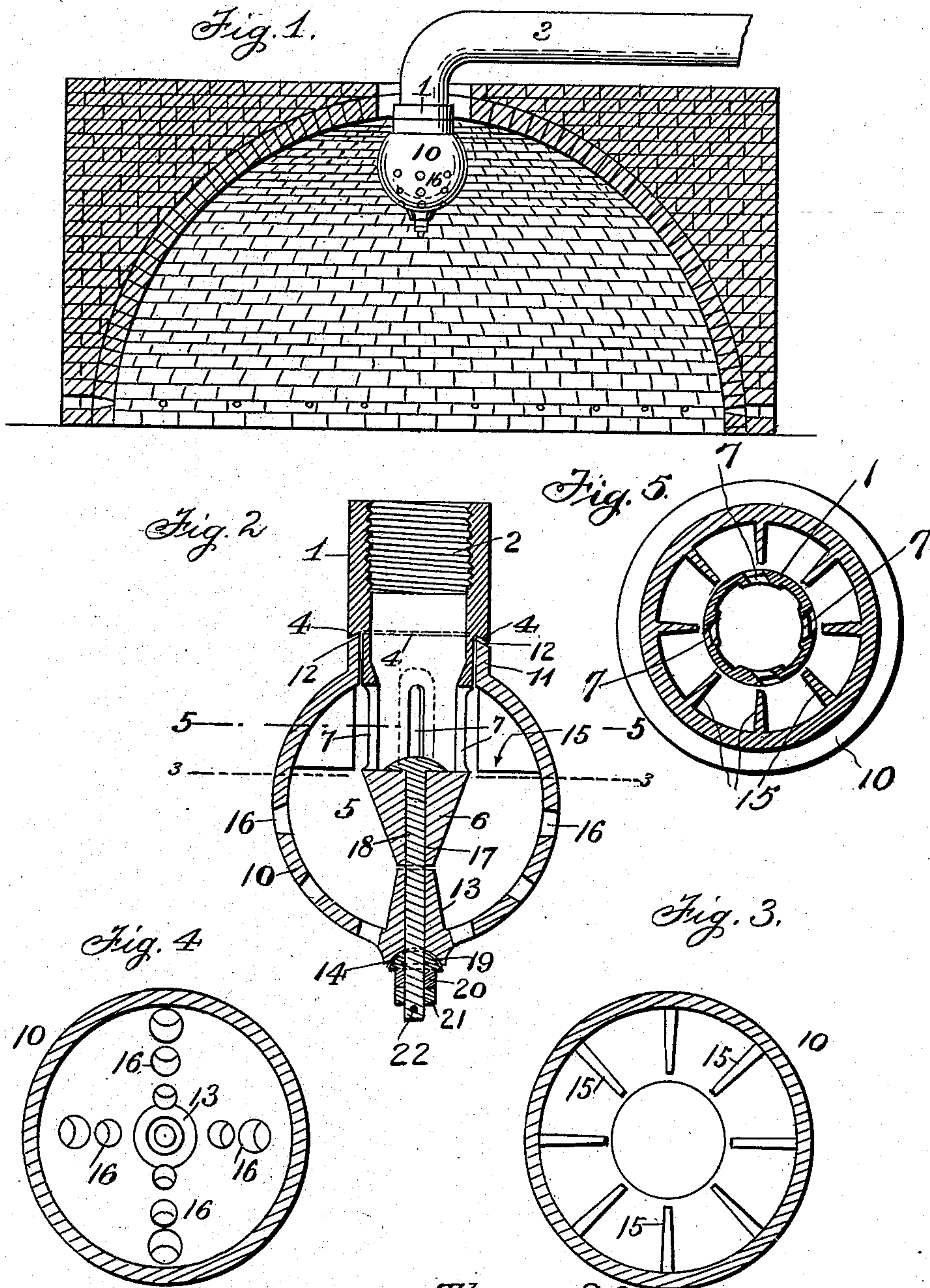


T. S. & J. E. STEWART.
 ROTARY SPRINKLER.
 APPLICATION FILED JUNE 6, 1907.

900,609.

Patented Oct. 6, 1908.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS SCOTT STEWART AND JAMES ELDER STEWART, OF SALTSBURG, PENNSYLVANIA.

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No. 900,609.

Specification of Letters Patent.

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Application filed June 6, 1907. Serial No. 377,528.

To all whom it may concern:

Be it known that we, THOMAS SCOTT STEWART and JAMES ELDER STEWART, citizens of the United States, residing at Saltsburg, in the county of Indiana and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Sprinklers, of which the following is a specification.

Our invention relates to improvements in sprinkling nozzles, and has reference to a device particularly adapted for the sprinkling of coke in coke ovens, this particular invention being an improvement on the one for which patent was granted us November 15th, 1887, No. 373,417.

The object of the present invention is the provision of a rotary sprinkling head consisting of but few and simple parts, which will be automatic in its action and will distribute the water evenly to the points desired, and which will be practical and efficient in every particular.

Another object of our invention is the provision of a sprinkling device which may be made at a low cost, the parts of which are adjustable to take up for wear, and one which may be used equally as well for a great variety of purposes.

With the above and other objects in view, our invention consists of a supply pipe having outlet openings and provided with a depending conical stud or projection, a rotary sprinkling shell, and means for journaling the shell to the depending stud on the supply pipe.

The invention further comprises a sprinkler embodying certain other novel features of construction, combination and arrangement of parts substantially as disclosed herein and as illustrated in the accompanying drawings, in which:

Figure 1, is a sectional view of a coke oven showing our improved sprinkler head mounted for operation therein. Fig. 2, is a longitudinal sectional view of the device. Fig. 3, is a cross sectional view of the sprinkler taken on line 3—3 of Fig. 2. Fig. 4, is a broken detail view of the lower portion of the supply pipe showing the outlet openings therein. Fig. 5, is a cross sectional view of the sprinkler head on line 5—5 of Fig. 2, showing the tangential arrangement of the exit slots.

In the drawings: the numeral 1, designates the body portion of the device which is in the form of a sleeve or pipe, either interiorly or exteriorly threaded at its upper end as at 2,

for connection with the supply pipe 3. The body portion at some distance from its upper end is formed with the inwardly beveled overhanging shoulder 4, the tubular body portion being reduced in diameter from the shoulder downward. The body portion is further provided with the closed lower end 5, having the conical stud or projection 6, depending therefrom. As shown in the longitudinal sectional view, longitudinal exit slots 7, are formed in the walls at the lower end of the body portion, these slots being obliquely disposed or set at an angle with respect to the radii of the pipe. The material of the pipe in which the exit slots are formed is preferably depressed inwardly as shown in Fig. 2, to provide the proper thickness to allow the slots being placed at a sufficient incline, and the mouths of the slots are preferably recessed from the surface of the pipe to afford sufficient clearance for the water when issuing from the slots.

The sprinkler head itself consists of a hollow globular shell 10, which at its upper end is formed with a contracted boss or neck portion 11, to fit loosely over the contracted body portion of device, the neck having a beveled edge 12, to engage and interlock with the beveled shoulder 4. The sprinkling shell is provided at its lower end with an inwardly extending conical stud 13, adapted to abut against the depending stud on the end of the pipe portion. At the extreme lower end, the shell is formed with a concave seat or recess 14, and in its upper portion, the shell is formed with interior paddle blades or vanes 15, adapted to be contacted by the fluid issuing from the exit openings in the pipe. The shell is also formed with the perforations 16, therein the perforations being larger in the central portion of the shell and smaller at its lower end to insure an even distribution of the liquid.

Both the depending stud on the pipe and the internal stud on the shell are formed with an alining bore or passage 17, therethrough in which is engaged the supporting bolt 18, the head of the bolt resting on the closed lower end of the pipe. The head of this bolt is preferably rounded to direct the flow into the exit openings or slots in the pipe. Upon the lower projecting end of the bolt is mounted the convex bearing or cone 19, which is received in the concave seat in the end of the shell and forms a bearing for the support of the shell, the shell being thus mounted to

freely rotate. The cone is adjustably held in place by means of the nut 20 on the end of the bolt and a lock nut 21, may be employed to secure the nut in adjusted position. A cross
 5 pin or key 22, may be passed through the extended end of the supporting bolt as an additional safeguard for holding the parts in adjusted position.

The operation of the device is as follows:
 10 The water issues through the slots in the pipe extension in tangential jets which by their impact against the interior vanes in the shell, cause the shell to rotate at a speed in accordance with the pressure of the water.
 15 The water leaves the shell through the perforations therein and as the openings are graduated in size from the center downward, it is evenly spread over the surface to be sprinkled. Should the parts become loose
 20 by reason of wear, the nuts on the end of the supporting bolt may be tightened to take up any lost motion. The sprinkler is extremely simple as it consists of but two main parts, the pipe extension and shell, so that it is
 25 very strong and durable and may be manufactured at a low cost.

From the foregoing description taken in connection with the drawings the many advantages and usefulness of our improved
 30 sprinkler will be readily appreciated and it will be evident that we have produced a device which fully accomplishes all the results herein set forth as the objects of our invention.

35 We claim:

A sprinkler comprising a pipe having a closed lower end and a frusto conical stud depending therefrom, the pipe having a bev-

eled undercut shoulder near its end and being
 of reduced diameter from the undercut shoul- 40
 der to the end, there being tangentially arranged slots in the walls of the pipe extending from the closed end upward, the material in which the slots are formed being thickened and depressed inwardly and the mouth of 45
 each slot being below the surface of the pipe exterior, a circular sprinkler shell having a constricted neck portion encircling the lower end of the pipe and provided with a beveled edge engaged beneath the undercut 50
 shoulder on the pipe, radial paddle blades in the upper portion of the shell, there being clearance space provided between the exits of the slots and the edges of the blades, the shell having an internal upwardly projecting 55
 frusto conical stud in its lower portion opposite the depending stud on the pipe, an external boss at the lower end of said shell provided with a concave seat, a supporting bolt passed downward through a bore formed in 60
 the conical studs and having its head resting on the closed end of the pipe, said head being rounded to direct the flow into the slots, a cone on the lower end of the bolt engaging the conical seat in the boss of the shell, lock nuts 65
 for holding the cone in place, and a cross key passed through the bolt to secure the lock nuts.

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

THOMAS SCOTT STEWART.
 JAMES ELDER STEWART.

Witnesses:

J. C. MOORE,
 OLIVE EWING.