(No Model.) 2 Sheets—Sheet 1.

C. H. LA DUE.

STREET SWEEPER.

No. 487,754. Patented Dec. 13, 1892.

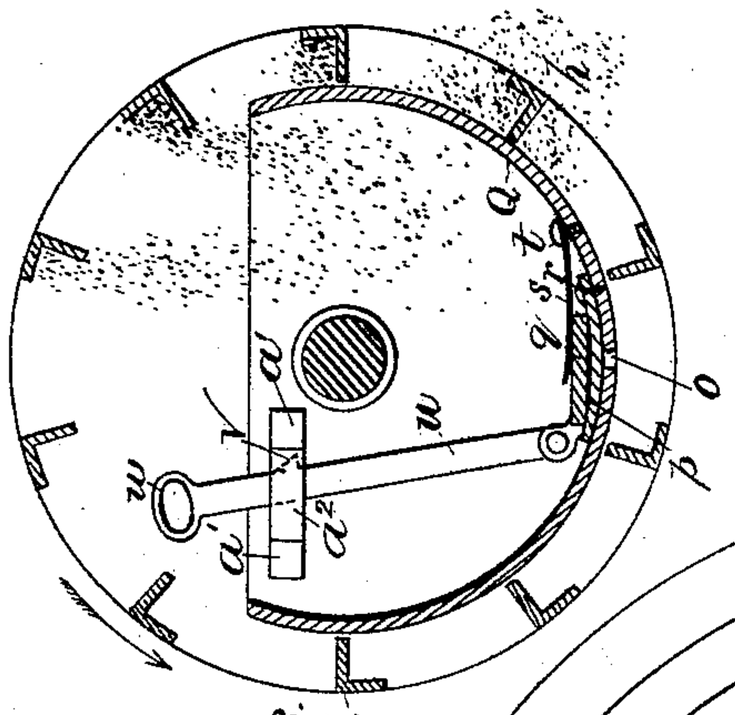

Fig. 3.

Fig. 1.

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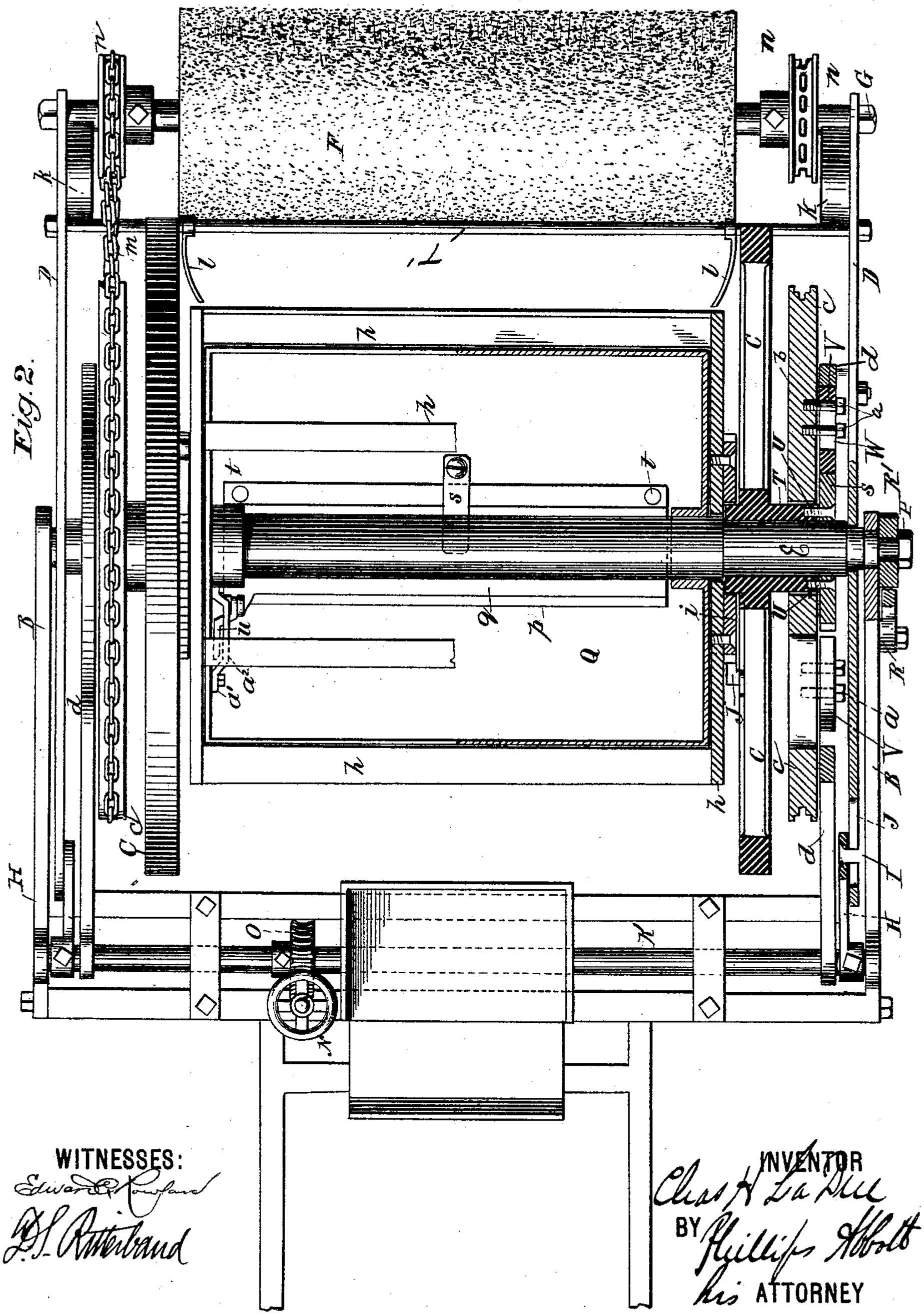
Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES H. LA DUE, OF NEW YORK, N. Y.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 487,754, dated December 13, 1892.

Application filed June 11, 1891. Serial No. 395,890. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. LA DUE, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Street-Sweepers, of which the following is a specification.

My invention relates to improvements upon a former invention made by me pertaining to street-sweepers, for which I obtained Letters Patent of the United States, dated September 29, 1891, No. 460,476, to which I refer for a more full and exact description of the general construction and operation of this present invention, which relates to improvements in the devices whereby I elevate the broom from the ground; also to improved construction of the parts whereby the broom is caused to rotate—in other words, the mechanism whereby the broom-driving wheels are thrown into and out of gear with the main driving-wheels; also to the addition of dirt-deflectors located in front of the broom, whereby the sweepings are thrown inwardly upon and into the rotary elevator-buckets, thus preventing it from escaping laterally, and also to the combination, with the receiver, of devices whereby it may, when desired, serve as a watering-cart for sprinkling the street which is about to be swept.

In the drawings, Figure 1 illustrates an elevation of my apparatus. Fig. 2 is a plan taken in section on the line *x x* of Fig. 1. Fig. 3 is vertical sectional detail showing the sprinkling attachment and certain other parts.

A are the shafts.

B is the frame.

C are the main driving-wheels, upon which the sweeper runs.

D are side arms pivoted upon the axle of the wheels C, upon the lower end of which the broom F is supported upon a shaft G.

H H are cranks connected to the upper ends of the arms D by a bolt I, which works through a slot J, made in the arms D. These cranks are keyed fast upon the shaft K.

L is a worm upon the shaft M, to the upper end of which is a hand-wheel N. The worm works in a worm-gear O, fastened upon the shaft K.

P is a squared end or head upon the shaft E, whereby the receiver Q may be turned over for dumping, as set forth in my said patent.

R is a pawl which holds the receiver against backward swinging when partly dumped by engaging with the ratchet-wheel R′, which is keyed to the shaft E.

S S are ratchet-wheels, which are fastened to the hubs T of the driving-wheels C by screws U or their equivalent, so that they turn with the driving-wheels.

V V are sliding pawls slotted centrally, as at W, and loosely held by bolts *a a* to the spokes *b b* of the broom-driving wheels *c*.

d d are curved flat bars, which are fulcrumed at their forward ends upon the shaft K and at their rear ends they are provided with headed pins *f*, which move through slots *e*, the slots being made in the bars *d*.

g g are retractile springs for the pawls V, whereby they are retracted, as hereinafter stated.

h is the bucket-frame operated by a ratchet-wheel *i* and pawls *j*, as set forth in my said patent.

k k are weights upon the ends of the arms D, and *l* are dirt-deflector plates or sheets fastened at or near the lower ends of the arms D.

m is a driving sprocket-chain.

n are sprocket-wheels on the broom-shaft in proper alignment with the broom-driving sprocket-wheels *c*, which encircle the hubs T and run loosely thereon.

T′ is a bar which extends from one to the other of the arms D, and against it the broom strikes, whereby accumulations of dirt or mud upon it are removed and thrown to the ground.

The sprinkling attachment is best seen in Figs. 2 and 3—that is to say, in the bottom of the receiver Q, there are holes *o*, extending entirely across, or nearly so, the bottom of the receiver, and over this is placed a broad strip of sole-leather *p*, which is riveted or otherwise attached to a superposed metallic plate *q*.

r r are rivets or bolts by which one edge of the leather *p* is fastened to the bottom of the receiver.

s s are springs fastened at *t* by rivets or otherwise to the receiver. They normally bear upon the upper surface of the metallic

strip *q*, pressing it and the underlying leather down upon the holes *o* in the receiver, thus making a substantially-water-tight joint.

u is a lever fastened at its lower end to the metallic strip *q* and provided with a catch or lug *v* on one side and a handle *w*, preferably extending at right angles. This lever *u* passes under a guide *a'*, which is riveted to the side of the receiver, which has a slideway a^2 for the rod *u*, which is sufficiently wide to allow the lug *v* to pass down through it when the rod is shoved rearwardly.

The operation is as follows, which, however, need not be very exhaustively described, since I refer to my patent above stated: The machine being started forward, the operator turns the hand-wheel or its equivalent N in such manner as that through the operation of the worm L and worm-gear O and crank-arms H and side arms D the broom will be lowered upon the surface to be swept, and in so doing, of course, the curved flat bars *d*, which have been accurately adjusted by means of the set-nuts *f* and fastened rigidly in proper position by them, descend at their rearward end with the arms D. Consequently the sliding pawls V V, which are in proper position to be pressed upon by the pawl-deflecting bars *d*, are shoved inwardly by them into engagement with the teeth of the ratchet-wheels S. These teeth, as shown, are made large and to properly register with these pawls. Thus the movement of the main driving-wheels C is communicated to the chain-driving wheels *c*, and as the remaining pawls V V during rotation of this wheel are successively carried around they come in contact with the deflecting-bars *d* and are moved inwardly into engagement with the teeth in the ratchet-wheels, and as they successively pass away from contact with these bars *d* they are retracted and withdrawn from engagement with the teeth of the ratchet-wheel by their retractile springs *g*, and when the arms D are again lifted at their rear ends, so that the broom does not come in contact with the surface to be swept, then of course the deflecting-bars *d* are removed from contact with the pawls V, and they are all of them withdrawn from contact with the ratchet-wheel S. Consequently the broom is not driven. Thus it is not in rotation, except when it is doing work.

k is a weight which I have found desirable to attach at or near the lower ends of the arms D to insure better contact between the broom and the surface to be swept. The plates *l l*, which I term the "dirt-deflectors," catch the sweepings and turn them inwardly into the buckets on the rotary frame *h*, so that nothing is lost or scattered laterally.

The sprinkling device is easily understood. Prior to sweeping a section of the street the operator fills his receiver with water from the nearest hydrant, and then, lifting the valve *p* by pulling upwardly the handle *w* and catching the lug or latch *v* over the side of the guide a^2, the water is allowed to escape through the openings *o* in the bottom of the receiver. When it is exhausted, he pushes the handle *w* and bar *u* rearwardly and the springs *s* immediately clap the valve-leather *p* down upon the holes in the receiver, and it is then filled with earth by the broom and buckets, as before described. The valve and sprinkling attachments afford no obstruction either to this operation or to the dumping of the receiver.

It will be apparent to those who are familiar with this art that various modifications may be made in the details of construction of my apparatus, and, nevertheless, the essentials of my invention be employed. I therefore do not limit myself to the details of construction.

I claim—

1. The combination, in a sweeping and sprinkling apparatus, of a rotary broom, a receiver for the sweepings, having perforations in its bottom, means to invert the receiver, a bucket-frame encircling the receiver, and a valve for closing the perforations, substantially as set forth.

2. The combination, in a sweeping and sprinkling apparatus, of a rotary broom, a receiver for the sweepings, having perforations in its bottom, a valve to close the perforations, means to invert the receiver, a rotary bucket-frame encircling the receiver, and a spring to depress the valve which closes the perforations, substantially as set forth.

3. The combination of a rotary broom, a rotary bucket-frame encircling the receiver, and deflecting-plates against which the sweepings are thrown at or near the ends of the broom, substantially as set forth.

4. The combination of two main driving-wheels and two broom-driving wheels geared together by sliding pawls on one of them, which engages with a ratchet-wheel on the other, and a pawl-deflecting bar thrown into position by the movement of the broom-supporting arms, substantially as set forth.

5. The combination of two main driving-wheels and two broom-driving wheels geared together by sliding pawls on one of them, which engages with a ratchet-wheel on the other, a pawl-deflecting bar thrown into position by the movement of the broom-supporting arms, a shaft having crank-arms which engage with the upper ends of the broom-supporting arms, and a worm-gear to operate the same, substantially as set forth.

6. The combination of a broom supported upon tilting arms pivoted upon the axle of the machine, a fixed shaft, crank-arms fastened to it which engage with the ends of the broom-supporting arms, a worm-gear to operate the same, and a rotary bucket-frame which receives the sweepings from the broom and which encircles the receiver, substantially as set forth.

7. The combination of a broom supported upon tilting arms pivoted upon the axle of the machine, a fixed shaft, crank-arms fas-

tened to it which engage with the ends of the broom-supporting arms, a worm-gear to operate the same, a rotary bucket-frame which receives the sweepings from the broom and which encircles the receiver, and deflecting-plates at or near the ends of the broom, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 10th day of June, A. D. 1891.

CHARLES H. LA DUE.

Witnesses:

PHILLIPS ARBOTT,

J. E. HOFFMAN.