

(No Model.)

2 Sheets—Sheet 1.

T. J. RYAN.
VENTILATING CAP.

No. 527,185.

Patented Oct. 9, 1894.

FIG. 1.

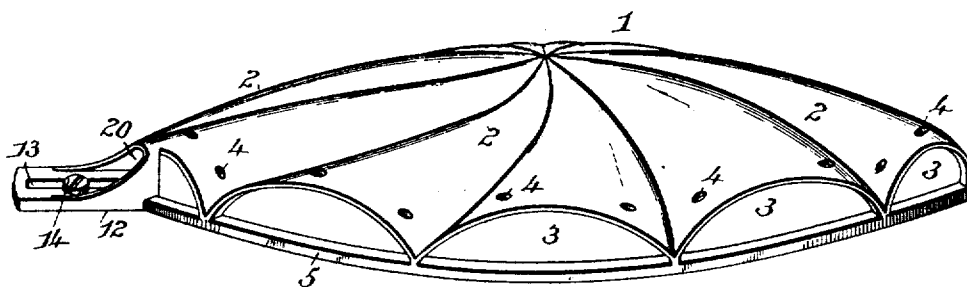
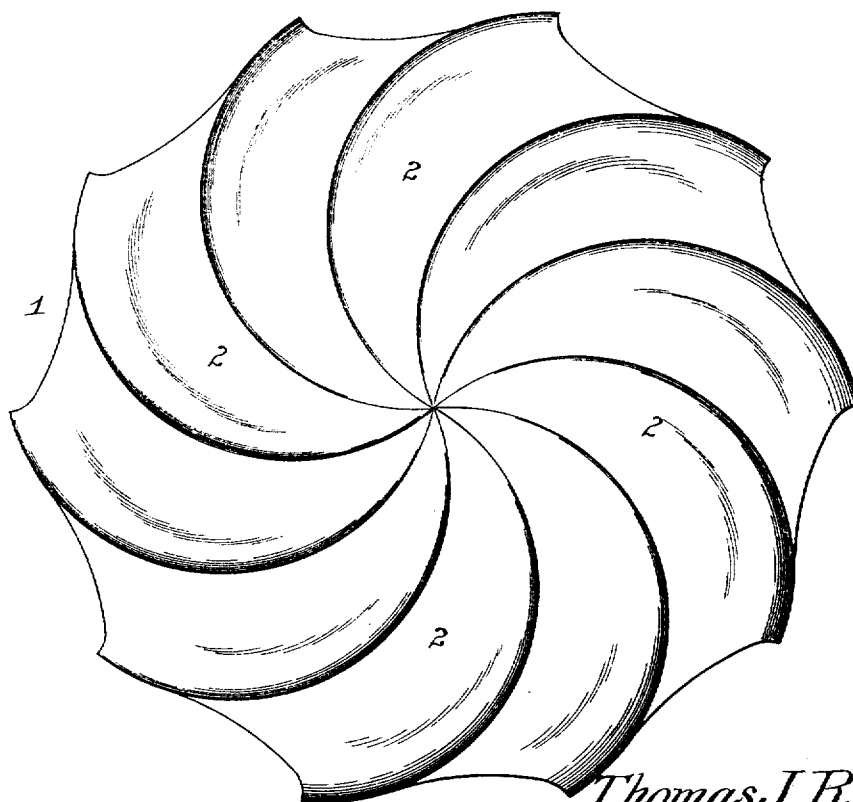


FIG. 2.



Inventor.

Thomas J. Ryan

Witnesses

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(No Model.)

2 Sheets—Sheet 2.

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FIG. 3.

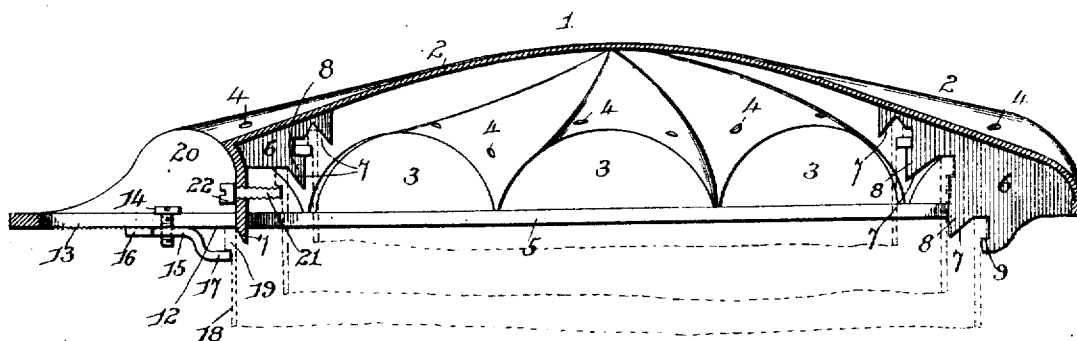


FIG. 4.

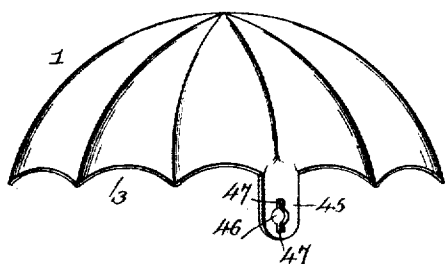


FIG. 5.

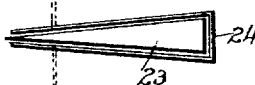


FIG. 6.

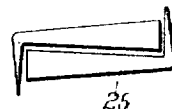


FIG. 7.

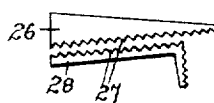


FIG. 8.

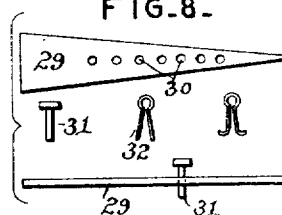


FIG. 9.

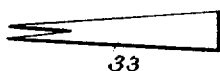


FIG. 10.

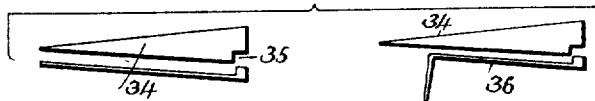


FIG. 11.

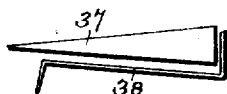


FIG. 12.

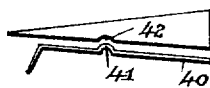


FIG. 13.

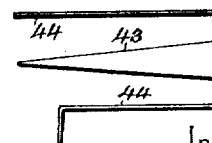


FIG. 15.



FIG. 14.



Witnesses

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THOMAS JOSEPH RYAN, OF BUFFALO, NEW YORK.

VENTILATING-CAP.

SPECIFICATION forming part of Letters Patent No. 527,185, dated October 9, 1894.

Application filed December 7, 1893. Serial No. 493,073. (No model.)

To all whom it may concern:

Be it known that I, THOMAS JOSEPH RYAN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Ventilating-Cap, of which the following is a specification.

My invention relates to improvements in caps for sewer and other pipes, the objects in view being to produce a readily applied and locked cap adapted for various sizes of pipes; to provide a cap especially designed for use for street pipes and so constructed or formed as to extend but a short distance above the surface of the street and to prevent slipping thereon by passers-by; to provide for a thorough ventilation of the pipe by the cap; and finally to produce an even tension on the pipe and cap, whereby fracture of the latter is less liable.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a perspective view of my preferred form of cap, the same being designed for street use or use upon various sizes of water pipes in the street. Fig. 2 is a top plan view of a modified construction of cap adapted for the same purposes. Fig. 3 is a vertical longitudinal sectional view of Fig. 1. Fig. 4 is a modified construction of cap, the same being designed for ordinary use or use other than upon the street. Figs. 5, 6, 7, 8, 9, 10, 11, 12 and 13 are details of modified constructions of locking devices. Fig. 14 is a detail in perspective of the combined tap and binding-screw. Fig. 15 is a detail in perspective of the movable clamp.

Like numerals of reference indicate like parts in all the figures of the drawings.

In the practice of my invention I cast the cap 1, as is usual, and the same is of concavo-convex form, and when it is designed for street use, I preferably make the same shallower than when otherwise designed. For the purpose of strengthening the cap I prefer to form in the same a series of corrugations 2, the said corrugations extending spirally or in radially curved lines from the center to the edge thereof, and in order to prevent slipping by passers-by when they may

tread upon the cap, I preferably form the corrugations in spiral or radially curved lines, so that regardless of the position of the foot upon the cap or any tendency it may have to slip, the said spirally disposed corrugations will resist the same while it will be understood that the vertical projection of the corrugations will also serve to strengthen the body of the cap and give it an ornamental appearance.

The edge of the cap is preferably scalloped to agree with the corrugations, thus forming vents or openings 3, and if desired, I may augment the ventilating capacity by a series of perforations 4, formed in the cap.

I may strengthen the structure by forming around the cap a rim 5, though if desired, and as shown in Fig. 2, this rim may be omitted. In the present instance, however, and in the preferred form as shown in Fig. 1, the rim is employed and rests upon the ground or sidewalk, as do also the points of the corrugations, so that the cap is better able to resist pressure.

Various means may be provided for securing the cap upon the pipe and in accordance with the nature of the pipe to which the cap is to be applied, the spigot end of the pipe is provided with a flange, whereas it is well known the opposite end is perfectly plain or smooth. When the latter occurs I preferably form kerfs in the exterior of the pipe for engaging the devices hereinafter described as being located on the cap.

Integrally cast upon the under side of the cap and following the ribs produced by the corrugations therein, is a plurality of brackets 6. These brackets are provided with inner inclined edges and at intervals have notches 7 formed therein, the upper ends of the notches depending, forming outer engaging lugs 8. By reason of the brackets being inclined, the notches will be in different angular planes, and thus adapted for various sizes of pipes. It will be seen that such a character of notch will engage over the inner and outer sides of the pipe as shown in Fig. 3. If desired, as where the cap is to be applied to only one diameter of pipe, the bracket 6 may have single notches, that is, provided with merely one set of notches for engaging the pipe, but as shown in Fig. 3, where three

sets of notches or openings are provided, different diameters of pipe may be accommodated, and such an arrangement is very useful in cities where the pipes are not of a uniform diameter.

At a suitable point on the interior of the cap, preferably below one of the brackets which is cut away for the purpose, I form an inwardly disposed horizontal plate 12, having a slot 13, through which passes a clamping-screw 14. The under side of this bracket is roughened and has applied thereto and secured in position by means of the said screw a movable clamp 15, whose outer end is flared to form a head 16, whose upper side is roughened to engage with the roughened surface of the plate, and whose inner end is provided with an L-shaped lug 17 in engagement with the pipe and thus serve to lock under the flange thereof.

In Fig. 3 I have illustrated the pipe 18 as having the flange 19, and it will be seen that the shoulders 8 of the brackets engage under the flange of the pipe, as does also the lug 17 of the movable clamp. Above the clamp, the cap is provided at one side with a sunken or recessed portion 20, and the same is perforated. Into this perforation I pass an angular threaded shaft 21, which has a head 22 at its outer end adapted to receive a socket-wrench, and is also kerfed to receive a screw-driver. By the employment of such a shape of screw I obviate the necessity of tapping or threading the opening for the reception of the screw, but in fact the screw itself is a tap, and during the act of insertion simultaneously produces the thread into which it engages. A fastener of this kind is designed for employment on pipes of an intermediate size which the clamp 15 will not operate.

I have illustrated a series of wedges that may be employed in connection with the upper notches for binding upon the smallest size pipe the cap is adapted for, it being understood that the wedges when used are forced between the outer walls of the notches in the brackets and the exterior of the pipe.

In Fig. 5 I employ a wooden wedge or key 23, and provide the end and side of the same with a sheet metal facing-strip 24. In this condition the wedge is inserted in position, after which, as indicated by dotted lines in Fig. 5, the ends of the sheet-metal facing are laterally bent so as to prevent disengagement. This form of wedge is useful and convenient, in that the sheet metal permits of abrupt bends.

In Fig. 6 I have illustrated a pair of wedges or keys, the same being designated by the numeral 25. These are inserted from opposite sides, and having been placed in position their ends are reversely turned as shown.

In Fig. 7 I have illustrated a wedge 26 having its under side toothed as at 27 to engage with a locking-plate 28. When these parts are in position, the locking-plate is bent and the wedge is therefore prevented from moving in

one direction by the teeth and in the opposite direction by its gradually widening proportion.

In Fig. 8 I have illustrated an ordinary wedge 29, the same having a series of perforations 30, through any one of which a solid locking-pin, as 31, or a split-pin as 32, may be inserted, and in the latter instance the terminals bent or clinched.

In Fig. 9 I have illustrated a bifurcated wedge 33, the bifurcations or branches thereof being laterally spread over the wedge when in position.

In Fig. 10 I have illustrated a wedge 34 whose rear or butt-end is notched for one half of its width, as at 35, to receive the bent locking-key 36, which after insertion is clinched.

In Fig. 11 I have illustrated a wedge 37, very similar to the wedge 34 but having its bent locking-key 38 extending entirely across the butt-end of the same.

Again in Fig. 12, I have illustrated a similar wedge 39 to that illustrated in Fig. 10, the key 40 being provided at one side with a rib 41, which engages with a groove 42 forming the web.

In Fig. 13 I employ a central wedge 43, and apply at the opposite sides thereof locking-strips or plates 44, the same being inserted with the wedge in position and subsequently bent at their ends.

In Fig. 4 of the drawings, I employ a lug 45 at one side of the cap having a screw-threaded opening 46, at opposite sides of which slots 47 are formed. Any ordinary screw is intended to be inserted in the perforation 46, and as is well known such screws being subject to rust and other impediment to removal, I prefer to employ the slots 47 for the purpose of packing the same with greasy waste or other lubricant, whereby the screw may be always readily removed.

From the foregoing description in connection with the accompanying drawings, it will be seen that I have provided a very simple construction of cap adapted to be applied to a variety of sizes of street or other pipes, and may be ornamented in any desired manner, though I prefer the corrugations illustrated in Fig. 1, in that these add to the strength of the cap and also to the safety of its employment, being nearly flat and of such disposition as to obviate any slipping whatever upon it by production of the corrugations. Also it will be seen that I form at the inner side of the cap the ribs which are the result of such corrugations, and these ribs being substantially in the same annular plane as the edge of the pipe, and serve to diffuse the strain of the cap over the entire pipe and likewise that of the pipe over the cap, also reduces the liability of breakage.

It will of course be obvious that although I have shown these various fastening devices in a single cap, whereby the same is adapted for various sizes of pipes, yet any one or two may be employed, as for instance one cap

may have simply one of the wedge forms of lock or the wedge and binding-screw, &c., as will be readily understood.

At this point further attention is directed to the specific construction of the brackets 6 which provide means for adapting the cap for use upon different sizes of sewer and other pipes, and particularly to the construction shown in Fig. 3 of the drawings, in which the cap is illustrated as being designed for use upon three different sizes of pipes. In connection with these different sizes of pipes it is to be understood that the clamp which is used in connection with the largest size of pipe cannot be employed in connection with that size of pipe with which the locking screw or shaft 21, is employed to fasten the cap in position, and the latter fastening device cannot be employed to fasten the cap on the smallest size of pipe in connection with which the wedges are necessary, so therefore it will be seen that the several fastening devices noted are essential to the use of a plurality of locking notches 7 in the brackets 6. These locking notches 7 are shaped with inner inclined edges to form inwardly disposed and depending locking lugs that are adapted to engage inside of the upper end of the pipe on which the cap is fitted, while the outer engaging lugs 8, of the locking notches are disposed outside of the upper end of the pipe, and the shoulders 9 of the outer engaging lugs 8, are adapted to be held engaged under the outer flange or bead, which is usually located at the upper outer ends of pipes in connection with which ventilating caps are employed.

From the construction just particularly referred to, it will now be clearer that each locking notch of the brackets 6, are shaped alike, and are adapted to engage inside, outside, and under the flange or bead, of the pipe with which the same engage, and such locking notches are held in locking engagement with the upper end of the pipe by means of the several fastening devices referred to, each of which also engages under the upper flange or bead of the pipe, and, by being adjusted, take up or compensate for the space caused by the variation in the sizes of the flanges on the pipes, and in the event of that part of the notches, between the inner and outer lugs thereof, not being of precisely the right shape to fit or engage the flange of the pipe, a suitable wedge may be inserted, as clearly illustrated in Fig. 3 of the drawings, to secure the proper engagement of the cap on the pipe.

Changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A shallow or low street cap for pipes, the same being concavo-convex in form and pro-

vided with a series of rounded exterior corrugations extending continuously from a common point at the center to the outer edge, thereby producing scallops at the edge of the cap to form vents or openings, said corrugations being also regularly and spirally curved from the center of the cap to the edge to obviate slipping, substantially as set forth.

2. A shallow or low street cap for pipes having a series of corrugations spirally curved from the center to the edge thereof to obviate slipping, scallops agreeing with the corrugations and formed at the edge of the cap, auxiliary vent openings or perforations near the edge, and the integral annular rim 5, formed at the outer edge of the cap and adapted to rest upon the ground, substantially as set forth.

3. A cap for pipes, the same being of concavo-convex form and being provided on its under side with a series of radial brackets having notches for engaging the edge of the pipe, the upper ends of said notches being provided with inwardly disposed depending lugs for engaging the inner surface of the pipe, substantially as specified.

4. A cap for pipes, the same being of concavo-convex form and being provided on its under side with a series of radial brackets having notches for engaging the edge of the pipe, the upper ends of said notches being provided with inwardly disposed depending lugs for engaging the inner surface of the pipe, and means for binding the cap upon the pipe, substantially as specified.

5. The cap of concavo-convex form adapted to be arranged over a pipe and having the internal brackets radiating therefrom, the same being provided with a plurality of notches arranged in the same plane and adapted to engage pipes of various types, and means for locking the cap upon the pipe, substantially as specified.

6. The herein-described cap for pipes with flanged upper ends, the same being of concavo-convex form and having internal radial brackets provided upon their under and inner sides with locking notches adapted to embrace the upper end of the pipe and engage the inner and outer sides thereof and also its flange, and means for locking the cap in position upon the pipe, substantially as specified.

7. The herein described improved cap, the same being of concavo-convex form, and corrugated to form internal ribs and having internal inclined brackets following the ribs produced by the corrugations and provided with notches arranged in the same annular plane to engage the upper edge of a pipe, and means for locking the cap in position upon a pipe, substantially as specified.

8. The herein described cap for pipes, the same being of concavo-convex form and having upon its inner side pipe-engaging brackets, a radial slotted plate having a roughened under surface and clamping-screws arranged

in the slot of the plate, and a movable clamp having a roughened side for engaging the plate and receiving the screw, and its inner end shaped to engage the pipe, substantially as specified.

9. The herein described cap for pipes, the same being provided upon its inner side with radially inclined brackets, each having a plurality of notches, and one of said brackets being cut away at its lower end or below its upper notch wedge-shaped keys adapted to fit in the upper of said notches, a threaded perforation formed in the cap below said brackets in line with the second series of notches, a binding-screw arranged therein, a slotted bracket arranged below the binding-screw in line with the third set of notches, a clamping-plate located under the bracket, and a clamping-screw passed through the clamping-plate and the slot in the bracket, substantially as specified.

10. The herein described cap for pipes, the same having internal radially inclined brackets, the edges of which are provided with a plurality of pipe-engaging notches arranged in different annular planes, a wedge-shaped key adapted to fit in the upper of said notches, a threaded perforation formed in the cap in

line with the second series of notches, a binding-screw therein, a slotted bracket arranged in line with the third series of notches, a clamping-screw in the slot, and a clamping-plate engaged by the clamping-screw, substantially as specified.

11. The herein described pipe cap for pipes of different sizes having flanges at their upper ends having an inner series of radial brackets provided with a plurality of locking notches, the inner sides of which are extended into inwardly disposed lugs to engage inside of the pipe end, and the outer sides of which are shouldered to engage under the pipe flange on the outside thereof, and adjustable locking devices arranged to also engage under the pipe flange and hold the locking notches firmly in engagement with the inner and outer upper ends of the pipe, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

THOMAS JOSEPH RYAN.

Witnesses:

THOMAS CHRISTOPHER COSTELLO,
GEORGE LOWE.