No. 704,045. Patented July 8, 1902.

S. HYDEN & K. A. SIMONSSON.

APPARATUS FOR CLEANING THE INTERIOR OF HOSE OR LIKE PIPES.

(Application filed May 8, 1901.)

(No Model.)

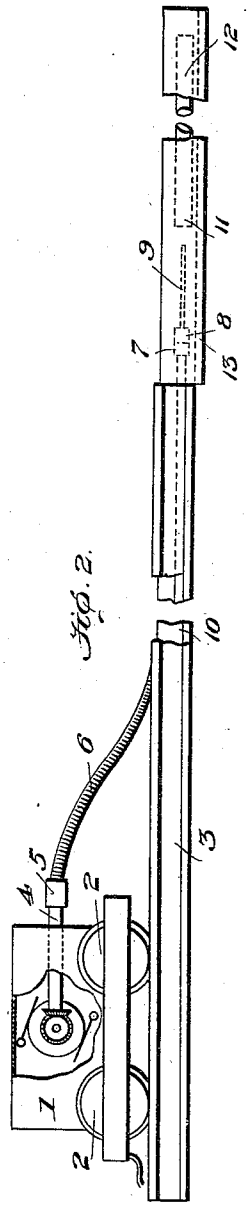


Fig. 2.

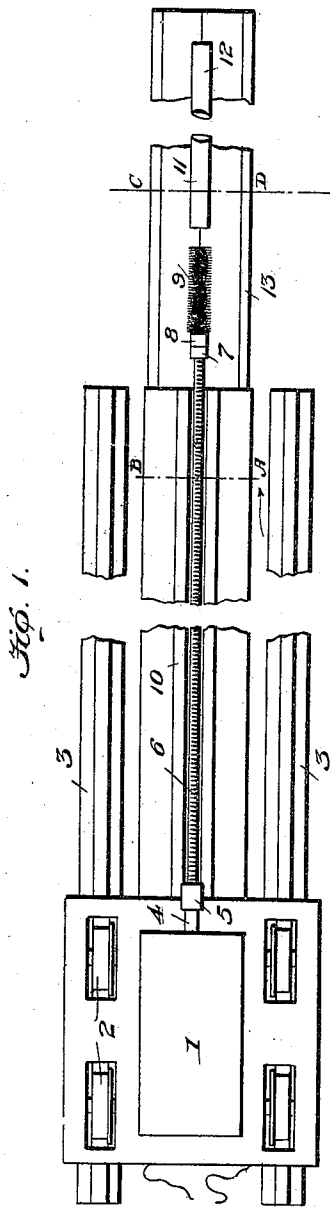


Fig. 1.

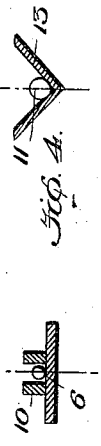


Fig. 4.

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

SVEN HYDÉN AND KNUT ALFRED SIMONSSON, OF STOCKHOLM, SWEDEN.

APPARATUS FOR CLEANING THE INTERIOR OF HOSE OR LIKE PIPES.

SPECIFICATION forming part of Letters Patent No. 704,045, dated July 8, 1902.

Application filed May 8, 1901. Serial No. 59,304. (No model.)

To all whom it may concern:

Be it known that we, SVEN HYDÉN and KNUT ALFRED SIMONSSON, brewers, subjects of the King of Sweden and Norway, and residents of Münchens Bryggeri, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Apparatus for Cleaning the Interior of Hose or Like Pipes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an apparatus for cleaning the interior of hose and like pipes by means of a suitable rotary brush or brushes adapted to pass through the hose or the like. With this apparatus the speed at which the brush is driven through the hose and the rotary speed of such brush can (independent of each other) be easily regulated, so that in any particular case the rate of speed (at which the brush is driven forward and rotated) most suitable for the effectual cleaning of the pipes can be obtained.

The apparatus is specially applicable for cleaning hose-pipes used in breweries—such, for instance, as those for conveying wort, beer, &c.; but it can be employed with equal advantage for cleaning the interior of other similar pipes.

The essential features of the apparatus consist in the arrangement of a motor on a wheeled or sliding carriage adapted to travel on rails or other suitable guideways, and to the shaft of which motor is connected a transmission-shaft carrying at its free end a brush suitable for the desired purpose. This brush is rotated by means of the motor and the transmission-shaft and is driven through the hose by moving forward the motor and its carriage on the rails or other guideway. A suitable rate of rotation is five hundred revolutions per minute; but this can be considerably varied according to circumstances. The brush is guided (during its rotation) through the hose at a constant or varying rate of progression, whereby all parts of the interior of the hose are subjected to the action of the brush. In order that the brushing of the interior may be as uniform as possible, it is desirable that the rotating brush should be carried through the hose at an automatically-regulated uniform rate of progression.

In order that our invention may be readily understood, we will describe the same fully with reference to the accompanying drawings, in which it is diagrammatically illustrated.

Figure 1 is a plan of the arrangement; Fig. 2, a side view of the same; and Figs. 3 and 4 are sections taken on the lines A B and C D, respectively, of Fig. 1.

1 is the motor, which is mounted on a carriage provided with wheels 2, so that it can be pushed along the rails 3. Instead, however, of a wheeled carriage a sliding one may be employed as a support for the motor, and for the purpose of guiding the motor-carriage when to be pushed forward guideways or other suitable means may be employed. By means of an appropriate coupling 5 the shaft 4 of the motor is connected with a transmission-shaft 6, to the free end of which is attached a brush 9 by means of couplings 7 8. The use of an electric motor for this purpose will be found very practical. It is also desirable that the transmission shaft should consist of a coil of iron wire or similar material. In the arrangement illustrated in the drawings the transmission-shaft consists of such a coil. (See Fig. 2.) If no electric current be available, some other motor, such as a water-motor or a pneumatic motor, may be employed instead of an electric motor. The brush 9 may be of any form suitable for cleaning hose and like pipes; but it must be furnished with a coupling 8, corresponding with the coupling 7 on the transmission-shaft, so that a change of brushes may be quickly and easily effected, this being necessary when cleaning hose-pipes of different internal diameters. As a means for guiding the transmission-shaft a groove 10 (the form of which may be as seen at Fig. 3) is arranged between the rails 3. A guiding contrivance of this kind is specially necessary when the transmission-shaft consists of a wire coil. To support the hose while being cleaned, a V-shaped trough 13, Fig. 4, can be employed.

To effect the automatic advance of the brushes, which is necessary to attain a constant rate of progression, the motor-carriage

is connected with a suitable automatic feeding device, so that it can be advanced at a regular speed along the rails 3 or other guideway and by means of which also the brush is passed through the hose at a constant rate of speed and the cleaning of the interior effected as uniformly as possible.

When cleaning hose or like pipes by means of this apparatus, the process is carried out as follows: The hose 11 is stretched and laid in the trough 13, and the brush 9 is then inserted in the hose. The motor and at the same time also the automatic feeding device (if one be used) are then set in action, so rotating the brush and causing the impurities in the hose to be ejected therefrom. In order to dissolve or soften these impurities and to carry away those loosened by the brush, a stream of warm water is sent through the hose during the brushing operation. This can be effected by connecting the end 12 of the hose with a pipe for the supply of warm water. If no automatic feeding device be provided, the motor can be pushed forward by hand. If the hose to be cleaned is longer than the transmission-shaft 6, the brushing is performed at one end as far as possible, then the hose is turned around end for end and the brushing of the other end is effected. In this way with the employment of one and the same transmission-shaft hose and like pipes which are nearly twice the length of the transmission-shaft can be readily cleaned. The size and stiffness of the brushes must be determined in every case according to the nature of the hose or like pipe to be cleaned.

Having now described our invention, we declare that what we claim as new, and desire to secure by Letters Patent, is—

In an apparatus for cleaning the interior of hose and like pipes, a motor, a carriage supporting the same and adapted to travel on rails or other guideways, a shaft operatively connected with said motor, a transmission-shaft of coiled wire coupled to said shaft, and a brush coupled to the end of the transmission-shaft, trough to receive the hose to be cleaned, and means for supplying water to said trough, substantially as shown and described.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

SVEN HYDÉN.
KNUT ALFRED SIMONSSON.

Witnesses:
AUG. HAGELIN,
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