E. U. G. REAGAN.

COTTON CONDENSER.

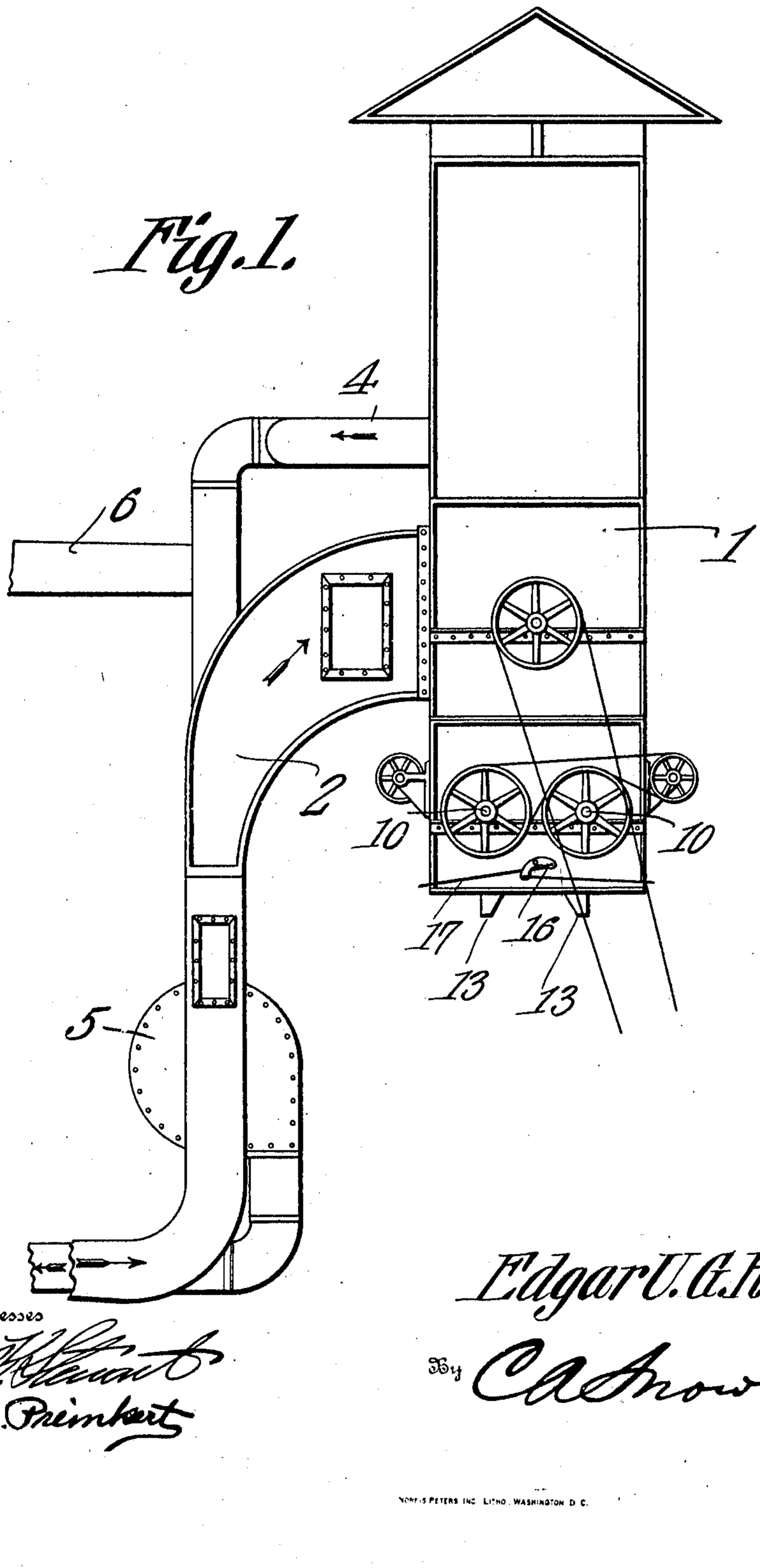
APPLICATION FILED OCT. 9, 1909.

993,795.

Patented May 30, 1911.

5 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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5 SHEETS—SHEET 2.

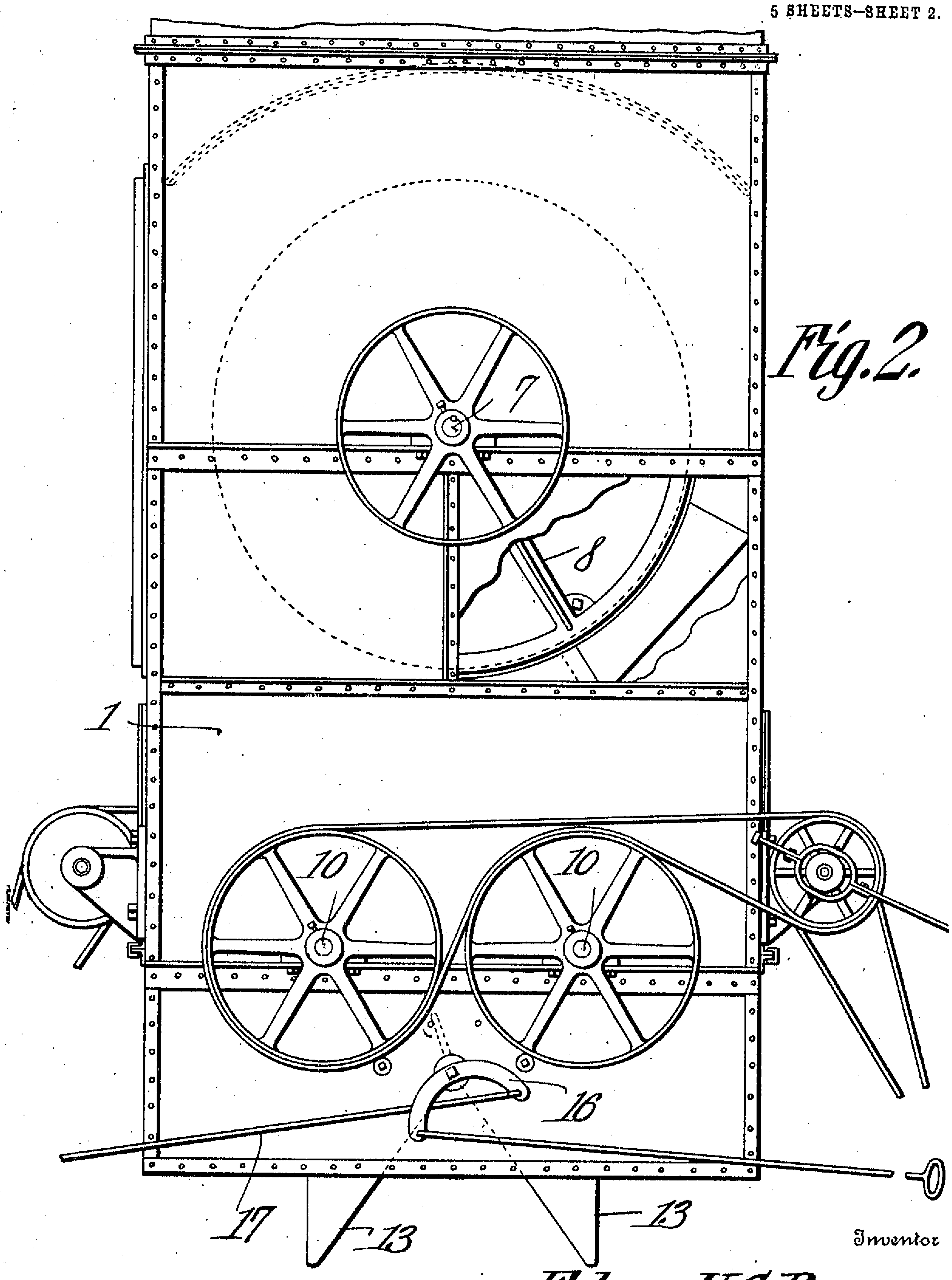

Fig. 2.

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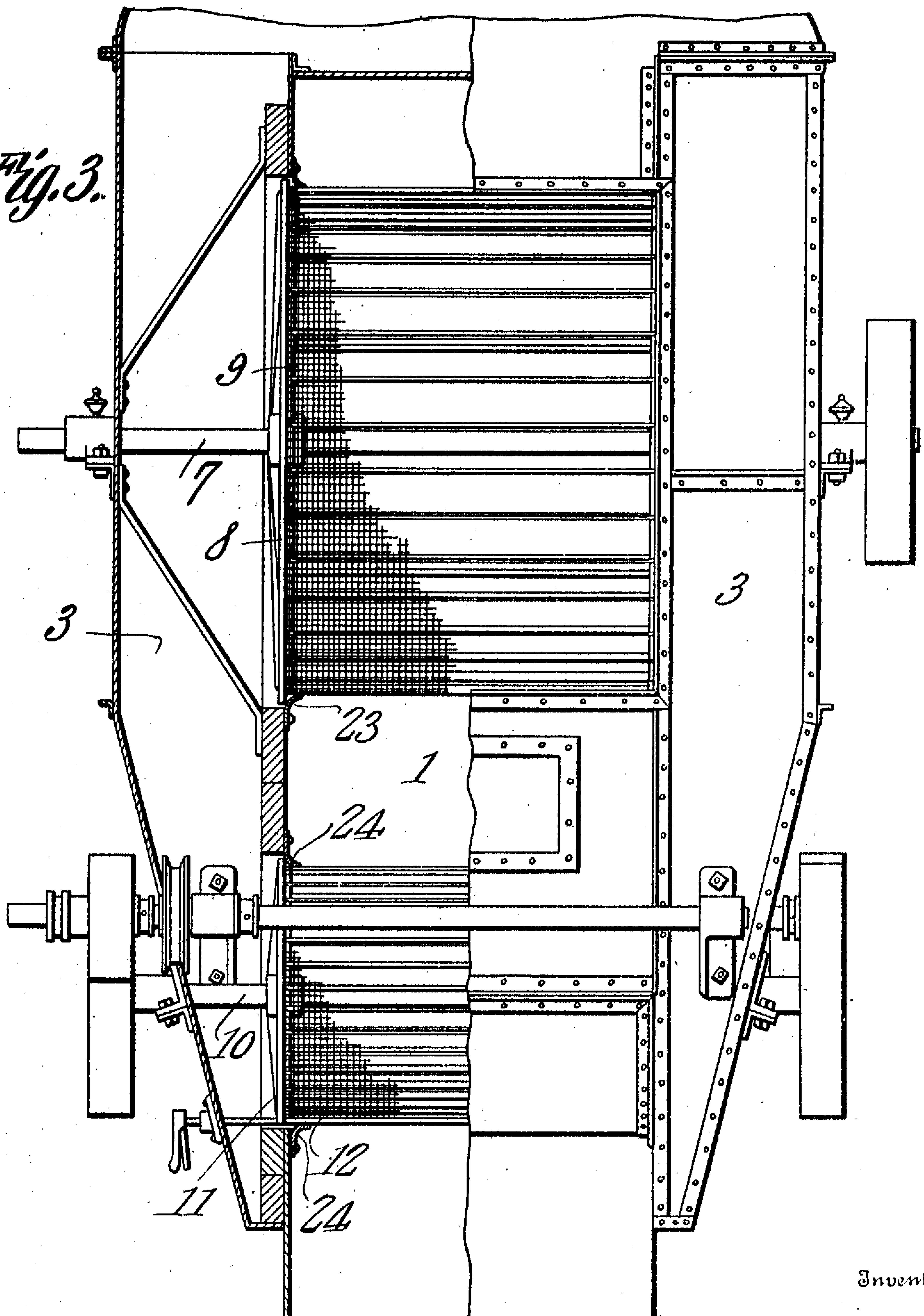
5 SHEETS—SHEET 3.

Fig. 3.



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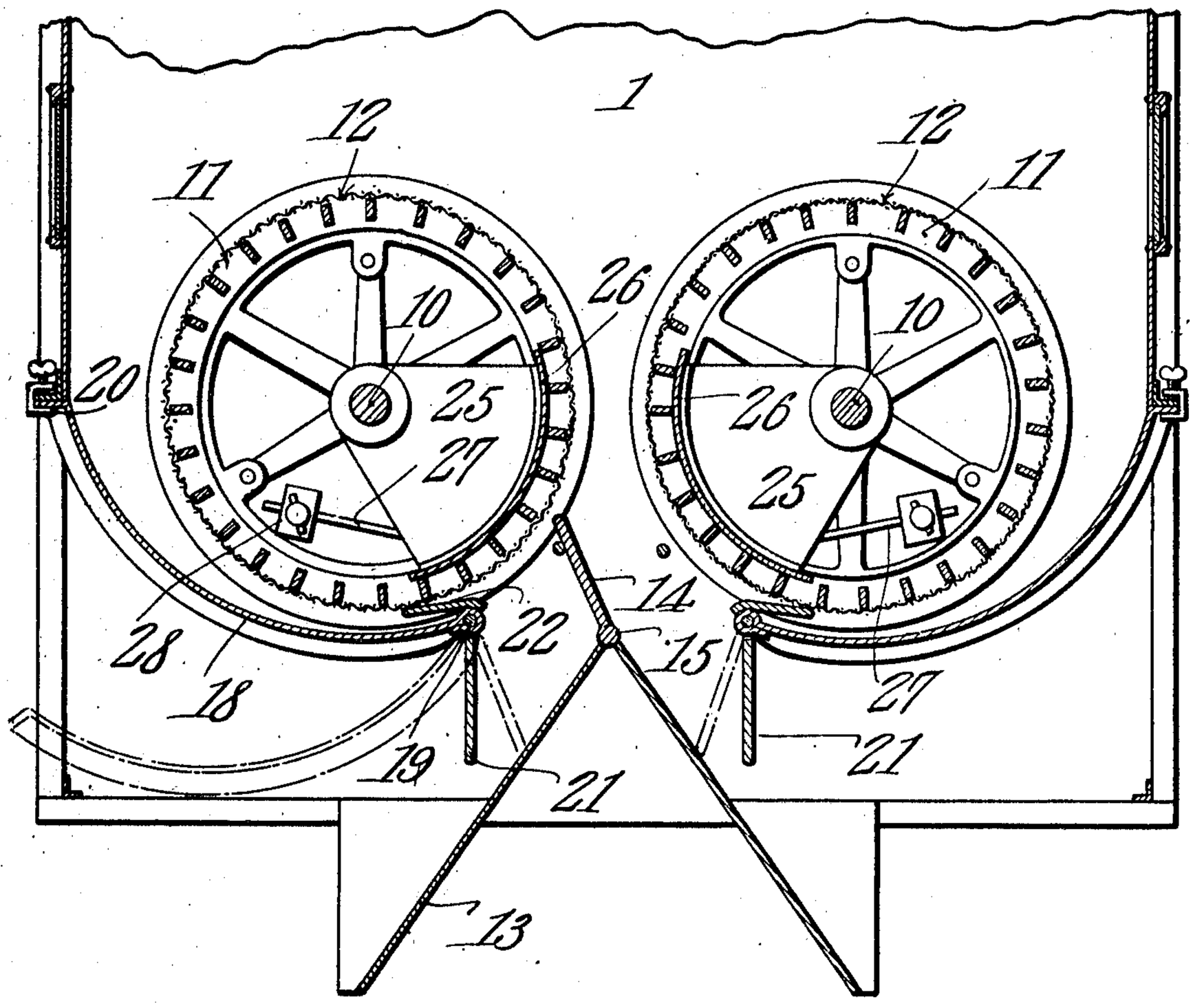
5 SHEETS—SHEET 4.

Fig. 4.



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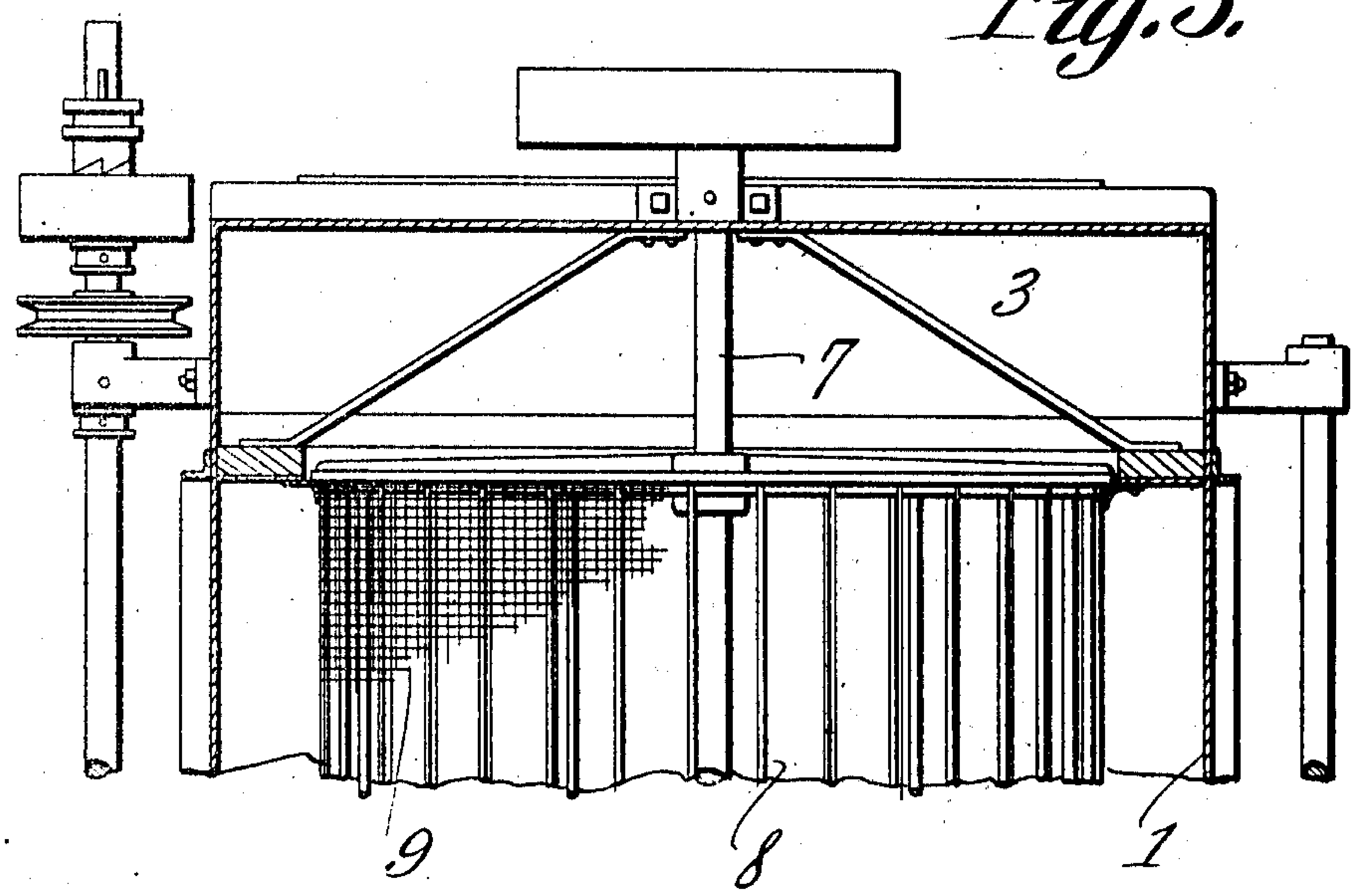
5 SHEETS—SHEET 5.

Fig. 5.



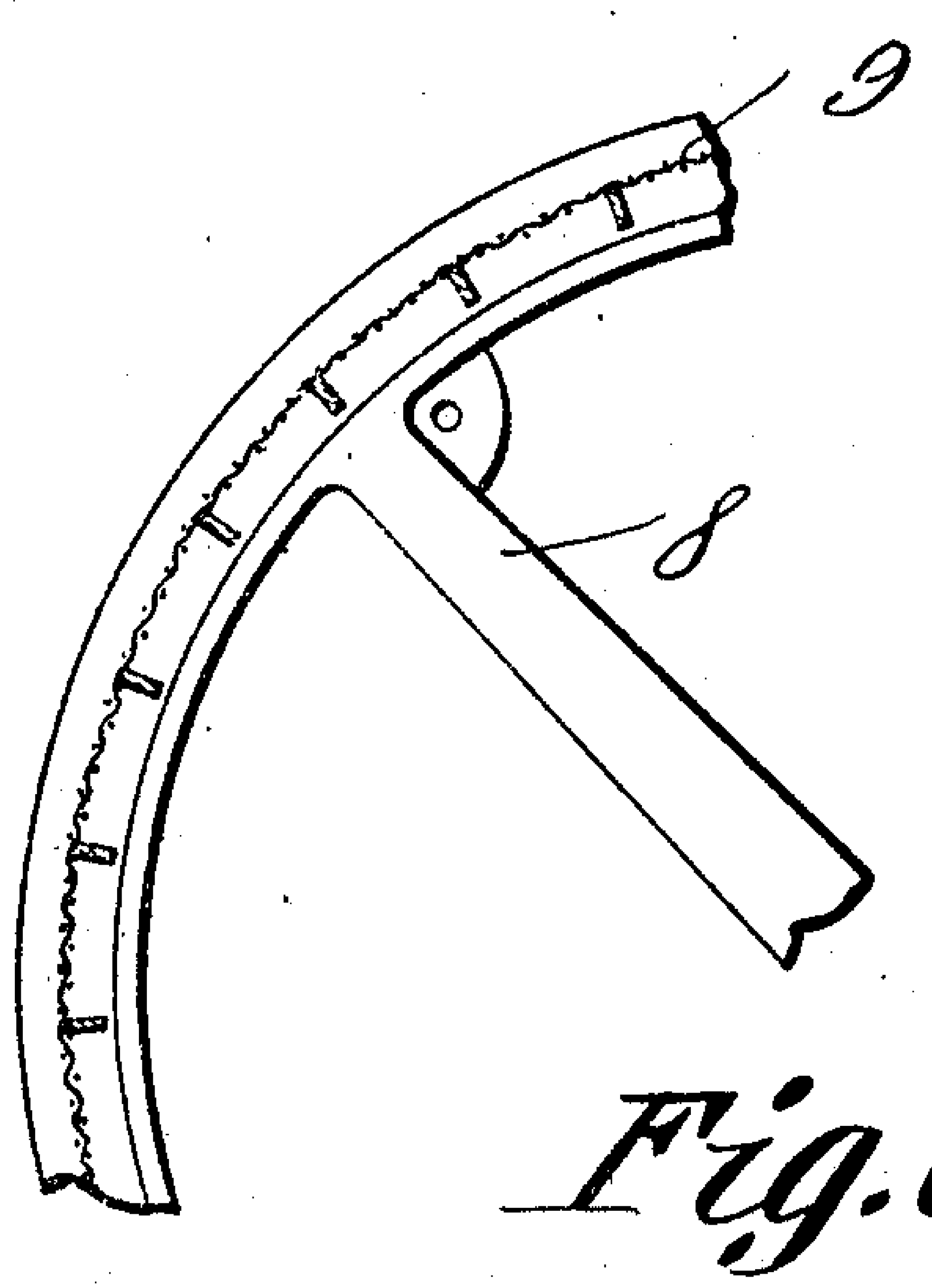


Fig. 6.

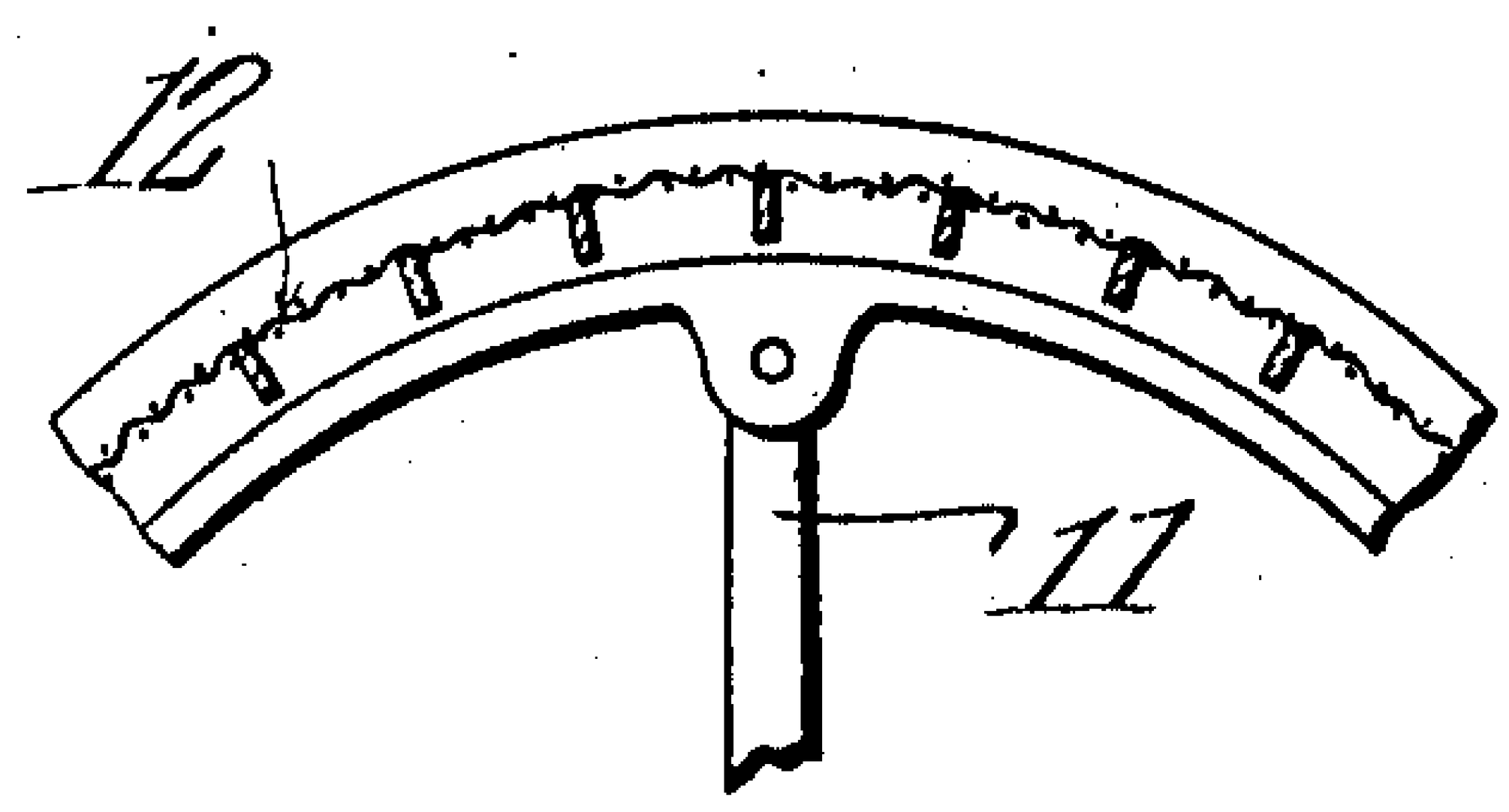


Fig. 7.

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UNITED STATES PATENT OFFICE.

EDGAR U. G. REAGAN, OF SAN ANTONIO, TEXAS.

COTTON-CONDENSER.

993,795. Specification of Letters Patent. Patented May 30, 1911.

Application filed October 9, 1909. Serial No. 521,825.

To all whom it may concern:

Be it known that I, EDGAR U. G. REAGAN, a citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have invented a new and useful Cotton-Condenser, of which the following is a specification.

This invention has relation to cotton condensers and it consists in a novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide a condenser adapted to receive lint cotton and form the same into a continuous bat adapted to be passed from the condenser to a compress.

A further object of the invention is to arrange the parts of the condenser so that the lint during the process of forming the same into a bat as indicated is subjected to a suction draft which is preferably the same by which the lint cotton is delivered to the condenser and which has a tendency to remove dust and inferior fiber from the better quality of lint that is formed into the bat.

With the above and other objects in view the condenser includes a casing to which is connected at one end a lint delivery flue and with which is also connected a refuse or trash flue. A suction fan is connected with the trash flue and through the said trash flue the suction fan is connected with a feed pipe for delivering cotton to gins (not shown). A rotating drum is located in the casing between the delivery end of the lint flue and the inlet end of the trash flue and is adapted to receive the lint from the lint flue. Bat forming drums are journaled in the casing below the first said drum and all of the said drums are subjected at their ends to the action of the suction draft created by the fan referred to. Valves are located below the bat forming drums and are so arranged as to permit the bat formed by the said drums to pass out of the casing and at the same time prevent the admission of air into the casing as the bat is making its exit therefrom.

In the accompanying drawing Figure 1 is a side elevation of the condenser. Fig. 2 is an enlarged side elevation of a portion of a condenser with parts broken away. Fig. 3 is a side elevation of the condenser at a right angle from the view illustrated in Fig. 2 and showing parts in section. Fig. 4 is a sectional view of the lower portion of the condenser. Fig. 5 is a horizontal sectional view of the upper portion of the condenser. Figs. 6 and 7 are detailed views of parts of the drums used in the condenser.

The condenser comprises a casing 1 to the side of which is connected the delivery end of a lint flue 2. As illustrated in Fig. 1 of the drawing the said lint flue 2 increases in transverse sectional area from a point in the vicinity of the extremity of its delivery end to the extremity of the said end and it is by reason of this increase in the transverse dimensions of the said lint flue that it is impossible for the lint to choke or collect in the delivery end of the lint flue and interfere with the proper operation of the condenser. The flue 2 is adapted to receive lint from a series of gins (not shown). The casing 1 is provided at opposite sides with chambers 3 which are connected together at their upper ends. A pipe or flue 4 connects with the upper portion of chambers 3 and also connects with an exhaust fan 5. At a point between the casing 1 and the exhaust fan 5 the pipe 4 connects with a pipe 6 which is that usually employed for delivery of unginned cotton to the cotton gins above referred to.

A shaft 7 is journaled for rotation in the casing 1 and carries a drum 8 which lies transversely across the intermediate portion of the said casing and communicates at its ends with the chambers 3. The drum 8 is located approximately in horizontal alinement with the discharge outlet of the flue 2 and the periphery of the said drum is formed by an approximately cylindrical wire screen 9.

Shafts 10 are journaled for rotation in the lower portion of the casing 1 and are located at the opposite sides of a plane passing vertically through the axis of the shaft 7, each shaft 10 carries a drum 11 which is provided at its periphery with an approximately cylindrical sieve 12. Any suitable means may be provided for rotating the shafts 10 and the drums 11 over toward each other and means is provided for rotating the shaft 7 and drum 8. Below each of the drums 11 is located a chute 13 and the under or bottom sides of the said chutes converge toward each other in an upward direction and a pivoted gate 14 is located in the casing 1 at the upper ends of the bottoms of the said chutes. The gate 14 is mounted upon a shaft 15 which is journaled in the casing

1 and which is provided at one projecting end with an arm 16. Rods 17 are connected at their inner ends with the ends of the arms 16 and by moving the said rods 17 longitudinally the arm 16 may be swung whereby the shaft 15 may be turned in its bearings and the gate 14 disposed at its upper edge toward one or the other of the drums 11.

The bottom of the casing 1 consists of sections 18 which are hingedly mounted upon transversely disposed rods 19. The free ends of the sections 18 are normally held in elevated positions against the sides of the casing 1 by clamps 20 or other securing devices. Valves 21 hang freely pendent from the rods 19 and are disposed over the upper portions of the bottoms of the chutes 13. Doffers 22 are attached to the bottom sections 18 and are adapted to bear at their edges against the lower sides of the drums 11.

As illustrated in Fig. 3 of the drawing the drums 11 extend transversely across the lower portion of the casing 1 and the ends of the said drums communicate with the interiors of the chambers 3 located at opposite sides of the casing 1. Flexible strips 23 are attached to the inner surfaces of the sides of the casing 1 and bear against the ends of the drum 8 and similar strips 24 are correspondingly located and coöperate correspondingly with respect to the drums 11.

The operation of the condenser is as follows: Presuming that suction draft is created through pipes 4 and 6 and through the casing 1 and flue 2 by the action of the suction fan 5 and that lint cotton is admitted into the flue 2. The said cotton is carried upon the suction draft and from the delivery end of the flue 2 is deposited upon the periphery of the drum 8. The drums 8 and 11 are in a state of rotation and the cotton deposited upon the screen 9 of the drum 8 is carried around and dust and trash is drawn through the mesh of the screen 9 and through the chambers 3 and out of the casing 1 through the pipe 4. When the cotton arrives at the lower side of the periphery of the drum 8 it falls by gravity between the drums 11. As the upper portions of the drums 11 rotate toward each other the cotton deposited between the drums is formed into a bat which passes down one or the other of the chutes 13. By swinging the gate 14 as above indicated the cotton bat may be directed to one or the other of the chutes 13 as desired and by reason of the fact that the interior of the casing 1 is subjected to the suction from the fan 5 that valve 21 other than the one which is bearing against the upper side of the cotton bat as it passes through the chute 13 will close against the bottom of the chute over which it is hanging and the valve 21 above the cotton bat will bear in close contact against the upper side of the same. Inasmuch as the ends of the cylinders 11 communicate with the chambers 3 and are subjected to the suction draft indicated, the bat as it is formed between the said cylinders 11 is subjected to a further cleansing action as is described in connection with the cylinder 8.

In order to prevent the cotton bat from having a tendency to cling to the peripheries of the cylinders 11 at the adjacent inner sides of the cylinders and when it is desired that the said bat should become free from the cylinder, shields are provided in the interiors in the drums 11 and are so positioned as to automatically interfere with the suction draft through the peripheries of the said drums at the inner portions thereof. The said shields consist of end pieces 25 which are journaled upon the shaft 10 and which are connected together at their inner portions by arcuate sections 26 which lie in close proximity to the peripheries of the drums 11. Arms 27 are connected with the end pieces 25 of the said shields and lie transversely across the vertical planes passing through the axes of the shafts 10. Adjustable weights 28 are mounted upon the arms 27 at the opposite sides of the planes passing through the axes of the shafts 10 from the body portions of the said shields. The weights 28 are counter-balanced for holding the shields in proper position with relation to each other notwithstanding the shafts 10 upon which they are supported are in a constant state of rotation. By this arrangement the said shields are so positioned in the drums 11 that they will cut off the suction draft through the screens 12 at the lower inner portions of the drums and thus permit the bat as it is formed to fall from between the said drums and down into one or the other of the chutes 13. Any material which might adhere to the screens 12 of the drums 11 is removed therefrom by the doffers 22 as the lower portions of the screens come in contact with the upper edges of the said doffers.

When it is desired to have access to the lower portion of the casing 1 for cleaning or other purposes the securing devices 20 are removed when the bottom sections 18 are free to be swung down upon the transversely disposed bars 19.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

A condenser comprising a casing, a lint flue communicating with the interior of the casing through one of its sides, a chamber communicating with one of the sides of the casing, that side of the casing at which the chamber communicates being at a right angle to the side at which the lint flue communicates with the casing, a foraminous open end drum journaled for rotation in the casing and located directly across the dis-

charge outlet of the lint flue and having its end communicating with the chamber, the said chamber also communicating with the casing at points below the point of juncture between the lint flue and the casing, open end foraminous bat drums journaled for rotation in the casing below the first said drum and communicating at their ends with the lowermost openings of communication between the casing and the chamber, and means for creating suction draft through the casing and chamber, a portion of which passes through the side of the drum and out at the ends thereof and another portion of which passes through the side of the drum and out through the lower portion thereof thence through the sides of the bat drums and out at the ends thereof into the chamber.

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

EDGAR U. G. REAGAN.

Witnesses:
E. HUME TALBERT,
E. C. SCHLADT.