

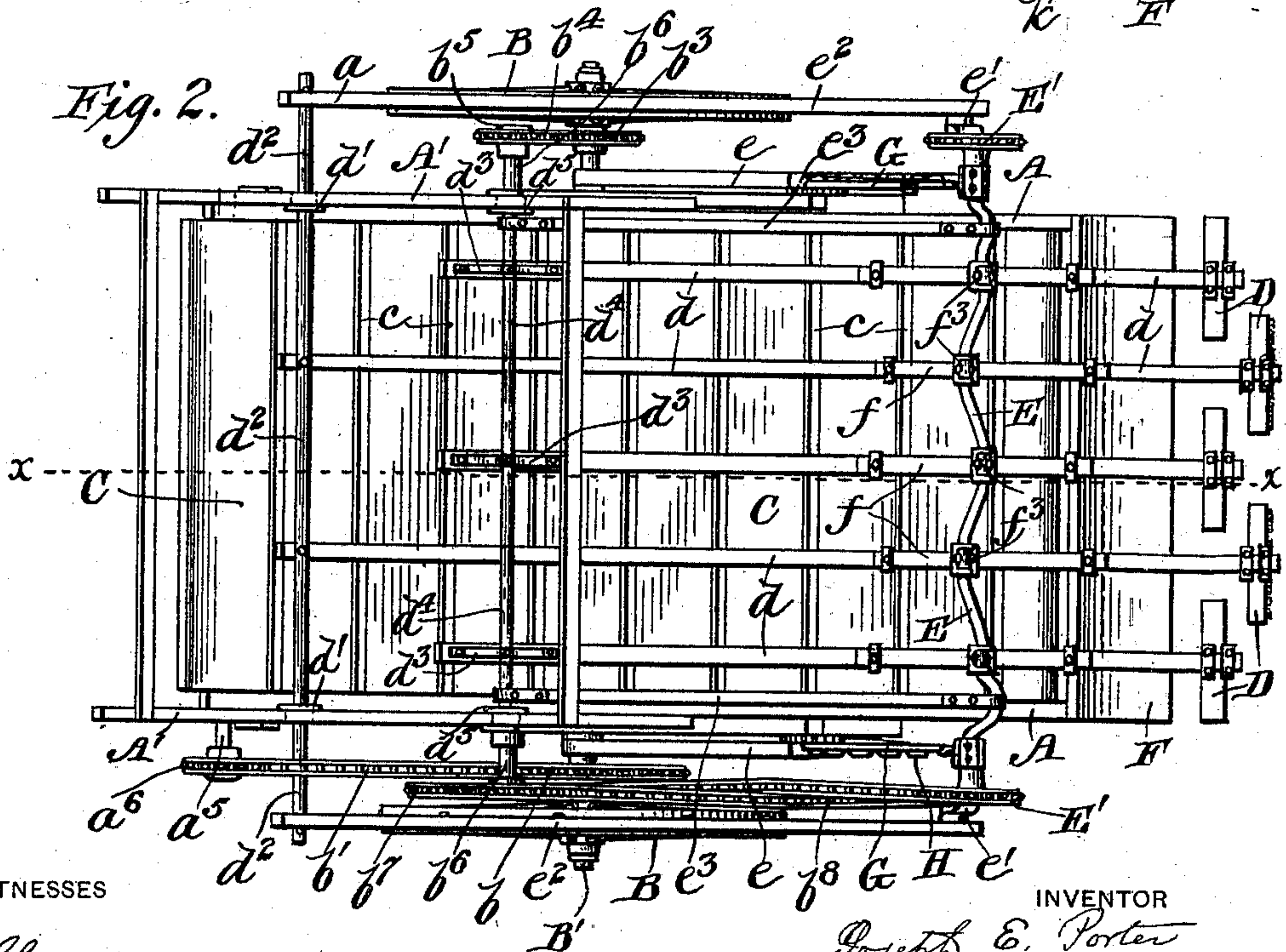
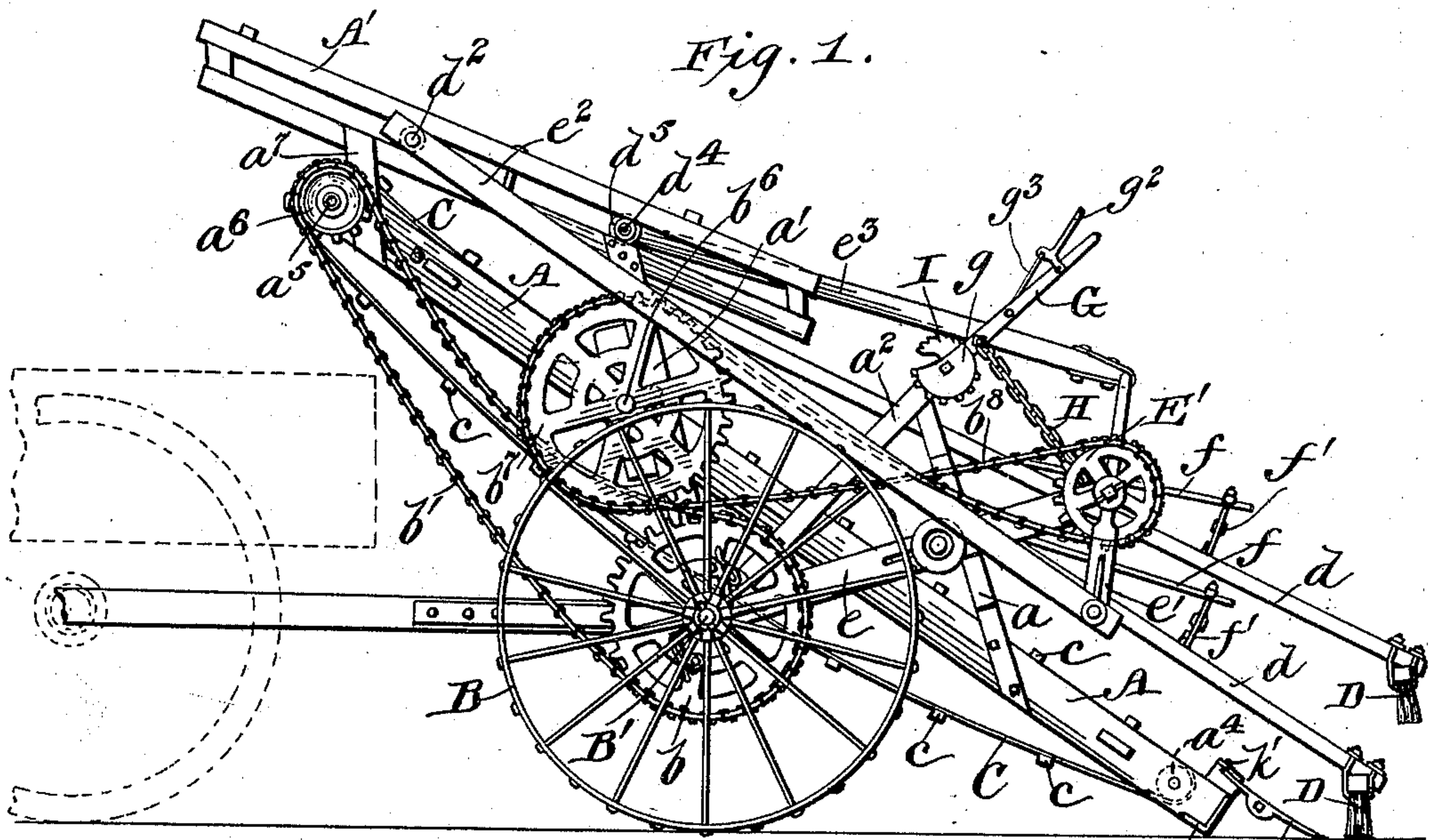
(No Model.)

2 Sheets—Sheet 1.

J. E. PORTER.  
STREET SWEEPER.

No. 544,929.

Patented Aug. 20, 1895.



WITNESSES

*Geverance.*  
*W. Harry Muzzy*

INVENTOR

*Joseph E. Porter*  
*by his Attorney*  
*Mason, Fenwick & Lawrence*



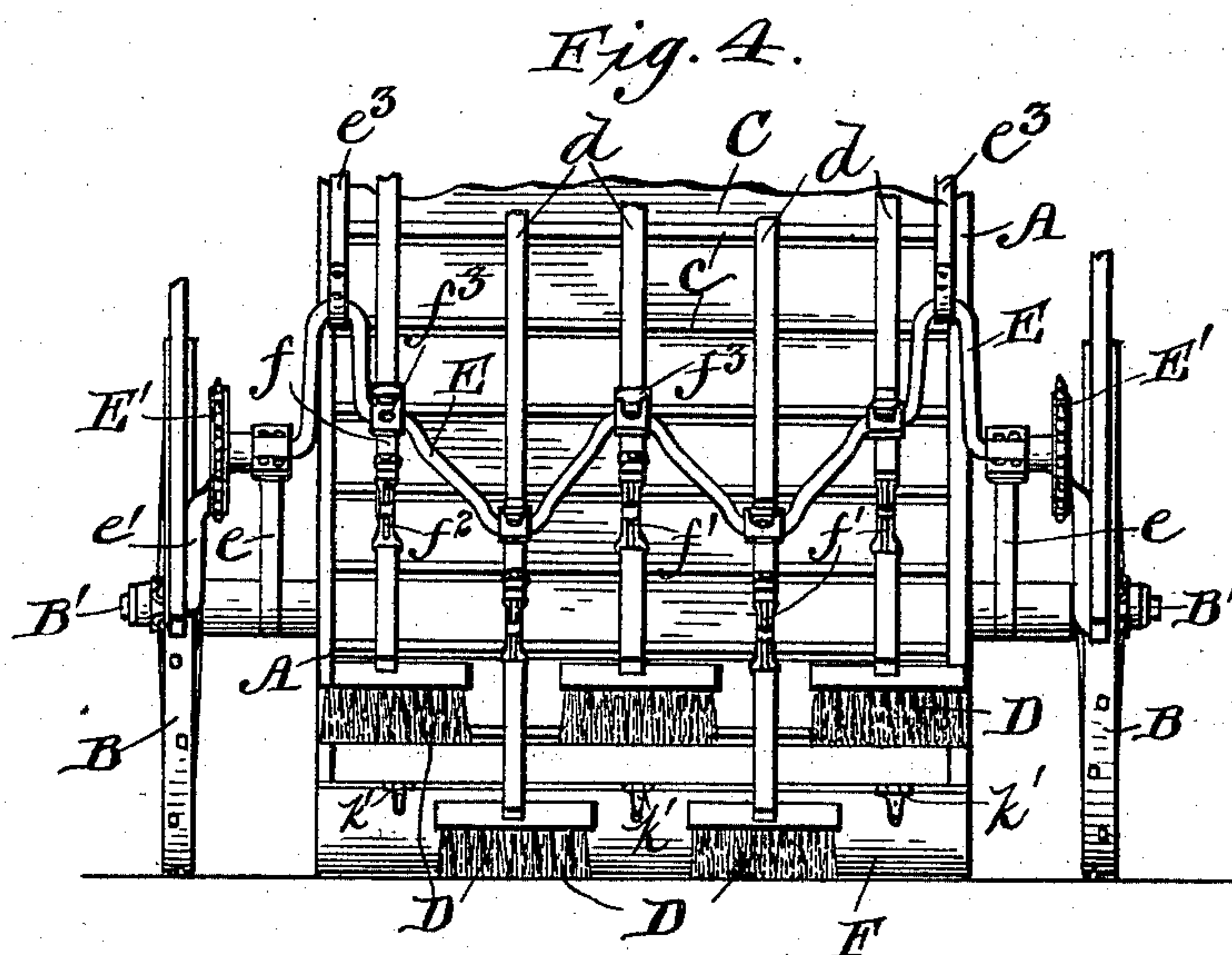
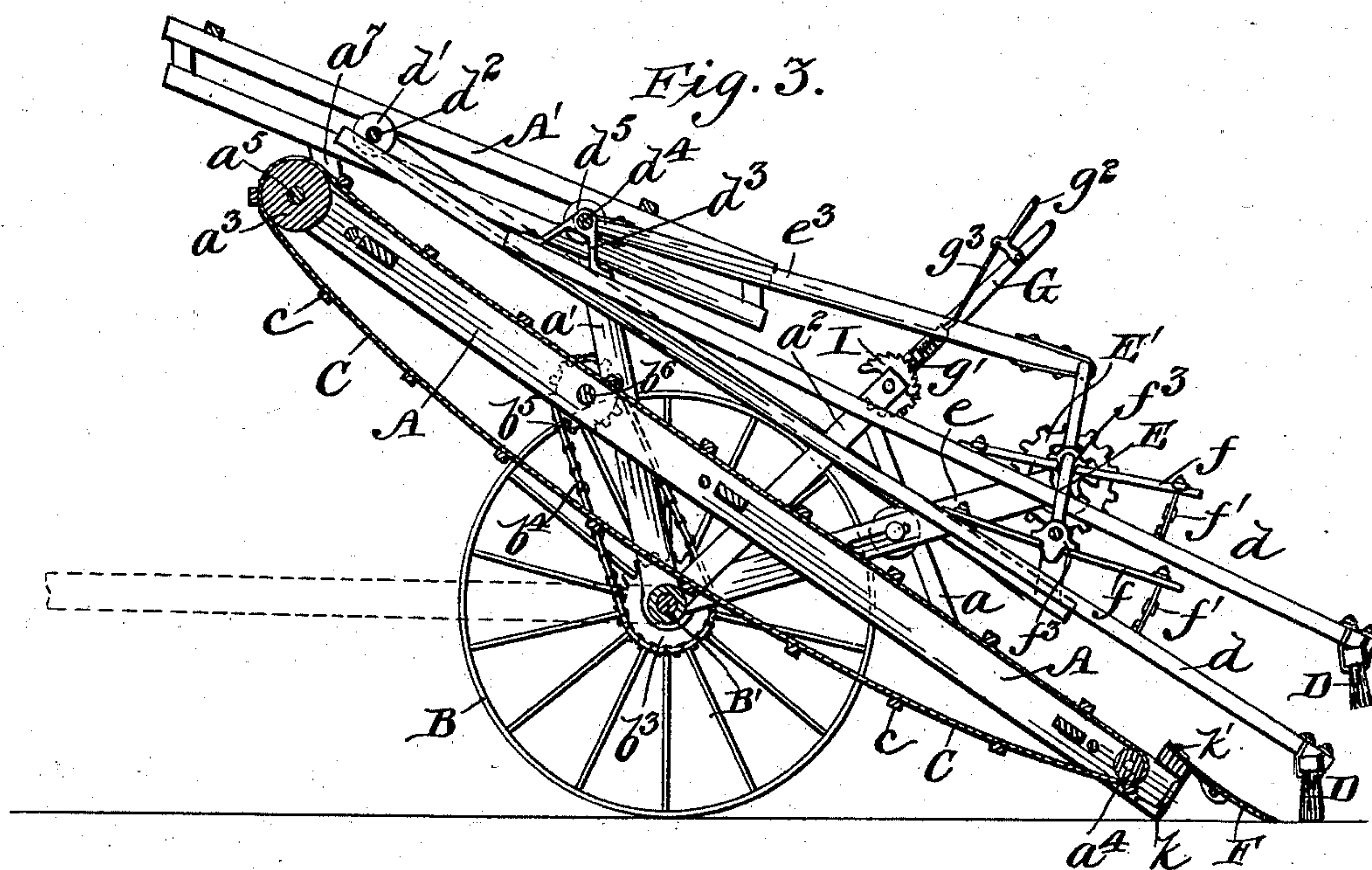
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J. E. PORTER.  
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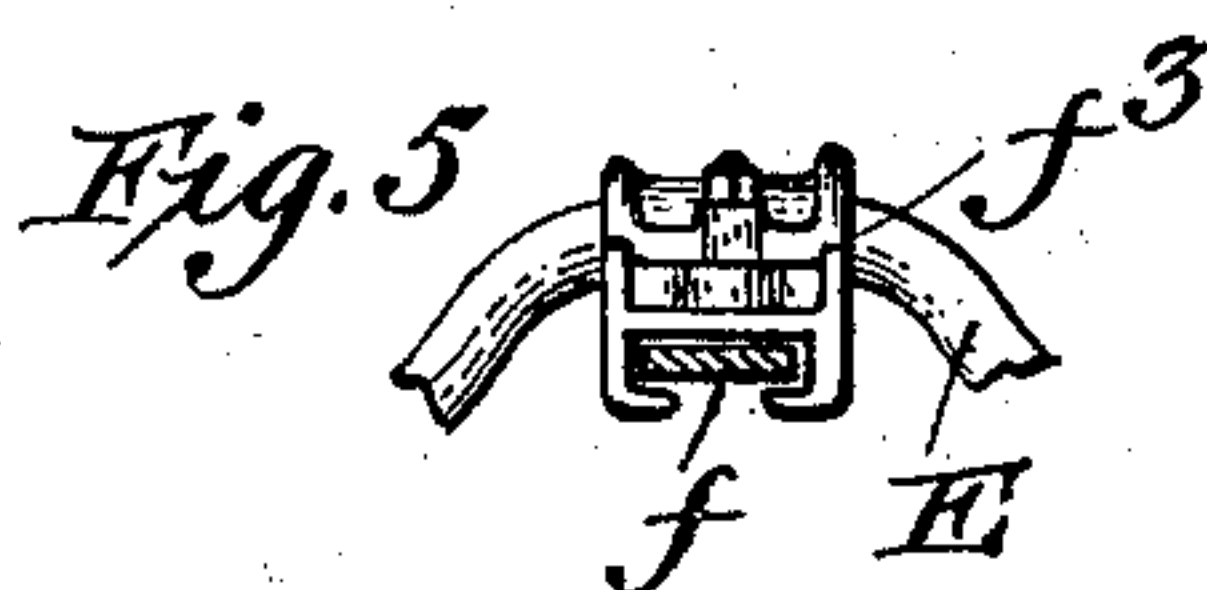
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# UNITED STATES PATENT OFFICE.

JOSEPH E. PORTER, OF OTTAWA, ILLINOIS.

## STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 544,929, dated August 20, 1895.

Application filed February 14, 1895. Serial No. 538,352. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH E. PORTER, a citizen of the United States, residing at Ottawa, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Machines for Sweeping Streets or Roadways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in street-sweeping machines; and it consists of certain novel constructions, arrangements, and combinations of parts, all of which will be hereinafter particularly set forth and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 represents a side elevation of the machine embodying my invention, a dirt-receiving cart being shown in dotted lines, and to which the machine is suitably connected and from which it may be disconnected readily. Fig. 2 represents a top plan view of the said machine. Fig. 3 represents a central vertical longitudinal section of the same on line  $xx$  of Fig. 2. Fig. 4 represents a detail end elevation of said machine, showing the manner of mounting the reciprocating brushes upon the crank-shaft; and Fig. 5 represents a detail view of the sliding connection between the crank-shaft and the brush-supporting bars.

A, in the drawings, represents the inclined frame; B, the truck upon which the same is mounted; C, the endless apron mounted upon said frame; D, the sweeping-brushes; E, the crank-shaft for raising and lowering said brushes, and A' the guides for controlling the reciprocating movements of said brushes.

The frame A is mounted, by means of supporting-bars  $a'$   $a^2$ , upon the truck B, so that its rear end rests lightly upon the ground, while its forward end is elevated. The lower end where it rests upon the ground is provided with a metallic shoe  $k$ . Apron-rollers  $a^3$   $a^4$ , respectively, are journaled at each end of the inclined frame between its side-bars, and the endless apron C is passed about said rollers and thereby supported. This apron is made of some flexible material, preferably canvas, and is provided upon its outer sur-

face with lateral-spaced bars  $c$ , secured thereto, so that any dirt deposited upon its inclined upper surface will be conveyed upward without sliding down said inclined surface, as it otherwise would. The roller  $a^5$  is mounted upon a shaft  $a^5$ , one end of which passes through one of the side bars of the frame and is provided with a sprocket-wheel  $a^6$ . This wheel  $a^6$  is connected to a larger sprocket-wheel  $b$ , which is loosely mounted upon the side of the truck by sprocket-chain  $b'$ . The wheel  $b$  is connected to the axle B' of the truck by any suitable ratchet-wheel-and-pawl mechanism. By this arrangement the apron is moved along or revolved as the machine moves forward.

The lower end of the frame A is provided with a transverse dirt conducting or directing apron or flap F of any suitable material and made yielding, or is hinged to said frame at  $k'$ , so as to rest with its outer edge upon the ground. It will be seen that the said apron, by being yielding or hinged to the frame A, can rise or fall and thus pass smoothly over any inequalities in the ground.

The guides A' each consist of two spaced bars mounted above the frame upon the upwardly-projecting ends of the standard-bars  $a'$ , and short standards  $a^7$ , attached to the frame A. The brushes or brooms D are secured to operating bars or rods  $d$  at an angle so that their bottom edges will strike the ground squarely. Every other one of the bars  $d$  is made shorter than the adjoining one, and the long bars have their upper ends attached by pins to a transverse rod  $d^2$ . This rod carries flanged wheels  $d'$ , which work in the upper parts of the guides A' between the spaced bars. The short bars have their upper ends attached by brackets  $d^3$  to a transverse rod  $d^4$ . This rod carries flanged wheels  $d^5$ , which work in the lower parts of the guides A' between the spaced bars. The wheels  $d'$  are free to rotate upon their respective rods, but cannot slide longitudinally thereon. The flanges of said wheels bear against the inner sides of the spaced bars of the guides A' and thus prevent any longitudinal movement of said rods.

The crank-shaft E is mounted in the ends of supporting-bars  $e$ , which have their opposite ends pivotally mounted upon the axle of



the truck, so that the said crank-shaft may be raised or lowered, as desired. This raising and lowering of the crank-shaft is accomplished by means of levers G G, pivotally mounted upon the ends of bars  $a^2$ . Each of said levers is provided at its lower end with a segmental disk  $g$ , having peripheral teeth, and also with a spring-pressed sliding pawl  $g'$ , bell-crank lever  $g^2$ , and connecting-rod  $g^3$  for operating said pawl.

A segmental ratchet-wheel I is rigidly attached to the upper end of each of the bars  $a^2$  so as to be engaged by the pawl  $g'$  on the lever G. A chain H connects the lever G with the crank-shaft, and thus said shaft may be raised and lowered as desired by operating said levers G, the links of the chain H fitting over the peripheral teeth of the disks  $g$  as said disks are turned by the levers G. Each of the bars  $d$  is provided upon its upper surface with a slide plate  $f$ , having one end attached to the bar and the other supported by a bracket  $f'$ , through which passes a bolt  $f^2$  and thus secures said slide plate in position. Each of the slides is provided with a sliding journal-box  $f^3$  in which the crank-shaft operates. The crank-shaft is provided at each end with a sprocket-wheel  $E'$ .

The rotatable axle  $B'$  of the truck is provided with a sprocket-wheel  $b^3$ , which is connected by a sprocket-chain  $b^4$  with a smaller sprocket-wheel  $b^5$ , mounted on a transverse shaft  $b^6$ . This shaft is mounted in the frame A and carries a large sprocket-wheel  $b^7$  at the opposite end from the wheel  $b^5$ . This wheel  $b^7$  is connected by a crossed sprocket-chain  $b^8$  with the sprocket-wheel  $E'$  on the crank-shaft. Each of the sprocket-wheels  $E'$  is provided with a rigid arm  $e'$  and the outer end of each of these arms is connected to the extending end of the rod  $d^2$  on its respective side by a pitman-rod  $e^2$ , and thus the revolution of the crank-axle will reciprocate the rod  $d^2$  back and forth and move every other one of the brush-rods and brushes longitudinally. The rod  $d^4$  is reciprocated longitudinally with its brush-rods and brushes by means of pitman-rods  $e^3$ , which are connected to the crank-bends of the crank-shaft.

The peripheries of the wheels of the truck are roughened in any well-known manner so that they will not slip upon the ground when the machine is in operation.

The operation of the machine is as follows: The machine is first attached, by any suitable coupling, to an ordinary dirt-cart, so that when the latter moves forward the gearing on the machine will be operated, thereby moving the endless apron and causing the brushes to be moved with a step-by-step-like action and sweep the dirt from the street, over the yielding dirt conducting or directing flap or apron F, onto the moving-apron C, which carries it upward and dumps or discharges it into the cart. Each brush at each stroke moves backward sufficiently to sweep the street a slight distance to the rear of the point

where it formerly left off on the previous stroke, and thus each brush cleans a space equal to its width and the entire distance the machine travels. Where it is desired to lift the brushes, so that they will not strike the ground, the levers G are operated, as before described. The frame A has its supports pivoted on the axle, so as to be adjusted to a horizontal position when not sweeping.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a street sweeping machine, the combination with a suitable truck, of a frame adjustably mounted on the truck so that it may be set to either a horizontal or inclined position, an endless apron mounted on said frame and adapted to receive the dirt upon its upper surface at its lower end and convey it upward and dump it over the forward end of the truck frame into an independent cart located forward of the machine, the discharge being in line with the direction of movement of the apron and truck of the machine; an operating crank shaft, and brushes or brooms operated by the same; said brushes being secured to operating rods or bars which extend forward over the truck frame of the machine, and means for connecting said rods and crank shaft, and means for imparting a longitudinal reciprocating movement to said rods; said brushes being adapted to brush the dirt from the street forward on to the upper surface of the moving apron while the apron is constructed and arranged to carry up the dirt and discharge it over the forward end of the truck frame into an independent cart, substantially as described.

2. In a street sweeping machine, the combination with a suitable truck, a frame mounted on the same, a traveling apron mounted on said frame and connected to the running gear of the carriage, and adapted to receive the dirt upon its upper surface at its lower end and convey it upward and dump it over the forward end of the truck frame into an independent cart located forward of the machine, a crank shaft also connected to the running gear, brushes or brooms secured to operating bars or rods which are extended forward over the truck frame, sliding journal boxes for connecting said rods to the crank shaft, means for imparting reciprocating longitudinal movements to said rods, and means for raising and lowering the said shaft whereby the brushes can be made to operate in contact either with the street surface or free of the same, substantially as described.

3. The combination with a suitable truck, of a frame mounted on the same, an endless carrying apron mounted on said frame, a dirt conducting apron at the rear of the frame, brushes or brooms, movable bars carrying the same, a shaft having a series of crank bends between its ends, sliding journal boxes for receiving the crank bends of said shaft, and connected with the movable bars, guides for the



movable bars, pitmen connecting said movable bars to the crank shaft, gearing for operating the crank shaft and the endless apron, substantially as described.

- 5 4. In a street sweeper, the combination with a suitable truck, of a frame mounted on the same, a traveling apron mounted upon the said frame and connected to the running gear of the carriage, brushes or brooms, bars for  
10 supporting the same and provided with anti-

friction rollers, guides for said rollers; and a crank shaft being adapted to reciprocate the brush bars both vertically and longitudinally, substantially as described.

In testimony whereof I hereunto affix my 15 signature in presence of two witnesses.

JOSEPH E. PORTER.

Witnesses:

J. O. HARRIS,

L. H. WOOD.