(No Model.) 2 Sheets—Sheet 1.

C. S. CLARK.

GRAVEL WASHER.

No. 422,378. Patented Mar. 4, 1890.

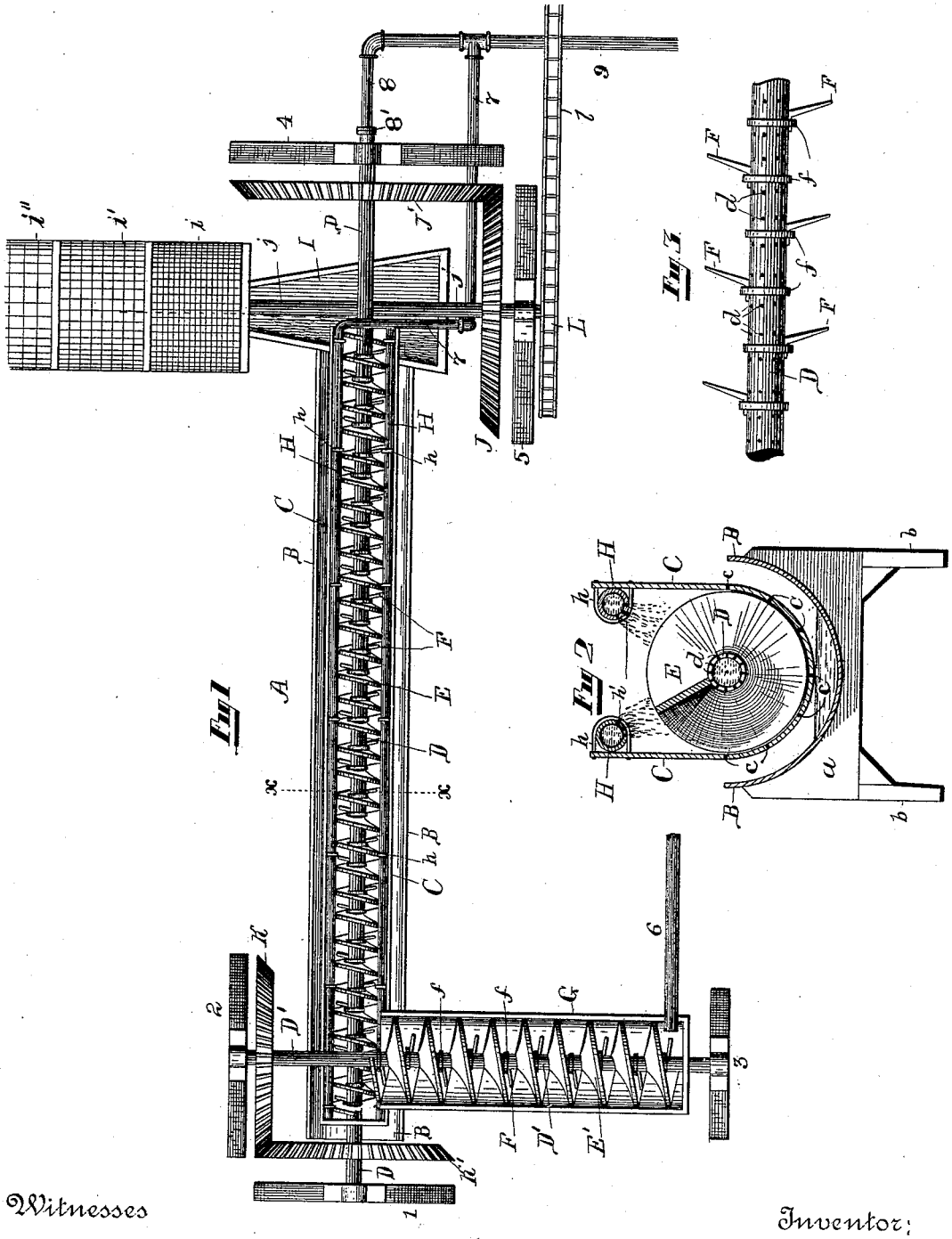

Fig. 1

Fig. 3

Fig. 2

Witnesses

R. A. Balderson

N. C. Johnson

Inventor:

Chapman S. Clark,

By His Attorneys,

Higdon & Higdon

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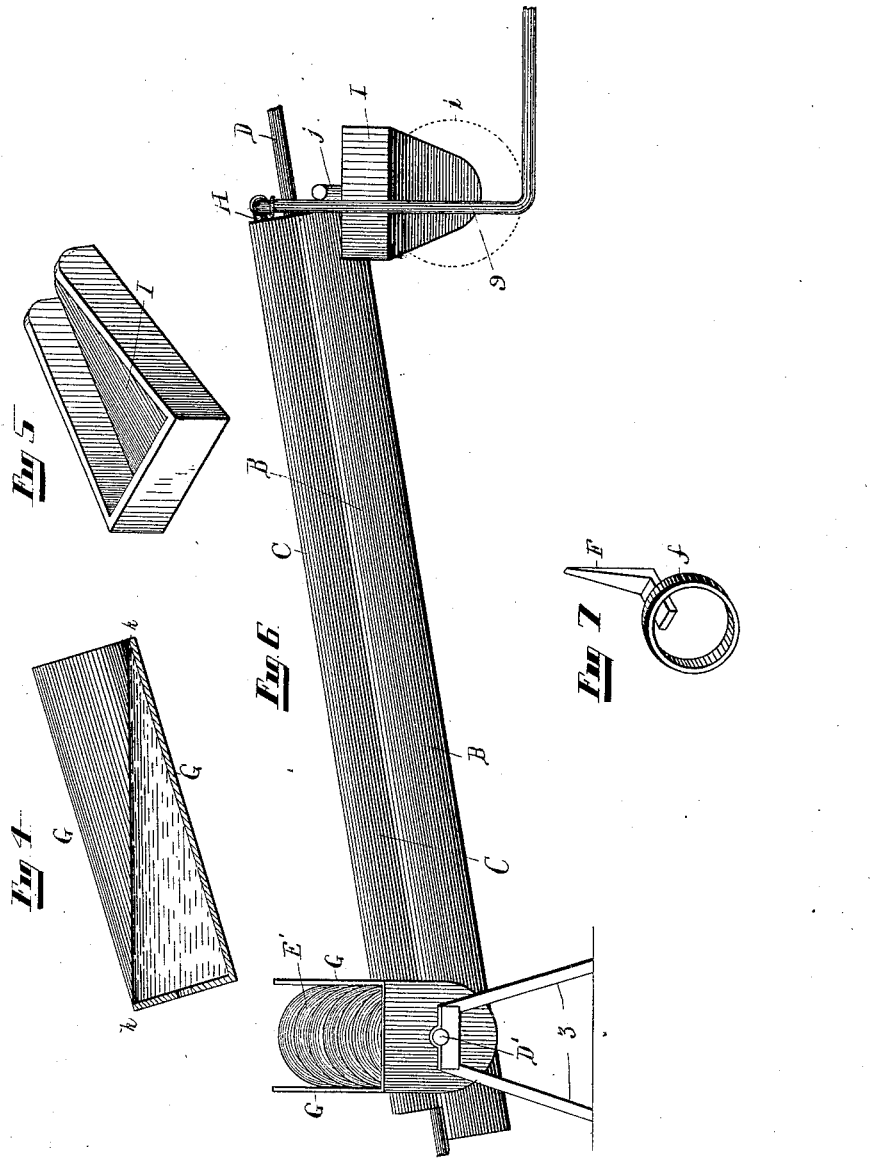

Witnesses:
R. A. Balderson
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Inventor;
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UNITED STATES PATENT OFFICE.

CHAPMAN S. CLARK, OF KANSAS CITY, MISSOURI.

GRAVEL-WASHER.

SPECIFICATION forming part of Letters Patent No. 422,378, dated March 4, 1890.

Application filed November 7, 1889. Serial No. 329,555. (No model.)

To all whom it may concern:

Be it known that I, CHAPMAN S. CLARK, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Gravel-Washers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in gravel-washers; and it consists in the novel construction and arrangement hereinafter fully set forth and described.

The objects of my invention are, first, to provide a gravel-washer which will thoroughly cleanse the gravel and conduct and deposit it to a suitable chute, where it passes through grading-sieves, and is thence caught in proper receptacles placed there to receive it; second, to do this with simplicity and economy. I attain these ends by using the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of my device embodying the improvements thereof. Fig. 2 is a sectional detail view taken through line *x x* of Fig. 1 and showing the relative position of troughs B and C and spiral screw E, together with pipes H H. Fig. 3 is a detail view of the perforated shaft D, provided with beaters or arms F, secured and held in position by bands or hoops *f*. Fig. 4 is a sectional detail view of the receiving-trough G, showing it on the plane which it will occupy in use filled with water, the spiral screw E′ being removed. Fig. 5 is a detail in perspective of the chute I, which conducts the gravel, after it has passed through cleansing-trough C, into the grading-sieves. Fig. 6 is a side elevation of the troughs C and B, showing them on an inclined plane. This is the position they occupy when in use, though they may be made nearly level or at a greater angle if found necessary. Fig. 7 is a detail in perspective of one of the beaters or arms F and band or hoop *f*.

Referring to the drawings by letter, A represents my invention provided with the mechanism hereinafter described.

B is the trough or sluice properly secured on bearing *b*, and serves to conduct the water, loam, and other refuse matter away from my gravel-washing device.

C is the upper trough, having its bottom perforated at *c* and being provided at its top edges with two suitable water-pipes, which are perforated on the under side in such a manner that a constant stream of water is brought to bear on the gravel in the trough.

D is a perforated hollow shaft, around which is fastened a spiral screw E, which by its revolutions forces the gravel upward toward the chute I.

F are beaters properly secured to said perforated shaft D by means of suitable metallic bands *f*. These beaters serve to agitate the gravel when thrown into receiving-trough G, and as the screw E′ revolves the gravel is forced upward and deposited in trough C. Said trough G is made on an inclined plane, as represented in Fig. 4, and is supplied with water from pipe 6. The object of this is to soften the clods of gravel and dirt that are thrown into said receiving-trough, and by the time it has passed into trough C it is thoroughly wet and loose, which makes it an easy matter to cleanse it as it travels through said trough C.

H H are suitable pipes secured on the upper edges of trough C and held in position by staples or loops *h*. Said pipes H are perforated on their under sides, so that there is a constant stream of water flowing on the gravel in the trough C, which washes it thoroughly in its passage from trough G to chute I, all the loam and other refuse passing off through the perforations *c* into the chute B, and is thereby conducted away from the gravel-washer.

J is a beveled cog-wheel properly secured on shaft *j*, and this meshes in with a similar cog-wheel J′, which is keyed or otherwise rigidly secured on hollow shaft D. Said shaft *j* is provided at its outer end with sprocket-wheel L and chain *l*, which furnish power for operating this device, although any suitable motive power may be applied.

K is a gear-wheel keyed or otherwise rigidly secured on shaft D′, and this gears with a corresponding wheel K′, which is secured on the lower end of shaft D.

i, *i′*, and *i″* are the grading-sieves, through which the gravel passes before being deposited in receptacle prepared for its transportation.

1, 2, 3, 4, and 5 are suitable trusses or supports, which form bearings for shafts D and D′ and *j*.

6 is the water-pipe which carries the water to trough G; 7, the supply-pipe which furnishes water for perforated pipe H.

8 is also a water-pipe secured on the outer end of perforated shaft D by a swivel-joint 8′. The water passing through said pipe 8 into perforated shaft D forces its way through perforations *d* and up through the gravel and dirt, thus washing it cleanly when passing through trough C.

The Archimedean screws E and E′ are keyed or otherwise rigidly secured to shafts D and D′ in such a manner as to force the gravel outward and upward by their revolutions, the same being agitated by beaters F, as heretofore described, thoroughly cleansing the gravel by the supply of water from perforated shaft D and pipes H.

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

1. In a gravel-washer, the combination of a receiving-trough having a worm-shaft mounted therein carrying a series of beaters, a trough connecting with the said receiving-trough having a hollow perforated water-distributing worm-shaft mounted therein, also carrying beaters, and mechanism connecting with the hollow shaft for operating the two shafts simultaneously.

2. In a gravel-washer, the combination of a receiving-trough having a worm-shaft carrying beaters, a trough connecting with the receiving-trough having a hollow perforated worm-shaft carrying beaters, and a water-supply pipe swiveled to the said hollow shaft.

3. In a gravel-washer, the combination of a receiving-trough, an inclined trough connecting therewith having a hollow perforated worm-shaft mounted therein carrying beaters, a water-supply pipe connecting with the hollow shaft, and water-supply pipes carried by the trough.

4. In a gravel-washer, the combination of a receiving-trough, a perforated trough connecting therewith, water-supply pipes connecting with the latter trough, a chute, a series of grading-sieves, mechanism for conveying the gravel from the receiving-trough to the sieves, and a chute arranged below the perforated trough for conveying off the water after the gravel has been cleansed.

In testimony whereof I affix my signature in presence of two witnesses.

CHAPMAN S. CLARK.

Witnesses:
J. E. HIGDON,
R. A. BALDERSON.