

(No Model.)

3 Sheets—Sheet 1.

S. CABOT, Jr.

APPARATUS FOR THE MANUFACTURE OF LAMP BLACK.

No. 388,475.

Patented Aug. 28, 1888.

Fig. 1.

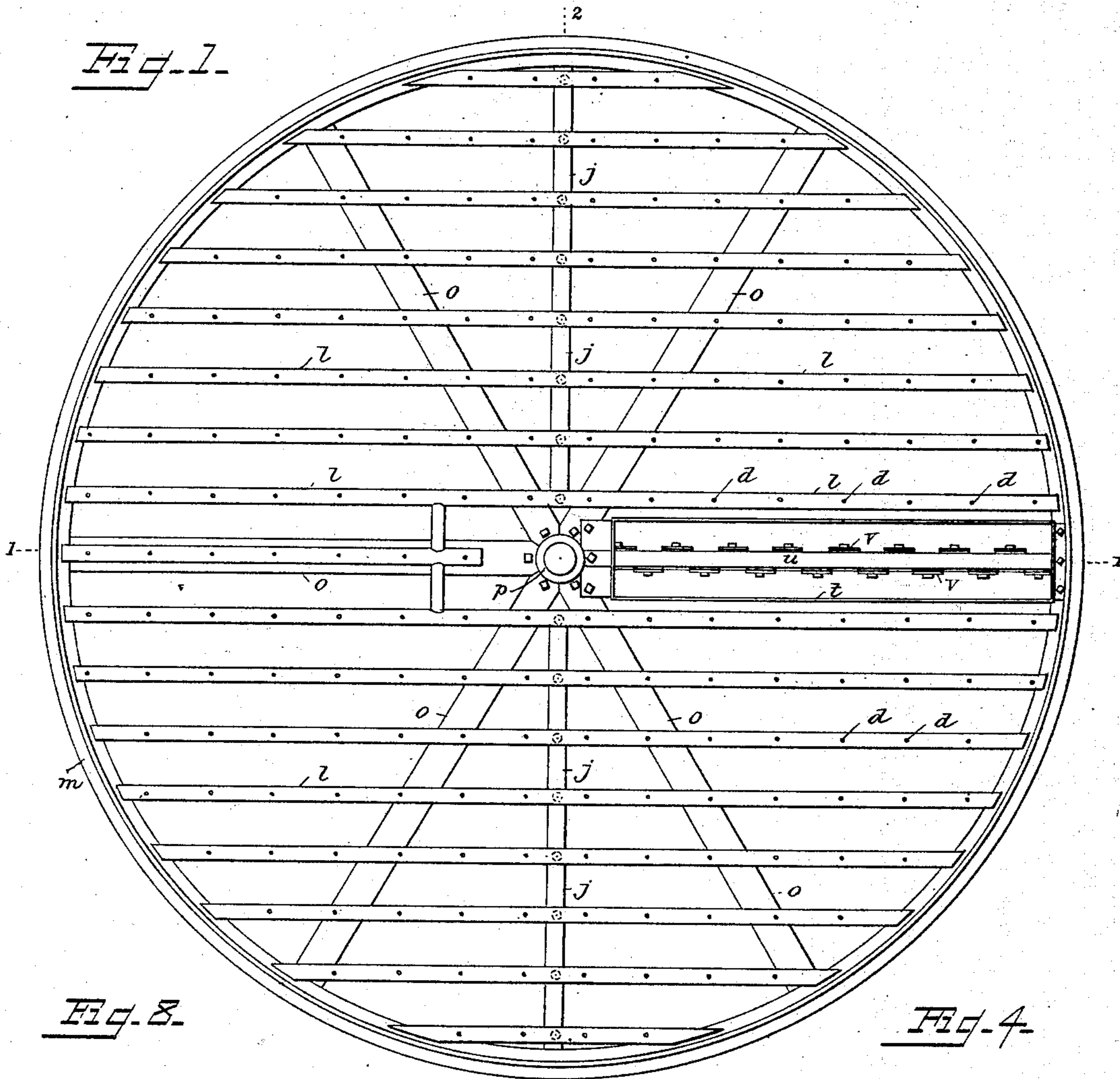
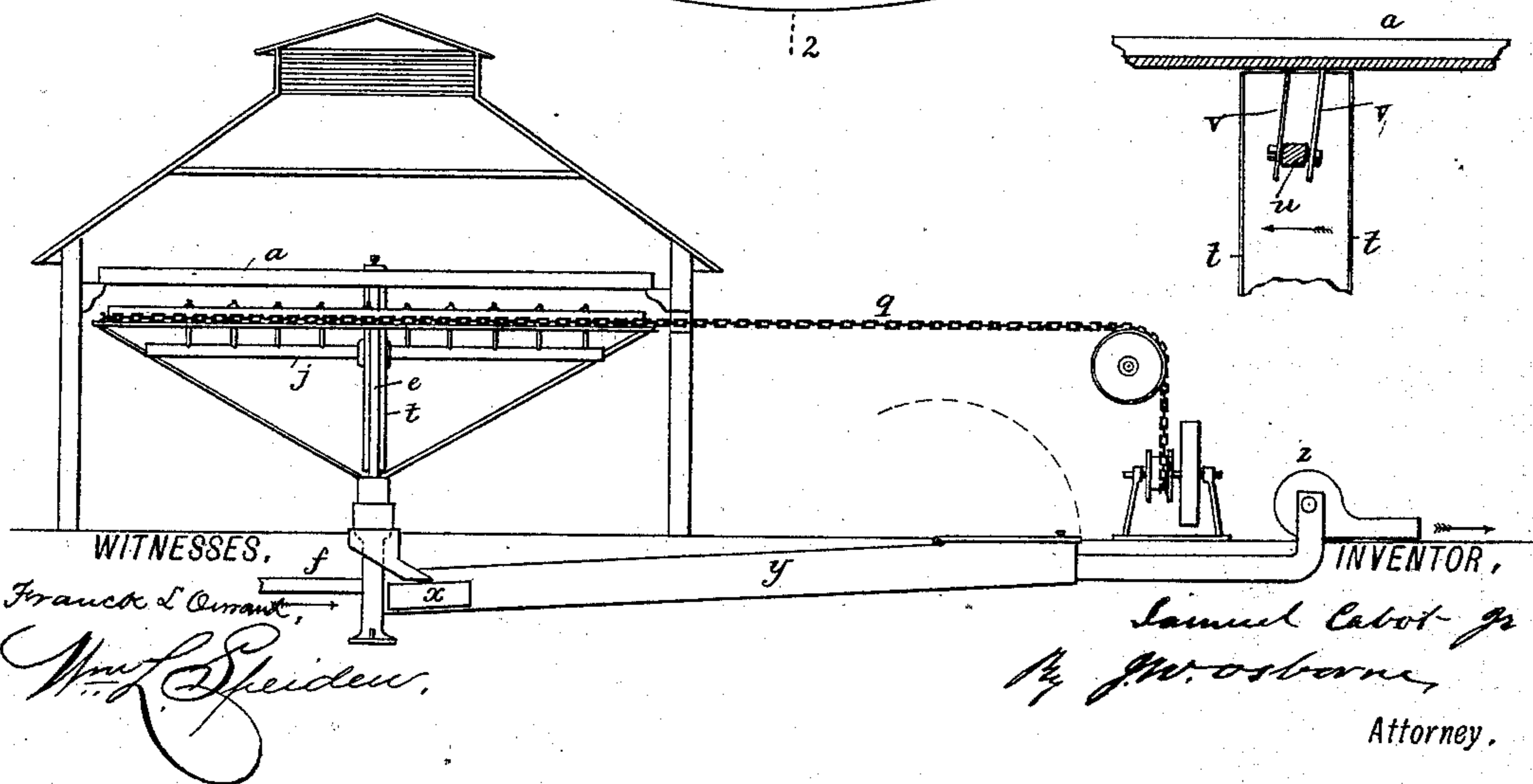


Fig. 2.

Fig. 4.



(No Model.)

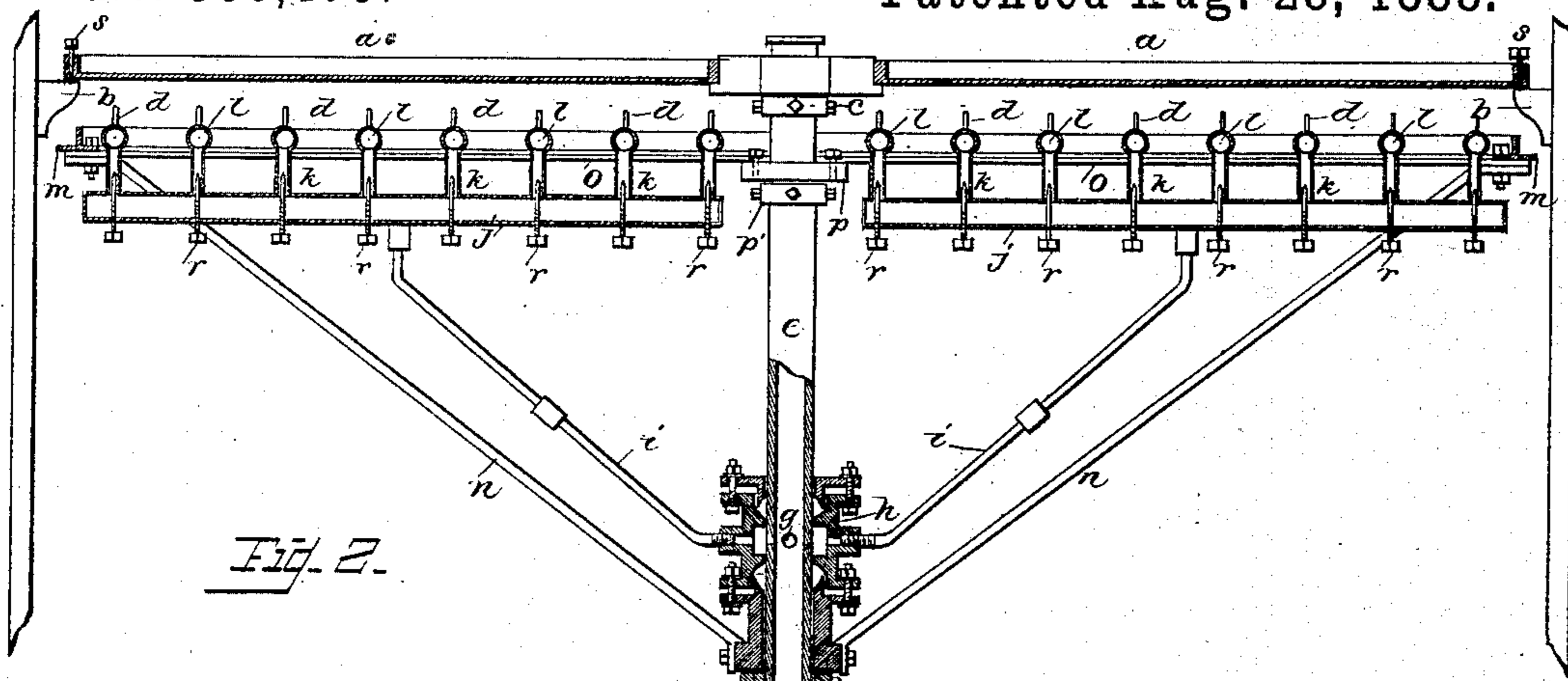
3 Sheets—Sheet 2.

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File 2.

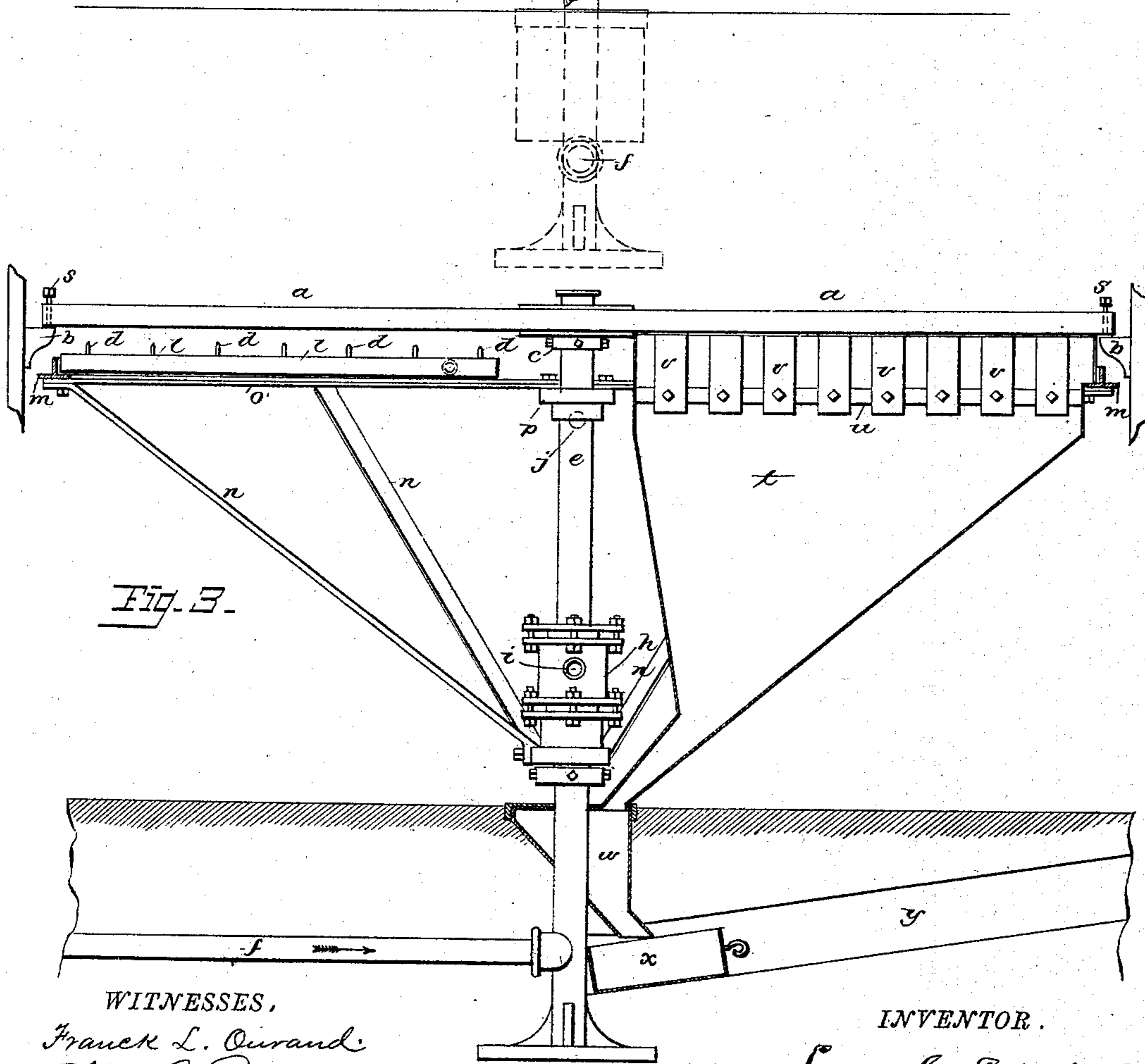


Fig. 3.

WITNESSES,

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Wm L. Spiden.

INVENTOR.

Samuel Cabot, Jr
To Mr. Osborne.

Attorney.

(No Model.)

3 Sheets—Sheet 3.

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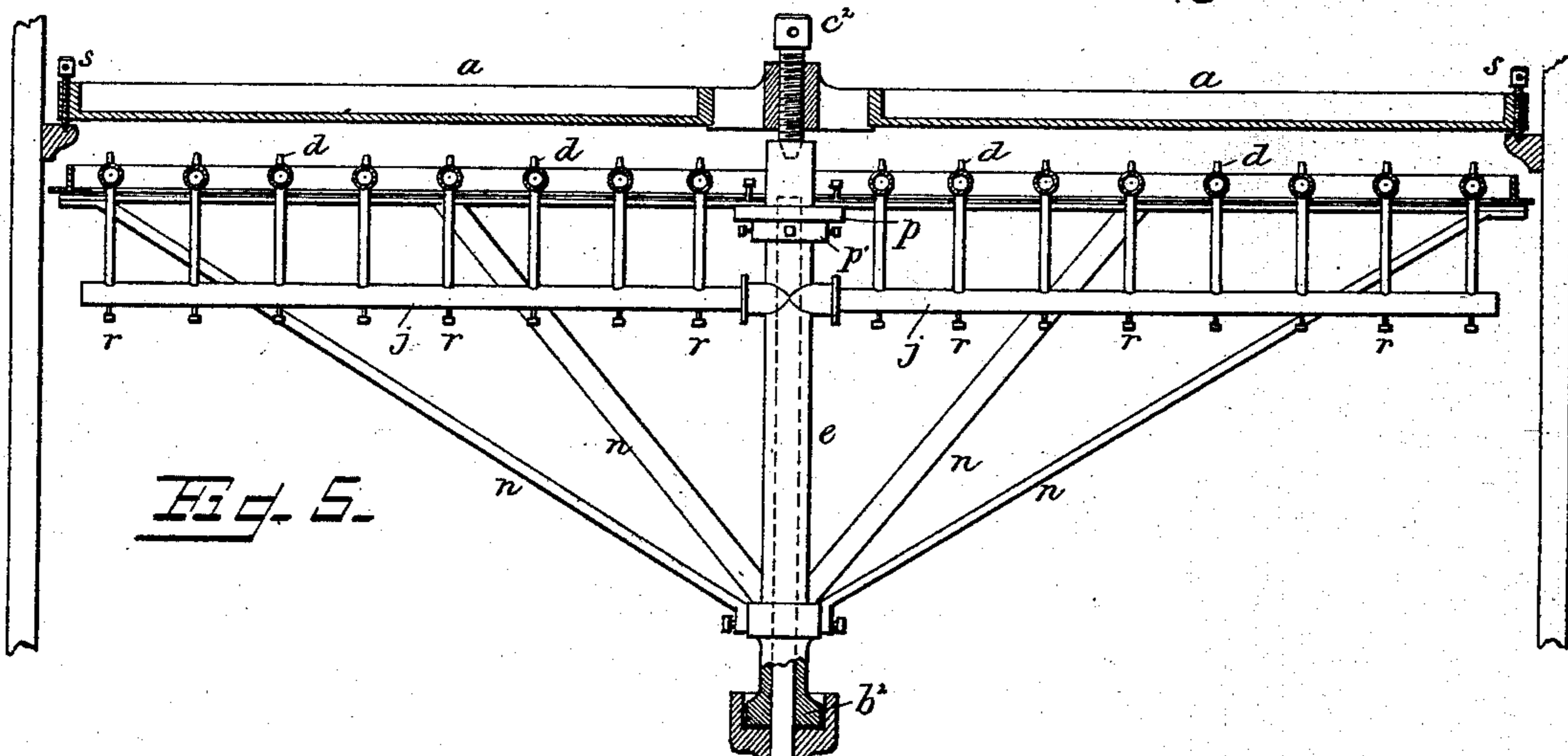


Fig. 5.

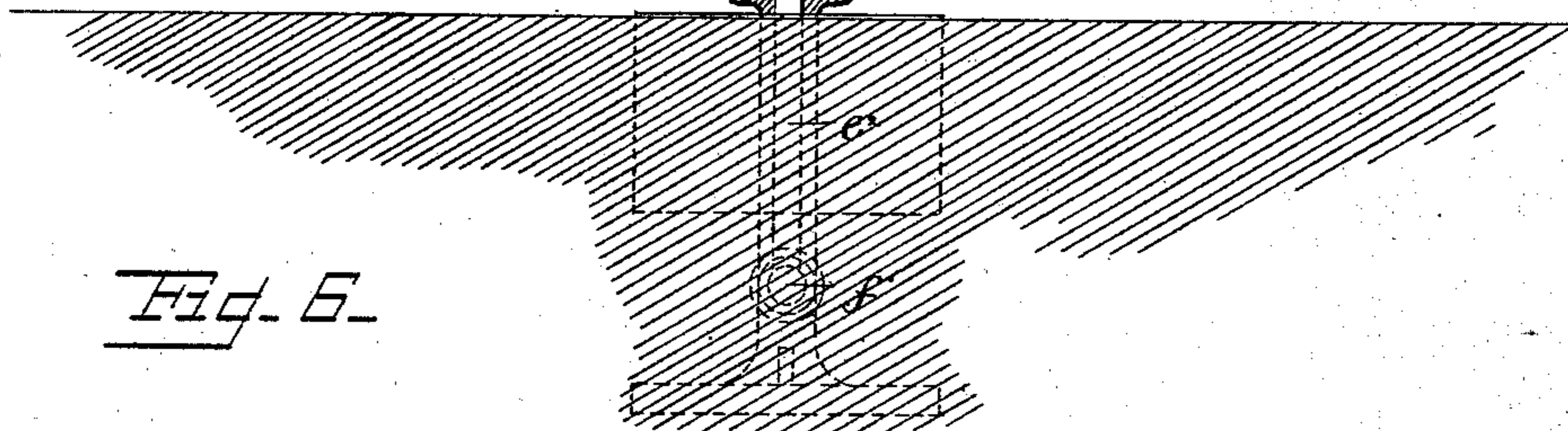
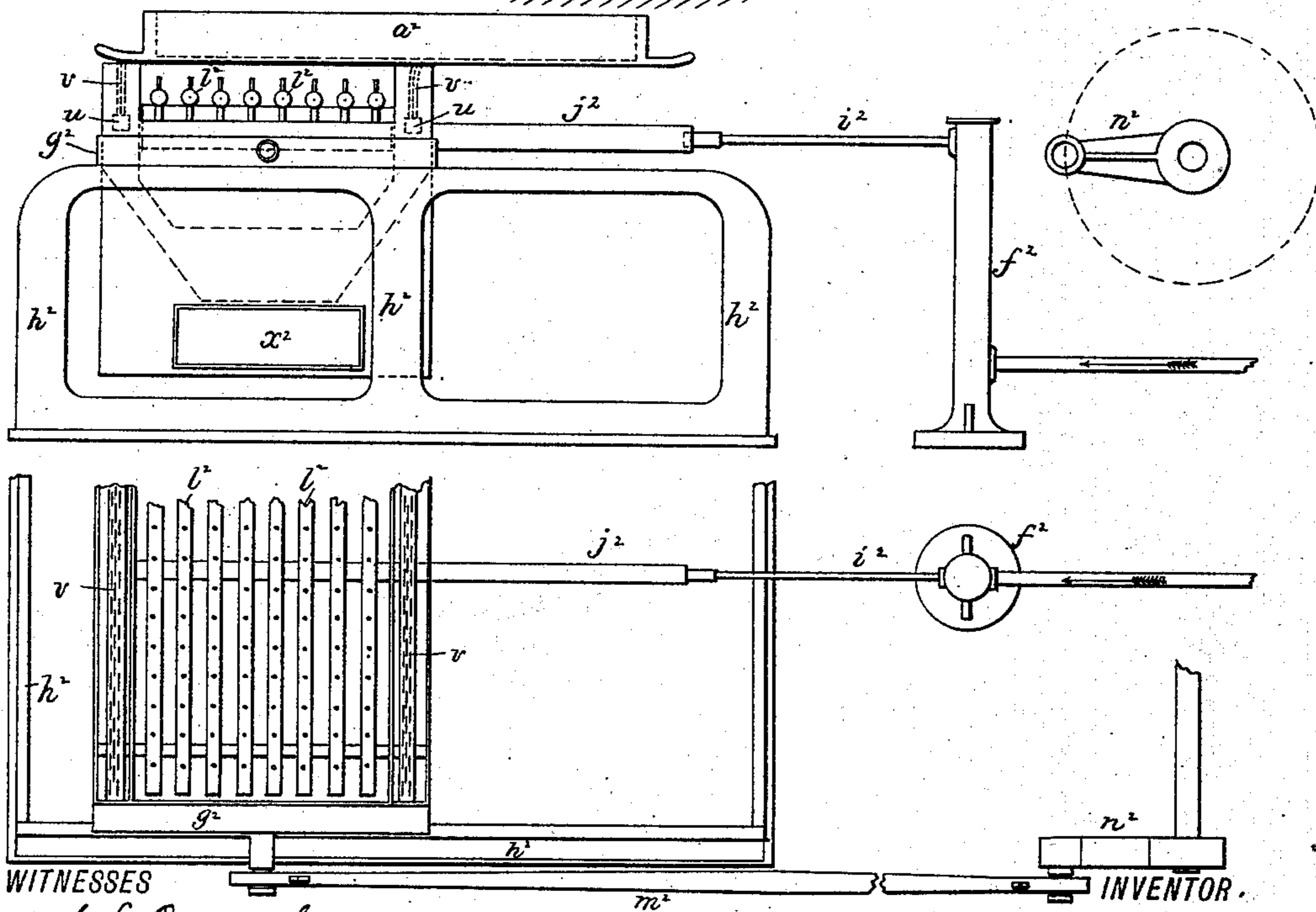


Fig. 6.



WITNESSES

Frauck L. Ouyand

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Fig. 7.

INVENTOR.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR THE MANUFACTURE OF LAMP-BLACK.

SPECIFICATION forming part of Letters Patent No. 388,475, dated August 28, 1888.

Application filed March 18, 1884. Serial No. 124,627. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL CABOT, Jr., a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for the Production of Lamp-Black, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to the production of lamp-black; and it consists in certain apparatus therefor, as hereinafter described.

The object of my invention is to produce a lamp-black-making apparatus of simple and reliable construction, and to reduce the waste in the manufacture of lamp-black to the minimum.

In the drawings, Figure 1 is plan view of a multiflame revolving lamp or burner for the production of lamp-black. Fig. 2 is a view, chiefly in vertical section, on the line 2 2 of Fig. 1, of said lamp, showing its relative position with regard to the collecting plate or surface. Fig. 3 is a vertical section on the line 1 1, Fig. 1. Fig. 4 is a cross-section of a portion showing scrapers and gathering box or hopper. Fig. 5 is a view similar to Fig. 2, but showing a modified construction of revolving burner. Fig. 6 is a side elevation of a reciprocating lamp and collecting plate or surface. Fig. 7 is a plan of the modification shown in Fig. 6; and Fig. 8 is a diagram, on a reduced scale, of the building, lamp-black-collection plate, exhaust apparatus, and driving apparatus.

The reference-letter *a* indicates the collecting plate or surface, usually a large metallic plate having smooth under surface, and any suitable arrangement for cooling, as by covering the upper surface with water. This plate is supported in suitable manner from the walls or roof of the building, as by brackets *b*, fixed to the walls or to supporting-pillars. Part of the collecting-plate may be supported on the collar *c*, which is vertically adjustable on standard *e* by means of set-screws. The plate is vertically adjustable at its edges by means of screws *s* bearing on the brackets. By this

means a large plate can be kept practically level.

The revolving multiflame-lamp is placed a little below and practically parallel with the under surface of plate *a*, the burners *d* being a short distance from said surface. These burners are supplied with gas (vapor or oil) through tubes *j* from central column, *e*, which is hollow and receives its gas-supply from a pipe, preferably beneath the surface, as at *f*. The tubes or pipes *l* are arranged parallel with each other, by preference, and supported at their ends on a ring, *m*, of angle-iron, and mediated by horizontal bars or straps *o*, which have end bearings on the ring *m* and central support on the collar *p*, which is loose upon and vertically adjustable on the central column, *e*, by means of a fixed collar, *p'*, secured to the column by set-screws.

The ring *m* may be supported by struts or braces *n*, which are secured at their lower ends to collar *h*, slight adjustments being provided, as by slots and set-screws, so that the burners *d* may be as nearly as possible in a horizontal plane and parallel with the bottom of plate *a*.

The pipes *j* communicate with each of the burner-tubes *l*, and are themselves supplied with gas through branch pipes *i*, which communicate with the revolving collar *h* on the column *e*. The collar *h* is properly packed at stuffing-boxes above and below the pipes *i*, and standard *e* has holes *g* inside the collar, so that the pipes *i* may always be supplied, while the collar and its attachments revolve on the central standard.

An endless chain, *q*, encircles the ring *m* and leads away to suitable driving-power. By this means the ring, burners, and supply-pipes may be revolved around the central standard, *e*, the rate of speed being very slow.

The flow of gas to the burner may be regulated by the screws *r*, which pass through the pipes *j*. Each screw has a taper point, which enters the short branch *k*, leading to the burner-tubes *l*. These screws need not act as valves to entirely close the pipes *k*; but by closing said pipes in part they impede the flow of gas

to the burners, so that the combustion may be equalized.

The scraper for gathering the deposited black from the collection-plate is shown in 5 Figs. 3 and 4.

A box or hopper, t , is attached to the revolving lamp, so that its upper open end extends nearly up to the collection-plate a . A bar, u , inside the box t , serves as a support for 10 a double row of blades or scrapers, v , placed preferably at a slight incline, having spaces between them and alternating with each other. As the lamp revolves, these scrapers remove the accumulated lamp-black from plate a , and 15 it falls down into hopper t .

The lamp-black may be gathered into a tray or drawer at the bottom of hopper t and removed from time to time, if desirable; but I prefer the method and apparatus illustrated 20 in Figs. 3 and 8 for removing the lamp-black from the hopper.

A circular receptacle or trough, w , surrounds the standard e at the bottom, and a spout from hopper t leads into the same, a revolving cover being attached to the end of the 25 spout, so that the top of trough w is closed, except for the spout. The trough w may empty by a chute into a box, x , which is in a passage, y , preferably underground, leading to the exterior of the building. An exhaust-fan, z , is 30 connected with the passage y , and a gentle downward draft is thus maintained through the hopper t . This facilitates the descent of the fine particles of black, which are scraped 35 from the plate a by blades v . The air draft or exhaust may be so strong as to carry the lamp-black out through passage, where it should be received in a settling-chamber.

The modification, Fig. 5, shows a device by 40 which the packing-boxes of collar h may be dispensed with, said collar then serving merely as a support for braces n , and being, as in the former case, vertically adjustable on the central standard. The two lateral pipes j connect directly with hollow column e . The 45 column e is stepped into the base e^2 , as shown at b^2 , so as to revolve therein. The top of the column is closed and has a cup for the end of screw e^2 , by which screw the central portion of 50 plate a may be raised or lowered. In this case the column revolves with the burners, instead of the burners revolving around the column. This modification is well adapted for use with a petroleum-lamp, in which burners having 55 wicks replace the gas-burners, and the oil is supplied through the pipes either by a force-pump or by a gravity-supply.

Another modification of my device is shown in Figs. 6 and 7, in which a reciprocating instead of a rotary multiburner-lamp is illustrated. 60

The burner-tubes l^2 are connected to the main j^2 , and they all reciprocate on the frame h^2 as part of the carriage g^2 , which may be drawn to 65 and fro by pitmen m^2 , actuated by cranks n^2 , or in other suitable manner. The main j^2 tele-

scopes over the pipe i^2 , which leads from the supply-pipe f^2 . The scrapers v^2 —one at each edge of the multiframe-lamp—may be elastic brushes, of steel or similar material. They 70 are fastened to bars u and sweep over a little more than half of the plate a^2 , so that a complete reciprocation of the burner sweeps the whole of the plate, the black then falling into tray h^2 . 75

My multiburner-lamp is adjusted to a position as nearly level as may be at a suitable distance from plate a and parallel therewith. The lamp is made to move slowly and the burners will deposit a thin layer of lamp-black 80 on plate a . The scrapers which follow the burners will remove this lamp-black from the plate, and it is then drawn down (preferably) by the air-draft and removed from the apparatus in the manner hereinbefore set 85 forth.

By the adjusting mechanism of the plate a , (which is generally large and heavy, and if made in sections is very apt to be out of level,) 90 and by the construction of lamp shown and described, I am enabled to get the lamp and plate practically parallel, in which position the device operates to best advantage.

I claim—

1. The combination, in a multiburner-lamp, 95 of a central supporting-standard with adjustable collars thereon, an external ring with the burner-tubes supported on said ring, and braces extending from said collars to the same, substantially as described. 100

2. A central vertical standard provided with adjustable clamping-collars and connecting-rods, a multiburner-lamp supported thereon, and a collection-plate having adjustable bearing on said vertical standard, substantially as 105 described.

3. The combination, with a central vertical standard, of a multiburner-lamp supported thereby, an adjustable collar having a gas-chamber surrounding the standard, said collar provided with packing-boxes at each end, 110 and the standard having apertures to permit gas-escape into the collar, and connecting-pipes leading from the collar to the burners, substantially as described. 115

4. A revolving multiburner-lamp provided with an external ring of angle-iron braced to a central standard, with burner-tubes supported thereby, substantially as described, and an endless driving-chain resting in the angle 120 of said external ring and encircling the same and the pulley of a suitable motor.

5. The multiburner-lamp composed of parallel tubes l , external ring, m , supporting-bars o , extending across the ring from side 125 to side under the tubes l , an adjustable support under the center of said bars, and a suitable gas-supply device, all arranged and combined substantially as set forth.

6. In a multiburner-lamp, the combination 130 of a supporting-standard, provided with clamping-collars and stay-rods, with a revolving hop-

per, a revolving scraper, and an air-blast, substantially as described.

7. The combination, with a collection-plate, of rotating scrapers to operate thereon, an inclined hopper beneath the scrapers and rotating with them, and a circular stationary deposit-chamber, with which said hopper communicates by a chute, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL CABOT, JR.

Witnesses:

ERVIN E. CROOK,

ARCHIBALD M. HOWE.