

A. A. CLAUSEN.
GEARING FOR WASHING MACHINES.
APPLICATION FILED JAN. 11, 1907.

934,886.

Patented Sept. 21, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

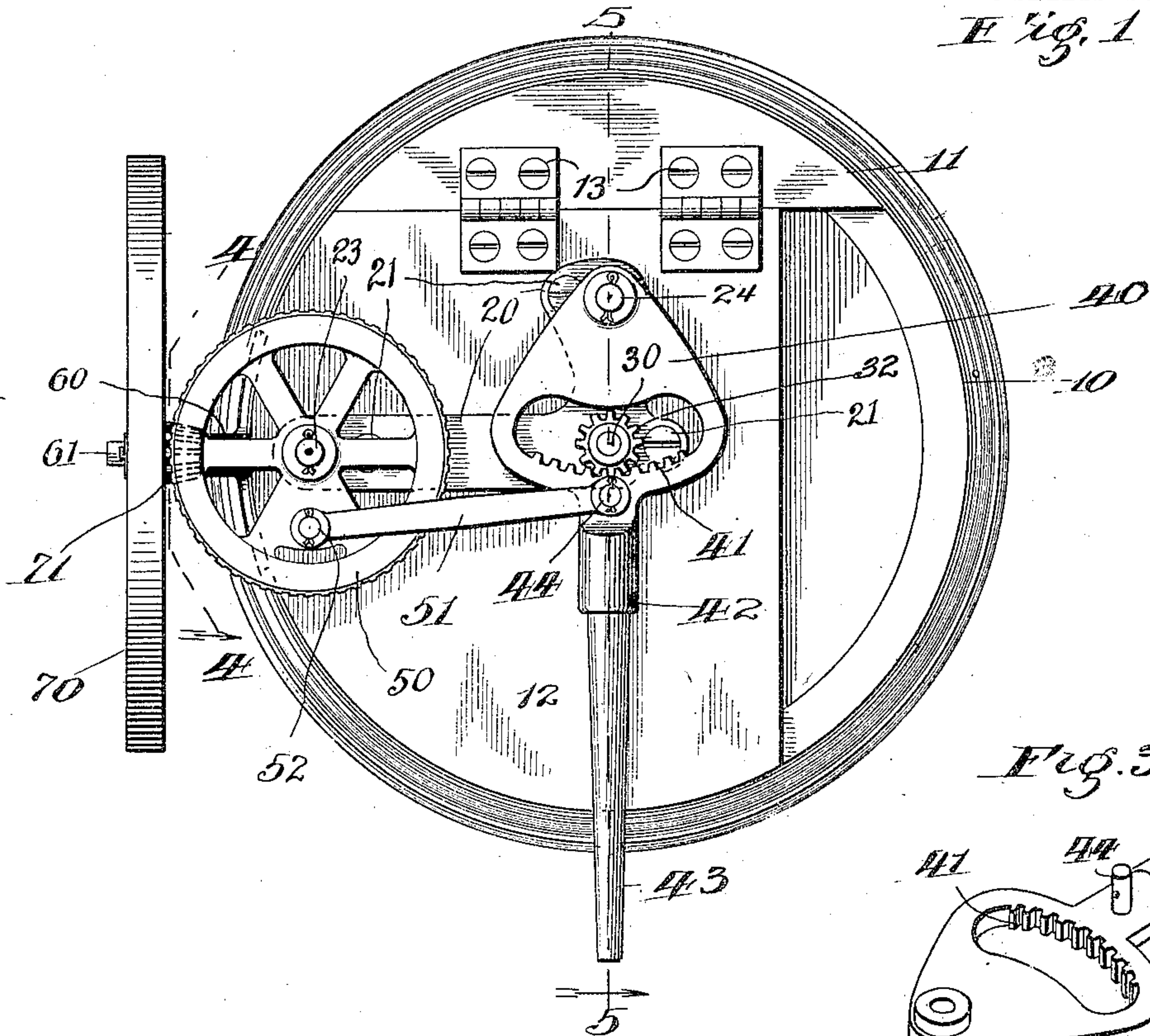


Fig. 3.

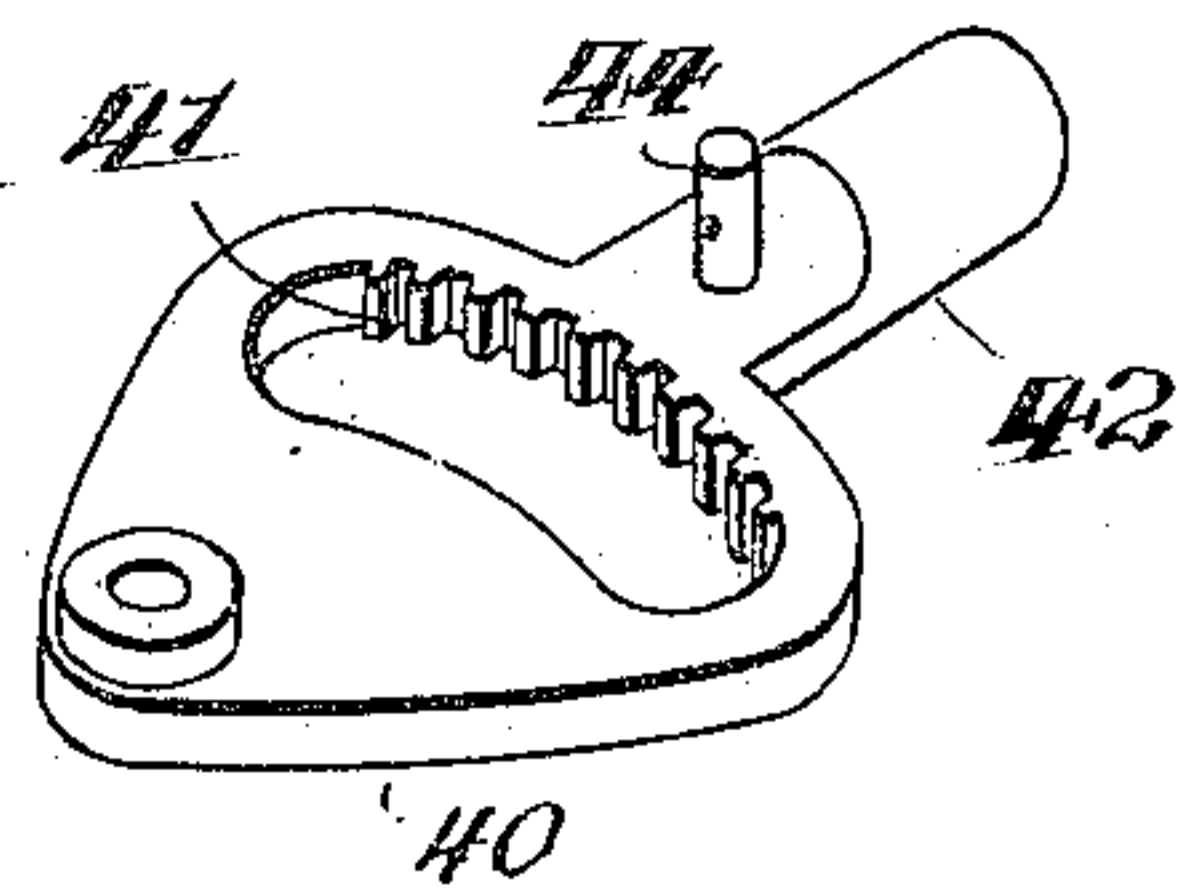
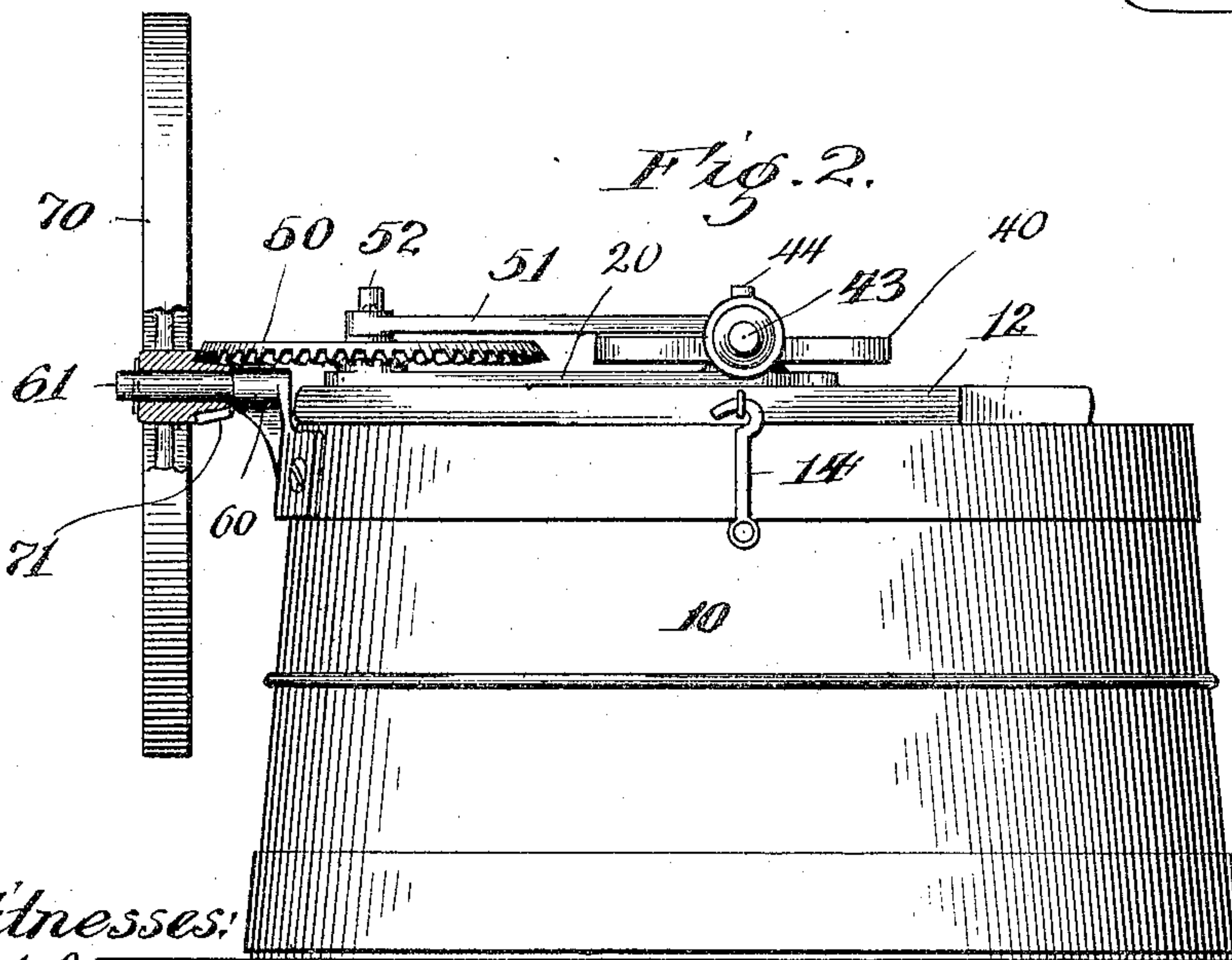


Fig. 2.



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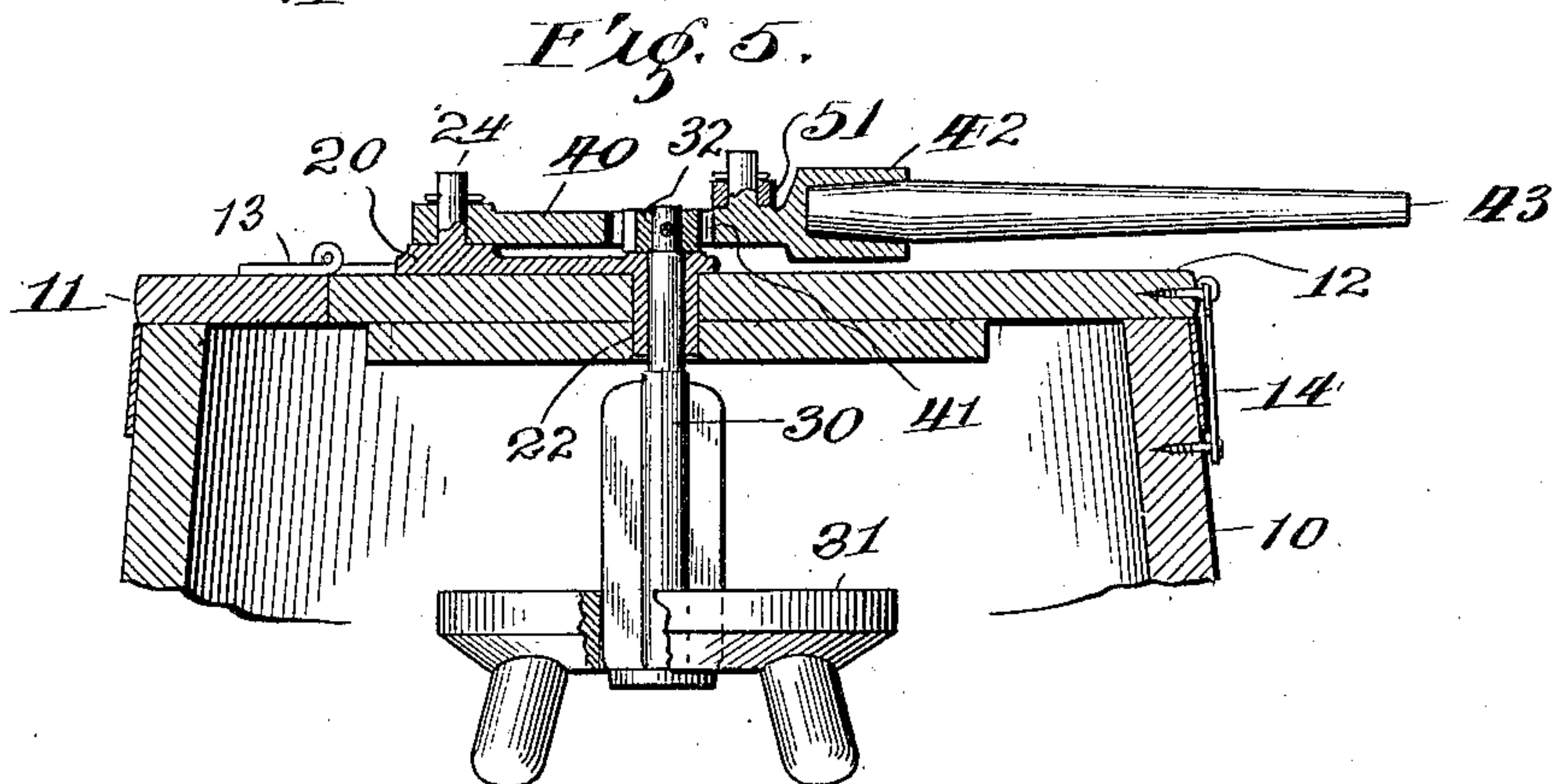
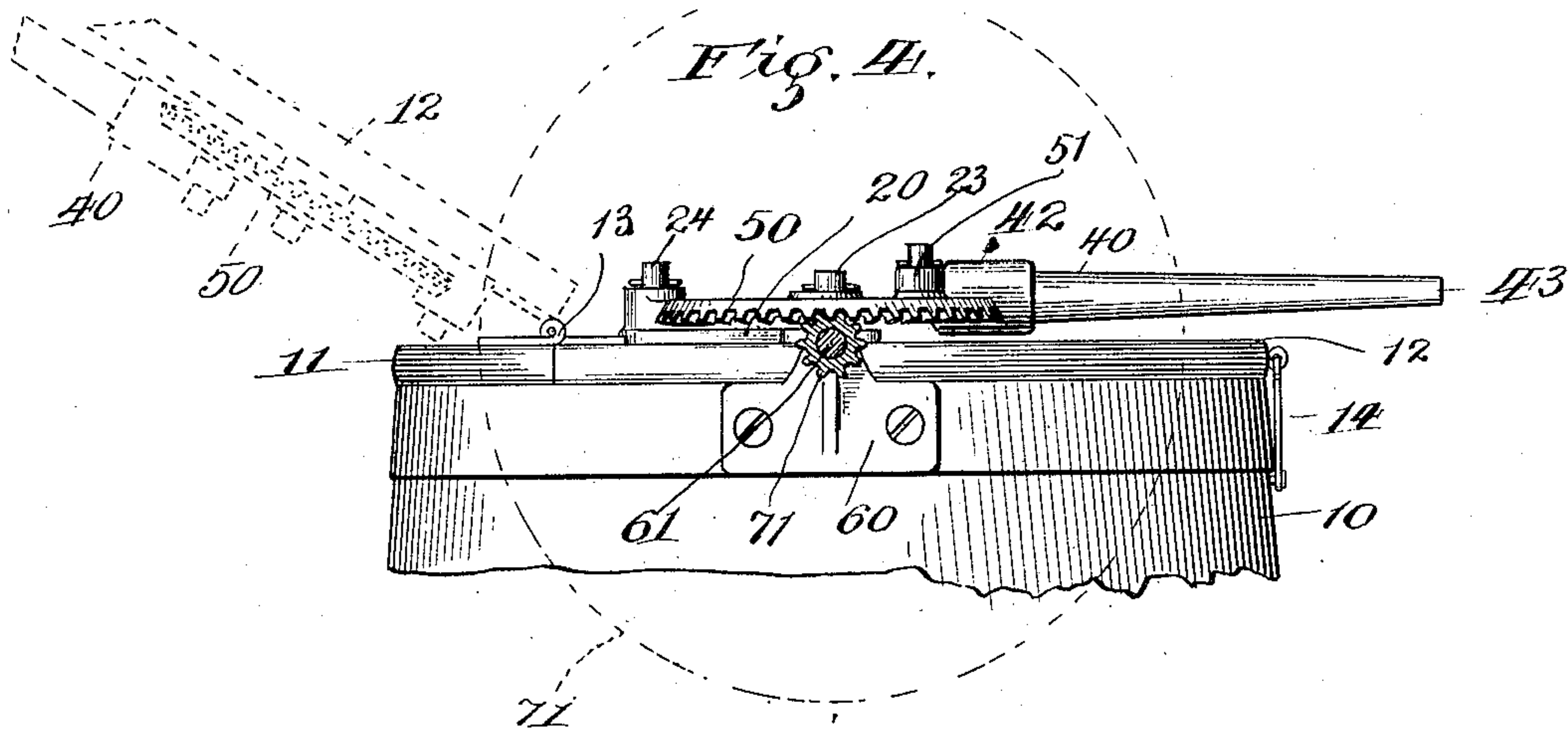
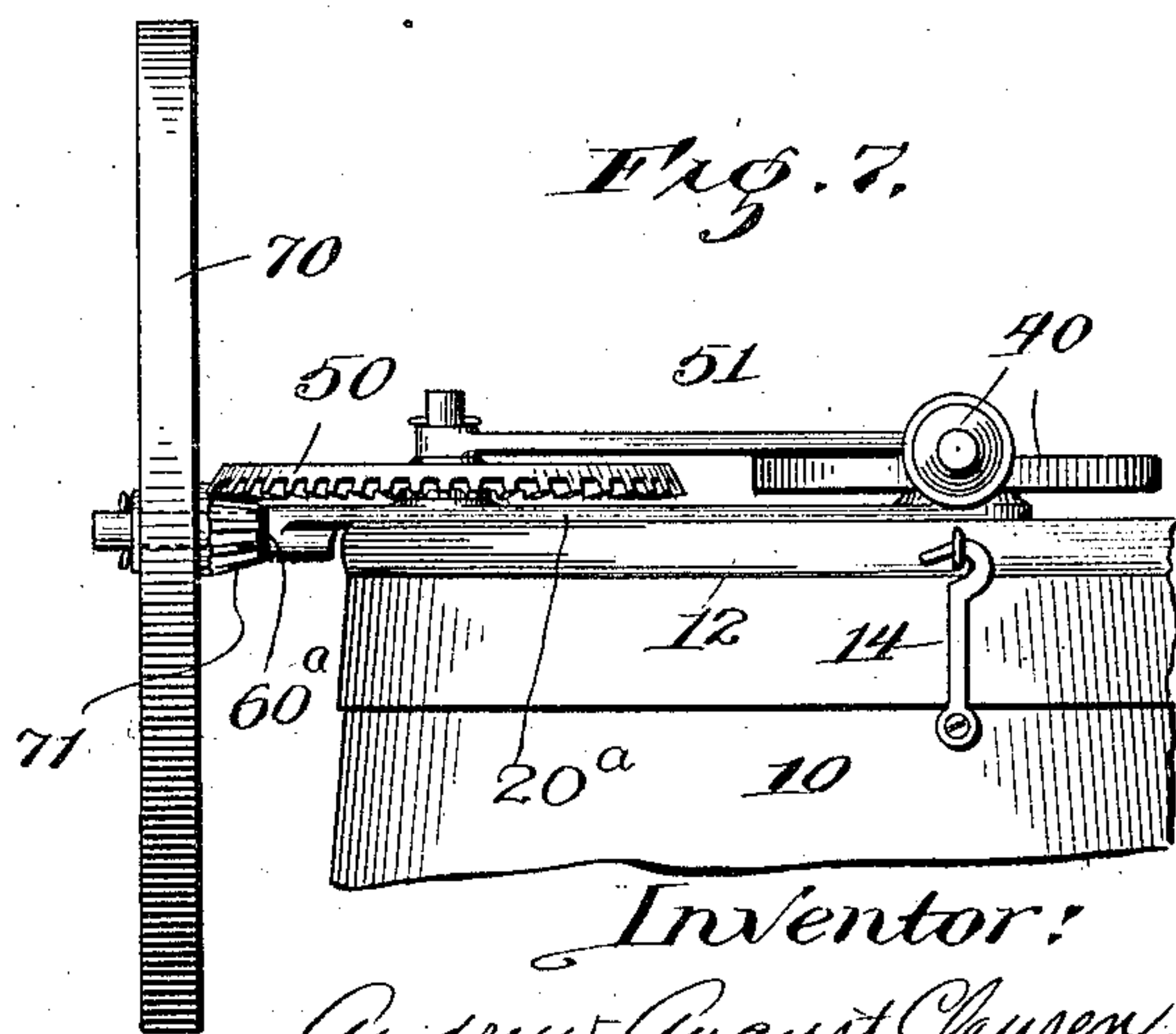
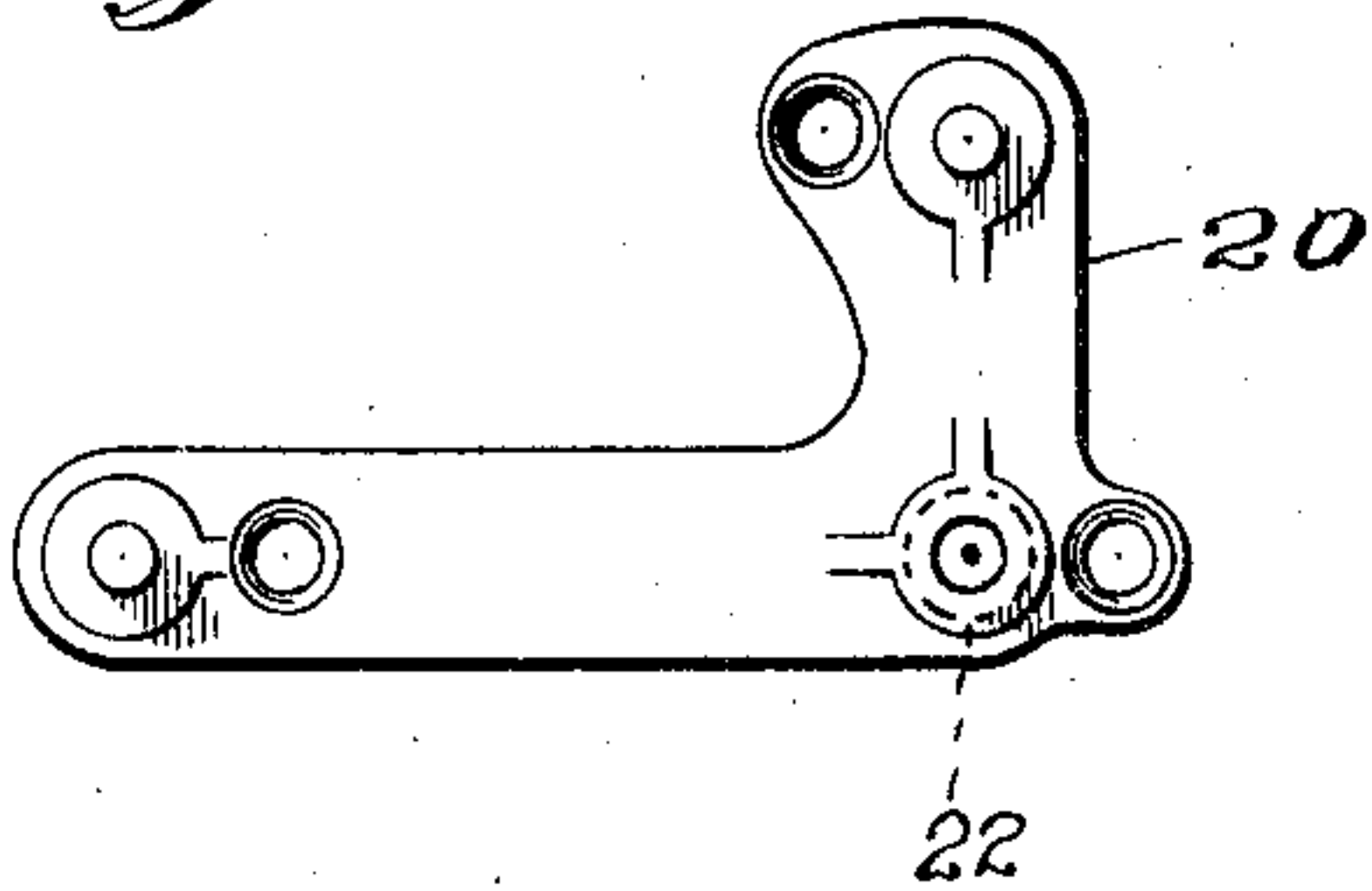


Fig. 6.



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UNITED STATES PATENT OFFICE.

ANDREW AUGUST CLAUSEN, OF CHICAGO, ILLINOIS.

GEARING FOR WASHING-MACHINES.

934,886.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed January 11, 1907. Serial No. 351,827.

To all whom it may concern:

Be it known that I, ANDREW AUGUST CLAUSEN, a citizen of the United States, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gearing for Washing-Machines, of which the following is a full, clear, and exact description.

My invention relates to certain new and useful improvements in gearing for washing machines of that class in which a part of the force or energy used to operate the beater is stored up in a fly wheel whereby the energy thus stored up may continue to operate the beater until exhausted, after the exertions of the operator have ceased.

The object of this invention is to simplify constructions of this class, and this I have accomplished by reducing the number of parts to a minimum, and connecting the power lever to the beater shaft without the interposition of other shafts.

Another object is to produce compactness and this is accomplished by arranging the parts close to the tub, all of the operating parts with the exception of the fly wheel lying substantially in a horizontal plane.

To such end the invention consists in certain novel features of construction and arrangement the description of which will be found in the following specification and the essential features of which will be definitely pointed out in the claims appended thereto.

The invention is clearly illustrated in the drawings accompanying this specification in which—

Figure 1 is a plan view of a structure embodying my invention. Fig. 2 is a front view thereof. Fig. 3 is a perspective view of the oscillating operating lever. Fig. 4 is a side view of the device, the fly wheel being cut away on the line 4—4, Fig. 1. Fig. 5 is a central vertical cross section taken on the line 5—5, Fig. 1. Fig. 6 is a plan view of the bracket or plate which supports the gearing, and Fig. 7 is a front view of a slightly modified form of construction.

Referring to these drawings, 10 represents a tub or other receptacle in which are placed the clothes to be washed. The upper end of this tub is closed by a cover 11 which contains a lid 12, hinged thereto, by means of hinges 13 and adapted to be locked down upon the tub by means of a hasp or other lock 14. A bracket or plate 20 is secured to the lid 12 by means of bolts or screws 21,

and said bracket contains a downwardly extending sleeve 22 which is axially disposed with respect to the tub. A beater shaft 30 is journaled in the sleeve 22 and carries upon its lower end a beater 31 which is vertically slidable thereon, the beater and beater shaft being of any familiar construction and requiring no specific description so far as this specification is concerned. The upper end of the beater shaft 30 bears a pinion 32 which meshes with an internal rack 41 formed upon the operating lever 40. The said lever 40 is pivoted upon the bracket or plate 20 by means of a stud 24 and bearing aperture, the stud projecting out from one member and turning in the bearing aperture in the other; the forward end of the operating lever is formed with a socket 42 in which may be secured the handle 43. It is obvious that oscillation of the lever will cause a corresponding rotary reciprocating movement of the beater shaft 30.

The mechanism for storing up a part of the energy used in actuating the beater shaft will now be described. A bevel gear wheel 50 is journaled upon the bracket or frame 20 by means of a stud 23 and said bevel gear wheel 50 is connected to the operating lever 40 by means of a pitman or connecting rod 51 which is secured upon wrist pins 52—44, extending up from the bevel gear wheel and operating lever respectively. The parts are so proportioned and arranged that the oscillating movement of the operating lever is transformed into a continuous rotary movement of the bevel gear wheel. A bracket 60 is bolted or otherwise secured upon the tub and contains a radially extending stud 61 upon which is journaled a fly wheel 70 which bears a bevel pinion 71 that meshes with the bevel gear 50. The operating lever, bevel gear, pitman and fly wheel are shown as secured upon their supports by means of cotter pins, although this form of connection is not material.

In operating the device the operating lever is oscillated across the top of the tub and the beater is thereby given a rotary reciprocating movement. Part of the energy thus used in operating the lever is, however, transferred to the fly wheel by means of the pitman 51, bevel gear 50 and bevel pinion 71, whereby when the exertions of the operator have ceased, the momentum which has been stored up in the fly wheel will continue to rotate the fly wheel and consequently operate

the beater shaft through its connections therewith. One of the advantages of this construction consists in the fact that the lid may be raised to expose the interior of the tub without necessarily carrying with it the heavy fly wheel, which as shown is journaled upon the stationary part of the tub.

In Fig. 7 the bracket 20^a is shown as formed with an integral stud 60^a, upon which the fly wheel 70 is journaled. In some cases it may be found desirable to cast the bearings for all of the operating parts in one piece; and, in that case the fly wheel will be supported by the lid.

In experimenting with washing machines of this class I have found that the nearer the operating lever can be brought to the beater shaft, the easier it becomes to operate the lever, and besides this, there is less danger of breakage to the parts, caused by the strain which is put upon them in operating the lever. In this device the operating lever engages the beater shaft directly through the pinion 32 and is connected to the fly wheel by the simplest form of gearing adapted to revolve the fly wheel at a high rate of speed. It is essential that the fly wheel be driven at a high rate of speed, otherwise its momentum will be insufficient to be of much use in continuing the movement of the beater shaft after the exertions of the operator have ceased.

I claim as new and desire to secure by Letters Patent:

1. In a gearing for washing machines, the combination with a beater shaft and pinion, of an oscillatory operating lever lying in the plane of said pinion and containing an integral internal rack, meshing with said pinion, a fly wheel, a pinion connected thereto, a gear meshing with said pinion and a pitman connecting the gear wheel with the operating lever, substantially as and for the purpose set forth.

2. In a gearing for washing machines, the combination with a beater shaft and pinion, of a horizontally oscillating operating lever, containing an internal rack, meshing with said pinion, a bevel gear lying substantially in the plane of the internal rack, a vertically extending fly wheel, a bevel pinion carried thereby, and meshing with said bevel gear, and a pitman connecting said lever with the bevel gear and adapted to transform the oscillatory movement of the lever into a continuous rotary movement of the fly wheel.

3. In a gearing for washing machines, the combination with a bracket, a beater shaft and pinion, of a segmental rack meshing with said pinion and pivoted upon said bracket, a socket upon said rack, a lever secured in said socket, a fly wheel, a pinion upon said fly wheel, a gear wheel meshing with

said pinion, and a pitman connecting said rack with the gear and adapted to transform the oscillatory movement of the rack into a continuous rotary movement of the fly wheel.

4. In a gearing for washing machines, the combination with a beater shaft and pinion thereon, of a rocking element having a vertical pivotal bearing, the gear segment meshing directly with the pinion, the eccentric pin for a pitman and the handle socket.

5. In a gearing for washing machines, the combination with a beater shaft and pinion thereon, of a rocking element having the bearing aperture, the gear segment meshing directly with the pinion, the eccentric pin for a pitman and the handle socket.

6. In a gearing for washing machines, the combination with a beater shaft, and pinion thereon, of a rocking element having the pivotal bearing, the handle socket, the internal gear segment, interposed between the bearing and handle socket, and meshing directly with the pinion and the eccentric pin for a pitman.

7. In a gearing for washing machines, the combination with a beater shaft and pinion thereon, of a rocking element having a bearing aperture, a handle socket, a segmental gear interposed between the bearing aperture and handle socket and meshing directly with the pinion and an eccentric pin for a pitman.

8. In a gearing for washing machines, the combination with a beater shaft and pinion thereon, of a rocking element having a bearing aperture, a handle socket, a segmental gear interposed between the bearing aperture and handle socket and meshing directly with the pinion and an eccentric pin for a pitman, a fly wheel, having a pinion extending out therefrom, a gear wheel meshing with said pinion, an eccentric pin on said gear wheel, and a pitman connecting the pins on the rocking element and gear wheel.

9. In a gearing for washing machines, the combination with a beater shaft and pinion thereon, of an oscillatory operating lever fulcrumed at one end, and having a pin for a pitman and a handle at the other end, and a gear segment interposed between the fulcrum and handle, and meshing directly with the pinion, a fly wheel having a pinion extending out therefrom, a gear wheel meshing with said pinion, and having an eccentric pin, and a pitman connecting said pins.

In witness whereof I have executed the above application for Letters Patent at Chicago, county of Cook and State of Illinois, this 24th day of December 1906.

ANDREW AUGUST CLAUSEN.

Witnesses:

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