

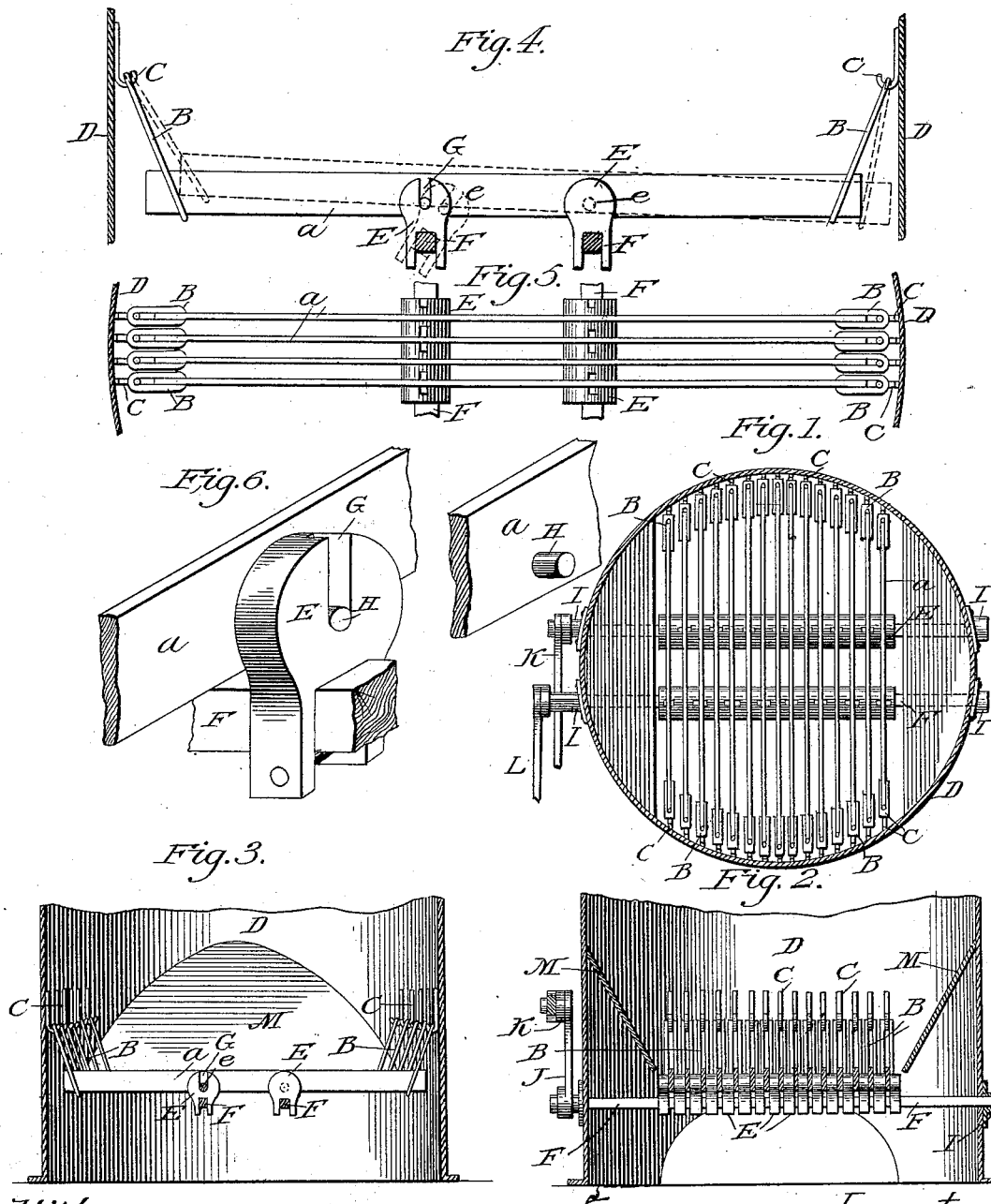
(No Model.)

J. RICE.

HEATING APPARATUS FOR DISSOLVING BITUMINOUS ROCK.

No. 422,630.

Patented Mar. 4, 1890.



Witnesses.

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JUDSON RICE, OF SAN JOSÉ, CALIFORNIA.

HEATING APPARATUS FOR DISSOLVING BITUMINOUS ROCK.

SPECIFICATION forming part of Letters Patent No. 422,630, dated March 4, 1890.

Application filed August 31, 1887. Serial No. 248,423. (No model.)

To all whom it may concern:

Be it known that I, JUDSON RICE, of San José, in the county of Santa Clara, State of California, have invented a new, useful, and Improved Heating-Chamber for Dissolving Bituminous Rock, the native asphaltum, as found in large deposits in the State of California and elsewhere in the United States; and I declare the following to be a full, perfect, and complete description of the same, which, with the drawings properly lettered, shows the various parts.

Figure 1 is a sectional plan view showing the grate-bars; Fig. 2, a sectional view of the heating-chamber, with the grate-bars in cross-section; Fig. 3, a sectional view showing side view of the grate-bars; Fig. 4, a side view of the grate-bars, with manner of connecting the same; Fig. 5, a top view of a section of the grate-bars; Fig. 6, a perspective view of central support to be placed between the grate-bars and its connections therewith.

The object of my invention is to construct an apparatus for the purpose of preparing for use a particular mineral product found in large quantities in the State of California, and designated as bituminous rock and asphaltum, called "bituminous rock" for the reason that asphaltum has become mixed with sand and sometimes with clay, and is found in compact masses in a solid form resembling rock, which has to be dissolved or disintegrated into small particles before it can be used. To prepare this material for use, I construct a square or cylindrical vessel of metal capable of sustaining a pressure of about one hundred pounds, and made steam-tight, of a convenient size for moving from place to place, and suspend in this chamber the grate-bars, of construction and in the manner shown by the drawings.

a a represent the grate-bars; *B B*, the links and hooks supporting the same in the heating-chamber.

F F represent two square bars connecting with the grate-bars on the under side thereof within the chamber and extending through the sides of the chamber. The ends on one side are provided with the cranks *J* and *K*.

E in Fig. 6 represents a circular piece of iron having a square opening at the bottom part corresponding in size with the bars *F F*.

ee represent pins placed through each grate-bar and resting in the slotted opening in the sides of the top part of the pieces *E*.

The square bars *F F* are connected alternately with the grate-bars, as shown in Fig. 5, so that one-half of them are connected to each bar, and by the motion of the bars, imparted by the cranks *J* and *K*, they are turned about one-quarter each way, which gives the grate-bars both a horizontal and perpendicular motion alternately. One end of the bar is elevated, while the same end of the next adjoining bar is depressed, and the material resting upon the bars is operated upon and separated when it falls beneath the grate-bars.

My invention is operated in the following manner: The bituminous rock or asphaltum is thrown into the heating-chamber in small pieces, which rest upon the grate-bars. When a sufficient quantity is placed into this chamber, it is closed tightly, and steam is admitted to it from an engine and boiler used in connection therewith, and when the material has been heated sufficiently to soften it the grate-bars are shaken by means of the cranks *J* and *K*, and the material is thus separated into small particles and falls beneath the grate-bars. It is then taken out and used as described in Letters Patent heretofore issued under dates of June 2, 1885, No. 319,125, and July 28, 1885, No. 322,970, of which I am one of the inventors.

My invention relates to bituminous rock and asphaltum alone, and is not designed for any other purpose, and I contemplate the use of steam or hot water only in the same.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The grate-bars *a a*, suspended in the heating-chamber by the movable links *B B*, as herein described.

2. In combination with the heating-chamber, the grate-bars *a a*, the square bars *F F*, provided with the cranks *J* and *K*, and the circular parts *E*, supported by the pins *ee*, substantially as described, for the purposes specified.

JUDSON RICE.

Witnesses:

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