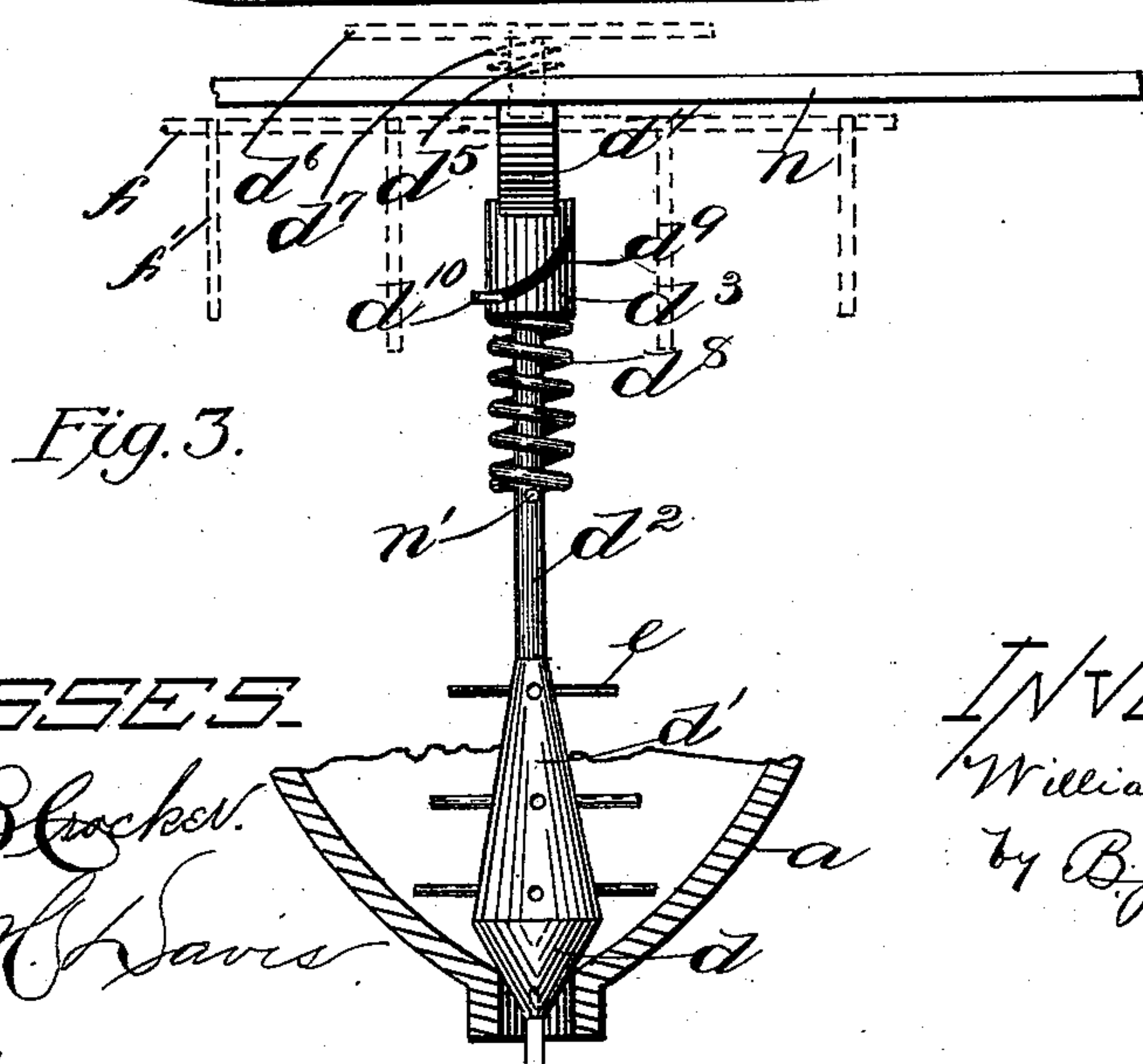
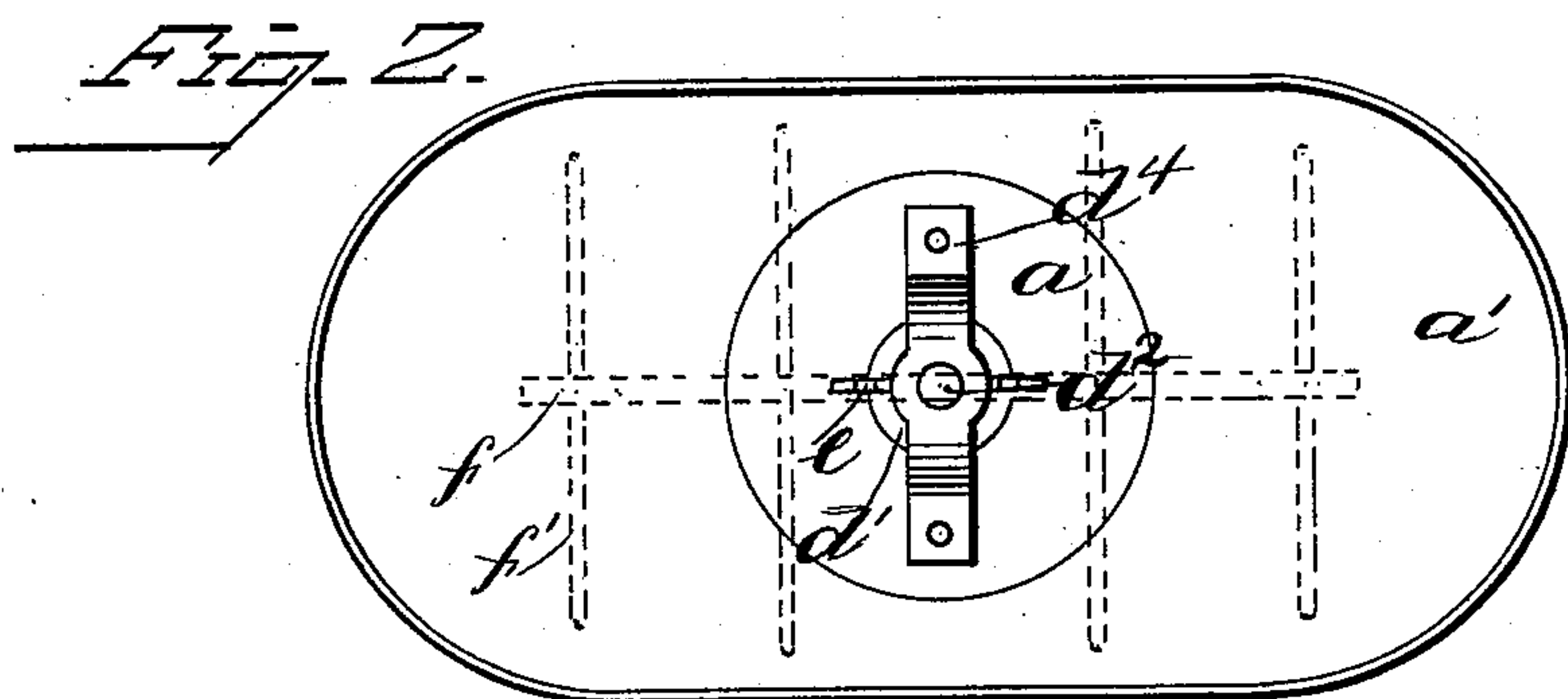
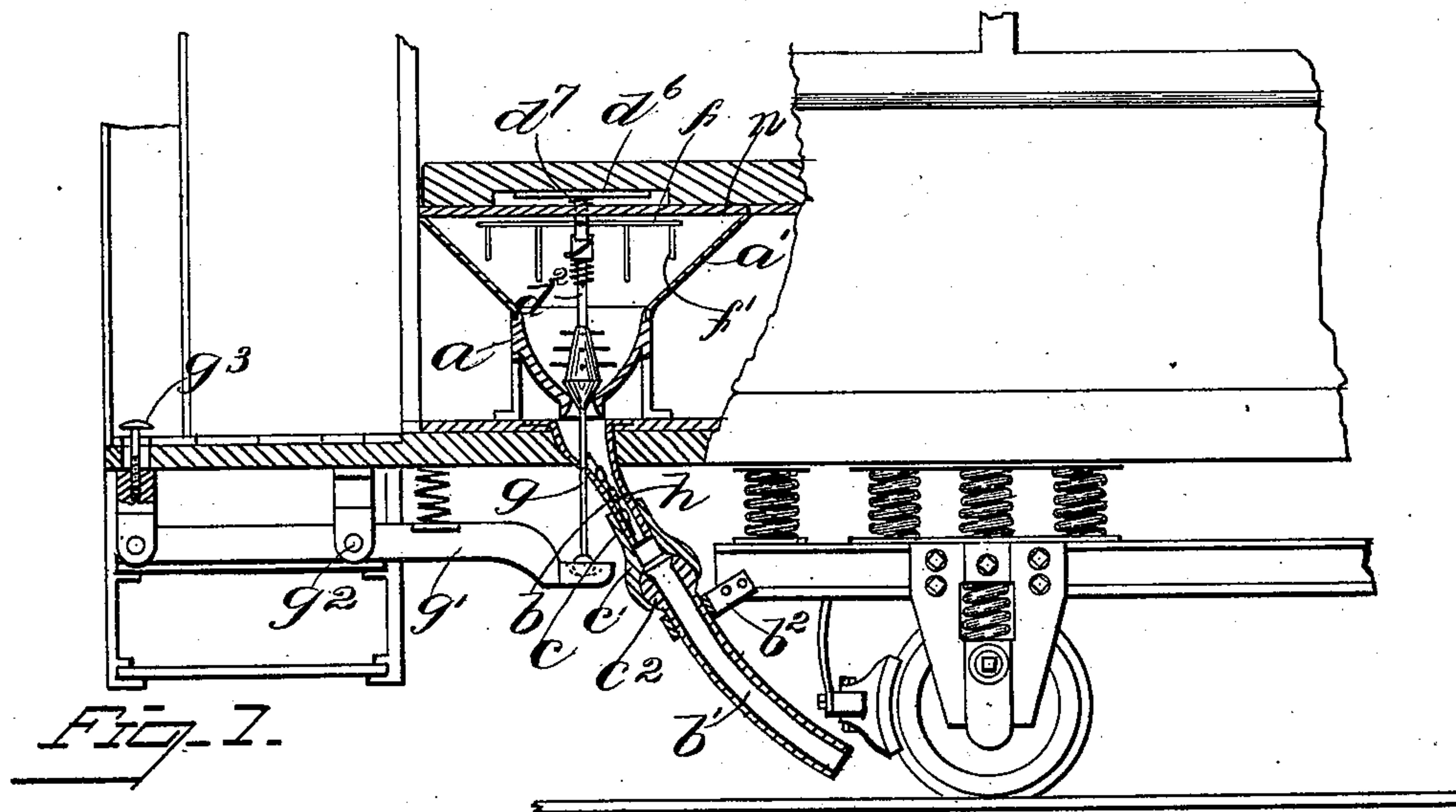


(No Model.)

W. A. MITCHELL.  
SANDING DEVICE FOR STREET CARS.

No. 539,530.

Patented May 21, 1895.



WITNESSES.  
Charles T. Crocker.  
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Atty.



# UNITED STATES PATENT OFFICE.

WILLIAM A. MITCHELL, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO FRANK O. FURBER, OF SACO, MAINE.

## SANDING DEVICE FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 539,530, dated May 21, 1895.

Application filed January 16, 1895. Serial No. 535,097. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. MITCHELL, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Sanding Devices for Street-Cars, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve the construction of sanding devices for street cars, and consists in various details of construction to be hereinafter pointed out and claimed.

Figure 1 shows in vertical section a sand-box delivering device embodying this invention in connection with a street-car; Fig. 2, a plan view of the sand-hopper shown in Fig. 1, and Fig. 3 a side elevation of the valve which controls the outlet of the hopper.

The hopper consists of the hollow base or casting  $a$ , having secured to its upper edge an oblong, or substantially rectangular flaring portion  $a'$ . This said hopper is preferably placed beneath the seat of the car, over an opening made in the bottom of the car through which a suitable delivery pipe leads, extending down toward one of the wheels, to deliver the sand directly in front of the wheel.

As the body of the car carrying the sand hopper has a movement up and down, independent of the truck, and also in turning corners has a lateral movement with relation to the truck, I have made the delivery pipe in two jointed sections  $b, b'$ , the upper section  $b$  being secured to the body of the car, and the lower section  $b'$  being secured by a bracket  $b^2$ , or other support, to the truck, and the joint connecting the two sections has a sliding as well as a universal motion, as for instance, the lower end of the section  $b$  enters telescopically the portion  $c$  of the union, and the lower end of the union is made cup-shaped as at  $c'$  to receive a ball-shaped structure  $c^2$ , at the upper end of the lower section  $b'$ .

A valve is placed vertically in the hopper, comprising a lower conical end  $d$  which seats itself in the outlet of the hopper, an upper conical portion  $d'$  turned in the opposite way so that the bases of said conical portions meet, and a stem  $d^2$  which extends upwardly, and

enters a socket or sleeve  $d^3$  which is secured to a cross piece  $d^4$ , secured to the under side of the seat  $n$ . A spring  $d^8$  encircles the stem  $d^2$  of the valve, its upper end bearing against the lower end of the socket  $d^3$ , and its lower end against a pin  $n'$  projecting from the stem  $d^2$ , the tendency of which is to keep the valve normally closed upon its seat. A series of projections  $e$  extends laterally from the valve, as from the conical portion  $d'$  for instance, and the valve is caused to rotate as it is raised from its seat so that said projections assist in stirring up the sand. The stem  $d^2$  of the valve also has a pin  $d^{10}$  projecting from it, which enters and follows in a spiral slot  $d^9$  formed in the socket  $d^3$ , so that as the valve is raised it is rotated. This is a simple and efficient way of rotating the valves, yet my invention is not limited thereto.

To the lower end of the controlling valve of the hopper a stem  $g$  is secured, which passes down through a hole made in the delivery pipe, and the lower end of said stem is connected to one end of a lever  $g'$ , pivoted at  $g^2$ , the opposite end of said lever having attached to it a foot plate  $g^3$ , accessible to the driver. Attached to the stem  $g$  is a chain  $h$ , which hangs by gravity in the section  $b'$  of the delivery pipe, and as the stem is raised this chain is dragged along the pipe to remove any particles which persistently adhere thereto.

Whenever it is necessary to drop the sand on the rail in front of the wheel, the driver depresses the foot plate, raising the valve, thereby permitting the sand to escape, and as the valve is lifted, its conical portion  $d'$  acts to push away the sand, and by doing so to more or less agitate it; and furthermore such lifting action of the valve causes the pin  $d^{10}$  to follow the spiral slot  $d^9$ , and therefore rotate the valve, and agitate the sand in the hopper.

A supplementary seat  $d^6$  is located beneath the cushion, or above the seat  $n$ , so as to be depressed by a person sitting on it, said seat being supported on a stem  $d^5$  which extends down through the seat  $n$ . A spring  $d^7$  encircles the stem  $d^5$  beneath the seat  $d^6$ , the action of which is to normally hold the seat  $d^6$  in elevated position. A longitudinal bar  $f$  is secured to the stem  $d^5$ , at the upper end of the



hopper, and has depending from it several yokes, or curved fingers,  $f'$ , which enter the sand, and as the seat  $d^6$  is depressed this longitudinal bar with its fingers, is depressed, acting to assist in stirring up the sand in the hopper.

It is obvious that some of the features herein shown may be eliminated, without departing from the spirit and scope of the invention. Instead of the jointed pipe herein shown a flexible pipe may be used, as an equivalent.

I claim—

1. The combination of a sand hopper, valve controlling its outlet, a foot lever for operating it, a delivery pipe composed of two sections connected together by a universal joint, the upper one being connected with the body of the car, and the lower one with the truck, said pipe delivering the sand in front of the wheel, substantially as described.

2. The combination of a sand hopper having an outlet, a valve comprising a conical portion  $d$  adapted to fit said outlet, and a

conical portion  $d'$  extending upward into the hopper, and provided with lateral projections  $e$ , the stem  $d^2$  having at its upper end the pin  $d^{10}$ , the spirally grooved socket  $d^3$  for the upper end of the stem  $d^2$ , spring  $d^8$  and foot lever connected by a link with the lower end of said valve moving it in opposition to the spring  $d^8$ , substantially as described.

3. The combination of a sand hopper, a controlling valve therefor, operated by means actuated by the foot, a delivery pipe leading from the hopper which delivers the sand in front of the wheel, a device in said hopper, having downwardly projecting pins, and means for moving it, actuated by a yielding supplementary seat, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM A. MITCHELL.

Witnesses:

B. J. NOYES,

FLORENCE H. DAVIS.