F. H. C. MEY.

VALVE ACTUATOR AND INDICATOR.

APPLICATION FILED OCT. 14, 1908.

924,915. **Patented June 15, 1909.**

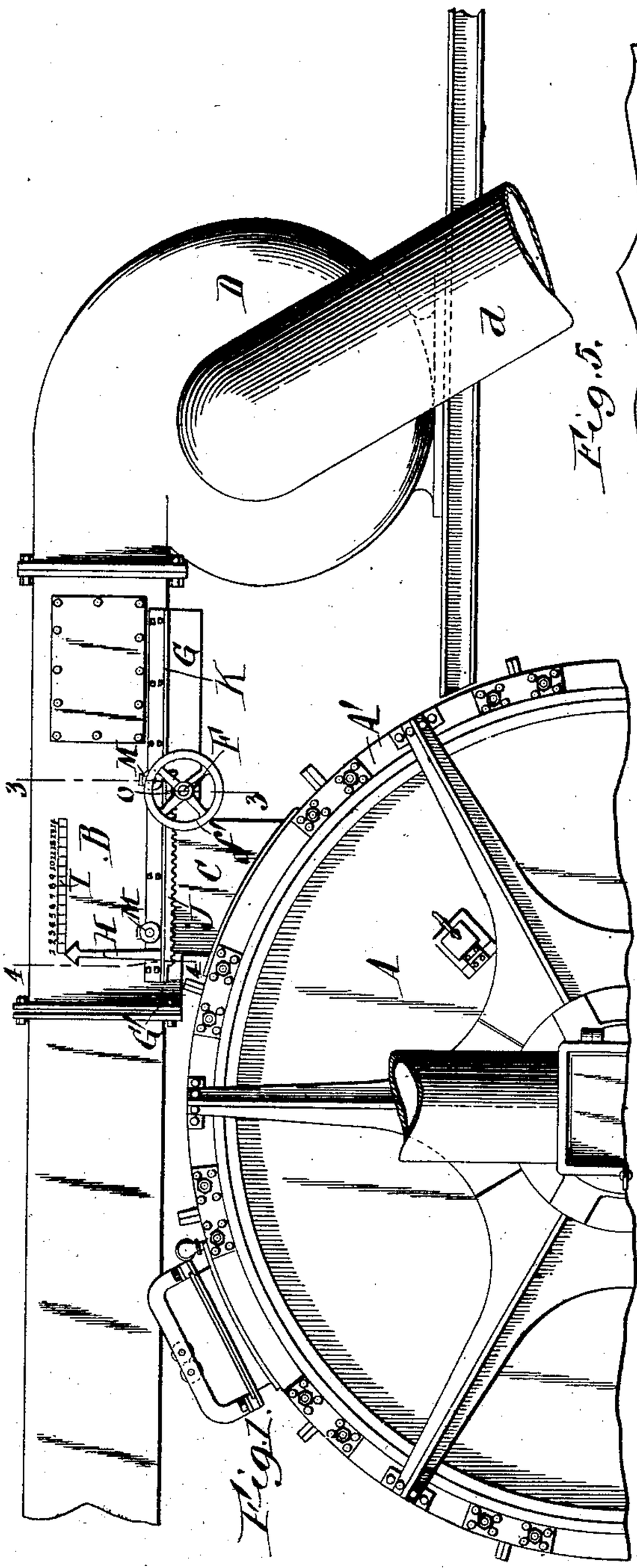

Fig. 1.

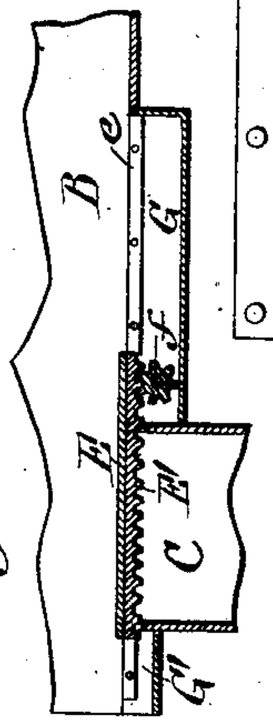

Fig. 5.

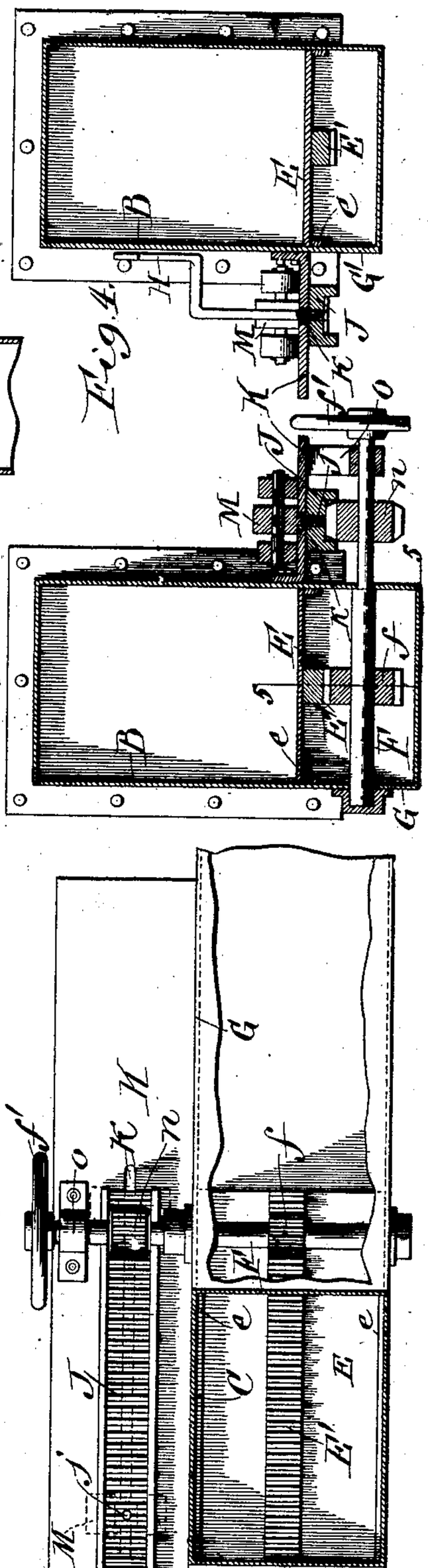

Fig. 4.

Fig. 3.

Fig. 2.

Witnesses:
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UNITED STATES PATENT OFFICE.

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VALVE ACTUATOR AND INDICATOR.

No. 924,915. Specification of Letters Patent. Patented June 15, 1909.

Application filed October 14, 1908. Serial No. 457,651.

To all whom it may concern:

Be it known that I, FREDERICK H. C. MEY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Valve Actuators and Indicators, of which the following is a specification.

This invention relates to a valve-operating mechanism and indicator designed more especially for the valves applied to the air supply trunks of pneumatic malting and drying apparatus, although the same is equally applicable to valves or gates of other conduits and apparatus.

The object of my invention is the provision of a convenient valve actuator and indicator which permits the valve to be adjusted to a predetermined position for supplying the desired quantity of hot, cold, tempered or moist air to a malting drum or other apparatus.

In the accompanying drawings: Figure 1 is a fragmentary side elevation of a malting apparatus provided with the improvement. Fig. 2 is an enlarged fragmentary bottom plan view, partly in section, of the valved air-trunk and the operating mechanism of the valve and indicator. Fig. 3 is a transverse section in line 3—3, Fig. 1. Fig. 4 is a similar section in line 4—4, Fig. 1. Fig. 5 is a fragmentary longitudinal section in line 5—5, Fig. 3.

Similar characters of reference indicate corresponding parts throughout the several views.

A indicates a malting drum of any suitable construction; A^1 its stationary casing; B an air trunk or conduit, C a pipe leading from the trunk to said casing and D a fan or blower connected with the trunk for forcing air into the same and through the malting drum. In practice, separate air trunks are connected with the apparatus for supplying dry cool air to the drum during the steeping process of the grain, moist air of the proper temperature during the germinating stage, and dry hot air for drying the malt. The particular trunk shown in the drawings is the hot-air trunk and the inlet pipe *d* of the blower is to be connected with a suitable furnace, not shown.

E indicates a valve, preferably a slide valve, arranged at the junction of the air trunk B and branch pipe C for controlling the passage of the air into the drum casing A^1. In the construction shown in the drawings, this valve consists of a plate resting upon ledges *e* secured to the side walls of the trunk. The valve is preferably operated by a gear pinion *f* secured to a shaft F and meshing with a rack bar E^1 secured to the underside of the valve, the projecting end of said shaft having a hand wheel f^1. This shaft is arranged crosswise of the air trunk and supported in a practically air tight housing or downward-extension G of the trunk which is arranged on the rear side of the branch pipe C and incloses said pinion, the rear portion of the rack bar and the rear portion of the valve when opened more or less. A similar housing G^1 is preferably arranged on the front side of said branch pipe.

H represents a pointer controlled by the operating mechanism of the valve E and traversing a scale I for indicating the position of the valve from the outside of the air trunk B. In the preferred construction shown, this scale is arranged horizontally or longitudinally on one side of the air-trunk, and the pointer extends upwardly from a rack-bar J arranged on the underside of a horizontal track or platform K secured lengthwise to the adjacent side of the air trunk. The shank of the pointer passes through a longitudinal slot *k* in the track K and is suitably secured to the rack bar J. The latter is suspended from suitable trucks or carriages M running upon the track K, two of such carriages being shown in the drawings, although a different number may be employed, if desired. The rack bar J may be connected with the frame of the trucks by vertical screws or bolts *j* passing through the track-slot *k*, or other suitable hangers or connections. The rack bar J is reciprocated by a pinon *n* meshing therewith and secured to the valve-operating shaft F.

As shown in the drawings, the projecting end of the shaft F is preferably carried by a hanger *o* secured to the underside of the track K.

It will be understood from the foregoing that when the valve E is opened more or less by the rotation of the shaft F, the rack bar J which carries the pointer is shifted lengthwise correspondingly, causing the pointer to move along the scale I and indicating the extent to which the valve is opened. The scale is suitably graduated and numbered, so that the valve can be readily opened to a predetermined degree for accurately regu-

lating the quantity of air supplied to the apparatus connected with the air trunk, this being an important consideration, for example, in the treatment of grain for manufacturing malt.

I claim as my invention:

1. The combination of a trunk having a slide-valve, means for actuating the valve including a shaft carrying a gear-wheel, and arranged transversely to the direction of movement of the valve, a rack-bar slidably supported on said trunk and meshing with said gear wheel, the rack bar being arranged at right angles to said shaft, and an indicator carried by said rack-bar.

2. The combination of a trunk having a valve, means for actuating the valve including a shaft having a gear wheel, a track adjacent to said trunk, a carriage running upon said track, a rack-bar supported by said carriage and engaging said gear wheel, and a pointer carried by said rack-bar.

3. The combination of a conduit having a valve, means for actuating the valve including a shaft having a gear-wheel, a track secured to the outer side of the conduit and having a longitudinal slot, a carriage running upon said track, a rack-bar arranged on the underside of said track and suspended from said carriage by connections passing through said slot, said rack-bar engaging said gear wheel, and a pointer carried by the rack-bar.

4. The combination of a conduit having a valve, means for actuating the valve including a shaft having a gear-wheel, a track secured to the outer side of the conduit and having a longitudinal slot, a carriage running upon said track, a rack-bar on the underside of said track suspended from said carriage and engaging said gear wheel, and a pointer carried by the rack-bar and extending through said track-slot.

5. The combination of a trunk having a scale, a slide-valve in the trunk movable lengthwise thereof and having a rack-bar, a track secured lengthwise to the outer side of the trunk, a carriage running upon said track, a rack-bar suspended from said carriage, a pointer carried by the last-named rack-bar and traversing said scale, and an operating shaft having gear wheels engaging said rack bars, respectively.

Witness my hand this 12th day of October, 1908.

FREDERICK H. C. MEY.

Witnesses:
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