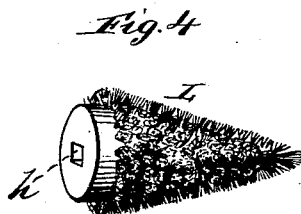
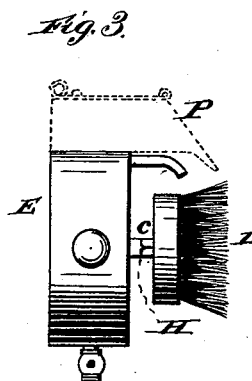
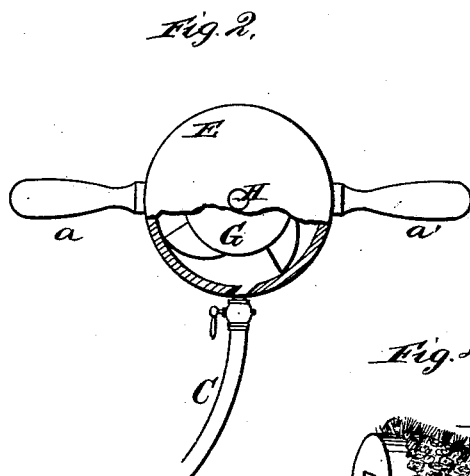
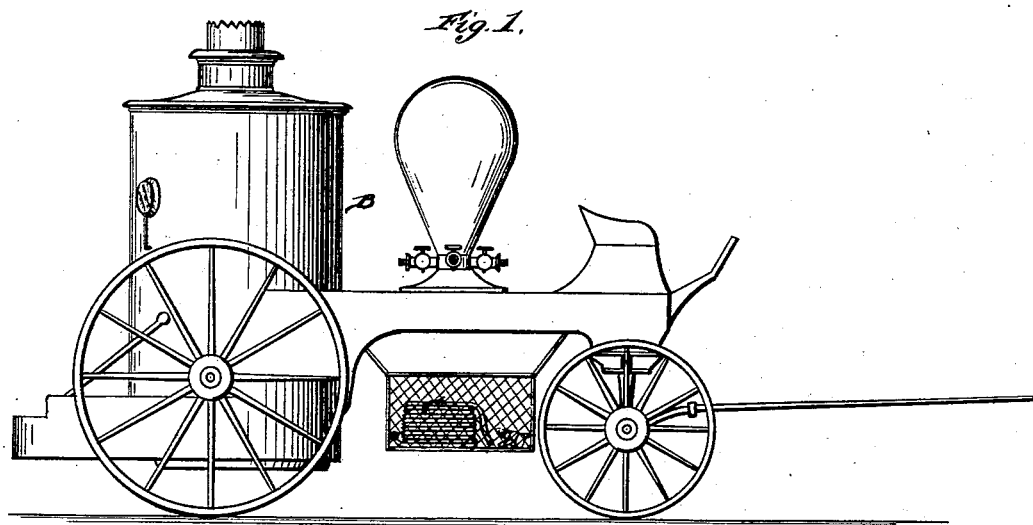


R. S. JENNINGS.  
Machine for Cleaning Stones and other Hard  
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No. 214,569.

Patented April 22, 1879.



WITNESSES  
*Robert E. Smith,*  
*George C. Upchurch.*

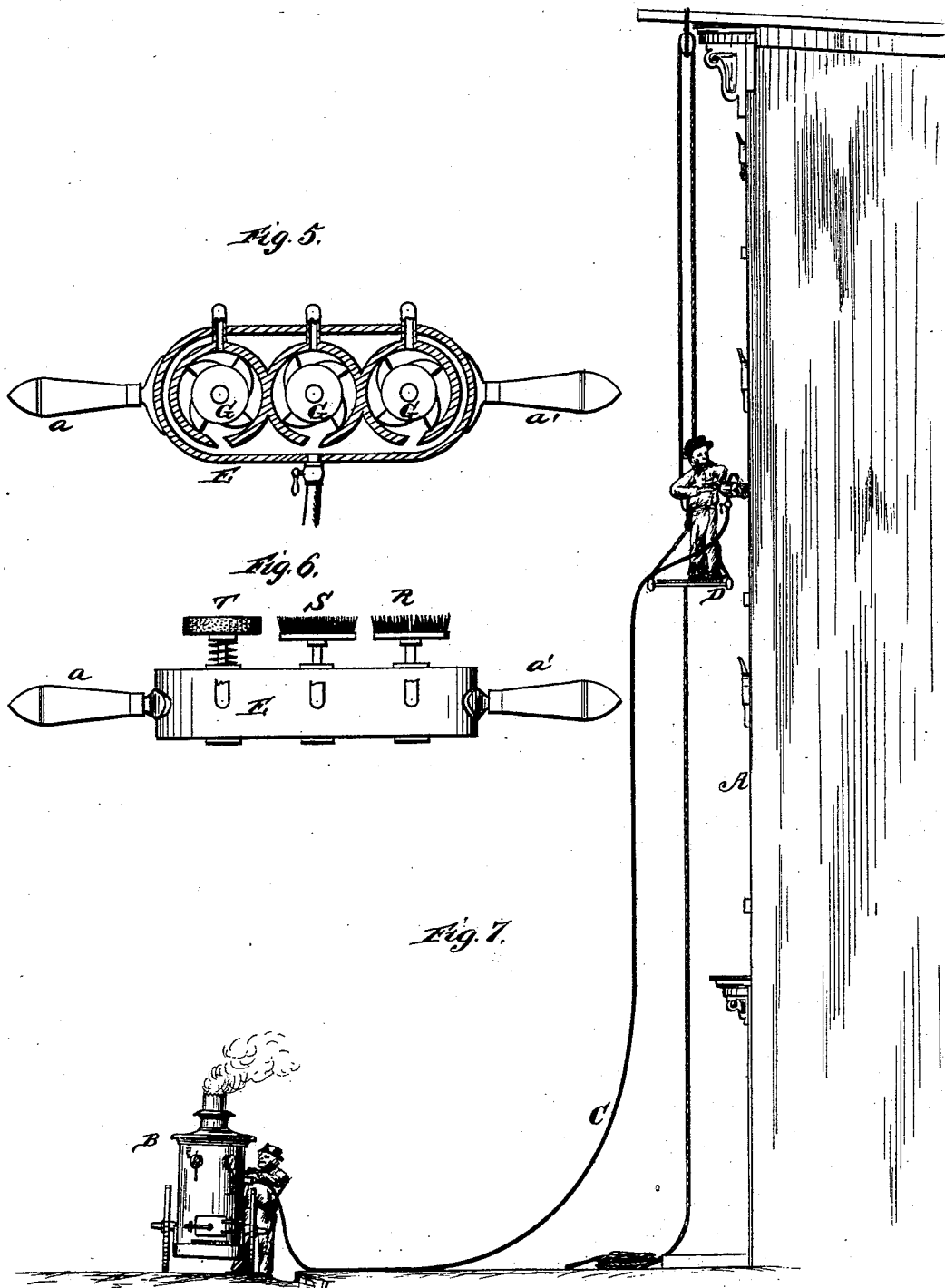
INVENTOR.  
*Ralph S. Jennings.*  
By *Gilmore, Smith & Co.*

ATTORNEYS.

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# UNITED STATES PATENT OFFICE.

RALPH S. JENNINGS, OF NEW YORK, N. Y.

## IMPROVEMENT IN MACHINES FOR CLEANING STONES AND OTHER HARD SUBSTANCES.

Specification forming part of Letters Patent No. **214,569**, dated April 22, 1879; application filed September 21, 1878.

*To all whom it may concern:*

Be it known that I, RALPH S. JENNINGS, of New York, in the county of New York and State of New York, have invented a new and valuable Improvement in Machines for Cleaning Stones and other Hard Substances; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side of my portable engine. Fig. 2 is a plan view (part section) of the same. Fig. 3 is a side elevation view. Fig. 4 is a view of the brush. Fig. 5 is a vertical central sectional view. Fig. 6 is a side elevation view; and Fig. 7 is a view of a building and engine, showing my device applied.

My invention relates to means for cleaning, scouring, and polishing the surface of stone and other hard substances; and it consists in rotating or reciprocating steel brushes actuated by steam or other suitable motive power, substantially as hereinafter described and claimed.

A of the drawings represents the wall of a stone building, and B a steam-engine adjacent thereto. A flexible hose, C, leads from the engine to and above the scaffold D, upon the latter of which the operator stands, as shown.

The letter E represents a cylinder inclosing steam-fan or propeller-wheel G. This wheel is rigidly attached to the shaft H, the bearings of which are in the respective ends of said cylinder.

The letters *a a'* indicate handles by which the cylinder is held by the operator.

On one end of the shaft H, and outside the cylinder, I form a coupling-shoulder, *c*, which is preferably rectangular in shape, and adapted to receive and hold a removable steel brush, L, by means of the recess *h* formed in its base or disk.

The steam is admitted to the cylinder E through the hose C and the inlet-port *i*, and is exhausted through the pipe *n*, the latter being so arranged that the exhaust-steam shall be conducted upon the brush and against the wall of the building or other substance being cleansed.

I sometimes add to my apparatus a hopper or sand-box, through which sand, or sand combined with some cleansing acid or alkali, or either of them, may be introduced to the brush and the wall to aid in the cleansing process. I have shown a sand-supply box in the drawings, marked P. Acids adapted to the purpose may also be introduced into the engine-boiler and thrown upon the wall through a suitable hose at the points desired.

For cleaning irregular places I use a brush of conical or other form adapted to the particular use, and I sometimes prefer to give my brush a reciprocating movement instead of the usual rotary one. I also sometimes use scrapers in the place and stead of the brushes shown.

The shoulder *c* is adapted to receive interchangeably such brushes or scrapers as the operator desires to use.

To operate my device steam is introduced to the cylinder E through the hose C, and thereby the fan G, shaft H, and brush L are given a rotary motion. The operator holds the cylinder in such manner that the brush shall be in contact with the face of the building-wall at the point he desires to clean, and moves it gradually from place to place thereon until cleaning is perfected over the entire face thereof.

The steam from the exhaust-pipe and any or all of the auxiliary means herein mentioned may be used at will in carrying on the cleaning process.

It is obvious that two or more jets of steam may be sent from the engine-boiler through suitable hose or pipes, and a like duplication of scaffolds may enable several men to work on the building simultaneously with cleaning-brushes of the character I have described.

It is further obvious that compressed air may be profitably used as a motor for actuating my cleaning-brushes upon such surfaces as do not require the aid of steam.

I therefore do not wish to confine myself to a motor of steam only.

Brushes of whalebone, cane, and the like, may be profitably used in some cases in the place of steel, and emery-wheels are found valuable as a substitute therefor.

The cylinder is constructed essentially in

the same manner as an ordinary rotary engine, and I usually prefer to call it by that name.

In Figs. 5 and 6 of the drawings, I have illustrated an apparatus by which the operator is enabled to use a coarse steel brush for removing the mold and discoloring-matter upon the stone, which is marked R, a finer brush, marked S, and an emery-wheel, marked T, all arranged within a cylinder or rotary engine, as shown, and all operated by steam through the hose C.

By this arrangement the surface of the stone is ground or scoured by the brush R, smoothed by the brush S, and polished by the emery-wheel T.

It is obvious that these brushes and wheels may be duplicated sometimes to advantage.

I do not, therefore, wish to confine myself to the specific number represented.

The apparatus shown on Figs. 5 and 6 are deemed to be valuable modifications of the apparatus shown on the other figures of the drawings, and that by the use thereof the work of cleaning and polishing stone surfaces will be made easy and rapid.

What I claim as new, and desire to secure by Letters Patent, is—

1. A brush operated by steam-power through a rotary engine, and flexibly connected with a steam-generator, substantially as and for the purpose specified.

2. Interchangeable brushes operated by power through a portable engine, and connected with a suitable motor by means of flexible tubing, as and for the purpose set forth.

3. The steam-exit tube leading to the brush, and in combination therewith, as and for the purpose herein set forth.

4. The sand-feeder, in combination with the operating-brush, as and for the purpose set forth.

5. The combination of the sand-feeder, operating-brush, and steam-exit tube, as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

RALPH S. JENNINGS.

Witnesses:

JAMES J. SHEEHY,  
ROBERT EVERETT.