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E. F. STECK.

ROTARY FIRE HYDRANT OR TURRET.

(Application filed Dec. 10, 1898.)

(No Model.)

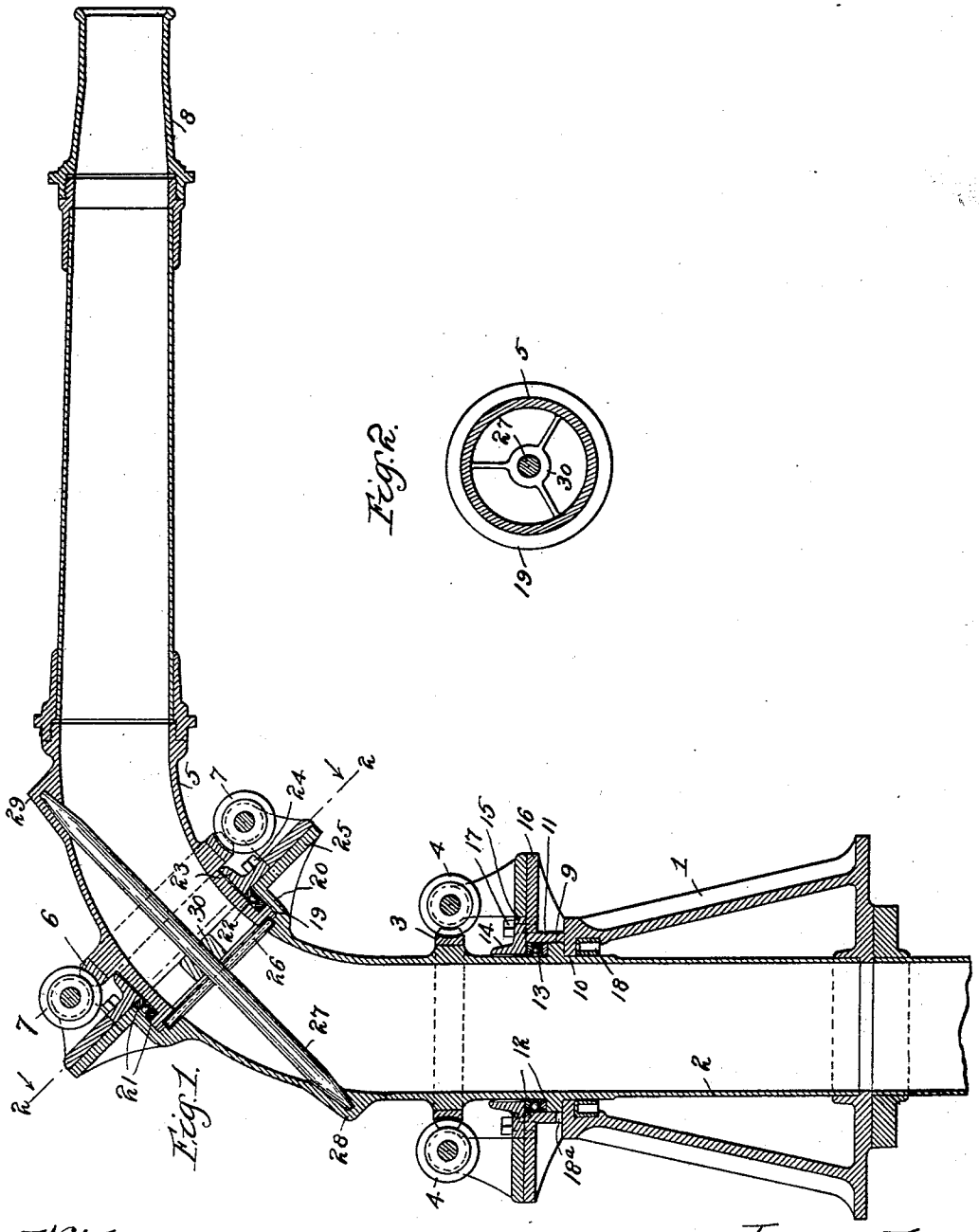


Fig. 1.

Fig. 2.

Witnesses.
Wm. M. Rheems
Edna B. Johnson

Inventor
Ernst F. Steck
by Elliott & Hopkins
Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ERNST F. STECK, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE FIRE EXTINGUISHER MANUFACTURING COMPANY, OF SAME PLACE.

ROTARY FIRE HYDRANT OR TURRET.

SPECIFICATION forming part of Letters Patent No. 623,341, dated April 18, 1899.

Application filed December 10, 1898. Serial No. 698,828. (No model.)

To all whom it may concern:

Be it known that I, ERNST F. STECK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rotary Fire Hydrants or Turrets, of which the following is a full, clear, and exact specification.

My invention relates to rotary fire hydrants or turrets more especially intended for use on fire-boats and in other places where it is desirable to command all points and at various elevations with a large stream controlled by one person, it being usual in such devices to have the nozzle-section of the turret swiveled upon the vertical or lower section, which is also swiveled, whereby the swing of the nozzle resulting from the rotation of the vertical section enables it to sweep all points of the compass, and the independent rotation of the nozzle-section, whose axis of rotation is at an oblique angle to that of the vertical section, gives it command of points at various elevations. The nozzle-section being necessarily set at an angle to the vertical section, the upward strain on the former resulting from the hydraulic pressure is very great, rendering it difficult to rotate either the vertical section or the nozzle-section separately, and such angularity of the nozzle-section also subjects its joint at the point of union with the vertical section to great wrenching strain, causing the joint to seat more heavily on one side than on the other.

The object of my invention, therefore, is to overcome these defects and provide an improved construction in which the stream may have free and unobstructed passage and both the nozzle and vertical sections of the turret shall be easy of rotation and the joint of the nozzle-section entirely free from uneven strain.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a vertical sectional view of the upper end of the turret; and Fig. 2 is a detail transverse section of the lower end of the nozzle-section, taken on the line 2 2, Fig. 1.

1 represents the column in which the lower or vertical section 2 of the turret is journaled and is provided with a worm-wheel or annular rack 3, with which engage the worms 4 for rotating the turret in the ordinary manner, and 5 is the nozzle-section or upper section of the turret, having a similar worm-wheel or annular rack 6 engaging with worms 7, according to the usual or any suitable construction, for causing the rotation of the nozzle-section carrying the nozzle 8 independently of the vertical section 2.

The vertical section 2 is provided with an annular flange 9, which rests upon a flange 10 near the top of the column 1 and is surrounded by a barrel 11, formed on the upper end of the column 1 and constituting with the side of the section 2 and the flange 9 an annular chamber for holding a pair of bearing-rings 12, having their opposed faces grooved for the reception and retention of a number of antifriction-balls 13. Upon the top of the barrel 11 is secured a cap 14, which rests upon the upper one of the rings 12 and holds the ring securely in place, the cap 14 being provided with a lateral flange 15, overlapping a corresponding flange 16, extending from the side of the barrel 11 and having the flange 15 secured to it by suitable screws or bolts 17, so that the adjustment of the bearings 12 13 may be effected when desired. Just below the flange 10 and surrounding the section 2 is an automatic or cup-shaped hydraulic packing 18, which prevents leakage in the column 1 from escaping into the bearings 12 13, 18^a being a drain for carrying off the water that works past the packing.

The upper end of the lower section 2 is bent or curved, and the lower or contiguous end of the nozzle-section 5 is bent in continuation of such curvature of the lower section and is swiveled thereto. The lower end of the section 5 is provided with a flange 19 on its outer periphery, which is seated in a cup or enlargement 20, formed on the upper end of the section 2, and upon the flange 19 within the cup 20 is located a pair of bearing-rings 21,

having their opposed faces grooved for the reception of antifriction-balls 22. The upper end of the cup 20 is closed by a flanged cap 23, held against the upper one of the rings 21 with the requisite pressure by means of set-screws 24, passing through the flange of the cap 23 and entering a flange 25, formed on the section 2. Within the section 2, just below the flange 19 and at the point of intersection between such flange and the bottom of the cup 20, is located an automatic hydraulic packing 26, which is U-shaped in cross-section and prevents leakage into the bearings 21 22.

All of the pressure upon the bearings 12 13 and 21 22 being upward during the operation of the apparatus, it will be seen that the construction and arrangement of antifriction devices just described will receive such pressure and relieve the bearings of undue friction.

The force of the stream of course exerts a tendency to straighten the nozzle-section and nozzle out into line with the vertical section of the turret, and this pressure subjects the bearings at the upper union to severe wrenching strain. In order to guard against this result and at the same time provide for free and unobstructed passage of the stream, I employ a substantial pin or spindle 27, which has its lower end tapered and stepped in a suitable seat 28, formed in a boss at the elbow of the lower section, and its upper end similarly tapered and stepped in a seat in a boss 29 at the upper end of the upper section or nozzle-section, these seats for the ends of the spindle 27 being a considerable distance apart and also a considerable distance from the union of the two sections, and the lower end of the nozzle-section 5 is provided with a spider 30, through the hub of which the spindle 27 passes, thus giving the spindle a substantial connection with the lower end of the nozzle-section, and by being thus connected with the nozzle-section at two different points, one of which is a great distance from the union of such section with the lower section and also connected at a distant point with the lower section, the upward strain on the nozzle-section will be effectually resisted and the section consequently held in its proper axial relation to the lower section.

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

1. In a rotary hydrant or turret, the combination of the upright turret-section, the nozzle turret-section swiveled at an angle thereto and a spindle having its ends stepped in said sections respectively and being also rigidly connected at an intermediate point to one of said sections, substantially as set forth.

2. In a rotary hydrant or turret, the combination of the upright turret-section, the nozzle-section swiveled at an angle thereto, a spindle having its ends stepped in said sections respectively, and a spider in said nozzle-section and through which spider said spindle passes, substantially as set forth.

3. In a rotary hydrant or turret the combination of the upright turret-section, the nozzle-section swiveled thereto, the spindle 27 arranged within said sections and having its ends tapered and stepped in said sections respectively and a spider in said nozzle-section, surrounding said spindle, substantially as set forth.

4. In a rotary hydrant or turret, the combination of the upright section having a cup at its upper end, the nozzle-section having a flange at its lower end seated in said cup, a pair of bearing-rings located in said cup above said flange, antifriction-rollers located between said rings and a cap secured to said lower section and overlapping the upper one of said rings, substantially as set forth.

5. In a rotary hydrant or turret, the combination of the lower turret-section having the flanged cup 20 at its upper end, the nozzle-section having a flange on its lower end seated in said cup, a pair of bearing-rings having their opposed faces grooved located in said cup above the flange on said nozzle-section, antifriction-rollers located between said rings, and the flanged cap 23 secured to said flanged cup and overlapping the upper one of said rings, substantially as set forth.

6. In a rotary hydrant or turret, the combination of the lower turret-section having the annular flange 9, the column 1 having the flange 10 and barrel 11 receiving and supporting said flange 9, the bearing-rings located above the flange 9 within said barrel, the antifriction-rollers located between said rings, and a cap closing the upper end of said barrel and overlapping the upper one of said rings, substantially as set forth.

7. In a rotary hydrant or turret, the combination of a swiveled or rotary turret-section having an exterior flange, antifriction devices housed above said flange for receiving the upward pressure, a support surrounding said flange for holding it against downward pressure and holding the antifriction devices against upward pressure and an automatic hydraulic packing located at the juncture between said support and the swiveled section, substantially as set forth.

ERNST F. STECK.

Witnesses:
EDNA B. JOHNSON,
F. A. HOPKINS.