R. SILKY.

AUTOMATIC LAWN SPRINKLER.

APPLICATION FILED OCT. 25, 1916.

1,334,808.

Patented Mar. 23, 1920.

3 SHEETS—SHEET 1.

FIG. 1.

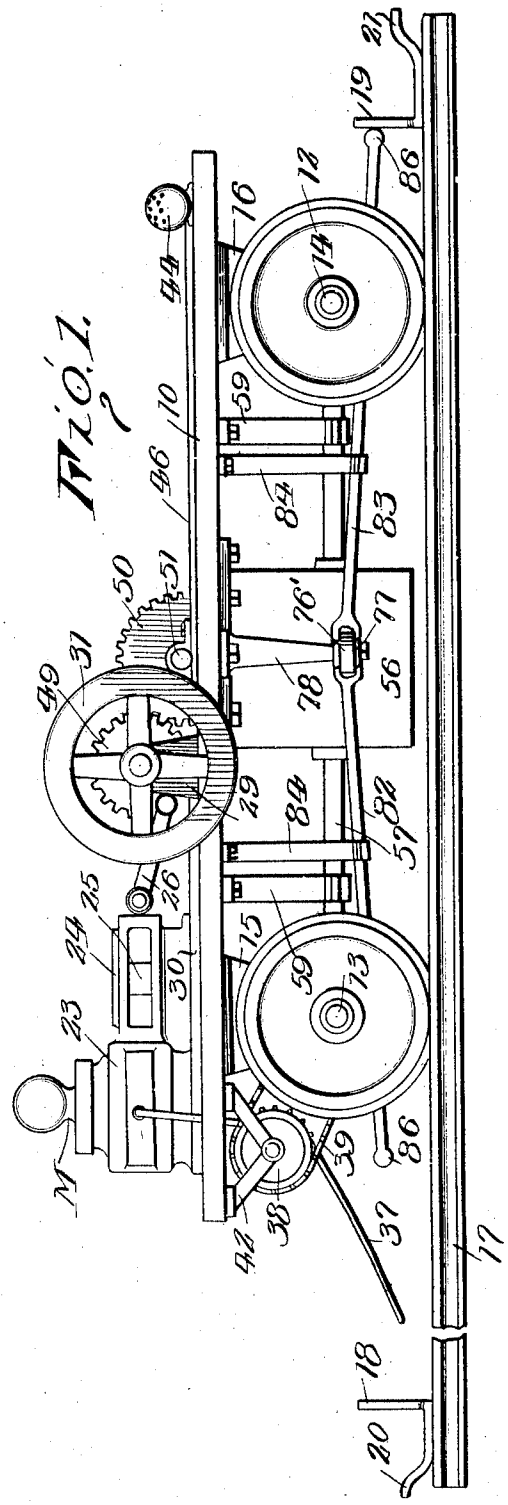
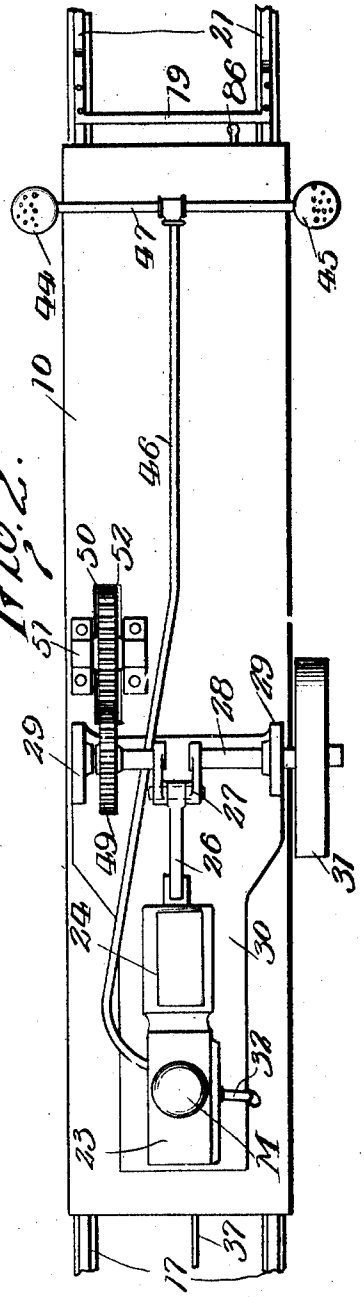


FIG. 2.



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3 SHEETS—SHEET 2.

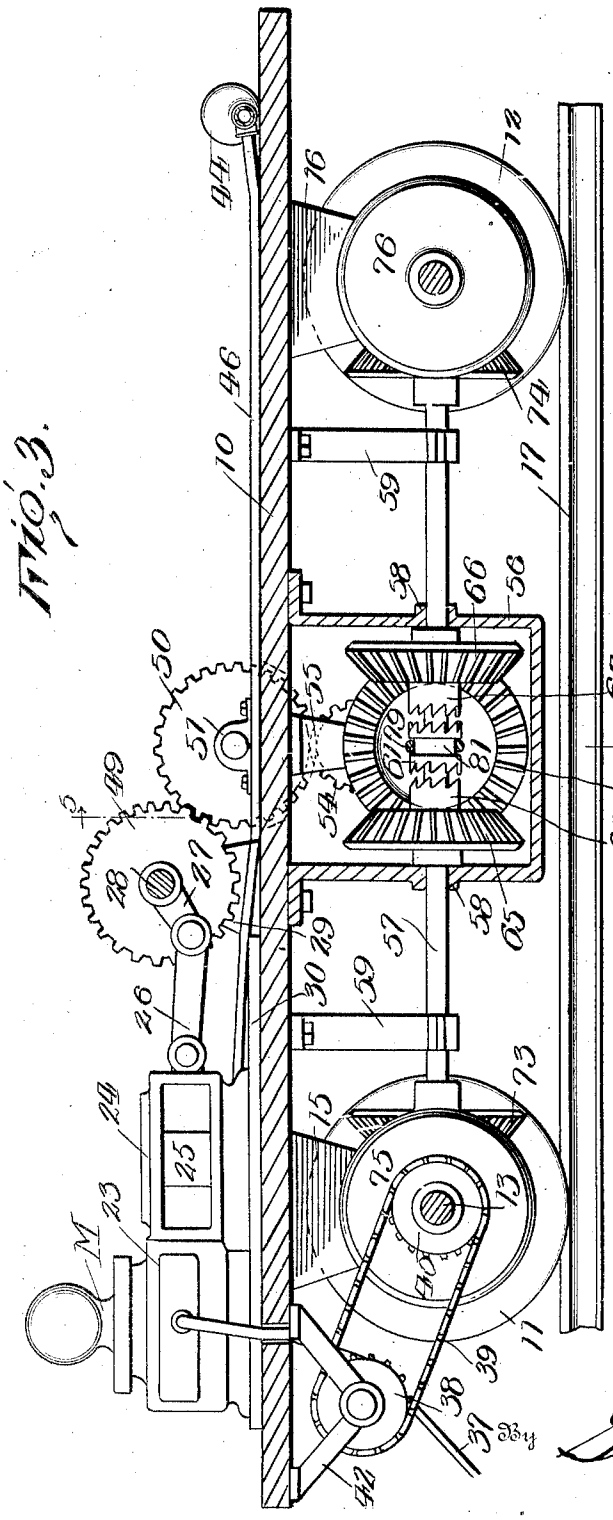


Fig. 3.

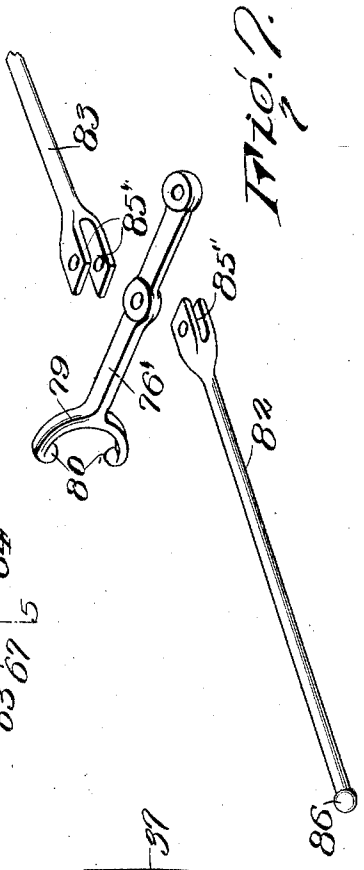


Fig. 7.

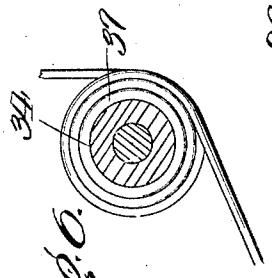


Fig. 6.

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3 SHEETS—SHEET 3.

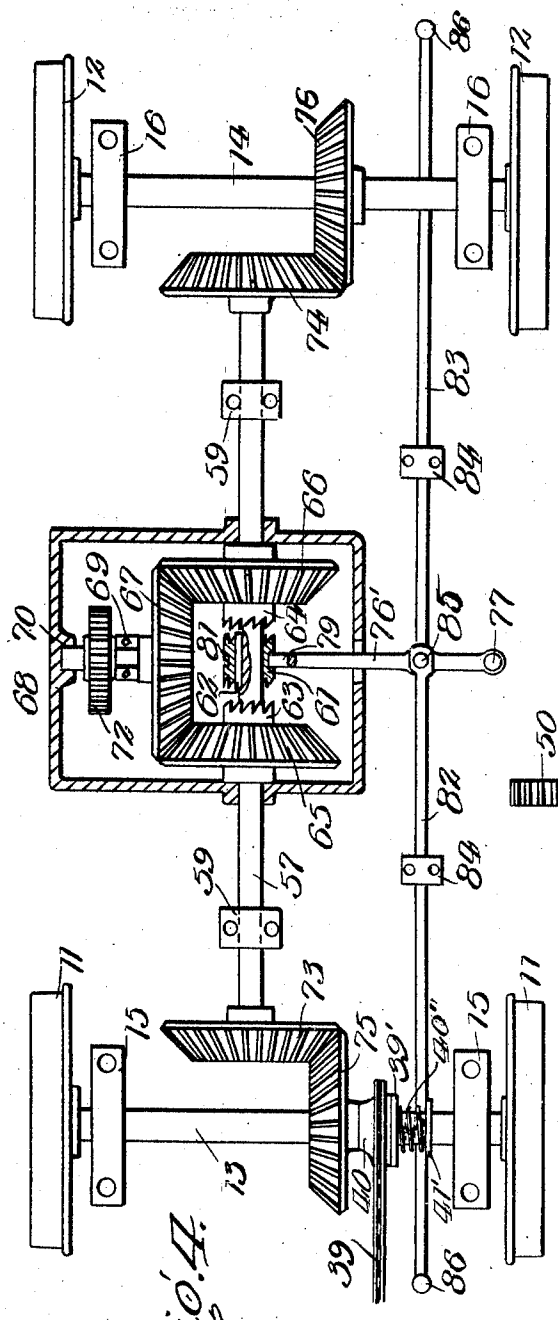


Fig. 4.

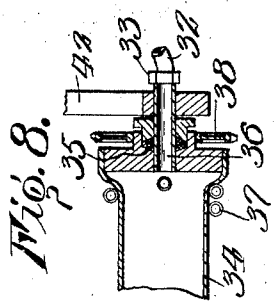


Fig. 8.

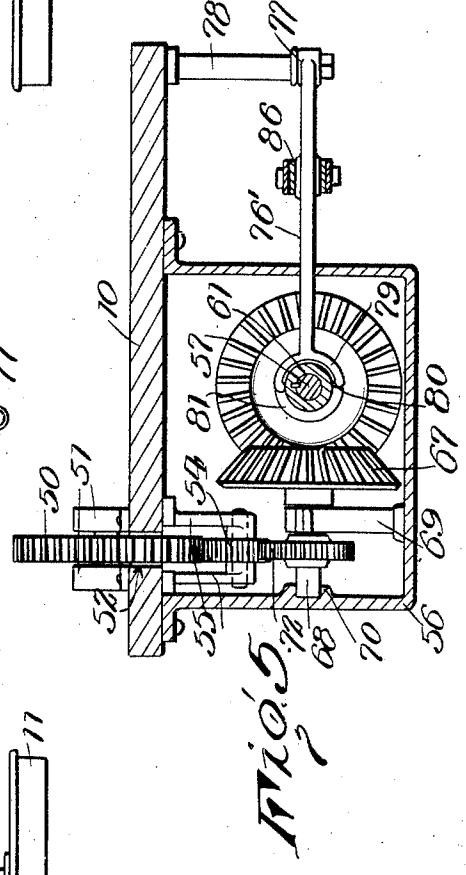


Fig. 5.

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UNITED STATES PATENT OFFICE.

ROBERT SILKY, OF LANSING, MICHIGAN.

AUTOMATIC LAWN-SPRINKLER.

1,334,808. Specification of Letters Patent. Patented Mar. 23, 1920.

Application filed October 25, 1916. Serial No. 127,528.

To all whom it may concern:

Be it known that I, ROBERT SILKY, a citizen of the United States, and resident of Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Automatic Lawn-Sprinklers, of which the following is a specification.

The present invention relates to water distribution and has particular reference to new and useful improvements in automatic lawn sprinkling devices.

An object of the invention is to provide a sprinkling device of this character in which the power transmission is controlled through the medium of tripped mechanism adapted to be actuated by abutments arranged in the path of travel of the truck of the device so that said power transmission will be automatically reversed at determined intervals for controlling the direction of movement of the truck in the operation of said device.

A still further object of my invention is to provide a device of the character described which is simple in construction, strong and durable, cheap to manufacture and quickly and easily installed for use.

Other objects and advantages to be derived from the use of my improved automatic sprinkler will appear from the following detail description and the claim, taken with an inspection of the accompanying drawings, in which:

Figure 1 is a side elevational view of a sprinkling device embodying the improvements of my invention:

Fig. 2 is a top plan view of the same;

Fig. 3 is a longitudinal sectional view enlarged;

Fig. 4 is a horizontal longitudinal sectional view;

Fig. 5 is a transverse vertical sectional view taken on the line 5—5 of Fig. 3;

Fig. 6 is an enlarged section of the water containing cylinder;

Fig. 7 is an enlarged unassembled perspective of the clutch operating lever and rod; and

Fig. 8 is a fragmental sectional view of the water drum and sealing bearing therefor.

Referring more particularly to the drawings, wherein similar characters of reference designate like and corresponding parts throughout the various views, I provide a carriage composed of a body 10 mounted on driving wheels 11 and 12 carried on the free ends of axles 13 and 14, said axles being mounted in bearing frames 15 and 16 carried by the underface of the body 10.

The carriage as shown, is movable upon a trackway composed of rails 17, said rails being connected in any suitable manner to maintain the same at proper gage. Stop members 18 and 19 are arranged at the opposite ends of the trackway 17, said stop members terminating in handles 20 and 21 for transporting the trackway from place to place.

A propelling means for the carriage is provided embodying a reciprocating water motor M having a cylinder 23, and cross-head guide 24. A cross-head 25 is operable in the guide, said cross-head being connected to a connecting rod 26 which is in turn connected to a crank 27 formed on a crank shaft 28, said crank shaft being mounted transversely of the body 10 in bearings 29, said bearings being formed upon the motor base 30.

Water under pressure is supplied to the motor M through a flexible conduit 32, said conduit being connected as at 33 to a water-drum 34. One end wall of the drum 34 is provided with a packing 35 surrounding a bearing member 36, said bearing member being hollow and communicating with the conduit 32. A flexible conduit 37 carries water from a stationary point to the drum, said conduit being adapted to wind and unwind upon the drum as becomes necessary in use of the device.

I provide means to impart motion to the drum to perform the winding and unwinding operation hereinbefore referred to, said means including a sprocket wheel 38 carried by the drum, said sprocket wheel having a chain 39 trained thereover, said chain being also trained over a driving sprocket 40 mounted on the axle 13. The drum 34 is mounted in bearing brackets 42 carried by the under face of the body 10 adjacent the power plant end of the carriage. In the event that a different ratio of movement between the carriage and the reel exists this difference will be accommodated in the drum by means of the friction drive plate 39′ acting against the sprocket wheel carried on the axle 13 by virtue of the spring 40′. The collar 41′ is movable along the axle to adjust the tension of the spring.

The water exhausted from the motor M is conveyed to the nozzles 44 and 45 through a conduit 46, said conduit being connected to a transversely extending pipe 47, said pipe carrying the nozzles on its free ends. The perforations in the nozzles are arranged whereby to direct the liquid outwardly from the carriage and along the sides of the trackway so as to prevent the liquid from contacting with the rails or any of the working parts of the device.

The driving mechanism of my invention includes a power plant device embodying a main drive gear 49 carried on and rotatable with the crank shaft 28, said gear being arranged in meshing engagement with a gear 50 mounted in bearing brackets 51 on the upper face of the body 10, a portion of the gear 50 projecting below said body through an opening 52. A pinion 54 mounted in brackets 55 carried by the under face of the body 10 meshes with the gear 50 for a purpose which will hereinafter appear.

A gear housing 56 is carried by the under face of the body 10, said housing serving as a middle bearing for a longitudinally extending driving shaft 57, the bearing portions of the housing being designated 58. The shaft 57, is mounted adjacent its free end in bearings 59 connected to the body 10.

A clutch block 61 is keyed to the shaft 57 as at 62, said clutch block being slidable upon the shaft to engage with the clutch portions 63 and 64 of bevel gears 65 and 66, said gears being freely rotatable on said shaft in opposite directions, also receiving motion from a bevel gear 67, last said gear being mounted on a shaft 68. The shaft 68 is mounted in a bearing 69 carried by the bottom wall of the housing 56, the opposite ends of the shaft being mounted in a bearing 70 formed on one of the side walls of said housing. Motion is imparted to the shaft 68 by means of a gear 72 carried on said shaft, said gear meshing with the pinion 54 hereinbefore referred to.

The motion of the shaft 57 is transmitted to the axles 13 and 14 by means of bevel gears 73 and 74 carried by the free ends of said shaft 57, said gears meshing with similarly formed gears 75 and 76 carried by said axles 13 and 14.

To shift the clutch block 61 I provide a shifting arm 76′ mounted at 77 on the lower end of a bearing 78. The inner free end of the arm 76′ is provided with a U-shaped portion 79, the free ends of which are formed to provide lugs 80 engageable in a circumferential groove 81 formed in the clutch block, this being best shown in Fig. 5.

The arm 76′ is shifted by means of a pair of rods 82 and 83 mounted in bearings 84 depending from the under face of the body 10. The rods 82 and 83 are preferably inclined downwardly toward the opposite end of the carriage for a purpose which will hereinafter appear. The rods 82 and 83 are connected with the clutch shifting arm 76′ by a common pivot 85, the adjacent free ends of said rods being bifurcated to embrace each other and said clutch arm as best shown at 85′ in Fig. 7. Enlargements 86 are formed on the free ends of the rods 82 and 83 to engage the stop members 18 or 19 as the carriage traverses the trackway.

In use the trackway is placed upon a lawn longitudinally or transversely thereof depending upon the manner in which the lawn is to be sprinkled. Water is admitted to the conduit supplying the motor and causes the same to operate, which in turn through the train of gears imparts motion in a given direction to the shaft 57, which in turn, operates the driving wheels. In use it is assumed that when the machine is started the clutch block will engage with one or the other of the clutch faces 65 or 66 causing the carriage to traverse the trackway. When the carriage reaches one end of the trackway, one of the enlargements on the forward rod will engage one of the stop members 18 or 19 as the case may be throwing the clutch into engagement with the other clutch face and reversing the direction of movement of the carriage.

In the meantime the water after being used to drive the motor M exhausts therefrom into the pipe 46 and thence to the sprinkling nozzles 44 and 45. Thus it will be seen that a given area on each side of the trackway will be moistened without any of the liquid coming in contact with working parts of the device or the trackway. When the car is traversing a trackway in both directions motion is imparted to the drum 34 which winds and unwinds the flexible conduit 37 thereon to continuously supply water to the motor and sprinkling nozzles.

Of course, I do not limit my invention to the use mentioned, since the same may be readily and advantageously employed in spraying trees in an orchard with an insect destroying compound. Of course, it would, in this instance, be necessary to provide a separate line of pipe for feeding the liquid to be sprayed, since this liquid could not very well pass through the cylinder of the motor. It will also be apparent that a rotary motor may be employed in lieu of the reciprocating motor shown.

From the above description taken in connection with the accompanying drawings, it is thought that a clear and comprehensive understanding of the construction, operation and advantages of my invention may be had, and while I have shown and described the device as embodying a specific structure, I desire that it be understood that such changes may be made in said structure, as

do not depart from the spirit and scope of the invention as claimed.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

A sprinkling device comprising a wheeled self-propelled truck having reversible power transmission thereon beneath said truck, a hanger on the truck adjacent to the transmission, a straight gear shifting lever pivoted at its outer end to the lower end of said hanger, guides on the truck at opposite sides of the lever, slide rods in the guides and pivoted to the lever medially thereof and ball terminals on the outer ends of the rods to engage abutments arranged in the path of travel of said truck.

In testimony whereof I affix my signature hereto.

ROBERT SILKY.