

No. 711,327.

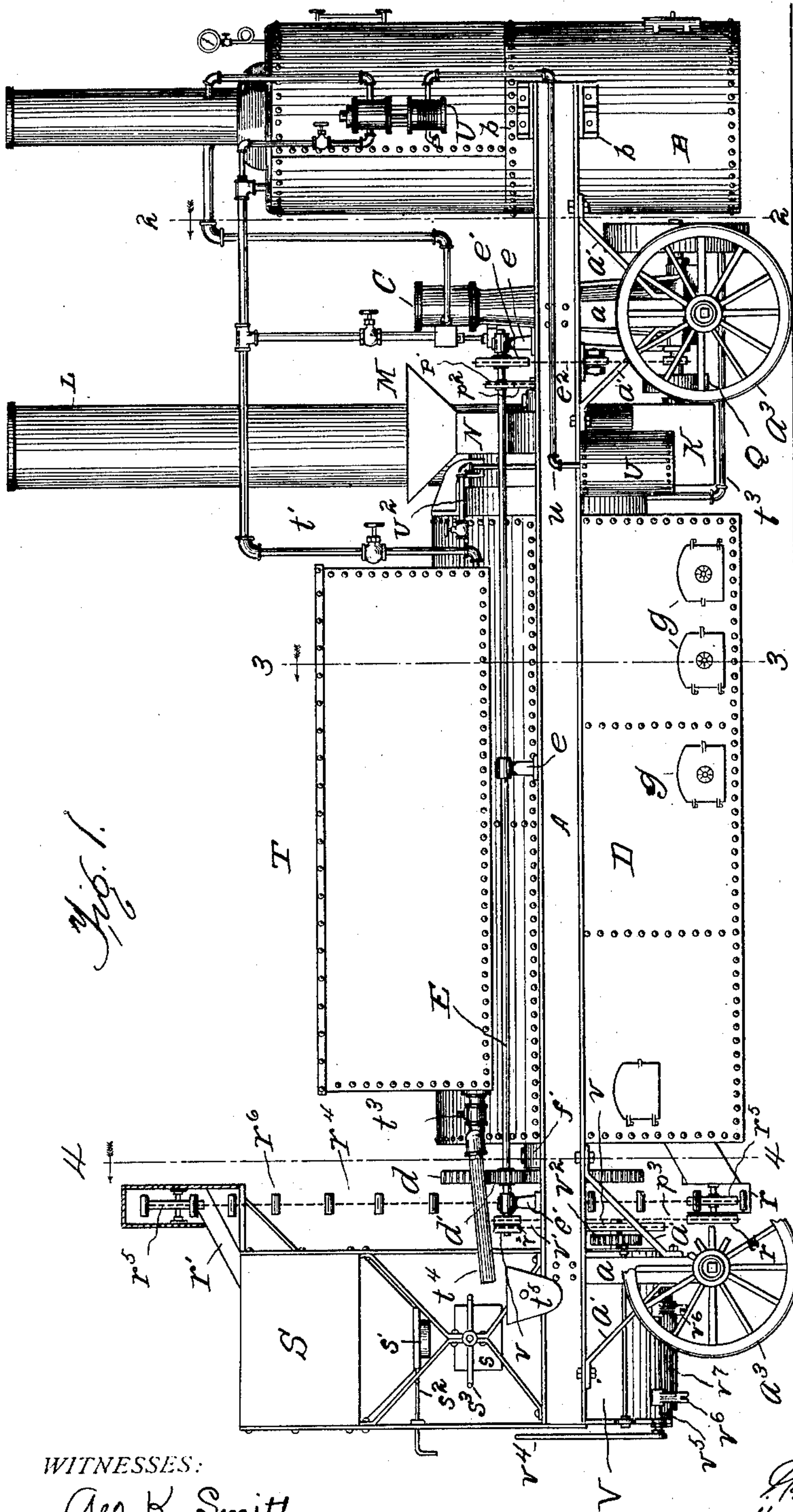
Patented Oct. 14, 1902.

G. & H. MERRIMAN.
PORTABLE ASPHALT PAVING PLANT.

(Application filed Feb. 20, 1902.)

(No Model.)

4 Sheets—Sheet 1.



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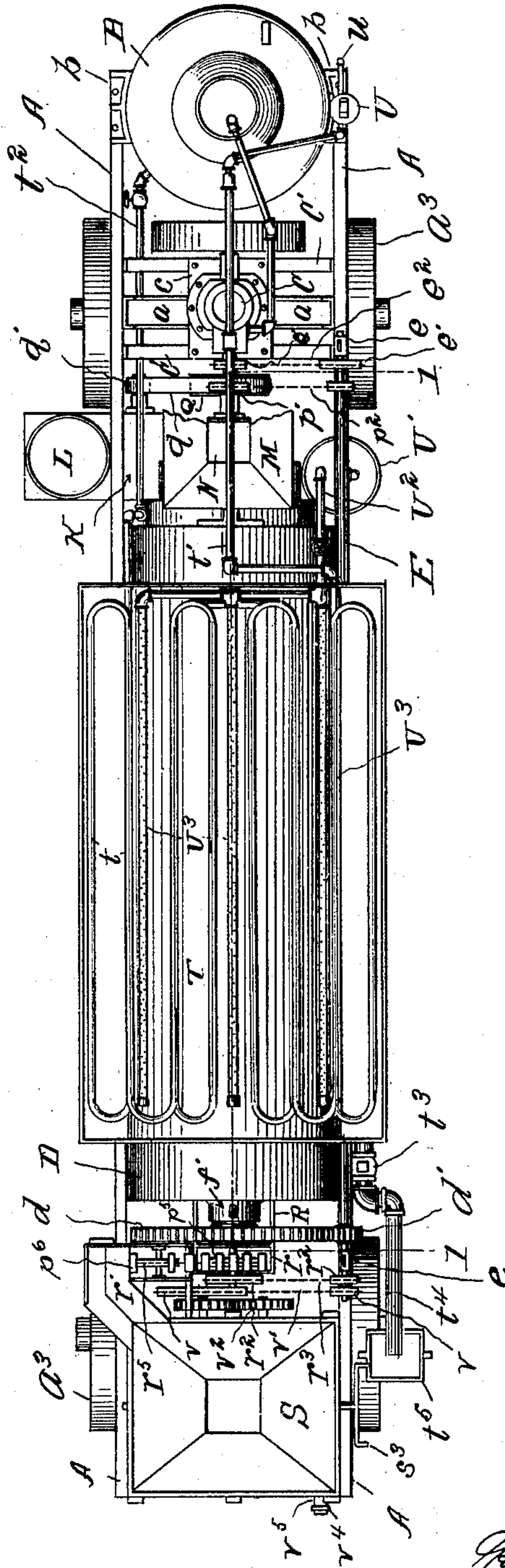


Fig. 2.

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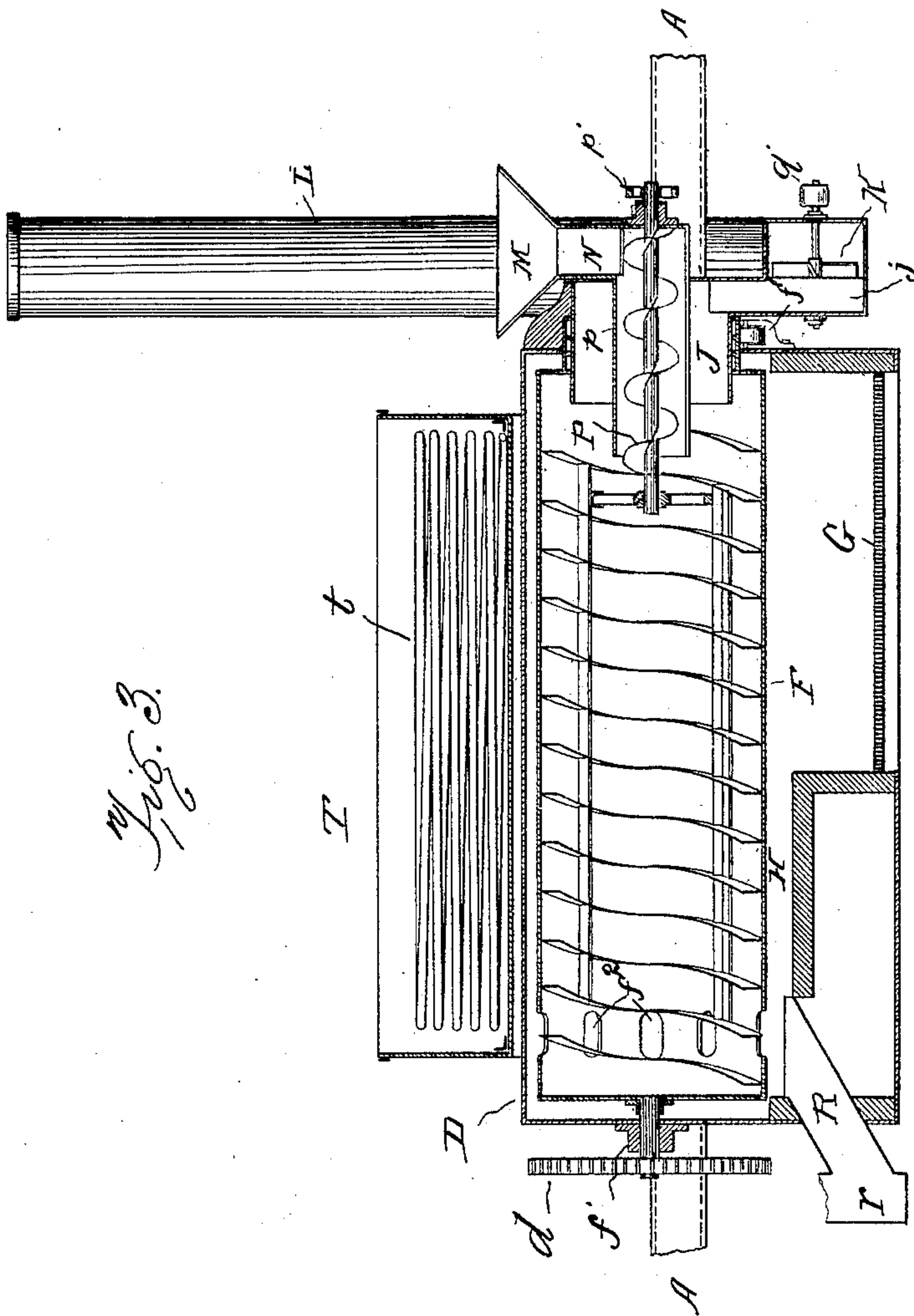
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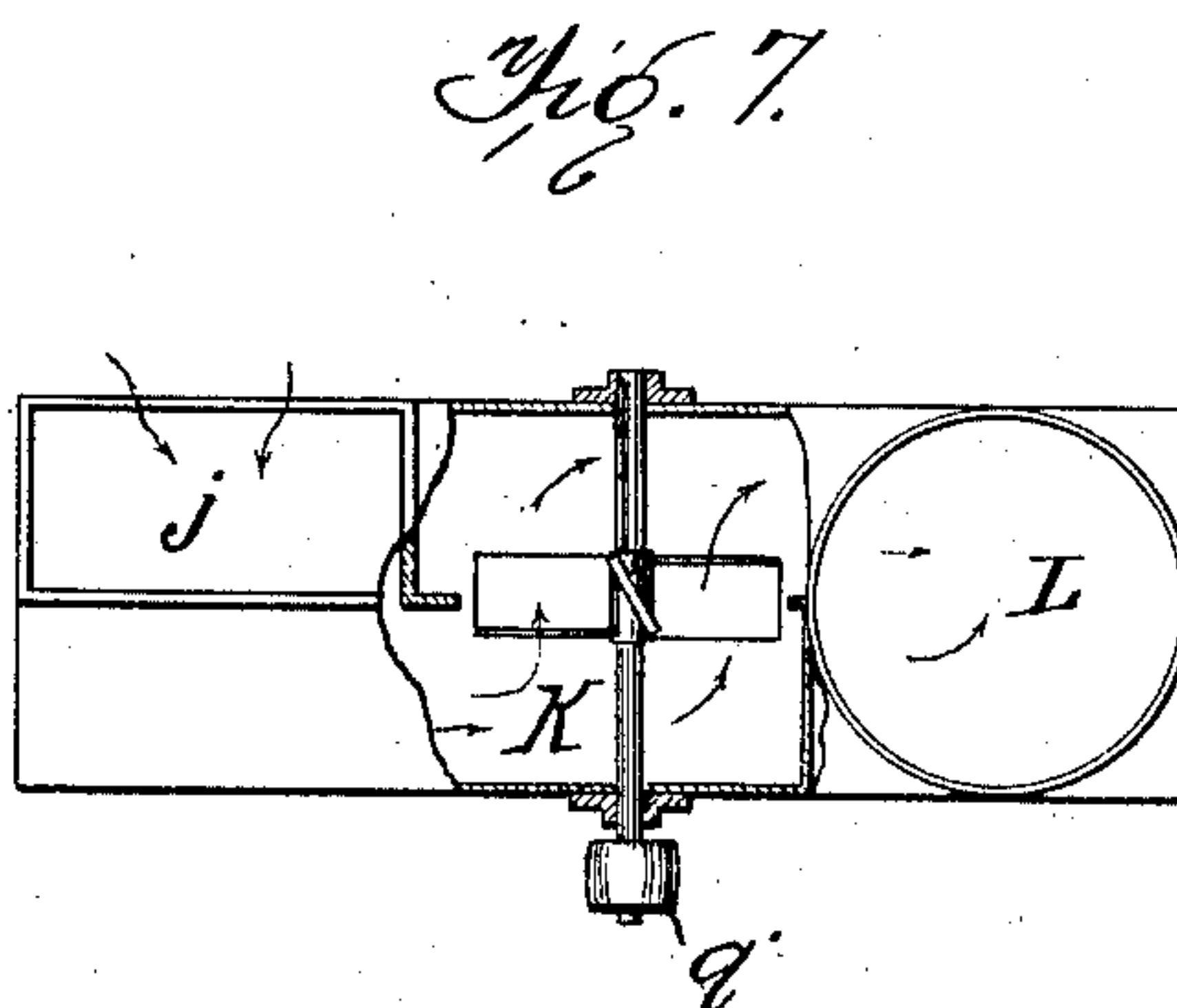
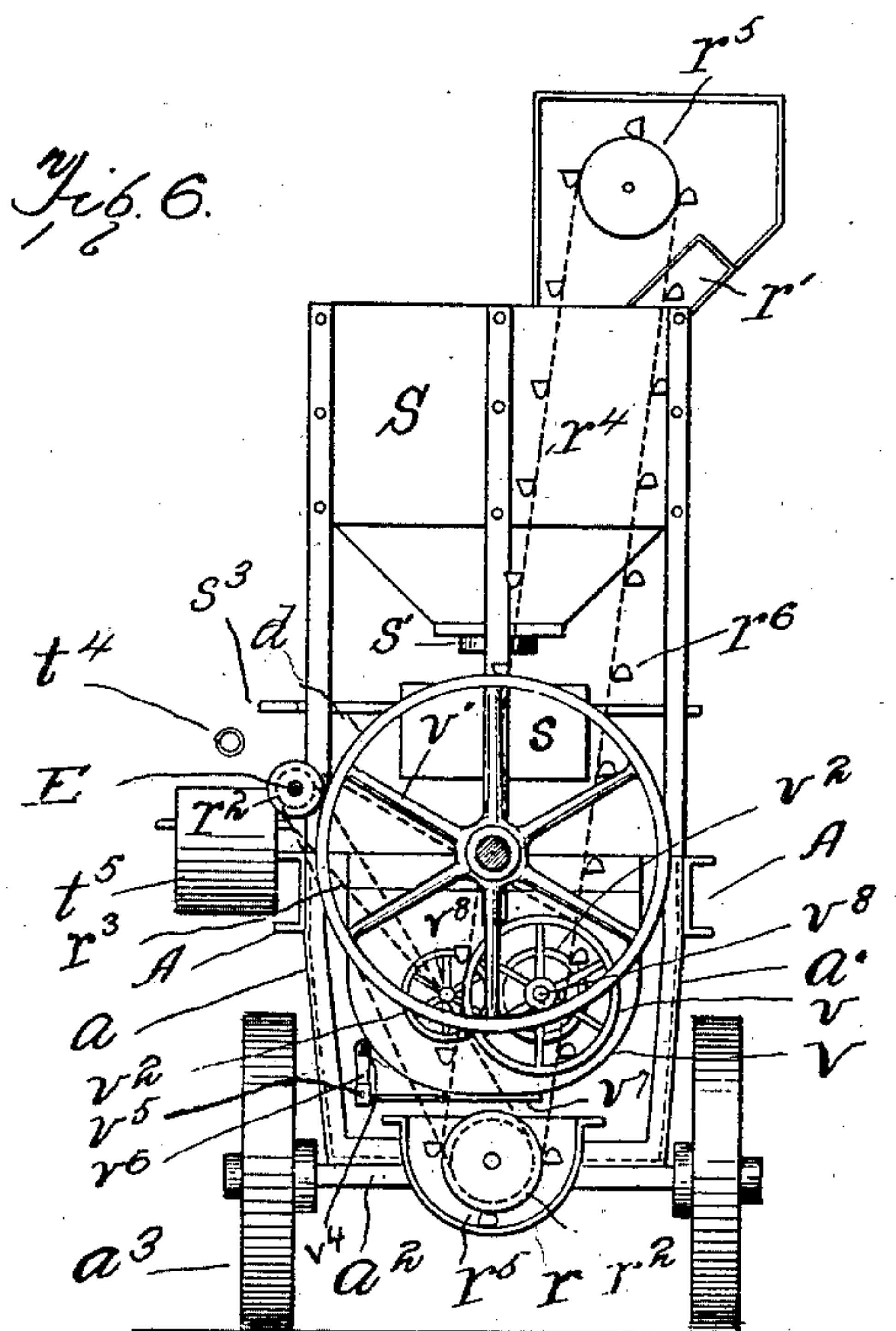
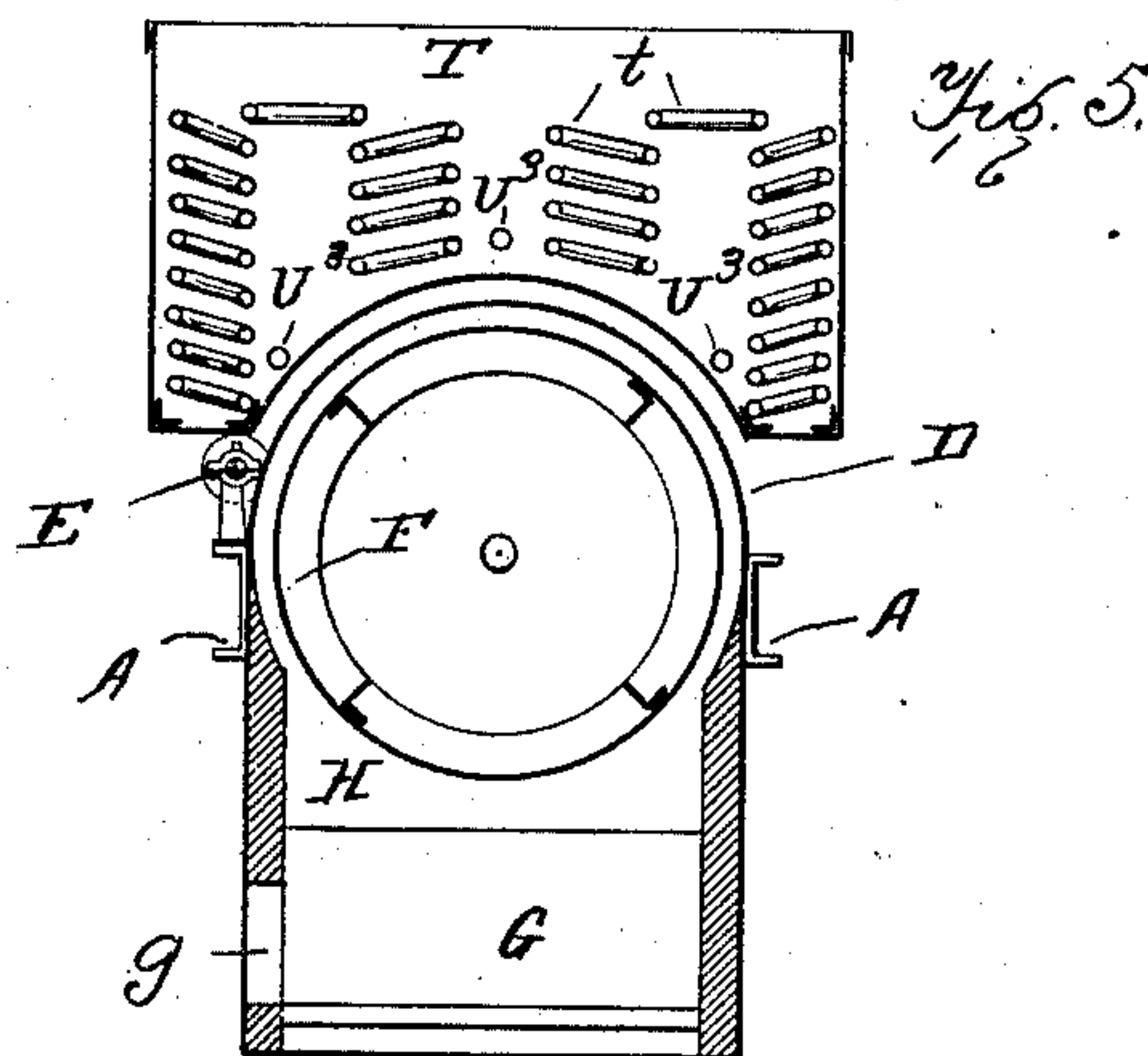
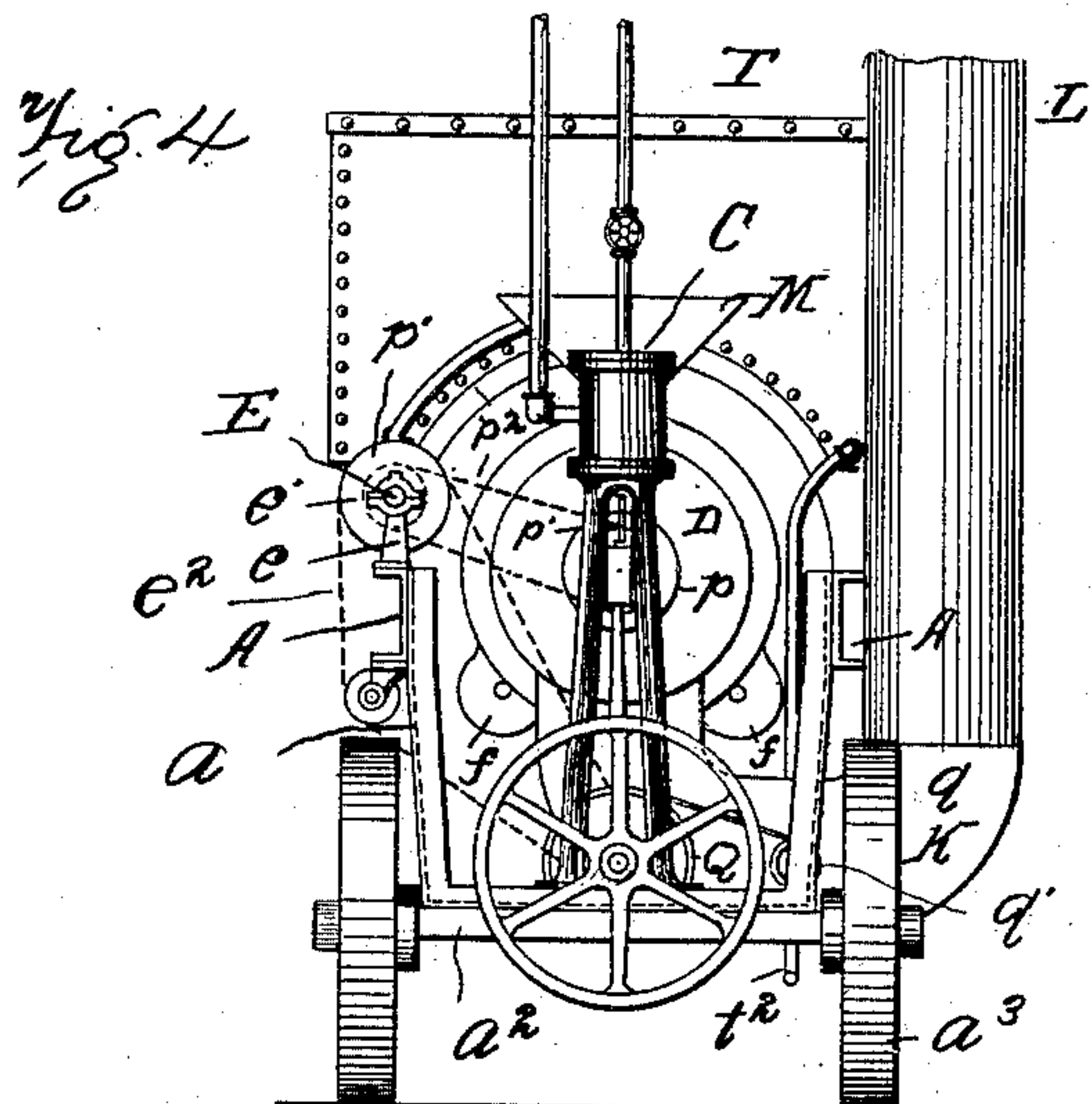
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UNITED STATES PATENT OFFICE.

GEORGE MERRIMAN AND HERMAN MERRIMAN, OF ALLEGHENY, PENNSYLVANIA, ASSIGNORS TO THE TOLEDO ASPHALT PATCHER COMPANY, A CORPORATION OF NEW JERSEY.

PORTABLE ASPHALT-PAVING PLANT.

SPECIFICATION forming part of Letters Patent No. 711,327, dated October 14, 1902.

Application filed February 20, 1902. Serial No. 94,882. (No model.)

To all whom it may concern:

Be it known that we, GEORGE MERRIMAN and HERMAN MERRIMAN, citizens of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Portable Asphalt-Paving Plants, of which the following is a specification.

Our invention relates to improvements in portable asphalt-paving plants, and has for its objects, first, the construction of a plant by which the asphalt can readily be prepared at the place where it is to be used, thereby reducing materially the cost of production of the same; second, the combining in a portable plant the various apparatus necessary in a compact manner, so that the same can be readily transported along the road, highway, or street from place to place as required and also permitting of its being stored in a small space, and thereby at a comparatively slight cost. For these objects it consists of the construction and combination of parts hereinafter set forth and claimed.

In the accompanying drawings, which form a part of this specification, Figure 1 represents a side view of the machine embodying our invention. Fig. 2 represents a top or plan view thereof. Fig. 3 represents a vertical section on the line 1 1, Fig. 2. Fig. 4 represents a vertical section on the line 2 2, Fig. 1. Fig. 5 represents a vertical section on the line 3 3, Fig. 1. Fig. 6 represents a vertical section on the line 4 4, Fig. 1; and Fig. 7 represents a top view of the fan with part broken away to show arrangement of draft-ports.

Similar letters indicate similar parts in the several figures.

The parallel channel-beams A A, supported on the standards a a on the axles a^2 a^2 of the running gear or wheels a^3 a^3 , constitute the framework of the machine. Braces a' a' unite the beams and standards. The boiler B is secured to said beams A by means of the hangers b b .

The engine C is mounted on a base c , which is secured to an axle a^2 , and has braces C' C' extending to the beams A A. Suitably secured to and supported by said framework is

the sand-drier D, having within it a rotary drum F, provided with openings f^2 in its periphery, at or near one end thereof, and with journal-bearings f' f' on the end walls of the drier. One of the journals extending through one end of the drier is provided with a gear d , meshing with a pinion d' on a shaft E, having suitable bearings e e on the framework of the machine and extending longitudinally of the same. The said shaft receives motion from a driving-shaft of the engine by means of the sprocket-wheels e' and the link belt e^2 .

In the lower part of the drier is a fire-grate G, the fuel for which is supplied through the doors or openings g . The hot gases from the fire are drawn upward through the chamber H of the drier and through the ports f^2 into and through the rotating drum and into the chamber J, at one end thereof, and thence down the flue j to the fan K and out through the draft-flue L to the atmosphere. The fan K is driven or rotated by the band-pulley Q on the driving-shaft of the engine, the belt q , and the pulley q' on the shaft of the fan, so as to produce an induced draft, and thereby increase the heat of the flame and also quickly carry away the steam and other gases arising from the wet sand, which latter is admitted to the rotary drum from the hopper M and through the chute N, being conveyed through the drum by means of the screw P, which is inclosed in a stationary cylinder p , projecting into one end of the drum. The said screw conveyer P is driven from the shaft E by means of sprocket-wheels p' p' and link belt p^2 . The sand after being dried is forced out of the drum at the ports f^2 onto the chute R and from thence into the boot r of an elevator, by which it is conveyed to a chute r' , which delivers it into the hot-sand bin S. The elevator is operated from the shaft E by means of sprocket-wheels r^2 r^2 and link belt r^3 and has its belt r^4 run over friction-wheels r^5 at its upper and lower ends, so as to permit a slipping of the belt in case of a clogging or other obstruction of the buckets r^6 thereof.

The asphalt-melting pan T is secured to the top of the sand-drier D and has within it for melting the asphalt a series of live-steam coils

t , which are connected to the boiler through the pipe t' , the condensed steam being returned to the boiler through a pipe t^2 . Within the pan T is also a system of perforated air-pipes U^3 for the purpose of agitating the mixture of the melted asphalt and oil. The said pipes U^3 receive compressed air through a pipe U^2 from the tank U' , which is constantly kept supplied with air by means of an air-pump U, located on one side of the boiler or other suitable place.

The melted-asphalt mixture is run off from the pan T through the valve t^3 and flexible pipe t^4 to the measuring-bucket t^5 and afterward emptied into the mixer V.

The mixer V is suitably supported at one end of the machine from the framework A A and is provided with radial arms secured to horizontal shafts v^8 , extending through the body thereof, said shafts operating in unison by means of connecting gear-wheels v^2 . The horizontal shafts v^8 of the mixer are operated from the shaft E by means of the sprocket-wheels v and the link belt v' .

The hot sand from the sand-bin S is run into a measuring-box s by a chute s' through the gate s^2 and then dumped into the mixer V by means of a handle S^3 on said box.

In the mixer V the sand and melted asphalt are properly combined or mixed, so as to be in condition for use, and the asphalt mixture is when desired dumped from said mixer V, through the sliding door v^7 in the bottom thereof, onto the street or other required place.

The door v^7 is operated by a lever v^4 , connected with the rock-shaft v^5 , having the arms v^6 connected with said door.

The parts are so proportioned and arranged upon the framework that the center of gravity of the machine is at all times within the truck or wheels, so as to insure a firm and steady support for the operative parts thereof.

It will be seen from the foregoing that a device constructed as herein described will be capable of efficient work, will be compact in its parts, and can be operated at a minimum expense.

Having thus described our invention, what we desire to claim and secure by Letters Patent is—

1. The combination in a portable asphalt plant, of wheels and axles; standards a , supported by the axles; longitudinal beams A, A, secured to the standards; braces a' ; a boiler, sand-drier, melting-pan, sand-elevating device, and mixer supported by the beams A, A; an engine C; a shaft E extending substantially the length of the frame, and gearing for operating the sand-drier, said elevating device, and mixer.

2. The combination in a portable asphalt plant, of wheels and axles; a supporting-frame; a boiler, engine, sand-drier, melting-pan located above the sand-drier, sand-elevating device, and mixer, arranged in line; a longitudinal shaft E extending longitudinally of and substantially the length of the

frame and supported thereby; means for operating the shaft from the engine; and gearing connecting the shaft E with the sand-drier, elevator, and mixer for operating the same.

3. The combination in a portable asphalt plant, of wheels and axles; standards; beams A, A, supported by the standards; a boiler, engine, sand-drier, melting-pan, sand-elevator and mixer arranged from end to end of the beams A, A; a shaft E extending longitudinally and of substantially the length of the beams A A and supported on a beam A; a link belt e^2 connecting the shaft and engine; toothed gearing d d' for operating the sand-drier; link belt r^3 for operating the sand-elevator; and link belt v' for operating the mixer.

4. The combination in a portable asphalt plant, of wheels and axles; a supporting-frame; a boiler; engine; rotary sand-drier; a hopper M; screw conveyer P; a melting-pan above the sand-drier; a sand-elevator; a mixer; a longitudinal shaft E of substantially the length of the frame; means for operating the shaft from the engine; means for operating the sand-drier, sand-elevator, and mixer from the shaft; and link belt p^2 for operating the screw conveyer from the shaft.

5. The combination in a portable asphalt plant, of wheels and axles; a supporting-frame; a boiler; engine; furnace and stack; sand-drier; melting-pan; sand-elevator; mixer; longitudinal shaft E of substantially the length of the frame; means for operating the shaft from the engine; and means for operating the sand-drier, sand-elevator, and mixer from the shaft; said furnace being provided with a blower K operated by the belt q directly from the engine.

6. The combination in a portable asphalt plant, of wheels and axles; a supporting-frame; a boiler; an engine; a furnace; a rotary sand-drier; a melting-pan above the drier and furnace; a sand-elevator; a mixer; a longitudinal shaft E of substantially the length of the frame; means for operating the shaft from the engine; and means for operating the sand-drier and mixer from the shaft E; the said sand-elevator being located between the drier and mixer; and a link belt r^3 in gear with the shaft E and a shaft of the sand-elevator for operating the latter.

7. The combination in a portable asphalt plant, of wheels and axles; a supporting-frame; a boiler, an engine; a rotary sand-drier; a furnace; a melter above the drier; a sand-elevator; a mixer; a longitudinal shaft E of substantially the length of the supporting-frame; means for operating the shaft from the engine; means for operating the drier and sand-elevator from the shaft; and a link belt v' geared to the shaft and a shaft of the mixer.

8. The combination in a portable asphalt plant, of wheels and axles; a supporting-frame; a boiler; engine; rotary sand-drier; a furnace; a melting-pan above the furnace

and drier; a sand-elevator, a mixer; a longitudinal shaft E of substantially the length of the frame; means uniting the shaft and engine for operating the former; and gearing connecting the shaft E with the sand-drier, sand-elevator, and mixer for operating the same; the said melting-pan being provided with coils of steam-pipe leading from the boiler, and also with a pipe t^4 for discharging the contents of the pan into a measuring vessel.

9. The combination in a portable asphalt plant, of wheels and axles; a supporting-frame; a boiler; engine; sand-drier; furnace; melting-pan above the drier; a sand-elevator; a mixer; a longitudinal shaft E of substantially the length of the frame; gearing uniting the engine and shaft and the shaft with the sand-drier, sand-elevator, and mixer; said melting-pan being provided with a steam-coil connected with the boiler, and with air-pipes in communication with an air-tank U', and said boiler having secured to its side an air-pump for supplying compressed air to the said tank.

10. The combination in a portable asphalt plant, of wheels and axles; a supporting-frame; a boiler; an engine; a furnace; a sand-drier; a melting-pan above the drier; a sand-elevator; a mixer; a longitudinal shaft E of substantially the length of the frame; a blower; a screw conveyer; gearing uniting the engine and shaft; gearing uniting the engine and blower; and gearing uniting the shaft E with the screw conveyer, sand-drier, sand-elevator, and mixer, the combination of parts being such that the steam from the boiler operates the engine which in turn imparts motion to the blower and shaft E, and said shaft E imparts motion to the screw conveyer, sand-drier, sand-elevator, and mixer.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE MERRIMAN.
HERMAN MERRIMAN.

Witnesses:

HENRY MENTZER,
GEO. CASTLEAMAN.