveyer adapted to raise the flues to an elevated receptacle, a rotatable cylinder provided with a longitudinal aperture, means for retaining flues in the said receptacle or for delivering them to the cylinder, and means for rotating the cylinder.

6. In a flue rattler, a receiving table, a flue rattling chamber, an elevated storage chamber therein, a conveyer for raising the flues from the receiving table to the storage chamber, a gate whereby the flues may be retained in or discharged from the storage chamber, a rotatable barrel provided with a longitudinal opening arranged to receive the flues from said storage chamber, a closure for said opening, and a runway to receive the flues from the rotatable barrel and conduct them outside the flue rattling chamber.

7. In a flue rattler, a rotatable barrel provided with a longitudinal opening, a storage chamber above the barrel, a conveyer for elevating flues to the storage chamber, means for retaining the flues in said storage chamber or discharging them therefrom to the barrel, and means for conveying away the flues after treatment.

8. In a flue rattler, a receiving table, a chain conveyer with hooks thereon for elevating flues from the receiving table, a storage chamber into which the conveyer delivers, and a rotatable barrel under the storage chamber.

9. In a flue rattler, an inclined table for receiving the flues, parallel belts with hooks thereon adapted to move up past the lower edge of the table, a chamber into which flues may be dropped from the hooks, and a rotatable barrel below the chamber.

10. In a flue rattler, an elevated storage chamber having a controllable opening at its lower part, a rotatable barrel adapted to receive flues therefrom, and a controllable opening for the barrel.

11. In a flue rattler, a cylindrical chamber having its axis horizontal, a longitudinal opening on the side thereof, an inclined support sloping toward the upper side of said chamber, a pendent gate adapted to swing against the lower edge of said inclined support, and a counterweight on said gate adapted to hold it in that position.

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Witnesses:

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