

(No Model.)

2 Sheets—Sheet 1.

M. L. D. WESTON.

APPARATUS FOR VENTILATING MINES.

No. 315,578.

Patented Apr. 14, 1885.

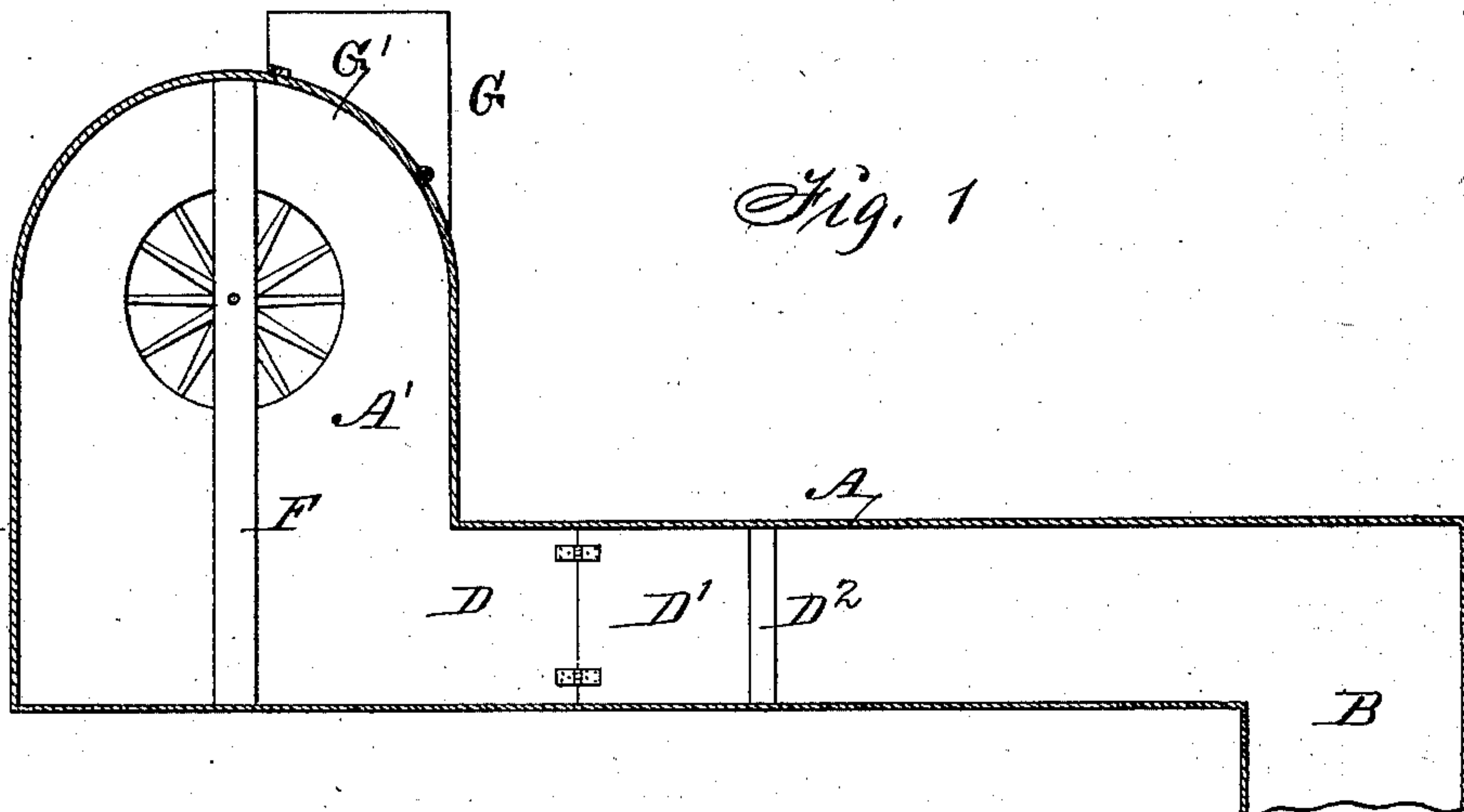


Fig. 1

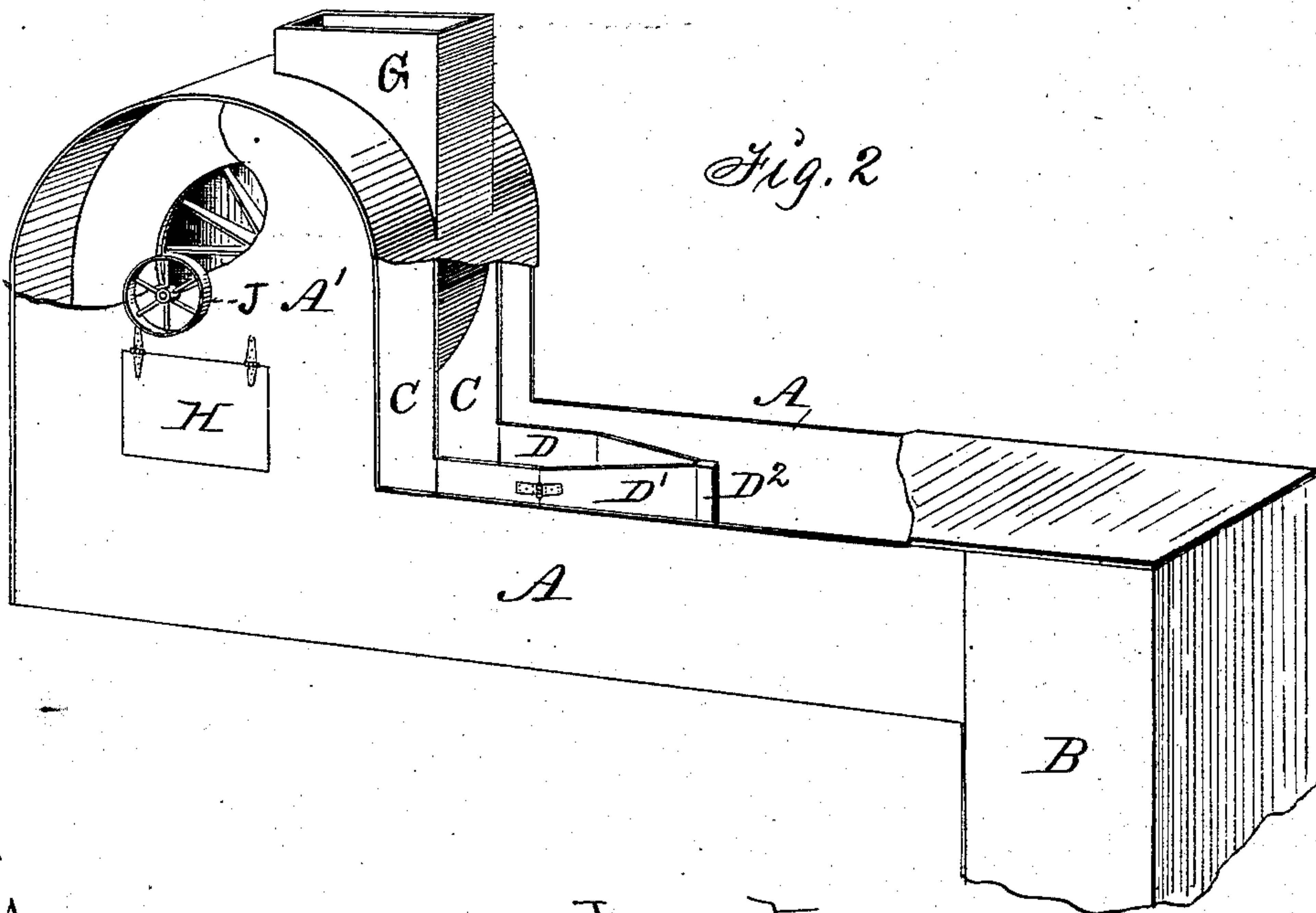


Fig. 2

Witnesses:
Wm. Anderson.
Orra A. Moore.

Inventor:
Morton L. D. Weston,
By Thomas G. Orwig,
attorney

(No Model.)

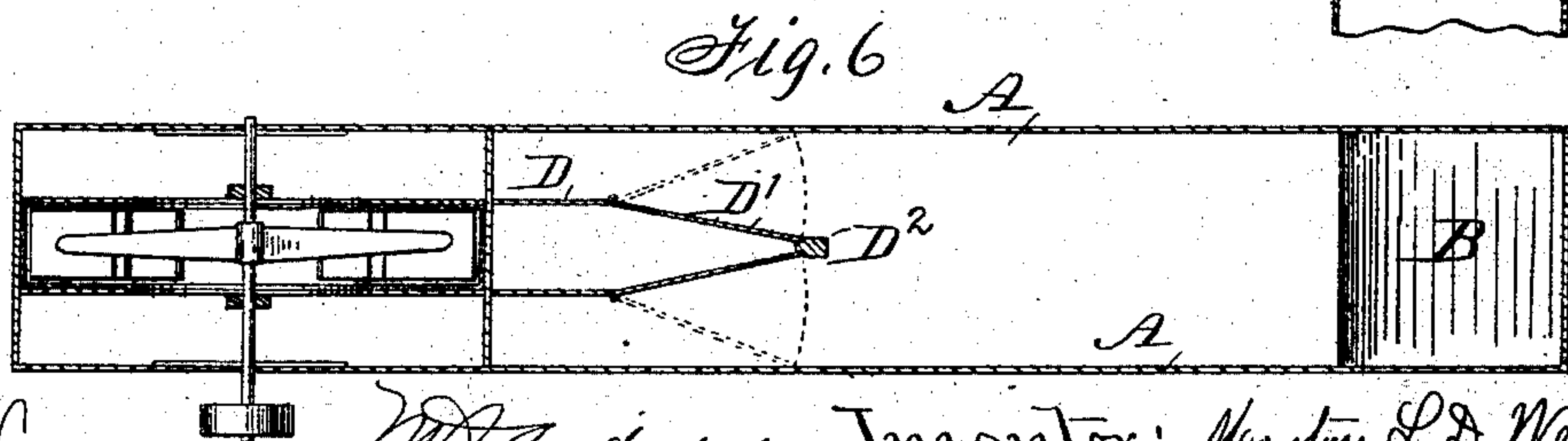
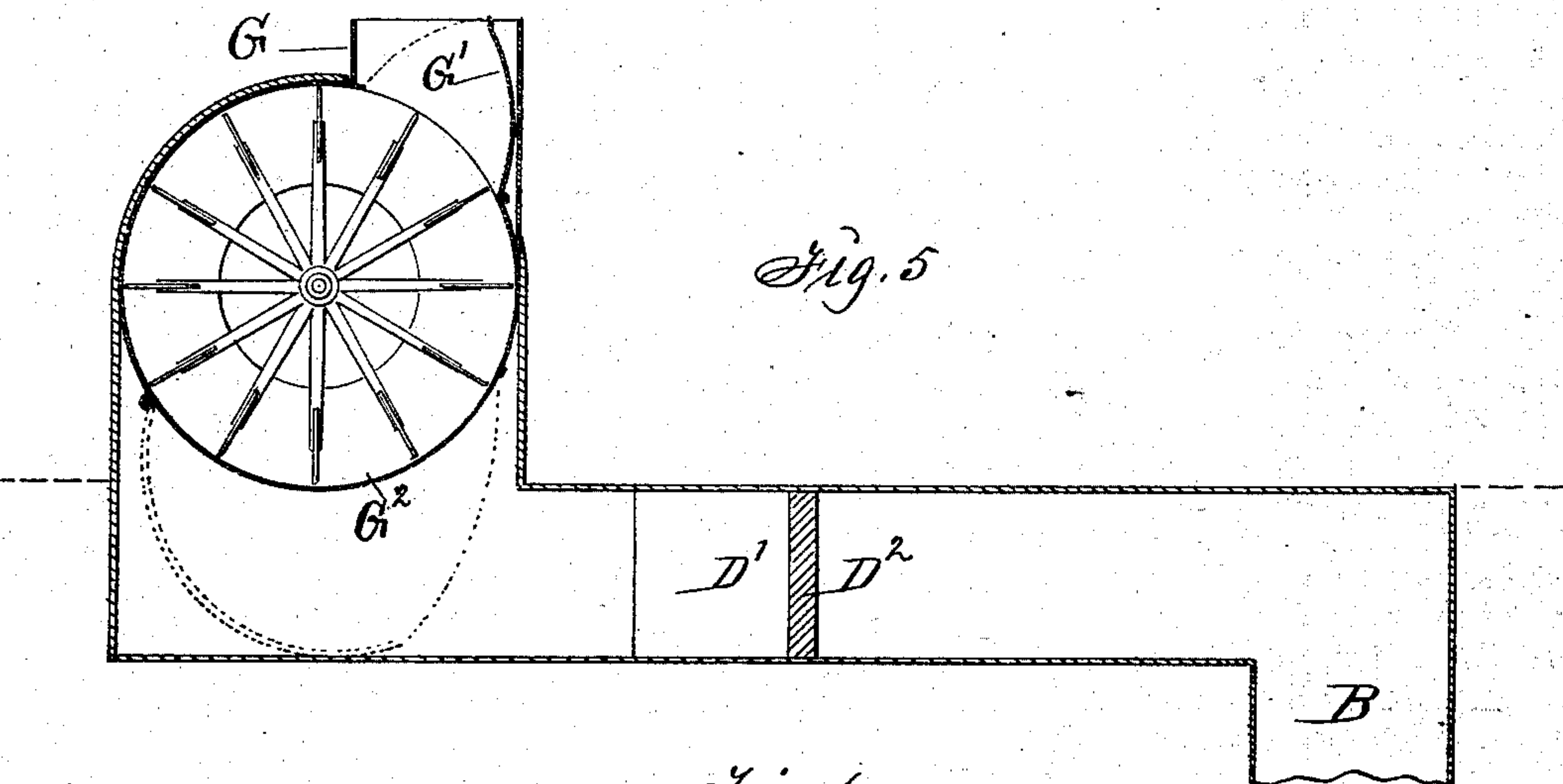
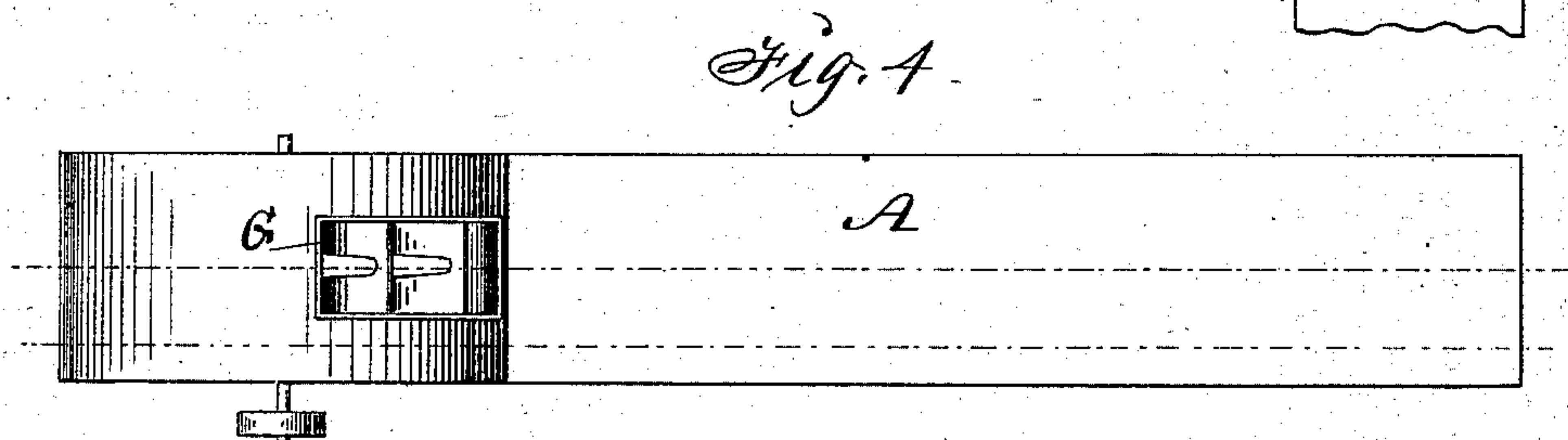
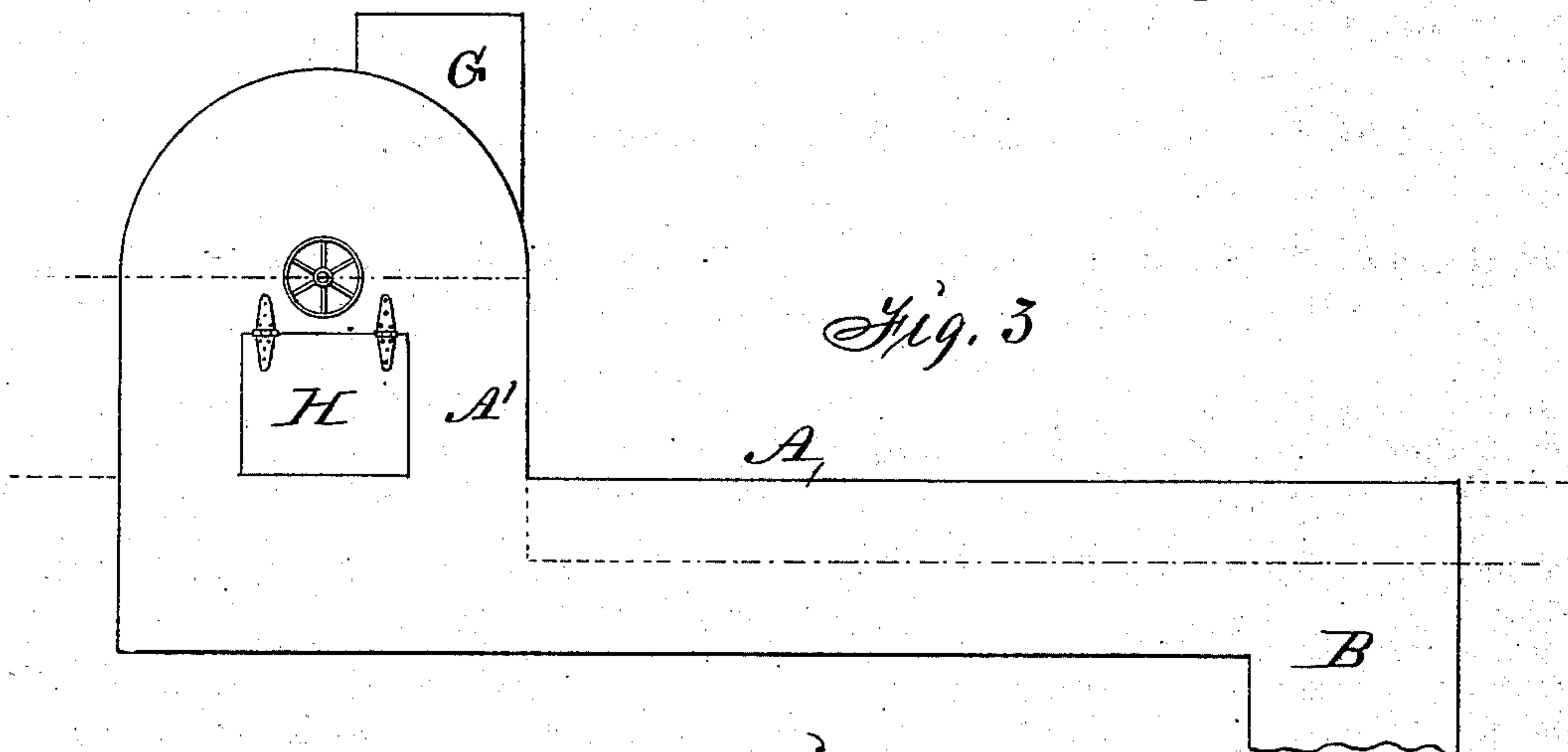
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Witnesses: { M. A. Anderson, Inventor; Morton L. D. Weston,
Orra C. Moore, By Thomas G. Orwig, Atty.

UNITED STATES PATENT OFFICE.

MORTON L. D. WESTON, OF DES MOINES, IOWA.

APPARATUS FOR VENTILATING MINES.

SPECIFICATION forming part of Letters Patent No. 315,578, dated April 14, 1885.

Application filed May 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, MORTON L. D. WESTON, of Des Moines, in the county of Polk and State of Iowa, have invented an Apparatus for Ventilating Mines, of which the following is a specification.

My object is to facilitate the removal of foul air and noxious and explosive gaseous products from subterranean chambers, to replace the same with pure air, and to thereby prevent much loss of life and property incident to imperfect ventilation, fires, and explosions in mines.

My invention consists in the construction and combination of a fan-case and adjustable air-conductor and a rotary fan, as hereinafter fully set forth, in such a manner that a current of air can be reversed in a shaft without reversing the motion of the engine or fan, impure air exhausted from and pure air supplied to mines through the same shaft without fire at the bottom of the shaft or "upcast," to thereby prevent the miners from escaping through the upcast or ventilating-shaft when the "downcast" or main shaft is accidentally closed by caving, by fire, or by broken hoisting machinery.

Figure 1 of the accompanying drawings is a vertical and longitudinal section of my apparatus. Fig. 2 is a perspective view; Fig. 3, a side view; Fig. 4, a top view; Fig. 5, a central section; Fig. 6, a horizontal section.

Jointly considered, these figures clearly illustrate the construction, application, operation, and utility of my complete invention.

A A are the sides, and A' vertical extensions, of a long four-sided box and air-conveyor that is preferably made of wood.

B represents an open-ended elbow on the end of the box that is designed to enter the top of a ventilating-shaft in a mine when the box rests in a horizontal position upon the ground and at the side of the mouth of the shaft.

C C are the sides of a fan-case fixed in the center of the end of the box opposite from the elbow B.

D D are extensions at the bottom of the fan-case that form the sides of a passage-way that is adapted to conduct air from the shaft to the fan, and from the fan up through an opening in the top of the fan-case.

D' are doors hinged to the ends of the sides

D in such a manner that they can be jointly closed against a post, D², fixed in the center of the box.

F are posts fixed to the bottom of the box and across the circular openings in the sides of the fan-case to support the horizontal shaft of the fan.

G is an open top fixed over the fan-case.

G' is a hinged section of the fan-case inclosed by the top G.

G² is a hinged section on the lower side of the circular fan-case.

H are hinged doors in the sides A A'.

J represents a belt-wheel on the end of the fan-shaft.

In the practical use of my invention when I wish to exhaust foul air from a subterranean cavern or chamber through the shaft with which the apparatus is connected, I simply close the outside doors, H, and the inside doors, D', of the air-conductors, and open the hinged sections G' and G² of the fan-case, and operate the fan to draw the air from the shaft and mine-chambers or galleries at its bottom, and force it through the fan-case and its open top G.

When the hoisting-shaft of the same mine is open, cool fresh air will be drawn down to replace the foul air removed. To reverse the current for the purpose of forcing fresh air down through the ventilating-shaft and pressing foul air out of the mine through the main or hoisting shaft, I simply close the hinged section G' in the top of the fan-case and open the doors D' and H of the air-conductors to allow fresh air to enter through the doors H, and from thence pass into the fan-case through the circular and central openings in its sides to be subjected to the action of the fan, and thereby pressed through the open door G², and rearward between the sides D and A of the air-conductors and through the elbow B downward. By thus reversing the air-current no fire will be required at the bottom of the shaft and a cool temperature and healthy atmosphere maintained in the mine, so that the miners will be enabled to do more work and be less liable to sickness and danger in their operations. The box is large enough to admit a person to enter for the purpose of opening and closing the inside doors, D'.

I am aware that two fans on one shaft and

two tubes have been combined with a case and air-chamber having valves in such a manner that the fans could be rotated outside of the air-chamber to exhaust air from or to force air into a mine; but my manner of inclosing and operating a single fan to force air through a single tube in opposite directions at pleasure through one and the same tube or box is novel and greatly advantageous in accomplishing the results contemplated.

I claim as my invention—

1. A mine-ventilating apparatus composed of a box and air-conveyer having a fan-case and fan at one end and an elbow or downward opening at its opposite end, hinged or removable sections or doors in the top and bottom of the fan-case, an air-conveyer extending rearward from the fan-case toward the open elbow

or downward, opening at the end of the box, hinged doors or adjustable sections at the end of such an inner air-conveyer, and hinged doors or adjustable sections in the outer walls of the fan-case, substantially as shown and described, to operate in the manner set forth.

2. The box A A', having an open top, G, and hinged doors or removable sections on its opposite sides, in combination with a fan-case inclosing a rotary fan, and having hinged or removable sections G' and G², a horizontal extension at its base, and hinged doors D' at the end of the extension, to operate in the manner set forth, for the purposes stated.

MORTON L. D. WESTON.

Witnesses:

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