

No. 621,339.

Patented Mar. 21, 1899.

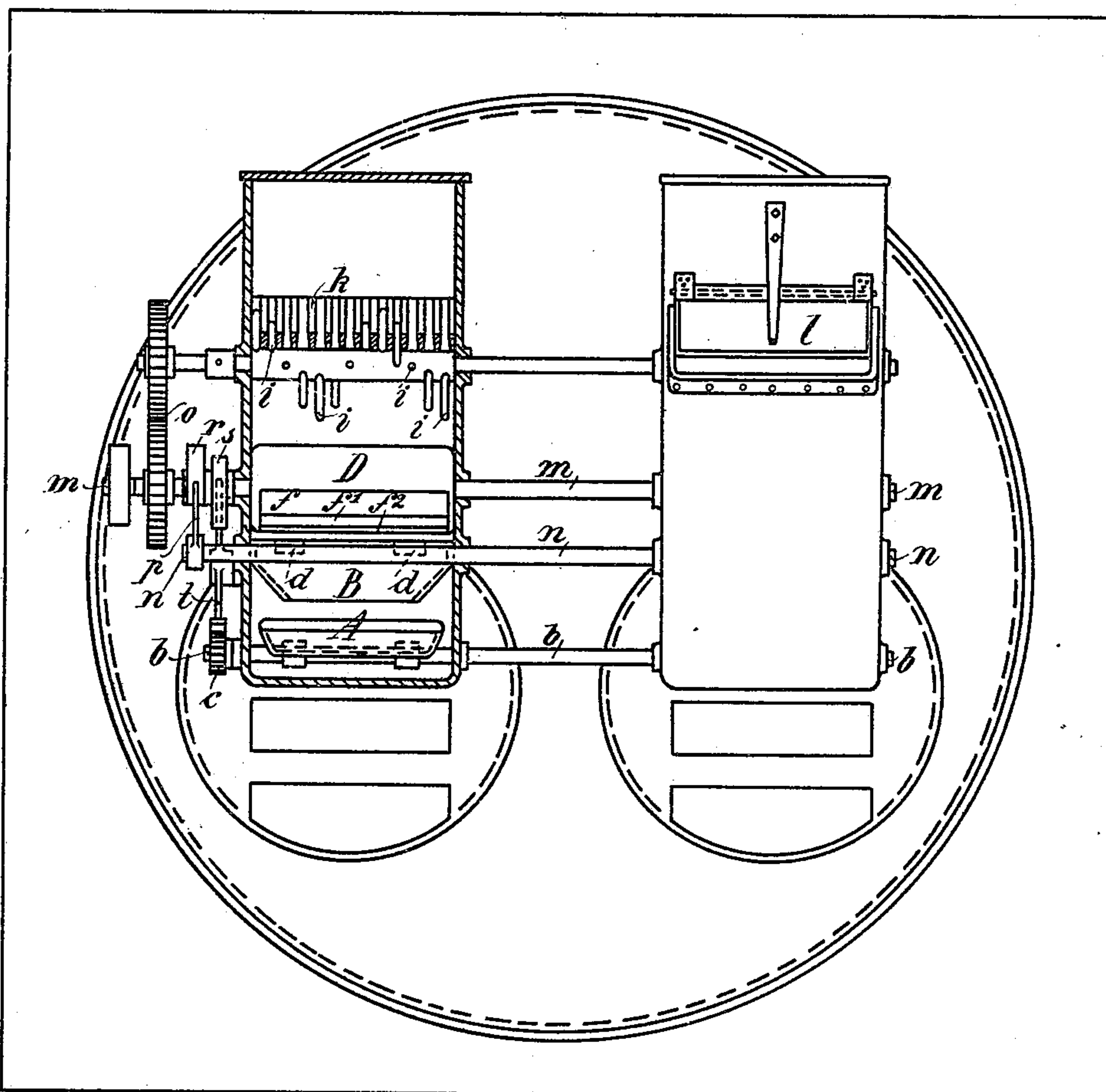
F. E. & F. H. HOFMANN.
DEVICE FOR FEEDING FUEL TO BOILER FIRES.

(Application filed July 22, 1898.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.



Witnesses:

Heinrich Neubart
Karl Meisinger

Inventors:-
Friedrich Emil Hofmann &
Friedrich Hermann Hofmann
by: Gustav Hopmann
Att'y.

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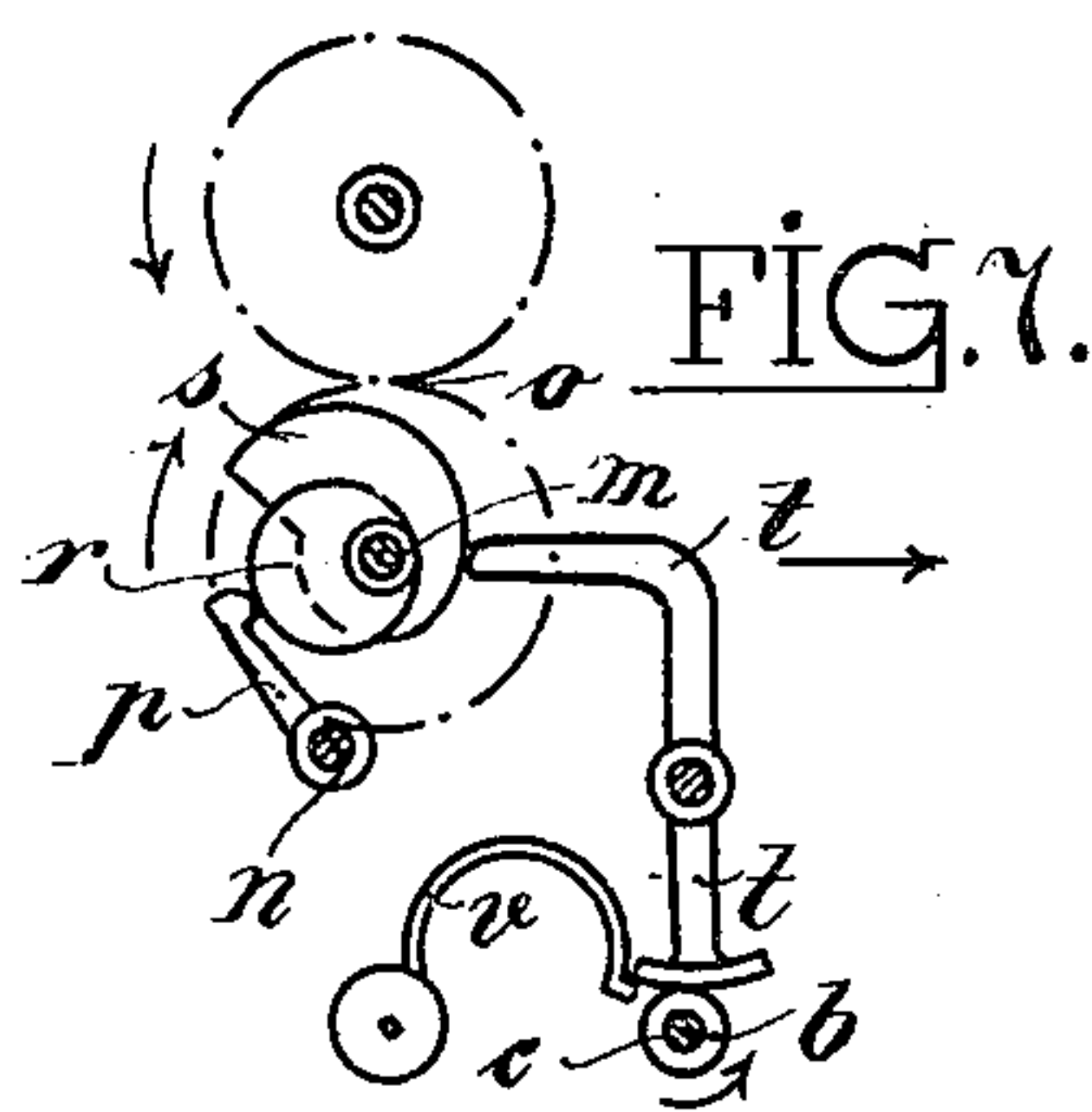
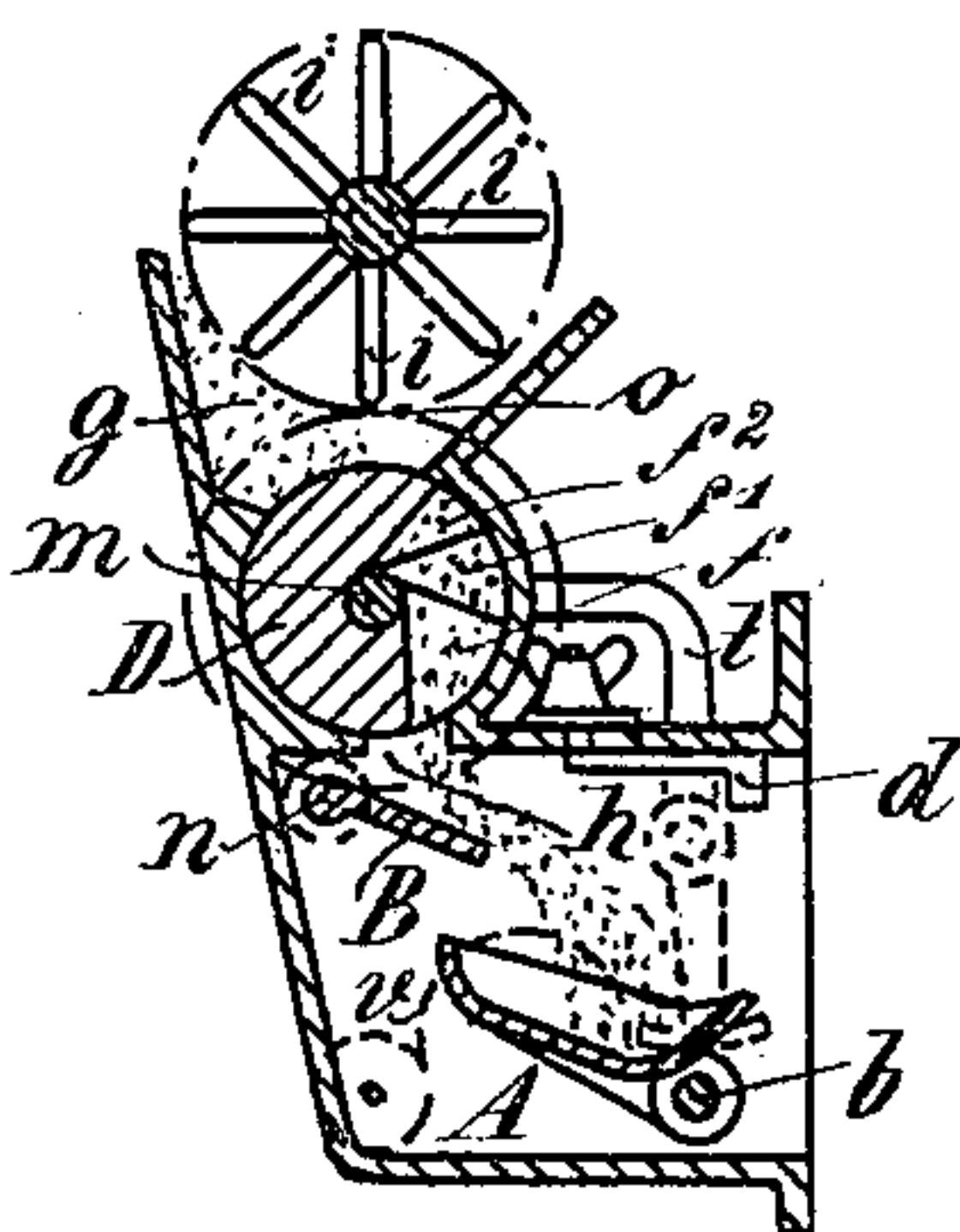
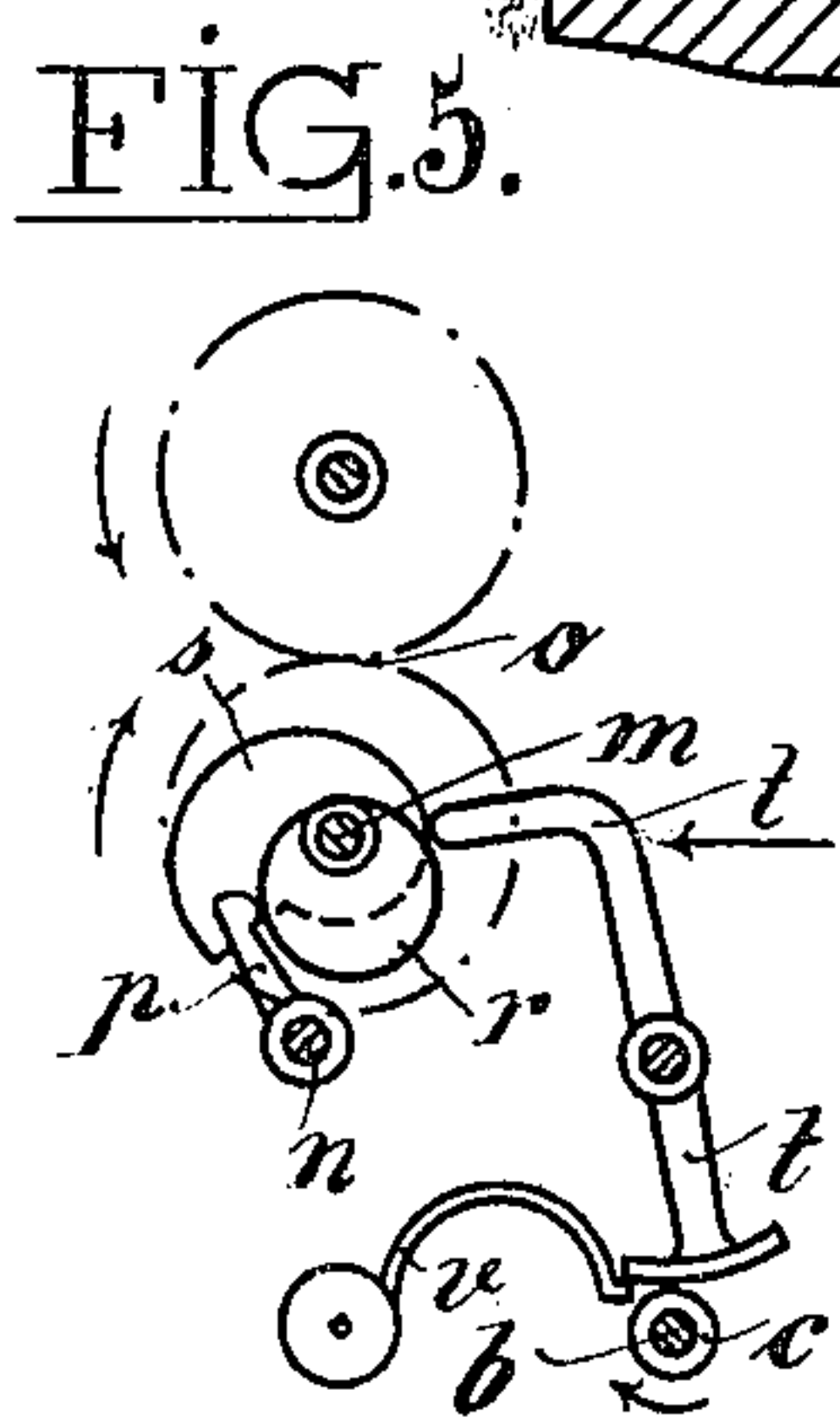
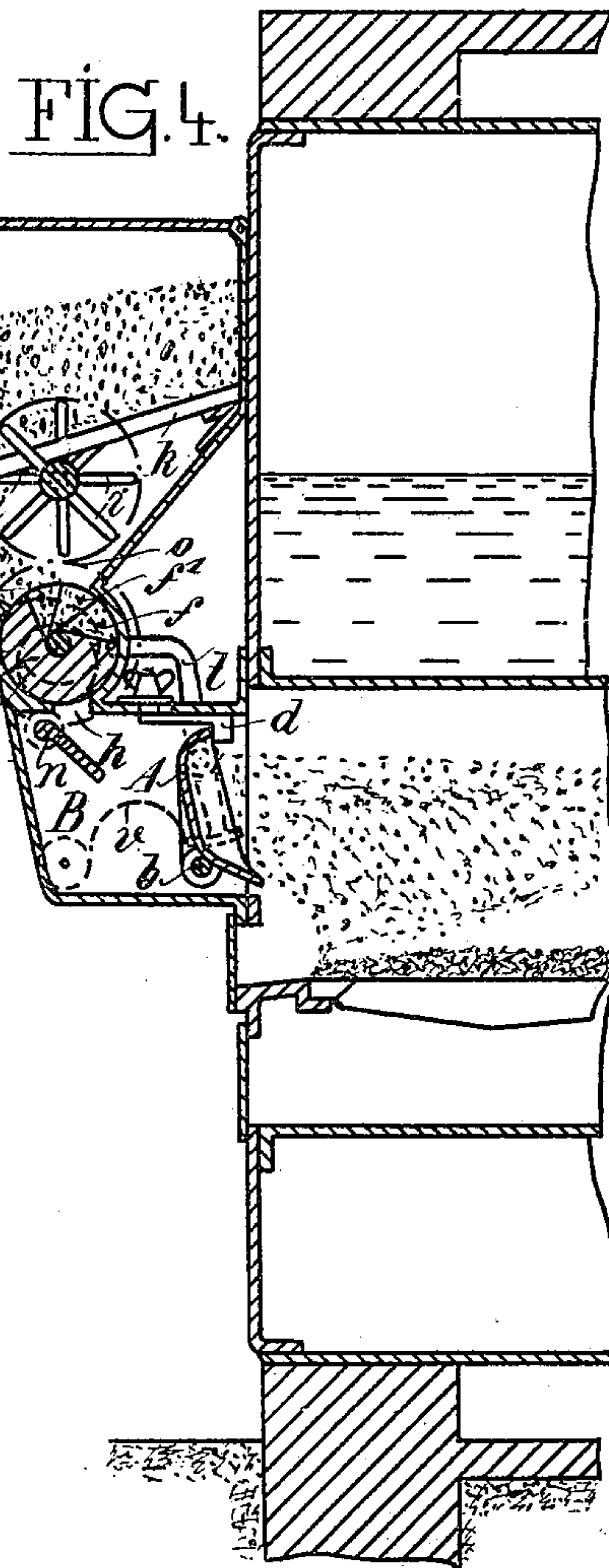
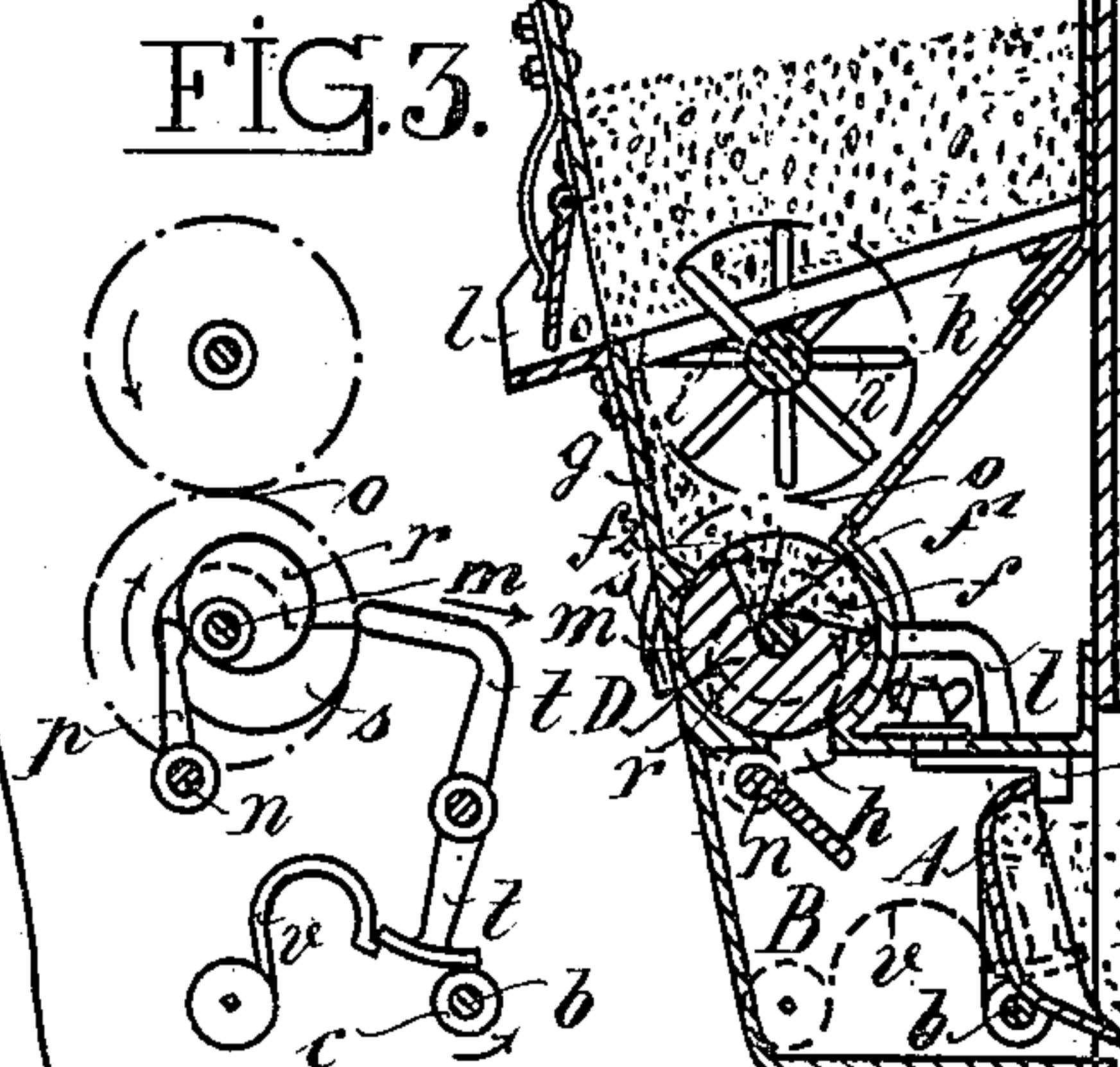
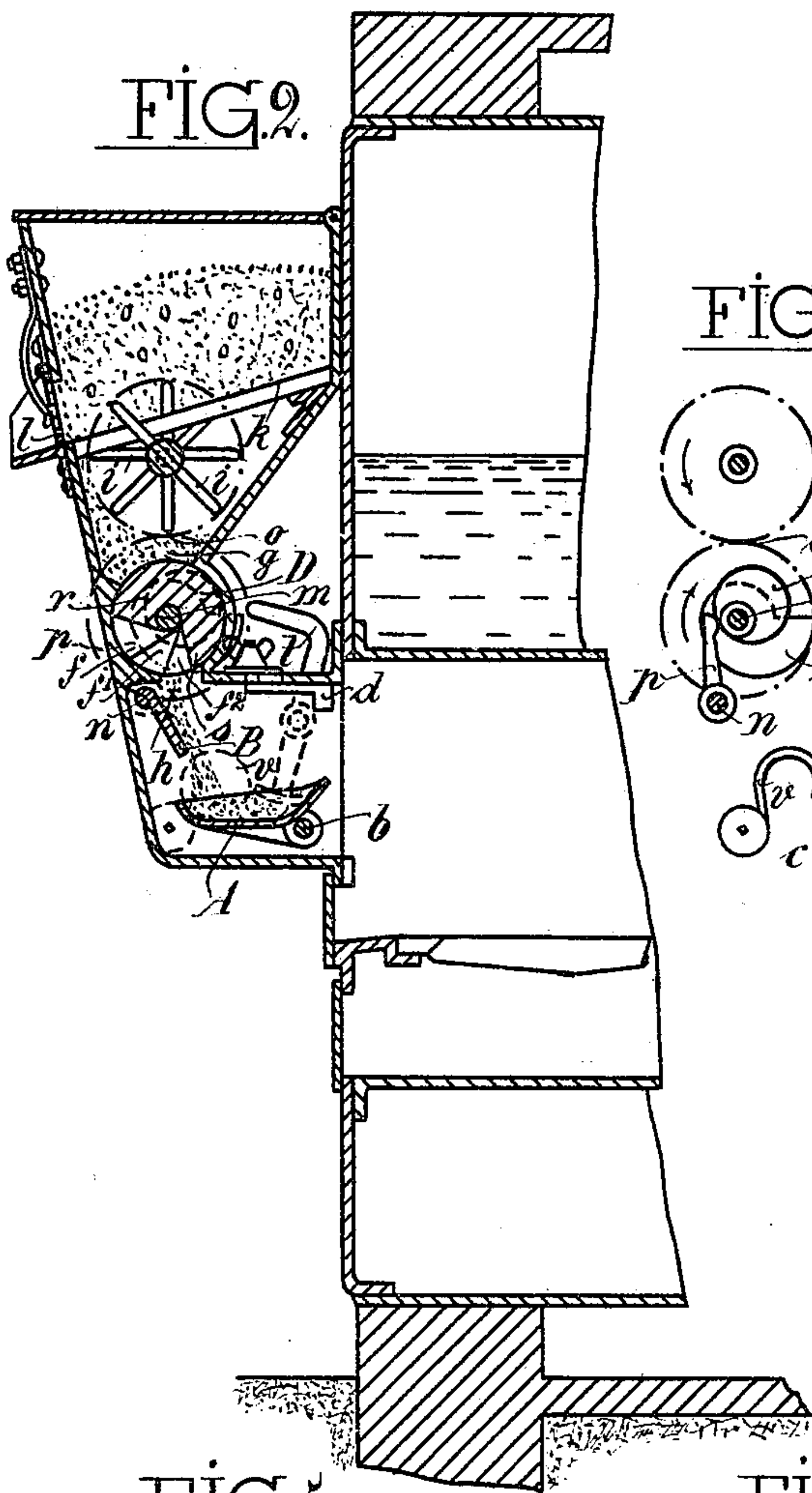
F. E. & F. H. HOFMANN.

DEVICE FOR FEEDING FUEL TO BOILER FIRES.

(Application filed July 22, 1898.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

Heinrich Neubert
Alfred Meier

Inventors
Friedrich Emil Hofmann &
Friedrich Hermann Hofmann
By: Gustav Hopfmeier
Att'y.

UNITED STATES PATENT OFFICE.

FRIEDRICH EMIL HOFMANN, OF GERINGSWALDE, AND FRIEDRICH HERMANN HOFMANN, OF SCHÖNBERG, GERMANY.

DEVICE FOR FEEDING FUEL TO BOILER-FIRES.

SPECIFICATION forming part of Letters Patent No. 621,339, dated March 21, 1899.

Application filed July 22, 1898. Serial No. 686,595. (No model.)

To all whom it may concern:

Be it known that we, FRIEDRICH EMIL HOFMANN, a resident of Geringswalde, and FRIEDRICH HERMANN HOFMANN, a resident of Schönberg, near Waldheim, Kingdom of Saxony, Germany, subjects of the King of Saxony, have invented a new and useful Improved Device for Feeding Fuel to Boiler-Fires, of which the following is a full, clear, and exact description.

The present invention consists of a fuel-feed device for boiler and other fires by means of which the fuel is evenly fed over the grate.

In order to render the present specification more easily intelligible, reference is had to the accompanying drawings, in which similar letters of reference denote similar parts throughout the several views.

Figure 1 is a front elevation of the device; Fig. 2, a side elevation after the filling or feed operation has taken place; Fig. 3, the position of the parts during said operation; Fig. 4, a sectional side elevation of the device in the act of feeding the fuel; Fig. 5, the position of the parts during said action; Fig. 6, a sectional elevation showing the parts in the position occupied after the shovel has been returned to its initial position, and Fig. 7 the position of the parts at this period.

The shovel A is mounted on a shaft *b* and in firing is suddenly moved from the position shown at Fig. 2 to that of Fig. 4, the shape of the shovel being so chosen that the movement of the same around its pivot will throw the fuel thereon different lengths, and thus scatter the same evenly over the grate, as indicated at Fig. 4. The fuel is also fed to the shovel in an even layer through opening *h* by means of the trap-door B, which is gradually swung around its pivot *n*, and the roll D, mounted at the bottom of the fuel-hopper at the opening *g* of the same and being provided with recesses or pockets *f f' f''* therein to receive the coal or other fuel. The hopper is provided with a rack *k*, between the bars of which the arms *i* of a roll extend as the said roll is rotated, and thus push the small parts of fuel through the said rack onto the roll and expel the larger lumps through a weighted trap-door *l*, Fig. 4. When the roll D is ro-

tated, the fuel at the opening *g* of the hopper falls successively into the pockets *f f' f''* and is distributed from them evenly over the shovel A by means of the gradually-opening trap-door B. The shovel-operating mechanism is then released and the contents of the said shovel thrown in an even layer onto the grate of the fire. The shaft *m* of the roll D is geared to the shaft of the arms *i* at *o* and, further, carries an eccentric *r*, which operates the trap B by means of the arm *p*, held against said eccentric by any suitable means. (The weight of the fuel on the trap will in most cases be sufficient.) To the shaft *m* is, further, attached a spirally-formed eccentric or cam *s* to operate the shovel. The upper end of a double-arm lever *t* rests against this cam, the lower end of said arm having a tooth-segment which is in engagement with the gear *c* of the shaft *b* of the said shovel A. A strong spring *v* acts to hold the upper arm of lever *t* fast against the cam *s*. Thus when the upper arm of lever *t* has reached the end of the cam *s*, Figs. 3 and 4, the shovel is full, and as soon as the end slips off the end of the cam the spring *v* acts to throw the shovel A over, The movement of the shovel is limited by the stop or stops *d*. After this has taken place the cam *s* gradually returns the shovel to its initial position, during which operation it is also refilled for the next operation.

We claim as our invention—

1. In a fuel-feed mechanism for boilers, the combination of a hopper having feed-roll thereunder and having distributing rotary arms and coöperating grate therein, a trap below said roll and means for gradually opening the same and a shovel pivotally mounted under said trap in the fireway at the end nearest the fire and means for simultaneously releasing said shovel and spring pressing the same around its pivot to discharge its contents into the fire and then subsequently returning it to its initial position, simultaneously opening the trap above it and rotating the feed-roll substantially as described.

2. The combination of a hopper having a grate therein and a series of rotary arms to pass into and out of the interstices of said grate, a feed-roll at the lower outlet of the

hopper having pockets as specified, a trap below said feed-roll and a shovel pivotally mounted as specified below said trap and means for simultaneously rotating said distributing-arms, the feed-roll and gradually swinging down the trap and returning the shovel to its initial position, and then releasing the said shovel to spring around its pivot and discharge its contents substantially as described.

3. The combination of a hopper having grate *k* and rotary arms *i* an opening *g* and a rotary feed-roll *D* therein, an opening *h* below said feed-roll and a trap *B* to periodically close same, a shovel *A* mounted on shaft *b*, a spiral cam mounted above said shaft, a gear on said

shaft and a double-arm lever *t* having lower segment to engage said gear, and upper arm to engage with said cam an eccentric *r* to rotate with said cam and a lever *p* fast on the trap-pivot to engage said eccentric, means for gearing the feed-roll shaft and the distributing-arms shaft, and a spring *v* to move said shovel around its pivot and impinge it against its stop *d* substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

FRIEDRICH EMIL HOFMANN.

FRIEDRICH HERMANN HOFMANN.

Witnesses:

HERM. SACK,

RUDOLPH FRICKE.