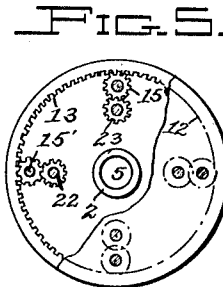
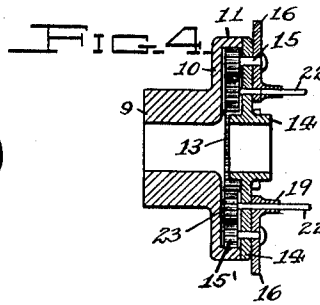
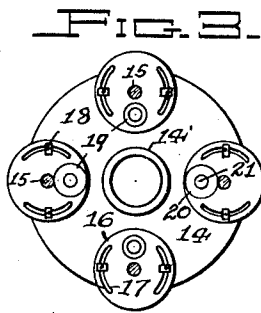
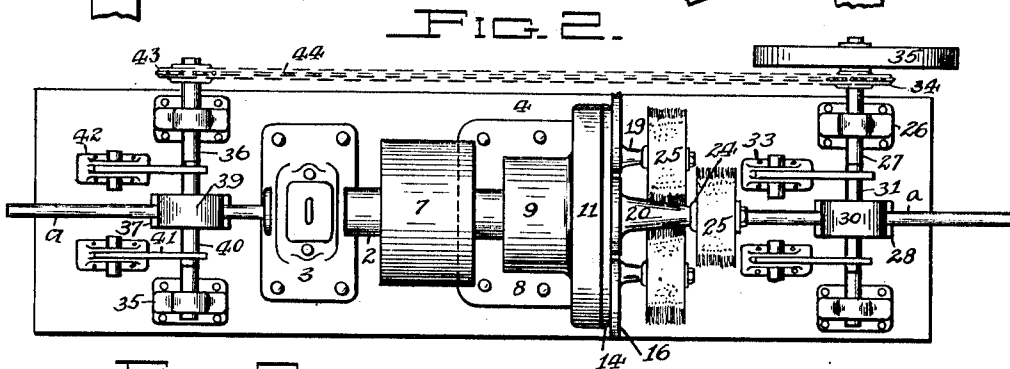
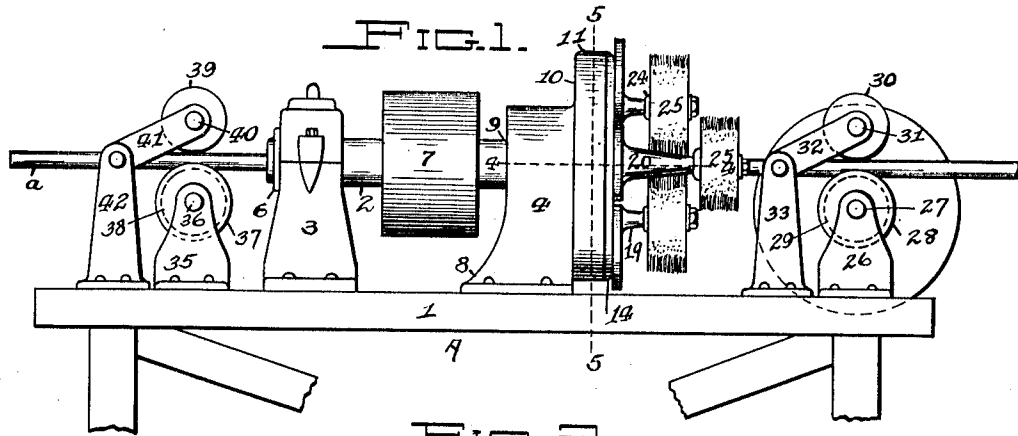


U. S. ARMSTRONG.
CLEANING MACHINE.
APPLICATION FILED OCT. 7, 1911.

1,020,789.

Patented Mar. 19, 1912.



Witnesses:
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UNITED STATES PATENT OFFICE.

ULYSSES S. ARMSTRONG, OF NEW KENSINGTON, PENNSYLVANIA.

CLEANING-MACHINE.

1,020,789.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed October 7, 1911. Serial No. 653,431.

To all whom it may concern:

Be it known that I, ULYSSES S. ARMSTRONG, a resident of New Kensington, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Cleaning-Machines; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to cleaning machines, and has special reference to such a machine as is adapted to clean rods or the exterior of pipe by a brushing process.

The object of my invention is to provide a cheap, simple and efficient form of apparatus that will clean rods or the exterior of the pipe in a continuous operation and will have few and durable parts and be unlikely to get out of order or inoperative.

My invention consists, generally stated, in the novel arrangement, construction and combination of parts, as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved cleaning machine, I will describe the same more fully, referring to the accompanying drawing, in which:—

Figure 1 is a side elevation of my improved cleaning machine. Fig. 2 is a plan view of the same. Fig. 3 is an end view of the disk with the brushes removed. Fig. 4 is a cross-sectional view of the rack on the line 4—4, Fig. 1. Fig. 5 is a cross-sectional view of the same on the line 5—5, Fig. 1.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

As illustrated in the drawing, A represents my improved pipe cleaning machine, which is constructed on a frame 1 and has a shaft 2 extending between a bearing or pedestal 3 and the body 4, said shaft having a hollow center 5, through which the rod or pipe *a* is adapted to pass in the cleaning operation, as hereinafter described.

The pedestal 3 is of the ordinary upright type, while the shaft 2 has a collar 6 on the end of the same and immediately beyond the end of said pedestal to prevent any longitudinal movement or oscillating of the same.

Between the pedestal 3 and the body portion 4 is a pulley 7 which is adapted to carry

a belt (not shown) from any convenient source of power, to operate the shaft 2, and said pulley is rigidly secured to said shaft and is of the ordinary flat-faced type.

The body 4 has a pedestal 8 on the bottom of the same which rests on the frame 1, and above which is a bearing 9 for supporting the shaft 2, while a flange 10 extends upward from said bearing and at the rear thereof and terminates in a rim 11. Upon the inner face 12 of the rim 11 is a rack 13 which is adapted to extend entirely around said inner face and to the outer edge thereof.

Mounted upon the shaft 2 and at the rear end thereof is a disk 14 whose outer edge or periphery is of the same diameter as the rim 11, and said disk is rigidly fastened to the rear end of said shaft by any suitable means such as a set screw or feather key engaging with the securing portion 14' of the same, and said disk by its engagement with said shaft prevents any longitudinal movement or oscillating of the same in the bearing 9 of said body and in the bearing 3.

On the rear of the disk 14 and rotatably mounted thereon by means of the small shafts 15 is a series of small circular disks 16, which are located at equal intervals throughout the circumference of the same, and while the accompanying drawing shows only four of such disks, more may be used as desired. At the forward end of each of the small shafts 15 is a pinion 15' which is adapted to extend under the rim 11 and engage with the rack 13 thereon in order to provide for the rotating of said pinion when the disk 14 is set in motion by means of the pulley 7 mounted on the shaft 2. The small disks 16, as shown in the drawing, have a pair of curved slots 17 in the same which engage with screws 18 in the disk 14 for holding the same tight against said last named disk.

Two of the disks 16, and those diametrically opposite each other, have a bearing projection 19 on the inner side of the same, and such bearing projection extends outward from the same and is formed integral therewith, while the other two disks, diametrically opposite each other have a similar bearing projection 20 on the inner side of the same and formed integral therewith, but said last named projections extend farther outward from said disk than said first named projections, for the purpose

hereinafter described. Holes 21 extend entirely through each of the bearing projections 19 and 20 and through the disk 14, and a spindle 22 is adapted to fit into each of said holes, and each of said spindles is provided with a pinion 23 on the forward end of the same and under the rim 11. The pinions 23 are each adapted to engage with the pinions 15' located immediately without the same, and said first named pinion will always mesh with said last named pinion at any position of the same. The small disks 16 are rotatable on the disk 14 when the screws 18 are loosened, so that said plate may be rotated and the curved slots 17 will pass around said screws, and thus allow the projections 19 and 20 to be regulated to different distances from the center of said disk 14. The spindles 22 carrying the pinions 23 are adapted to be prevented from any longitudinal movement by collars 24 fitting around the same and fixedly secured thereto. The spindles 22 extend outward from the ends of the bearing projections 19 and 20 and equal distances therefrom, so that the bearing projections 20 being slightly toward the rear of the bearing projections 19, the spindles therein will extend slightly toward the rear of said last named spindles. Mounted on the end of each of the spindles 22 and firmly secured thereto is a brush 25, which is preferably of the steel wire type, but a buffing or other suitable wheel may be used, and the outer edge or periphery of the same extend nearly together and allow a space between the same slightly less than the diameter of the rod or pipe *a* to be cleaned thereby.

At the rear of the frame 1 and journaled in suitable bearings 26 secured thereto is a shaft 27 which carries a pulley 28 thereon in the center of the same, and said pulley is provided with a groove 29 for fitting around the pipe *a* upon its entrance therein. Above the grooved pulley 28 and in line therewith is a heavy solid flat-faced pulley 30, which is mounted on a shaft 31, and said shaft is journaled in bearing arms 32, which are pivotally mounted on supports 33, which rest on the frame 1 and are securely fixed thereto. Mounted on the shaft 27 and without the bearing 26 on the frame 1 is a sprocket-wheel 34 which is fixed securely to said shaft, while a large pulley 35 is also mounted without said sprocket and held firmly thereon by means of a key or set screw.

The front of the machine is provided with bearings 35 which carry a shaft 36 therein, and said shaft has a pulley 37 mounted on the same and having a groove 38 therein, while a heavy solid flat-faced pulley 39 is adapted to be directly above the same and carried by a shaft 40 journaled in bearing arms 41, which are pivotally mounted in

supports 42 secured to the frame 1. A sprocket-wheel 43 is securely fixed to the shaft 36 without the bearing 35, and said sprocket is adapted to carry a sprocket-chain 44 thereon, which engages with the sprocket 34 on the shaft 27 to insure an even rotation of the pulleys 28 and 37.

The operation of my improved pipe cleaning machine is as follows:—The rod or pipe *a* to be cleaned is placed before the machine on a table or in any suitable location at the front of the machine, and the pulley 35 is set in motion by means of a belt (not shown) around the same connecting with any suitable source of power, such as from a line shaft. This pulley 35, being fixedly secured to the shaft 27 drives the pulley 28 thereon, while the sprocket 34 on said shaft drives the sprocket 43 on the shaft 36 through the medium of the sprocket-chain 44, so that the pulley 37 on said last named shaft is caused to rotate thereby. The pulley 7 on the shaft 2 is now set in motion by means of a belt (not shown) connecting the same with any suitable source of power, so that said shaft is caused to rotate thereby, thus rotating the disk 14 thereon. As the disk 14 rotates, the spindles 22 in the bearing portions 19 and 20 are caused to rotate on their axes by means of the pinions 15' and 23, said first named pinion engages with the rack 13 on the under face 17 of the flange 16, thus rotating the brushes 25. The shaft 3 rotates at a speed of about 200 revolutions per minute, while the spindles 22 and brushes 25 rotate at a velocity of about 1000 revolutions per minute according to the arrangement of the teeth on the pinions 15' and 23, and on the rack 13. The brushes 25 are thus caused to rotate at a speed of 1000 revolutions per minute on their axes, and at a speed of 200 revolutions per minute around their orbit. The rod or pipe *a* is now passed onto the pulley 28 on the shaft 27 at the front of the machine, and is received by the groove 29 thereon, while the heavy pulley 30 above the same bears upon the rod or pipe *a* and prevents any slipping of the same. The pipe is passed along between the rolls and into the hollow center 5 of the shaft 2 and emerges from the same at the front of the disk 14, at which point it passes along between the brushes 25 which are rotating around said pipe and also rotating on their axes. As the rod or pipe passes the brushes 25 it is engaged by the pulley 37 mounted on the shaft 36 and the heavy pulley 39, so that it is drawn through the brushes 25 and all parts of the exterior well brushed and cleaned.

It will thus be seen that with my improved apparatus for cleaning rods or pipe, the same will be thoroughly cleansed of any

dirt, scale, oxid, etc., usually attendant on its exterior surface, by the wire brushes or other means, and such cleaning is accomplished without any unnecessary handling of the pipe and will be quickly and effectively accomplished, while the interior of said pipe will be cleaned of any dirt, oxid, scale, etc., by means of the apparatus shown and described in my application for U. S. Letters Patent, filed May 5, 1911, Serial No. 625,373. It will also be readily seen that with my improved apparatus either pipe or rods may be cleaned and thus prepared for coating or treatment usually applied to the exterior surface of the same.

Various modifications and changes in the use, design, construction and operation of my improved apparatus for cleaning pipe may be resorted to, without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as my invention and desire to secure by Letters Patent is:—

1. An apparatus for cleaning pipe or rods comprising a stationary circular rack, a revoluble disk carrying pinions for engaging with said rack to rotate the same, cleaning means connected to said pinions, and means for feeding the pipe or rod between said cleaning means to clean the same.

2. An apparatus for cleaning pipe or rods comprising a stationary circular rack, a revoluble disk having spindles through the same, pinions on one end of said spindles for engaging with said rack to rotate said spindles, cleaning means on the other end

of said spindles, and means for feeding said pipe or rod between said cleaning means to clean the same.

3. An apparatus for cleaning pipe or rods comprising a stationary circular rack, a revoluble disk carrying pinions for engaging with said rack to rotate the same, cleaning means connected to said pinions, means for feeding the pipe or rod between said cleaning means to clean the same, and means for adjusting the position of said cleaning means.

4. An apparatus for cleaning pipe or rods comprising a stationary circular rack, a revoluble disk carrying pinions for engaging with said rack, revoluble plates on said disk and carrying cleaning means thereon, and means for feeding the pipe or rod between said cleaning means to clean the same.

5. An apparatus for cleaning pipe or rods comprising a stationary circular rack, a revoluble disk carrying a series of adjustable plates thereon, said plates having spindles through the same and adapted to carry a gear at one end of the same for engaging with said rack to rotate said spindles, cleaning means on the other end of said spindles, and means for feeding the pipe or rod between said cleaning means to clean the same.

In testimony whereof, I the said ULYSSES S. ARMSTRONG have hereunto set my hand.

ULYSSES S. ARMSTRONG.

Witnesses:

N. PRICE,

T. B. HUMPHRIES.