

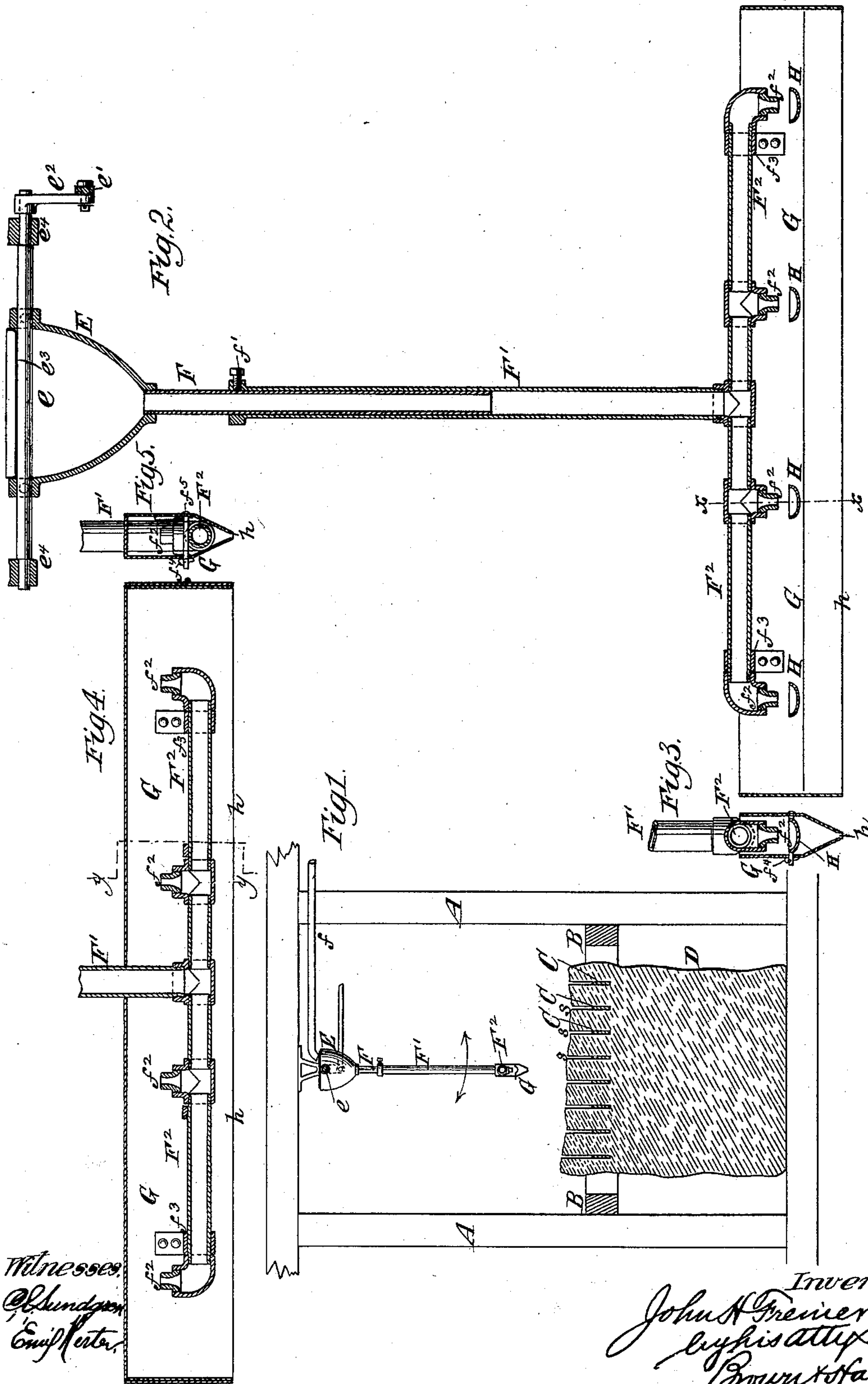
(No Model.)

J. H. FRENIER.

SAND AND WATER DISTRIBUTER FOR STONE SAWING MACHINES.

No. 384,615.

Patented June 19, 1888.



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# UNITED STATES PATENT OFFICE.

JOHN H. FRENIER, OF RUTLAND, VERMONT, ASSIGNOR OF ONE-HALF TO  
LEON LEBLANC, OF SAME PLACE.

SAND AND WATER DISTRIBUTER FOR STONE-SAWING MACHINES.

SPECIFICATION forming part of Letters Patent No. 384,615, dated June 19, 1888.

Application filed June 23, 1887. Serial No. 242,234. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. FRENIER, of Rutland, in the county of Rutland and State of Vermont, have invented a new and useful  
5 Improvement in Sand and Water Distributers for Stone-Sawing Machines, of which the following is a specification.

In stone-sawing machines, which comprise sawing-blades of metal for marble and other  
10 stone, it is common to employ sand as a means of cutting the stone by the operation of such blades, and water to distribute the sand; and my invention relates to a novel construction of sand and water distributor, whereby the  
15 sand will be more evenly distributed to the several blades in the sash or frame during the reciprocating movements of such sash or frame, and the saws or blades supported therein.

The invention consists in the combination,  
20 with a reciprocating saw sash or frame and a gang of saws therein, of a sand and water distributor pivoted above and parallel with the line of movement of the saws, and a rod or connection for imparting to the distributor an  
25 oscillating or swinging movement transverse to the line of movement of the saws.

The invention also consists in other combinations of parts, particularly hereinafter described, and pointed out in the claims.

30 In the accompanying drawings, Figure 1 is a vertical sectional elevation of a saw sash or frame and saws, a stone, a fixed frame, and a sand and water distributor embodying my invention. Fig. 2 is a sectional view of the sand  
35 and water distributor alone, upon a larger scale, and upon a plane at right angles to Fig. 1. Fig. 3 is a sectional view upon the plane of the dotted line *xx*, Fig. 2. Fig. 4 is a sectional view of a horizontal pipe with numerous outlets and a trough wherein it is arranged, the outlets being arranged to deliver upward against  
40 the top of the trough, and the said pipe and trough forming part of the oscillating or swinging distributor; and Fig. 5 is a transverse section on the plane of the dotted line *yy*, Fig. 4.

All the figures except Fig. 1 are made upon a larger scale than said Fig. 1, and in all of the figures similar letters of reference designate corresponding parts.

50 Referring first to Figs. 1, 2, and 3, A design-

nates a fixed frame, which may be of timber, and which is provided with suitable guides for a reciprocating saw sash or frame, B, wherein are secured a number or gang of saws or blades, C.

It will be understood that the term "saw" 55 as applied herein designates simply a straight-edged blade, which serves to cut the stone through the intervention of sand or analogous globules or particles of material carried to the  
60 cutting-point by water. The saws C are secured in any ordinary way in the frame or sash B, and the saws and sash are reciprocated with ordinary rapidity.

Above the stone D is arranged a sand and 65 water distributor, which, as here represented, consists of a receiver, E, a pipe, F, leading therefrom, and a cross or horizontal pipe, F<sup>2</sup>, which is provided with numerous outlets throughout its length, as hereinafter de- 70 scribed. The receiver E is pivoted upon a rock-shaft, *e*, and, by means of a rod, *e'*, attached to an arm, *e''*, projecting from said rock-shaft, the sand and water distributor is oscillated in the directions indicated by the double- 75 headed arrows in Fig. 1. By this arrangement of parts the sand and water, which are delivered to the receiver E through a pipe, *f*, are distributed across the stone, and transversely to the several saw-cuts, *s*, formed by 80 the saws or blades C, and consequently a very uniform distribution of the cutting material to the several saws or blades C is provided for.

Although sand is the only material herein described, it will be understood that small 85 shot and other analogous particles are frequently used in lieu of sand, and constitute a full equivalent thereof, the purpose of such particles being simply to afford an abrading material, which by the reciprocating move- 90 ment of the saw-blades C is pressed against and caused to cut the stone.

The particular construction of the sand-distributor will be understood from Figs. 2 and 3. I have represented the receiver E as pro- 95 vided at the top with a sieve or strainer, *e''*, whereby small stones delivered through the pipe *f* are prevented from entering the receiver E and the pipes connected therewith. The receiver is secured, as aforesaid, upon a 100



rock-shaft,  $e$ , and, as here represented,  $e^1$  are suitable bearings in which the rock-shaft may oscillate, and said rock-shaft has an arm,  $e^2$ , at one end, with which the operating-rod  $e'$  is  
5 connected.

I prefer that the pipe  $F$ , leading downward from the receiver  $E$ , shall have telescopic communication with a second section of pipe applied thereto, and I have here represented the  
10 pipe  $F$  as sliding within a section,  $F'$ , which may be secured to it in any position by a set-screw,  $f''$ . Consequently the length of the distributor may be increased or diminished as may be desired for operating with stones of  
15 different height.

The horizontal pipe with which the downwardly-extending pipe  $F$   $F'$  communicates may be either truly or approximately horizontal, it being not necessary that it be in a  
20 truly horizontal plane, but it being here described as horizontal to distinguish it from the downwardly-extending pipe  $F$   $F'$ . I have here represented the pipe  $F^2$  as composed of short sections of pipe and T and elbow fittings,  
25 in a well-known manner, and the pipe  $F^2$  has at intervals in its length outlets  $f^2$ , which deliver the sand and water from it. In Figs. 2 and 3 these outlets are represented as presented downward, and the pipe  $F^2$  is shown as ar-  
30 ranged within a trough,  $G$ , the side portions of which may be adjustable toward and from each other, so as to maintain a narrow slot, slit, or outlet,  $h$ , in its bottom. I have here shown the trough  $G$  as sustained from the  
35 pipe  $F^2$  by bearers or clamps  $f^3$ , secured upon the trough, and which holds upon the pipe, and I have here represented the abutments  $H$  as arranged opposite each outlet  $f^2$ , and against which the sand and water will be directed.  
40 The sand and water which escape from the outlets  $f^2$  being directed forcibly upon the abutments  $H$ , the latter will serve to spread and throw off the sand and water in directions lengthwise of the trough  $G$ , and consequently  
45 from the narrow slot or slit  $h$  will issue an approximately continuous sheet of water; or, in other words, the sand and water will be delivered from the whole length of the slot  $h$ . The abutments  $H$  may have projections riv-  
50 eted in one of the sides of the trough  $G$ , and at the opposite ends are projections or tongues which project through the opposite wall of said trough, and through which are inserted keys  $f^4$ . By means of these keys the side por-  
55 tions of the trough may be adjusted somewhat toward and from each other, and provision for varying the width of the slot  $h$  may thereby be afforded.

Instead of the outlets  $f^2$  from the horizontal  
60 pipe  $F^2$  being presented downward, as shown in Fig. 2, they may be presented upward, as shown in Figs. 4 and 5; but the sand and water will by impact against the top of the trough be sprayed or scattered, and will be delivered  
65 throughout approximately the whole length of the narrow slot or slit  $h$  at the bottom thereof.

In Figs. 4 and 5 I have represented rods  $f^3$ , which extend across the trough,  $G$  and are provided with keys  $f^4$ , whereby the sides of said  
70 trough may be adjusted toward and from each other.

It will be seen that by my invention I provide a very simple system of devices, which serve, by their movement transverse to the  
75 line of reciprocation of the saws  $C$  and the sash or frame  $B$ , to deliver water and sand or other abrading material uniformly to the several saw-cuts  $s$ , and in the parts of my apparatus no opportunity is afforded for the ready separa-  
80 tion of sand from the water and the deposit of the sand or other cutting material.

It will be understood that the receiver or reservoir  $E$  may be supplied with sand and water from any suitable pump; but for this  
85 purpose I prefer to use such a pump as forms the subject-matter of my application for patent, Serial No. 189,913, filed January 27, 1886.

Although I at present deem it preferable to so arrange the receiver and distributor that  
90 it may be swung or oscillated in a direction transverse to the line of reciprocation of the saws, I may in some cases arrange the receiver and distributor so that they will be swung or oscillated in a direction parallel with the line  
95 of movement of the saws, as by this latter arrangement the advantages of my invention may, in a measure at least, be secured.

I am aware that apparatus of various kinds have been contrived for distributing water and  
100 sand upon a stone during the sawing operation, and hence do not claim any and all apparatus for this purpose. In this connection I am aware of the Letters Patent, No. 123,217, granted January 30, 1872, to V. G. Barney;   
105 No. 336,840, granted February 23, 1886, to F. H. Cook, and No. 352,916, granted November 23, 1886, to J. H. Frenier.

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

1. The combination, with a reciprocating saw sash or frame and a gang of saws therein, of a sand and water distributor pivoted parallel with the line of movement of the saws, and a rod or connection for imparting to the  
115 distributor an oscillating or swinging movement transverse to such line of movement of the saws, substantially as herein described.

2. The combination, with a reciprocating saw-sash and a gang of saws therein, of a water  
120 and sand receiver supported on a pivot above the saws, a pipe depending from the receiver, a horizontal pipe connected to the lower end of the depending pipe and having outlet-openings in its under side for the escape of sand  
125 and water, and a rod or connection whereby the receiver and pipes are swung upon said pivot, substantially as herein described.

3. The sand and water distributor herein described, consisting of an elevated receiver,  
130 a pipe leading downward therefrom, a horizontal pipe with which the lower end of the downwardly-extending pipe communicates and which has outlets at intervals in its length,



and a trough within which the horizontal pipe and its outlets deliver and the sides of which converge to form a narrow slot at the bottom, substantially as herein specified.

5 4. The sand and water distributor herein described, consisting of a receiver, E, a pipe leading therefrom, the cross-pipe F<sup>2</sup>, having outlets f<sup>2</sup>, and the trough G, the sides of which

converge downward to form the narrow delivery-slot h, and which is provided with abut- 10  
ments H opposite the several outlets, substantially as herein specified.

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