

(No Model.)

4 Sheets—Sheet 1.

G. W. CLAYTON.
ELEVATOR.

No. 287,802.

Patented Nov. 6, 1883.

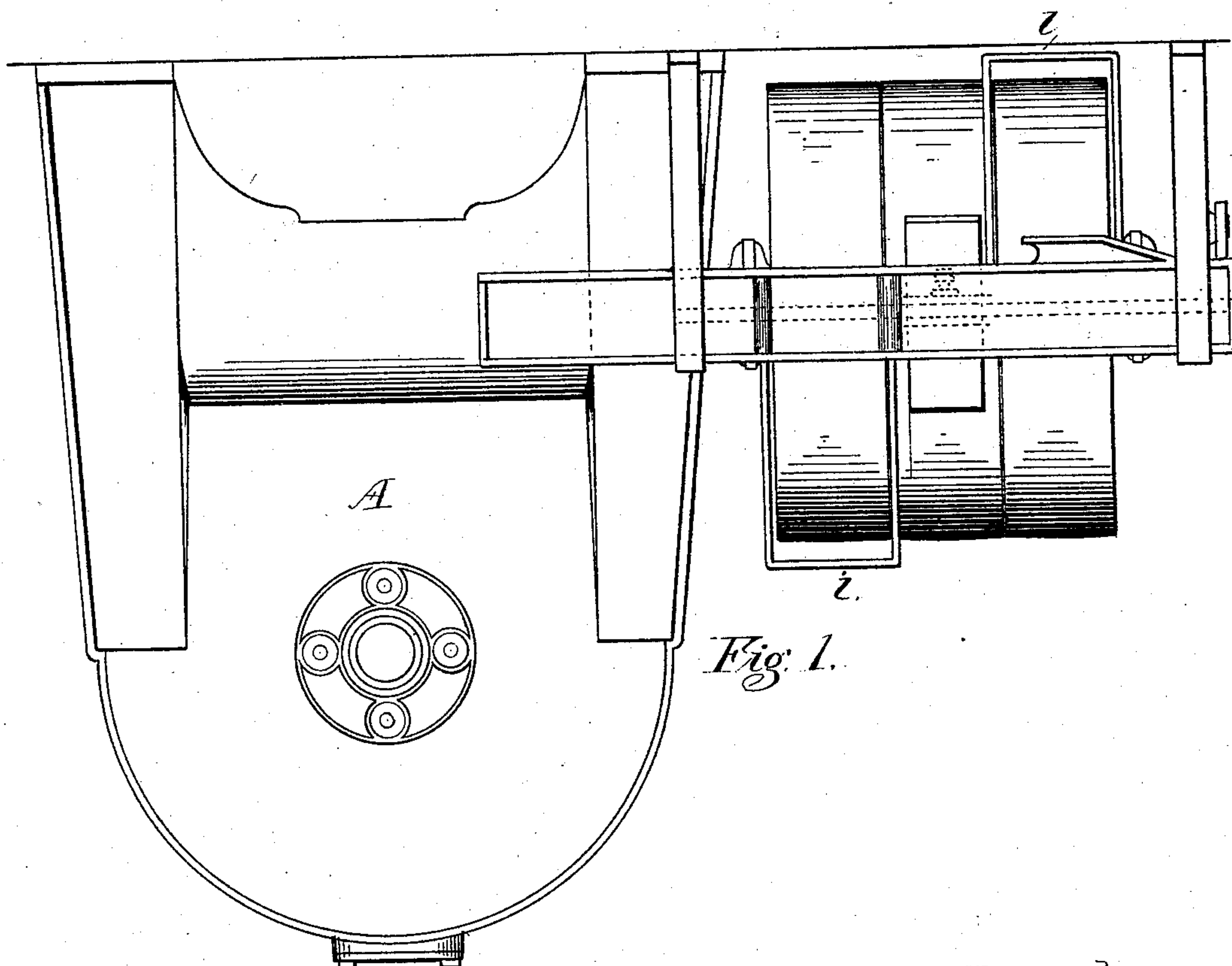


Fig. 1.

Witness,

James A. Marsh
E. H. Laird

Inventor,

Geo. W. Clayton.

By Geo. W. Tibbitts, Atty.

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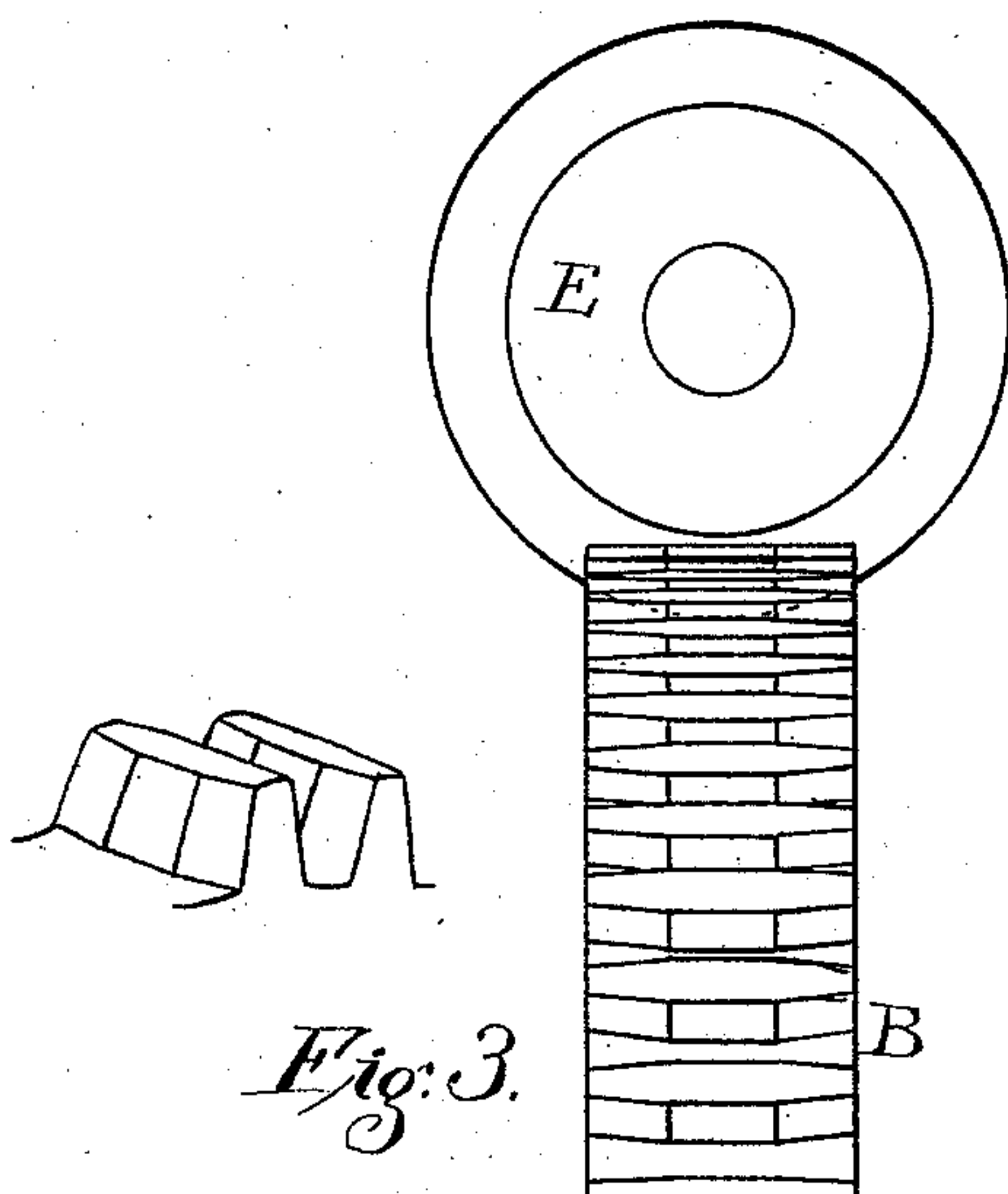


Fig. 3.

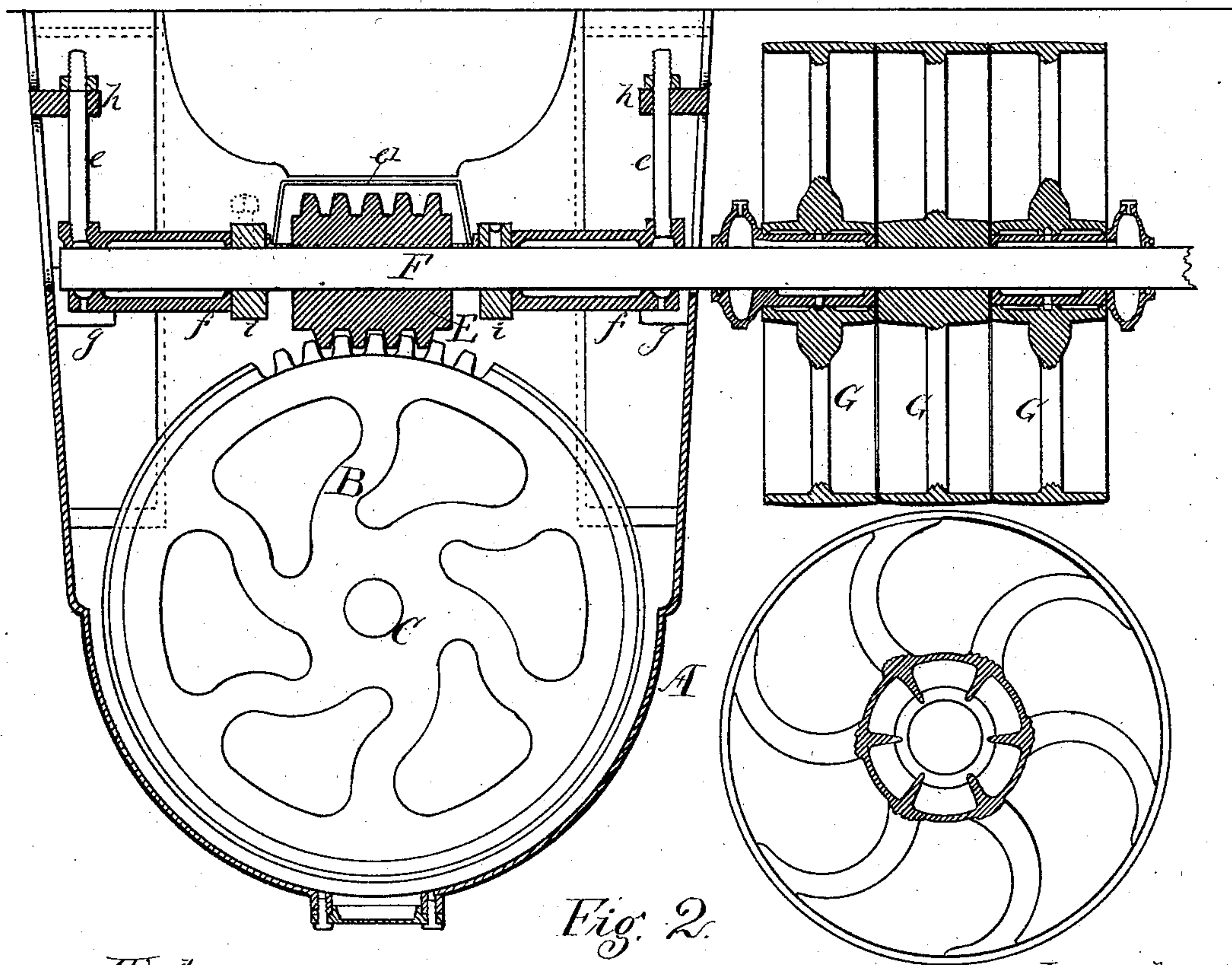


Fig. 2.

Witness,

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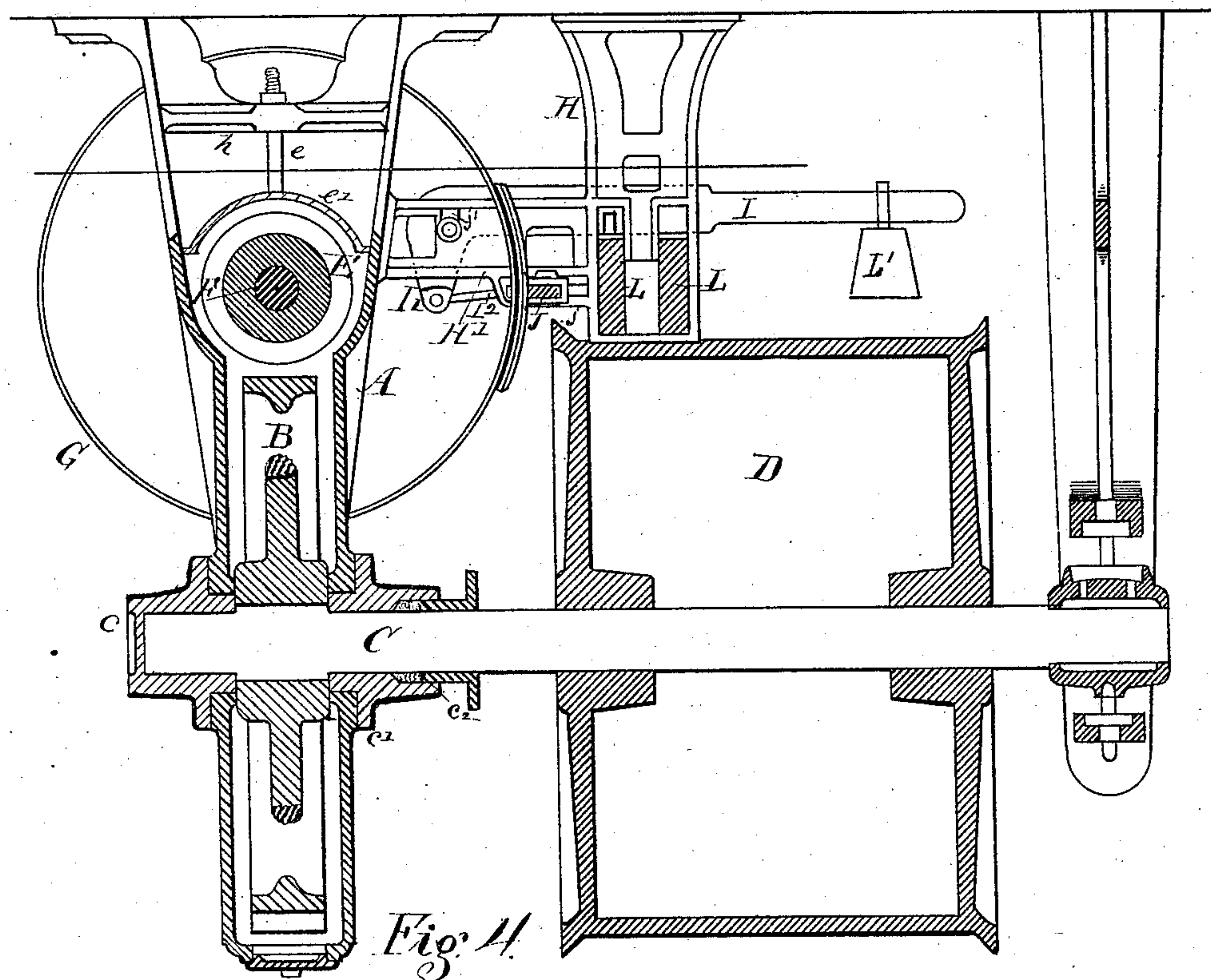
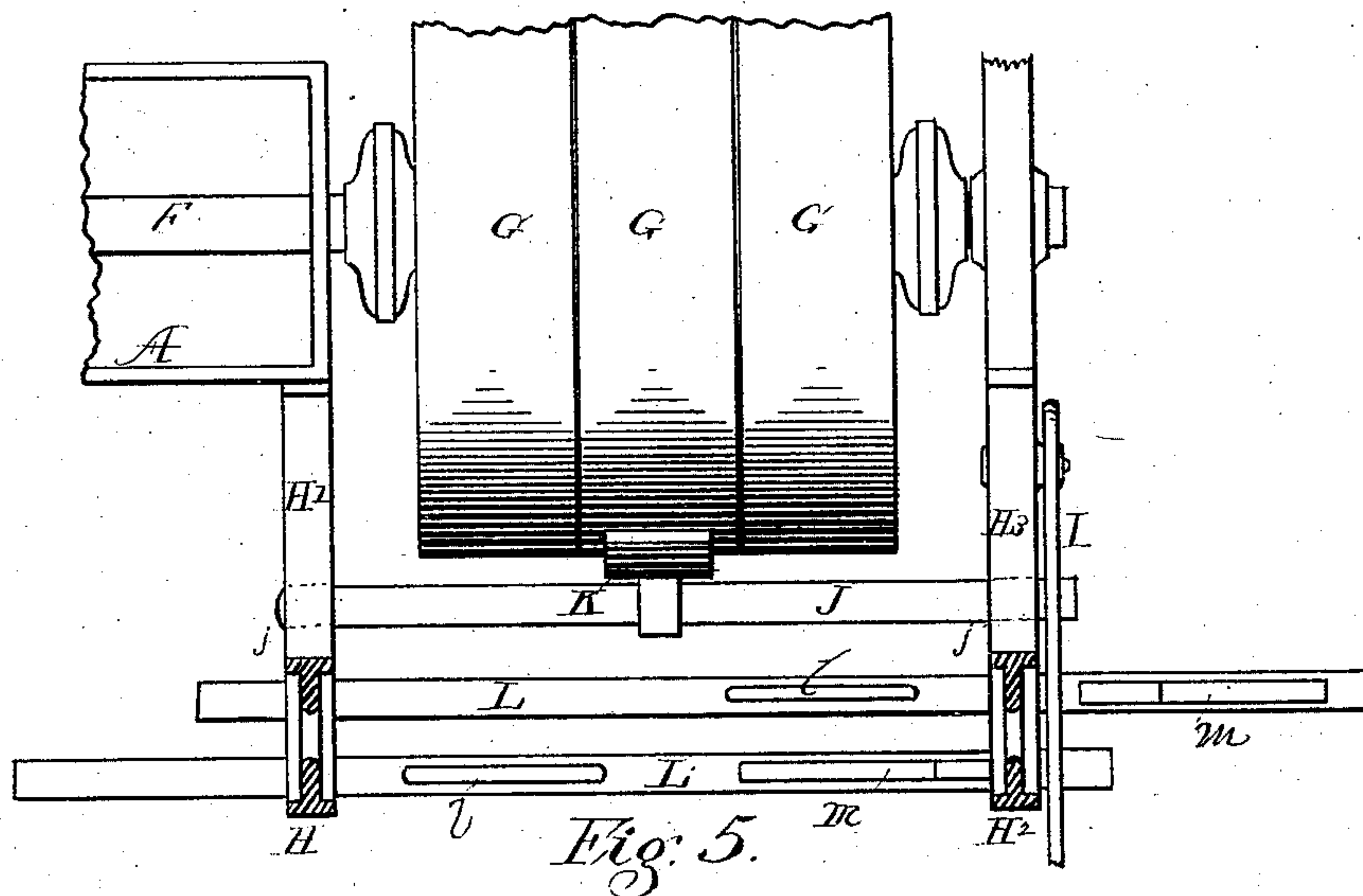
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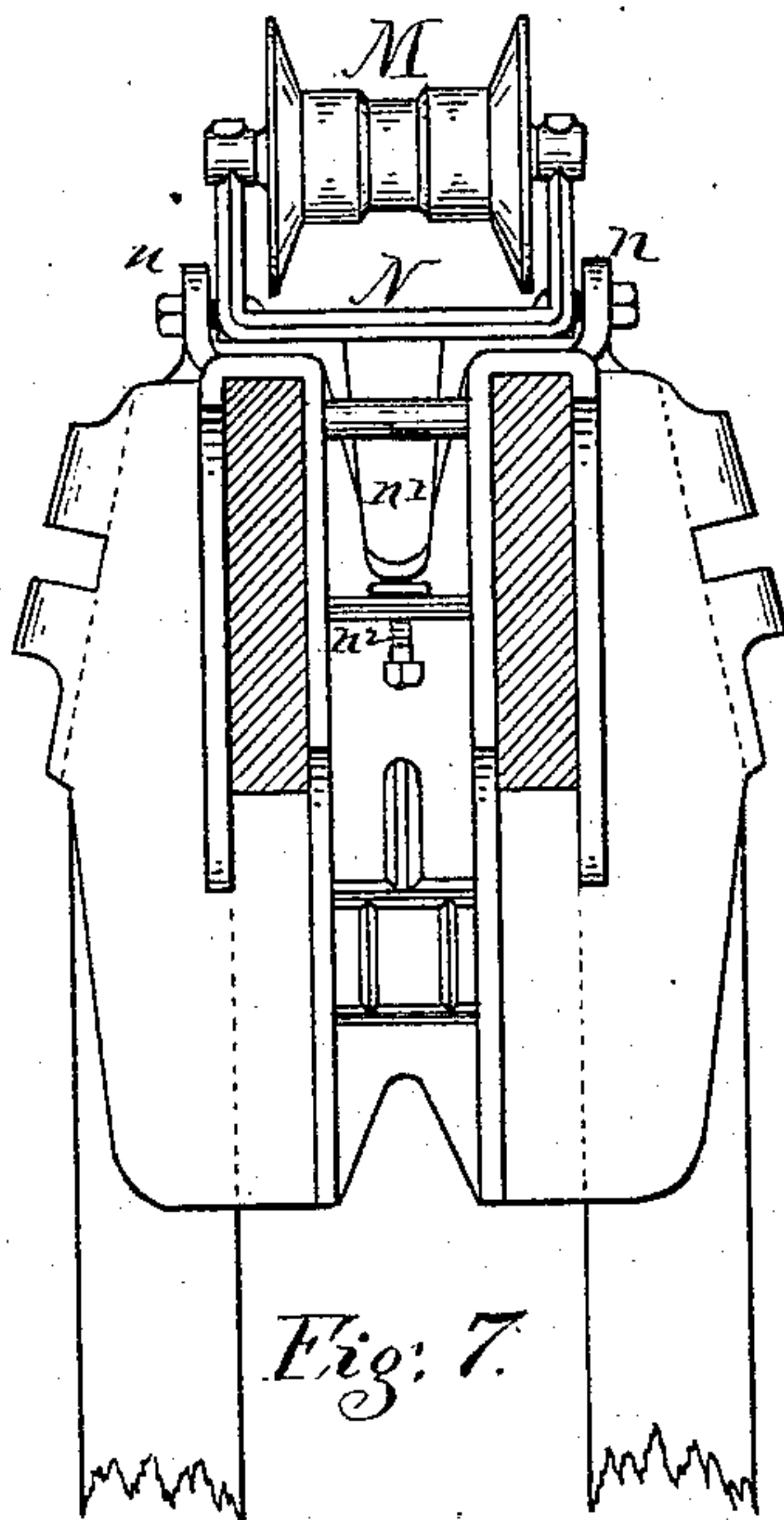


Fig. 7.

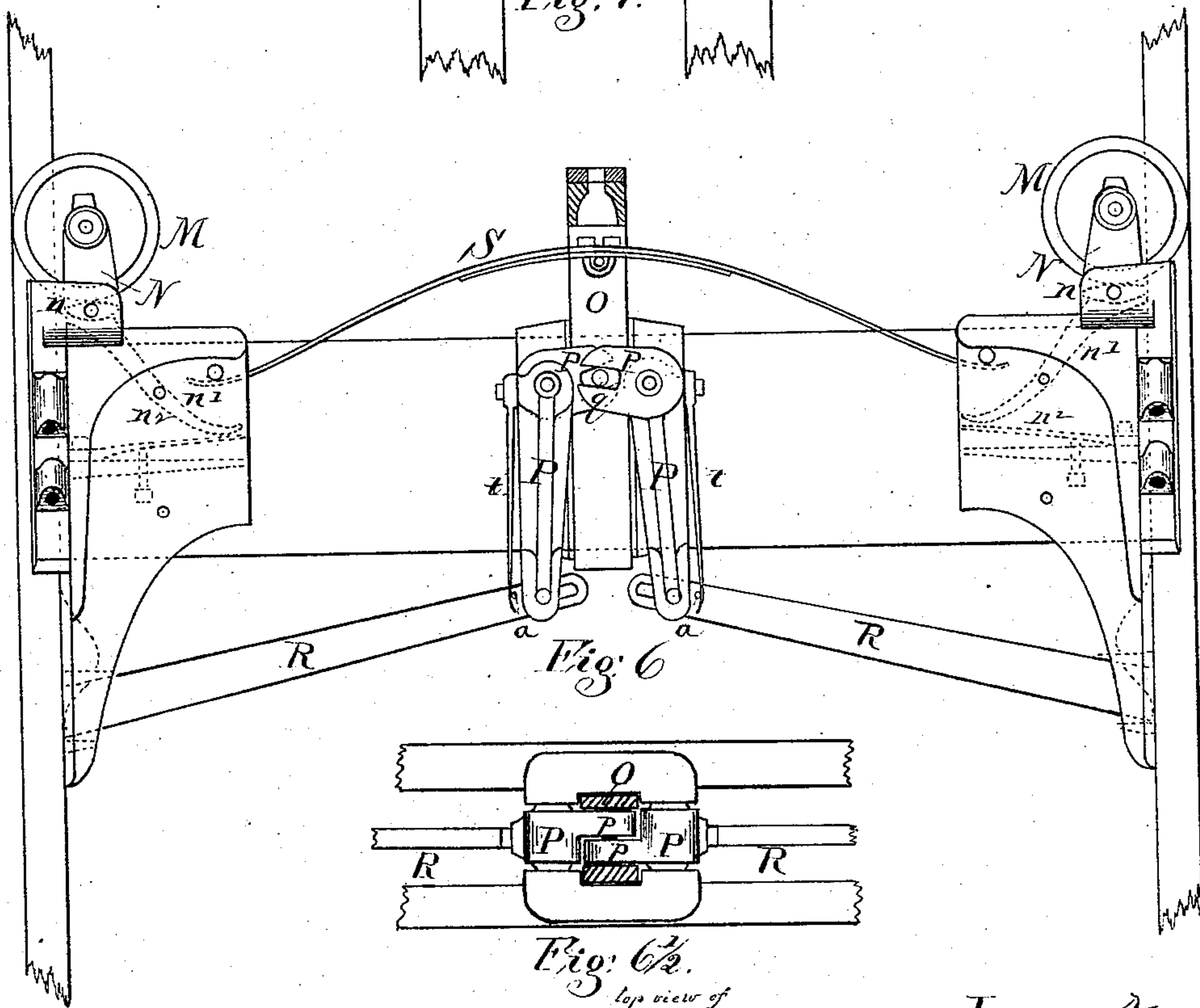


Fig. 6 1/2.
top view of
levers P P

Witness,

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E. W. Laird.

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UNITED STATES PATENT OFFICE.

GEORGE W. CLAYTON, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO
THE BARRETT MACHINE COMPANY, OF SAME PLACE.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 287,802, dated November 6, 1882.

Application filed September 29, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. CLAYTON, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Elevators, of which the following is a specification.

My improvements consist of, first, an oil-tight worm-gear case; second, worm-gear teeth; third, an independent adjustable brake; fourth, a rocking frame for the guide-rolls; fifth, a safety device for elevator-platform.

In the accompanying drawings, Figure 1 is a side elevation of the worm-gear case and the pulleys which operate said gear. Fig. 2 is a vertical section of the same. Fig. 3 is a face view of gear-teeth. Fig. 4 is a transverse section of the said case, worm-gear, and drum, showing attachment of brake. Fig. 5 is a top of brake and belt-shifting attachment. Figs. 6 and 6½ are sectional views of the top portion of car-frame, showing the safety attachment. Fig. 7 is a transverse section of same, showing the swinging guide-roll-frame attachment.

A is the case, which contains and supports the worm-gear and the worm-shaft. This case is made with oil-tight joints, the object being to have the case hold the lubricant for the gear, the gear-wheel bearings, and the worm-shaft bearings. The lower portion of the gear-wheel running in the oil conveys oil to the worm and its shaft-bearings.

B is the gear-wheel, fixed on the drum-shaft C, and D is the drum. Said gear-shaft C is set in boxes *c c'*, so constructed and secured to the sides of the case as to prevent leakage or escape of oil. Box *c* covers the end of the shaft, and is firmly secured to the case by bolts, with suitable packing to make its connection oil-tight. The box *c'* is similarly secured, and is provided with a recess for packing *c²*. The other end of the drum-shaft is supported in the usual hanger. The teeth of gear-wheel B are made straight across their top from side to side; but their contact sides are made curved or angular, having their central portion thicker than the ends, as seen in Fig. 3. This is for the purpose of reducing friction by making shorter bearing-surface of the tooth on the worm.

E is the worm, fixed on counter-shaft F, hav-

ing its bearings in long boxes *ff*, supported on shelves *g g*, made in the case A. *ee* are screw-bolts attached to said boxes *ff*, and suspended in cross-bars *h h* in the case A, for the purpose of adjusting the bearings of the worm-shaft, thereby adjusting the worm to the gear. *ii* are collars on the shaft F, bearing against the inner ends of the boxes *ff*, preventing endwise movements of the shaft. The worm E is covered with a cap, *e'*, attached to the case A, for the purpose of preventing oil being thrown out by the centrifugal force of the revolving worm.

The shaft F is provided with a set of tight and loose pulleys, G G, of peculiar construction, which I shall make the subject of a subsequent application. The outer end of said shaft F is supported in the usual hanger. An independent brake of peculiar construction is connected to these pulleys. A short hanger, H, is suspended near the case A, having a horizontal arm, H', connecting it therewith, and a second short hanger, H², having a like horizontal arm, H³, connected with the shaft-hanger of shaft F. I is a lever having a short depending arm, I', and is pivoted at the angle to the said arm H². The depending end of said lever I is connected by a link, I², to a bar, J, supported in slots *j j* made in the lower part of said arms H' and H³, whose end opposite to the link is pivoted in the slot *j'*. To the central part of said bar J is attached a brake-shoe, K, bearing against the tight pulley G.

The long arm of lever I lies over the belt-shifting bars L L, and is provided with an adjustable weight, L', which may be regulated to make more or less friction on the brake. The belt-shifting bars L L play in slots in the lower ends of short hangers H H², and are provided with loops *l l* for shifting belts. The said bars L L are provided on their upper sides with incline projections *m m*, designed for raising or lifting the lever I when said shifting-bars are moved, thus relieving the pressure of the brake on the driving-pulley. The shifting-bars are to be operated by the usual means.

The guide-wheels M M of the car are set in rocking frames N N, which are journaled in bearings *n n*, made in the corner-irons of the car-frame. The frame is provided with a de-

pending arm, n' , the lower end of which bears on a spring, n^2 . The purpose of this frame is to prevent noise and make the guide-wheels self-adjusting to the guide-posts.

5 Between the two top rails of the car are placed two rock-shafts, each provided with an angle-lever, P P. The short arms $p p$ have slots in their ends, and are connected to the bifurcated draw-bar O by a pin, q , pass
10 ing through said slots. The long arms of said levers P P reach downward and are connected to the safety-bolts R R. The outer ends of said bolts rest in slots in the corner-irons of the car-frame. Above said levers P P, and
15 to the draw-bar, is attached a spring, S, the ends of which are held in the corner-irons of the car-frame. The force of said spring is intended to be exerted on the said levers P P, to quickly throw out the safety-bolts in case the
20 rope should break and the car be severed therefrom. The inner ends of bolts R R have slots rr at their connection with the levers P, so that any inward movement by said levers will not withdraw the bolts from the slots in the sides
25 of the car-frame. A light spring, t , is also attached to each of the levers P, whose lower ends bear against a pin, a , in said bolts, for the purpose of holding the bolts from sliding into the racks on the posts, which the afore-
30 said slots would permit them to do without the springs.

Having described my invention, I claim—

1. A worm-gear having teeth made full in their central part and thinner at the sides, as and for the purpose specified. 35

2. The independent brake consisting of the weighted lever I, having short arm I' , pivoted to arm H' of hanger H, and connected by link I^2 to brake-bar J, carrying brake-shoe K, substantially as described. 40

3. The belt-shifting bars L L, having the incline projections $m m$, in combination with the weighted lever I, for removing break-pressure on driving-pulley G, substantially as described. 45

4. The rocking frame N, carrying guide-rollers M, and having the depending arm n' , and the spring n^2 , in combination with the car-frame, substantially as and for the purpose specified. 50

5. The levers P P, having short slotted arms $p p$, hung on short rock-shafts journaled between the top cross-bars of the car-frame, and connected with draw-bar O by pin q , and the spring S, the lower ends of levers P connected 55 to the safety-bolts R R, constructed to operate substantially as and for the purpose specified.

GEORGE W. CLAYTON.

Witnesses:

E. W. LAIRD,
GEO. W. TIBBITTS.