

(No Model.)

2 Sheets—Sheet 1.

H. P. CHAPMAN.

BOILER ATTACHMENT FOR OPERATING THE TEST COCKS.

No. 301,432.

Patented July 1, 1884.

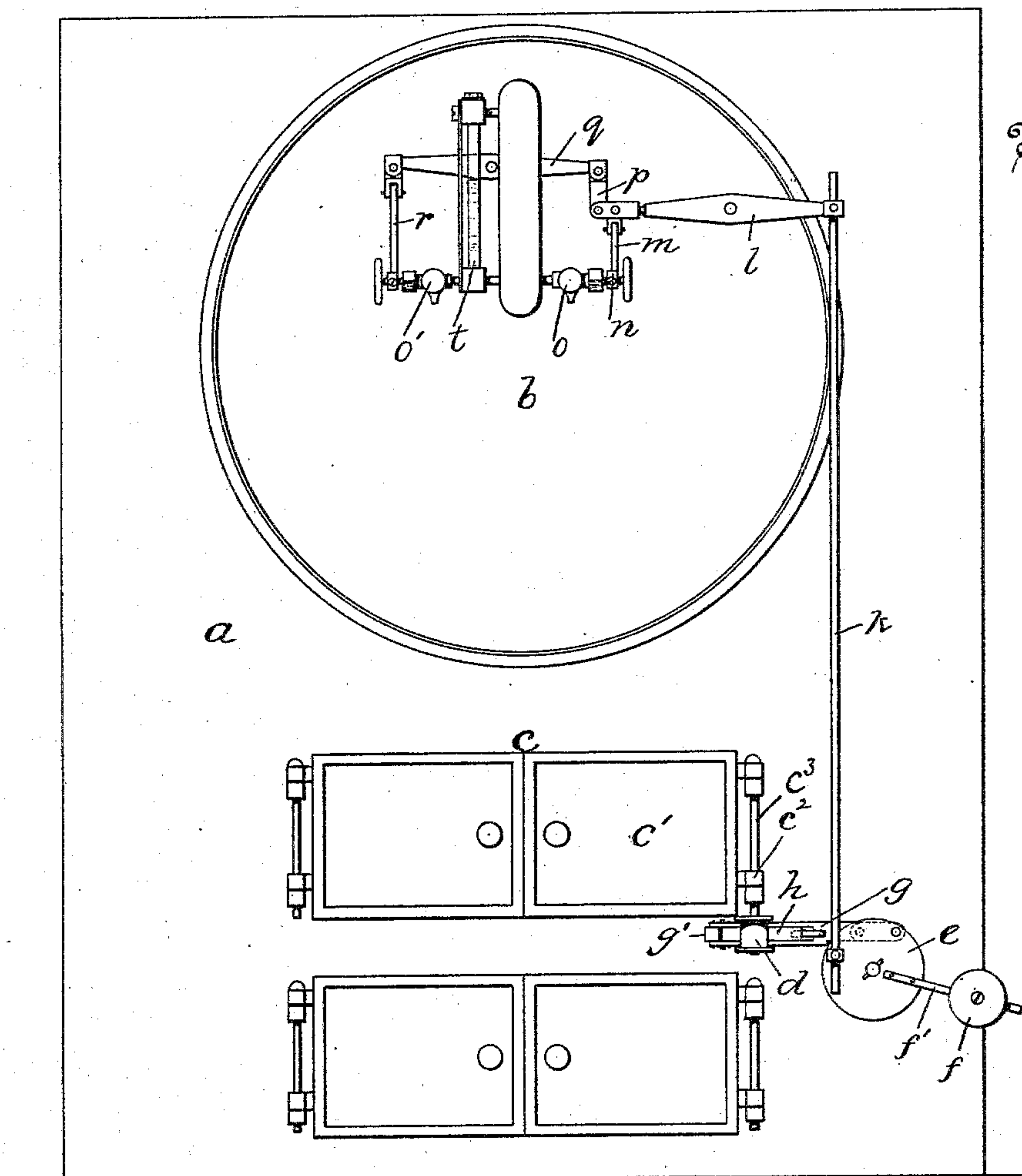


Fig. 1.

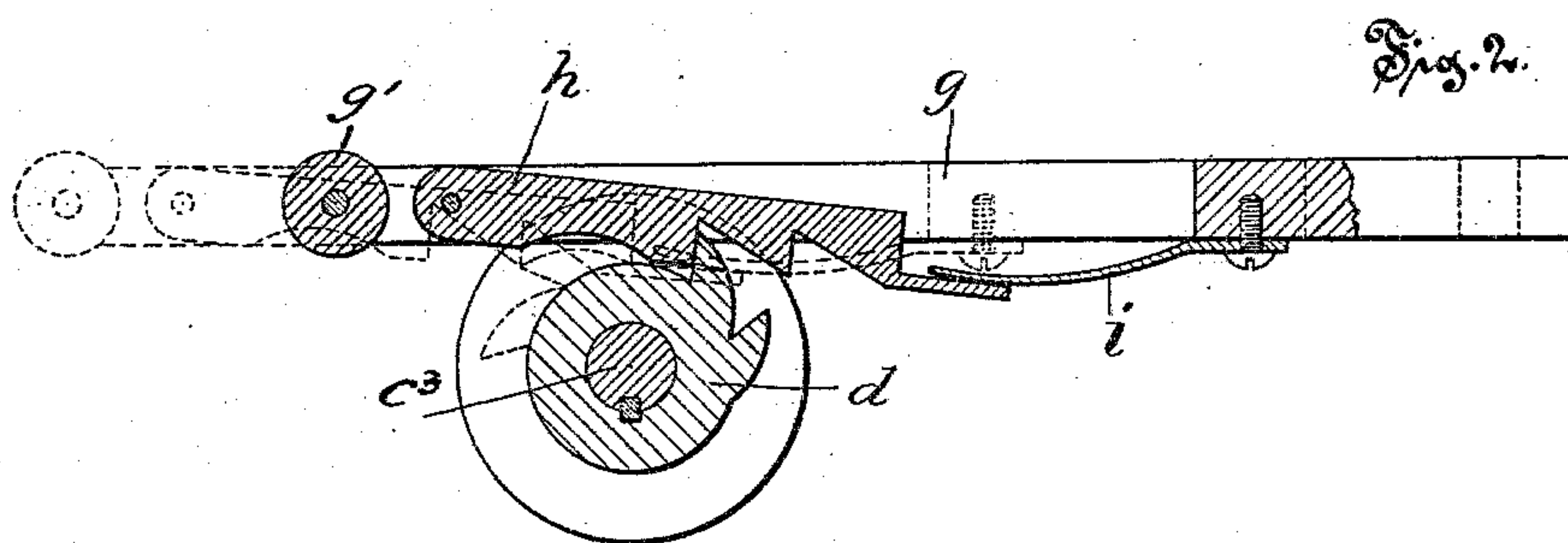


Fig. 2.

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(No Model.)

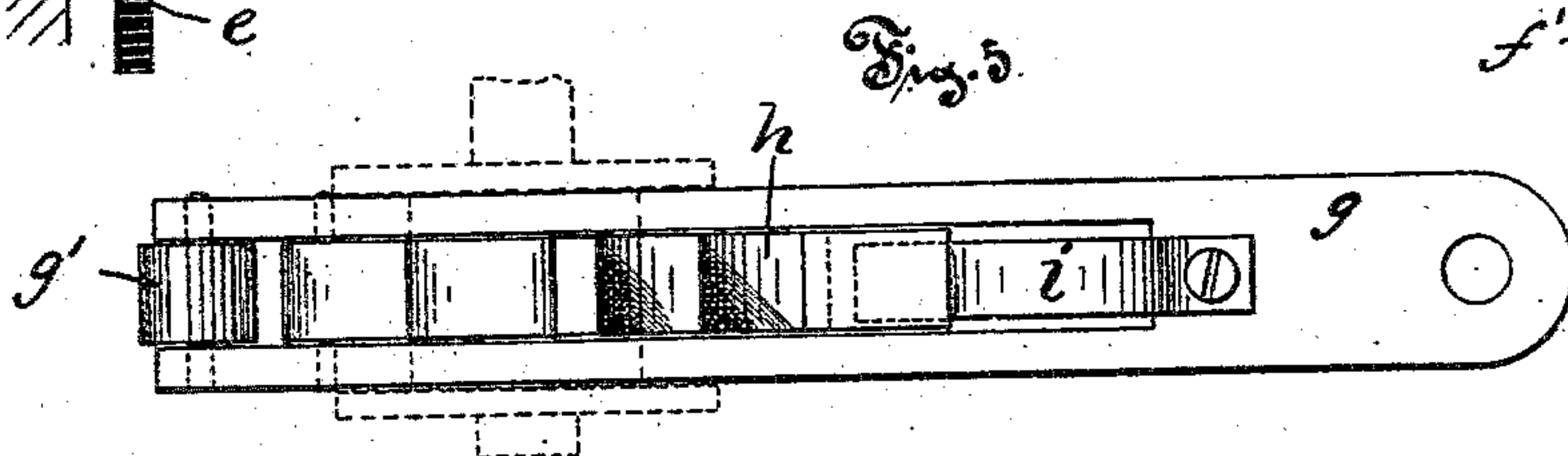
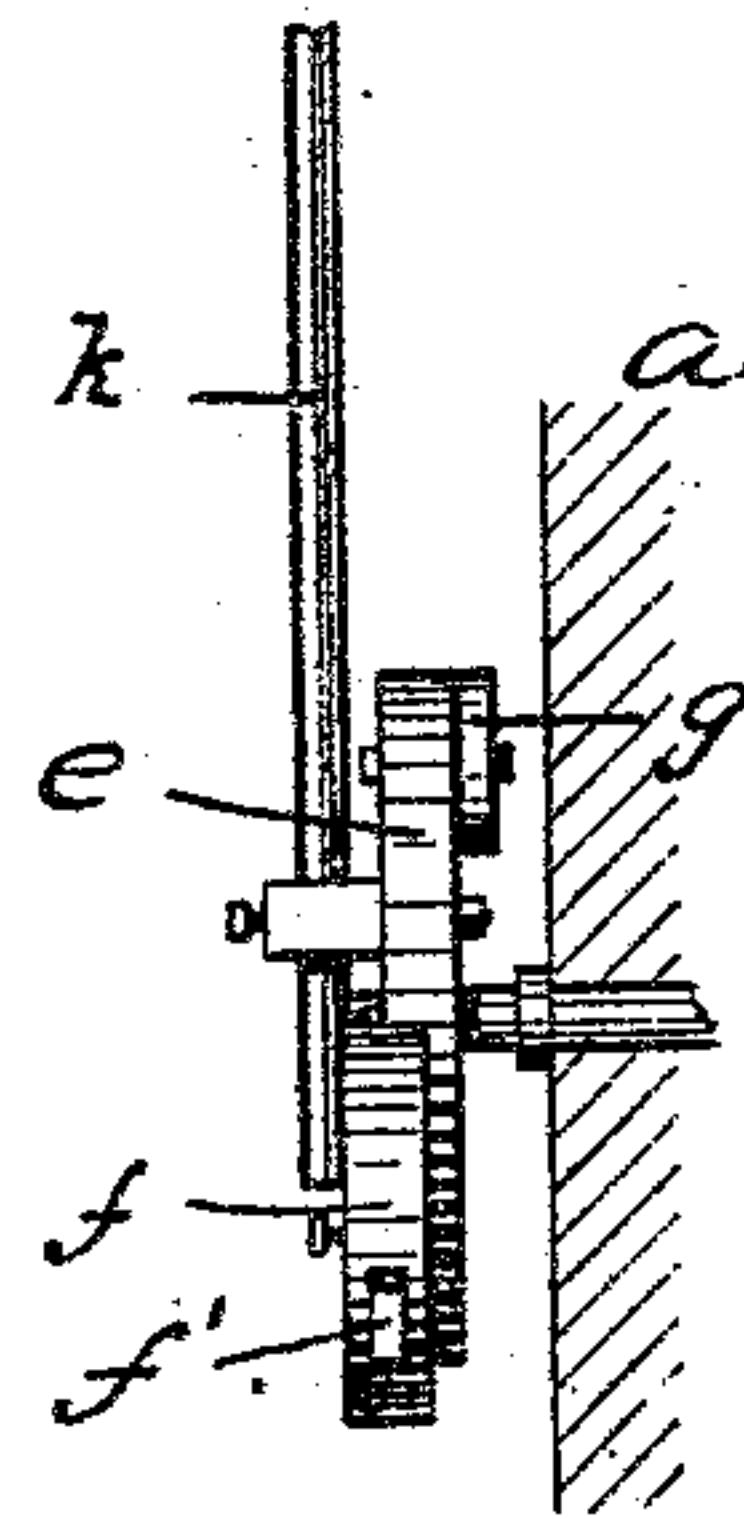
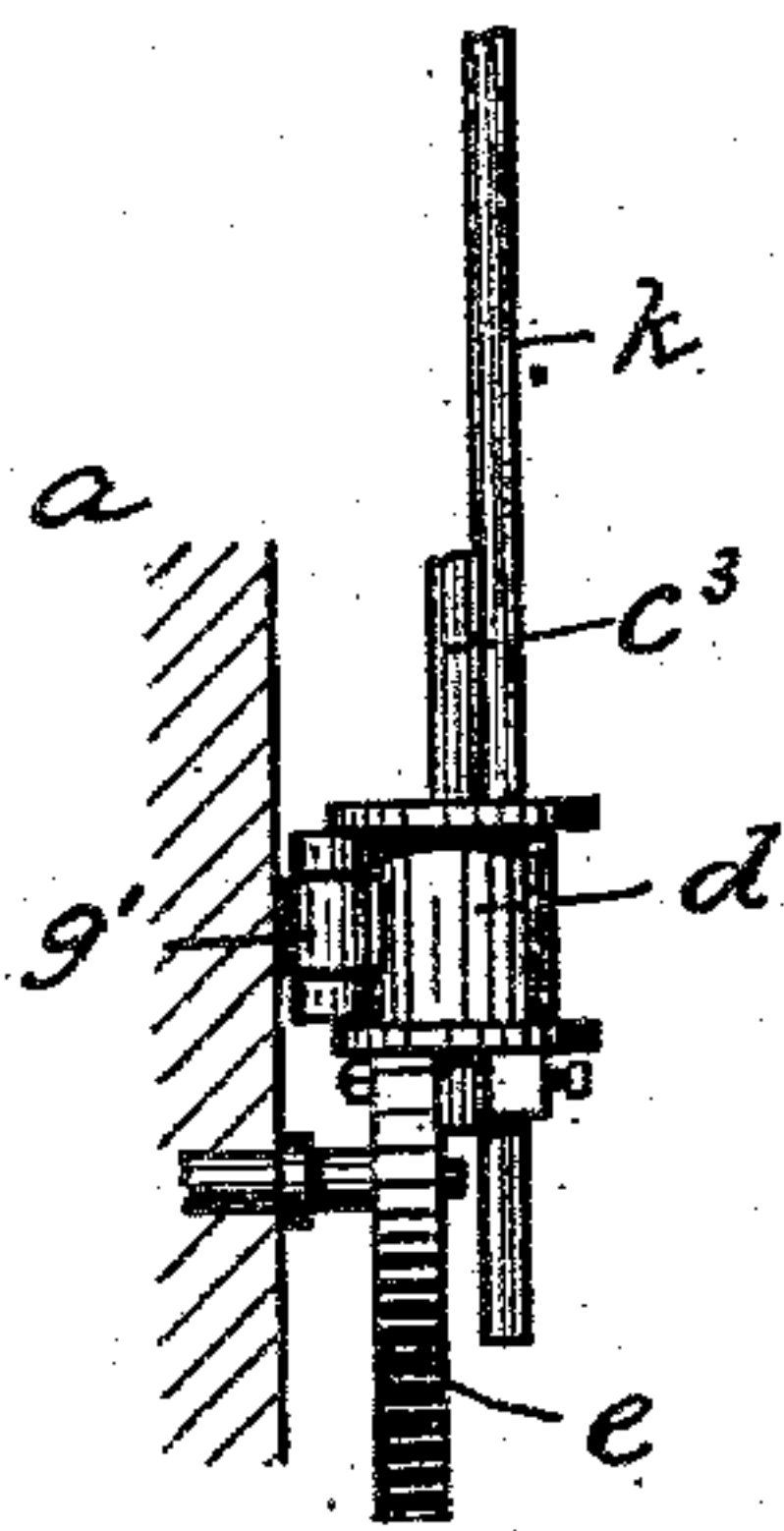
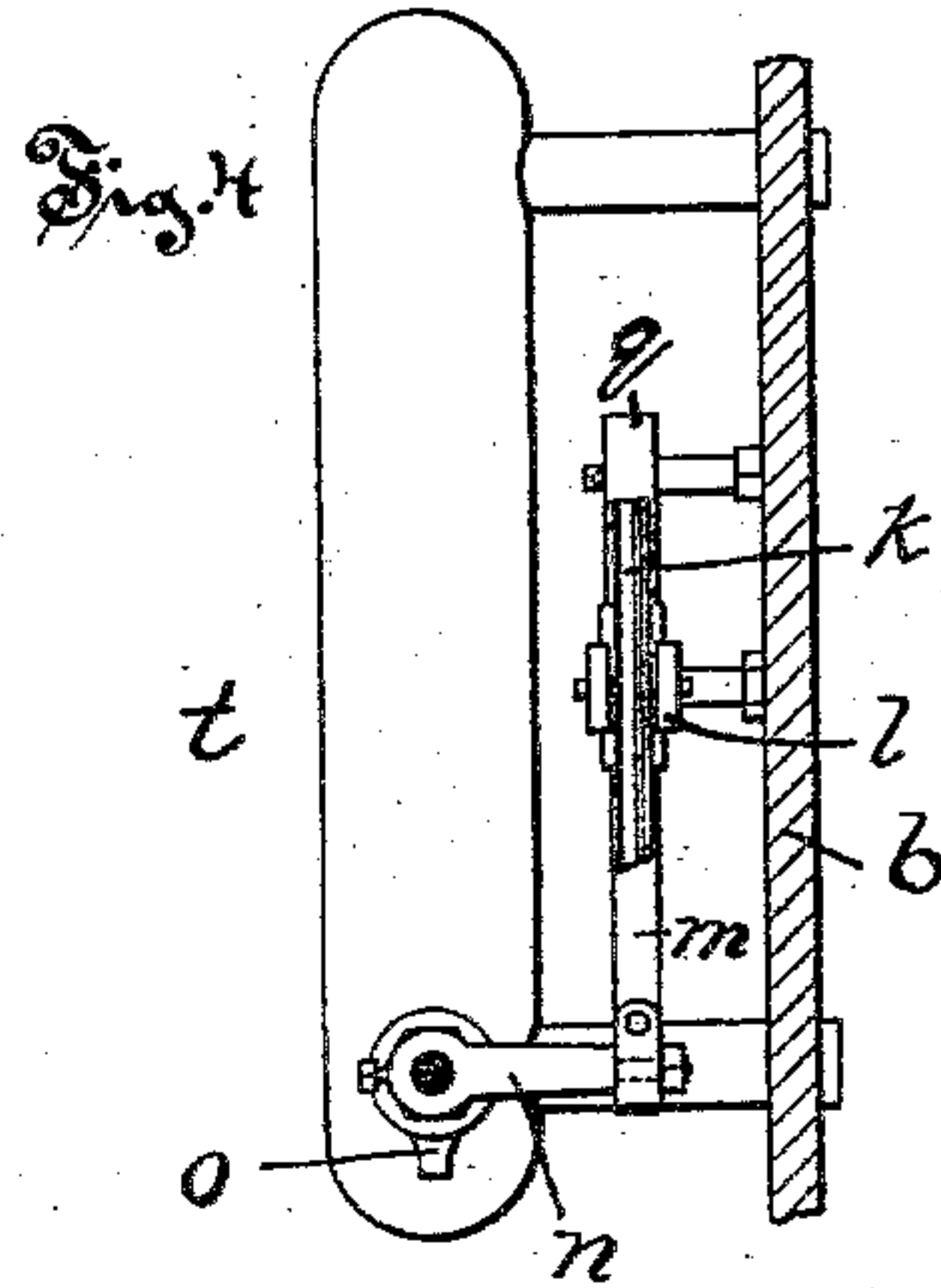
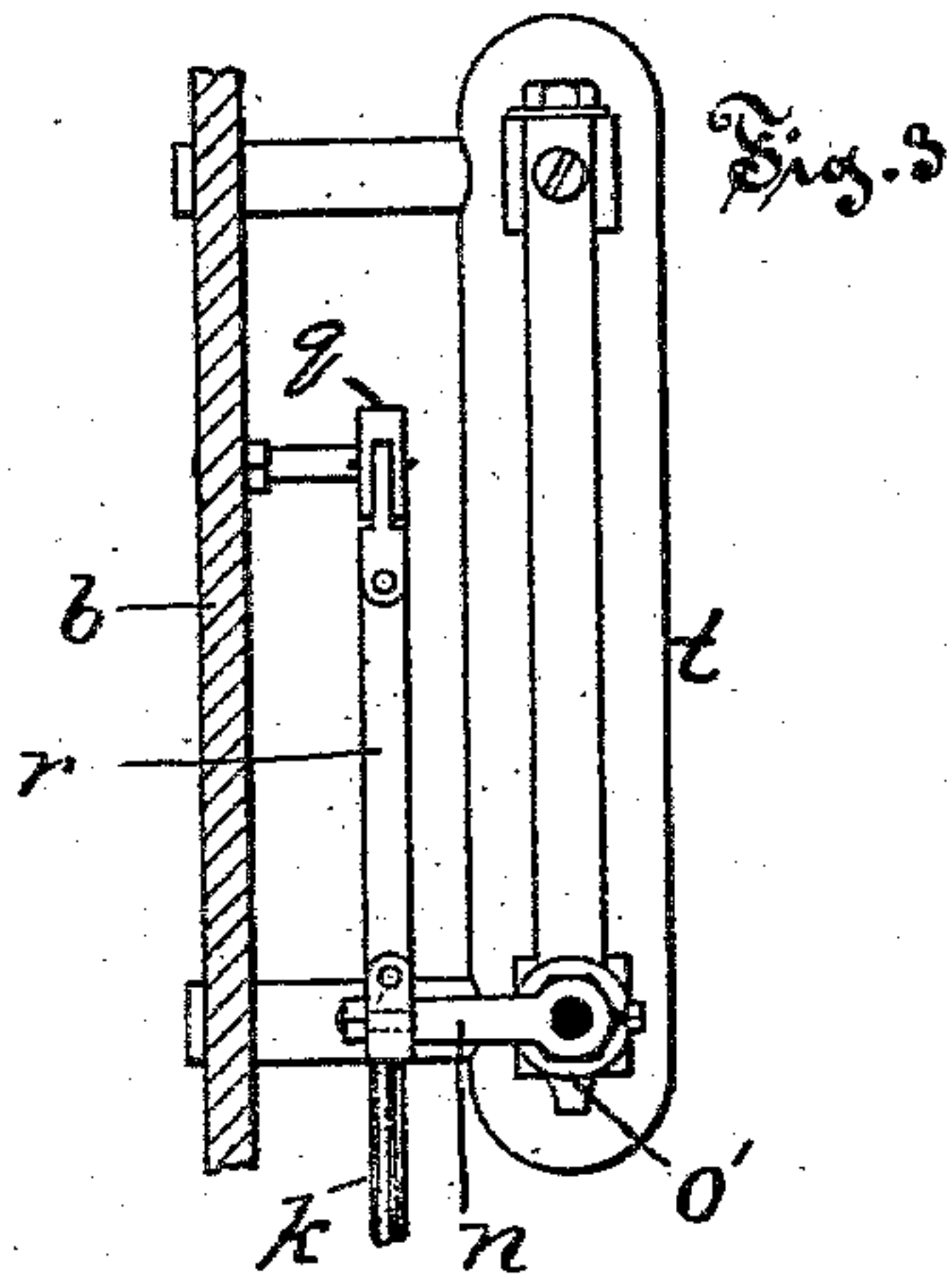
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UNITED STATES PATENT OFFICE.

HENRY P. CHAPMAN, OF ESSEX, CONN., ASSIGNOR OF ONE-HALF TO LORENZO D. WEBBER AND FERDURN H. WEBBER, BOTH OF SAME PLACE.

BOILER ATTACHMENT FOR OPERATING THE TEST-COCKS.

SPECIFICATION forming part of Letters Patent No. 301,432, dated July 1, 1884.

Application filed December 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY P. CHAPMAN, of Essex, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Boiler Attachments for Operating the Test-Cocks; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

Figure 1 is a front view of my device as applied to the front of a boiler and furnace. Fig. 2 is a detail top view of the slide-bar and ratchet-wheel on enlarged scale. Fig. 3 is a detail side view of the boiler-front and connected mechanism seen from the left, part broken away. Fig. 4 is a detail side view of the same as seen from the right side. Fig. 5 is a detail front view of the slide-bar and pawl, the ratchet-wheel shown in dotted lines.

Great difficulty has been heretofore experienced and no inconsiderable danger incurred by the failure of the water-glass on boilers to truly indicate the water-level, and this danger is largely caused by the clogging of the glass and its tubular connections with the boiler by scale, sediment, and the like. The best remedy for this difficulty has been the frequent opening of the test-cocks of the glass; and my invention consists of an automatic device attached to the boiler or furnace front, that opens and closes the test-cocks of the water-glass every time the furnace-door is opened.

In the accompanying drawings, the letter *a* denotes a furnace-front of ordinary construction, *b* the boiler-head, and *c* the furnace or grate door. (Shown here in two leaves.) One leaf, as *c'*, has the hinge *c''* fast to the pivot *c'''*, on which the door hinges, and this pivot, turning freely in the lugs on the fixed front, rotates the toothed ratchet-wheel *d*, fast to its lower end, whenever the door *c'* is opened. A wheel, *e*, so pivoted to the furnace-front as to rotate to a certain degree, bears the counterpoise *f*, adjustably attached to the arm *f'*, fast to the wheel, and is to a certain de-

gree connected by means of the sliding bar *g* to the ratchet-wheel *d*. This bar bears the friction-roll *g'* at its inner end, adapted to slide on the furnace-front, and is located and operates between the wheel *d* and that front, the ratchet *h* being pivoted to the bar, and by spring *i* maintained in contact with the wheel in such manner that the teeth on the ratchet and pawl will intermesh.

The connecting-rod *k* is pivotally connected to the wheel *e*, and with the lever *l* pivoted to the boiler-front, and by connecting-rod *m* pivoted to the arm *n*, fast to the stem of the test-cock *o* of the water-glass *t*, which is of ordinary construction. The lever *l* is also connected by means of rod *p*, lever *q*, and arm *r* to the stem of the test-cock *o'*, these parts being all pivotally connected for the transmission and translation of motion.

My device operates as follows: The parts being connected and arranged as described, the opening of the door turns the pivot and rotates the ratchet, whose teeth engage the teeth of the pawl and slide the bar. This rotates the wheel *e* and lifts the counterpoise, at the same time pulling down the outer end of lever *l* and raising the inner end, that lifts the arm *n* and opens the cock *o*, and also the cock *o'*. The teeth on the ratchet are so arranged that after the bar has moved forward a certain distance the teeth are disengaged from the pawl and the bar is moved back by the falling counterpoise, and this backward motion closes the test-cocks by a reverse motion of the connected parts.

It is obvious that this result may be accomplished by the use of other connecting mechanism and devices for transmitting motion, the main feature of my invention consisting of the utilization of the motion of the furnace-door for opening the test-cocks, and of a spring or counter-balance for closing them, and the test-cocks may be those of the water-glass, or any others attached to the boiler.

I claim as my invention—

1. In combination with a steam-boiler and furnace, the door of the furnace, connected intermediate mechanism that transmits and translates the motion of the door in opening, the test-cocks attached to the boiler, and a

counterpoise or its equivalent whereby the test-cocks are closed, all substantially as described, and for the purpose set forth.

2. In combination with a steam-boiler and
5 furnace, the furnace-door having the pivot bearing the ratchet-wheel, the sliding bar bearing the pawl, the wheel pivotally connected to the bar and the lever, the counterpoise, the

connecting-rod, the arm fast to the valve-stem, and the test-cock of the water-glass or boiler, all substantially as described, and for the purpose set forth.

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Witnesses:

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