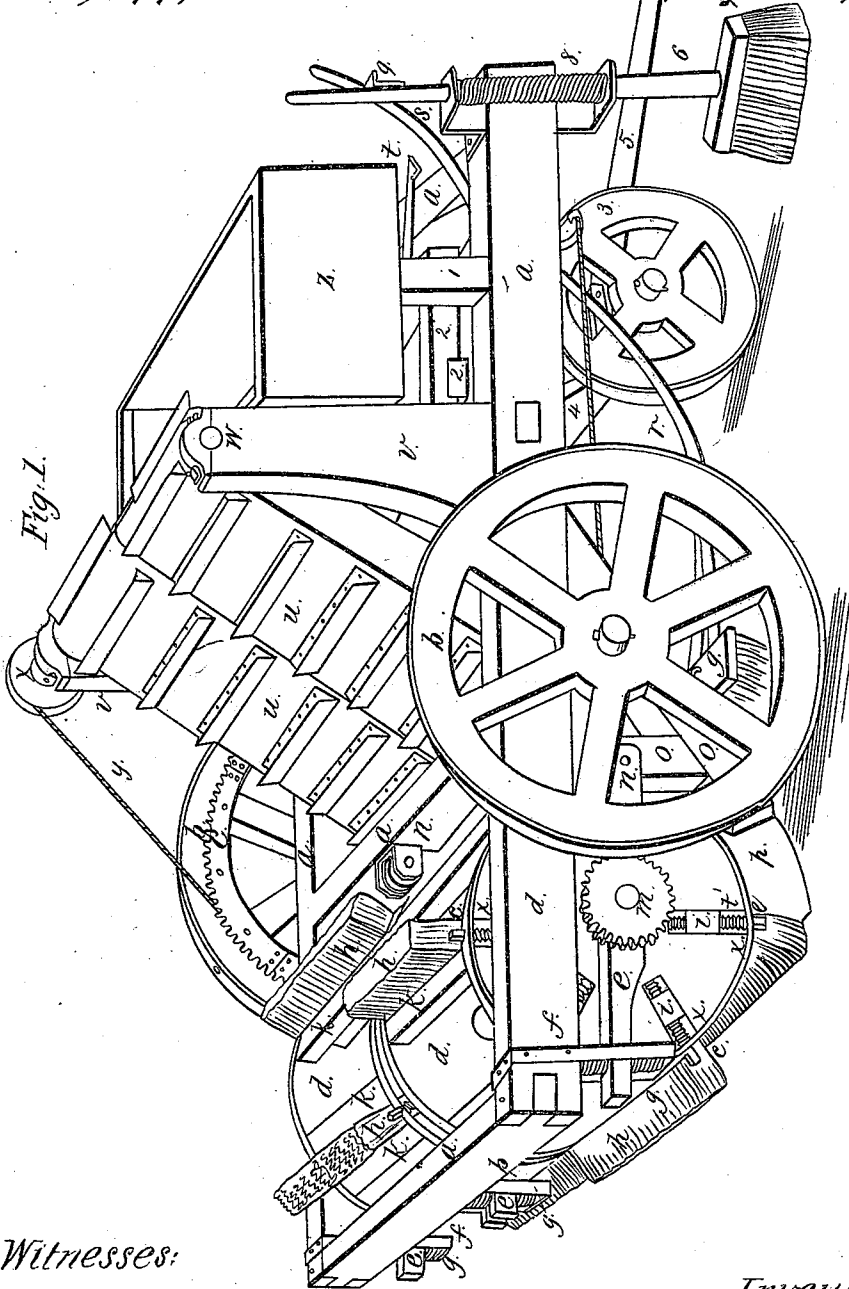


C.S Bishop,
Street Sweeping Machine
No. 6,699, *Patented Sept. 4, 1849.*



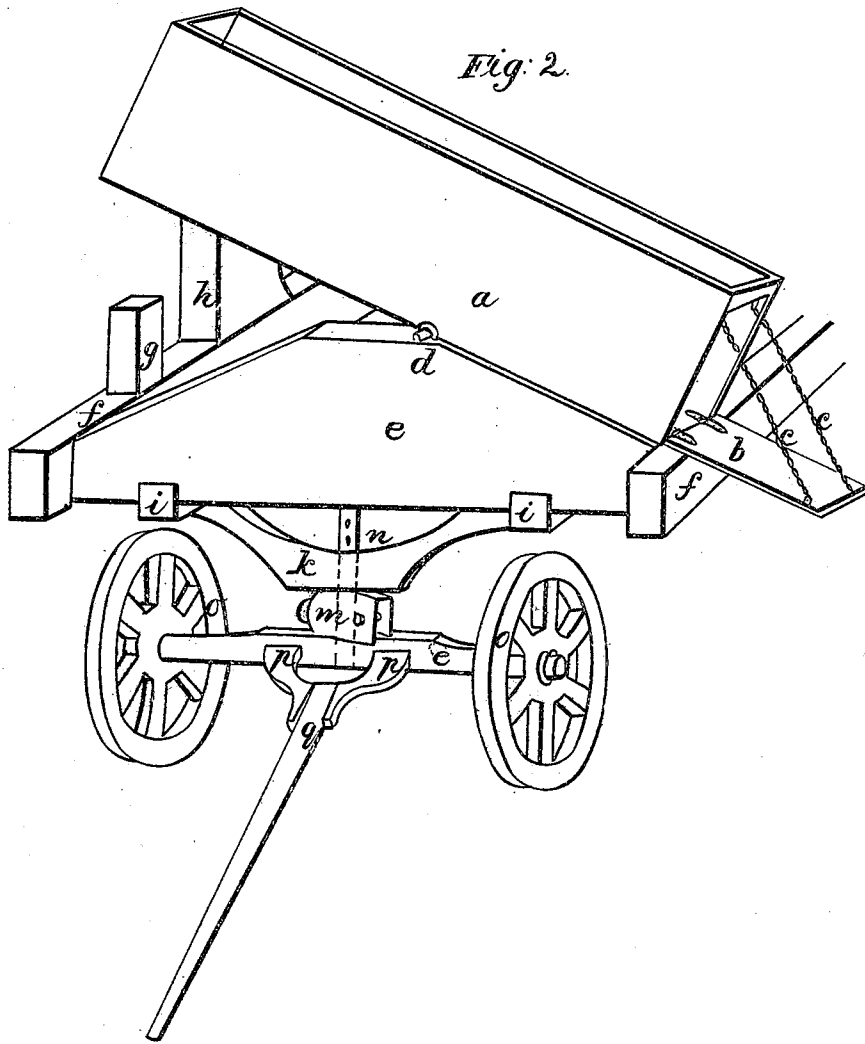
Witnesses:

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Inventor:

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C. S. Bishop,
Street Sweeping Machine,
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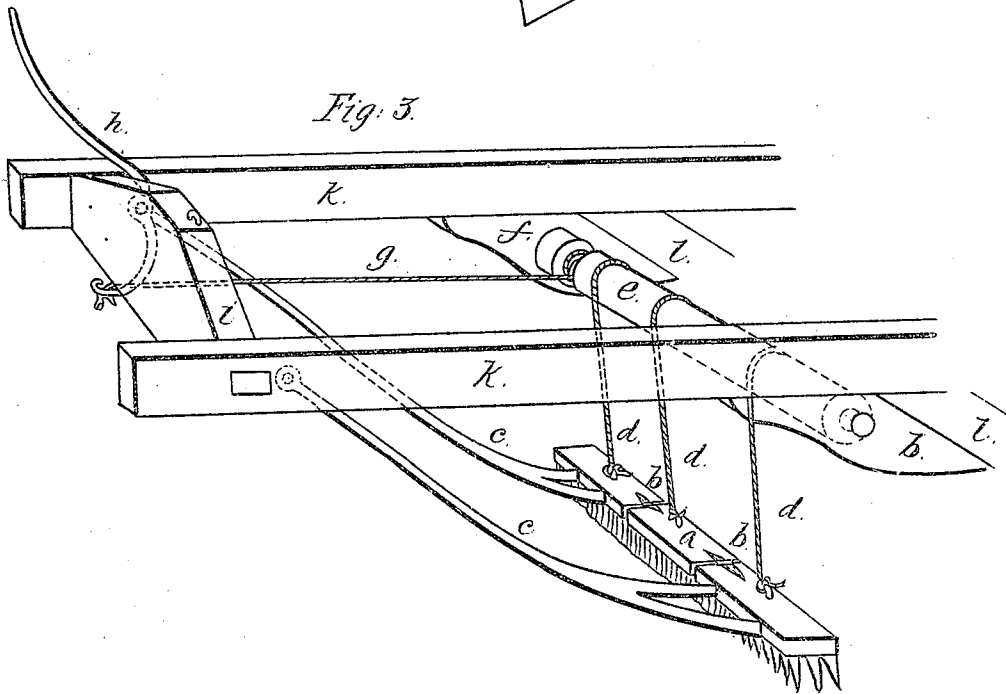
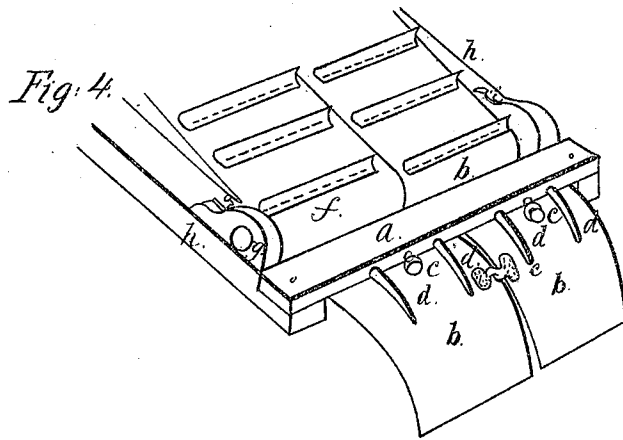
Witnesses:

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UNITED STATES PATENT OFFICE.

CALVIN S. BISHOP, OF EASTON, PENNSYLVANIA.

IMPROVEMENT IN STREET-SWEEPING MACHINES.

Specification forming part of Letters Patent No. 6,699, dated September 4, 1849.

To all whom it may concern:

Be it known that I, CALVIN S. BISHOP, of Easton, county of Northampton, State of Pennsylvania, have invented a new and useful Machine called the Street-Cleaner, to be used for cleaning streets and loading the dirt; and I do hereby declare that the following is a full and exact description of my invention.

In order to give something like proportions, the more readily to enable those skilled in the art to construct the machines, I will describe one with brushes five feet wide, although the dimensions may be varied, as fancy or circumstances may dictate.

Two pieces of timber, three inches thick, six inches wide, and eleven and one-fourth feet long, placed edgewise five feet two inches apart, with a cross-piece at each end and two intermediate ones, form the frame or bed, as seen at *a a a*, Fig. 1 of the accompanying drawings. This frame is mounted on four wheels. The hind or driving wheels *b b*, Fig. 1, about five feet two inches in diameter, have each a set of segments forming a cog-wheel *c c*, Fig. 1, about four feet three inches in diameter, placed on the inner side and fastened against the spokes. The axle of these hind wheels should be made of round iron two and one-eighth inches thick and have the bearings to run in boxes placed on the under side of the frame *a*, and at the same time to have the wheels to revolve independently to enable the machine to turn round with ease. The frame rests on this axle at points about four feet four inches from the hinder end. The arrangement of the front wheels, (see Fig. 2,) which are placed just under the front end, is in nearly every respect similar to that of an ordinary wagon, except that the wheels are low and run under the machine and are placed only about four feet apart to facilitate turning. The king-bolt is so arranged that by withdrawing a block *m*, Fig. 2, the front end of the machine is let down some inches, thereby raising the sweeping apparatus at the other end off the ground when not in use. This may also be done by means of a screw or anything else thought preferable.

At the hinder end are placed the brushes, arranged as follows: Three arms *e*, Fig. 1, about four feet long—one on each side and

one in the middle—are placed at the hind end on the under side and running parallel with the sides of the frame *a*. The ends of these arms toward the front of the machine are fastened by a pivot or hinge, as seen at *n*, Fig. 1. The hind ends of said arms (the arms can be dispensed with by having bearings of brush-wheels in guides placed vertically on side of frame *a*, and one in the middle with a spring under each box) are run through guides or clevises *f*, Fig. 1, above and below the arms. In these guides spiral or other springs *g* are arranged, Fig. 1, so as to allow the arms to rise and fall. Near the middle of these arms are placed the bearings of the brush-wheels, which wheels are constructed thus: Two heads or wheels are placed on a shaft two and one-half feet apart. From one to the other of these heads are a number of bars two and one-half inches wide and one and one-fourth inch thick placed even with the surface in pairs, those of each pair about four inches apart, and the number of pairs to be regulated by the number of brushes intended to be used—viz., one brush for each pair of bars. In the heads of the wheels opposite the apertures between the bars are slots extending from the edge to within about five inches of the center.

The brushes may be made of birch twigs, splints, or anything else preferred, fastened upon strips of wood or other substance, with a burr on each end. A brush thus constructed is inserted between each pair of bars, as seen at *k k*, Fig. 1, with the ends in the slots in the wheel-head, and screws running through holes in the hoops on the peripheries of the wheels pass through the burrs to the lower ends of the slots. These screws are secured to their places by being run into sockets at the lower ends and at top by a movable pin passing through them just inside the hoop. The heads of these screws, which protrude about an inch above the surface of the wheels, are formed so as to receive a wrench, by which they are worked, in order to run the brushes out as they wear off or to shorten them if too long.

The power is applied to the brush-wheels by means of a pinion on the outer end of each shaft, as seen at *m*, Fig. 1, meshing into the cogs

on the driving-wheels. A band may be used instead of cogs, if preferred.

Immediately in front of the brush-wheel, just where the brushes leave the ground in sweeping, ascends an inclined inflected plane or curvature termed the "sweeping-plane" *p*, Fig. 1, and *b b*, Fig. 4. This should be about two feet long and as wide as the brush-wheels. It should also be curved so as to allow the brushes to sweep up it in their revolutions. It is formed of two or more pieces and jointed lengthwise, and may be connected by a hook and eye or small hinge, as seen at *e*, Fig. 4. (They may be attached, also, by a staple, a link, or anything else thought preferable.) There is an eye on the under side of each division with a bolt passing through it fastened into a cross-bar, (see *a* and *c*, Fig. 4,) attached to the lower ends of two pieces *o*, Fig. 1, that descend from the frame *a* at an angle of about forty-five degrees, sloping toward the hind end of the machine and braced from above, so as to prevent their yielding. To this cross-bar are also attached several tines, as seen at *d*, Fig. 4. These are so placed as not to interfere with the free articulation of the planes or curvatures, and yet so as to lift the curvature off the ground when the front end is lowered. On the under side, at the lower ends of the descending pieces *o*, Fig. 1, is placed a roller five feet long and three inches thick, around which passes a broad elevator *u*, Fig. 1, and *f*, Fig. 4, ascending at an angle of about sixty degrees to and around another roller placed on top of a pedestal rising from the upper side of frame *a* between the front and hind wheels. (See *v*, Fig. 1.) The elevator is driven by a band or chain from one of the driving-wheels over a pulley *x* on the end of the upper roller. (I would here remark that between the inside of the driving-wheel and the cogs there is a groove to receive the band or chain driving the elevator.) The elevators should be as broad, or nearly so, as the brushes, and may be in several strips. The two cross-pieces near the front end are sloped up from the sides of frame *a*, so as to form a ridge about fifteen inches higher than the sides. On top this ridge the body is placed, resting on pivots, so as to be tilted sidewise. (See Fig. 2.)

The body *z*, Fig. 1, may be about five feet five inches wide, three and one-half feet long, and two and one-half feet deep, with a falling door on one side. (See Fig. 2.) On the opposite side from the door may be placed on frame *a* a short post or rest for that side of the body to rest on. The elevators should rise sufficiently high above the body to allow it to cast the dirt into the body.

A drag or rake, with several sets of teeth, (sloped backward to prevent catching,) and as wide as the brushes, rides under the machine just between the hind or driving wheels *g*, Fig. 1. It is jointed so as to conform to

the surface of the street, and is attached by means of a couple of long arms or handles to the frame of the machine at the front end, and may be raised or lowered by means of a lever *s*, Fig. 1, and *h*, Fig. 3, from which passes a cord *g*, Fig. 3, to and around a roller *e*, Fig. 3, placed immediately over the rake. Other cords descend from the roller to the rake and are fastened to it. The object of the rake is to scatter heaps of rubbish and cut up stiff mud and hard crust.

On the right side of the front end of the machine is placed a broad and very stiff broom 7, called the "gutter-cleaner," Fig. 1, which is intended to run along diagonally, and so to work the dirt out of the gutters that it can be taken up by the brushes. The staff 6, Fig. 1, or handle of this broom runs through guides fastened to side of frame *a* above and below. Between these guides is a spiral spring, which raises the broom off the ground. On the upper part of the staff is a treadle to press down the broom when needed.

In order to render the foregoing description more intelligible and show the operation of the machine, I would state that as it is drawn along the brushes, being behind, strike the ground as they revolve, throw the dirt upon the articulating curvature, up which they carry it by the same stroke of the brush until it falls into the elevator, and is by it thrown into the body. When the body becomes full, the door is let down and the body tilted, the load sliding out into a vehicle or on the ground.

The springs to the arms of brush-wheels sustaining, as they do, part of the weight, prevent the brushes pressing too heavily on the surface, and yet allow them to rise and fall with facility, as the inequalities may require. The guides prevent the swinging frame surging from side to side, which would be very objectionable.

The advantages attained by having two brush-wheels placed abreast are, first, allowing the faces of the brushes to conform with equal facility to a very rounding, an indented, or a hollowing surface as to a perfectly level street without undue wear upon any one part of the brushes; second, permitting the power to be applied from both driving-wheels without causing difficulty in turning the machine; third, but half the surface of brush being in each wheel, it allows a smaller pinion to be used, thus giving greater speed to the brushes, and consequently sweeping cleaner.

The advantages of the articulating-curvature or articulated sweeping-plane are that it will accommodate itself to the inequalities of surface in a manner similar to the brush-wheels above described; secondly, it enables the machine to operate without being obstructed by loose stones, bricks, &c.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Arranging two brush-wheels abreast in the same machine, substantially as described, and for the purposes herein stated.

2. The articulated inflected sweeping-plane composed of two or more curved or inflected sections attached to the carriage in such manner that each section may have either a transverse, vertical, or undulatory motion, sub-

stantially as described, and this I claim whether such sections be connected to each other, as herein described, or irrespective of such attachment.

C. S. BISHOP.

Witnesses:

I. B. ILLICK,
JAMES YOMER.