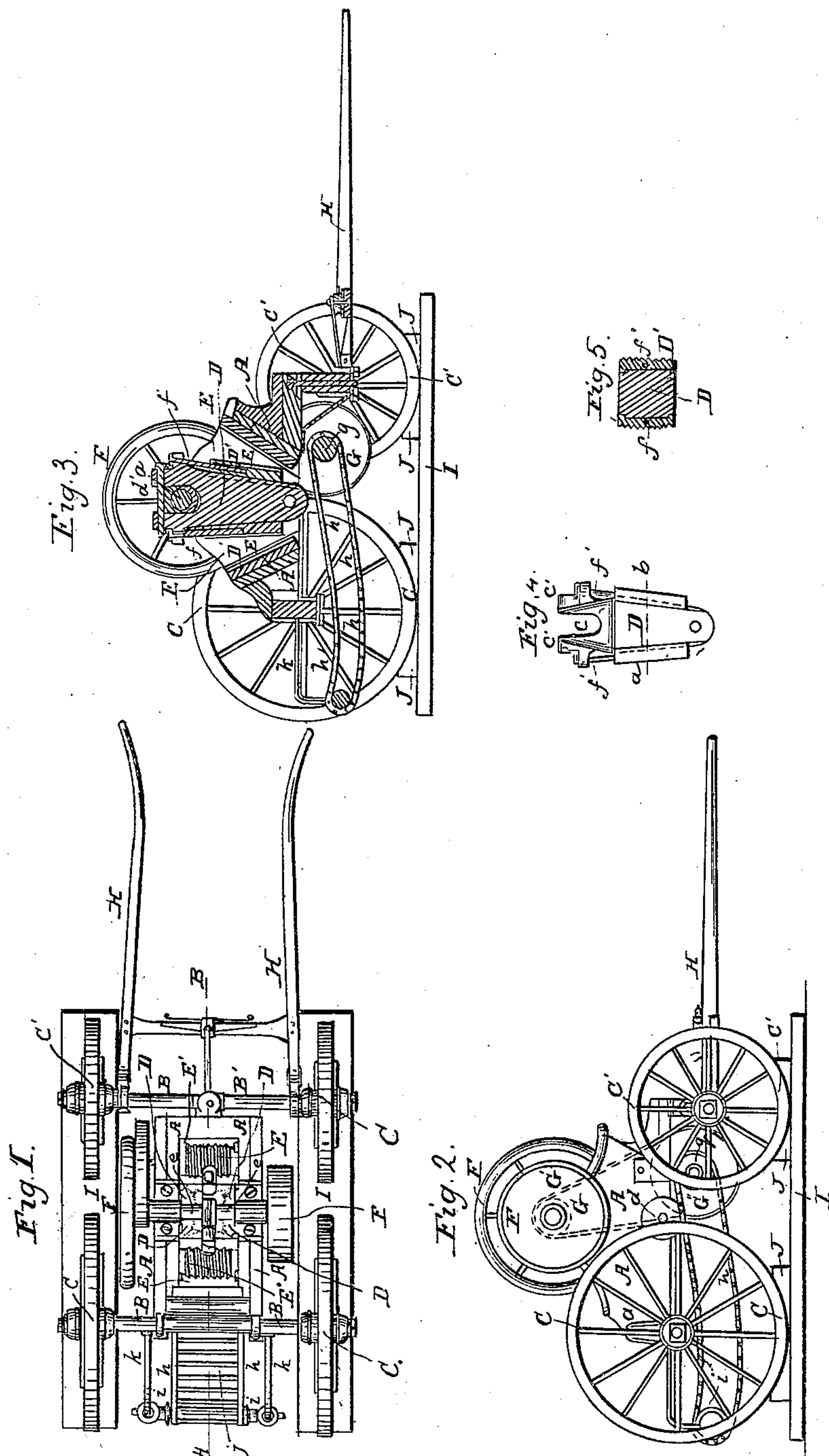


G. A. ROLLINS.

Stone Crusher.

No. 29,197.

Patented July 17, 1860.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE A. ROLLINS, OF NASHUA, NEW HAMPSHIRE.

MACHINE FOR CRUSHING STONE.

Specification of Letters Patent No. 29,197, dated July 17, 1860.

To all whom it may concern:

Be it known that I, GEORGE A. ROLLINS, of Nashua, in the county of Hillsboro and State of New Hampshire, have invented certain
5 new and useful Improvements in Machines for Crushing Stone or Any Hard Substances for Macadamizing Roads and other Purposes; and I do hereby declare that the following is a full, clear, and exact description
10 thereof, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 represents a plan or top view of the machine. Fig. 2 represents a side view
15 looking in the direction of arrow 1, Fig. 1. Fig. 3, represents a section on line A B, Fig. 1, looking in the direction of arrow 1. Fig. 4, represents the vibrating crushing block D, detached, and Fig. 5, represents a section on
20 line *a b*, Fig. 4.

A A, represent the main frame of the machine which is supported on axles B, B', upon the ends of which are wheels C, C, and C', C'.

25 The main frame A, is fastened to axle B, by clasps or shackles *a*, and to axle B', by a king bolt *b*. The frame A, is made in the form shown in the drawings—having a central box open at the top and bottom, the
30 sides being perpendicular, but the front and rear ends are made flaring as they extend up from the bottom of the machine. In the center of the box or opening in the main frame A, is arranged the central crushing
35 block D, which in this instance is hinged at *d*, to each side of the frame A. Within the space *c*, is fitted a sliding piece *f*, which is free to rise and fall in the space *c*, but is prevented from moving laterally in consequence
40 of the parts *c'*, *c'*, being grooved out, see Fig. 1. The shaft *e*, is provided with an eccentric *e'*, which works in sliding piece *f*, as fully shown in Fig. 3, while a bolt *d'*, is passed through the ears or parts
45 *c'*, *c'*, above shaft *e*, eccentric *e'*, and sliding piece *f*.

The crushing block D, is provided in front and in rear with dovetailed corrugated jaws D' D', which slide up and down in grooves
50 in block D, as shown in Figs. 3, 4, and 5, being regulated by screw bolts *f'*, *f'*, so as to work at different elevations.

The inner front and rear ends of the frame or box A, are provided with corrugated
55 jaws E, E, which have projections 1, 1, which slide down in grooves in the frame

A, so that the jaws E, E, when driven down are firmly wedged in, being made slightly tapering—the widest part being up.

Under the box of the main frame and
60 crushing block D, runs an endless sifting chain composed of side bands or links *h*, *h*, and lateral bars *j*. This chain is supported in front by a roll *g* suspended by suitable bearings from the frame A, and in rear by a
65 roll *i*, which turns in the lower ends of the rear bent arms *k*, *k*.

F, is a balance wheel on one end of shaft *e*, while F', is the pulley by which motion is communicated to the crushing mechanism.
70

The operation is as follows: The machine is guided and drawn by thills H, H, and the parts connected therewith to the place desired, when the wheels are raised into the friction concaves J, on the base
75 pieces I. A band or belt is then passed in a suitable manner from a portable steam engine over pulley F' whereby motion is communicated to shaft *e*, and eccentric *e'*, causing the sliding piece *f*, to rise and fall, and
80 also to sway back and forth and thus give to the crushing block D, a vibrating motion on its center or hinge *d*. This is due to the fact that the sliding piece *f*, can rise and fall independently of the block D, but cannot
85 move forward and back without moving the block D. Attendants now shovel in the stones or other hard substances which it is desired to crush, into the crushing chambers E', E', when at each vibration of the block
90 D, the stones to be crushed will be forced by the corrugated jaws D', against corrugated jaws E, whereby the stones or other hard substances are broken up and gradually reduced in size until the broken parts
95 are so small as to drop down between the lower ends of jaws D', and E, upon the sifting chain or apron *h*, which allows all of the fine dust and dirt to drop through upon the ground, while the broken stone is conveyed
100 to the rear of the machine where it can be shoveled into carts or drays and conveyed to the place of deposit. Motion is communicated to roll *g*, and from thence to the sifting belt, from pulley G, on shaft *e*,
105 by means of belt G', and pulley G''—the latter of which is connected to the shaft of roll *g*.

The openings through which the crushed stone or other hard substances fall, from the
110 crushing chambers E', E', can be made larger or smaller by simply turning the adjusting

screws f' , f'' ; since when the jaws D' , are forced down, then the opening is contracted, and consequently the stone has to be broken much finer than when the jaws D' , are drawn up.

It will be seen that the point of suspension, and consequently the center of motion of the block D , is below the lowest crushing point of the jaws D' , and E , and therefore all danger of the machine clogging up is obviated, since at each complete vibration the openings are enlarged so as to permit the crushed stone at the bottom to fall down and thus give place for larger pieces to occupy a position in which upon the next vibration of the crushing block D , they will in turn be reduced to the desired size.

The corrugated jaws E , E , can be quickly removed and replaced by others; since all that is necessary is to use a hammer and driving stick against their bottoms, when they will be driven up, so that others can be slid down in the grooves in the main frame A . By this simple arrangement jaws having different sized corrugations can be used at pleasure, and that too, without removing a single bolt. The jaws D' , D' , can also be removed in a very quick manner, by first removing adjusting bolts f' , f'' .

My machine is very simple in its construction, while the parts are strong and durable and are not liable to get out of order. Then again the arrangement of the central crushing block D , in respect to the frame A , is such that while the crushed and broken

stone is falling from one chamber E' , the stone in the other chamber is being broken; thus economizing power, and greatly facilitating the work of crushing. The machine is portable, and can be set at any desired place, while by means of the sifting apron the fine dust and dirt are separated from the crushed stone, and the latter delivered at the rear of the machine in a convenient position to be removed.

The base pieces I , instead of having concaves J , might be cut out so as to allow the wheels to drop into such depressions, when the machine is to be put into operation.

The use of crushed stone for macadamizing roads is becoming quite extensive, and my machine has been practically tested and found to operate with entire satisfaction.

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

1. The combination of the crushing chambers E' E' with a central vibrating crushing block for the purposes stated.

2. The combination of the corrugated jaws D' , D' , and adjusting screws f' , f'' , with the central block D , constructed and operating substantially as set forth.

3. The combination of shaft e , eccentric e' , and sliding piece f , with the crushing block D , substantially as set forth.

GEO. A. ROLLINS.

Witnesses:

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