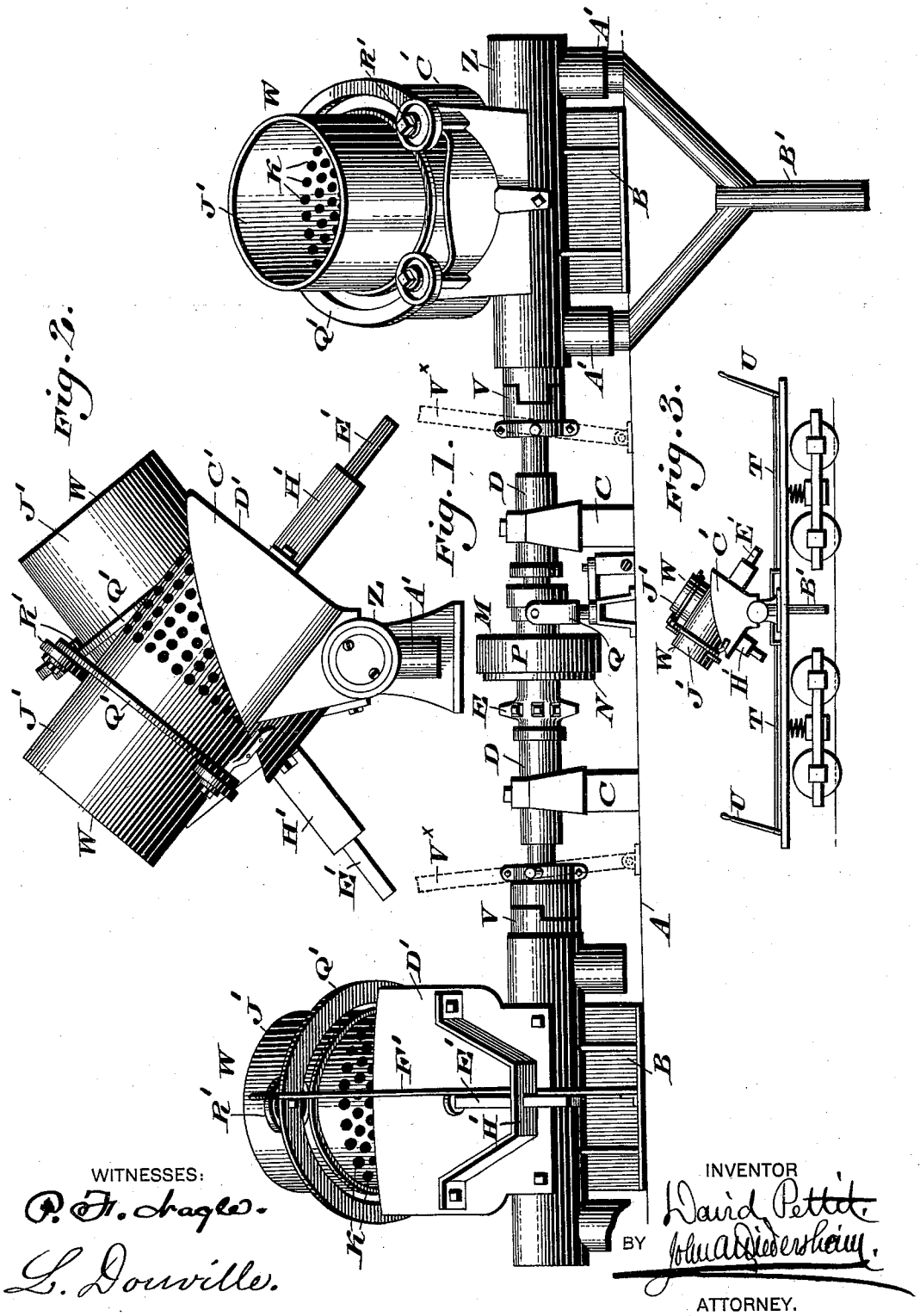
(No Model.) 2 Sheets—Sheet 1.

D. PETTIT.

TRACK SANDING DEVICE.

No. 568,489. Patented Sept. 29, 1896.



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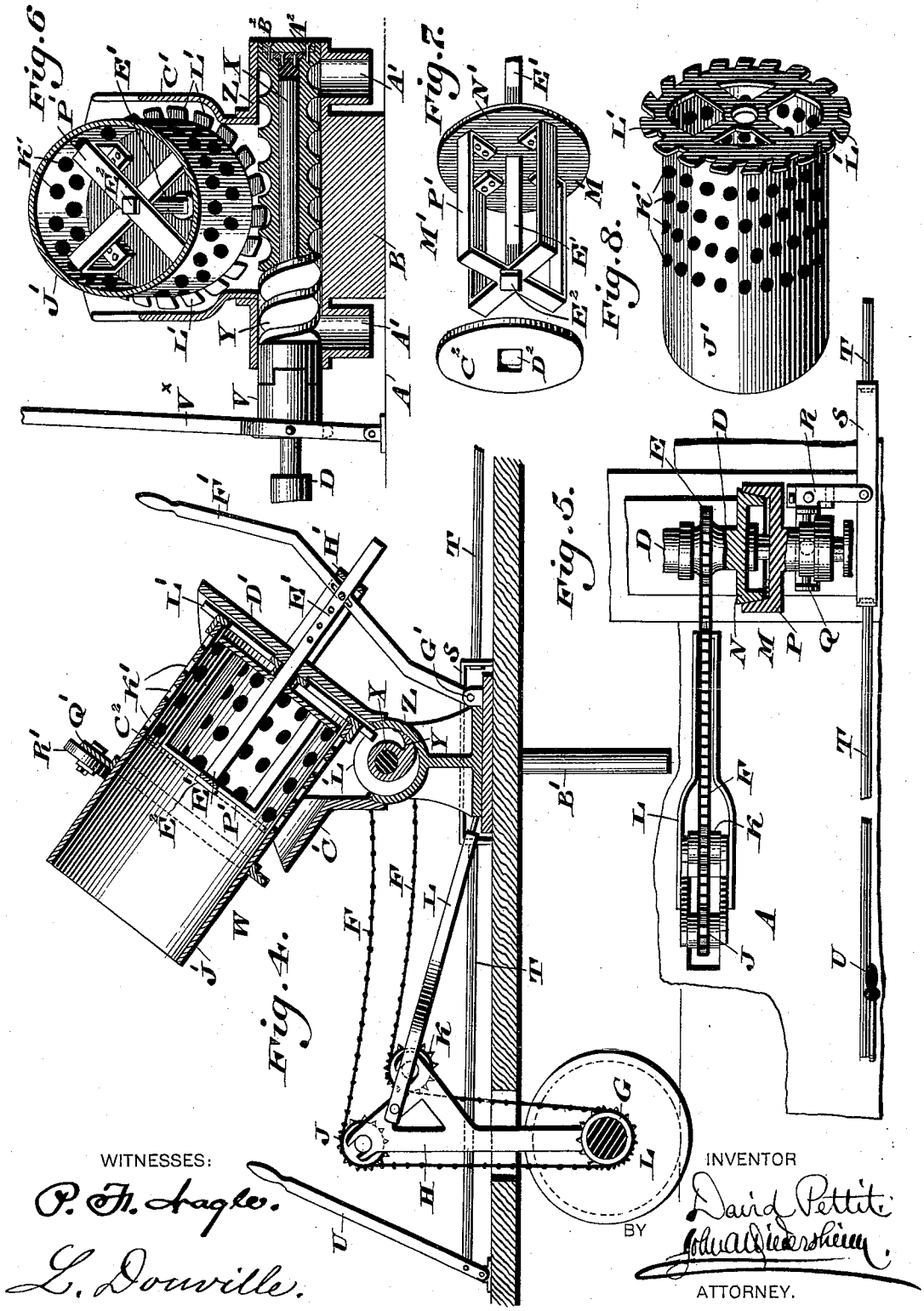

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UNITED STATES PATENT OFFICE.

DAVID PETTIT, OF BEVERLY, NEW JERSEY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE PETTIT ORNAMENTAL IRON AND FENCE COMPANY, OF PENNSYLVANIA.

TRACK-SANDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 568,489, dated September 29, 1896.

Application filed January 21, 1896. Serial No. 576,302. (No model.)

To all whom it may concern:

Be it known that I, DAVID PETTIT, a citizen of the United States, residing at Beverly, in the county of Burlington, State of New Jersey, have invented new and useful Improvements in Track-Sanding Apparatus, which improvements are fully set forth in the following specification and accompanying drawings.

My invention consists of a novel construction of track-sanding apparatus, in which the sand or other material is fed upon the track by mechanism which can be readily thrown into or out of operation.

It further consists of a novel construction of chain-tightening device, whereby the chain which actuates the device is always kept at a uniform tension irrespective of the vibration of the car.

It further consists of novel means for causing a regular and equable flow of sand from the apparatus.

It further consists of novel details of construction, all as will be hereinafter set forth.

Figure 1 represents a front elevation of a track-sanding apparatus and its adjuncts embodying my invention. Fig. 2 represents an end elevation of Fig. 1. Fig. 3 represents on a reduced scale, a side elevation of a car, showing also an end elevation of the track-sanding apparatus mounted thereon. Fig. 4 represents, on an enlarged scale, a side elevation, partly in section, of the device for feeding and propelling the sand. Fig. 5 represents a plan view, partly in section, of the main shaft, clutch, and actuating mechanism. Fig. 6 represents a front elevation, partly in section, of the sand propelling and measuring device. Fig. 7 represents a perspective view of a portion of the device in which the sand is placed, the same being shown in detached position. Fig. 8 represents a perspective view of a sand-holding cylinder employed, the same being shown in detached position.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a platform of a car or other support, upon which the bases B of the apparatus are supported.

C designates suitable standards, in the upper portion of which are provided bearings for the main shaft D, the same being provided with the sprocket-wheel E, around which passes the sprocket-chain F, the same passing over and being actuated by the sprocket-wheel G, mounted upon the car-axle L, said chain F being further supported and constantly kept at uniform tension by means of the sprocket-wheels J and K, which are mounted in the upper portion of the frame H, which is supported upon the car-axle, and also by means of a forked bar or strap L, as will be evident from Figs. 4 and 5, whereupon it will be seen that no matter how great the vibrations of the car may be the said sprocket-chain F will always remain taut.

M designates a clutch mechanism which is mounted on the shaft D, the same consisting of the members N and P, which are adapted to engage each other, as shown in Fig. 5, it being understood that said shaft D is continuous, as indicated in said figure.

Q designates a yoke, by means of which the clutch mechanism is thrown into or out of operation through the medium of an elbow or other lever R, it being understood that the clutch mechanism is not new *per se*, any suitable form of the same being employed, and therefore requiring no further description.

S designates a bar or plate to which the lever R is attached, said bar having attached to either side thereof the rod T, which extends longitudinally of the car and is actuated by means of the levers U or other similar devices, whereupon it will be apparent that the clutch mechanism can be readily thrown into or out of operation from either end of the car, as may be desired.

V designates clutches which are mounted upon the shaft D, and which are composed of a plurality of members which are adapted to be thrown into or out of engagement according to requirements, any suitably construction of clutch being employed and being actuated by means of the handles $V^{\times}$.

The construction of the sand holding and discharging devices will now be described, there being one upon each side of the car, as

indicated in Fig. 1, and since each are substantially the same a description of one will suffice for both.

W designates the sand holding and discharging device complete. The clutch mechanism V is adapted to engage and actuate, when desired, the shaft X, which has mounted thereon the spiral screw or worm conveyer Y, which is rotatably mounted within the casing Z, (the construction of the same being best seen in Fig. 6,) at the right hand of which is seen the preferred manner of assembling and holding in position the said conveyer upon said shaft X.

A′ designates the discharge-outlets at either end of the casing Z, the same being adapted to lead into a common discharge-spout B′, which, it will be understood, is located over either rail of the track, the object of having two outlets A′ being in order to enable the sand, gravel, &c., to discharge from one or other of the outlets A′, no matter in what direction the shaft Z is rotated.

C′ designates a shell which is mounted upon the casing Z and has an inclined portion D′, which is adapted to sustain the bar E′, which is square in the present instance, the same being pivotally connected with the lever F′, which is fulcrumed at G′, and said bar E′ passing through the strap or guide H′, which is attached to the portion D′.

J′ designates a cylinder or hopper into which sand or gravel to be fed upon the tracks is placed, the same having the perforations or holes K′ therein and the cogs or teeth L′ at the lower portion thereof, said teeth being adapted to be engaged and rotated by the worm or conveyer Y, as will be understood in Fig. 6, whereupon it will be seen that the cylinder and conveyer must revolve in unison.

M′ designates a stationary device located within the cylinder J′, which is adapted to cut up and disseminate the material within the cylinder, said device consisting of the disk or plate N′, which has in the present instance a square hole therein, through which passes the square bar E′, the head of the same engaging the top of the arms P′, which are bent and cross each other, as indicated in Figs. 4, 6, and 7, whereby it will be seen that said device M′ will be held stationary during the rotation of the cylinder J′.

Q′ designates a ring or flange which is supported in any suitable manner and has mounted thereupon antifriction-rollers R′, which contact with the outer periphery of the cylinder J′ and thus allow the same to rotate with a minimum of friction.

The operation is as follows: The rotation of the car-axle L is imparted to the shaft D through the medium of the sprocket-wheel and the sprocket-chain, and when the clutches are all in the position seen in Figs. 1 and 5 it will be evident that the screw conveyers in each sanding device are rotated in unison. Should it be desired to stop the rotation of each sanding device, the handles $V^{\times}$ (seen in Fig. 1) are moved toward each other, and if it should be desired to actuate the clutch M from either end of the car it can be readily done by manipulating the levers U. The rotation of the conveyer Y simultaneously causes the rotation of the cylinder J′, by reason of the engagement of the cogs L′ with the worm or conveyer Y, and the material contained therein will be evenly and equably fed upon the worm and discharged at either one or the other of the outlets A′, and thence through the spouts B′ upon the track. The device M′ can be reciprocated longitudinally of the cylinder J′ by means of the levers F′.

The device seen at the left hand of Fig. 4 forms an effective expedient for keeping the sprocket-chain F always taut, no matter how great the vibrations of the car may be, as is evident.

It will be seen that by my system of clutches I may run the main shaft idly in the worms, or I may run one or both worms singly or simultaneously.

In the preferred embodiment of my invention I provide at the extremity of the casing which incloses the worm, as seen in Fig. 6, the caps A^2 and B^2, which are attached, respectively, to the shaft X and the worm Y, as indicated in said figure, whereby it will be seen that whenever a worm becomes worn out or damaged by the sharp sand or gravel it can be readily removed by removing the aforesaid caps, the worm being afterward readily replaced, as is evident.

If desired, I may employ in the cylinder J′ a plate or disk C^2 of less diameter than the interior of the cylinder, the same having a square hole D^2 therein for the square head E^2 of the rod or bar E′, the disk C^2 being employed only when very dry sand is used.

If desired, I may provide a series of locking devices whereby the disk N′ can be held at different positions within the cylinder J′, as indicated in Fig. 4, it being evident that when said disk is moved longitudinally from the position seen in said figure it will act to stop the passage of the sand through the perforations K′, the function of said perforations being to prevent rocks, sticks, &c., from passing through the same and thus clogging up the worm, all such matter above the size of the perforations being retained within the cylinder, as is evident.

It will of course be evident that my device is applicable to cars which are equipped with various constructions of motors, and that the necessary changes to adapt my sanding apparatus to such cars can be made without departing from the spirit of my invention, and I therefore reserve to myself the right to make such changes, and I do not desire to be limited in every instance to the exact construction I have herein shown and described.

It will further be apparent that a belt may be employed in lieu of a chain and that if desired one sanding apparatus may be mounted upon each car instead of two, the same being

located in the center of the car and having the discharge-spouts diverging toward the track, in which case I am enabled to take the power from that portion of the car-axle next the wheel, and the bracket or frame and the idlers H, J, and K, respectively, may be suspended from the shaft X in any suitable manner. I may also, if desired, employ a separate feed-hopper, which may be located above the cylinder J'.

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

1. In a track-sanding apparatus, a worm conveyer, a rotatable perforated cylinder located above the same, and means for actuating said cylinder and conveyer in unison, substantially as described.

2. In a track-sanding apparatus, a conveyer, a casing therefor, a perforated hopper mounted above the same, a stationary device located within said hopper, and cogs on the latter adapted to engage said conveyer, substantially as described.

3. In a track-sanding apparatus, a main shaft, a conveyer actuated thereby, a plurality of clutch mechanisms mounted on said shaft, a sprocket-wheel on the latter, a sprocket-chain leading from said sprocket-wheel, a second sprocket-wheel mounted on the car-axle, a frame suitably supported and having wheels thereon over which said sprocket-chain passes, and means for sustaining said frame in position, substantially as described.

4. In a track-sanding apparatus, a perforated inclined, rotatable hopper, cogs on the latter, a conveyer located thereunder, and adapted to actuate said cogs, a stationary device located within said hopper, means for reciprocating said device, antifriction-rollers upon which said hopper is mounted, and means for actuating said worm, substantially as described.

5. A main shaft, a sprocket-wheel thereon, a second sprocket-wheel on the car-axle, a sprocket-chain common to said wheels, clutch mechanism on said shaft, mechanism for actuating the same from either end of the car, sanding devices on either side of the car, clutch mechanism for each of the same, a rotatable perforated hopper, a worm or conveyer adapted to actuate the same, and a stationary device located within said hopper, substantially as described.

6. In a track-sanding apparatus, a worm, a casing therefor, a perforated hopper mounted above the same, and an outlet from either end of said casing, opening into a common discharge, substantially as described.

7. In a track-sanding apparatus, a perforated inclined hopper having cogs thereon, a worm engaging said cogs, a shell adjacent said hopper, a flange located adjacent said hopper, and antifriction-rollers mounted on said flange, and adapted to contact with said hopper, substantially as described.

8. In a track-sanding apparatus, a rotatable, perforated cylinder, a stationary disk therein, and means for moving said disk longitudinally to said cylinder, whereby the perforations of the latter are cut off when desired, in combination with a conveyer, and means for actuating the same, substantially as described.

9. In a track-sanding apparatus, a worm conveyer, a perforated rotatable hopper located above the same, and means for actuating said conveyer, substantially as described.

10. In a track-sanding apparatus, a conveyer, a shaft upon which the same is mounted, a casing inclosing said conveyer, and caps attached to said shaft and worm respectively, in combination with a rotatable, perforated hopper, and means for rotating the latter and said conveyer, substantially as described.

11. In a track-sanding apparatus, a conveyer, a casing therefor, a rotatable, perforated hopper mounted above the same, an outlet from each end of said casing opening into a common discharge, means for removing said conveyer from said casing, and means for actuating said conveyer and hopper, substantially as described.

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Witnesses:
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