

(No Model.)

J. JONES & A. GILLIES.
STREET SWEEPER.

No. 599,936.

Patented Mar. 1, 1898.

Fig. 1.

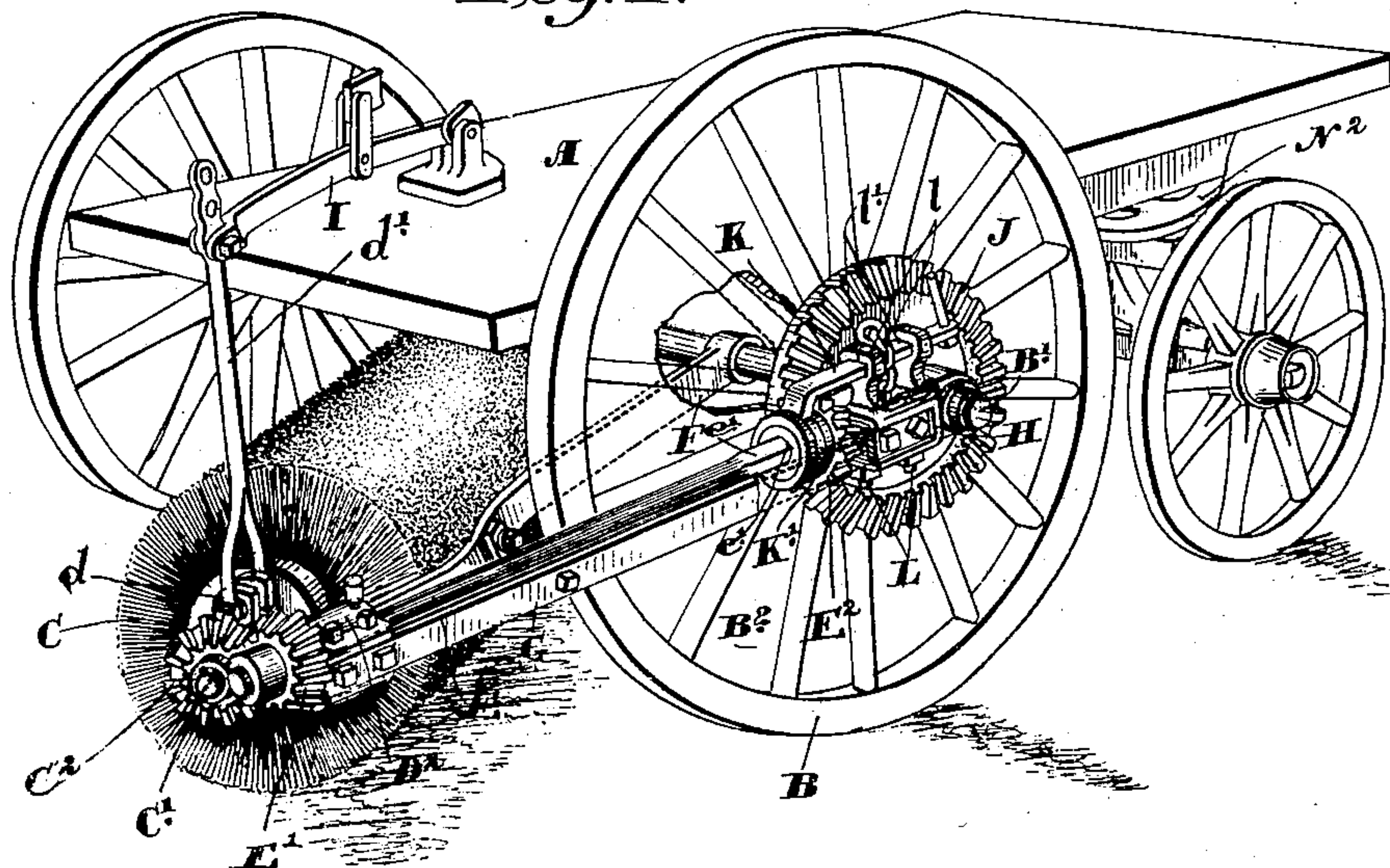


Fig. 3.

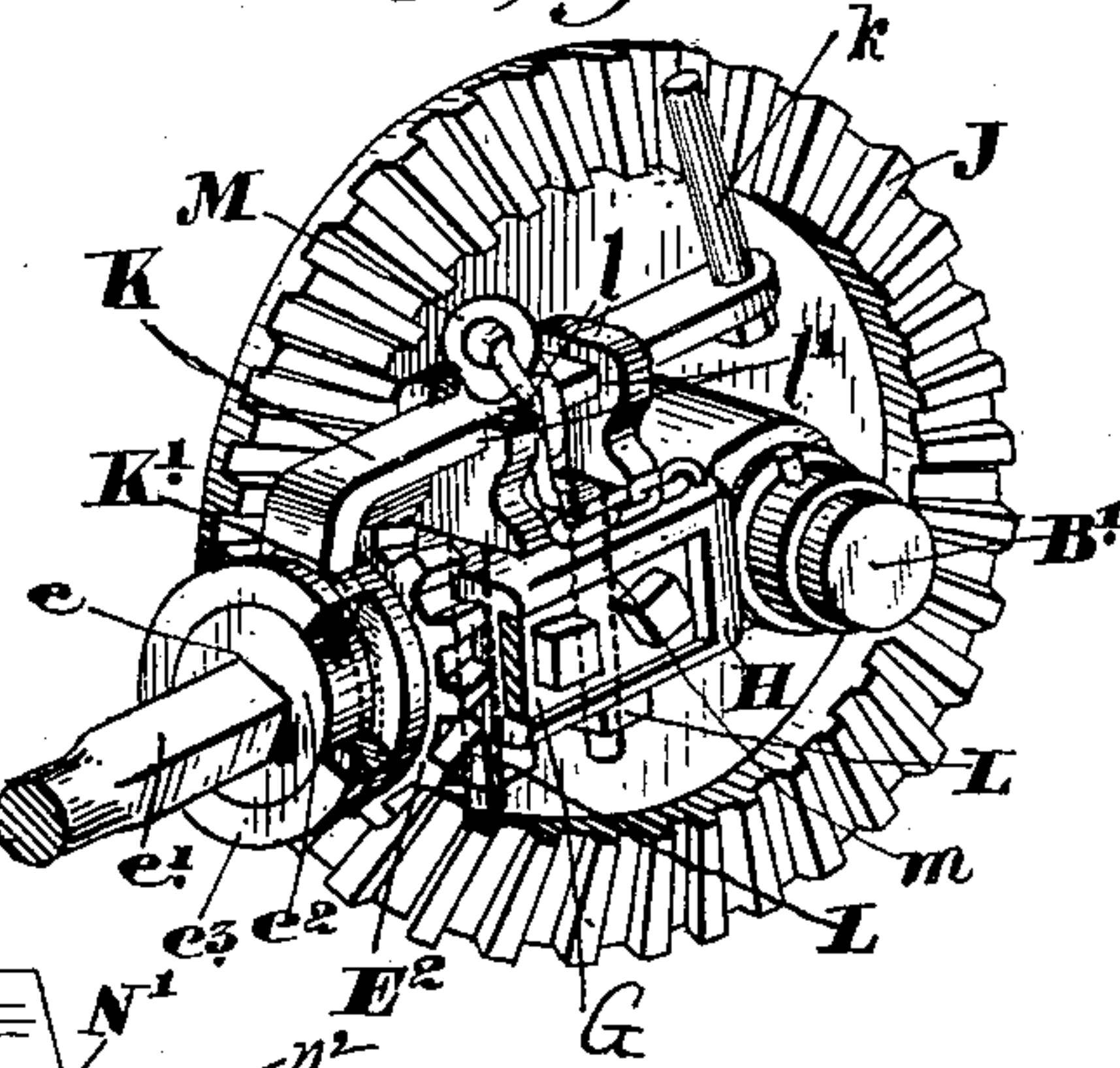
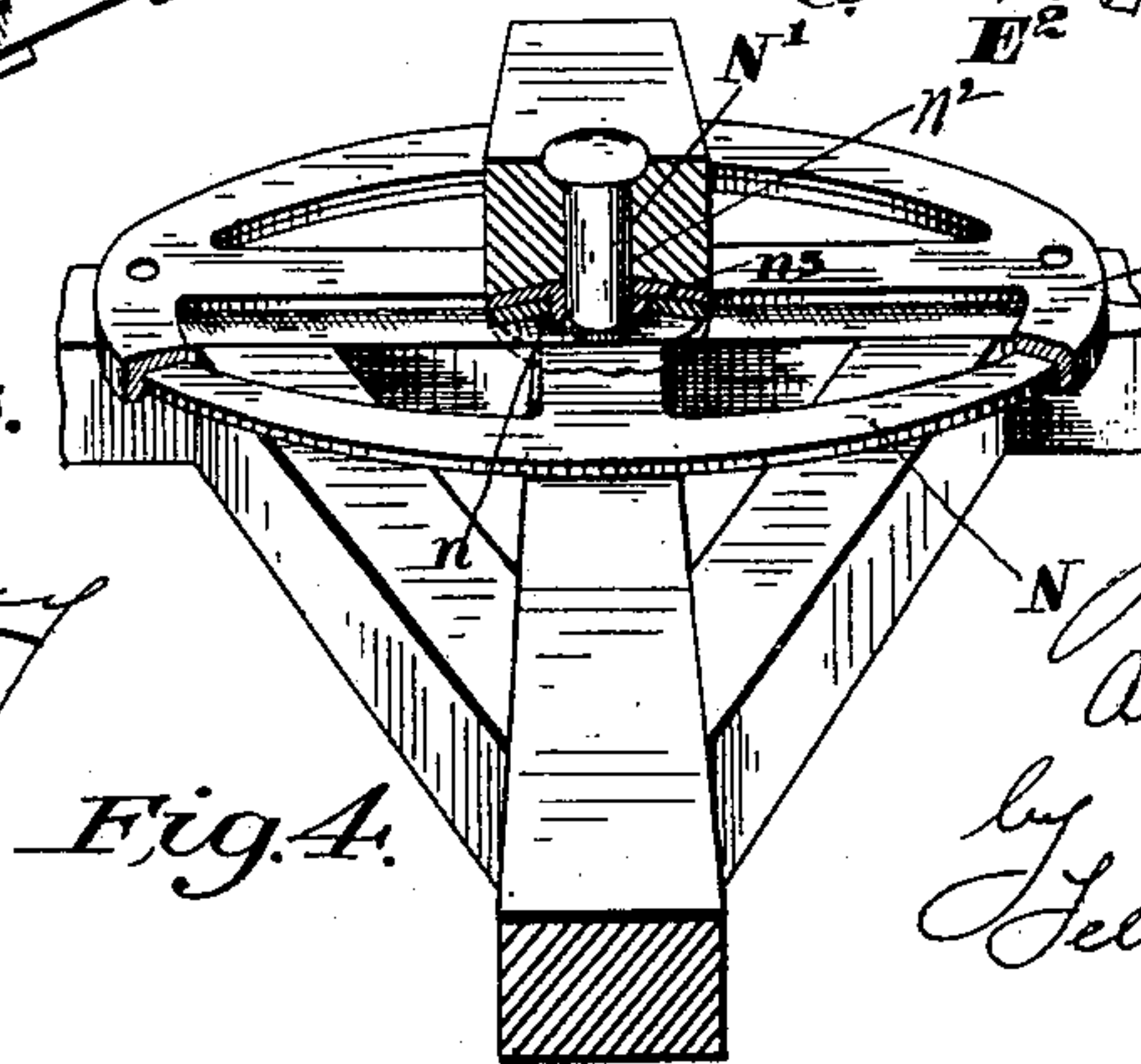
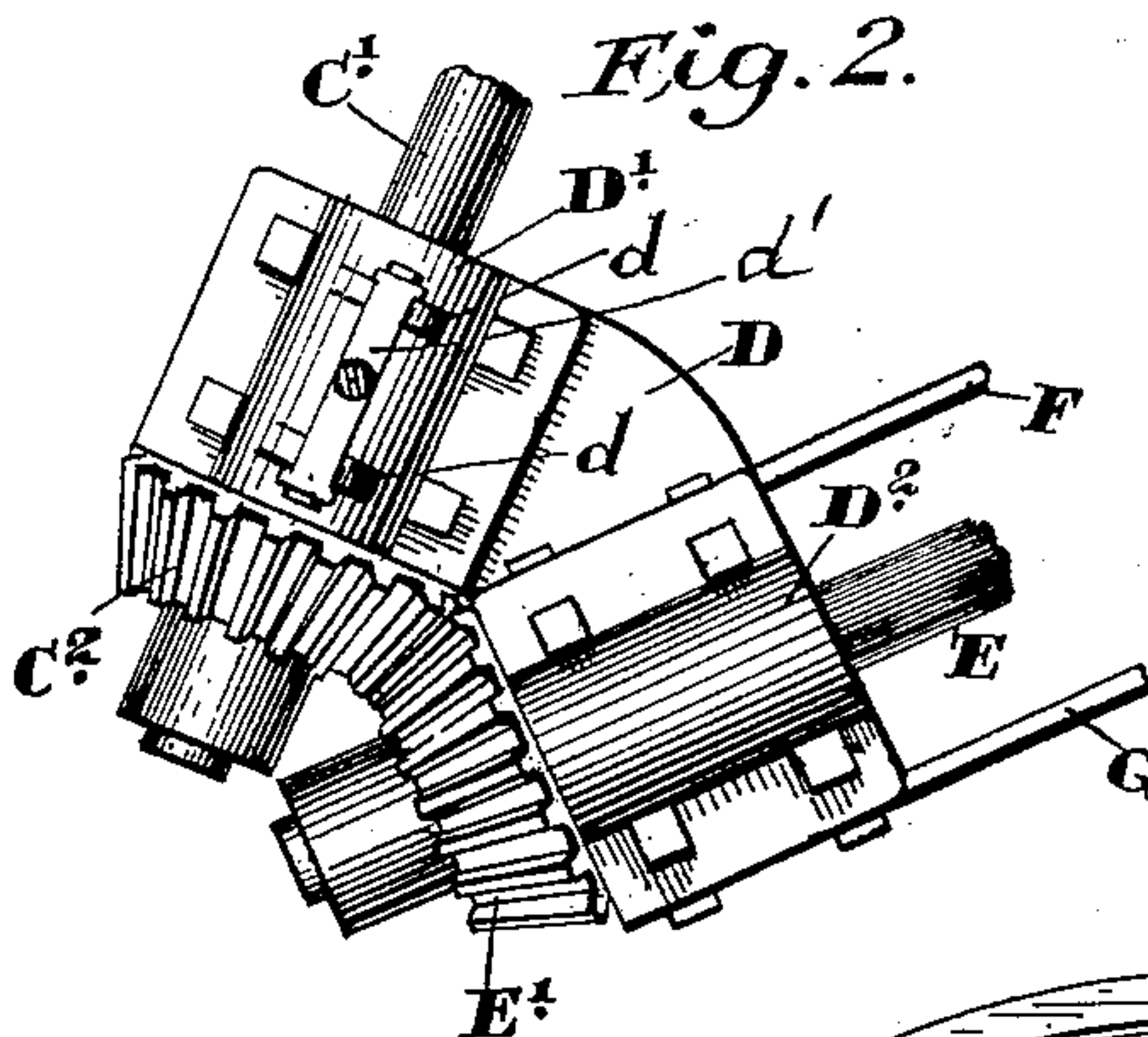


Fig. 2.



Witnesses.

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Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN JONES AND ALEXANDER GILLIES, OF TORONTO, CANADA, ASSIGNORS
TO JAMES EDWARD KNOX, OF SAME PLACE.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 599,936, dated March 1, 1898.

Application filed April 26, 1897. Serial No. 634,017. (No model.)

To all whom it may concern:

Be it known that we, JOHN JONES and ALEXANDER GILLIES, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Street-Sweepers, of which the following is a specification.

Our invention relates to improvements in street-sweepers; and the object of the invention is to provide a simple, compact, and non-vibratory form of support and positive and direct drive for the brush which will not be likely to get out of order when in use and may be readily thrown out of gear when not in use; and it consists, essentially, of a bevel-pinion drive for the rear end of the brush, the driving-pinion being secured on the end of a shaft supported on suitable bearings and brackets and driven at the front end from the main axle of the machine by a bevel-pinion meshing with the bevel-wheel secured to the main wheel, such bevel-pinion being arranged to be thrown in and out of gear and the parts being otherwise constructed and rigidly supported, in the manner hereinafter more particularly explained.

Figure 1 is a perspective view of a sweeper, showing our improvements. Fig. 2 is a detail of the rear bracket in which the shaft of the broom and main driving-shaft are journaled. Fig. 3 is an enlarged detail showing the mechanism for throwing the bevel-pinion at the front end of the driving-shaft out of mesh with the bevel-wheel secured to the main driving-wheel. Fig. 4 is a perspective detail, partially in section, showing the peculiar form of fifth-wheel adapted for use in our sweeper.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the platform or main frame of the machine, which is suitably supported at the rear end by the ground-wheels B and at its front end by a wagon-truck with a peculiarly-formed fifth-wheel so constructed as to prevent vibration, as will be understood from its specific description, hereinafter set forth.

C is the rotary brush. C' is the shaft of the same.

D is an obtuse angle-shaped bracket provided with journal-boxes D' and D², securely bolted to the same, and through which the

driving-shaft E and shaft C', respectively, extend.

F is a bar which is bolted at the rear end to the bracket on the inner side of the journal-box D². The bar F extends forwardly, as shown, and has an ogee bend, whereby it is made to extend to the inside of the ground-wheel B. The front end of the bar F is pivoted on the axle.

G is a bar securely bolted at the rear end to the outside of the bracket D. The front end of the bar G is bolted to the bracket H, pivotally swung at the end on the axle B'. The driving-shaft E extends at the front end into the bracket H, in which it is journaled.

d are lugs formed at the upper side of the journal-box D' and connected by the forked rod d' to the lever I, which is of any suitable construction, and by which the brush and its driving parts are raised.

We merely show a portion of the lever, as we do not claim anything in its specific operation in this specification, as the construction of such lever forms part of the subject-matter of a former patent of ours.

C² is a bevel-wheel secured at the outer end of the brush-shaft C', outside the journal-box D', and E' is a bevel-pinion secured on the rear end of the driving-shaft E and meshing with the bevel-pinion C². The opposite end of the brush-shaft is supported in a suitable journal, which it is not necessary to describe, as it forms no feature of our present invention.

J is a bevel-wheel secured to the hub outside of the ground-wheel B.

E² is a bevel-pinion located at the front end of the driving-shaft E and designed in its operative position to mesh with the bevel-wheel J. The bevel-pinion E² has a square hole e, which fits over a corresponding square enlarged portion e', formed on the shaft E.

K is a bar which is provided with a bent ring-shaped end K'. The end K' fits loosely over the hub e² of the bevel-pinion E² and is secured from longitudinal displacement upon it by the ring-flange e³, secured to the hub at the outside thereof.

L L are bolts having flat heads l. The bolts L L extend through the bracket H, being secured therein at the lower end by suitable

nuts. The upper flat heads l of the bolts are provided with slots l' , through which extends the bar K.

k is a gripping-pin secured at the front end of the bar K' and designed to provide for the longitudinal manipulation of the bar.

M is a pin having an eye to which is attached a chain m , which is suitably secured to the bracket H.

In the position shown in the drawings the bevel-pinion E^2 is in mesh with the bevel-wheel J. By withdrawing the pin M and pushing upon the pin K the bevel-pinion may be thrown backwardly over the square portion e' of the shaft E out of engagement with the bevel-wheel J. This is, of course, preferably done when the machine is being driven with the brush raised and not in use. When the brush is upon the ground in active operation, it will be understood that such gear-pinion E^2 will always be in mesh with the bevel gear-pinion.

In a former invention of ours we used sprocket chains and wheels for communicating motion from the main axle to the bevel-wheels. In this form we also necessarily had to use a universal joint between the sprocket-pinion and its bevel-wheel and the bevel-wheel on the end of the brush-shaft. Consequently we found that a pounding action was imparted to the brush which seriously impaired its usefulness.

By the form of drive which we now show it will be clearly seen that there will be no vibratory or pounding action in the brush, as the angular bracket D, bevel-pinions, shaft, and wheels, constructed as hereinbefore described, serve to provide a very positive and direct drive free from vibration and not likely to get out of order.

As all the driving-gear is situated, preferably, outside of the wheel and as we provide inner mud-guards B^2 for the ground-wheel on the driving side, it will be seen that there will be no danger of the front portion of the driving-gear becoming clogged; nor will there be any danger of the bevel-pinions connecting the rear end of the driving-shaft with the brush-shaft from being separated and mud or dirt accumulating therein, as such bevel-gears are held tightly in mesh.

In order to provide against the action of the brush tending to tear out the ring-bolt of the front axle, we make the fifth-wheel thereof in two parts. The lower portion is secured to the axle proper and consists of the usual ring N, with central opening n larger than the king-bolt N' . The upper ring N^2 is substantially of the same diameter as the lower ring and is also provided with a central opening larger than the king-bolt. The outermost edge of this ring is bent over to form an annular flange n' , which closely fits the outer edge of the lower ring, and the edge of the central opening is also similarly bent downwardly, thus forming the flange n^3 , which

bears against the edge of the opening in the lower ring. The lower ring is thus held securely within the two flanges of the upper ring. It will thus be seen that instead of the strain which the front axle necessarily sustains falling on the king-bolt such strain now falls upon the flanges n^2 and n^3 , thus relieving the king-bolt and securely bracing the fifth-wheel.

What we claim as our invention is—

1. In combination, the frame, the main axle-shaft, the supporting-wheels mounted thereon, the brush-roll set obliquely in relation to the main axle, the bearing supporting one end of the same, the angular bracket and journal-boxes supporting the opposite end thereof, the driving-shaft, the pinion on the brush-roll, the gear on one of the supporting-wheels, the pinions carried at each end of the driving-shaft for conveying motion from said wheel to the brush-roll, the front pinion being longitudinally movable on the shaft and the means for positively pressing the pinion on the front of the shaft out of mesh with said gear, substantially as described.

2. In a sweeper in combination, the rotary brush and shaft thereof supported in suitable bearings at one end, the angular bracket and journal-box forming the bearing at the opposite end, the bars pivoted on the main axle and connected to the angular bracket at the rear ends thereof, the main driving-shaft, the journal-bracket at the rear end of same on the angular bracket, the meshing bevel gear-pinions on the outer and rear ends of the brush-shaft and driving-shaft respectively, the bracket pivotally swung on the outer end of the main axle and having secured to it the front end of the outer bar and forming a support for the front end of the driving-shaft, a square enlargement on such shaft, the bevel-pinion fitting thereon, the bevel-wheel secured to the outside of the drive-wheel and an adjusting-bar connected to the bevel-pinion as and for the purpose specified.

3. In a sweeper, in combination, the rotary brush and shaft thereof supported in suitable bearings at one end, the angular bracket and journal-boxes forming the bearing at the opposite end, the bars pivoted on the main axle and connected to the angular bracket at the rear ends thereof, the main driving-shaft, the journal-bracket at the rear end of same on the angular bracket, the meshing bevel gear-pinions on the outer and rear ends of the brush-shaft and driving-shaft respectively, the bracket pivotally swung on the outer end of the main axle and having secured to it the front end of the outer bar and forming a support for the front end of the driving-shaft, square enlargements on such shaft, the bevel-pinion fitting thereon, the bevel-wheel secured to the outside of the drive-wheel, the bolts passing through the bracket and provided with flat heads having slots in them, and the longitudinal adjustable bar having a ring-

shaped end fitting within an annular recess on the hub of the bevel-pinion as and for the purpose specified.

4. In a sweeper in combination, the rotary
5 brush and shaft thereof supported in suitable bearings at one end, the angular bracket and journal-boxes forming the bearing at the opposite end, the bars pivoted on the main axle and connected to the angular bracket at the
10 rear ends thereof, the main driving-shaft, the journal-bracket at the rear end of same on the angular bracket, the meshing bevel gear-pinions on the outer and rear ends of the brush-shaft and driving-shaft respectively,
15 the bracket pivotally swung on the outer end of the main axle and having secured to it the front end of the outer bar and forming a sup-

port for the front end of the driving-shaft, square enlargements on such shaft, the bevel-
pinion fitting thereon, the bevel-wheel secured 20 to the outside of the drive-wheel, the bolts passing through the bracket and provided with flat heads having slots in them, the longitudinal adjustable bar having a ring-shaped
25 end fitting within an annular recess on the hub of the bevel-pinion and the retaining-pin designed to be inserted into a hole in the adjusting-bar between the heads as and for the purpose specified.

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Witnesses:

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