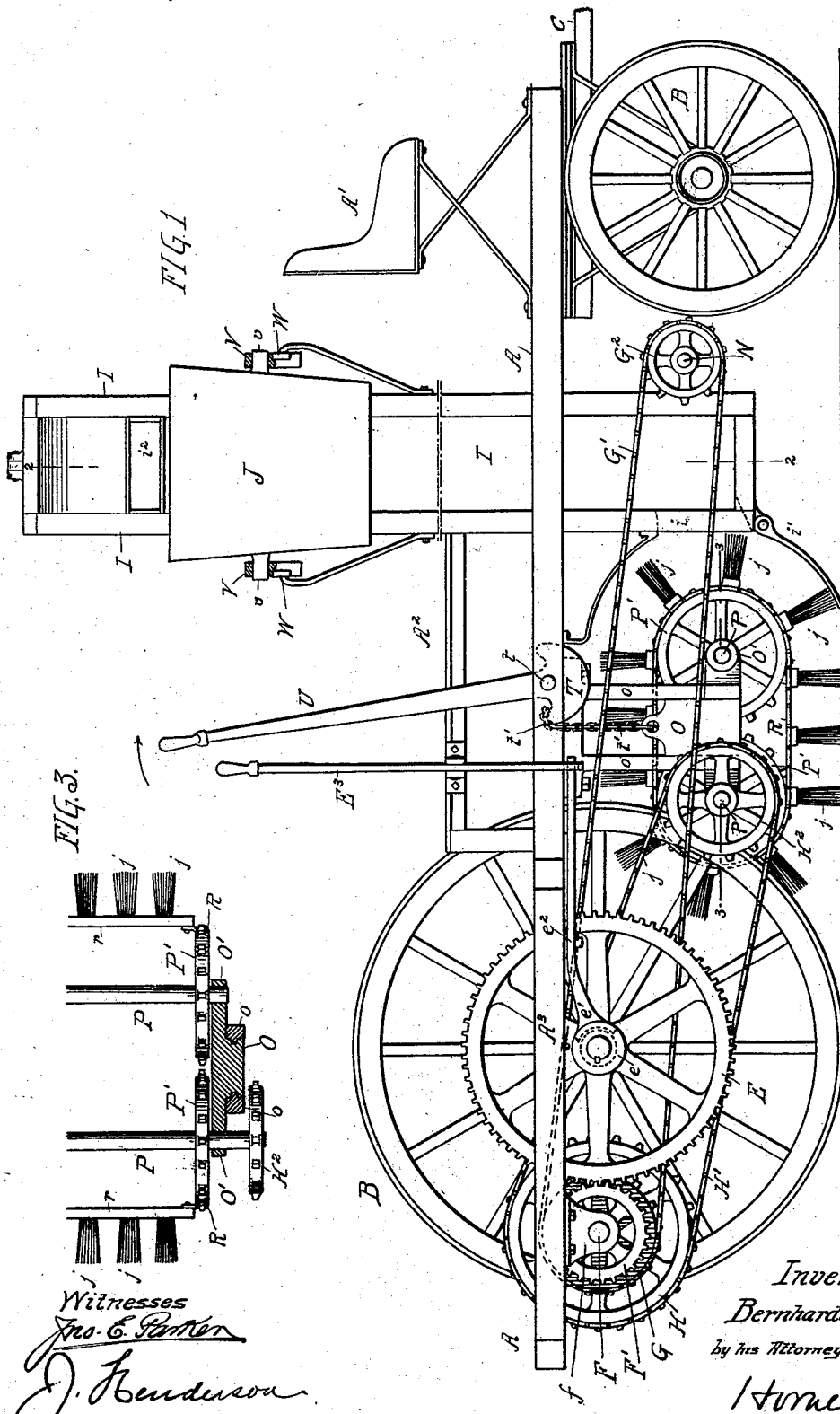


B. KRAPH.
STREET SWEEPER.

No. 506,701.

Patented Oct. 17, 1893.



Witnesses
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J. Henderson

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(No Model.)

2 Sheets—Sheet 2.

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FIG. 4

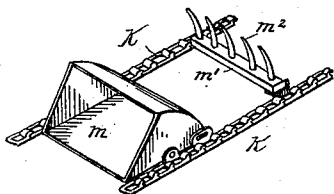


Fig. 5.

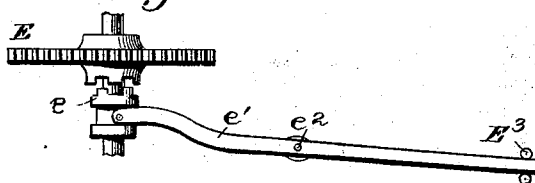
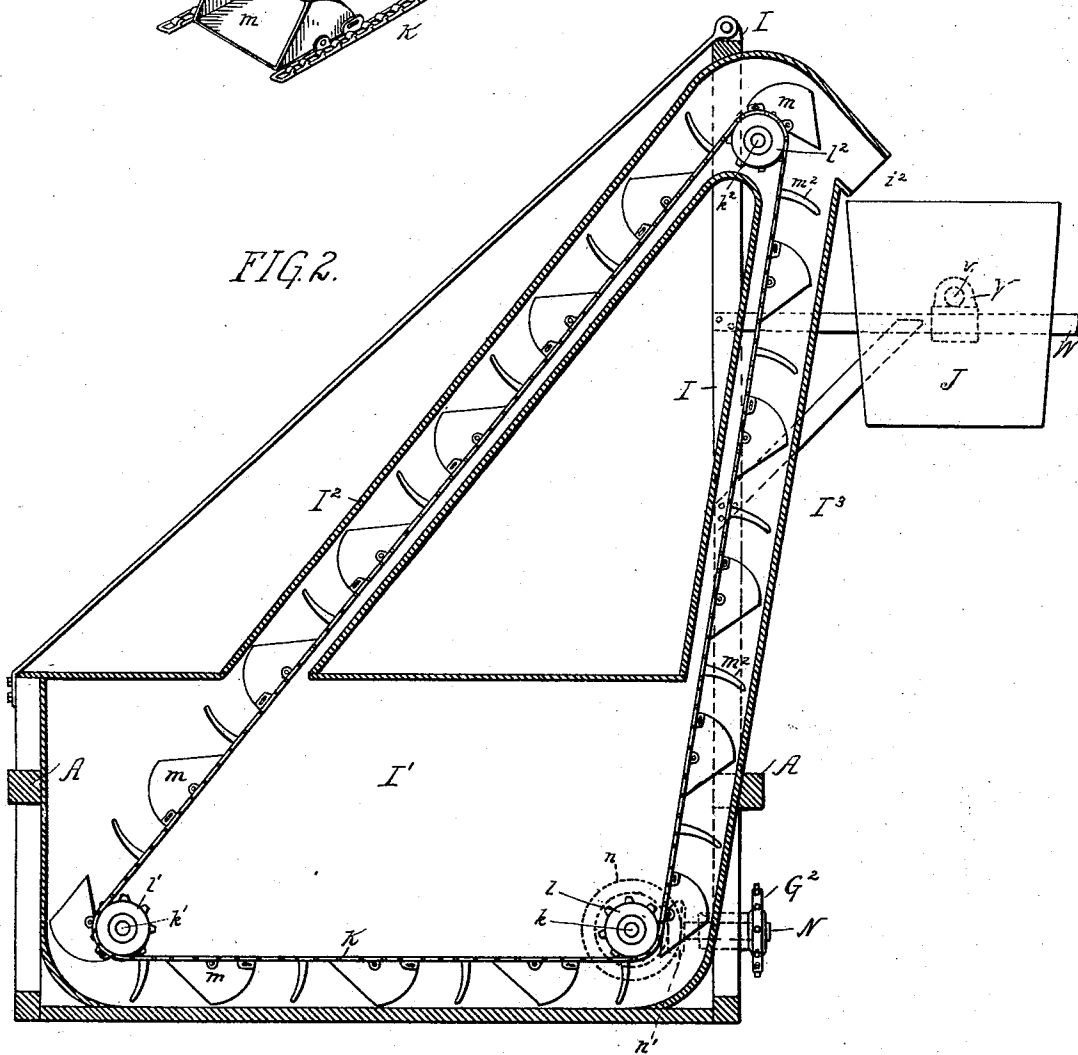


FIG. 2.



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UNITED STATES PATENT OFFICE.

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STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 506,701, dated October 17, 1893.

Application filed May 2, 1893. Serial No. 472,662. (No model.)

To all whom it may concern:

Be it known that I, BERNHARDT KRAPF, of the city of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Street-Cleaning Machines, of which the following is a full, clear, and exact description.

My invention has relation to that class of machines employed for sweeping and cleaning streets, and has for its object the construction of an improved machine for effecting this purpose; one of the principal objects of the invention being to so construct the machine that the dirt collected will be gathered and delivered to a dumping bucket located above the platform of the machine and so arranged that when filled it may be emptied into a receiving cart and taken away.

A further object is to provide a construction of sweeping broom which will present an elongated flat surface of broom or series of brooms to the surface to be swept.

In the accompanying drawings Figure 1 is an elevation of a machine constructed in accordance with my invention. Fig. 2 is a transverse sectional elevation on the line 2—2 Fig. 1 of the dirt elevating mechanism. Fig. 3 is a sectional plan view on the line 3—3 Fig. 1. Fig. 4 is a detail perspective view of one of the elevating buckets, and Fig. 5 is a view of a detail of the clutching lever for throwing the machine into and out of operation.

The main body of the machine comprises a platform, A, provided with front and rear supporting wheels, B. At the forward end is a tongue, C, to which the horses may be attached. The platform, A, is provided with a seat, A', for the driver, and at about the center of the machine is a platform, A², upon which the operator is stationed and from which point he may throw the various parts of the mechanism into or out of working position. The rear portion of the platform, A, is outside the rear supporting wheels and between this platform and a supporting bar, A³, running parallel thereto is a large gear wheel, E, (Figs. 1 and 5) mounted loosely upon the rear supporting axle of the machine and having its hub face provided with clutching teeth with which is adapted to engage a clutch disk,

e, feathered upon the shaft and under the control of an operating lever, e', fulcrumed at e², to the supporting beam, A³, and at its opposite end being connected to a handled operating lever, E³, extending for some distance above the platform, A³, and in convenient position for the operator stationed upon such platform or any other ordinary form of clutching mechanism may be employed to effect the purpose.

The supporting beam, A³, and the rear portion of the platform are provided with hangers, f, in which is mounted a transverse shaft, F, carrying a pinion, F', the teeth of which mesh with the teeth of the gear wheel, E, and two sprocket wheels, G and H, from which extend respectively driving chains, G', H', to sprocket wheels, G², and H², which will be referred to more specifically hereinafter.

At or about the central portion of the machine is mounted a supporting frame, I, a portion of which hangs below the platform, A, and forms a frame for a dirt receptacle, I', extending the full width of the machine, its rear end, however, being open at i, (as shown by dotted lines Fig. 1) immediately in front of a series of brushes, j; the brush when in contact with the ground acting to deliver dirt or other substances into the compartment, I', through the opening, i, and in order to aid the delivery of the dirt I provide at the lower rear end of the compartment a pivoted plate, the lower end of which is always in contact with the ground and the plate by preference being curved to such extent as will materially aid the brushes in delivering the dirt to the compartment. Extending from the compartment, I', are two inclined passage ways, I², I³, communicating with an outlet, i² and under which is the receiving bucket, J. Near the opposite ends of the compartment, I', are mounted, in suitable bearings, short shafts, k, k', on which are sprocket wheels, l, l', and at the junction of the passages, I², and I³, is mounted a similar shaft, k², carrying sprocket wheels, l², and extending over the various sprocket wheels are carrying chains, K, on which are mounted a series of lift buckets, m, of the character more clearly shown in the perspective view shown in Fig. 4, and the opposite ends of the

compartment are curved on a radius from the center of the shafts, k, k' , so that the lift buckets when at work may convey from the compartment, I' , all of the dirt delivered into the latter by the brushes. After traveling over the sprocket wheels, I^2 , the buckets begin their descent, but immediately before entering the passage, I^3 , the dirt they contain is delivered through the opening, i^2 , into the bucket, J , the delivery from the bucket being aided to a great extent by the character of the bucket employed and the lower edge of the bucket at the delivery point being extended to form a chute to convey the dirt over the top of the passage, I^3 , and prevent its falling back again into the compartment, I' , while the sides of the bucket are also inclosed, as clearly shown in Fig. 4. The chains, K , are also provided, between each of the buckets, m , with a transverse bar, m' , on which are secured curved fingers, m^2 , which act to loosen the dirt in the bottom of the compartment and will also carry with them any stones or other large bodies which may be thrown into the compartment, as will be readily understood. Motion is imparted to this conveying mechanism by mounting upon the shaft, k , a bevel gear, n , with which engages a bevel pinion, n' , mounted upon a shaft, N , the opposite end of which carries the sprocket wheel, G^2 , previously described, and to which motion is imparted from the sprocket wheel, G , at the rear end of the machine.

The brushing mechanism comprises opposite supporting frames, O , mounted in suitable guideways, o , depending from each side of the platform, A , and at their lower ends each frame, O , has longitudinal extensions, O' , at the ends of which are bearings for transverse shafts, P , the rear shaft carrying the sprocket wheel, H^2 , to which motion is imparted from the sprocket wheel, H , through the drive chain, H' . Near each end of each shaft, P , is mounted a sprocket wheel, P' , over which pass link belts, R , and at suitable intervals the link belts carry transversely extending bars, r , on which are mounted the brushes, j , the latter when in working position covering a considerable surface of the street and acting effectually to deliver to the compartment I' , all loose material with which they may come in contact. The platform, A , has suitable bearings for a rock shaft, t , on which are mounted segments, T , carrying lift chains, t' , extending down to the frames, O' , and secured to the shaft, t , is an operating lever, U , the upper end of which extends above the platform within convenient reach of the operator, and is so arranged that by moving this lever in the direction of the arrow Fig. 1 the lift chains, t' , will be partly wound upon the segments, T , and the brush frames, O , will be raised until the brushes only bear lightly or are out of contact with the street as desired.

The bucket, J , is mounted at its opposite sides upon trunnions, v , located above the

center of gravity of the bucket and extending into blocks, V , which embrace supporting tracks, W , carried by the frame, I , and the whole being so arranged that while the bucket, J , is in position shown in Fig. 2 it will receive through the opening, i^2 , the dirt delivered from the compartment, I' , but may be moved transversely on these tracks to a position immediately over a cart or wagon and its contents dumped therein and hauled away. Any approved form of locking mechanism may be employed to retain the bucket in the position shown in the drawings, or it may be so arranged as to remain in this position through its own weight.

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

1. The combination of the wheeled platform, a transversely extending dirt receiving compartment depending therefrom and having a rear opening facing the brushes, a guiding plate pivoted to the lower rear edge of the dirt receiving compartment, brushes adapted to co-act therewith to deliver the dirt through the opening, inclined passages, I^2, I^3 , extending upwardly from such dirt receiving compartment and communicating with each other at their upper ends, a discharge opening in the passage, I^3 , a transversely movable receiving bucket normally in position beneath said discharge opening, and a conveyer extending from the dirt receiving compartments through the passages, I^2, I^3 , substantially as specified.

2. The combination of the wheeled platform a transversely extending dirt receiving compartment depending therefrom and having a rear opening facing the brushes, a guiding plate pivoted to the lower rear edge of the dirt receiving compartment, brushes adapted to co-act therewith to deliver the dirt through the opening, inclined passages, I^2, I^3 , extending upwardly from such dirt receiving compartment and communicating with each other at their upper ends, a discharge opening in the passage, I^3 , carrying chains extending from the dirt receiving compartment through the passages, I^2, I^3 , and conveyer buckets and scraping fingers secured alternately to such chains and adapted to loosen and carry the dirt from the compartment, substantially as specified.

3. The combination of the wheeled platform, a frame, I , secured thereto, a transversely extending dirt receiving compartment I' , depending therefrom and supported by said frame, I , and having a rear opening, i , facing the brushes, brushes adapted to deliver the dirt through said opening into the compartment, inclined casings forming passages, I^2, I^3 , extending from the receptacle and also supported by the frame, I , said passages communicating with each other at their upper ends, a discharge opening, i^2 in the passage I^3 , and in line with the end of the passage, I^2 , a chain conveying mechanism extending from the compartment through the

passages I², and I³, supporting tracks, W, carried by and extending transversely from the frame, I, and a transversely movable receiving bucket, J, adapted to said tracks, substantially as described.

5 4. The combination of the wheeled platform, a dirt receiving compartment carried thereby, opposite brush frames, O, vertical guideways, o, depending from the platform and to which the frames are adapted, projecting portions, O', on said frames, O, transverse shafts, P, adapted to bearings in the projecting portions, sprocket wheels secured to said shafts, P, link belts adapted to said

sprocket wheels, a series of brushes secured 15 to said link belts, a rock shaft, t, mounted in bearings on the platform, segments, T, secured to said shaft, chains, t', connecting said segments to the frames, O, and an operating lever, U, secured to the rock shaft, t, substantially as specified. 20

In witness whereof I have hereunto set my hand this 1st day of May, A. D. 1893.

BERNHARDT KRAPF.

Witnesses:

JOHN C. GALLEN,
HORACE PETTIT.