

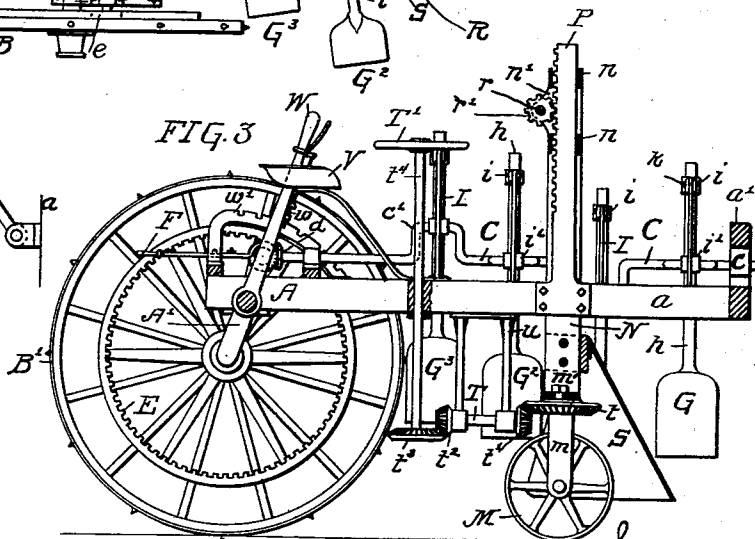
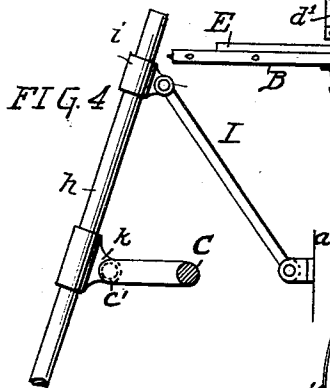
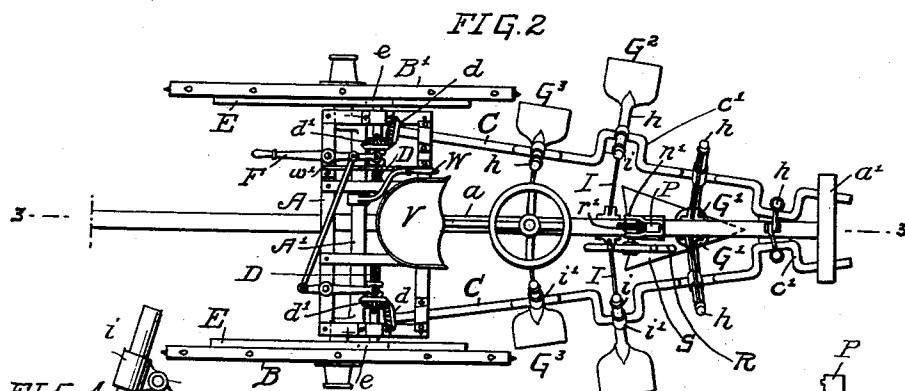
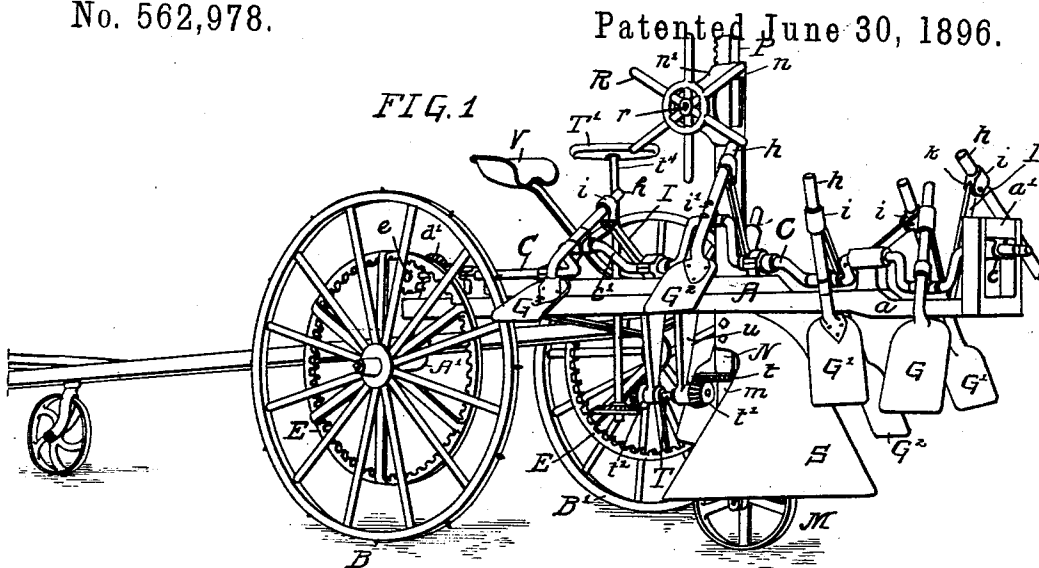
(No Model.)

A. R. ROSENBERGER.

APPARATUS FOR REMOVING SNOW FROM ROADWAYS.

No. 562,978.

Patented June 30, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

AMOS R. ROSENBERGER, OF SPRING HOUSE, PENNSYLVANIA.

APPARATUS FOR REMOVING SNOW FROM ROADWAYS.

SPECIFICATION forming part of Letters Patent No. 562,978, dated June 30, 1896.

Application filed February 1, 1896. Serial No. 577,669. (No model.)

To all whom it may concern:

Be it known that I, AMOS R. ROSENBERGER, a citizen of the United States, residing at Spring House, Montgomery county, State of Pennsylvania, have invented a certain new and useful Improvement in Apparatus for Removing Snow from Roadways, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of the specification.

My invention has for its object to provide an improved form of apparatus for removing snow from roadways and paths; and it comprises, in general, a wheeled frame having a series of pairs of reciprocated shovels arranged on opposite sides thereof, the shovels, with the aid of a forward plow, throwing the snow to the sides of the road and forming a clear path. When horses are used for power, they are hitched to the rear of the frame and push the apparatus through the snow.

The invention also consists in certain mechanical details of construction and in means for guiding the apparatus, and for adjusting the various parts thereof, as more fully set forth hereinafter.

In the accompanying drawings, Figure 1 is a perspective view of a machine constructed in accordance with my invention. Fig. 2 is a plan view of the same. Fig. 3 is a sectional elevation on the line 3 3, Fig. 2; and Fig. 4 is a view of a detail of construction drawn to a somewhat larger scale.

Referring to the drawings, A represents the main frame of the apparatus, the frame being supported by an axle A', provided with wheels B B', which loosely rotate thereon. At the center of the frame is a longitudinal bar *a*, extending from end to end of the frame and provided at its forward end with a cross-bar *a'*, on which are pillow-blocks *c* for the support of cranked shafts C, the rear ends of which are at a greater distance from each other than are the forward ends and find bearings in blocks *c'* at the rear portion of the frame.

On the ends of the crank-shafts C are bevel-gears *d*, which intermesh with similar bevel-gears *d'* on short shafts D, mounted on bearings on the frame. Each shaft D is provided with a pinion *e*, intermeshing with a

large internal gear-wheel E, fixed to the supporting-wheels B. The hubs of the beveled gears *d'* are provided with annular grooves for the reception of one end of a system of clutching-levers F, by operating which the bevel-gears may be moved longitudinally upon the shafts D, and their engagement with or disengagement from the beveled gears *d* be effected.

On the opposite sides of the central bar *a* are arranged shovels G G' G² G³, or as many more as the character of the work may require, the shovels G of the forward pair being much closer together than the rear pair G³, and being so arranged and operated that their extent of vertical travel is less than those of the rear pair of shovels, the forward pair operating to remove the upper portion of the layer of snow from near the center of the machine, the next pair taking a deeper cut, and so on until the last pair of shovels, which remove the snow close to the level of the ground.

Each shovel comprises an ordinary blade and a vertically-arranged handle *h*, to which are fixed collars *i i'*, the upper collar *i* of each shovel being pivoted to a bar I, having its opposite end pivoted to a lug on the side of the central bar *a* of the frame. The lower fixed collar *i'* is provided with a lug *k*, through which passes a crank-arm *c*, on the crank-shaft C, and as the crank-shaft is rotated the shovel is given a reciprocating motion, its upper end being guided and limited to the range of movement of the bar I.

The forward end of the frame is supported by a guiding-wheel M, carried by a swiveled yoke *m*, the upper end of which is pivoted to vertical guiding-bars N. The upper ends of the bars N are provided with collars *n*, embracing a vertical rack-bar P, having its lower end secured to the frame of the machine. The two collars *n* carry side plates *n'*, forming supports for a short transverse shaft *r*, on which is a toothed pinion *r'*, engaging with the teeth of the rack-bar, and on one end of the shaft is a hand-wheel R, by turning which the relative vertical positions of the rack P and guiding-bars N may be altered and the forward end of the frame be raised or lowered according to the depth of snow to be removed.

Projecting over and forward of the wheel

M is a hood S, in the form of a plow, which acts to force the snow toward the opposite sides of the machine in position to be operated upon by the shovels, while at the same time it clears the path for the guiding-wheel M and prevents the clogging of the wheel by the snow.

To the upper end of the swiveled yoke *m* is secured a bevel-gear *l*, intermeshing with a pinion *l'* on a short shaft T, supporting on hangers *u* and carrying at its opposite end a pinion *l''*, intermeshing with a bevel-wheel *l'''* on the lower end of a vertical steering-bar *l''''*, the latter being provided with a hand-wheel T', so that when the wheel is turned by the operator the movement will be transmitted by the various bevel-gears to the guiding-wheel M.

On the central bar *a* of the frame is secured an operator's seat V, within convenient reach of the adjusting-wheel R and the steering-wheel T'.

As it may sometimes be desirable to adjust the height of the rear end of the frame from the ground, the rear axle A' is cranked, its central portion being held to the frame but free to turn thereon in order to throw its cranked ends, which carry the wheels B B', to the front or rear, thus raising or lowering the frame of the machine and at the same time keeping the pinions *e* in mesh with the internal gears E. For convenience in accomplishing this adjustment a lever W is secured to the central portion of the axle, so that the axle may be turned to throw the wheels B B' to front or rear, the lever being locked in place when the desired movement has been given by the engagement of spring-pawls *w* with a curved locking-rack *w'* on the frame.

At the rear of the frame is an ordinary wagon-tongue Y, to which the horses are secured, the horses facing the apparatus in such manner that they may push the latter before them through the snow.

With an apparatus of this character the snow may be rapidly cleared from a roadway, and by operating the adjusting-wheel *n'* the forward end of the machine may be raised a sufficient distance to insure a nearly even amount of work for each pair of shovels, as will be readily understood.

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

1. The combination of the frame, the supporting-wheels, and shovels arranged along opposite sides of the said frame, said shovels being operatively connected to said wheels, substantially as specified.

2. The combination of the frame, supporting-wheels, a series of shovels arranged along opposite sides of said frame, cranks for operating said shovels, crank-shafts carrying said cranks, and means for operating said crank-shafts, substantially as specified.

3. The combination of the frame, support-

ing-wheels, a series of pairs of shovels arranged on opposite sides of said frame, the shovels constituting the forward pair being nearer to each other than the shovels forming the rearmost pair, with mechanism for operating the said shovels, substantially as specified.

4. The combination of the frame, supporting-wheels, crank-shafts extending in converging lines from the wheels to the forward part of the frame, operating-cranks on said shafts, a series of pairs of shovels supported by the frame and connected to said cranks, and gearing connecting said shafts to the supporting-wheels, substantially as specified.

5. The combination of the frame, supporting-wheels therefor, a forward adjustable guiding-wheel carried by the frame, a plow provided in front of said guiding-wheel, a series of pairs of shovels arranged on lines diverging toward the rear of the machine, and mechanism for operating said shovels, substantially as specified.

6. The combination of the frame, rear supporting-wheels therefor, gear-wheels carried by said supporting-wheels crank-shafts extending from the rear to the front of the frame and having their front ends at a less distance from each other than their rear ends, gearing connecting said crank-shafts to the gear-wheels of the supporting-wheels, a forward guiding-wheel carried by the frame, devices for adjusting the height of the forward end of the frame, a plow provided in front of the guiding-wheel, a series of pairs of shovels, connecting-bars pivoted at one end to the shovel and at the opposite end to the frame of the machine, and cranks on the crank-shaft connected to said shovels, substantially as specified.

7. The combination of the frame, supporting-wheels thereon, gear-wheels carried by said supporting-wheels, transverse shafts mounted in bearings on the frame, pinions thereon gearing with said gear-wheels, sliding bevel-gears on said shafts, clutch-levers for operating the same, crank-shafts extending on converging lines from the rear to the front of the frame, beveled gears on said shafts, a forward adjustable guiding-wheel, a plow in front of said wheel, shovels loosely carried by the frame and cranks on said crank-shafts connected to the shovels, substantially as specified.

8. The combination with the frame, of the shovels, crank-shafts for operating the same, rear supporting-wheels, a cranked axle carrying said wheels and means for adjusting said cranked axle to regulate the height of the frame, substantially as specified.

In witness whereof I have hereunto set my hand this 28th day of January, A. D. 1896.

AMOS R. ROSENBERGER.

Witnesses:

JNO. E. PARKER,
HORACE PETTIT.