

2 Sheets—Sheet 1.

ROTARY GUARD FOR CARS.

Patented May 16, 1893.



^D-rubber, or other elastic material.

[illegible]

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(No Model.)

2 Sheets—Sheet 2.

J. C. LOUCKS & W. W. HUELSTER.
ROTARY GUARD FOR CARS.

No. 497,381.

Patented May 16, 1893.

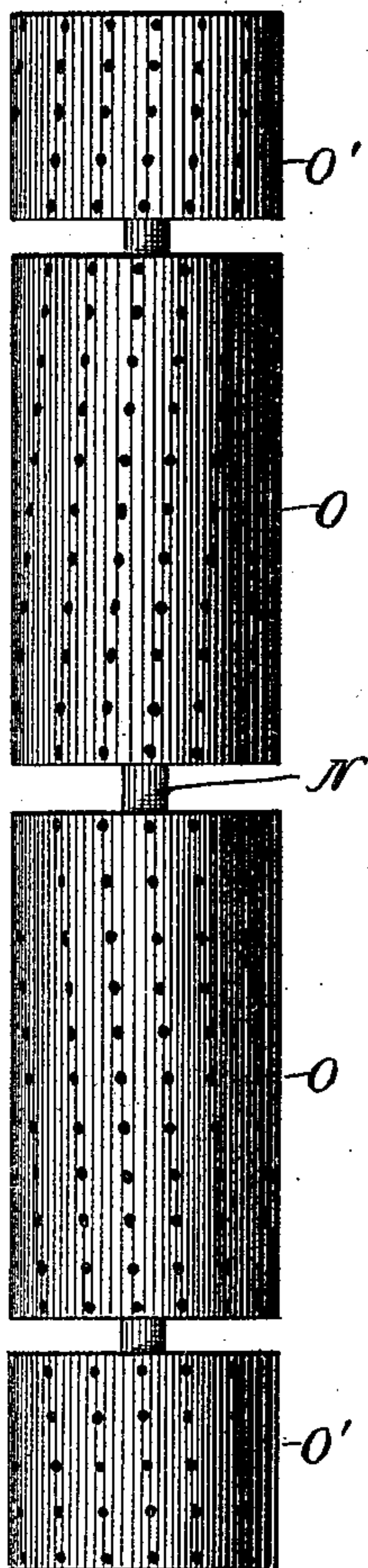


Fig. 6.

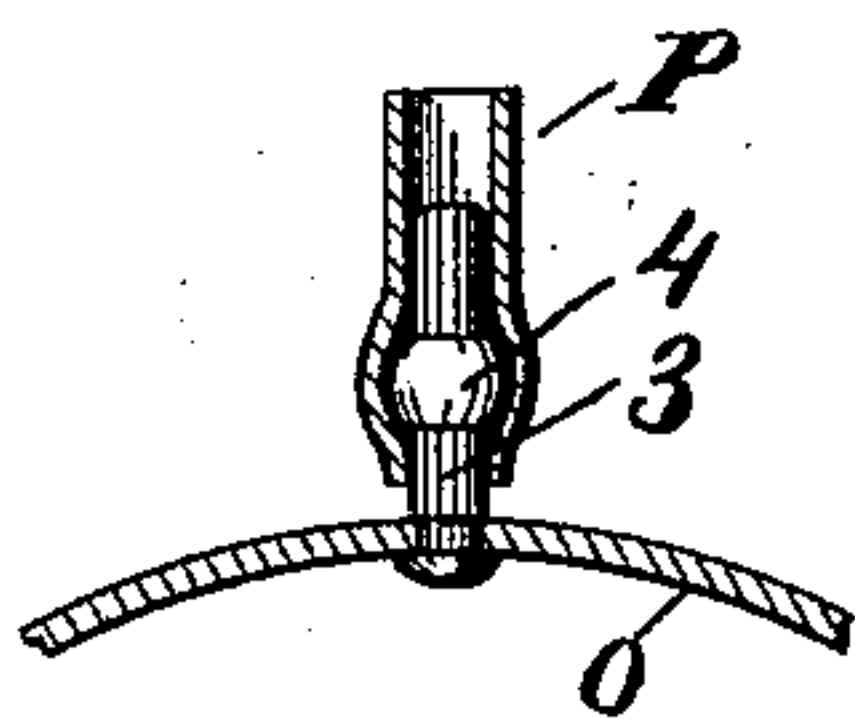


Fig. 8.

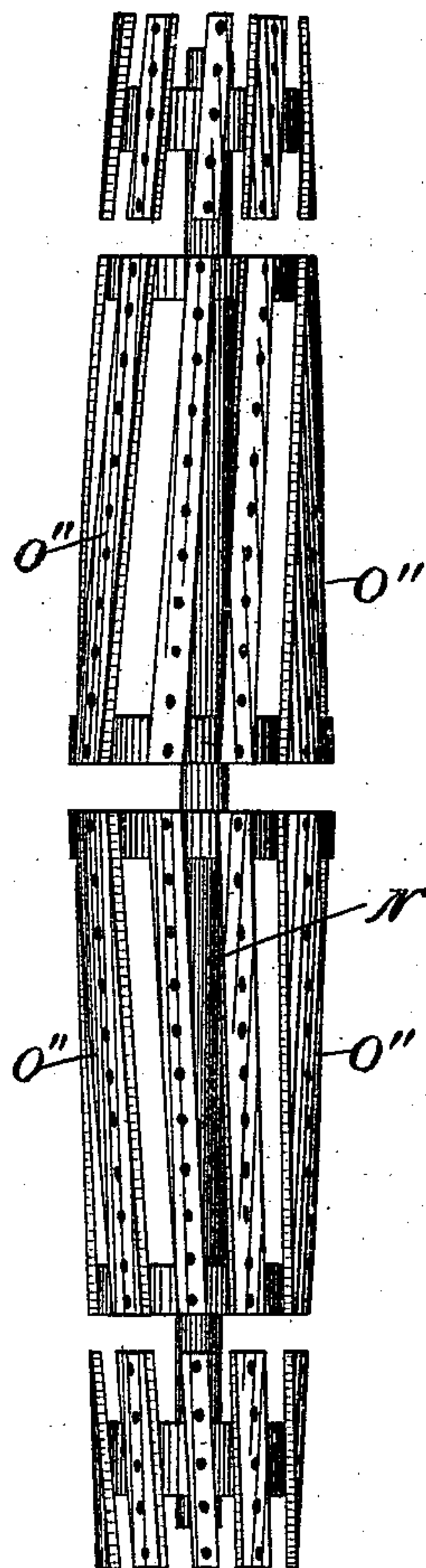


Fig. 7.

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ROTARY GUARD FOR CARS.

SPECIFICATION forming part of Letters Patent No. 497,381, dated May 16, 1893.

Application filed July 29, 1892. Serial No. 441,630. (No model.)

To all whom it may concern:

Be it known that we, JAMES C. LOUCKS and WILLIAM W. HUELSTER, citizens of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Rotary Guards for Cars; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improved rotary guard, or pilot for cars, and its object is to provide the same with certain new and useful features, hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings in which—

Figure 1 is a plan view of the forward part of a truck for a street car with our device attached, with the apron omitted, and the cylinder in longitudinal section; Fig. 2 a vertical section of the same on the line 2—2 of Fig. 1; Fig. 3 a detail of mechanism for throwing the device in and out of gear; Fig. 4 a detail showing an alternative construction of the cylinder; Fig. 5 a detail showing the construction of the framework of the device. Fig. 6 is a modified form of cylinder of uniform diameter throughout; Fig. 7 a detail showing a cylinder made of a series of spiral strips; and, Fig. 8 a detail showing the manner of attaching the fingers, or pegs P to the cylinder.

Like letters and numerals refer to like parts in all of the figures.

A A are the sills of the truck, in which is journaled the forward axle B. To said axle is rigidly attached friction wheels C C, which engage and rotate the friction wheels C' C' which are attached to a shaft F, which shaft is journaled at its respective ends in the ends of the arms E E, which arms are attached to a rock shaft D journaled at each end in the sills A A. A rigid arm K extends upward from the said rock shaft, to which is attached a chain or cable T, which latter is extended forward to a vertical shaft S, upon which shaft said cable is wound to force the friction wheels in contact, said shaft may be retained by means of a ratchet X on said shaft, and a pawl

Y on the platform R. We prefer however to operate said cable by means of the foot applied to a bell crank Z, pivoted upon said platform, to one arm of which bell crank said cable is attached the other arm being provided with a pivoted catch 1, which catch is engaged with the detent plate 3 by means of the spring 2.

U is a contractile spring attached to the arm K and to the bottom of the car whereby the said arm is moved backward as the cable T is slacked off.

N is a shaft arranged horizontally above and across the track in front of the truck and beneath the platform of the car, said shaft is supported and journaled in bearings I, which bearings are attached to the forward ends of the rods G, which extend horizontally back to and are pivoted upon the arms E near the bearings of the shaft F, and the rods H which extend diagonally backward and upward to, and pass through the rock shaft D, and are horizontally adjustable therein by means of the nuts H' H'.

Projecting upward from the bearings I are posts J, which support a rod W arranged parallel to and above the shaft N, to which rod is attached the forward edge of a strong canvas apron, which apron extends backward and upward and is attached at its rear edge to the bottom of the car. The shaft N is provided with a sprocket wheel L', which is connected to a similar wheel on the shaft F by the sprocket chain M. On said shaft N is also a series of truncated conical drums O O O' O', secured to said shaft by means of the wheels or heads Q, said drums taper from the middle outward, and have spaces between them for the rods G and H, the sprocket chain M and posts J, said drums are also provided with fingers or pegs P arranged in spiral rows, so that they strike in succession from the middle outward in each direction, said fingers or pegs are made of rubber, tubing P' Fig. 8 or other flexible and elastic material that will not be likely to bruise or injure any thing that they may come in contact with; said tubing is attached by means of radial pins 3 Fig. 8, firmly secured in the surface of the cylinder O; said pins having enlargements 4, which pass within the inner ends of

said tubes, and expanding the same to prevent them from becoming detached from said pins. Said drum may be of straight cylindrical form, as shown in Fig. 6, with the fingers P arranged in spirals oppositely inclined from the middle, which spiral arrangement of the fingers tends to move any obstruction laterally off the track. We prefer to make the drum as shown in Fig. 4, and 7 where it consists of spiral strips O'' attached to the heads O and having a strong canvas covering 4, and the fingers P inserted in said strips, thus making a lighter and softer structure.

By adjusting the nuts H' H', the drum may be set high or low, and as the cable T is strained the arm K moves forward at its upper end, turning the rock shaft and attached parts on its axis, thus lowering the drum toward the track in proper position for action, and bringing the friction wheels C' C' in contact with these on the axle B. This sets the drum rotating with its lower side moving forward. Any animal, person, or other obstruction will now be struck by the soft fingers of the rotating drum and either moved forward and laterally until clear of the track or picked up and thrown over the drum and upon the canvas apron V, depending somewhat upon the speed of the car at the time, and the weight of the obstruction. When the cable T is again released the spring U retracts the arm K and separates the friction wheels, thus stopping the rotation of the drum and lifting the same farther from the track.

This device may also be used for removing snow, small stones, and like obstructions from the track, but its principal use is to prevent injury to animals, children or other persons who may accidentally get in the way of the car; the taper of the drum and also the spiral arrangement of the fingers tending to move such laterally off the track and out of the way or other wise picking such up and placing the same upon the canvas apron unhurt.

What we claim is—

1. A guard for cars consisting of a rotative cylinder journaled transversely near the track, mechanism to rotate said cylinder, and flexible fingers on said cylinder, said fingers also being arranged in spiral rows, oppositely inclined from the middle of said cylinder outward, substantially as and for the purpose described.

2. A guard for cars, consisting of oppositely tapered cylinders, having soft flexible fingers arranged spirally thereon, said cylinder located across and near the track and in front of the truck, and mechanism for rotating said cylinders, substantially as described.

3. In a guard for cars, in combination with a cylinder, having flexible fingers and journaled in bearings connected with the truck frame, posts projecting upward from said bearings, a rod supported by said posts above said cylinder, and a canvas apron attached at its forward side to said rod, and at its rear to the bottom of the car, substantially as described.

4. In combination with a bell crank lever pivoted upon the platform, and connected to the operating and driving mechanism of a rotary guard, a pivoted catch 1 and detent plate 3, substantially as described.

5. In a guard for cars, a friction wheel on the forward axle of the truck, a rock shaft pivoted to said truck and mechanism for operating the same, arms extending from said rock shaft having a friction wheel journaled therein, rods attached to said rock shaft and longitudinally adjustable thereon, journal bearings on the ends of said rods, a rotative cylinder journaled in said bearings having soft and flexible fingers on its surface, and rods pivoted at one end to said arms near the friction wheel journals, and connected to said bearings at its other end, substantially as described.

6. In a guard for cars, a cylinder consisting of a series of truncated cones attached to a shaft and arranged with their larger ends toward the middle of the same, and having spaces between said cones for the supporting and driving mechanism of said shaft, and soft flexible fingers on said cones arranged spirally in opposite directions, substantially as described.

7. In a guard for cars, a cylinder consisting of a series of heads attached to a shaft, a series of spiral strips attached to said heads, a flexible covering surrounding said strips, and soft flexible fingers attached to said strip, substantially as described.

8. In a rotary guard for cars, in combination with a rotary cylinder, radial pins secured to said cylinder, having an enlarged middle portion and sections of rubber tube attached to said pins, and projecting beyond the outer ends of the same, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES C. LOUCKS.
WILLIAM W. HUELSTER.

Witnesses:

LUTHER V. MOULTON,
LOIS MOULTON.