

No. 620,414.

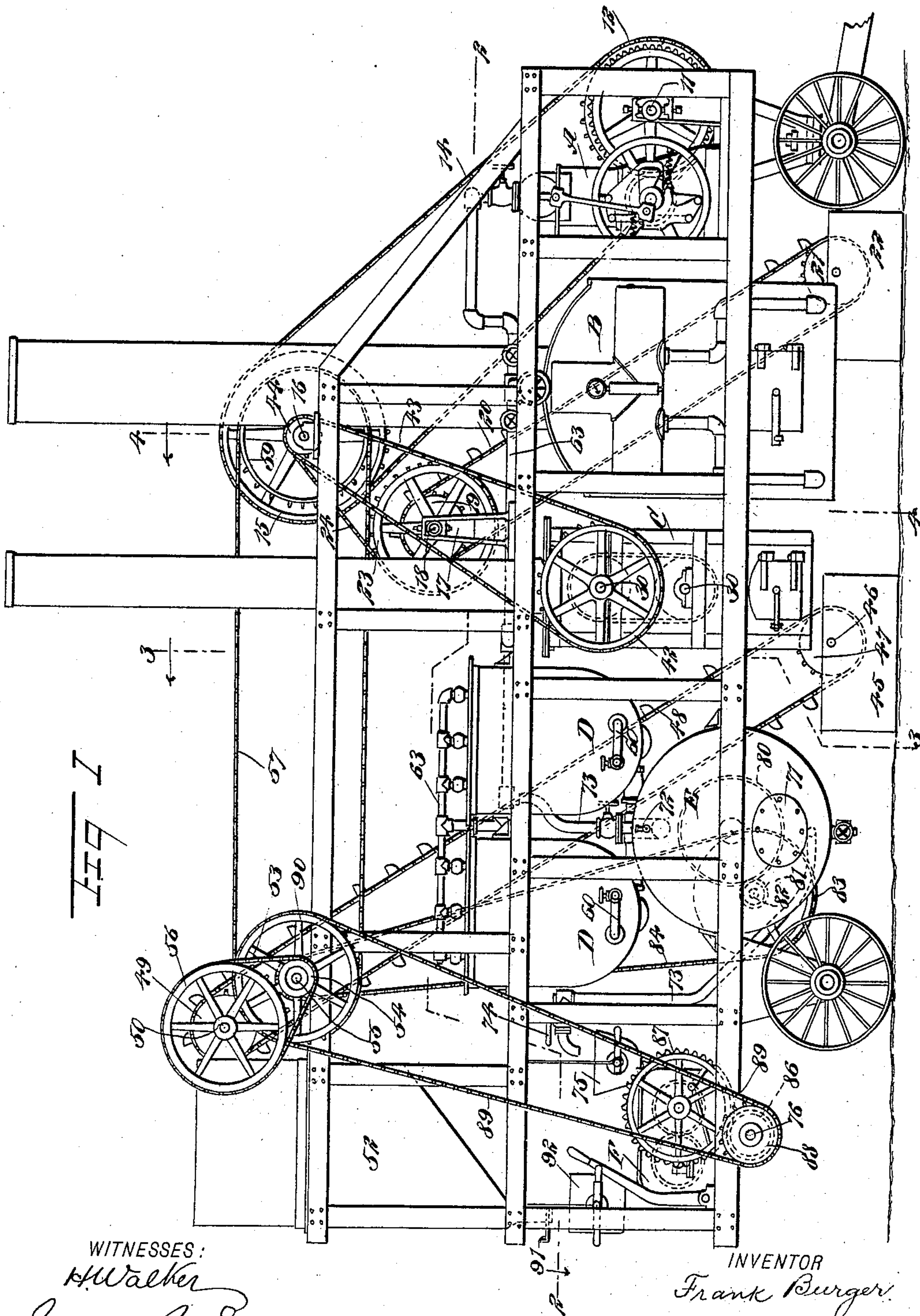
Patented Feb. 28, 1899.

F. BURGER.
ASPHALT APPARATUS.

(Application filed Sept. 8, 1898.)

(No Model.)

6 Sheets—Sheet 1.



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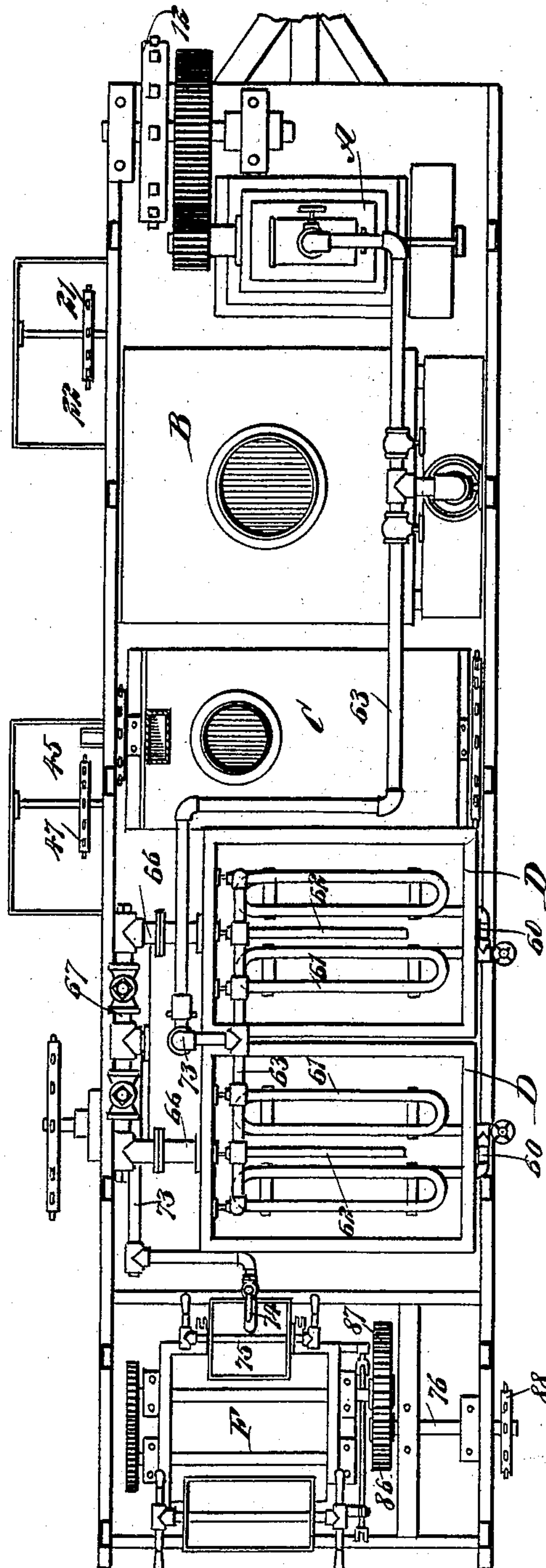
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Fig. 2.



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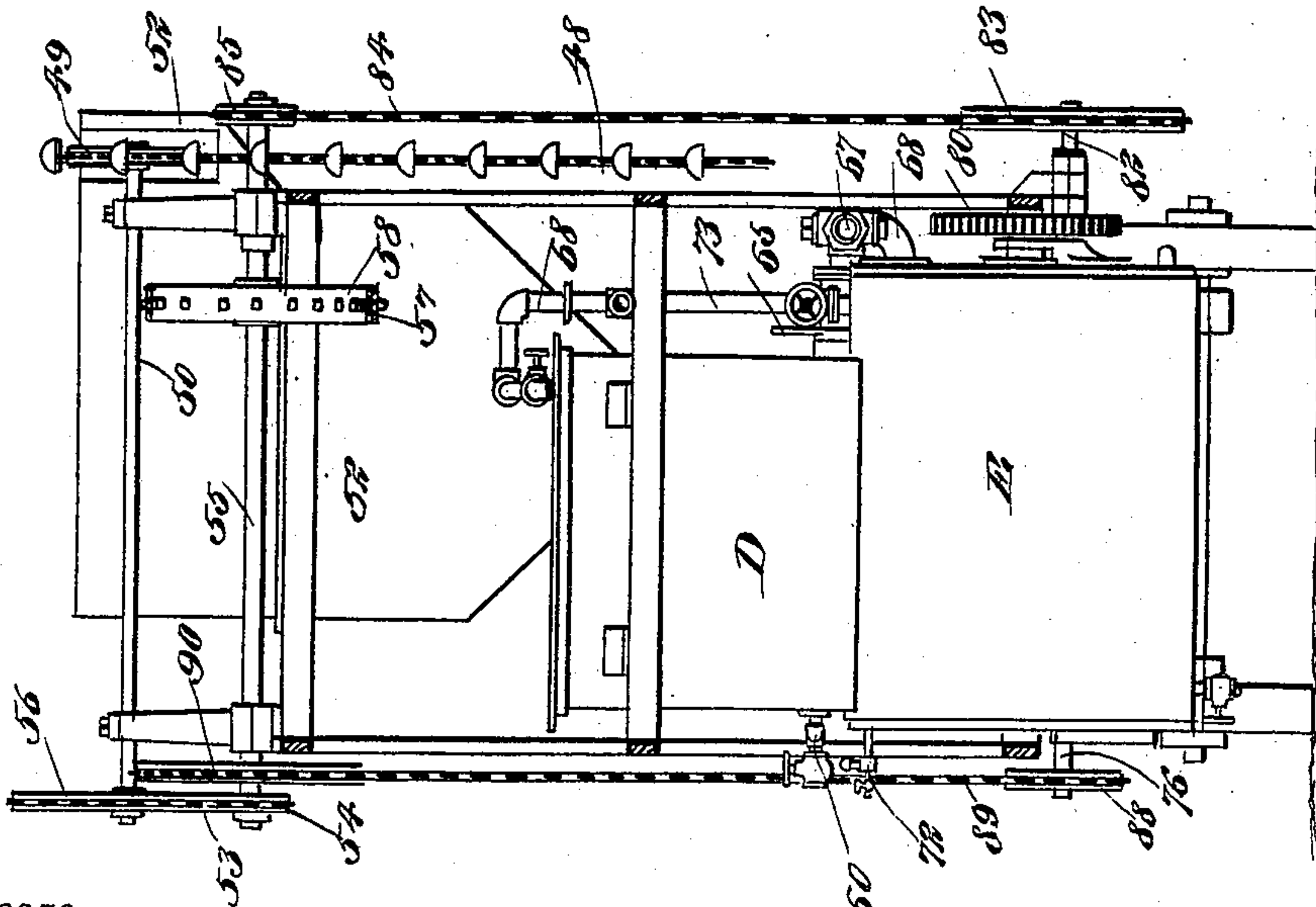
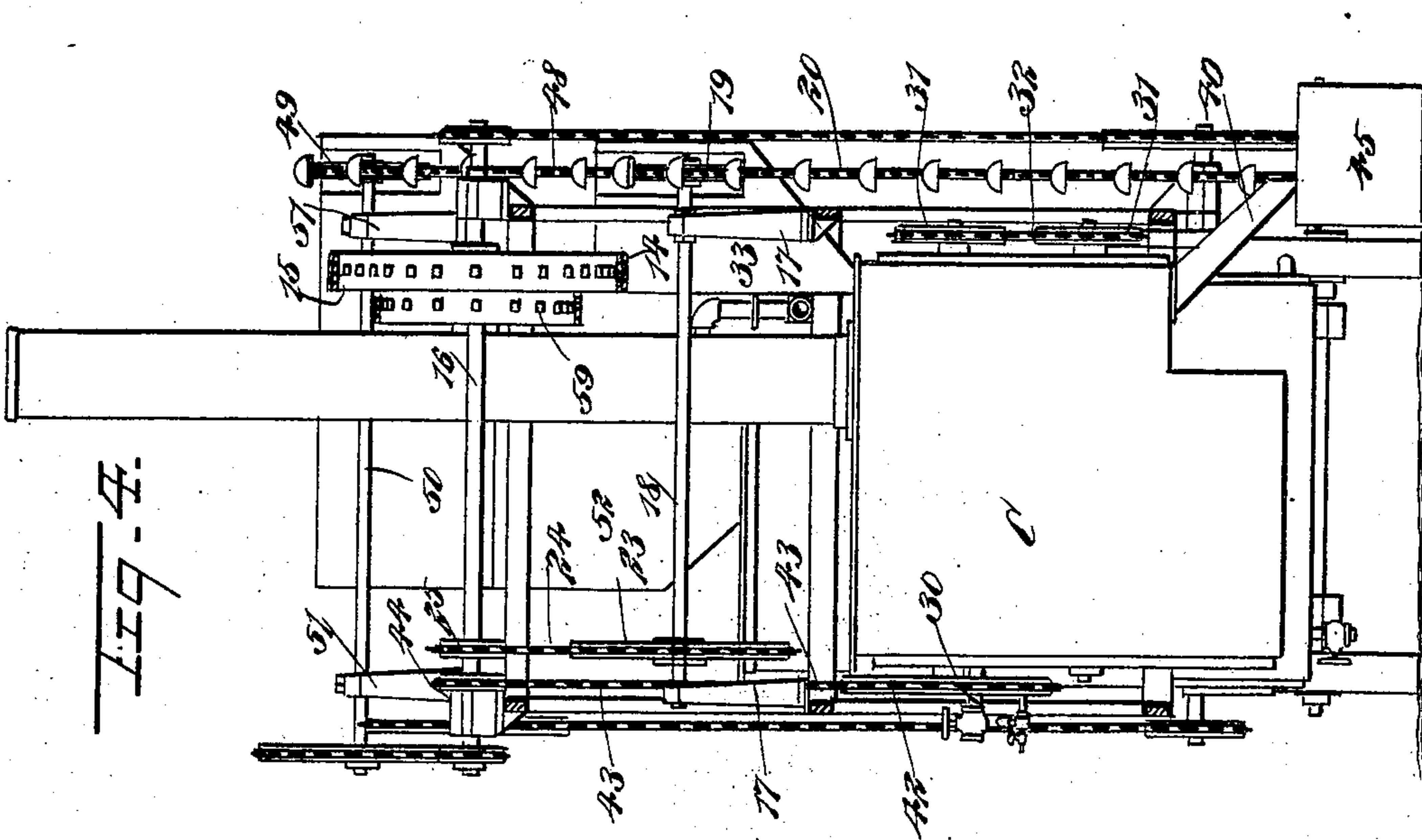
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6 Sheets—Sheet 3.



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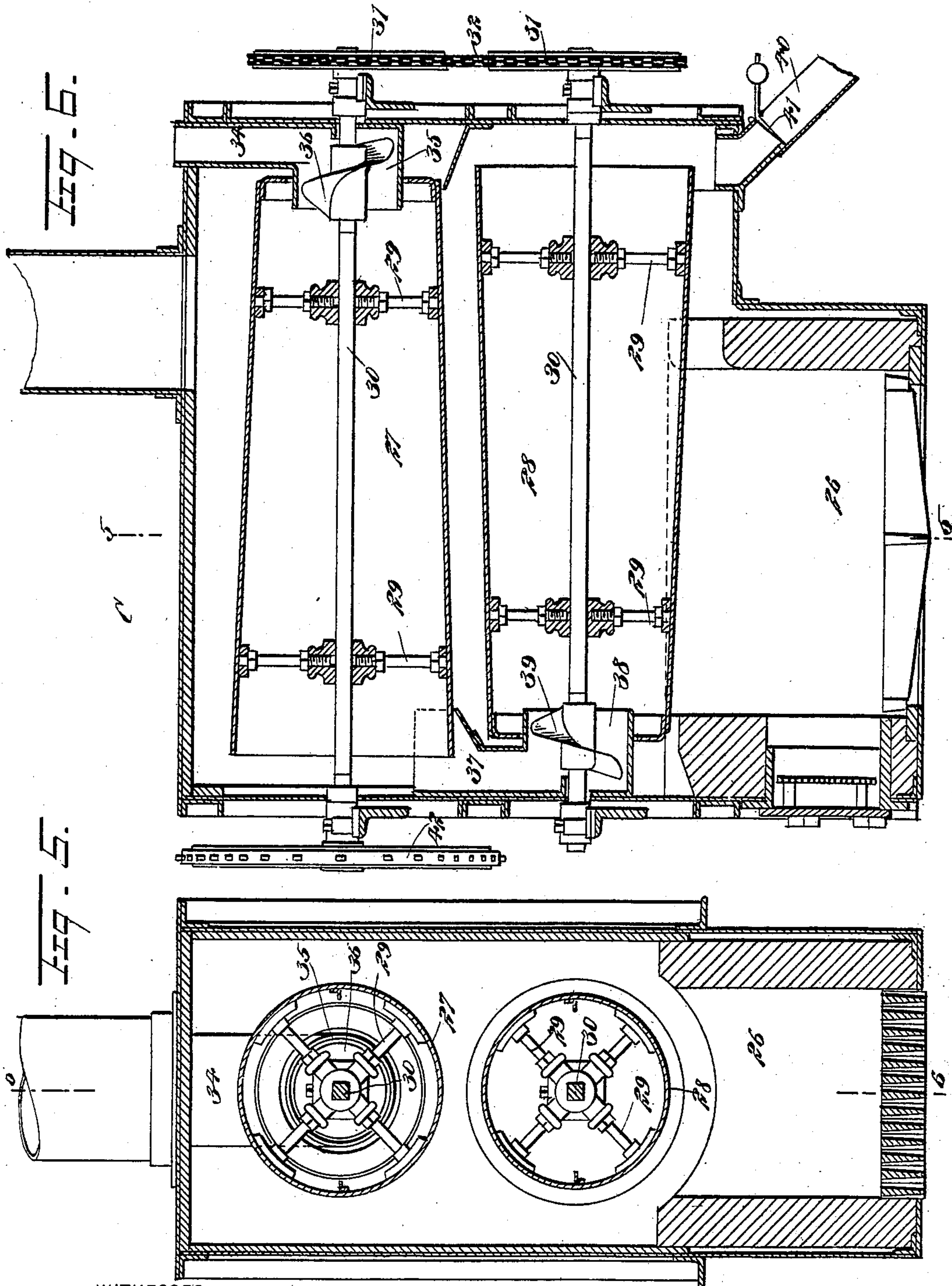
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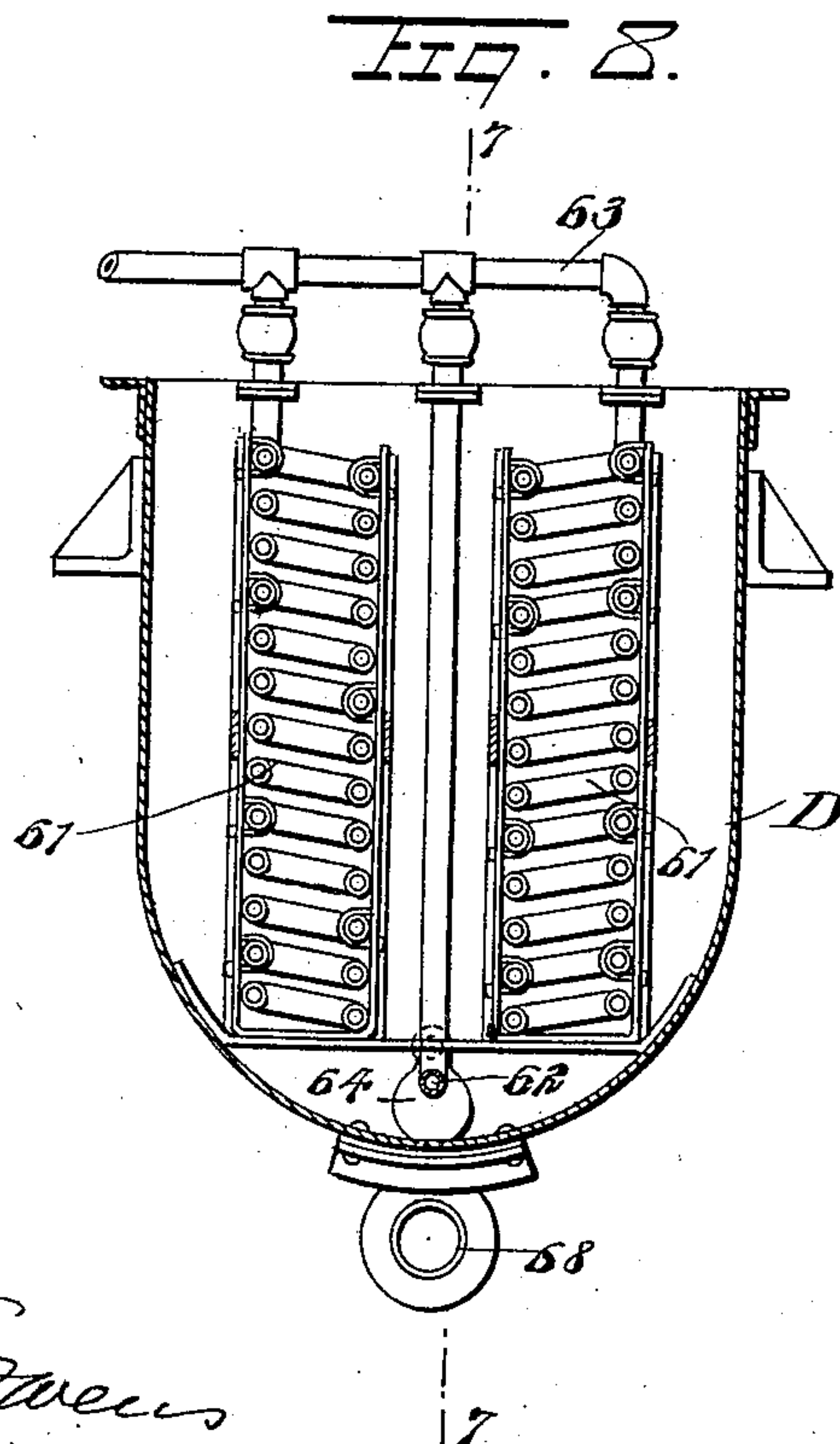
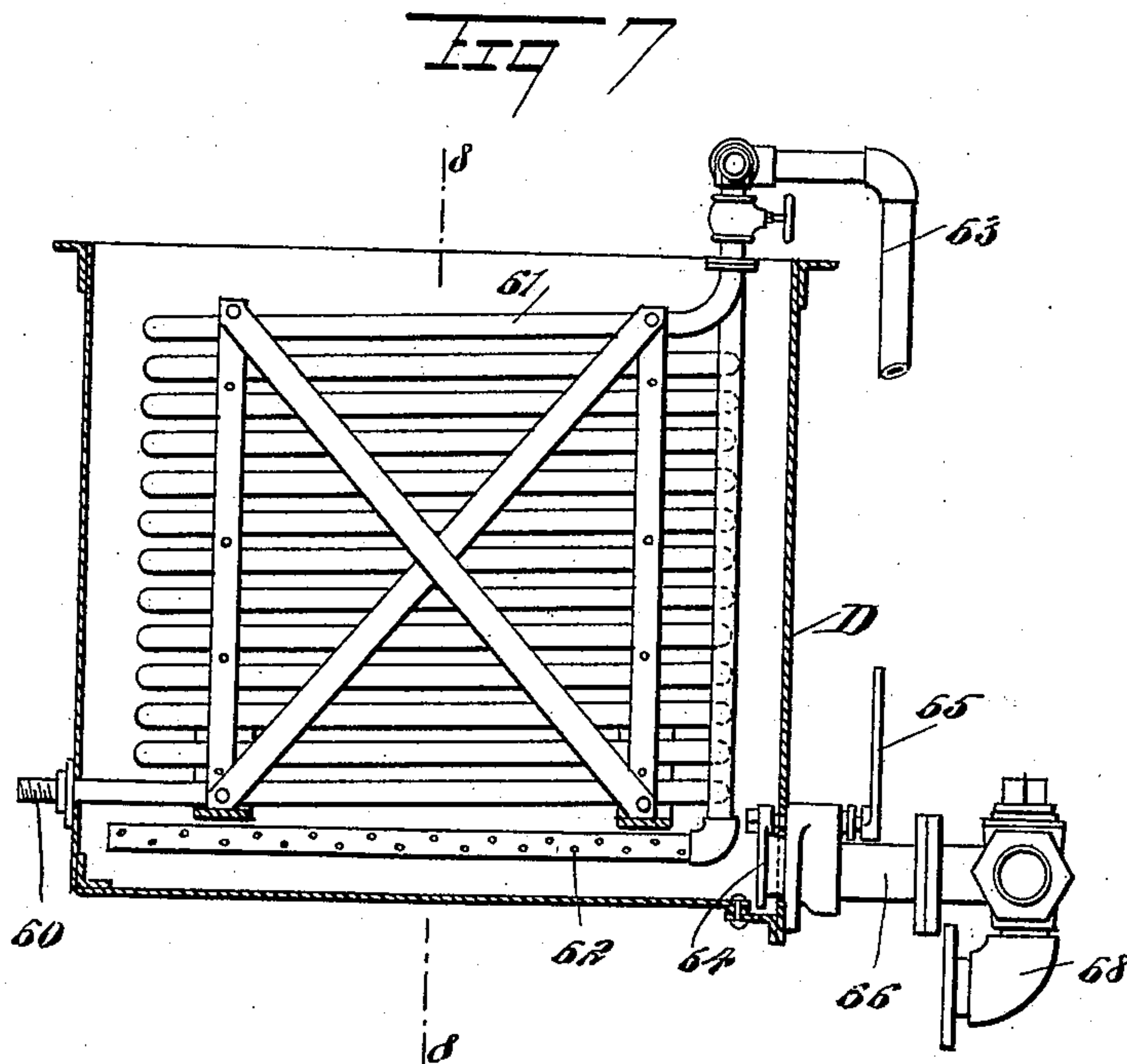
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6 Sheets—Sheet 5.



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Fig. 9.

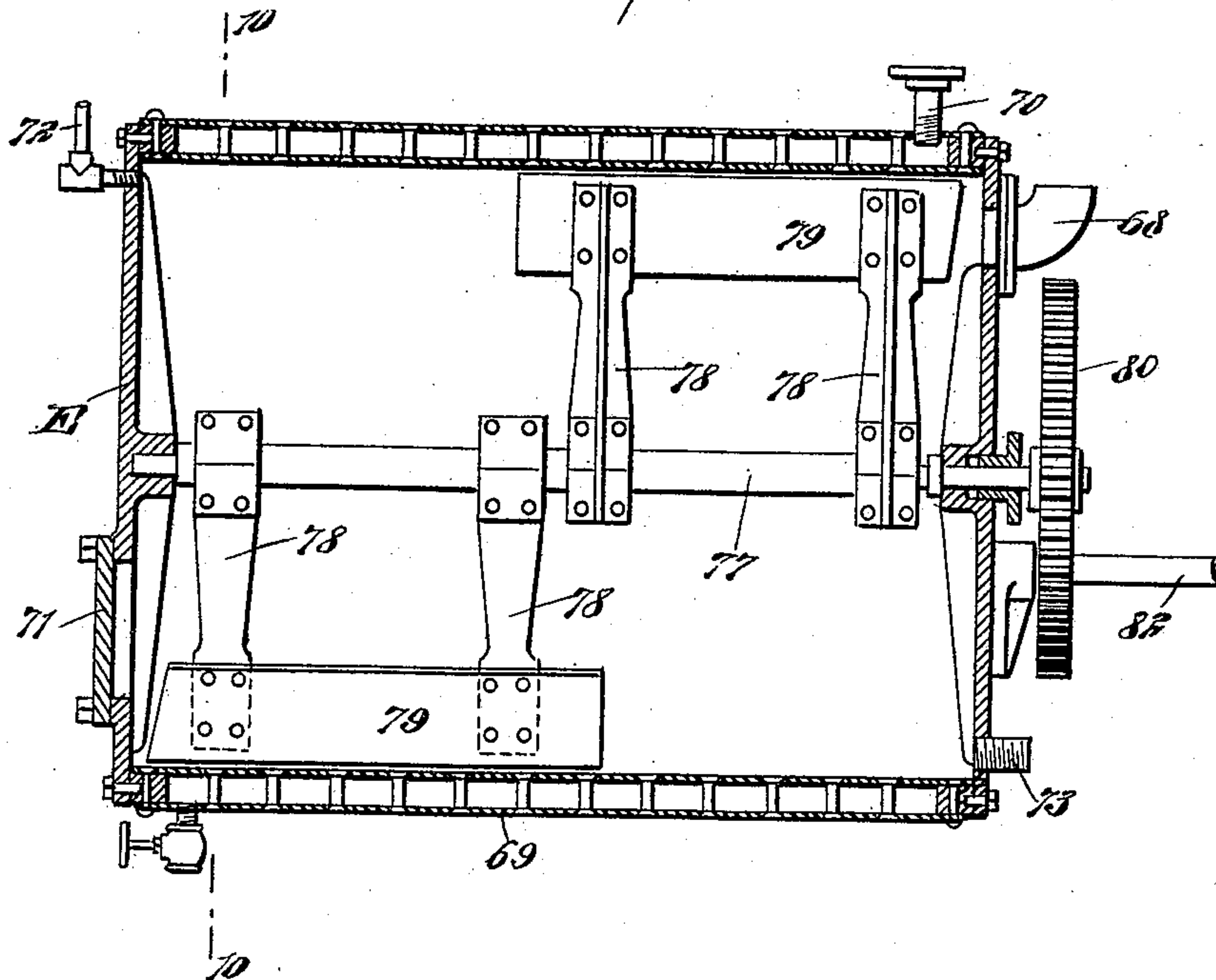
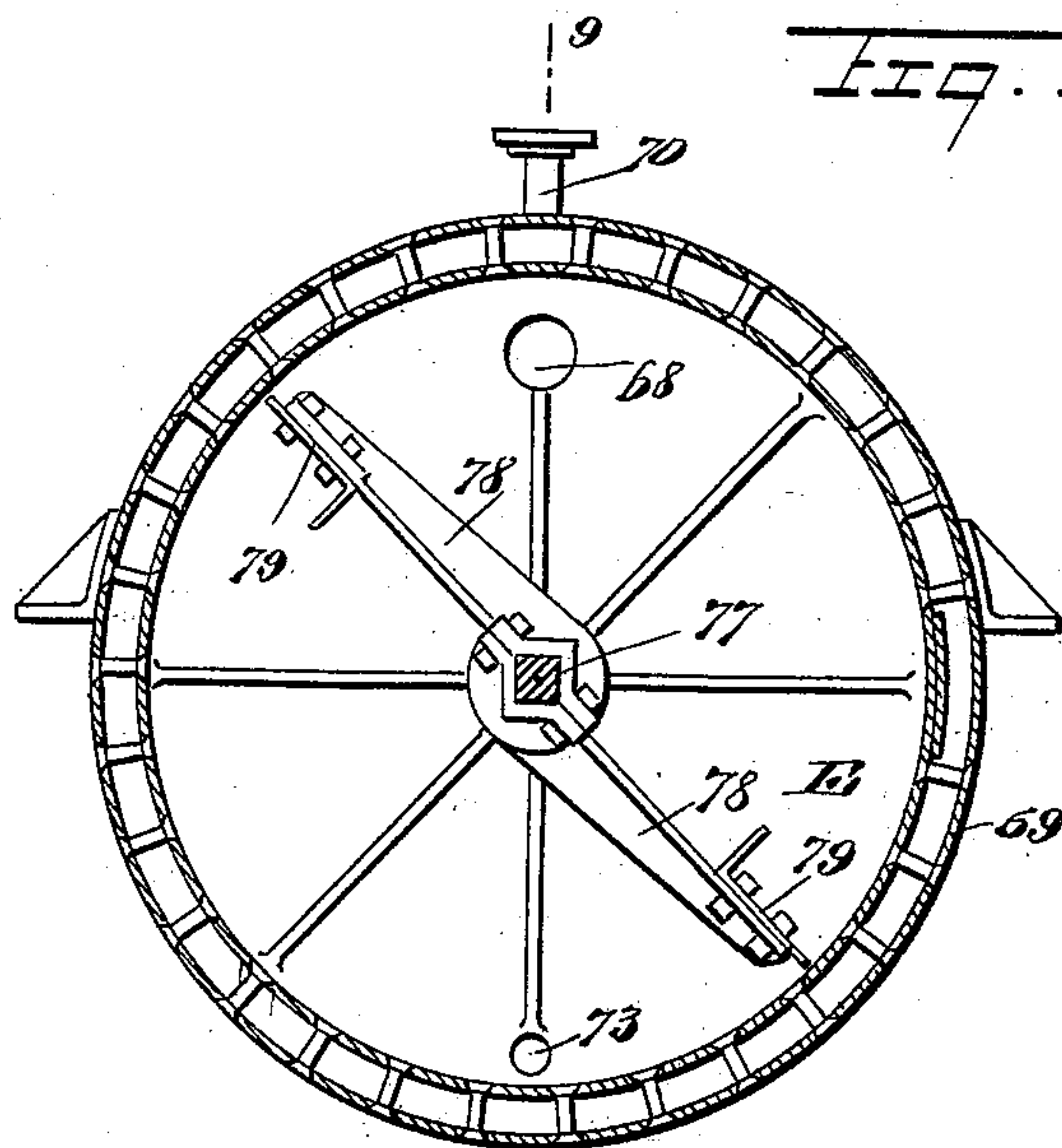


Fig. 10.



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UNITED STATES PATENT OFFICE.

FRANK BURGER, OF NEW YORK, N. Y.

ASPHALT APPARATUS.

SPECIFICATION forming part of Letters Patent No. 620,414, dated February 28, 1899.

Application filed September 8, 1898. Serial No. 690,498. (No model.)

To all whom it may concern:

Be it known that I, FRANK BURGER, of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Asphalt Apparatus, of which the following is a full, clear, and exact description.

This invention relates to an apparatus for compounding asphalt for pavement; and it embodies a wheeled frame on which are mounted a sand heating and drying furnace, boiling and mixing tanks for pitch-asphalt, and measuring and amalgamating devices by which to amalgamate the sand and pitch-asphalt, all the parts of the apparatus being connected to work in unison by gearing driven from an engine on the framing of the apparatus.

This specification is the disclosure of one form of my invention, while the claims define the actual scope of the invention.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the apparatus. Fig. 2 is a sectional view on the line 2 2 of Fig. 1. Fig. 3 is a sectional view on the line 3 3 of Fig. 1. Fig. 4 is a sectional view on the line 4 4 of Fig. 1. Fig. 5 is a sectional view on the line 5 5 of Fig. 6. Fig. 6 is a sectional view on the line 6 6 of Fig. 5. Fig. 7 is a sectional view on the line 7 7 of Fig. 8. Fig. 8 is a sectional view on the line 8 8 of Fig. 7. Fig. 9 is a sectional view on the line 9 9 of Fig. 10, and Fig. 10 is a sectional view on the line 10 10 of Fig. 9.

The apparatus is built on a frame mounted on wheels and adapted to be drawn by a team of horses connected with a draft-pole, all of which may be of any desired construction.

On the front part of the frame is situated an engine A, energized from a steam-boiler B and driving a shaft 11 by means of spur-and-pinion gearing between the two. The shaft 11 carries a sprocket-wheel 12, over which passes a chain 14, such chain passing also around and driving a sprocket-wheel 15 on a shaft 16, mounted at the top of the frame, and from this shaft 16 is taken the power for driving the several mobile parts of the apparatus, as will be fully described hereinafter.

Mounted on pedestals 17 on the frame is a shaft 18, which carries at its left-hand end a sprocket-wheel 19, over which runs an endless conveyer 20. The conveyer 20 also passes over a sprocket-wheel 21, mounted in a box 22, which may be either rested on the ground or attached to the frame, as desired, and from this box 22 sand is taken by the conveyer 20 upward to the sand drying and heating frame C. The shaft 18 is driven by a sprocket-wheel 23, attached thereto and having a chain 24 run thereover, such chain 24 passing around a sprocket-wheel 25, attached to the shaft 16.

The sand-heating furnace is best shown in Figs. 5 and 6 and consists in a fire-box 26, in which are mounted tapering drums 27 and 28, each having interior spokes 29, serving to mount them respectively upon shafts 30, journaled in the casing of the furnace and geared with each other to turn in unison by means of sprocket-wheels 31, over which passes a chain 32. The sand-heating furnace is fed by the dumping of the conveyer 20 into a hopper 33, (for which see Fig. 4,) which feeds the sand into the neck 34 (see Fig. 6) of the spout 35, which is held stationary in the casing of the furnace and concentric to the shaft 30 of the drum 27. A feed-screw 36 is attached to the shaft 30 of the drum 27 at a point within the spout 35, so that the sand will be fed from the spout into the drum. The large end of the drum empties into a hopper 37, which in turn leads to a spout 38, similar to the spout 35 and containing a feed-screw 39, fast to the shaft 30 of the drum 28. The fire in the box 26 heats the drums 28 and 27, and the sand passing from one drum to the other is thoroughly heated and dried in said drums. The sand is discharged from the drum 28 into a chute 40, passing from the casing of the furnace and commanded by a suitable valve 41. The shaft 30 of the drum 27 carries a sprocket-wheel 42, over which passes a chain 43, that runs up to and around a sprocket-wheel 44, fast to the shaft 16.

The chute 40 (see Fig. 4) drops the sand into a box 45, which contains a shaft 46, to which is attached a sprocket-wheel 47, said wheel carrying an endless conveyer 48, that runs up to and around a sprocket-wheel 49 on a shaft 50, mounted to turn in pedestals 51, support-

ed on the framing of the machine. The sand is thus taken up by the carrier 20 and dropped into the heating-furnace C, and from the heating-furnace C the sand is dropped into the box 45, from which it is taken into the carrier 48, which latter discharges the sand into a hopper 52, mounted on the rear portion of the frame, at the top thereof. The shaft 50 is driven by a chain 53, passing from a sprocket-wheel 54 on a shaft 55 and also passing around a sprocket-wheel 56 on the shaft 50. The shaft 55 in turn is driven by a chain 57, passing around a sprocket-wheel 58 on said shaft 55 and also passing around a sprocket-wheel 59 on the shaft 16.

The devices for boiling and mixing the pitch-asphalt are shown in Figs. 1, 2, 7, 8, 9, and 10. The boiling devices consist of two coppers D, each of which has steam-coils 61 therein and a spray-pipe 62, the coils and pipes being connected with pipes 63 in communication with the boiler B. The coils 61 of each copper D are connected with each other by pipes 60, which are provided with vent-valves for the discharge of the water of condensation from the coils, thus keeping the coils continually charged with the steam-pressure from the boiler B. Each copper D is provided with a gate-valve 64, commanded by a swinging arm 65, and these gate-valves control the outlets of the coppers, which outlets pass into pipes 66, that in turn communicate with a valved horizontal pipe 67, such pipe 67 having at its middle a communicating elbow 68, which passes into the agitating-drum E. The agitating-drum E has a steam-jacket 69, fed by a pipe 70, communicating with the pipe 63 and by which the drum E is kept continually heated. The drum E has a manhole 71 at one end and is also provided with a pipe 72, communicating with the interior of the drum and furnishing a means for injecting compressed air into the drum, so that the pitch-asphalt will be influenced by the compressed air and forced out of the drum through a pipe 73, said pipe being commanded by a cock 74 and leading to a measuring-bucket 75, poised over an amalgamating apparatus F. The drum E has a shaft 77, mounted to turn therein and carrying arms 78, on which are fixed agitating-blades 79. The shaft 77 has a spur-gear 80, which meshes with a pinion 81, (see Fig. 1,) fast on a shaft 82, which shaft carries a sprocket-wheel 83, (see Fig. 1,) over which wheel passes a chain 84, also passing around a sprocket-wheel 85 on the shaft 55. (See Fig. 3.)

The amalgamating apparatus F may be of any desired construction and is driven from a shaft 76 by means of spur-and-pinion gearing 86 and 87, the gear 87 being fast to one of the shafts of the amalgamating apparatus and the gear 86 being fast to the shaft 76. The shaft 76 carries a sprocket-wheel 88, over which passes a sprocket-chain 89, which also passes up to and over a sprocket-wheel 90, fast to the shaft 55. From the hopper 52 the

heated and dried sand is dumped by a gate 91 into the measuring-bucket 92, which bucket is mounted to rock so as to dump its contents into the amalgamating apparatus F.

In using the apparatus the parts are set in operation from the engine A and the sand is taken up from the box 22 by the carrier 20 and dumped into the sand-drums in the furnace C, after which the sand drops into the box 45 and is taken up therefrom by the carrier 48 and dumped into the hopper 52. Meanwhile the pitch-asphalt being dumped into the coppers D is thoroughly boiled and forced into the agitator E, which after agitating the pitch-asphalt discharges the same by air-pressure through the pipe 73, and by means of the cock 74 the pitch-asphalt may be emptied as desired into the measuring-bucket 75. The operator stands so that the buckets 75 and 92 may be controlled and the proper quantities of pitch-asphalt and sand are simultaneously dumped into the amalgamator F, whereupon the sand and pitch-asphalt are mixed together and discharged from the amalgamator F in the form of asphalt-paving mixture.

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

1. In a sand-heating furnace for an asphalt-machine, the combination of a fire-box, a casing located above the same and communicating therewith, the casing having a smoke-stack leading from its upper portion, a spout mounted in the upper portion of the casing and communicating with the neck through which the sand is fed, a tapering drum mounted in the upper portion of the casing and having the spout projected into its small end, a shaft upon which the drum is mounted, a feed-screw attached to the shaft and located in the spout to feed the sand through the spout, a hopper into which the large end of the drum empties, the hopper having a spout at its lower portion, a second tapering drum, the small end of which receives the second-named spout, a shaft on which the second drum is mounted, a feed-screw attached to the second-named shaft and located in the second-named spout, and gearing for driving the two shafts in unison.

2. In a sand-heating furnace, the combination of a fire-box, a casing mounted above and communicating with the fire-box, and a smoke-outlet at its upper portion, two tapering drums mounted in the casing, a hopper receiving the sand from one drum and delivering it to the other, shafts on which the drums are mounted, feed-screws attached to the shafts and serving to feed the sand to the respective drums, and gearing for driving the shafts in unison.

3. In an asphalt apparatus, the combination of a frame, a motor mounted thereon, a sand-heating furnace carried on the frame, a carrier serving to raise the sand when delivered from the heating-furnace, a hopper

in which the carrier dumps the sand, a measuring apparatus located below the hopper, a mixer into which the measuring apparatus delivers, pitch-heating coppers mounted on
5 the frame, an agitating-drum into which the coppers empty, steam-pressure devices for forcing the pitch out of the agitating-drum,

a measurer receiving the pitch from said steam-pressure devices, and gearing for driving the several parts of the apparatus.

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