

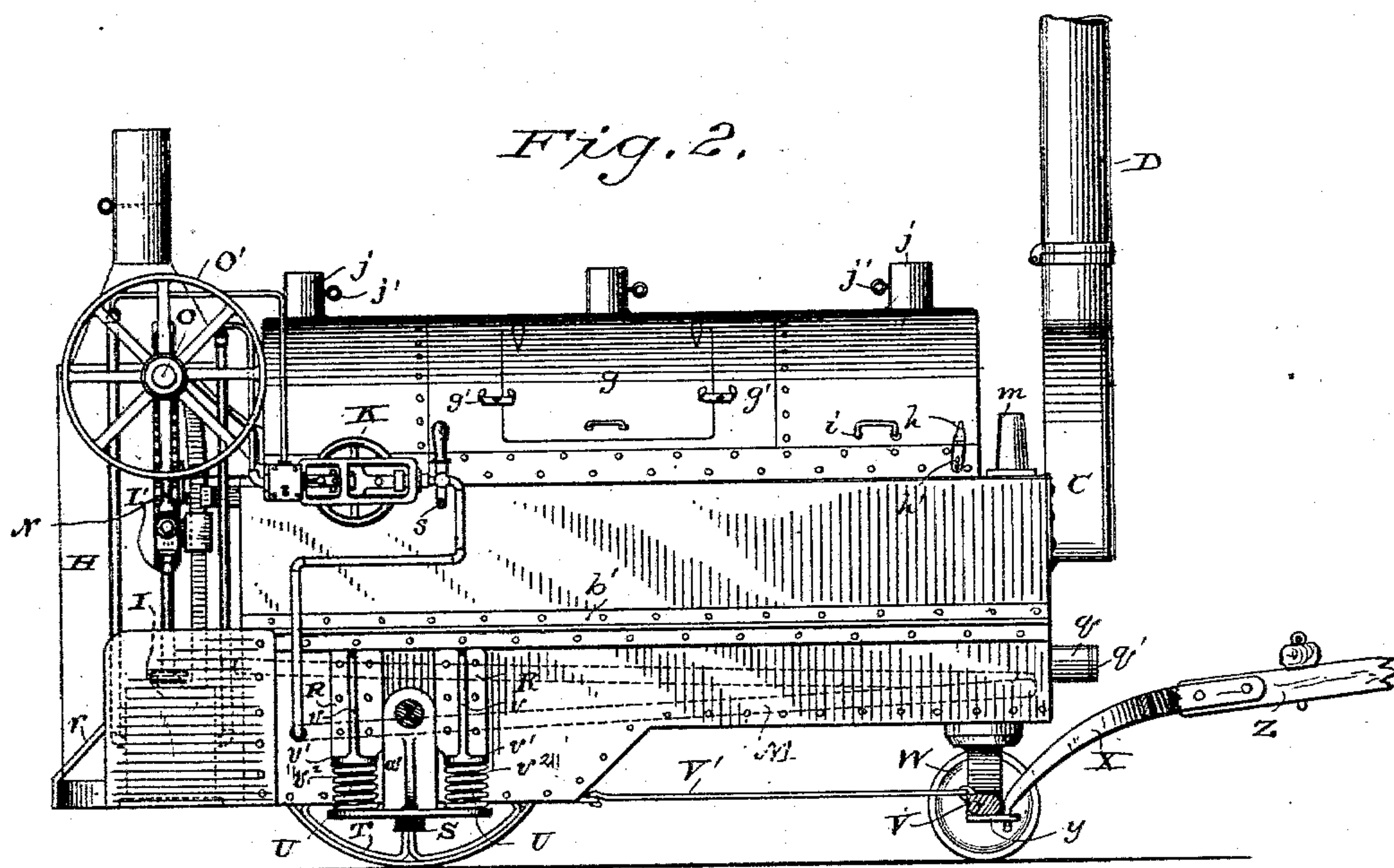
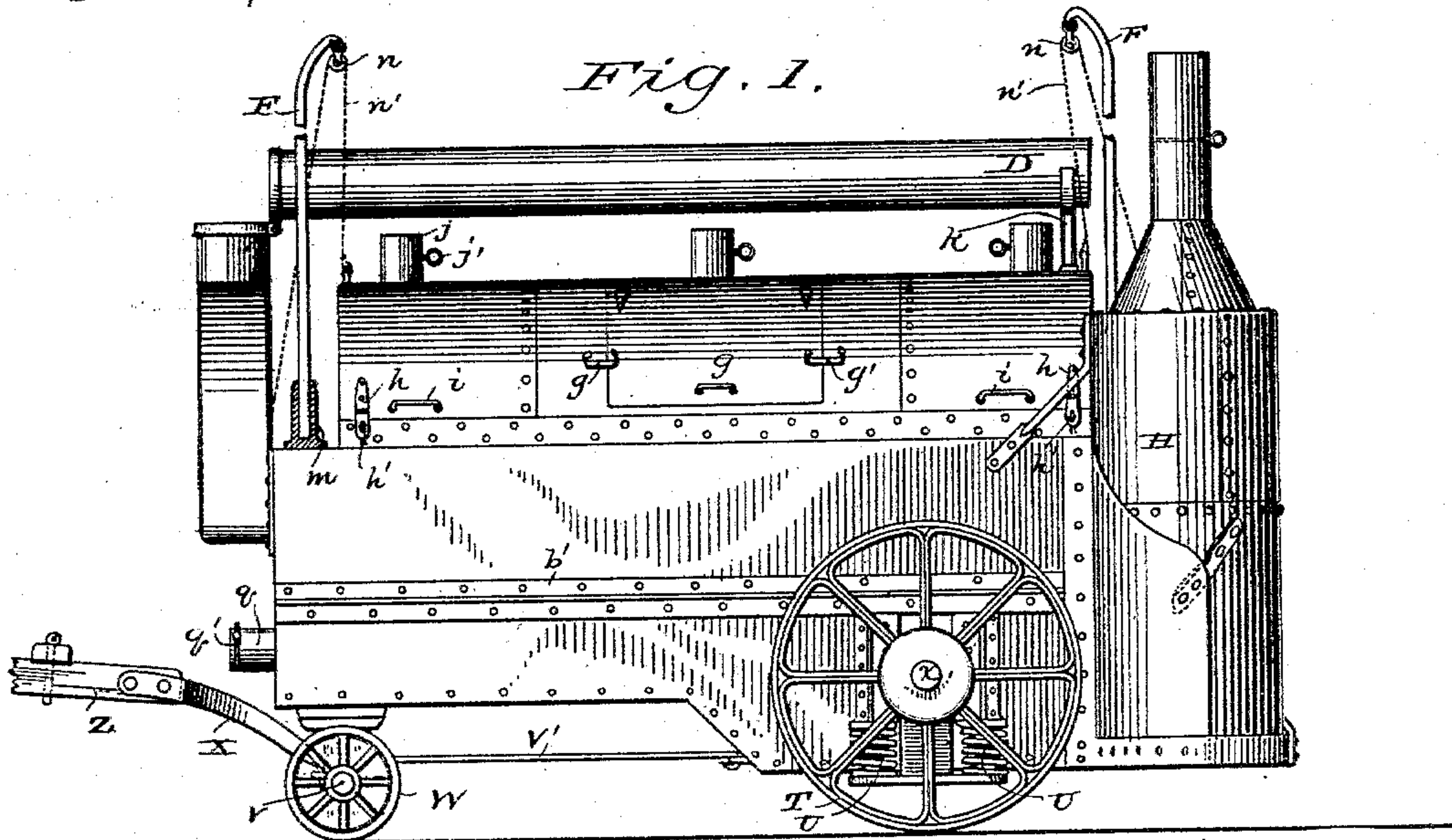
(No Model.)

2 Sheets—Sheet 1.

G. WINDING.  
ASPHALT MIXING MACHINE.

No. 490,218.

Patented Jan. 17, 1893.



Witnesses  
Geo. W. Young.  
N. E. Oliphant

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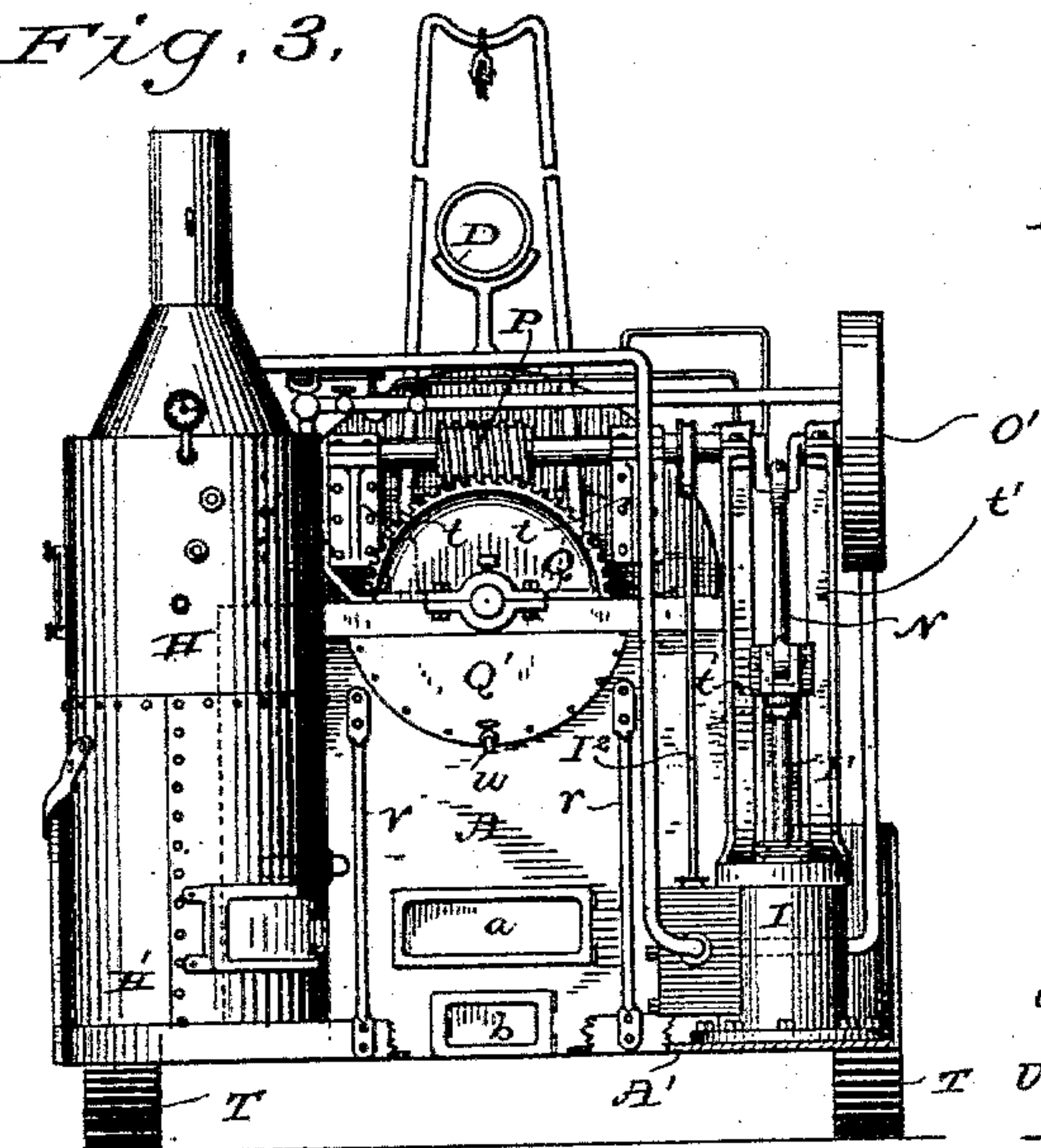
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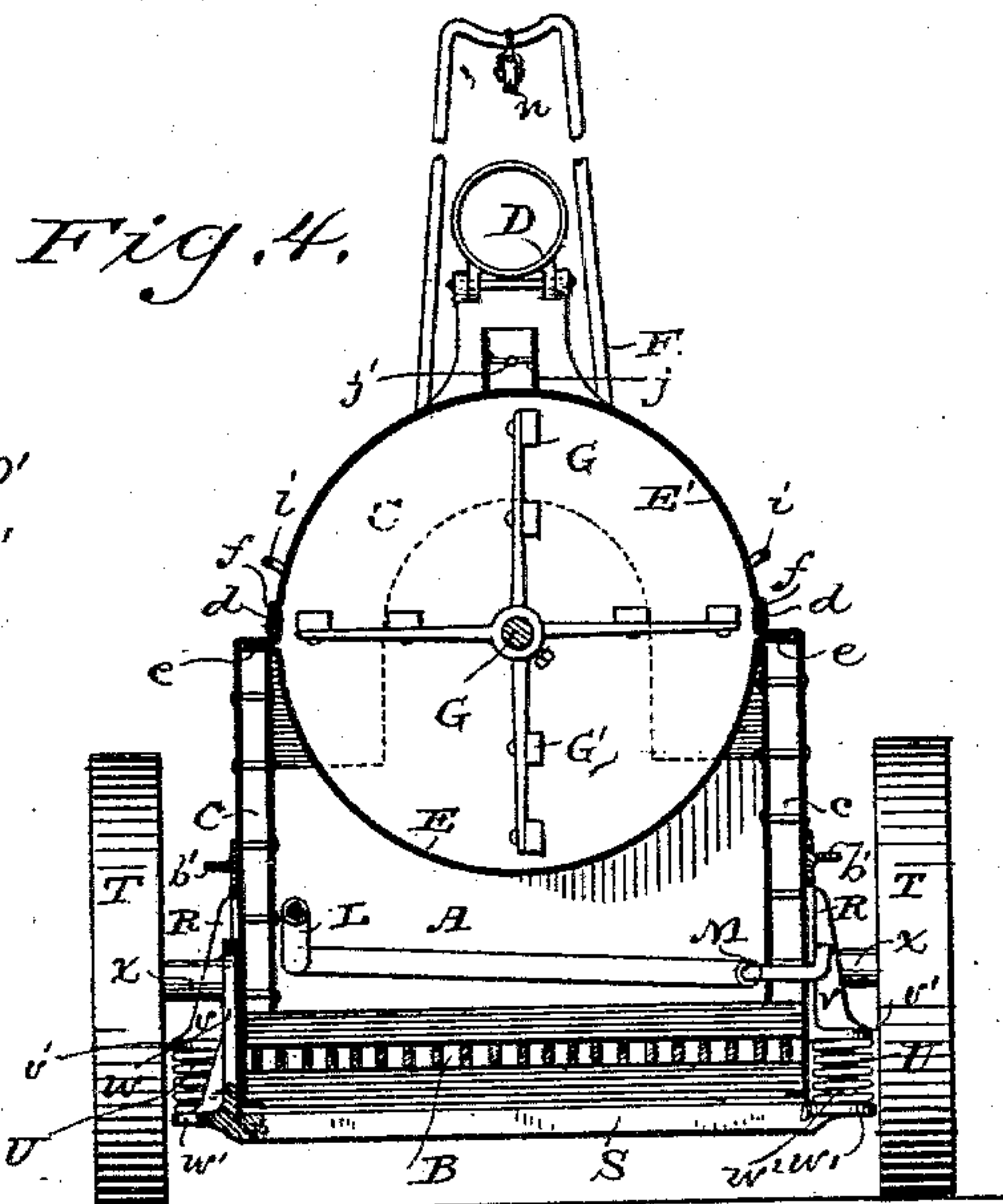
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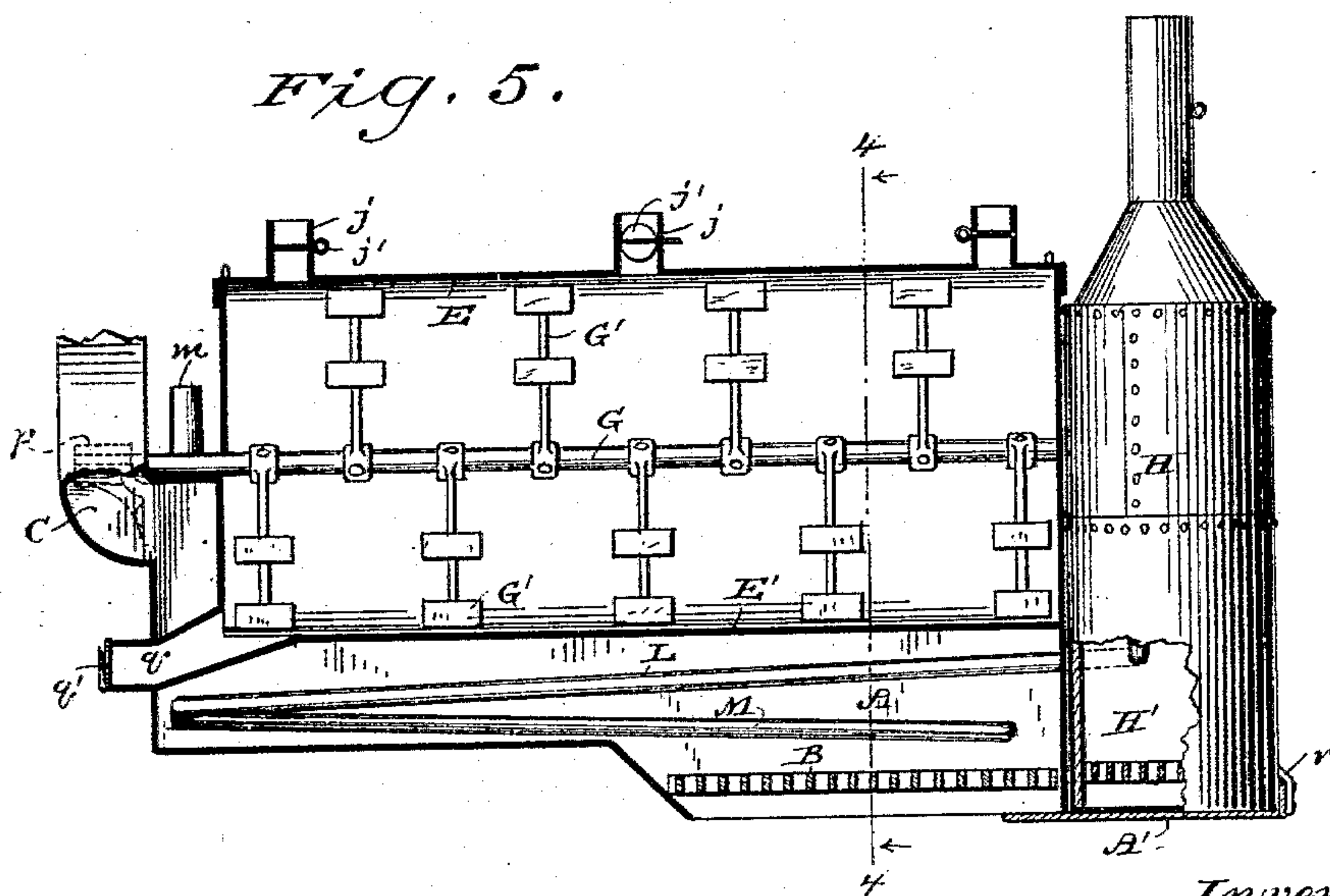
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

GEORGE WINDING, OF MILWAUKEE, WISCONSIN.

## ASPHALT-MIXING MACHINE.

SPECIFICATION forming part of Letters Patent No. 490,218, dated January 17, 1893.

Application filed October 29, 1887. Serial No. 253,686. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE WINDING, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Machines for Mixing Asphalt; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to machines for mixing asphalt being an improvement on my patent No. 295,707, dated March 25, 1884, and it consists in certain peculiarities of construction and combination of parts to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings: Figure 1—represents an elevation of one side of my machine, Fig. 2—a similar view of the opposite side, Fig. 3—a rear end elevation, Fig. 4—a section taken on line 4—4 Fig. 5, and Fig. 5—a longitudinal vertical section of the mixing cylinder, the boiler being in elevation and partly broken away.

Referring by letter to the drawings A represents a fire box that is preferably deepest at its rear end, and in this deep portion is located a grate B to which fuel is supplied through a suitable opening in the rear wall of the fire box, said opening being normally closed by a door *a*. Below the door *a* is another door *b* that closes an opening through which to insert a poker for stirring the fire in the grate. As shown in Fig. 4, the fire box A is preferably double walled to form a dead air space *c* in order to prevent excessive heating of the outermost walls, and at its front end said fire box has an opening that communicates with a smoke box C that has hinged thereto a smoke stack D.

The outer walls of the fire box A are braced by irons *b'* and have double right angle flanges *d* at their upper ends as shown in Fig. 4, and between these flanges and the upper ends of the adjacent inner walls are inserted lateral flanges *e* belonging to the bottom section E of a mixing cylinder that forms part of my machine, the upper section E' of this cylinder being offset as shown at *f* to fit over the vertical portions of the double right angle flanges of said outer walls of the fire box and also provided with flanges to fit over the heads of said cylinder. The upper section E' of the

mixing cylinder is provided on each side with a door *g* that is held in its closed position by pivoted latches *g'* and this upper section is held down upon the lower section E by means of hasps *h* and staples *h'* respectively secured to said sections. The upper section E' of the mixing cylinder is also provided with handles *i*, and flues *j* that have dampers *j'* arranged therein, and to the rear end of said section is secured a rest *k* that supports the smoke stack D when the latter is not in use. To the top of the fire box A in front and rear of the mixing cylinder are secured sockets *m* for the lower ends of removable cranes F that have suspended therefrom pulley blocks *n* through which are reeved chains or cables *n'* fastened to the upper section E' of said cylinder. By means of the chains or cables the upper section E' of the mixing cylinder can be lifted and suspended when it is desirable to clean out said cylinder.

Arranged in bearings *p* on the fire box A is a shaft G that extends through the mixing cylinder and has secured thereto a series of paddles or stirrers G'. The mixing cylinder has an outlet *q* at its front end and this outlet is closed by a pivoted gate *q'*.

A platform A' extends rearward from the fire box A and is braced by stay rods *r*. On the platform is arranged an upright steam boiler H and an engine I, said boiler and engine being connected in the usual manner. The water for the boiler is supplied by a steam pump K suitably secured to one side of the fire box A and having the usual connections with said boiler. The pump K is connected at *s* by means of a hose or pipe to a tank or other source of water supply, the water on its way to the boiler H being forced through pipes L M arranged in the fire box A and is thus heated to a certain degree prior to reaching said boiler thereby enabling me to get up and maintain steam with but little expense for fuel to supply the furnace H' of said boiler.

The piston I' of the engine I is connected to a pitman N that is in turn connected to a crank shaft O, the latter being arranged in bearings *t t'* respectively secured to the rear head of the mixing cylinder and extended up from the engine, said shaft being provided with a fly wheel O' and eccentrically con-



connected to the valve rod I<sup>2</sup> of said engine. The crank shaft O carries a worm P that meshes with a worm wheel Q on the stirrer shaft G, said worm wheel being revolved in a trough 5 Q' kept filled with greasy water to serve as a lubricant and cooling medium, said trough being provided with a cock *u* for the purpose of drawing off the water.

Rigidly secured to the outer sides of the fire box A near its rear end are angle plates 10 R R that are strengthened by webs *v* and have their lower lateral portions *v'* provided upon the underside with lugs *v*<sup>2</sup>. My machine is provided with a rear axle S that has 15 each end thereof provided with a vertical standard *w* and horizontal ears *w'*, the latter having lugs *w*<sup>2</sup> upon their upper sides. The vertical standards *w* at the ends of the axle S are arranged to have vertical play between 20 the angle plates R R on the outer sides of the fire box, and on journals *x* laterally extended from the upper ends of said standards are arranged the rear wheels T of my machine.

In order to compensate for the jar occasioned by my machine when in operation, I 25 insert springs U between the lateral portions *v'* of the plates R R, and the horizontal ears *w'* on the axle S, said springs being held against displacement by means of the lugs 30 *v*<sup>2</sup> *w*<sup>2</sup>, as best illustrated by Fig. 2. As will be seen by the foregoing description, the rear axle S of my machine has no rigid connection with the fire box A, and the springs U serve to keep it normally out of contact of said box, 35 as best illustrated in Fig. 4, the distance being determined by the length and stiffness of said springs.

Pivottally connected to the fire box A beneath its lower front portion is an axle V that 40 carries wheels W, the latter being preferably of such diameter as to readily pass under said fire box to facilitate moving of the machine. In order to compensate for the strain on the front axle V, I connect the same by means of 45 a rod V' with the front of the deepest portion of the fire box A, and hence the pull will be communicated through this rod to the rear portion of the machine. Detachably connected to lugs *y* on the front axle V are the hounds 50 X for a tongue Z.

By the construction above described it will be seen that I provide a very simple and compact machine for mixing asphalt and that 55 said machine can be readily moved from place to place.

Heretofore power had to be communicated to the stirrers of my machine from an independent engine located frequently at some 60 distance therefrom, and fed from an independent pump and this greatly interfered

with the convenience and usefulness of my device, to overcome which objections I have devised the compact, complete and portable machine above described, the use of which results in great economy of time and labor, 65 besides rendering it independent of outside aid in its operation.

In the laying of asphalt it is essential that the same should be worked while hot, and the practice heretofore has been to mix the materials at a point more or less remote from the scene of operation and then convey the mass in vehicles to the latter place. This practice has been found unsatisfactory because the asphalt is liable to cool to such a degree that it 75 can not be successfully laid to obtain the best results.

A machine of the construction above described can be taken to the place where it is desired to lay the asphalt, and the power for 80 actuating the stirrers being a part of the machine, the mixing takes place at the point of deposit, thereby permitting said asphalt to be worked in its most plastic state thus enabling me to do better work in less time and with 85 less labor than is ordinarily the case in the art to which my invention relates.

Having now fully described my invention what I claim as new and desire to secure by Letters-Patent is: 90

1. In a machine for mixing asphalt, the combination of a double walled fire box having its outer walls provided with the double right angle flanges *d*, a sectional mixing cylinder having its lower section provided with 95 the lateral flanges *e* inserted between said flanges *d* and the upper edges of the adjacent inner walls, and the upper section of the cylinder provided with the offsets *f*, substantially as set forth. 100

2. A portable asphalt mixing machine that comprises a fire-box mounted on wheels and provided with a platform, a steam-boiler and engine mounted on the platform, a pump supported on the fire-box and connected to the 105 engine, feed pipes leading from the pump through the fire-box into the boiler, a mixing cylinder depending into said fire-box, a stirrer in the cylinder, and a gear-connection between the engine and stirrer, substantially as set 110 forth.

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

GEO. WINDING.

Witnesses:

H. G. UNDERWOOD,  
N. E. OLIPHANT.