G. PRIGGEN.

GUIDE RAIL LUBRICATOR FOR ELEVATORS.

APPLICATION FILED APR. 29, 1912.

1,052,171.

Patented Feb. 4, 1913.

2 SHEETS—SHEET 1.

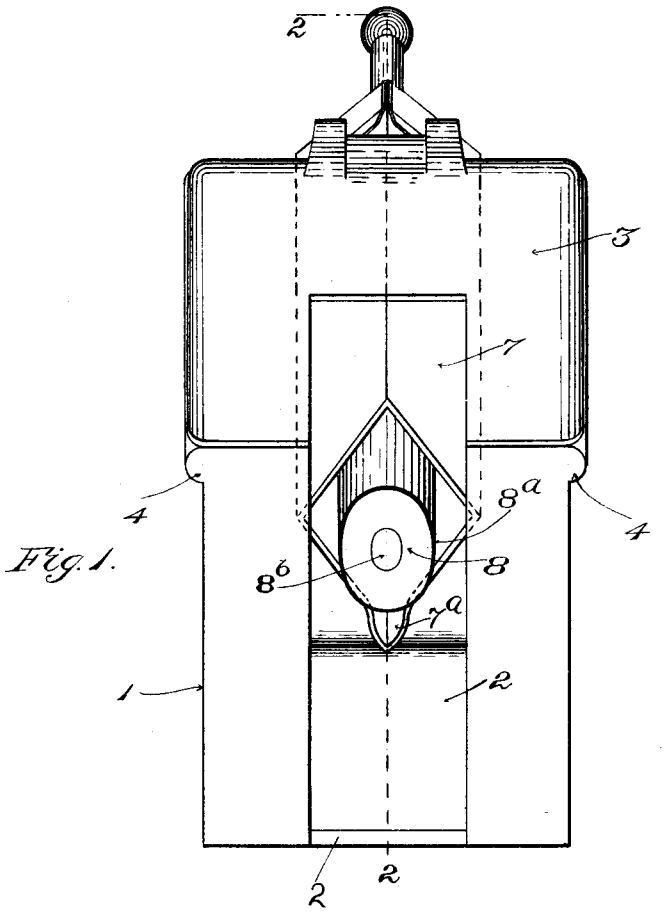

Fig. 1.

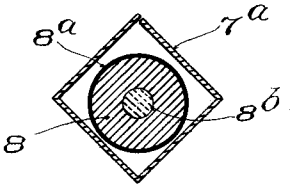

Fig. 7.

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2 SHEETS—SHEET 2.

Fig. 2.

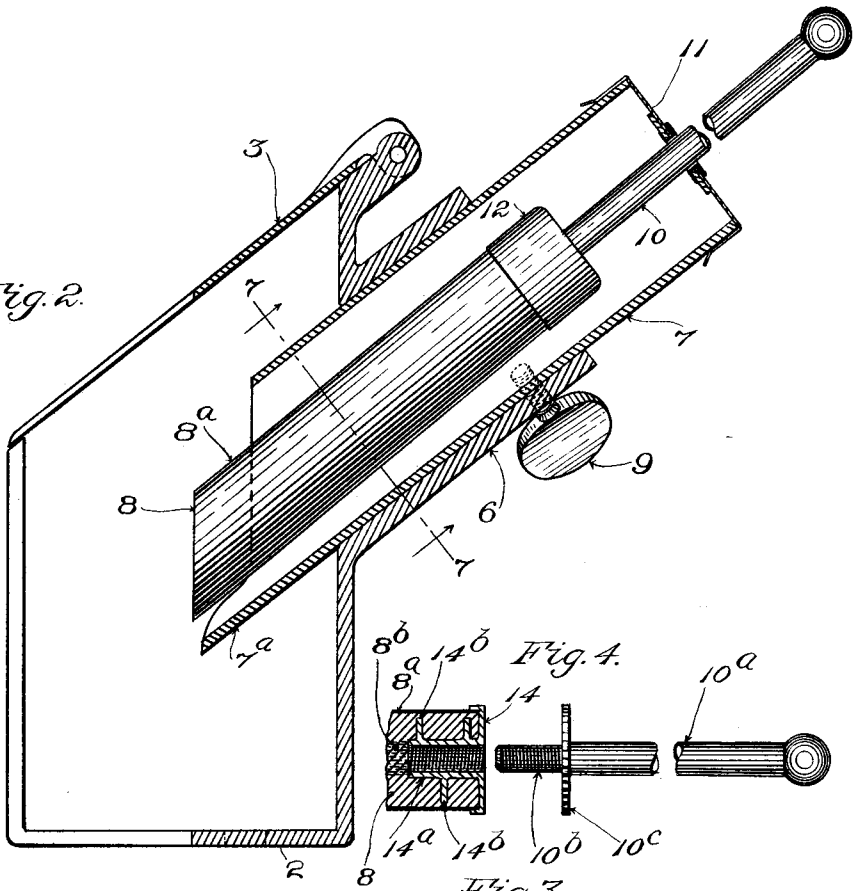


Fig. 4.

Fig. 3

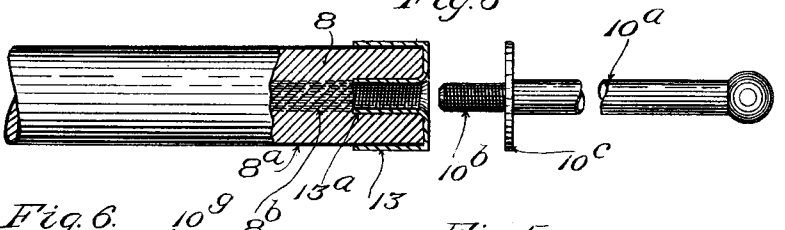


Fig. 6.

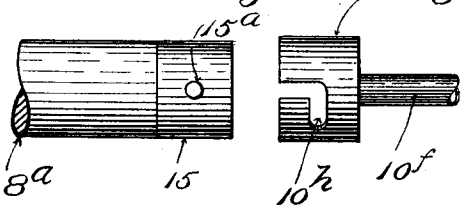
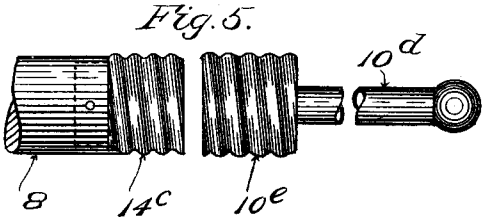


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE PRIGGEN, OF ARLINGTON, MASSACHUSETTS.

GUIDE-RAIL LUBRICATOR FOR ELEVATORS.

1,052,171. Specification of Letters Patent. **Patented Feb. 4, 1913.**

Application filed April 29, 1912. Serial No. 693,891.

To all whom it may concern:

Be it known that I, GEORGE PRIGGEN, a citizen of the United States, residing at Arlington, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Guide-Rail Lubricators for Elevators, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates mainly to elevator guide-rail lubricators.

In part it relates more generally to lubricators employing solid lubricant.

A lubricator on the order of that in connection with which the various improvements are shown embodied herein is designed more particularly for application to the moving car of an elevator, as, for instance, to a cross-bar at the top of the said car, and is employed for the purpose of applying solid lubricant in connection with a guide-rail. It is also designed for application to the counterweight of an elevator to apply lubricant to a guide-rail therefor, and may readily be adapted for use in connection with the plunger of an elevator. The place and manner of application of the device are not material, and the invention is not necessarily restricted to employment in connection with elevators.

The invention consists in an automatic guide-rail lubricator comprising a case or shell having a recess or slot adapted to receive and substantially fit the guide-rail to be lubricated, and provided with a holder or container for a stick or candle of grease or other solid lubricant, said holder or container being inclined downwardly and forwardly so that the said stick or candle gravitates toward the edge of the guide-rail.

One feature of the invention is a guide or holder for the stick or candle of lubricant having the bottom thereof formed with converging sides, their apex downward, so that said bottom is like a V-shaped trough. I usually make the holder, for convenience, as a tube of rectangular cross-section.

Another feature of the invention consists in cutting away at the sides the front end of the tube within which the stick or candle of lubricant is contained, so as to provide ample clearance between such sides and the surface of the guide-rail, to prevent the sides from scraping the lubricant from the guide-rail, and accumulating the same so as to clog the lower end of the guide-tube. Also so as to afford opportunity for the escape laterally of fragments which may crumble or break away from the front end of the said stick or candle, so as by permitting such escape to prevent the clogging of the front end of the said tube and obviate any tendency of the stick or candle to catch and fail to advance or feed.

Another feature of the invention consists in providing a support for the outer end of the stick or candle of lubricant by which to hold such end, and the greater portion of the length of the stick or candle, out of contact with the interior surface of the guide-tube, so as thereby to reduce the extent of contact of the stick or candle with the said surface and lessen the friction and the tendency of the candle to adhere to the said surface, whereby the feeding is improved.

Another feature of the invention consists in providing an indicator which shall show at the exterior of the lubricator the length of the stick or candle remaining with the device.

The various features of the invention are shown conveniently embodied in the drawings, in which,—

Figure 1 shows in end elevation a lubricator containing embodiments of certain of the said features. Fig. 2 is a view mainly in vertical section on line 2, 2, of Fig. 1. Fig. 3 shows, partly in section, a portion of the stick or candle of Figs. 1 and 2 and the supporting and indicating stem at the outer end thereof, the parts being separated. Fig. 4 is a view similar to Fig. 3 but showing a different means of connecting the stem with the stick or candle. Figs. 5 and 6 show other means of effecting the connection between the stick or candle and the stem. Fig. 7 is a view of the stick or candle and the tubular holder therefor in section in the plane of line 7, 7, of Fig. 2.

Having reference to the drawings, at 1 is the shell or case of the lubricator. 2 is the bottom thereof, 3 being a movable cover which in this instance is hinged to the shell or case by its outer end. To fit the guide-rail in connection with which the device is used, the bottom and the front of the shell or case are slotted as shown, and the cover

is slotted similarly to the bottom, the slots being adapted to receive and accommodate the said guide-rail.

At 6 is a boss or nipple projecting from the back of the shell or case, and at 7 is a tube or tubular holder and guide occupying and fitting a hole through the said boss or nipple. The stick or candle 8 of lubricant is placed within the said tube 7. While the shape of the tubular holder and guide in cross-section may vary in different cases in practice, I preferably employ as one feature of the invention a guide-tube of rectangular cross-section, and arrange it in the shell or case with one of the angles below, so that a stick or candle within the tube and resting against the lower portion of the interior thereof shall contact with the said interior only along lines at opposite sides of the said angle, thereby reducing the extent of the superficial contact between the stick or candle and the interior of the guide-tube to the minimum extent. Thus, tendency to friction between the stick or candle and the interior of the guide-tube, and to adhesion of the stick or candle to the said interior, are minimized. The opening through the boss or nipple 6 is inclined downwardly toward the front of the device, so that the guide-tube 7 occupies a correspondingly inclined position, the inclination being shared also by the stick or candle of lubricant contained within the guide-tube. Hence the said stick or candle tends to slide down within the guide-tube and to press at its front end against the outer surface of the guide-rail. The guide-tube 7 is secured in place within the boss or nipple 6 by means of the clamping-screw 9, Fig. 2. By manipulation of the said screw, and shifting of the guide-tube back and forth in the direction of the length of the guide-tube, the front end of the latter may be adjusted into the required position with relation to the outer surface of the guide-rail. The said front end is caused to occupy a position close to the said surface, so as to support the corresponding end of the stick or candle at a point closely adjacent the guide-rail, to guard against the breakage of the candle which would be likely if the candle were not thus closely supported.

In the practical use of the device, as the car to which the latter is applied goes up and down, the front end of the stick or candle 8 of lubricant, hereinafter termed simply the candle, rubs against the outer surface of the guide-rail, distributing the lubricant along the guide-rail. By the action of the elevator-shoe the lubricant thus distributed is spread upon the sides of the guide rail.

To provide for the free escape and dropping of loose portions and fragments from the lower front end of the candle 8, the front end of the guide-tube 7 is, in accordance with one feature of my invention, cut away at both sides of an intermediate nose-portion 7^a, the latter located at the under side of the guide-tube. By cutting away the front end of the guide-tube in the manner referred to, any loose small pieces of lubricant are permitted to escape laterally, while the nose 7^a will support the front end of the candle in close proximity to the guide-rail, in case such end should be forced downward. The nose 7^a also constitutes a gage in setting the guide-tube, enabling the required closeness of approach of the end of the guide-tube to the guide-rail to be secured without closing the interval between such end and the surface of the guide-rail. In seeing the guide-tube the latter will be drawn back slightly so that the end of the nose shall not scrape.

To support the outer end of the candle 8 of lubricant I provide the said outer end with a stem 10 projecting therefrom in the direction of the length of the candle, and I furnish the outer end of the guide-tube 7 with a removable cap 11 having a hole through which the said stem extends. The said hole is located at such height relative to the bottom of the guide-tube that when the stem 10 of a candle 8 occupies the hole the outer end of the candle, and the main length of the candle itself except close to the front end of the candle, are held out of contact with the surface of the guide-tube. The engagement of the stem with the guide prevents lateral displacement of the candle.

To constitute a visible indicator showing the length of candle within the device, the portion of the stem 10 which extends beyond the guide 11 projects into full view. The extent to which the outer portion of the stem projects from the guide shows how much candle remains unconsumed within the guide-tube. As the candle is consumed and slides downward within the guide-tube the outer portion of the stem moves inward through the guide 11, thereby shortening the length exposed and thus indicating the extent to which the candle has been consumed.

In applying a candle the guide-tube ordinarily will be released by turning out the screw 9, and then withdrawn from the boss or nipple 6. The stem 10, holder 12, and end-cap 11 may also be removed from the tube 7, and when the candle has been placed within the holder 12 and the candle, holder 12, and stem introduced into the guide-tube, and end-cap 11 has been replaced, the tube 7 will be returned to its working position and secured therein by turning up the said screw 9. For convenience in connecting the candle 8 with the stem 10, the said stem may be furnished at the inner end thereof with a simple socket as in Fig. 2, to receive and hold one end of the candle. Or, as

shown in Fig. 3, one end of the candle may be molded within a coupling-ferrule 13 having a central sleeve 13^a which extends into the material of the candle, said sleeve being internally screw-threaded, and the stem, 10^a, may have its inner end-portion screw-threaded to enter and engage with the said sleeve, and be provided with a collar or flange 10^c to make contact with the outer end of the said ferrule. The said collar or flange 10^c constitutes a stop to limit the extent to which the stem can be screwed into the sleeve of the ferrule, and also gives a stiffer connection.

Fig. 4 shows a candle having applied to the same a cap or end-piece 14 having an internally threaded sleeve 14^a entering the material of the candle, and the said sleeve having lateral projections or lugs 14^b, 14^b, which in consequence of projecting from the sleeve and being embedded in the material of the candle prevent tendency of the cap or end-piece and its sleeve to turn with reference to the candle.

Fig. 5 shows a spirally threaded sheet-metal end-piece 14^c applied in connection with the outer end of the candle, and a stem 10^d provided with a similar sheet-metal spirally-threaded socket 10^e to receive the said end-piece 14^c of the candle.

Fig. 6 shows a cap 15 applied to the outer end of a candle and having a rounded swell or projection 15^a pressed outward therefrom, and a stem 10^f having a socket 10^g formed with a right-angled or bayonet-joint slot 10^h to receive the said rounded swell or projection 15^a the parts being connected and locked together by inserting the cap 15 into the socket 10^g and moving the swell or projection 15^a inward along the longitudinal portion of the slot 10^n and then turning the parts relatively to each other so as to carry the said swell or projection into the transverse portion of the said slot.

The various devices which have just been described provide in convenient and simple manner for the connection of the candle with the stem, and the disconnection of the candle or the unused portion thereof from the said stem.

To reduce the tendency of the candle 8 to adhere to the interior of the guide-tube 7, especially when the candle is softened by warmth, I make the candle with a hard surface-layer or shell, as 8^a, of paraffin or other suitable wax, or its equivalent, and further, in order to facilitate the slipping of the candle along within the guide-tube I employ, in making the candle, either throughout the mass of the same, or in the said surface-shell, a dry lubricant such, for instance, as graphite. Instead of incorporating the said dry lubricant in the material of the shell or of the candle itself, it may be applied to the exterior surface.

To reduce the rate of consumption of the candle, and to regulate such rate, I form the candle with different longitudinal portions of different hardnesses. Thus, herein I show a core 8^b of greater hardness than the portion of the candle outside such core. For instance, the core may be composed of grease, wax, and graphite mixed together, and the intermediate portion or body of the candle between the said core and the coating or shell of wax and graphite may be composed of soft grease.

I claim as my invention:

1. A guide-rail lubricator comprising a case or shell having a vertical recess or slot to receive and fit a guide-rail to be lubricated, a forwardly and downwardly inclined holder, providing a support for the under side of a stick or candle of lubricant adjacent said guide-rail, and means for adjusting the said holder lengthwise, to vary the distance between said guide-rail and the inner end of the support beneath the corresponding end of the stick or candle.

2. A guide-rail lubricator comprising a case or shell having a vertical recess or slot to receive and fit a guide-rail to be lubricated and a forwardly and downwardly inclined holder having sides converging at an angle to support a stick or candle of lubricant with its lower inner end in contact with the guide-rail, and along which inclined holder the said stick or candle feeds toward the guide-rail as it is consumed.

3. A guide-rail lubricator comprising a case or shell having a vertical recess or slot to receive and fit a guide-rail to be lubricated, and a forwardly and downwardly inclined holder consisting of a rectangular tube having one of the angles at its under side, to support a stick or candle of lubricant with its lower inner end in contact with the guide-rail, and along which inclined holder the said stick or holder feeds toward the guide-rail as it is consumed.

4. A guide-rail lubricator having a forwardly and downwardly inclined holder for a stick or candle of lubricant, to support said stick or candle with its lower inner end in contact with the guide-rail, and down which the stick or candle is fed as it is consumed, and a support, slidable in the direction of the length of the stick or candle, by which the outer end of the stick or candle is held away from the said holder so that the stick or candle makes contact only at its inner end with the holder.

5. A guide-rail lubricator comprising a case or shell having a vertical recess or slot to receive and fit a guide-rail, and a forwardly and downwardly inclined holder for a stick or candle of lubricant, to support said stick or candle with its lower inner end in contact with the guide-rail, and down which the stick or candle is fed as it is con-

sumed, and a support, slidable in the direction of the length of the stick or candle, by which the outer end of the stick or candle is held away from the said holder so that the stick or candle makes contact only at its inner end with the holder.

6. A guide-rail lubricator having a forwardly and downwardly inclined holder for a stick or candle of lubricant, to support said stick or candle with its lower inner end in contact with the guide-rail, and down which the stick or candle is fed as it is consumed, a stem adapted to be connected with the outer end of said stick or candle, and a guide for said stem supporting the same and said end of the stick or candle so that the stick or candle makes contact only at its inner end with the holder.

7. A guide-rail lubricator comprising a case or shell having a vertical recess or slot to receive and fit a guide-rail, and a forwardly and downwardly inclined holder for a stick or candle of lubricant, to support said stick or candle with its lower inner end in contact with the guide-rail, and down which the stick or candle is fed as it is consumed, a stem adapted to be connected with the outer end of said stick or candle, and a guide for said stem supporting the same and said end of the stick or candle so that the stick or candle makes contact only at its inner end with the holder.

8. A guide-rail lubricator having a forwardly and downwardly inclined holder for a stick or candle of lubricant, to support said stick or candle with its lower inner end in contact with the guide-rail, and down which the stick or candle is fed as it is consumed, a stem adapted to be connected with the outer end of said stick or candle, and a guide for said stem supporting the same and said end of the stick or candle so that the stick or candle makes contact only at its inner end with the holder, the said stem projecting into sight and constituting a visual indicator for indicating the length of stick or candle remaining in the device.

9. A guide-rail lubricator comprising a case or shell having a vertical recess or slot to receive and fit a guide-rail and a forwardly and downwardly inclined holder for a stick or candle of lubricant, to support said stick or candle with its lower inner end in contact with the guide-rail, and down which the stick or candle is fed as it is consumed, a stem adapted to be connected with the outer end of said stick or candle, and a guide for said stem supporting the same and said end of the stick or candle so that the stick or candle makes contact only at its inner end with the holder, the said stem projecting into sight and constituting a visual indicator for indicating the length of stick or candle remaining in the device.

10. A guide-rail lubricator having a forwardly and downwardly inclined holder for a stick or candle of lubricant, to support said stick or candle with its lower inner end in contact with a guide-rail and down which the stick or candle is fed as it is consumed, said inclined holder having at its lower end a projecting toe to support the end of the candle closely adjacent the surface to be lubricated, with the sides of the holder above said toe receding to permit escape of fragments of lubricant.

11. A guide-rail lubricator having a forwardly and downwardly inclined holder for a stick or candle of lubricant, to support said stick or candle with its lower inner end in contact with a guide-rail and down which the stick or candle is fed as it is consumed, said inclined holder having at its lower end a projecting toe to support the end of the candle closely adjacent the surface to be lubricated, with the sides of the holder above said toe receding to permit escape of fragments of lubricant, and means to adjust the approach of said toe to the said surface.

12. A guide-rail lubricator having a forwardly and downwardly inclined holder with a V-shaped bottom to support a stick or candle of lubricant with its lower inner end in contact with a guide-rail, and down which the stick or candle is fed as it is consumed, said inclined holder having at its lower end a projecting toe to support the end of the candle closely adjacent the surface to be lubricated, with the sides of the holder above said toe receding to permit escape of fragments of lubricant.

13. A guide-rail lubricator having a forwardly and downwardly inclined holder with a V-shaped bottom to support a stick or candle of lubricant with its lower inner end in contact with a guide-rail, and down which the stick or candle is fed as it is consumed, said inclined holder having at its lower end a projecting toe to support the end of the candle closely adjacent the surface to be lubricated, with the sides of the holder above said toe receding to permit escape of fragments of lubricant, and means to adjust the approach of said toe to the said surface.

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

GEORGE PRIGGEN.

Witnesses:

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ELLEN O. SPRING.