

No. 624,234.

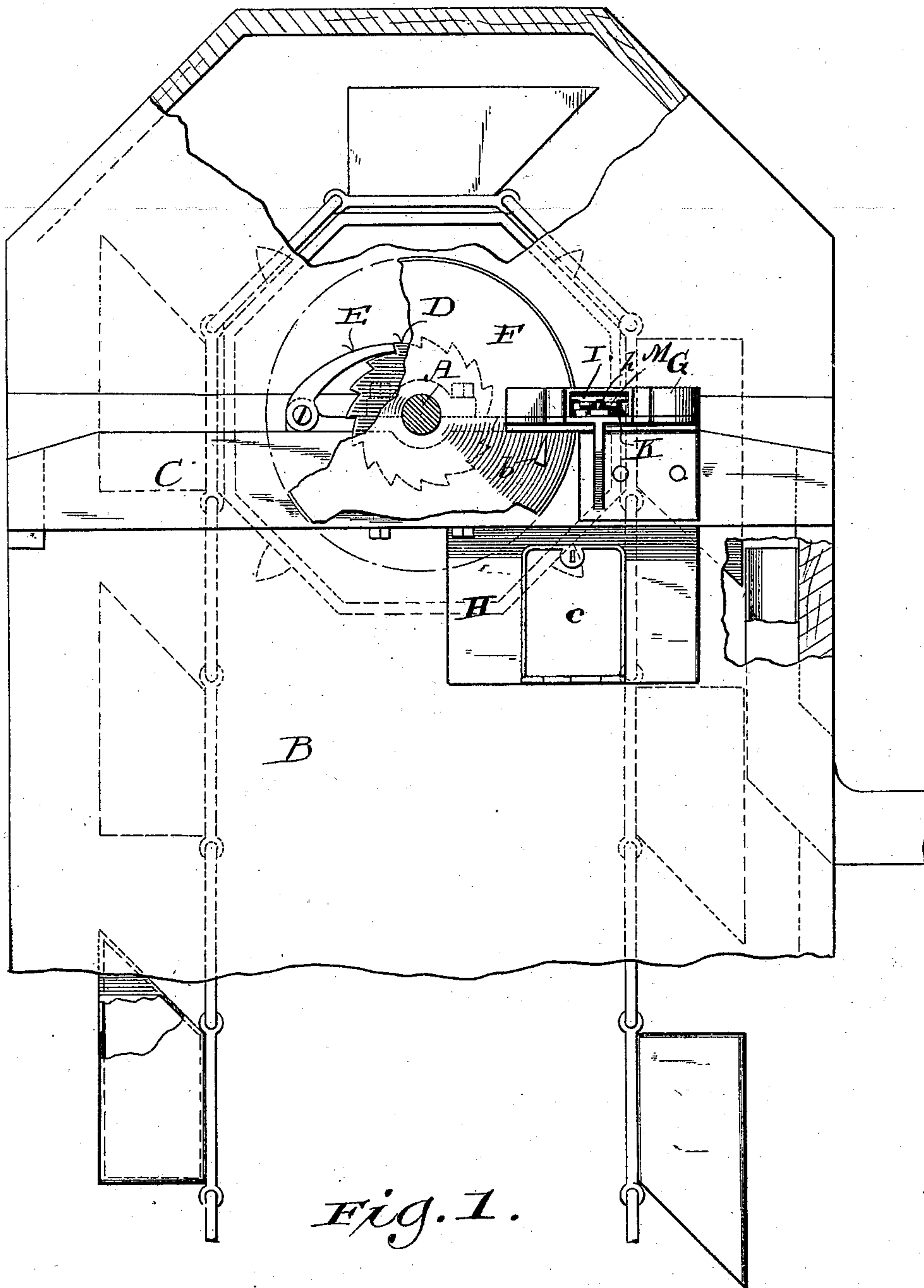
Patented May 2, 1899.

F. W. MOLDENHAUER.
CREAMERY OR CHEESE FACTORY APPLIANCE.

(Application filed Feb. 13, 1899.)

(No Model.)

3 Sheets—Sheet 1.



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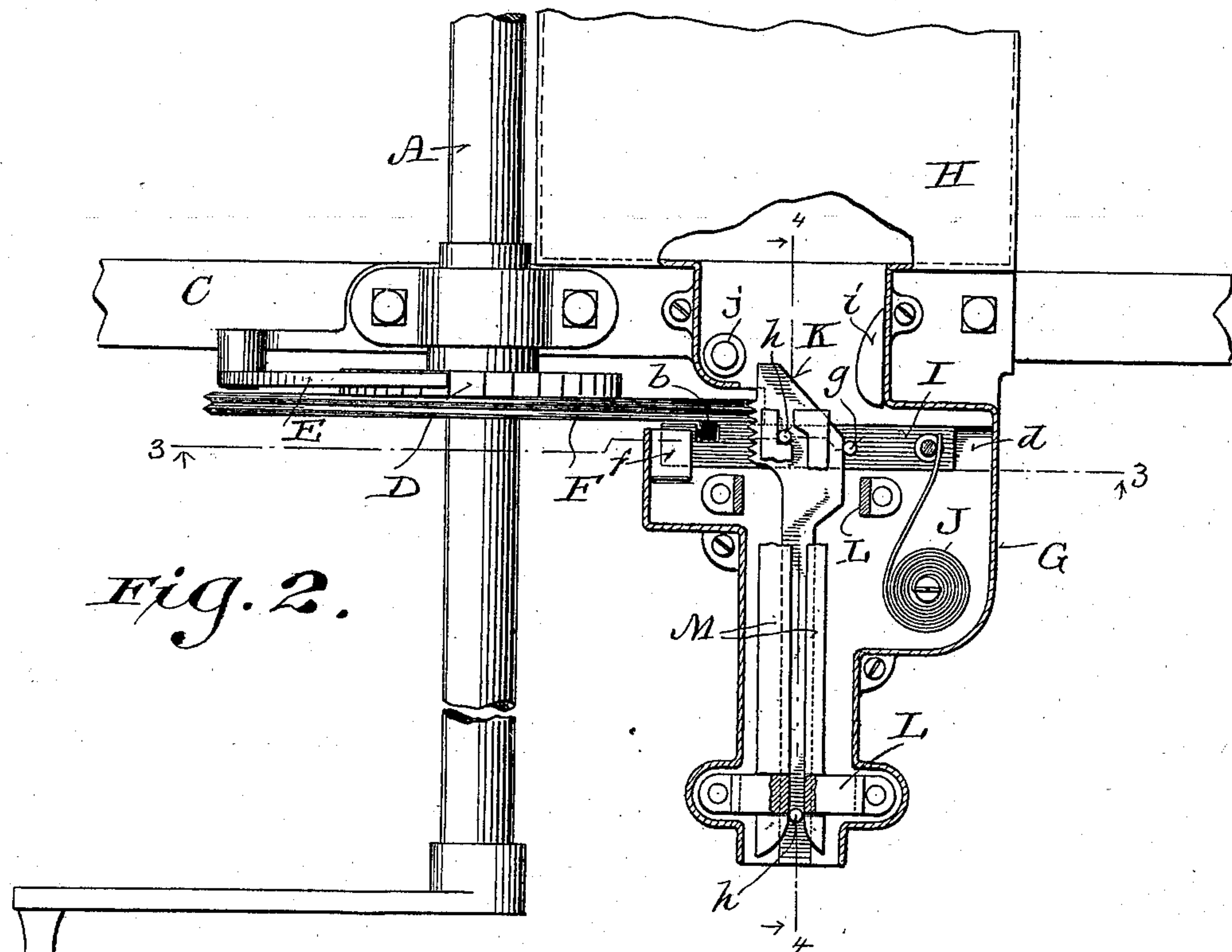


Fig. 2.

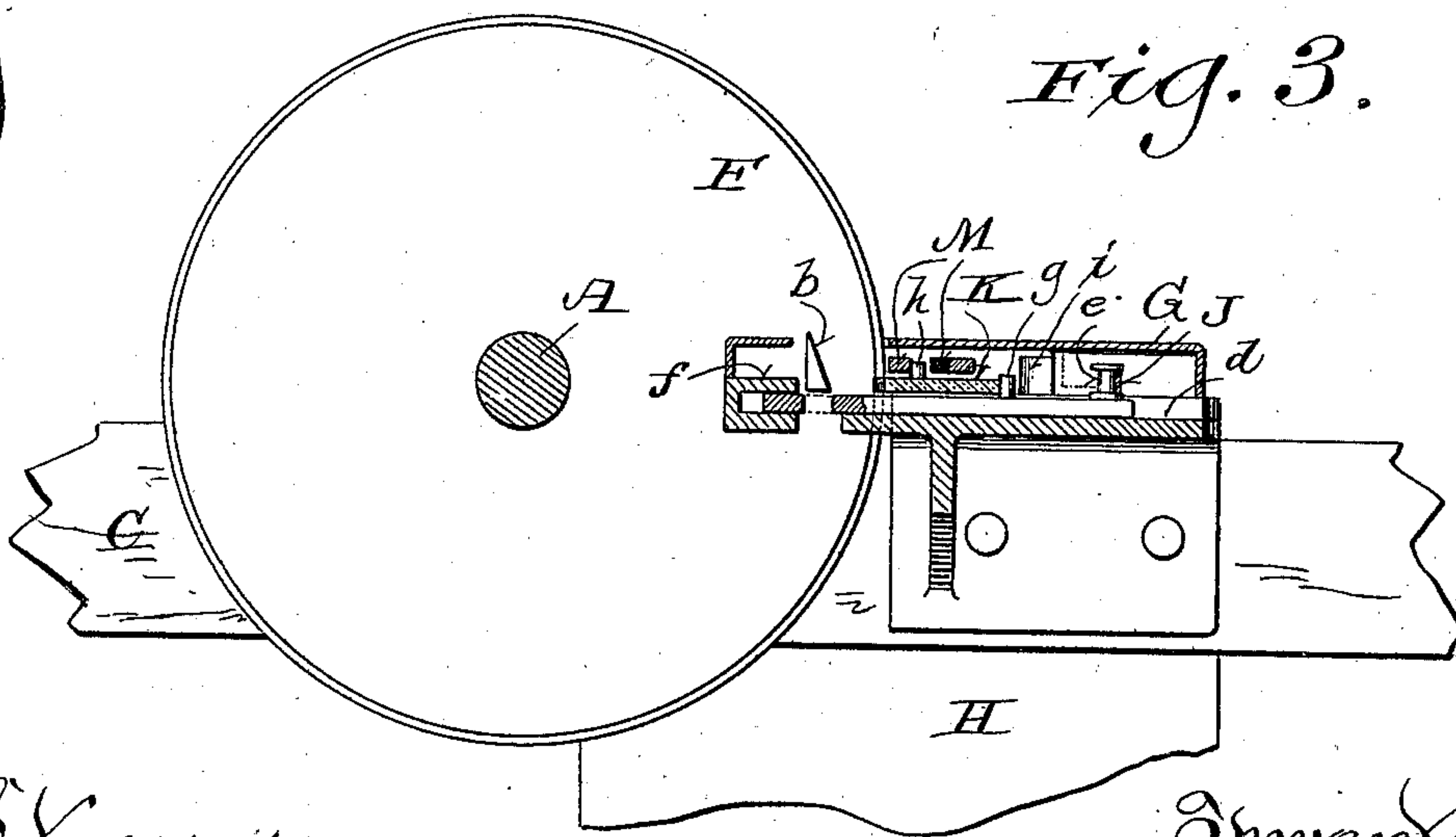


Fig. 3.

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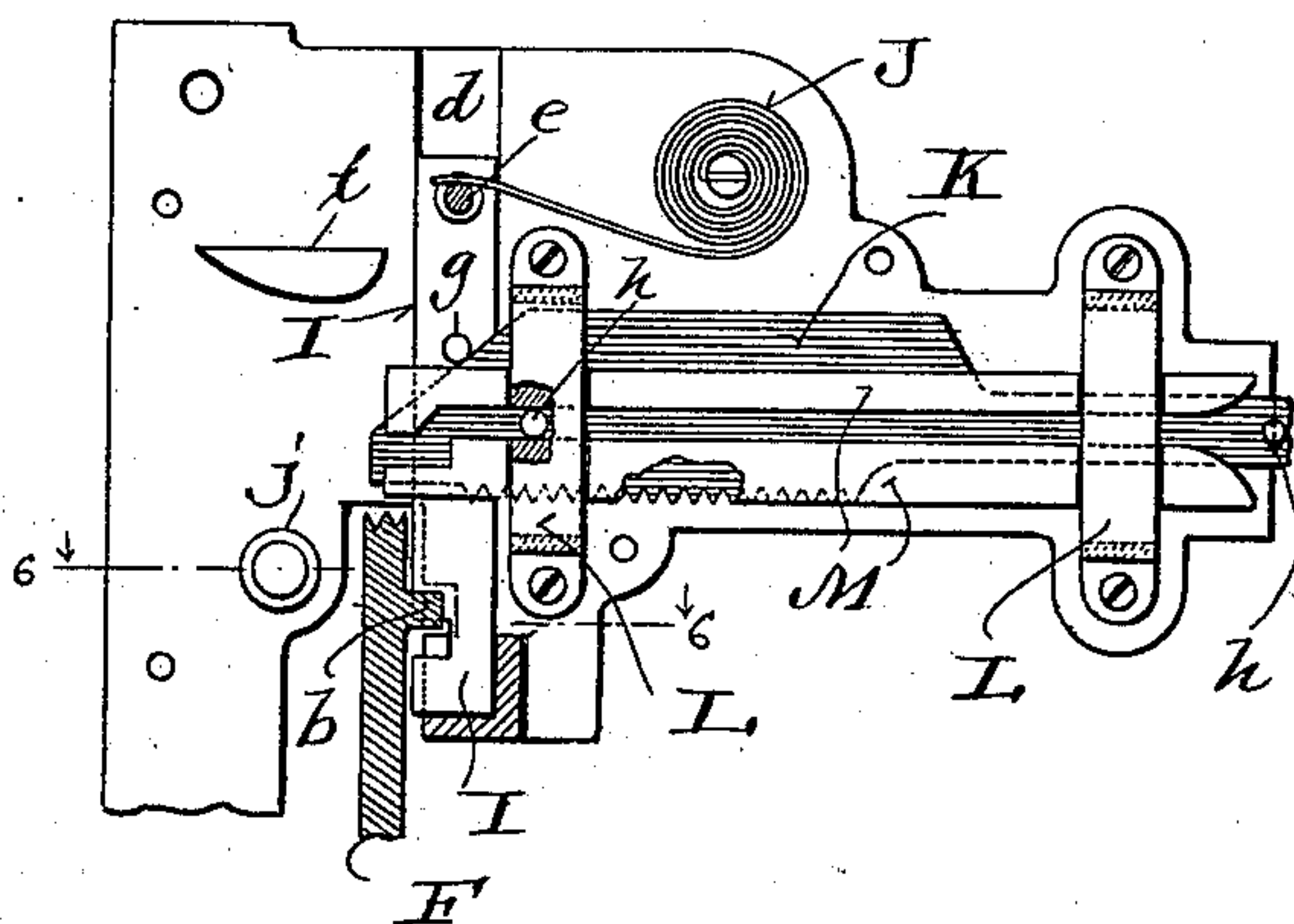
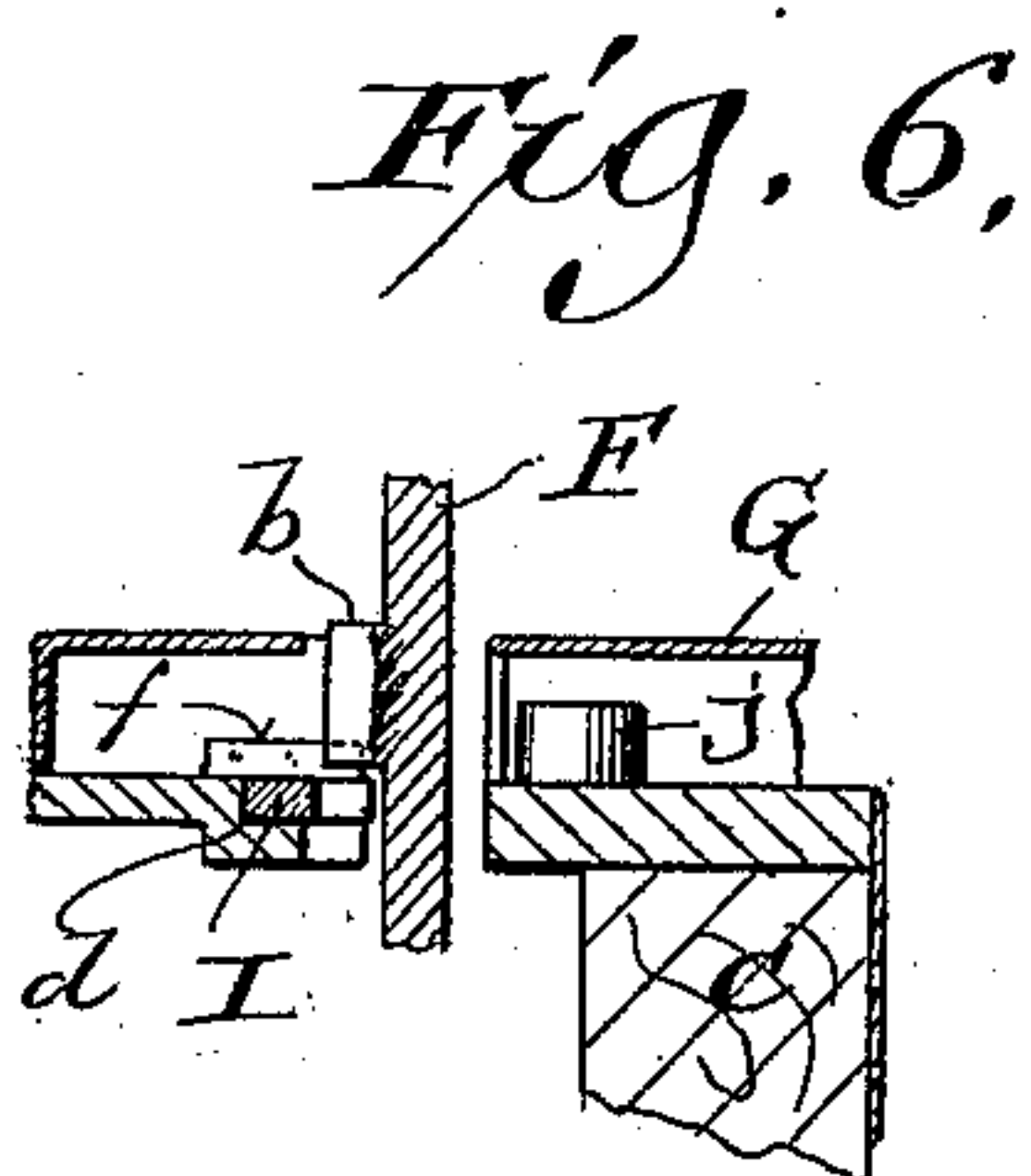
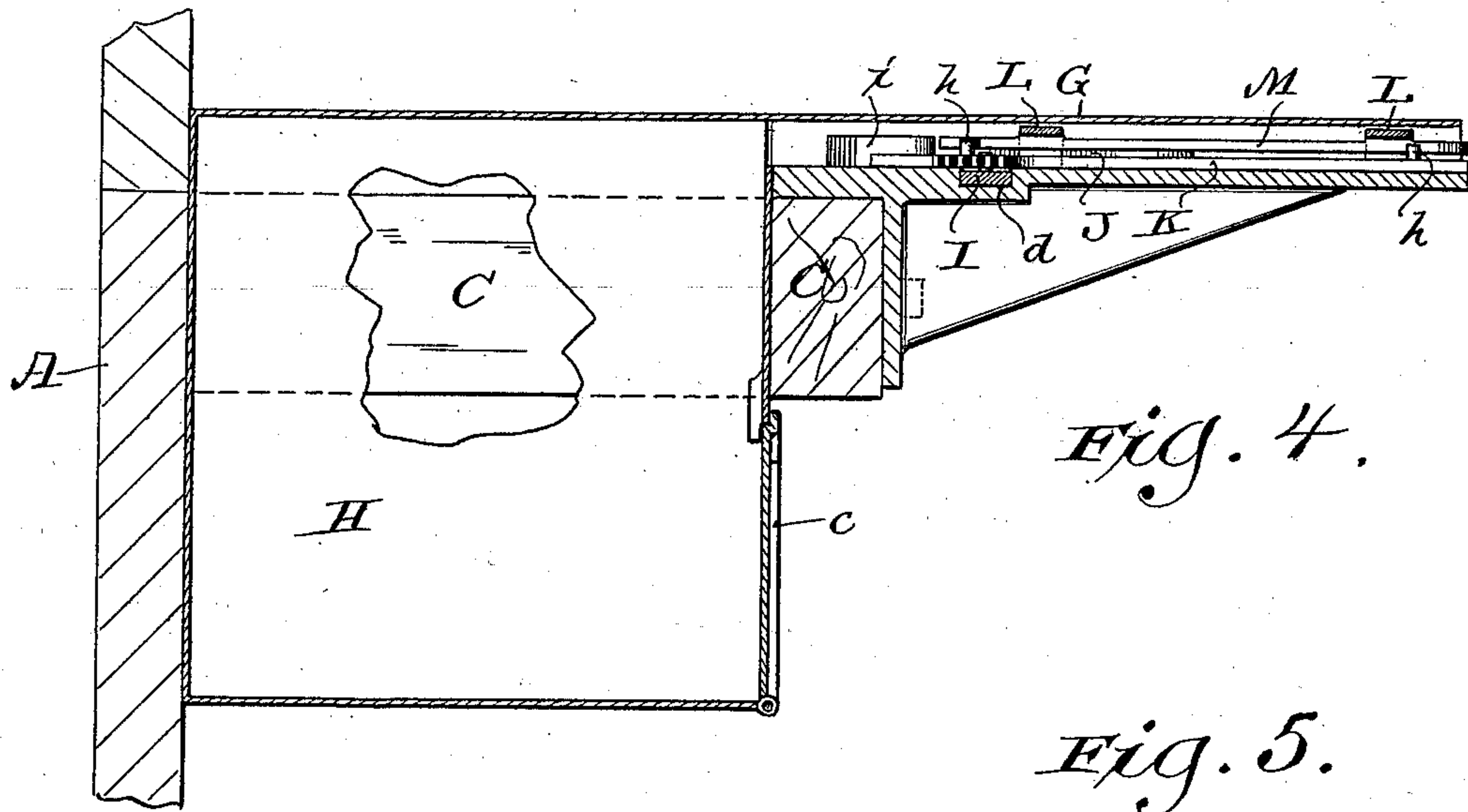
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UNITED STATES PATENT OFFICE.

FREDERICH W. MOLDENHAUER, OF OCONOMOWOC, WISCONSIN.

CREAMERY OR CHEESE-FACTORY APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 624,234, dated May 2, 1899.

Application filed February 13, 1899. Serial No. 705,401. (No model.)

To all whom it may concern:

Be it known that I, FREDERICH W. MOLDENHAUER, a citizen of the United States, and a resident of Oconomowoc, in the county of Waukesha and State of Wisconsin, have invented certain new and useful Improvements in Creamery or Cheese-Factory Appliances; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to prevent dairymen from overdrawing their allowance of skim-milk or whey from the waste-tank of a creamery or cheese-factory. Therefore it consists in certain peculiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings represents a side elevation of a portion of an elevator-pump provided with mechanism whereby its shaft is limited to a variable predetermined number of revolutions in a direction necessary to elevate and empty buckets; Fig. 2, a detail plan view, partly in horizontal section, illustrating the pump-shaft and said mechanism; Fig. 3, a detail sectional view indicated by line 3 3 in the preceding figure; Fig. 4, a similar view indicated by line 4 4 in the second figure; Fig. 5, a view similar to said second figure, illustrating another position of a movable key constituting part of the aforesaid mechanism; and Fig. 6, a detail sectional view indicated by line 6 6 in the preceding figure.

Referring by letter to the drawings, A indicates the upper chain-wheel shaft of an ordinary elevator-pump, this shaft being of unusual length and having that portion thereof extending beyond the curb B supported in a bearing on a framework C in connection with said curb. In practice the curb is set in a platform covering a skim-milk or whey tank constituting a fixture of a creamery or cheese-factory. The shaft is provided with a ratchet-wheel D, and a pivotal detent E is arranged to be engaged with the ratchet-wheel when it is desirable to hold said shaft against movement reverse to that necessary to elevate fluid material. The shaft is also provided with a disk F, having a worm periphery and a side lug b, the latter being preferably wedge-shaped,

as herein shown, for the purpose hereinafter specified.

Supported by framework C is a combined casing G and receptacle H, the latter having an opening therein that is closed by a door c, for which a lock and keeper are provided. The casing is made to obtain clearance for worm-disk F and provided with a side opening facing the periphery of said disk. A transverse guide-groove d is provided in the bottom of the casing for a notched slide I, and a lug e, rising from that end of the slide farthest from its notch, is opposed by a spring J under tension in said casing.

The slide shown has a portion of its notch in normal register with a bottom opening of the casing, through which the disk-lug b may pass when said slide is held back against the resistance of the spring J to bring said notch into full register with the bottom opening in said casing. When in normal position, the slide constitutes a stop in the path of the butt-end of the disk-lug b and prevents rotation of shaft A in the direction necessary to elevate filled buckets; but said lug being wedge shape it will crowd back said slide and pass the same when said shaft is revolved in an opposite direction to that aforesaid, inasmuch as the point of the aforesaid lug is on the same circle as so much of the slide-notch that is normally in register with the adjacent bottom opening in the aforesaid casing.

While I have shown an organization of parts that permits reverse movement of the shaft A, so that the pump-buckets may operate to break up partly-frozen milk in a tank in which said buckets circulate without raising any of the tank contents, it is obvious that the disk-lug may be other than wedge shape and that the slide in normal position may entirely cover the adjacent opening in the bottom of the aforesaid casing.

The notched end of the slide plays under a guard-flange f, extending in from a wall of casing G, and a vertical lug g on said slide is arranged to be in the path of one edge of a key K, such as is hereinafter more particularly specified.

Supported in casing G by transverse offset straps L, made fast to the bottom of said casing, are longitudinal parallel guide-bars M for vertical key-lugs h, and forward of the

guide-bars said casing is provided with a guard-rib *i* and an antifriction-roller *j*, this rib and the roller being opposite each other. Beyond the guard and antifriction-roller the casing is open to the receptacle H, and the keys K successively accumulate in said receptacle.

One of the guide-bars M has a right-angled inner notch at its forward end, and the opposite bar is provided with a shoulder extending toward said notch.

Each key K is a plate presenting a beveled forward corner, an opposite straight notch, a series of teeth in rear of the notch, and abrupt shoulders immediately succeeding the teeth, and an opposite straight edge in rear of said beveled corner. The casing G is provided with an opening for insertion of a key, and the latter being pushed forward its beveled corner will operate against lug *g* on slide I to retract the latter, and thus uncover the opening in the casing-bottom through which the lug *b* of worm-disk F has clearance. By the time the beveled corner of the key clears the slide-lug *g* the forward lug *h* of said key will be opposite the notch in one of its guide-bars against the shoulder of the opposite guide-bar, and the spring will have opportunity to shoot slide I far enough to cause engagement of the toothed surface of said key with the worm-disk, as shown in Fig. 2.

Now as the shaft A is turned in the proper direction the pump-buckets will elevate and discharge the skim-milk or whey until the teeth of the key pass out of engagement with the worm-disk, at which time the lug *g* of slide I will be cleared by the shoulder of the bevel-corner edge of said key and the spring J will operate to shoot said slide to normal position as a stop in the path of the disk-lug. The next key pushes the one previously in action ahead into the receptacle H, the guard-rib *i* and antifriction-roller preventing any cramping on the part of a key or damage to its teeth when moving toward said receptacle.

There is a predetermined number, more or less, of teeth to each key, and the latter moves one tooth ahead with each revolution of the pump-shaft. Therefore it follows that as all the pump-buckets have the same capacity a known quantity of milk or whey will be elevated and discharged during the time required for the worm-disk to move a key a distance proportionate to all its teeth. In other words, assuming that each pump-bucket has two pounds capacity and four of these buckets are elevated and discharged their contents at each revolution of the shaft aforesaid it will require that a key having five teeth be utilized by a dairyman entitled to forty pounds of skim-milk or whey from the tank in which the pump-buckets circulate, and a dairyman entitled to two hundred pounds of said milk or whey will require a twenty-five-tooth key, said keys being furnished the dairymen when they deliver new milk to a creamery or cheese-factory having apparatus similar to

that herein shown and described in connection with the waste-tank. Each key may be numbered to show the pounds of skim-milk or whey that may be obtained by an operation similar to that above described.

While an elevator-pump has been specified, the shaft A may be operative in connection with a lift, suction, or other form of pump suitable to my purpose, and there may be changes in matters of detail herein set forth without departure from my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A rotary pump-shaft provided with a disk having worm periphery and a side lug, a casing having clearance for the disk and its lug, and a spring-controlled slide in the casing constituting a lug-stop adapted to be operated by a toothed key-plate, the latter being inserted in a passage through said casing to retract the lug-stop and have subsequent engagement with the periphery of said disk, the contour of the key-plate being such that said lug-stop is free to resume its normal position at the time the aforesaid disk clears the teeth of said plate incidental to rotation of said pump-shaft.

2. An elevator-pump having the upper chain-wheel shaft thereof provided with a worm-disk, a wedge-shaped lug on a side of the disk, a casing having clearance for the disk and its lug, and a spring-controlled slide in the casing that normally closes part of the clearance for the disk-lug, this slide being moved out of the way of said lug by a toothed key-plate inserted in a passage through said casing and which has to have subsequent engagement with the worm periphery of said disk, the contour of the key-plate being such that said slide is free to resume normal position at the time the aforesaid disk clears the teeth of said plate incidental to rotation of said shaft.

3. A rotary pump-shaft provided with a disk having worm periphery and a side lug, a casing having clearance for the disk and its lug, a receptacle open to a passage through the casing and provided with an opening having a door locked in closed position, and a spring-controlled slide in the casing constituting a stop for the disk-lug, this slide being moved out of the way of said lug by a toothed key-plate inserted in said casing-passage to have subsequent engagement with the periphery of said disk, the contour of the key-plate being such that said lug-stop is free to resume its normal position at the time the aforesaid disk clears the teeth of said plate incidental to rotation of said pump-shaft.

4. A rotary pump-shaft provided with a disk having worm periphery and a side lug, a casing having clearance for the disk and its lug as well as a passage containing a pair of parallel guide-bars one of which has a right-angled inner notch at its forward end and the other a shoulder extending toward said notch,

a guard-rib and an antifriction-roller arranged opposite each other in the aforesaid passage beyond the forward ends of the guide-bars, and a spring-controlled slide in the casing constituting a stop in the path of the disk-lug, this slide being actuated by a toothed key-plate having vertical lugs that move between said guide-bars, the plate being operative to retract the slide from position as a lug-stop and have subsequent engagement with the worm periphery of said disk, its contour being such that said slide is free to resume normal position at the time the teeth of said plate are clear of the aforesaid disk incidental to rotation of said pump-shaft.

5. An elevator-pump having its upper chain-wheel shaft provided with a ratchet-wheel, a pivotal detent for the ratchet-wheel, and a disk having worm periphery, a lug on a side of the disk, a casing having clearance

for the disk and its lug, and a spring-controlled slide in the casing constituting a lug-stop adapted to be operated by a toothed key-plate the latter being inserted in a passage through said casing operates to retract the lug-stop, and have subsequent engagement with the periphery of said disk, the contour of the key-plate being such that said lug-stop is free to resume its normal position at the time the aforesaid disk clears the teeth of said plate incidental to rotation of said pump-shaft.

In testimony that I claim the foregoing I have hereunto set my hand, at Oconomowoc, in the county of Waukesha and State of Wisconsin, in the presence of two witnesses.

FREDERICH W. MOLDENHAUER.

Witnesses:

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