

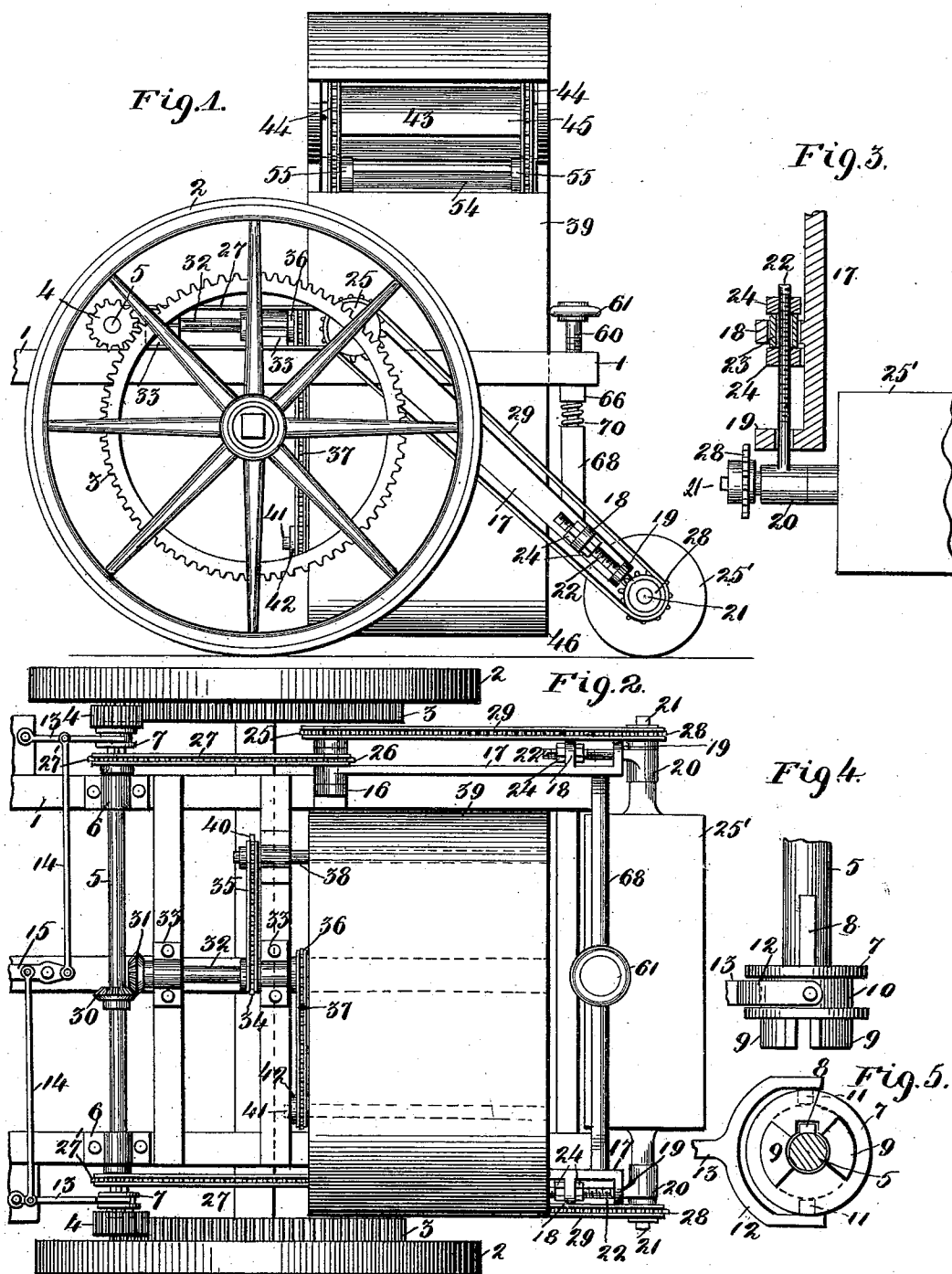
(No Model.)

2 Sheets—Sheet 1.

T. W. DOWNS.  
STREET SWEEPER.

No. 507,354.

Patented Oct. 24, 1893.



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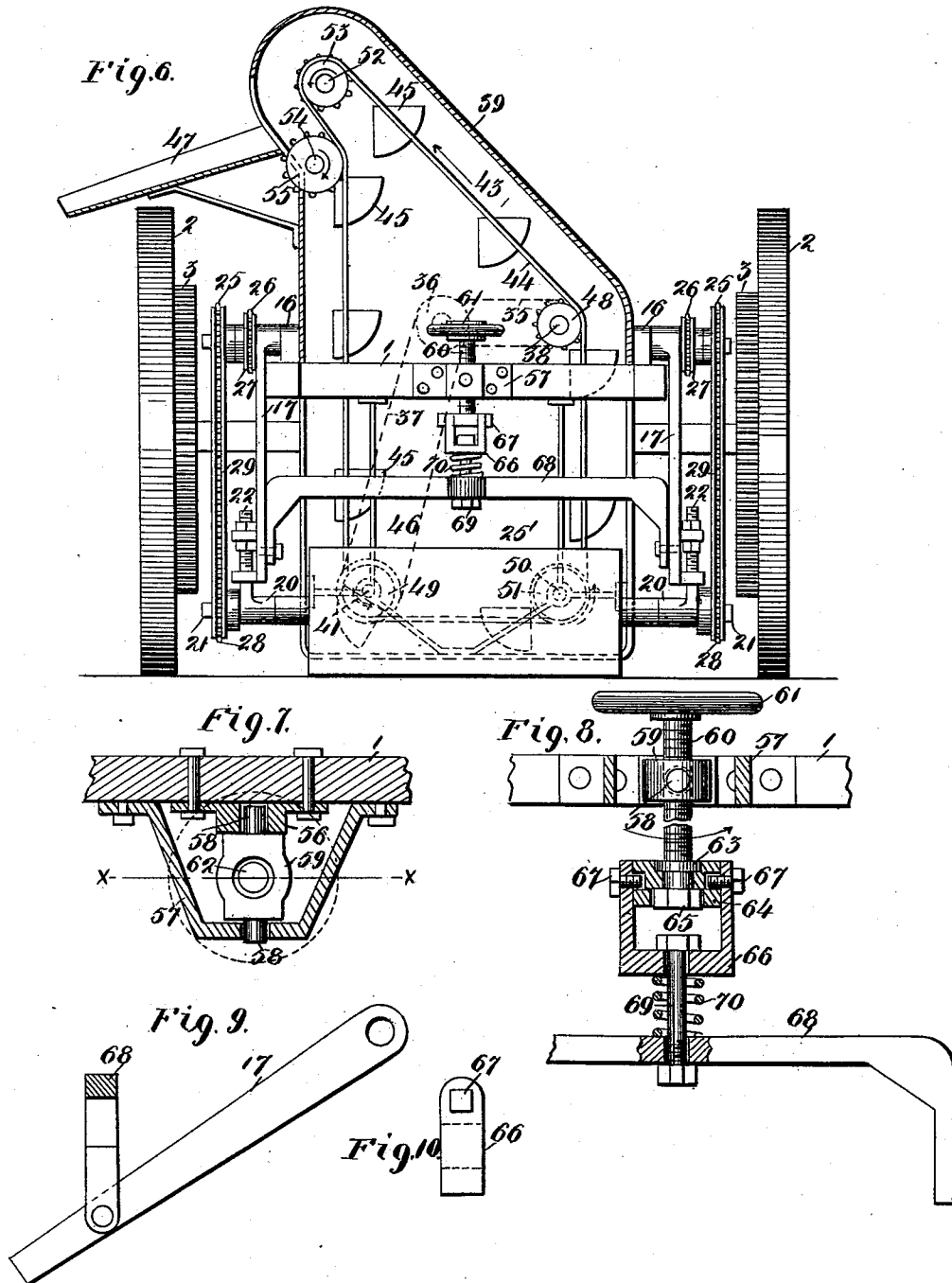
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# UNITED STATES PATENT OFFICE.

TAYLOR W. DOWNS, OF ST. LOUIS, MISSOURI.

## STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 507,354, dated October 24, 1893.

Application filed July 26, 1893. Serial No. 481,476. (No model.)

*To all whom it may concern:*

Be it known that I, TAYLOR W. DOWNS, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Street-Sweeping Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in street sweeping machines and consists in the novel arrangement and combination of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of my complete invention. Fig. 2 is a top plan view of the same. Fig. 3 is a detail view showing one end of the brush and means for supporting the same. Fig. 4 is a detail view of the clutch which I employ in carrying out the invention. Fig. 5 is an end view of the same. Fig. 6 is a rear view of the machine with the upper portion of the casing in section showing more clearly the conveyor. Fig. 7 is a horizontal section of the swivel connection for the adjusting screw of the brush. Fig. 8 is a vertical section of the same taken on the line  $x-x$  of Fig. 7 and also showing the several connections and a portion of the forked arm. Fig. 9 is a side elevation of one of the arms which supports the brush and a portion of the fork attached thereto; and Fig. 10 is a side elevation of the connection which I employ between the screw and the forked arm for allowing movement of the brush in one direction.

The object of my invention is to provide means for adjusting the brush of the machine to and from the ground, yet allowing the said brush or either end thereof to ride over any obstruction it may come in contact with.

The invention further consists in certain details of construction especially as to the gearing and as more fully hereinafter described.

Referring to the drawings, 1 represents the frame of the machine and 2 the hind wheels for the same which impart motion to the brush and the conveyor in a manner to be described. To the wheels 2 are secured gear wheels 3 which mesh with pinions 4 loosely mounted upon the ends of the transverse shaft 5, which

shaft is loosely mounted in bearings 6 fixed to the frame of the machine.

When it is desired to draw the machine along the ground without operating the conveyor and the brush, the pinions 4 are permitted to turn loosely upon the shaft 5, but by the employment of clutches the said pinions are keyed to said shaft and the several parts will be operated.

7 represents the clutches which are free to move longitudinally upon the shaft 5 but are prevented from turning independent of the same by feathers 8 forming a part of said shaft. Formed integrally with the clutches 7 are two projections 9 which are adapted to be received by corresponding depressions formed in one side of the pinions 4 when the said clutches are moved in contact with the same as shown in Fig. 2. When the clutches are moved in the opposite direction or slid upon the shaft 5, the said projections 9 will move out of the depressions formed in the pinions and the latter will be allowed to turn independently of the shaft 5. Formed on the periphery of each clutch is an annular groove 10 which receives pins 11 projecting from the forked ends 12 of the short levers 13. The opposite ends of the short levers are movably attached to the frame 1 of the machine as shown in Fig. 2 and movably attached to said levers are arms 14 leading to and attached to a lever 15 on either side of the pivotal connection thereof, whereby, when the lever 15 is moved the clutches 7 will be moved simultaneously and in opposite directions.

16 represents spindles which form bearings for one end of the arms 17, the opposite ends of said arms being each provided with two projections 18 and 19.

20 represents collars which support or form bearings for the ends of the brush, or shaft portions 21 of the same, and are provided with screw-threaded extensions 22 which pass through the projections 18 and 19 in a manner now to be described.

By referring to Fig. 3 it will be seen that the screw-threaded extensions 22 pass loosely through the lower projections 19 of the arms 17, the upper ends of said extensions passing through bushings 23 which bushings move

loosely within the upper projections 18 of said arms. Screwed upon the screw-threaded extensions on either side of the bushings 23 are nuts 24 which hold the collars 20 in their proper adjustment and yet allow the same to be turned independently of the arms 17, whereby one end of the brush 25' may be raised from the ground.

25 and 26 represent two sprocket wheels which are secured together, but moving loosely upon the spindles 16, motion being imparted to the same by sprocket chains 27 and sprocket-wheels 27'.

Fixed to the ends of the shaft 21 of the brush are sprocket wheels 28 and passing around said sprocket wheels and sprocket wheels 25 are sprocket chains 29 which impart motion in the proper direction to the said brush, the said chains being adjusted to their proper tension by the screw-threaded extensions 22 and nuts 24 in a manner previously described.

Fixed to the transverse shaft 5 is a bevel pinion 30 and meshing with said pinion is a second bevel pinion 31 which last named pinion is fixed to a short shaft 32 journaled to the frame 1 by bearings 33. Also keyed to the shaft 32 is a sprocket wheel 34 over which a sprocket chain 35 passes, and fixed to the projecting end of said shaft is another sprocket wheel 36 over which a sprocket chain 37 passes.

38 represents a shaft which passes through the casing 39 of the conveyer and assists in imparting motion to the same and keyed to said shaft is a sprocket wheel 40 over which the chain 35 also passes for imparting motion thereto.

41 represents another shaft which also passes through the casing of the conveyer the end of the same projecting from the casing, being provided with a sprocket wheel 42 over which the chain 37 also passes, both of the shafts 38 and 41 imparting motion to the conveyer.

43 represents the conveyer which is composed of two sprocket chains 44 and movably secured between said sprocket chains are buckets 45 for elevating and dumping the dirt located within the depending receptacle 46 upon the inclined chute 47. Fixed to the shaft 38 and within the casing 39 are sprocket wheels 48 over which the chains 44 pass which wheels help to impart motion to the same, and fixed to the shaft 41 within the receptacle 46 are sprocket wheels 49 as shown in dotted lines Fig. 6 which further impart motion to the chains 44.

50 represents a shaft the ends of which are loosely mounted within the receptacle 46 and fixed to the same are sprocket wheels 51 over which the chains 44 pass for guiding the direction of the same as shown in dotted lines in Fig. 6.

Loosely mounted in the upper end of the casing 39 is a shaft 52 to which are fixed

sprocket wheels 53 and also mounted within said casing is another shaft 54 provided with sprocket wheels 55 over which the chains 44 of the conveyer pass in the manner shown in Fig. 6 for dumping the dirt contained within the buckets 45.

Fixed to the frame 1 of the machine, and in rear of the casing 39 is a casting 56, and also fixed to the said frame is a brace 57, the said brace and casting being provided with openings for receiving the rounded projecting ends 58 of the block 59.

60 represents a screw-threaded bolt the upper end of which is provided with a hand wheel 61 the said bolt passing through a screw-threaded bore 62 formed in the block 59. The lower end of the screw-threaded bolt 60 is provided with an annular flange 63 which is received by a corresponding depression formed in the block 64, the said block being secured to the said bolt by a nut 65 by which construction the block is permitted to be turned independently of the bolt 60.

66 represents a fork-shaped casting which is loosely secured to the block 64 by screws 67 passing through the said casting and into cavities formed for their reception in the block 64.

68 represents a brace the depending ends of which are movably secured to the arms 17, and passing through the said brace midway between its ends is a bolt 69 which also passes through the casting 66 whereby a movable connection is made. Interposed between the casting 66 and brace 68 and surrounding the bolt 69 is a coiled spring 70 which holds the brush at its proper tension upon the ground and yet allows the same to be moved from the ground should it strike an obstruction.

From the foregoing description it will be seen that as the machine is drawn motion will be imparted by the wheels thereof to the brush and conveyer simultaneously whereby the dirt will be swept first into the depending receptacle 46, after which it is elevated and dumped upon the inclined chute 47 by the conveyer 43. In practice, a cart or other wagon is driven by the side of the machine adjacent to the chute 47 during the operation of the machine. Thus the operation from the foregoing will be readily understood.

Having described my invention, what I claim is—

1. In a street sweeping machine the combination of a frame, a receptacle depending from the same, a conveyer movable within said receptacle, arms secured to the frame, bearings movable upon said arms, a brush supported by said bearing, a brace attached to said arms, a block movably secured to the frame, a screw adjustable within said block, a casting secured to the lower end of the screw, a bolt passing through the casting and brace, a coiled spring encircling the bolt and interposed between the casting and brace, substantially as set forth.

2. In a street sweeping machine, the combination of a brush, arms supporting the same, a brace secured to said arms, an adjusting screw provided with a hand wheel, a block  
5 59 movably secured to the frame of the machine through which the said screw passes, a block 64 secured to the lower end of the screw, a casting 66 movably secured to the last named block, a bolt 69 passing through  
10 said casting and brace, and a coiled spring

70 encircling said bolt and interposed between the casting and brace, substantially as set forth.

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

TAYLOR W. DOWNS.

Witnesses:

EMIL STAREK,  
C. F. KELLER.