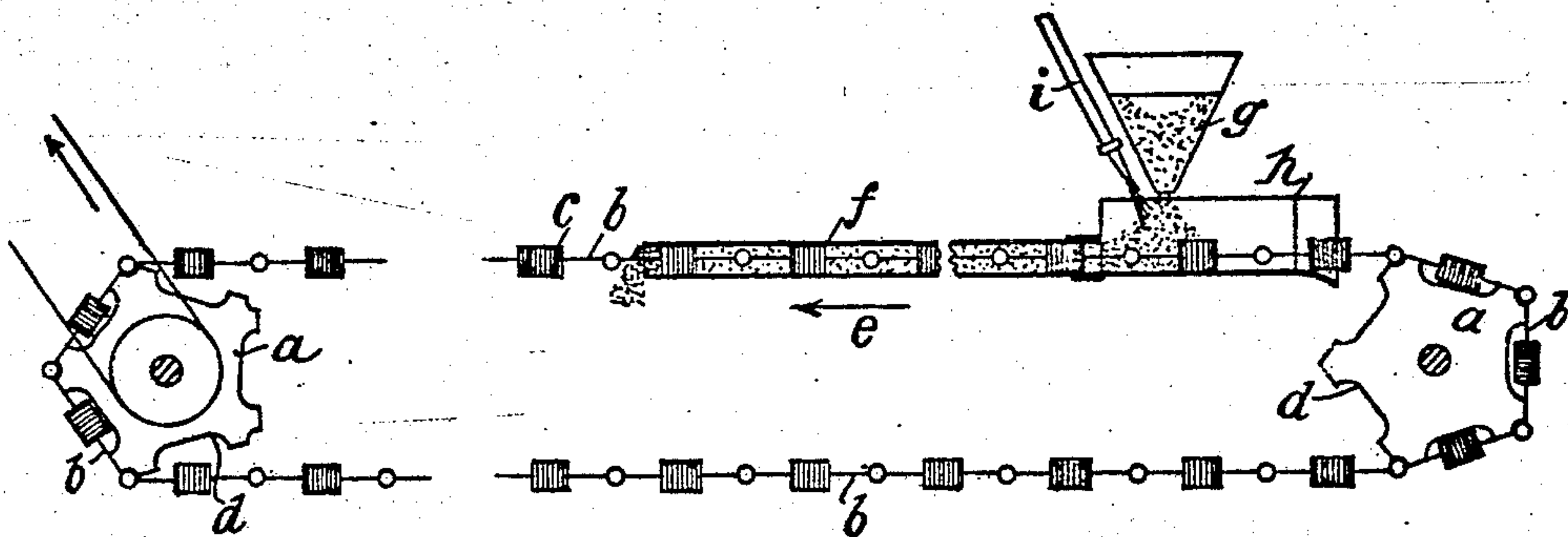


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 APPARATUS FOR SCOURING OR CLEANING THE INTERIORS OF PIPES OR TUBES.
 APPLICATION FILED JAN. 7, 1908.

899,236.

Patented Sept. 22, 1908.



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UNITED STATES PATENT OFFICE.

HEINRICH WILHELM BÖTZ, OF LUDWIGSHAFEN-ON-THE-RHINE, GERMANY.

APPARATUS FOR SCOURING OR CLEANING THE INTERIORS OF PIPES OR TUBES.

No. 899,236.

Specification of Letters Patent.

Patented Sept. 22, 1908.

Application filed January 7, 1908. Serial No. 409,647.

To all whom it may concern:

Be it known that I, HEINRICH WILHELM BÖTZ, a subject of the German Emperor, and resident of Ludwigshafen-on-the-Rhine, Germany, have invented certain new and useful Improvements in Apparatus for Scouring or Cleaning the Interiors of Pipes or Tubes, of which the following is a specification.

When pipes or tubes, are to be galvanized on their interior, it is necessary to first clean them thoroughly. This is done by first treating the interior of the pipes, or tubes, with a pickle and then scouring, or cleaning. This scouring, or cleaning especially when it has to be done on a large scale presents great difficulties as it is a very laborious and lengthy operation and its proper execution depends entirely on the skill and care of the operators, and it cannot be properly watched.

It has been attempted to effect the scouring, or cleaning, by brushes arranged in an endless series, or by spirally arranged brushes, but this does not suffice to effect the proper scouring, or cleaning, as the hammer slag and iron scale adhere so firmly to the inner wall that it is difficult to remove them by brushes alone.

This invention has for its object to effect the scouring, or cleaning, operation in such a manner that it does not depend upon the careful work and skill of the operators, and is less laborious and more expeditious in its execution than the methods heretofore employed.

Apparatus according to this invention consists essentially of an endless chain, or band, of brushes, at a short distance apart and a trough containing a scouring medium such as sand, or sand and water, to which trough the pipe, or tube, to be scoured, or cleaned, is connected, so that the brushes pass through the trough and carry scouring, or cleaning, medium into the pipe, or tube, so that the scouring, or cleaning, medium is distributed uniformly therein and as the passage of the brushes and scouring, or cleaning, medium, is constantly repeated, a continuous and systematic scouring, or cleaning, of the interior of the pipe, or tube, is effected.

If desired, in order to obtain a still more efficient scouring of the interior of the pipe, or tube, it may, during the scouring operation, have imparted to it continuous, or in-

termittent, rotation on its longitudinal axis. This rotation has proved very well and in this case one can be quite sure that the interior of the pipe, or tube, has been thoroughly scoured, or cleaned as soon as when the scouring, or cleaning, medium passes out copiously at the outer end of the pipe, or tube. The introduction of the endless chain, or band, of brushes into the pipe, or tube, is effected by removing from the chain, or band, a portion corresponding to the length of the pipe, or tube, and replacing this portion by a wire over which the pipe, or tube, is passed and when the chain, or band, is set in motion and the end of the chain, or band, attached to the end of the wire issues from the pipe, or tube, the chain, or band, is stopped and the wire is removed and the removed part of the chain, or band, is restored to its original position.

The motion of the chain, or band, is effected by chain wheels, or disks. For this purpose the bodies of the brushes can be provided with co-axial extensions and articulated ends, which, like the links of ordinary endless chains, engage the teeth of the chain wheels, or disks, while the brushes enter correspondingly shaped recesses between the teeth of the chain wheels or disks. The trough containing the scouring, or cleaning, medium is closely connected to the front end of the pipe, or tube, to be cleaned. The scouring, or cleaning, medium can be supplied to the trough by a hopper, while water can be supplied through a pipe in proximity to the outlet from the hopper.

The accompanying drawing is a side view of the apparatus partly broken away.

a are the chain wheels over which pass the chains *b* which are provided at suitable distances with brushes *c* which, when the chain is in movement successively come in gear with recesses *d* of the chain wheels. The chain moves in the direction of the arrow *e* through the tube *f* to be scoured or cleaned when the brushes carry with them sand from the receptacle *h* fed by the hopper *g*. By the tube *i* water is supplied to the sand which falls into the receptacle *h*.

I claim:—

The herein described apparatus for scouring or cleaning the interior of pipes or tubes which consists of an endless chain or band provided at short distances with brushes in

combination with a trough containing a scouring medium to which trough the pipe or tube to be scoured or cleaned is connected so that the brushes pass through the trough and carry scouring medium into the pipe or tube substantially as and for the purpose set forth.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

HEINRICH WILHELM BÖTZ.

Witnesses:

FRANZ HASSLACHER,
ERWIN DIPPEL.