

(No Model.)

2 Sheets—Sheet 1.

C. DRILL.
STREET SWEEPING MACHINE.

No. 338,721.

Patented Mar. 30, 1886.

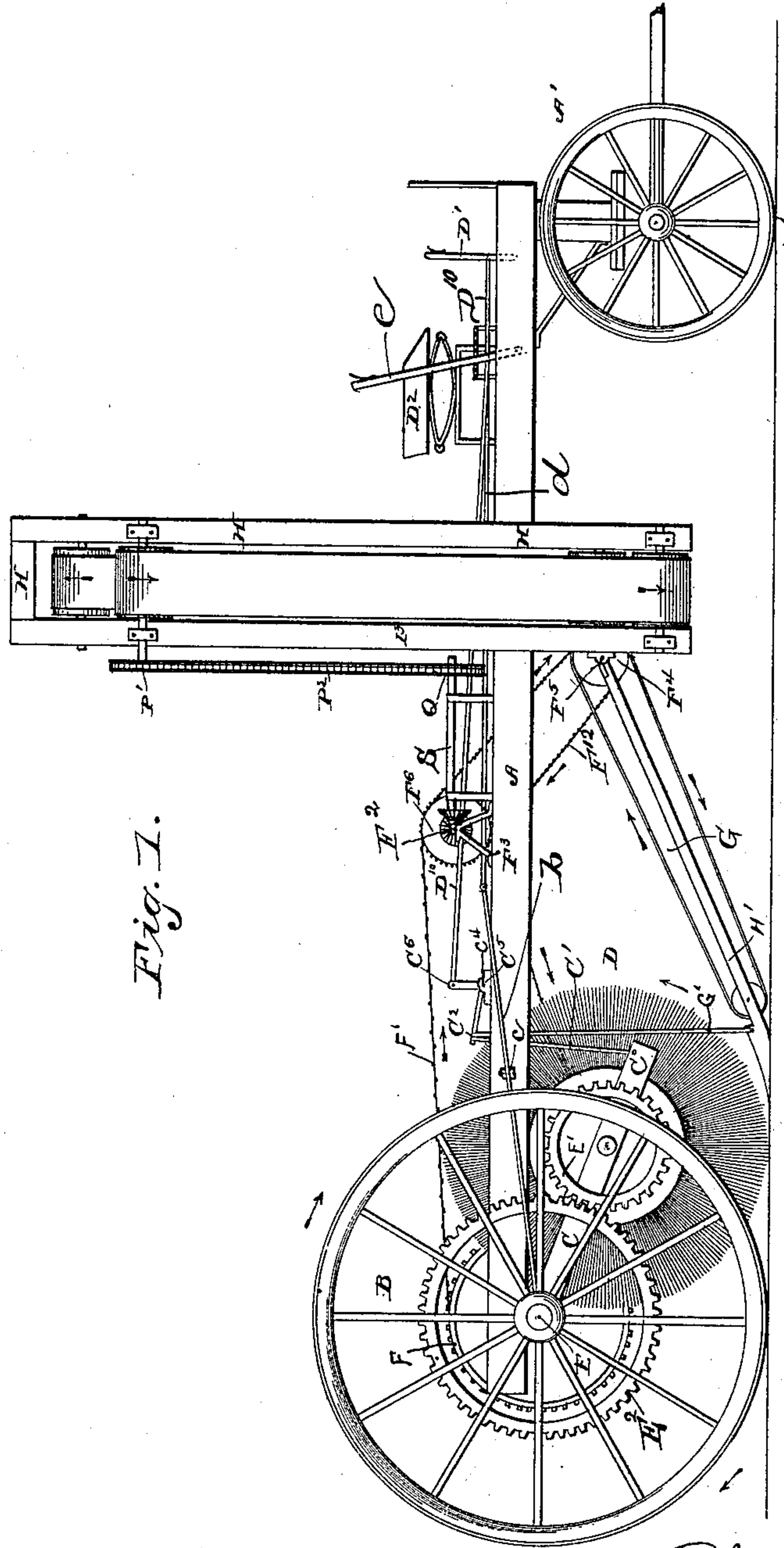


Fig. 1.

WITNESSES

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Attorneys

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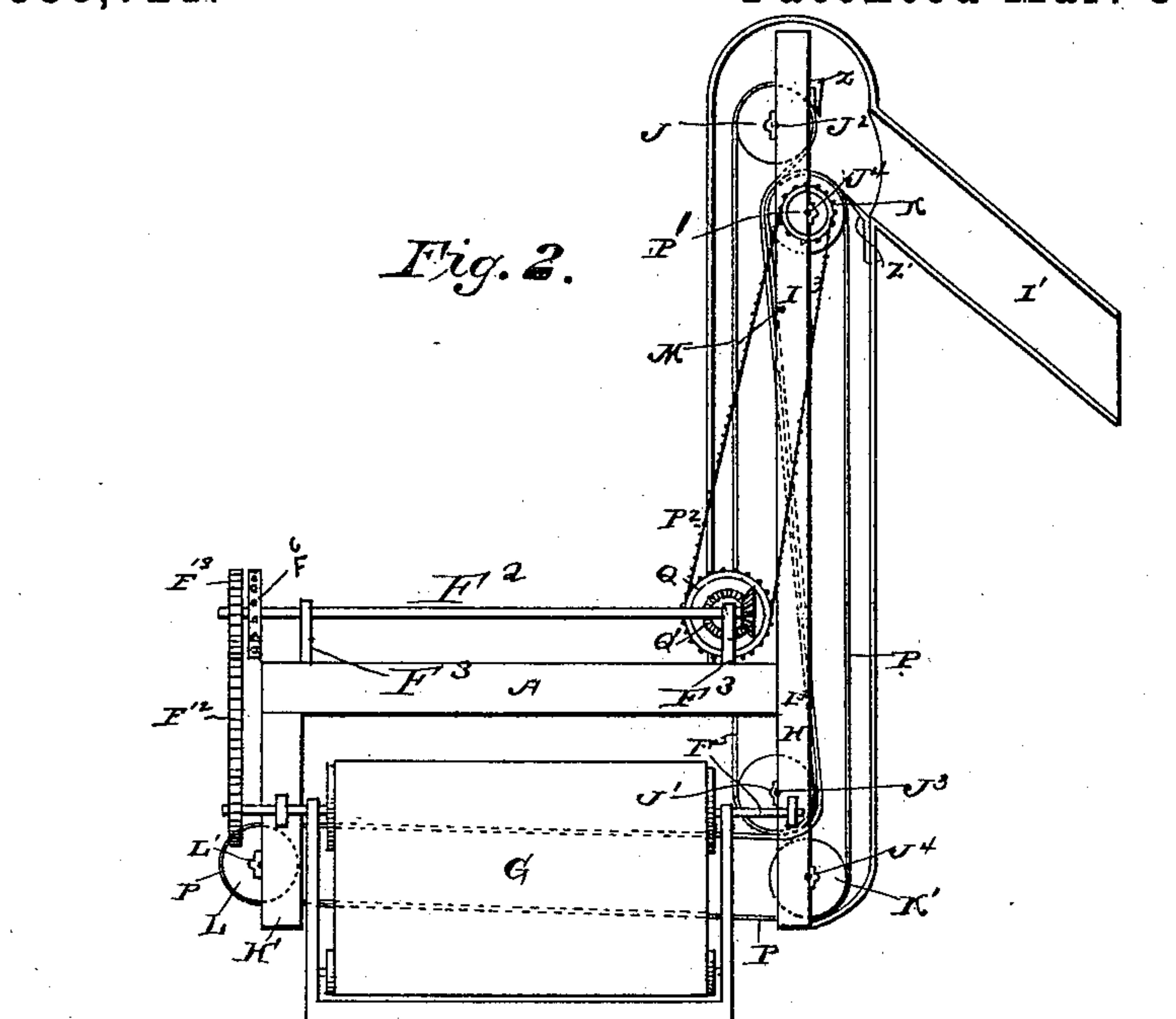
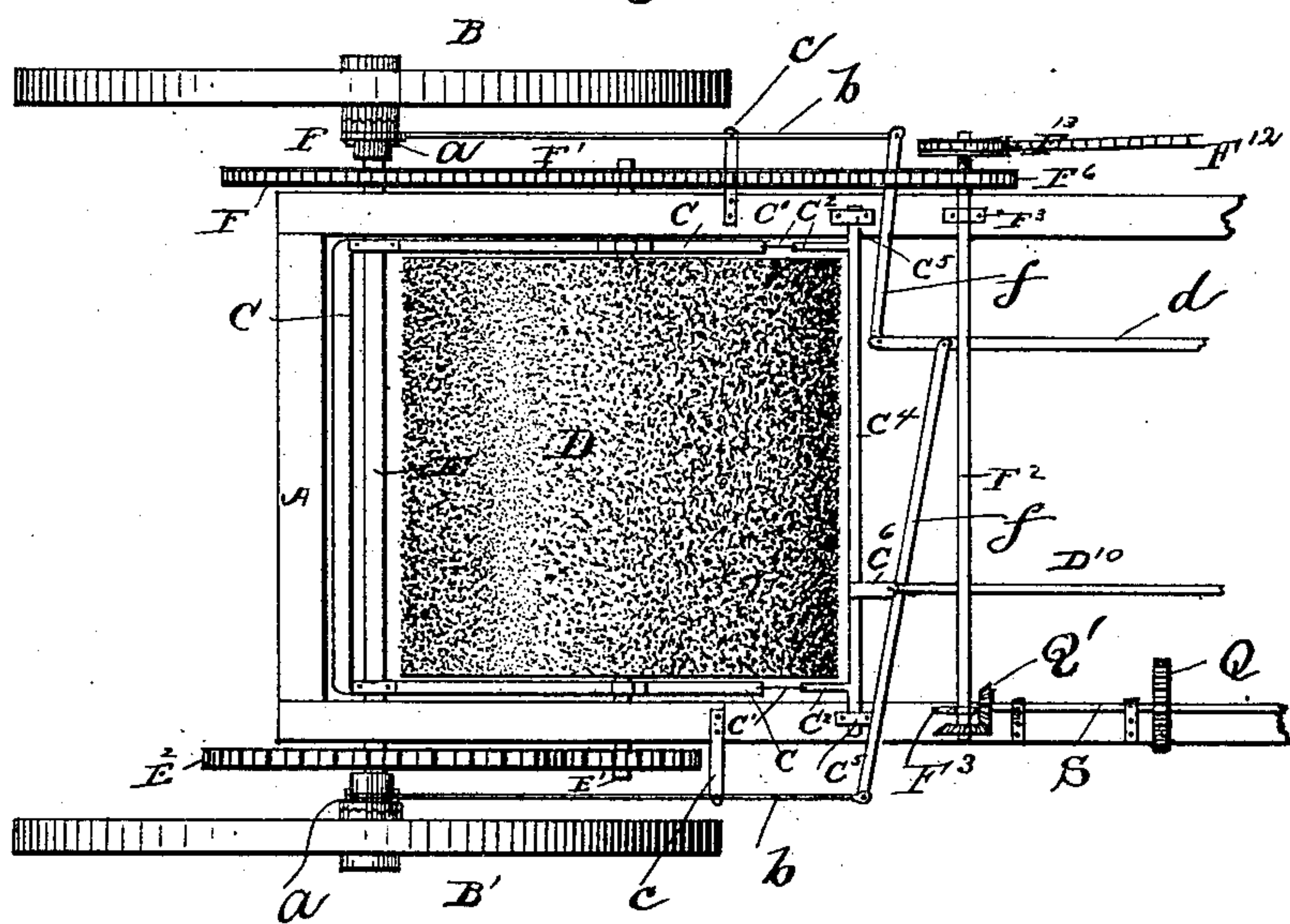


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES DRILL, OF ST. LOUIS, MISSOURI.

STREET-SWEEPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 338,721, dated March 30, 1886.

Application filed December 5, 1884. Serial No. 149,579. (No model.)

To all whom it may concern:

Be it known that I, CHARLES DRILL, a citizen of the United States, residing at St. Louis, in the county of St. Louis and State of Missouri, have invented a new and useful Improvement in Street-Sweeping Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention has relation to street-sweeping machines; and it consists in the construction and novel arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a street-sweeping machine embodying my invention, the discharge-chute being removed. Fig. 2 is a rear elevation, the wheels and brush being removed and the elevator being shown in section. Fig. 3 is a top plan view of the rear portion of the machine.

Referring by letter to the accompanying drawings, A designates the main frame, which is mounted on the front wheels, A', and the rear wheels, B and B', the latter being the driving-wheels.

C designates the hinged frame, in which the revolving brush D is supported. The frame C is hinged to the rear axle, E, of the machine, and extends forward between the driving-wheels B B', and is connected at its forward end by rod C' to the rear arms, C², of a rock-shaft, C⁴, journaled in bearings C⁵ on the main frame, in front of the driving-wheels. A vertical arm, C⁶, of the rock-shaft C⁴ is connected by rod D¹⁰ to a lever, D', in front of the driver's seat D², and this lever D¹⁰ is used to raise the lower end of the hinged conveyer and the brush from the ground simultaneously when desired. The rear axle is provided at the right side of the frame with a cog-wheel, E², which engages a cog-gear, E', on the brush-shaft and drives the brush when the gear-wheel E' is in gear with the drive-wheel B'. The axle E is also provided with a sprocket-wheel, F, which is located near the opposite end of the axle from the gear E'. This sprocket-wheel F is connected by a sprocket-chain, F', with a smaller sprocket-wheel on a transverse shaft, F², journaled in bearings F³ rising from the main frame; and a sprocket-chain, F¹², connects a sprocket-wheel, F¹³, on

the shaft F² with a sprocket-wheel, F⁴, on the end of the upper or forward shaft, F⁵, of the conveyer G. The wheels B B' are loose on the shaft E, and sliding on said shaft are feathered clutches a, which engage with the wheels, and thereby render them fast with the shaft. In order to operate these clutches, I provide the levers b, which are fulcrumed on brackets c, that project from the rear sides of the frame and are connected at their rear ends to the clutches. A rod, d, is fulcrumed to a hand-lever, e, at the front of the frame, in reach of the driver, and to the rear end of this rod the free ends of the levers b are connected by means of the rods f. It will be readily understood from this construction that the brush, conveyer, and elevator may be thrown in or out of gear by moving the lever e. The conveyer G articulates on its shaft F⁵, and its lower or rear end is connected by vertical pivoted rods G' to the arms C² of the rock-shaft C⁴, so that the lower end of the conveyer will be raised at the same time that the brush is raised, as before stated. The lower end of the conveyer-frame is provided with a shoe that slides upon the ground in front of the revolving brush and protects the lower roller of the conveyer. The shaft F⁵ of the conveyer has one of its bearings secured to the elevator-frame H, and its other bearing is secured to a vertical arm, H', depending from the main frame at the side opposite the elevator-frame. The elevator-frame H is secured to the outside of the main frame, at one side thereof, and extends below the main frame to within about a foot of the ground, and rises vertically above the frame to a height sufficient to permit the chute I' to discharge the sweepings into a cart or wagon driven along beside it.

Within the elevator-case are provided four pulleys, J J' and K K'. The pulleys J J' have their bearings J² J³ secured to the left sides of the uprights I³ of the elevator-frame, the bearings J² being near the upper ends of said uprights I³, but above the bearings J⁴ on the opposite sides of said uprights I³, and the bearings J³ being on the same sides of the uprights I³, near the lower ends of the same. The pulleys K K' have their bearings J³ J⁴ on opposite sides of the uprights I³, the bearings J⁴ being below the bearings J³. A fifth pulley,

L, has its bearings L' secured to the vertical arm H', depending from the opposite side of the machine. The endless carrier P runs over the pulley K, under the pulley K', around the pulley L, and then under the pulley J back to pulley K. The endless pressure-belt or assistant carrier M runs around the pulleys J and J'. The sweepings are thrown or swept upon the conveyer G, which conveys them to the endless carrier P, which takes them to the elevator, where they are carried up between the two endless carriers and discharged through the chute into the cart or wagon. The endless carrier P is operated through a sprocket-wheel, P', on its shaft outside of the elevator-case by a sprocket-chain, P², which latter is driven by a sprocket-wheel, Q, on a shaft, S, having a miter-gear, Q'. The miter-gear Q' engages a miter-gear on the shaft F². The brush is made of steel wire. By this arrangement the street can be swept and the sweepings deposited into the cart or wagon driven along by the side of the sweeper, so that the machine is not only a sweeper, but a sweeper and loader combined. The belts or carriers run over the wheels or pulleys in such a manner that two sides of the belts will be pressed together, so as to hold dry or sticky matter between them and carry it in the direction in which the belts travel, either vertically or horizontally.

The frame in which the brush is journaled is articulated on the rear axle, which allows the frame to move vertically or to remain stationary to accommodate itself to unevenness of the ground.

The frame which supports the conveyer belt and wheels is pivoted or fastened at one end to its shaft in such a manner as to allow the other end of the frame to move in a vertical direction or to remain stationary.

The belts, if sticky matter adheres to them, will be cleaned by two scrapers, Z Z', arranged in the chute so as to scrape the belts.

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

1. In a street-sweeping machine, the combination, with the main frame, of the endless vertical carriers having opposing faces in contact and located at one side of the frame, one of said carriers having a horizontal extension running transversely under the frame, the endless inclined conveyer hinged at its upper end and arranged at right angles to the horizontal extension of the vertical carrier and communicating therewith, and the rotating brush for feeding the sweepings onto the conveyer, substantially as described.

2. The combination, in a street-sweeping machine, of the vertical endless carriers having opposing faces in contact, and the scrapers at the upper ends of the carriers, substantially as described.

3. The combination, in a street sweeping machine, of the vertical carriers, the conveyer, the brush, driving mechanism therefor, and the clutches and operating-levers therefor, for throwing the brush, the conveyer, and the vertical carriers into or out of gear with the driving mechanism simultaneously, substantially as described.

4. The combination, in a street-sweeping machine, of the vertical endless carriers having the opposing faces in contact, the scrapers at the upper ends of the carriers, and the discharge-chute leading from the upper ends of the carriers, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

CHARLES DRILL.

Witnesses:

THOMAS EDWARD CHIGOY,
JOHN W. WILLIAMS.