

(No Model.)

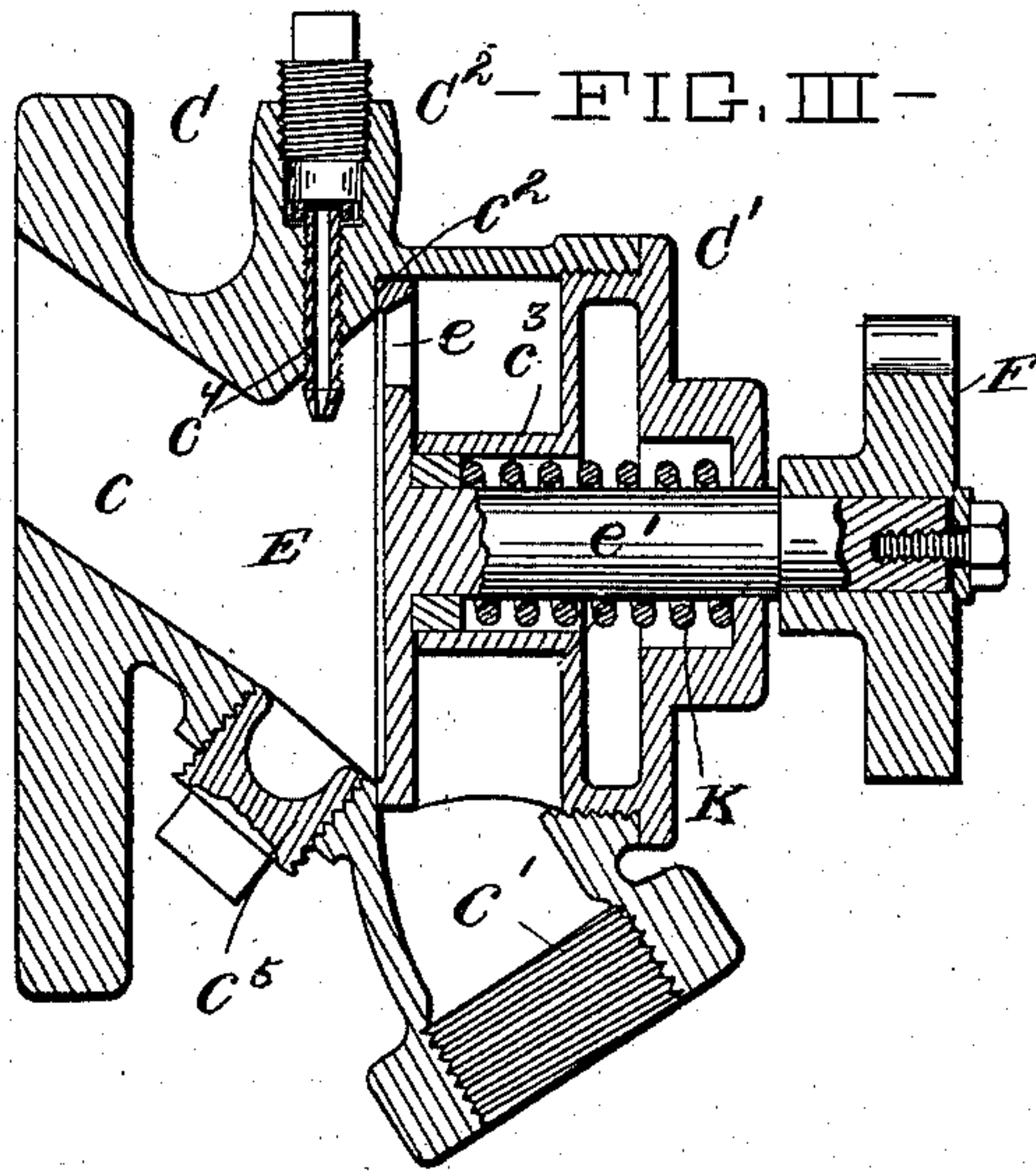
2 Sheets—Sheet 2.

H. TIRMANN.

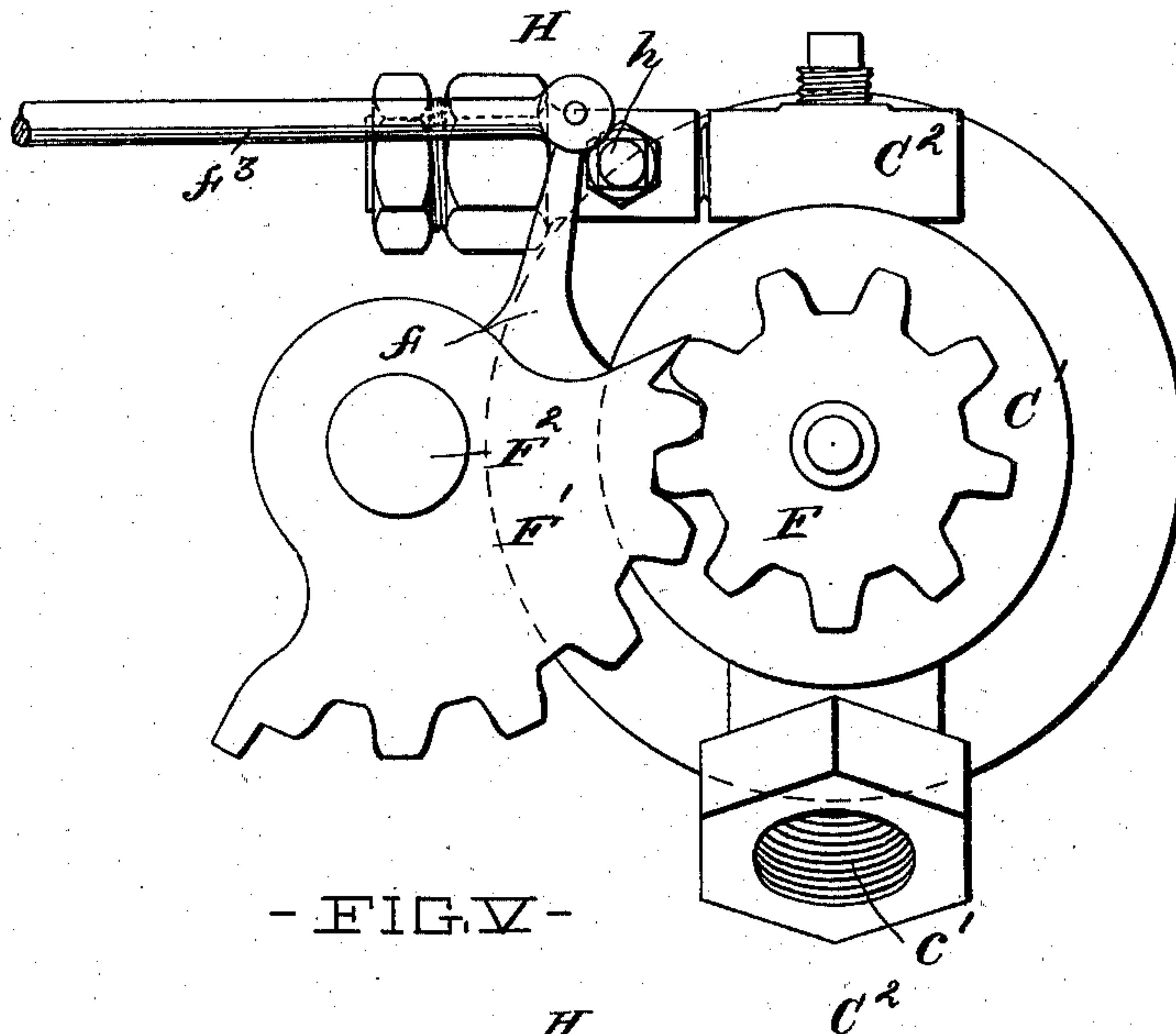
TRACK SANDING DEVICE FOR LOCOMOTIVES.

No. 559,007.

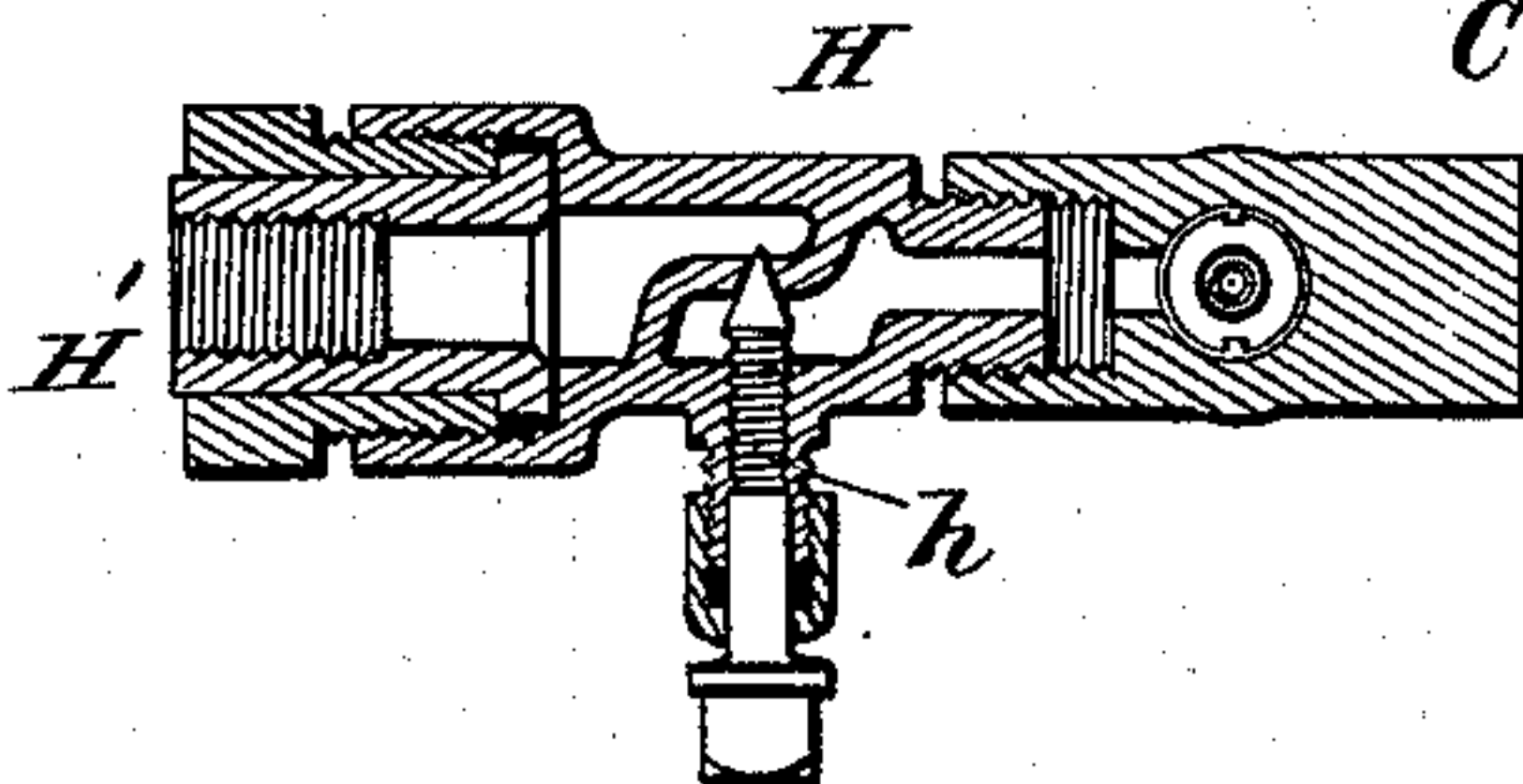
Patented Apr. 28, 1896.



— FIG. IV —



— FIG. V —



WITNESSES:

J. C. Turner
J. M. Secher

INVENTOR,

Hugo Tirmann
BY Hall & Fay
ATTORNEYS

UNITED STATES PATENT OFFICE.

HUGO TIRMANN, OF CLEVELAND, OHIO, ASSIGNOR TO BENJAMIN PATTERSON, OF SAME PLACE.

TRACK-SANDING DEVICE FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 559,007, dated April 28, 1896.

Application filed December 7, 1895. Serial No. 571,351. (No model.)

To all whom it may concern:

Be it known that I, HUGO TIRMANN, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Track-Sanding Devices for Locomotives, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The annexed drawings and the following description set forth in detail one mechanical form embodying the invention, such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a transverse section of a sand-box for a locomotive, illustrating my improvement; Fig. II, a top plan view of the same; Fig. III, a vertical axial section of one of the sanding devices; Fig. IV, an end elevation of the same, and Fig. V an axial section of the air-valve.

The sand-box is mounted upon the locomotive-boiler in the usual way, and consists of an inner box A, which constitutes the sand-box proper, and an outer case A', which surrounds the inner box and forms a surrounding air-space, containing air heated from the boiler in the space formed between the top of the latter and the upwardly-bulged bottom *a* of the sand-box. By this provision the sand in the box may be kept dry under all circumstances, and in cold weather the sand will not freeze and harden, even though it might have been moist when introduced in the box. The box and outer case are provided with suitable removable lids or covers, so that the box may be filled with sand in the usual manner.

A screen *a'* is provided in the sand-box for the purpose of retaining any lumps or pebbles which might be in the sand.

The sand-box has two outlet branches *a*², one pointing to each side of the boiler and extending from the sloping sides of the bulged bottom of the box. A valve-casing C is secured at each of said outlet branches and has an inlet *c*, opening into its outwardly-flaring

interior, and an outlet *c'*, to which the sand-pipe D is connected. The casing is formed with an annular outwardly-facing valve-seat *c*², against which a rotating diaphragm or circular valve-disk is E seated. Said valve-disk is formed with an opening *e* in its normally upper portion, and has a stem *e'*, which is journaled in a bearing-cap C', removably secured in the outer side of the valve-casing to close the same and formed with a tubular extension *c*³. A coiled spring K is within said cap and tubular extension coiled around the valve-stem and bearing against the cap and the valve-disk to yieldingly keep the latter against its seat. A longitudinally-bored boss C² is formed at the upper side of the valve-casing, and a nozzle *c*⁴ extends from the interior of said boss into the upper portion of the interior of the valve-casing at the inner side of the valve seat and disk. A screw-plug *c*⁵ is inserted at a point opposite the end of the nozzle for the purpose of providing a readily removed and substituted wear surface at the point of the casing struck by the air and sand blast and most liable to wear. A pinion F is secured upon the outer end of the valve-stem and meshes with a cogged segment F', secured upon the end of a shaft F², journaled in bearings G upon the sand-box, said shaft extending through the box and having a segment at each end, so that the valves at both sides of the box may be actuated together. An arm *f* projects from the segment and has a spring *f'* secured to its end, which spring has its other end secured to a lug *f*² upon the sand-box, so that the spring may draw the arm forward, and thus return the valve to its normal position. Suitable connection by a rod *f*³ or cord is provided from the locomotive-cab to the arm, that the latter may be drawn rearward and the shaft rocked to rotate the valves. A valve-coupling H is connected to the boss at the top of the valve-casing and to an air-pipe H', leading from the air-pump or air-reservoir of the locomotive or from any other suitable supply of air under pressure. The coupling has a needle-valve *h* for controlling the stream or jet of air to be passed through the nozzle. The air-pipes preferably merge into one pipe and have

a suitable valve within convenient reach of the engineer; but such provisions form no part of the invention herein presented.

When the apparatus is to be used for applying sand to the rails in smaller quantities, air is admitted into each casing through the nozzles, and the jets thus produced will create eddies in the sand in the valve-casings, causing the latter to fly upward. As free escape is provided for the sand through the valve-openings, it will fly through the latter and drop down upon the rails through the sand-pipes. If greater quantities of sand are required, the rod having the cogged segments is rocked and the valve-disks turned, so as to bring the valve-openings in their lower positions, when unobstructed passages are provided for the sand through the valve-casings, and the sand may flow to the rails in large quantities.

Other modes of applying the principle of my invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism thus disclosed, provided the principles of construction set forth, respectively, in the following claims are employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a track-sanding device for locomotives, the combination of a valve-casing having a sand-inlet and a sand-outlet, and air-jet nozzle entering the upper portion of said casing and pointing downward, and a diaphragm in the casing and formed with an opening in its upper portion, substantially as set forth.

2. In a track-sanding device for locomotives,

the combination of a valve-casing having a sand-inlet and a sand-outlet and formed with a valve-seat between said inlet and outlet, an air-jet nozzle projecting downward through the top of said casing between the inlet and the valve-seat, and a valve having play upon the valve-seat constructed to be moved to present an opening at the upper or lower portion, substantially as set forth.

3. In a track-sanding device for locomotives, the combination of a valve-casing having a sand-inlet and a sand-outlet and formed with an annular valve-seat between said inlet and outlet, an air-jet nozzle projecting downward through the top of said casing between the inlet and the valve-seat, and a valve fitted to rotate upon the valve-seat and having an opening in its normally upper portion, substantially as set forth.

4. In a track-sanding device for locomotives, the combination of a valve-casing having a sand-inlet and a sand-outlet and formed with an outwardly-flaring interior having an annular valve-seat at its flaring end, an air-jet nozzle projecting through the top of said casing between the inlet and the valve-seat, and a circular valve fitted to rotate upon the valve-seat and having an opening in its normally upper portion, substantially as set forth.

In testimony that I claim the foregoing to be my invention I have hereunto set my hand this 20th day of November, A. D. 1895.

HUGO TIRMANN.

Witnesses:

WM. SECHER,
J. C. TURNER.