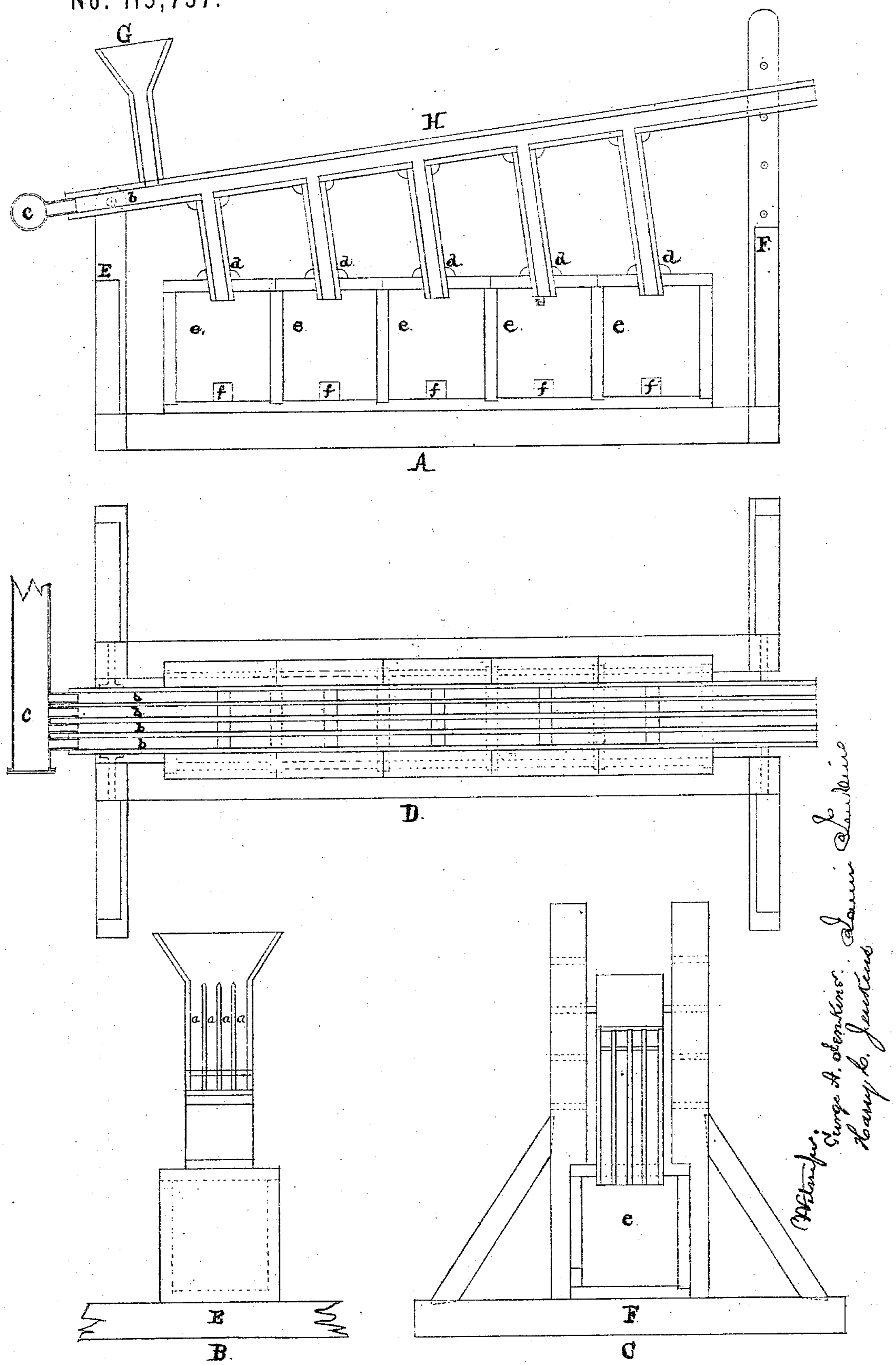
JAMES JENKINS.

Apparatus for Separating and Concentrating Ores and other Materials.

No. 115,737. Patented June 6, 1871.



UNITED STATES PATENT OFFICE.

JAMES JENKINS, OF SOUTH BETHLEHEM, PENNSYLVANIA.

IMPROVEMENT IN APPARATUS FOR SEPARATING AND CONCENTRATING ORES AND OTHER MATERIALS.

Specification forming part of Letters Patent No. 115,737, dated June 6, 1871.

To all whom it may concern:

Be it known that I, JAMES JENKINS, of the borough of South Bethlehem, in the county of Northampton and State of Pennsylvania, have invented a new and useful Apparatus for the purpose of Concentrating and Separating Ores or other substances; and do hereby declare that the following is a full and exact description of the nature and operation of the same, reference being had to the accompanying drawings.

My invention consists of a conduit (the drawings show four attached together, and this number may be increased or diminished) pivoted at the one end to two upright posts, one on either side, and the other end (having posts also, one on either side) can be elevated, making any desired angle, and kept in place by a pin or other device. The one end of the conduit is provided with a pipe, by which water is supplied from a reservoir in sufficient quantity to force a continuous stream through the conduit and out of the other or open end. Near the one end of the conduit, and on its upper side, is the feed-pipe into which the ore or other substances are fed, and in the lower side of the conduit are five openings, each communicating by a lead to a tank. This number of openings and leads may be increased or diminished, according to the nature of the work. The conduits and the openings to the leads, as shown in the drawings, are rectangular, which form I recommend. The leads may be of flexible tubing, to enable the angle to be raised easily, but the connections of the leads with the conduit and tanks must be water-tight.

The drawings are upon a scale of three-quarters of an inch to a foot, and thus show the sizes of the several parts of an apparatus in which gold, silver, lead, zinc, and iron ores, plumbago, clays, soils, coal, and white lead (carbonate) have been well operated upon.

The conduit is two by two inches; the openings are two by two inches, five in number, and eighteen inches from centers; and these sizes and distances are recommended.

The operation is as follows: Water is admitted under a uniform pressure and with regularity. The tanks being filled, an overflow at the open end of the conduit takes place and continues. The ore or other substance, having been first finely pulverized, is supplied through the feed-pipe, the water standing in it at the height of the overflow. The particles descend slowly to the conduit, and are there met and carried forward by the current, and, as they arrive at the openings to the leads, drop out of the current in the order of their gravity, and are deposited in the tanks, the lightest constituent passing on, being discharged at the overflow. The tanks and the connections of the leads, both to them and to the conduit, being water-tight, when the apparatus is at work, the water in the tanks and the leads, up to the line of the bed of the conduit, is in a state of rest. The angle at which the conduit must be placed must be determined by the force of the current and the nature of the substances to be operated upon, and these two points can be readily determined by short practice, the working results at once indicating what change should be made. The substances can be fed more perfectly when in combination with water. The feed should be with regularity. The tanks are provided with suitable openings, through which the substances, after being operated upon, may be removed.

To enable others to make and use my invention, I will now proceed with my references to the accompanying drawings, and more specifically the construction of the apparatus.

A is a longitudinal vertical section of my invention; B is a transverse vertical section through the hopper at G, in view A, to show the feed-tubes; C is a transverse vertical section through the view A, taken at H, so as to show the construction of one of the leads and its connection with one of the tanks; and D is a longitudinal horizontal section, intended to more particularly represent the construction of the conduits *b b b b* and their connection to the water-supply *c*. In view A, that part of the frame between which the conduits *b* are placed, and to which they are pivoted on suitable journals, is marked E, and the opposite end of the frame between which the conduits are placed, and to which they are adjusted by a movable pin, is marked F. In the view B the feed-tubes *a* are shown in their relation to the conduits. *c* is the pipe of the water-supply, and is clearly shown in views A and D. *d d d d d* are the leads shown in view A. The construction of one of these leads is shown in

view C. *e e e e e* are the tanks, provided with openings *f*, as represented in views A and C.

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

1. The combination of the adjustable conduit *b* and water-pipe *c*, as and for the purposes set forth.

2. The adjustable conduit or conduits *b b*, supply *c*, and leads *d*, in combination with tanks *e* and frame E and F, when constructed and operating substantially in the manner and for the purposes set forth.

3. The hopper G, with feed-tubes *a*, in combination with the conduit or conduits *b*, leads *d*, and tanks *e*, when constructed and operating substantially in the manner and for the purposes set forth.

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Witnesses:

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