

(No Model.)

2 Sheets—Sheet 1.

C. H. MORGAN.  
STREET SWEEPING MACHINE.

No. 452,382.

Patented May 19, 1891.

Fig. 1.

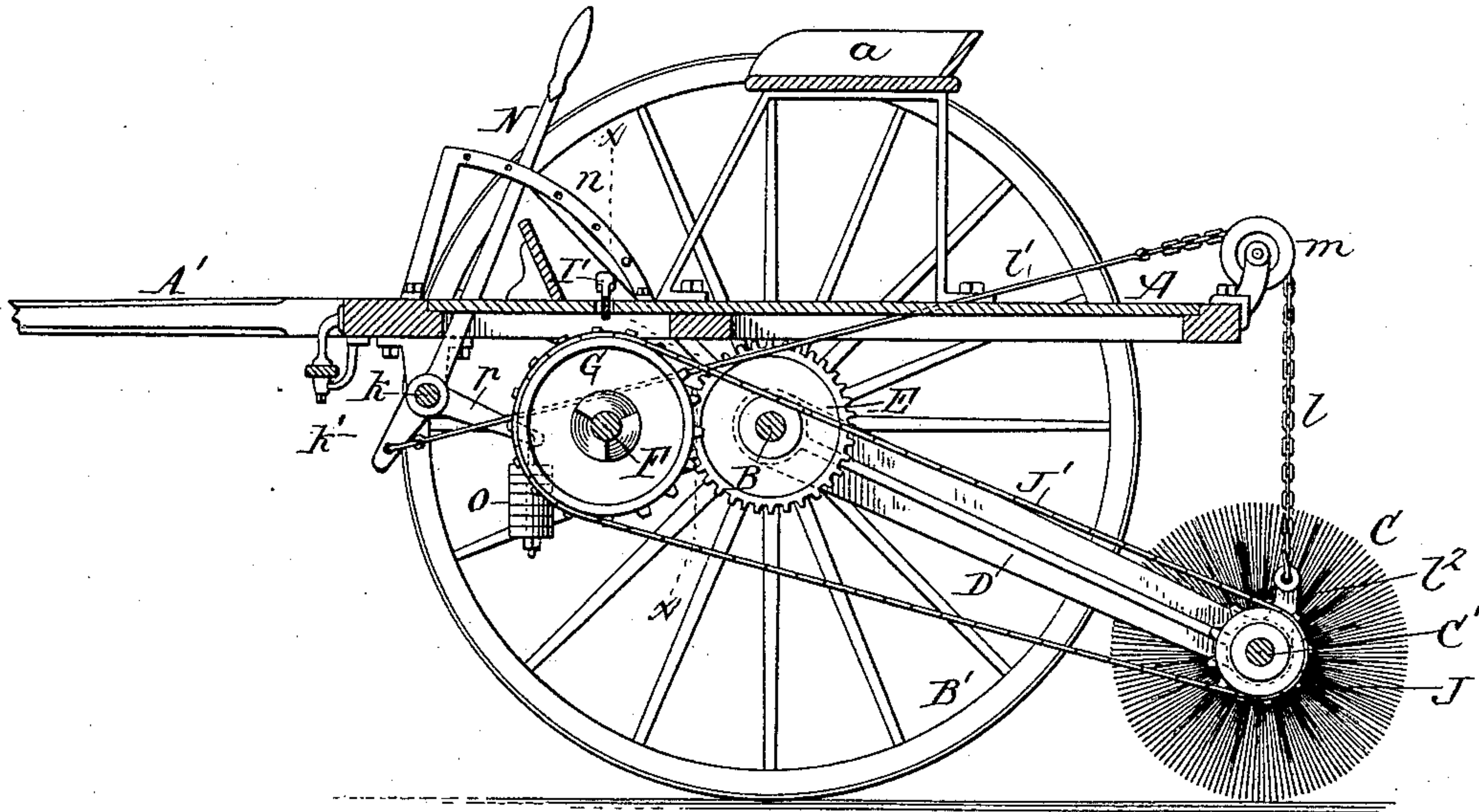
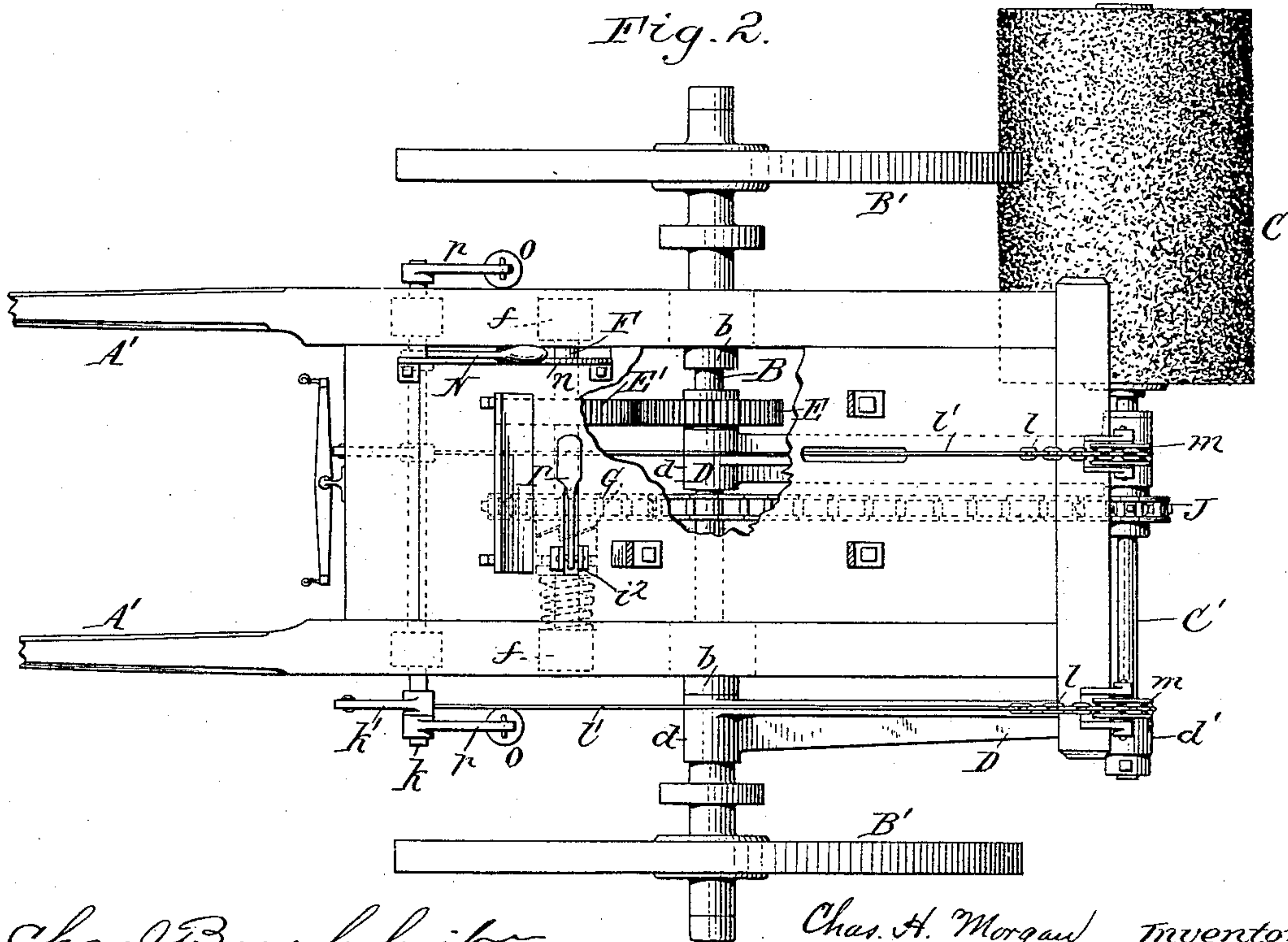


Fig. 2.



Chas. J. Buchheit.  
Emil Neuhaert. } Witnesses.

Chas. H. Morgan Inventor.  
By Wilhelm Munnich  
Attorneys.

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Fig. 3.

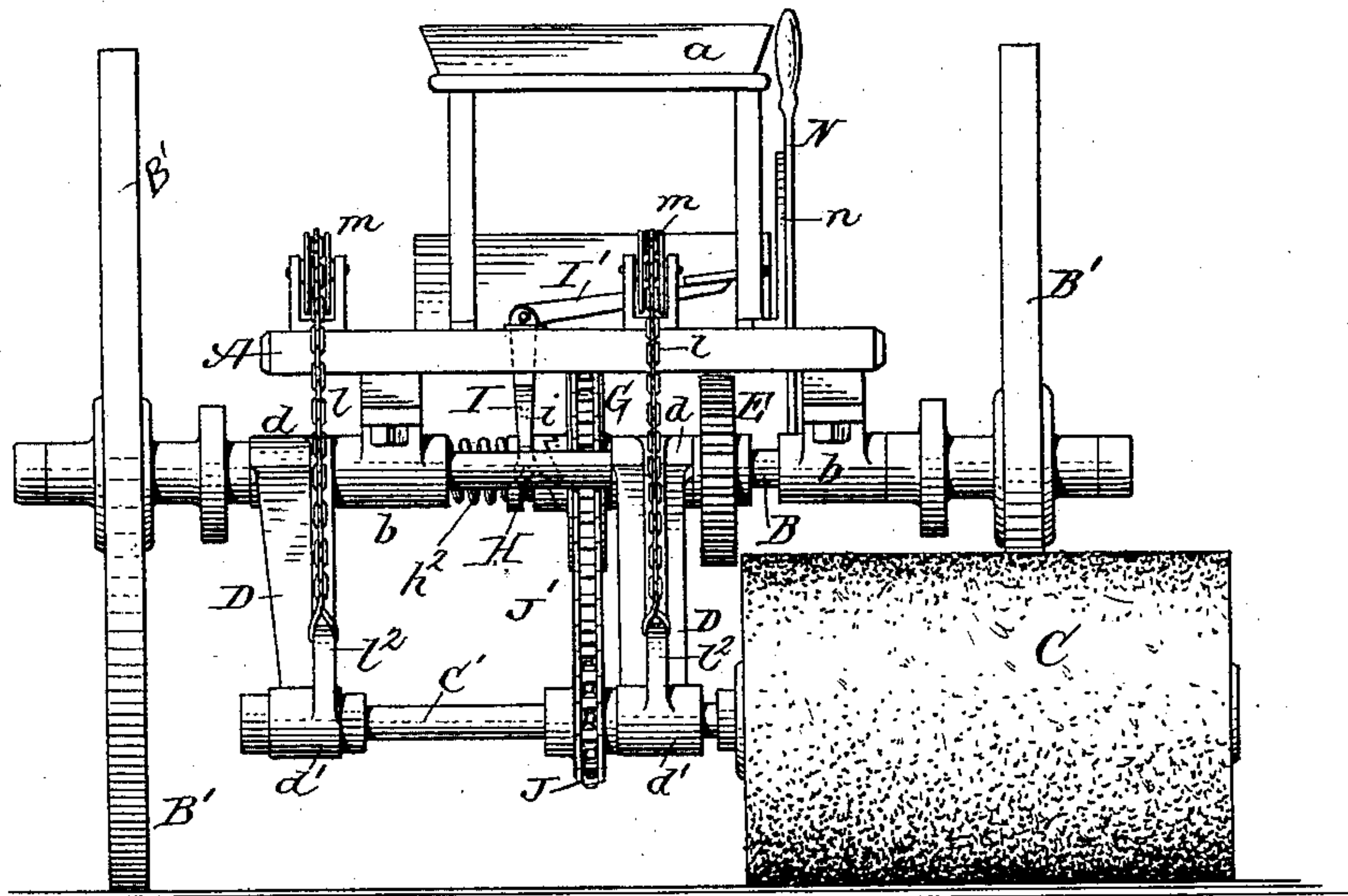
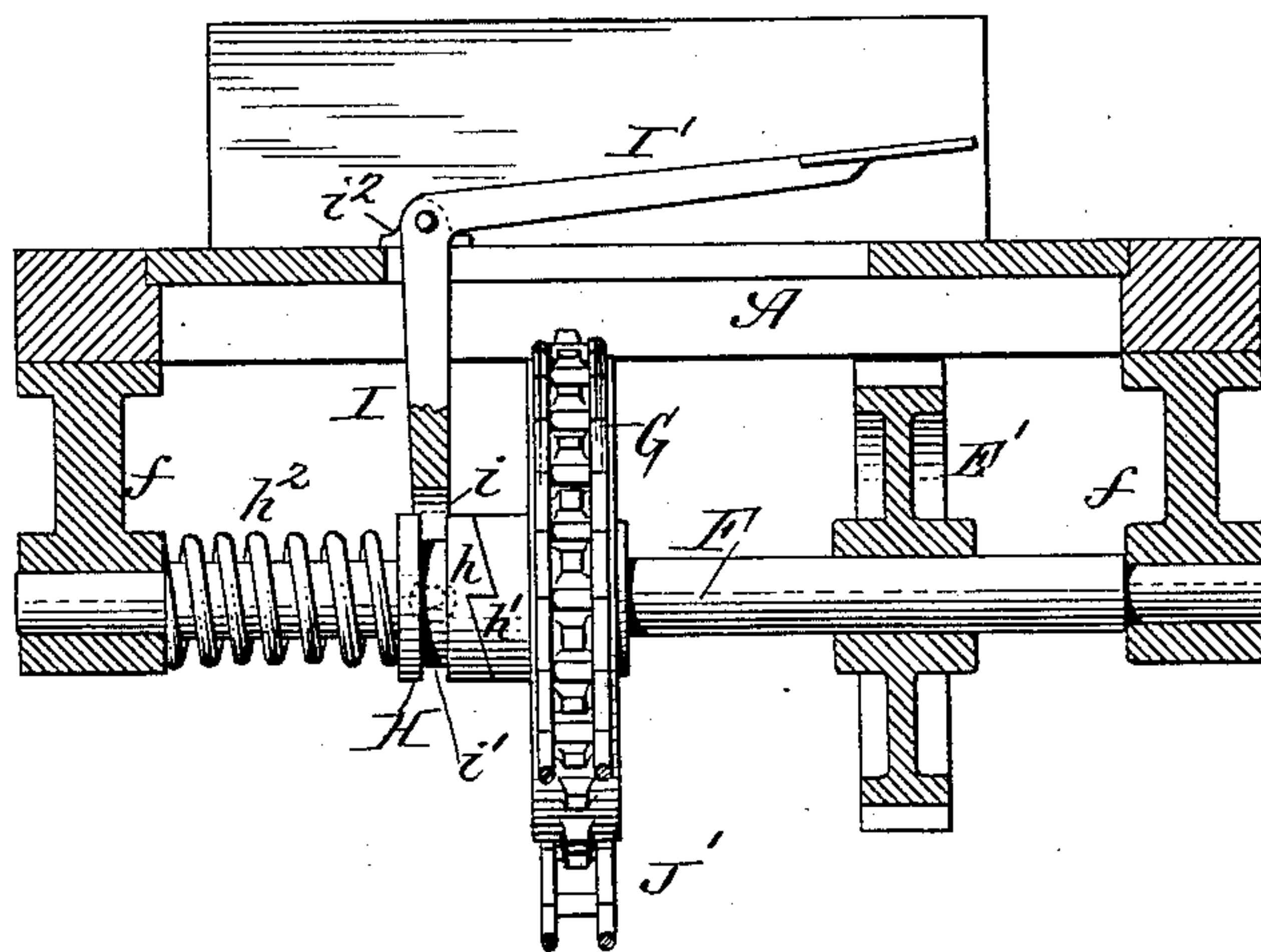


Fig. 4.



Chas. J. Buchheit  
Emil Neuhaert } Witnesses.

Chas. H. Morgan. Inventor.  
By Wilhelm Hornum.  
Attorneys.



# UNITED STATES PATENT OFFICE.

CHARLES H. MORGAN, OF BUFFALO, NEW YORK, ASSIGNOR TO WILLIAM BAYNES, OF SAME PLACE.

## STREET-SWEEPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 452,382, dated May 19, 1891.

Application filed July 23, 1889. Serial No. 318,371. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. MORGAN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Street-Sweeping Machines, of which the following is a specification.

This invention relates to that class of street-sweeping machines which are provided with a rotary cylindrical brush supported in a vertically-swinging frame suspended from the driving-shaft, the brush being rotated in the opposite direction from the driving-shaft by suitable mechanism connected with the driving-shaft, whereby the dirt is gathered in piles in front of the brush. In this class of machines the brush and its supporting-frame are required to be elevated by the driver when the dirt has been gathered into a pile in front of the brush, so that the brush can clear the top of the pile or heap of dirt and be lowered again to sweep up another pile.

The object of my invention is to construct a machine of this kind which is more especially designed for sweeping the gutters in streets, and in which the brush can be readily uncoupled from its driving mechanism and roll over the pile of dirt gathered in front of the brush as the machine moves forwardly without requiring the driver to elevate the brush and its supporting-frame.

In the accompanying drawings, Figure 1 is a vertical sectional elevation of my improved machine. Fig. 2 is a sectional top plan view thereof. Fig. 3 is a rear elevation of the machine. Fig. 4 is a fragmentary vertical section, on an enlarged scale, of the clutch mechanism whereby the brush is uncoupled from the driving mechanism.

Like letters of reference refer to like parts in the several figures.

A represents the frame or platform of the machine, provided with thills A', to which the draft-animal is harnessed, and with a seat a for the driver.

B represents the axle or driving-shaft, journaled in bearings b b, secured to the under side of the platform A, and B' are the driving-wheels mounted on the ends of the shaft B. The wheels R are connected with the shaft B by suitable ratchet mechanism, so that the

shaft is caused to rotate with the driving-wheels B'.

C represents a cylindrical brush arranged horizontally in rear of and parallel with the driving-shaft and secured to a shaft C', which is suspended from the driving-shaft by arms or hangers D. The upper ends of the arms D are provided with bearings d, through which the driving-shaft passes, and the lower ends of the arms D are provided with similar bearings d', which receive the shaft C'. The brush C is secured to one end of the shaft C' and projects laterally on one side of the machine, so that its outer portion extends outside of the path of one of the driving-wheels, as shown in Fig. 2.

E represents a gear-wheel secured to the driving-shaft and meshing with a gear-wheel E', which is secured to a counter-shaft F, arranged in front of the driving-shaft. The shaft F is journaled in bearings f f, depending from the under side of the platform A, and is provided with a sprocket-wheel G, which is mounted loosely on the shaft F. The sprocket-wheel G is connected with the shaft F, so as to rotate therewith, by means of a clutch ring or collar H, which is keyed to the shaft, and is provided with teeth h, which engage with teeth h', formed on the hub of the sprocket-wheel. The clutch-ring H is held against the teeth on the hub of the sprocket-wheel by a spring h<sup>2</sup> surrounding the shaft F and arranged between the clutch-ring and one of the bearings f.

I represents a clutch-lever provided at its lower end with bifurcated jaws i, which straddle the clutch-ring and engage in an annular groove i', formed in the outer face of the clutch-ring. The upper end of the lever I passes through a slot formed in the platform and is pivoted to a bracket secured to the platform, as shown at i<sup>2</sup>. The upper end of the clutch-lever I is provided with an arm I', which extends horizontally from the upper end of the lever I and in front of the driver's seat in convenient reach of the feet of the driver, whereby the driver can operate the clutch by depressing the arm I' of the clutch-lever.

The brush-shaft C' is provided with a sprocket-wheel J, which is connected with the



sprocket-wheel G by a chain belt J', whereby motion is imparted to the brush-shaft from the shaft F.

k represents a rock-shaft journaled in bearings depending from the platform and provided with depending arms k', which are connected with the lower ends of the arms D, which support the brush-shaft, by chains l and rods l'. The chains l are attached at their lower ends to eyes l<sup>2</sup>, formed on the bearings d' of the arms D, and pass upwardly over rollers m, secured to the rear end of the platform, and are connected with the rear ends of the rods l'. The rods l' are connected at their front ends to the depending arms k' of the rock-shaft k.

N represents a hand-lever secured at its lower end to the rock-shaft k, whereby the latter is operated for raising and lowering the brush. The lever N passes upwardly through a slot formed in the platform and is arranged in convenient reach of the driver. The lever N engages with a segment n, having notches or projections, whereby the brush can be held in an elevated position when the machine is not in use. When the lever N is released from the projections or notches on the segment n, the brush is lowered by its own weight and the weight of the arms or hangers.

o represents counterbalancing-weights attached to arms p, which are secured to opposite ends of the shaft k. The weights o serve to counterbalance the weight of the arms D upon the brush-shaft when the lever N is released and the brush is lowered, thereby relieving the brush from undue pressure against the pavement by the weight of the arms while the brush is in operation, which causes the brush to wear rapidly and soon become flattened and unfit for use. As the machine is moved forwardly the brush is rotated in the opposite direction to the driving-wheels by the gear-wheels E E', sprocket-wheels G and J, and chain J', thereby causing the dirt to be gathered into a pile in front of the brush.

By arranging the brush on one side of the machine, with its outer portion projecting outside of the path of one of the driving-wheels, the machine can be driven close to the side of the street, which permits the outer projecting portion of the brush to reach the curb-line of the street and sweep the gutter close to the curb. When sufficient dirt has been gathered into a pile in front of the brush, the brush is uncoupled from the driving-shaft by depressing the arm I' of the clutch-lever, which releases the clutch-ring II from engagement with the hub of the sprocket-wheel G and permits the latter to turn freely on the shaft F. While the clutch is disengaged from the sprocket-wheel the brush-shaft is free to rotate in the same direction as the driving-wheels, and as the machine moves forwardly the brush is caused to roll over the heap or pile of dirt gathered in front

of the brush until the clutch-lever is released, when the spring h<sup>2</sup> will cause the clutch-ring II to again engage with the sprocket-wheel and connect the brush-shaft with the driving-shaft, causing the brush to again rotate in the opposite direction with the driving-wheels and gather or sweep up the dirt in front of the brush. By uncoupling or disconnecting the brush-driving mechanism in this manner the brush is not required to be lifted by the driver, as it automatically raises itself in passing over a pile or other obstruction in the street when the clutch is uncoupled from the sprocket-wheel G. The downward strain upon the brush being removed by the counterbalancing-weights o permits the brush to roll over the pile without spreading or scattering the pile.

I claim as my invention—

1. In a street-sweeping machine, the combination, with a driving-shaft provided with a gear-wheel E and a counter-shaft F, provided with a gear-wheel E', meshing with the gear-wheel E, of a rotary cylindrical brush secured to a shaft C', arranged in rear of the driving-shaft and suspended therefrom by pivoted arms D, a sprocket-wheel J, secured to the brush-shaft, a sprocket-wheel G, mounted loosely on the counter-shaft, a drive-chain connecting said sprocket-wheels, a clutch-ring II, secured to the counter-shaft and provided with teeth h, adapted to engage with similar teeth h', formed on the sprocket-wheel G, a spring h<sup>2</sup>, surrounding the counter-shaft and bearing against the clutch-ring II, whereby the teeth on the clutch-ring and sprocket-wheel are held in engagement, and a clutch-lever I, engaging with said clutch-ring and provided with an arm I', whereby the clutch-ring is disconnected from the sprocket-wheel upon depressing the arm I' of the clutch-lever, substantially as set forth.

2. In a street-sweeping machine, the combination, with the driving-shaft and a counter-shaft geared with the driving-shaft, of a rotary cylindrical brush secured to a shaft C', arranged in rear of the driving-shaft and suspended therefrom by pivoted arms D, driving mechanism connecting the counter-shaft with the brush-shaft, a rock-shaft k, provided with arms k', a chain or cord connecting the arms k' with the lower ends of the supporting-arms D and running around guide-rollers at the rear end of the machine, and a counter-balance secured to the rock-shaft k, whereby the brush is relieved from the weight of the supporting-arms D, substantially as set forth.

3. In a street-sweeping machine, the combination, with the driving-shaft and the pivoted supporting-rods D suspended therefrom, of a shaft C', journaled in the lower ends of said supporting-arms, a rotary cylindrical brush secured to the shaft C', driving mechanism whereby the brush-shaft is rotated

from the driving-shaft, a rock-shaft  $k$ , provided with arms  $k'$ , chains or cords connecting the arms  $k'$  with the lower ends of the supporting-arms  $D$ , an arm  $p$ , secured to the  
5 shaft  $k$  and provided with a weight  $o$ , and a hand-lever  $N$ , connected with the rock-shaft  $k$ , substantially as set forth.

Witness my hand this 3d day of July,  
1889.

CHARLES H. MORGAN.

Witnesses:

JNO. J. BONNER,  
FRED. C. GEYER.