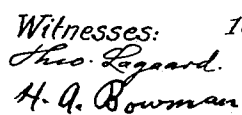


1,060,844.

3 SHEETS—SHEET 1.



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E. E. JOHNSON.
STAND PIPE OR WATER COLUMN.
APPLICATION FILED FEB. 5, 1912.

1,060,844.

Patented May 6, 1913.

3 SHEETS—SHEET 2

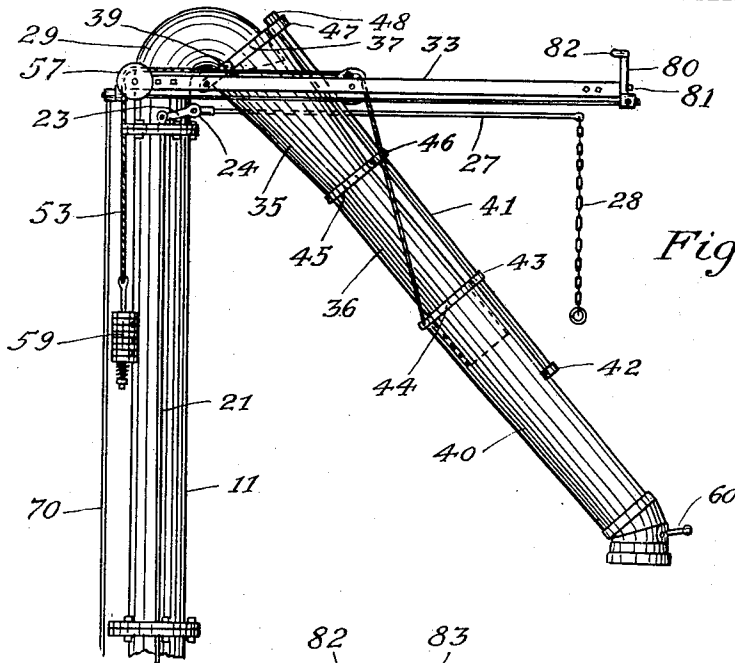


Fig. 2.

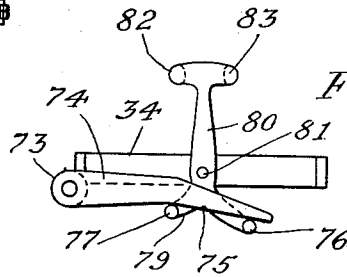


Fig. 6.

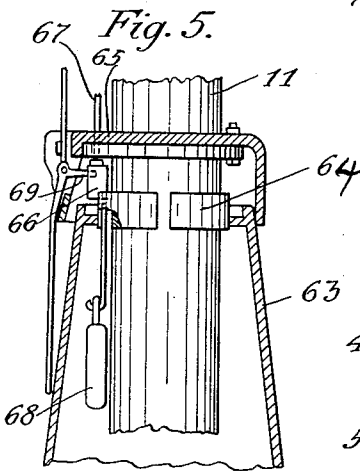


Fig. 5.

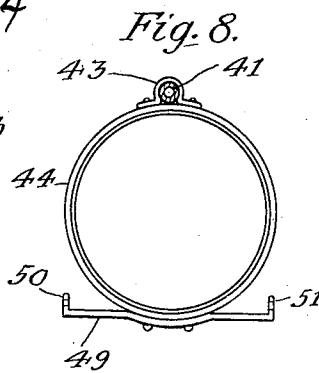


Fig. 8.

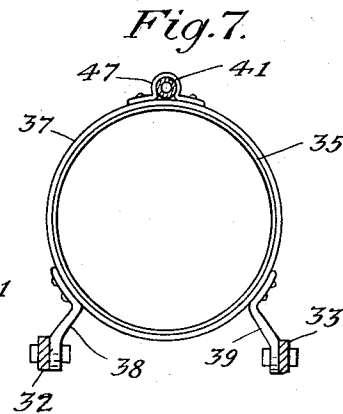


Fig. 7.

Witnesses:
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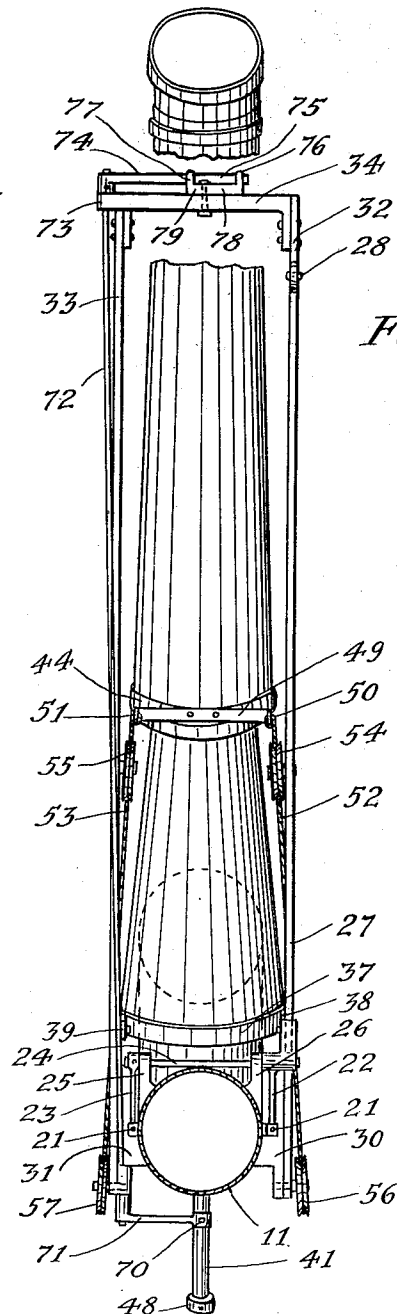
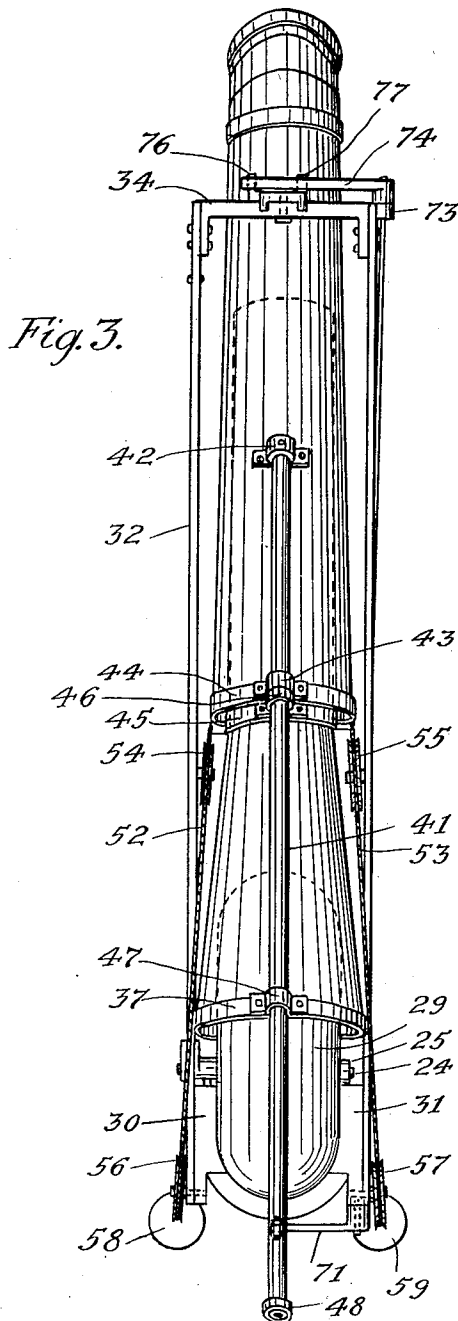
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E. E. JOHNSON.
 STAND PIPE OR WATER COLUMN.
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

EDWARD E. JOHNSON, OF ST. PAUL, MINNESOTA.

STAND-PIPE OR WATER-COLUMN.

1,060,844.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed February 5, 1912. Serial No. 675,523.

To all whom it may concern:

Be it known that I, EDWARD E. JOHNSON, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Stand-Pipes or Water-Columns, of which the following is a specification.

My invention relates to improvements in stand pipes or water columns, especially such as are designed and constructed for supplying water to locomotive tenders. Such structures comprise the vertical standpipe located alongside a railway track or between two such tracks, and a spout which must be extended laterally and turned at right angles to the track when the tender is being supplied with water, but must be turned parallel with the track and locked in position when not in use. In practice such a water column will be required to serve engine tenders of different vertical heights, for which reason, for effective service under all possible conditions, it is desirable and in fact necessary for the lateral spout to have a considerable range of vertical movement. In view of the modern tendency to increase the size of locomotives and correspondingly increase the height of the tenders, together with the fact that for yard and switching purposes and many types of train service the smaller types of engines are and will continue to be used, the extent of this range of movement required has increased, until it has become an essential of a satisfactory device for the purpose that every inch of head room possible be secured, while at the same time the absolute height of the standpipe be kept down so that the lateral spout will be within reach of a fireman upon one of the lowest types of tenders.

It is the object of my invention to secure from six to eight inches additional head room without any increase in the height of the standpipe, while at the same time materially improving the means of mounting the lateral spout so that the same may be quickly and accurately adjusted to the water trap of the tender.

I show my improvements in connection with that class of water columns which is provided with a goose neck or outwardly and downwardly turned nozzle rigidly secured to the vertical portion of the standpipe and in which the lateral spout is pivoted to the standpipe at a point below said

nozzle and telescopes over said downturned end of the nozzle. Heretofore the point of pivoting of the lateral spout has been some distance below the nozzle and the nozzle in turn has been extended so that the telescoping action of the spout will take place along a considerable extent of said gooseneck or nozzle. Such an arrangement not only is awkward and difficult to assemble (because the standpipe and gooseneck being constructed of cast iron are necessarily heavy and a lengthy gooseneck tends to overbalance the standpipe), but this arrangement also necessarily prevents the raising of the spout above a certain point if the gooseneck is turned down sufficiently to give the spout the lower range required. In my present improvements I overcome these defects by pivoting the spout just beneath and in the arch of the gooseneck, which will need to be extended but a few inches to one side of the vertical portion of the standpipe, and I procure the necessary variation in length of the spout to adapt it to operate in any position within its range of vertical movement by means of forming the spout itself in two sections, one telescoping over the other and yet held in rigid alinement therewith. In accomplishing these results I provide means for mounting the spout upon the standpipe in addition to the aforesaid pivoting which automatically returns the sections of the spout to telescopically closed position when the spout is raised to its highest or normal position, and in connection with the supporting means of such mounting I provide a convenient and easily accessible lever mechanism for controlling the valve of the water column, which mechanism is in no wise affected by movements of the spout in either horizontal or vertical planes.

Other objects and advantages of my invention will appear in connection with the detailed description thereof and are particularly pointed out in the claims.

In the drawings, which illustrate the application of my invention in one form,—Figure 1 is a side elevation of a standpipe having my improvements applied thereto. Fig. 2 is a similar view of a portion of the standpipe showing the spout lowered and extended. Fig. 3 is a top plan view showing the spout closed. Fig. 4 is a section on line 4—4 viewed in the direction of the arrow, or from beneath. Fig. 5 is an enlarged detailed view of the means for lock-

ing the standpipe against rotary movement. Fig. 6 is a detail view of the means for controlling said locking device. Fig. 7 shows a means of pivoting the upper section of the lateral spout to the frame of the standpipe. Fig. 8 shows the end of the second section of the lateral spout, illustrating particularly how said section is secured in rigid alinement with the first section and a means for connecting the ropes and weights by means of which the sections of the spout are automatically returned to normal position. Figs. 9 and 10 are sectional views of a telescoping elbow which may be placed upon the end of the spout so as always to direct the column of water from the spout vertically into the water trap of the tender.

The standpipe comprises a vertical member 11 extending below the surface of the ground and united by a swiveling joint 12 of usual construction with a boxing 13 which is in communication with a supply pipe 14 and within which valve mechanism of known construction is positioned, said valve being operated in a well known way by means of an elbow lever 15, one arm of which is connected by a link 16 to a fork lever 17 pivoted at 18 to a bracket secured on the boxing 13, the fork of which engages in an annular groove 19 on a ring 20 slidable on the vertical pipe 11. The ring 20 is lifted by means of link rods 21 on opposite sides of the vertical pipe 11, which rods are moved longitudinally by arms 22 and 23, respectively, on a rock shaft 24 journaled in lugs 25 and 26 offset from pipe 11, one end of said rock shaft having fast thereon an arm 27 provided at its free end with a cord or chain 28 depending into position to be conveniently reached by the fireman from the tender of the engine. The upper end of pipe 11 is provided with a gooseneck or nozzle 29 which in the form of my invention shown will need to extend out laterally only enough to permit a small amount of downward turn to this gooseneck. Secured just below the point of curvature of the gooseneck 29 and on opposite sides thereof are castings 30 and 31 to which are bolted or otherwise fastened bars 32 and 33, respectively, said bars extending substantially at right angles to the pipe 11, or horizontally, and being secured together in parallel relation by means of a crossbar 34 bolted to the free ends of bars 32 and 33. The castings 30 and 31 and the cross bar 34 are of such size that the bars 32 and 33 will be spaced apart sufficiently to permit the lateral spout hereinafter described to move between the same. This lateral spout comprises two sections. The first section is formed with a funnel shaped upper portion 35 and a cylindrical extension from the smaller end of the portion 35 which is designated 36. As shown most clearly in Fig. 7 the larger end

of the portion 35 has fitted thereon a ring or ferrule 37, or other form of supporting and strengthening means, to which is secured a pair of bracket arms 38 and 39 pivoted to bars 32 and 33 respectively. The open end of the funnel shaped portion 35 therefore extends over the gooseneck 29 and is pivoted to swing about an axis just below and within the arch of said gooseneck, so that the upper edge of the funnel is always so positioned as to prevent any leakage or spilling at the gooseneck while at the same time the spout will have a range of vertical movement angularly through the greater portion of an arc of ninety degrees. Since this swinging movement causes the end of the spout to describe the arc of a circle it follows that if the spout is just long enough to reach the water trap of the highest type of tender, that is when the spout is in its most elevated position, it will fall short of reaching the traps of less elevated tenders. To obviate this difficulty I mount upon the first section of the spout a second section 40 very slightly funnel shaped and larger in internal diameter than the cylindrical portion 36 of the first or upper spout section. To secure the section 40 in position to be held in alinement with the portion 36 and at the same time to telescope over said portion a rod 41 is rigidly secured upon the upper periphery of section 40 at at least two points, one of which is indicated at 42 and the other of which comprises a clamp 43 secured to a ferrule 44 surrounding the upper end of the section 40 as best shown in Figs. 3 and 8.

At the junction of the cylindrical portion 36 with the funnel shaped portion 35 of the upper section of the spout, a ring or ferrule 45 is provided to which is secured a tubular bearing member 46, the same being extended laterally from said ferrule to bring it into a line parallel with the elements of cylinder 36 and passing through a similar tubular bearing member 47 secured to ring 37 at the end of the funnel shaped portion 35. The rod 41 is positioned to slide in said tubular bearings 46 and 47, which thereby hold the said rod at two points in parallel relation with the elements of cylinder 36 or the axis of the spout, and the rod correspondingly holds the lower section 40 so that said lower section will at all times be in alinement with the upper section, although by reason of its connection therewith through rod 41 it may occupy different positions longitudinally with respect to said first section as shown in Figs. 1 and 2. As best shown in Fig. 3 and also as indicated in dotted lines in Figs. 1 and 2, the rod 41 holds the section 40 in relation to cylindrical portion 36 of the upper spout section so that the inner walls of section 40 are at all times spaced from the outer walls of cylindrical portion 36.

This is essential as otherwise water would get in between the contacting surfaces and in cold weather would freeze causing the device to be non-extensible and therefore practically inoperative. The rod 41 is provided at its free end with a ring 48 which limits the movement of the rod and the lower section 40 carried thereby by engagement with bearing member 47. Upon the lower portion of ring 44 at the upper end of section 40 a crossbar 49 may be secured provided with eye-pieces 50 and 51 positioned so as to lie in planes vertically tangent to the periphery of ring 44. Secured to these eye-pieces are cables 52 and 53 respectively which pass over sheave-wheels 54 and 55 journaled upon short pins secured to bars 32 and 33 respectively at a point just short of the position of ring 45 when the spout is in its elevated position, as shown in Fig. 1. From sheave-wheels 54 and 55 the cables extend to and over similar sheave-wheels 56 and 57 mounted upon the castings 30 and 31 and from thence to weights 58 and 59. This arrangement is such that as the spout is drawn down by the fireman, through hook 60 provided on the end of the second section for that purpose, the section 40 may be extended along the cylindrical portion 36 as much as desired. When the spout is pushed up the weights operating through cords 52 and 53 will automatically bring section 40 back to its normal or closed position as shown in Fig. 1.

Since the lateral spout of my invention may operate at such a small angle from the horizontal, in some cases it may be desirable to adjust the opening at the end of said spout. To effect this result I may provide the construction shown in Figs. 9 and 10, in which a movable section 61 is hinged at 62 to the lower part of the spout, and being in the form of a segment of a bend centered at said point of hinging may be adjusted to change the direction of the opening as clearly shown in the figures.

As above noted a standpipe such as herein described may be located between two tracks, and the lateral spout must always be held locked in position parallel with said tracks when not in use. Means accessible from the tender of the engine must be provided for unlocking the standpipe to permit turning thereof, and such means should operate with equal facility from either side of the standpipe. A locking device of well known construction is shown in Fig. 5 in which a stand 63 surrounds a ring 64 secured to pipe 11. Upon pipe 11 is rigidly secured a cap 65 overlying the upper edge of the stand 63 and spaced from ring 64. A detent 66 has a rod 67 bearing in the cap 65 and is normally drawn downwardly by a weight 68. When in its lowered position detent 66 will at the same time be positioned in pockets formed

in the ring 64 and the stand 63, which of course will lock pipe 11 from turning movement. To lift the detent a hook like member 69 is provided which engages said detent and which is connected by means of a link 70 with an arm 71 forming a part of my novel means for operating the detent.

The arm 71 is rigidly secured on a rod 72 having a bearing in the casting 31 and another bearing in an extension 73 of the crossbar 34. Fast upon the rod 72 is an arm 74 having a cam portion 75 adapted to engage either or both of two pegs 76 and 77 extending from longer and shorter arms 78 and 79 respectively of a lever 80 pivoted to the crossbar 34 at a point 81 above the junction of the arms 78 and 79 with said lever. As most clearly shown in Figs. 1 and 2 and Fig. 6, the lever 80 stands up vertically above crossbar 34 at the end of the framework comprising the side bars 32 and 33. Upon the upper end of lever 80 a pair of oppositely positioned hooklike extensions 82 and 83 may be provided. At whichever side of the standpipe the locomotive may be the fireman will be able to engage a ring tool over one or the other of the hooks 82 or 83. The first effect of drawing on the lever 80 will be to rock the same in one direction or the other, which through engagement of pins 76 or 77 with cam surface 75 will operate lever 74 to cause the same to rock the rod or shaft 72, which in turn will rock arm 71 and through link 70 will lift detent 66 and unlock the standpipe, whereupon the same will be free to rotate and a draft upon lever 80 will bring the lateral spout at right angles to the standpipe 11, or at such an angle as may be desirable to position said spout so as to enter the water trap of the tender. The arms 78 and 79 are made of different lengths because, their distances from rod 73 being unequal, a greater arc of movement would be required of the pin farthest removed to effect the same extent of turning of rod 73 for the same angular movement of lever 80.

The operation of my device has been given very fully in connection with the detailed description thereof. A point of importance in connection with the operation of this standpipe is that a locomotive need not stop with the water trap positioned exactly opposite the standpipe, for the reason that the large degree of adjustment made possible by the telescoping lower section of the spout will accommodate the same to different positions of the trap through a range of several feet either way along the track. The spout is adapted to discharge when it is in its most elevated position, as shown in Fig. 1, and as will be very apparent, can be arranged to reach down to any conceivable point where it could be called upon to serve. The valve operating mechanism is absolutely independent of the means for holding and

positioning the spout, and yet since the lever 27 is positioned exactly beneath the side bar 32, it is thereby effectively protected from accidental operation by engagement of the fireman's hook therewith in reaching for the means for unlocking and swinging the standpipe so the spout extends over the track. Furthermore the spout, being centrally supported between the bars 32 and 33 when not in use, is exceptionally well protected against racking strain due to wind pressure or other causes. The short bend of the gooseneck 29, carrying the same but a few inches out of line of the standpipe proper, gives a structure easy to erect in the first instance and the fact that the spout is in two sections enables that to be shipped and handled and to be put to practical use with little chance of damage. But the feature of my invention which is perhaps of primary importance is the fact that without increasing the absolute height of the standpipe and while capable of serving tenders of the smallest locomotives built and operating, it is still possible with this arrangement to deliver water to a tender six or eight inches higher than can be done with devices as previously constructed.

I claim:

1. A water column comprising a stand-pipe terminating in a short curved nozzle, a sectional telescoping spout having the open end of the inner section surrounding said nozzle and hinged to the stand-pipe, and means to hold the sections of the spout in alinement and with the walls thereof out of contact throughout their range of relative telescopic movement.

2. A water column comprising a stand-pipe terminating in a short curved nozzle, a sectional telescoping spout having the open end of the inner section surrounding said nozzle and hinged to the stand-pipe and means independent of the contiguous walls of the sections to hold the sections in alinement.

3. A water column comprising a stand-pipe terminating in a short curved nozzle, a sectional telescoping spout having the open end of the inner section surrounding said nozzle and hinged to the stand-pipe, and a bar rigidly secured to one of said sections and connected to the other section so that said other section and bar may be moved relatively to hold the sections of the spout in alinement and with the walls thereof out of contact while one is telescoped over the other.

4. A water column comprising a stand-pipe terminating in a short curved nozzle, a sectional telescoping spout having the open end of the inner section surrounding said nozzle and hinged to the stand-pipe, and a bar rigidly secured to the outer section and slidably connected to the inner section to

hold the sections of the spout in alinement and with the walls thereof out of contact while one is telescoped over the other.

5. A water column comprising a stand-pipe terminating in a short curved nozzle, a sectional telescoping spout having the open end of the inner section surrounding said nozzle and hinged to the stand-pipe, and a bar rigidly secured in a plurality of places to the top of the outer section and slidably mounted in a plurality of bearings secured to the top of the inner section to hold the sections of the spout in alinement and with the walls thereof out of contact while one is telescoped over the other.

6. A water column comprising a stand-pipe terminating in a short curved nozzle, a pair of bars connected with the stand-pipe and extending in spaced parallel relation therefrom, a sectional telescoping spout positioned between and hinged to said bars so that the inner section at all times will loosely surround said nozzle, and means having connection with the outer section of the spout and with the bars normally to hold the spout elevated between the bars and to hold the outer section thereof in its most retracted position.

7. A water column comprising a stand-pipe terminating in a short curved nozzle, a pair of bars connected with the stand-pipe and extending in spaced parallel relation therefrom, a sectional telescoping spout positioned between and hinged to said bars so that the inner section at all times will loosely surround said nozzle, means for holding said sections of the spout in longitudinal alinement throughout their range of relative telescopic movement, and means having connection with the outer section of the spout and with the bars normally to hold the spout elevated between the bars and to hold the outer section thereof in its most retracted position.

8. A water column comprising a stand-pipe terminating in a short curved nozzle, a pair of bars rigidly connected with the stand-pipe at a point just below the curve of said nozzle and extending in spaced parallel relation at right angles thereto and outwardly therefrom, a sectional telescoping spout positioned between and hinged to said bars so as loosely to surround said nozzle, a bar rigidly secured to the outer section and slidably connected to the inner section to hold the sections of the spout in alinement throughout their range of relative telescopic movement, and means having connection with the outer section of the spout, and with the bars normally to hold the spout elevated between the bars and to hold the outer section thereof in its most retracted position.

9. In combination with railway tracks, a water column comprising a rotatable stand-pipe provided with a nozzle and a laterally

extended spout, a frame rigidly connected with the stand-pipe and extending outwardly therefrom adjacent the spout, means for locking the stand-pipe with the spout and frame in parallel relation to the railway tracks, a rock shaft on the frame having connection with said locking means, a lever pivoted to the end of the frame, and an arm on said rock shaft engaged by said lever, whereby rocking the lever will operate the rock shaft and cause the same to unlock the stand-pipe.

10. In combination with railway tracks, a water column comprising a rotatable stand-pipe provided with a nozzle and a laterally extended spout, a frame rigidly connected with the stand-pipe and extending outwardly therefrom adjacent the spout, means for locking the stand-pipe with the spout and frame in parallel relation to the railway tracks, a rock shaft on the frame having connection with said locking means, a lever pivoted to the end of the frame and provided with a pair of arms, and an arm on said rock shaft engageable by either arm of said lever, whereby rocking the lever in either direction will operate the rock shaft and cause the same to unlock the stand-pipe.

11. In combination with railway tracks, a water column comprising a rotatable stand-pipe provided with a nozzle and a laterally extended spout, a frame rigidly connected with the stand-pipe and extending outwardly therefrom adjacent the spout, means for locking the stand-pipe with the spout and frame in parallel relation to the railway tracks, a rock shaft on the frame having connection with said locking means, a lever

pivoted to the end of the frame and provided with a pair of depending diverging arms, one of said arms being longer than the other, pins on the ends of said arms, and an arm on said rock shaft overlying and engageable by either of said pins, whereby rocking the lever in either direction will operate the rock shaft and cause the same to unlock the stand pipe.

12. A water column comprising a rotatable stand-pipe provided with a nozzle and a laterally extended spout, a frame rigidly connected to the stand-pipe and extending outwardly therefrom adjacent the spout, a valve and means for operating the same in any position of the stand-pipe, including a lever normally positioned directly beneath and protected by a member of said frame.

13. A water column comprising a rotatable stand-pipe provided with a nozzle and a laterally extended spout, bars connected with the stand-pipe and extending in spaced parallel relation on either side of said spout at right angles to the stand-pipe, a valve and means for operating the same in any position of the stand-pipe, including a lever normally extended directly beneath and in close proximity to one of said bars, said lever and bar being connected to the stand-pipe for simultaneous movement in a horizontal plane.

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

EDWARD E. JOHNSON.

Witnesses:

H. A. BOWMAN,
F. A. WHITELEY.