

(No Model.)

H. S. GARRISON.  
SAND WASHING MACHINE.

No. 428,600.

Patented May 27, 1890.

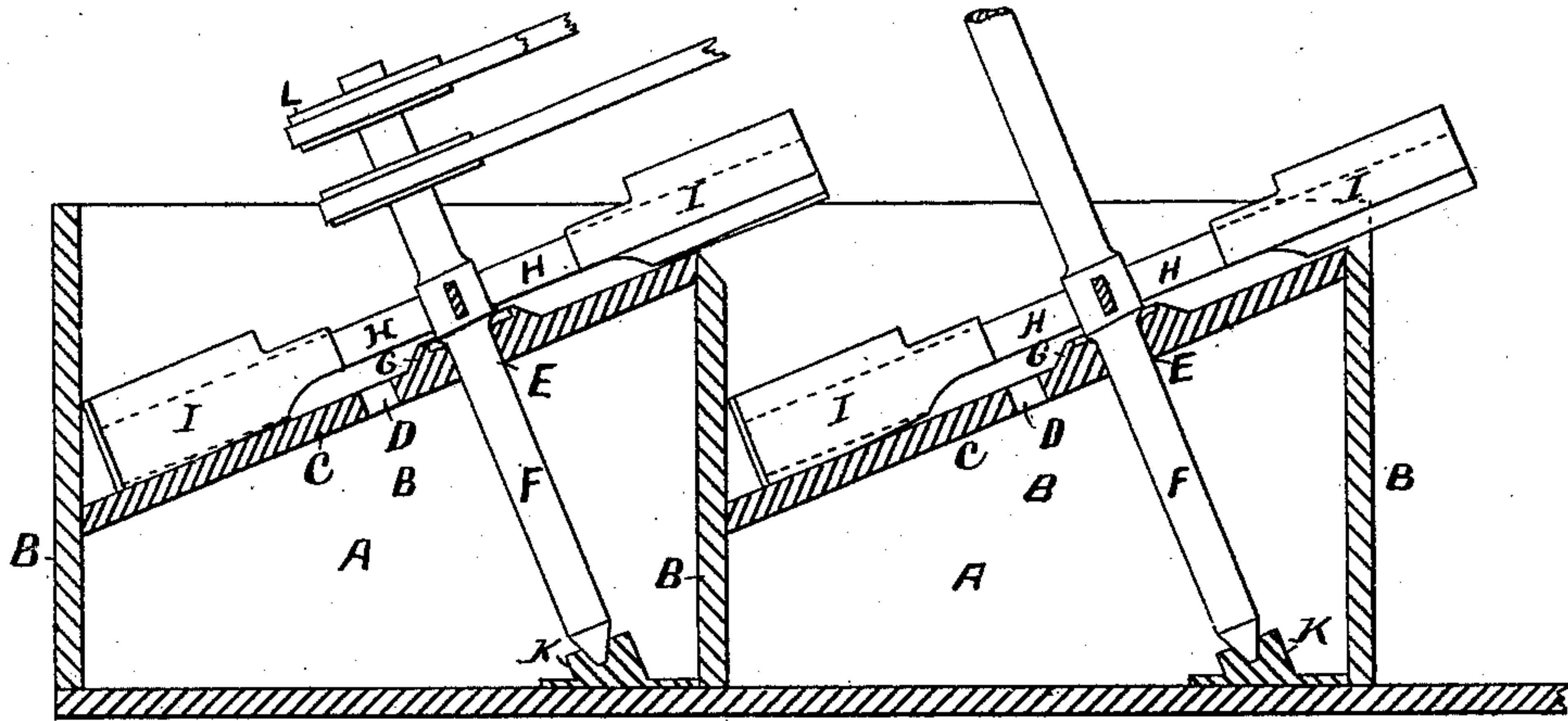


Fig. 1.

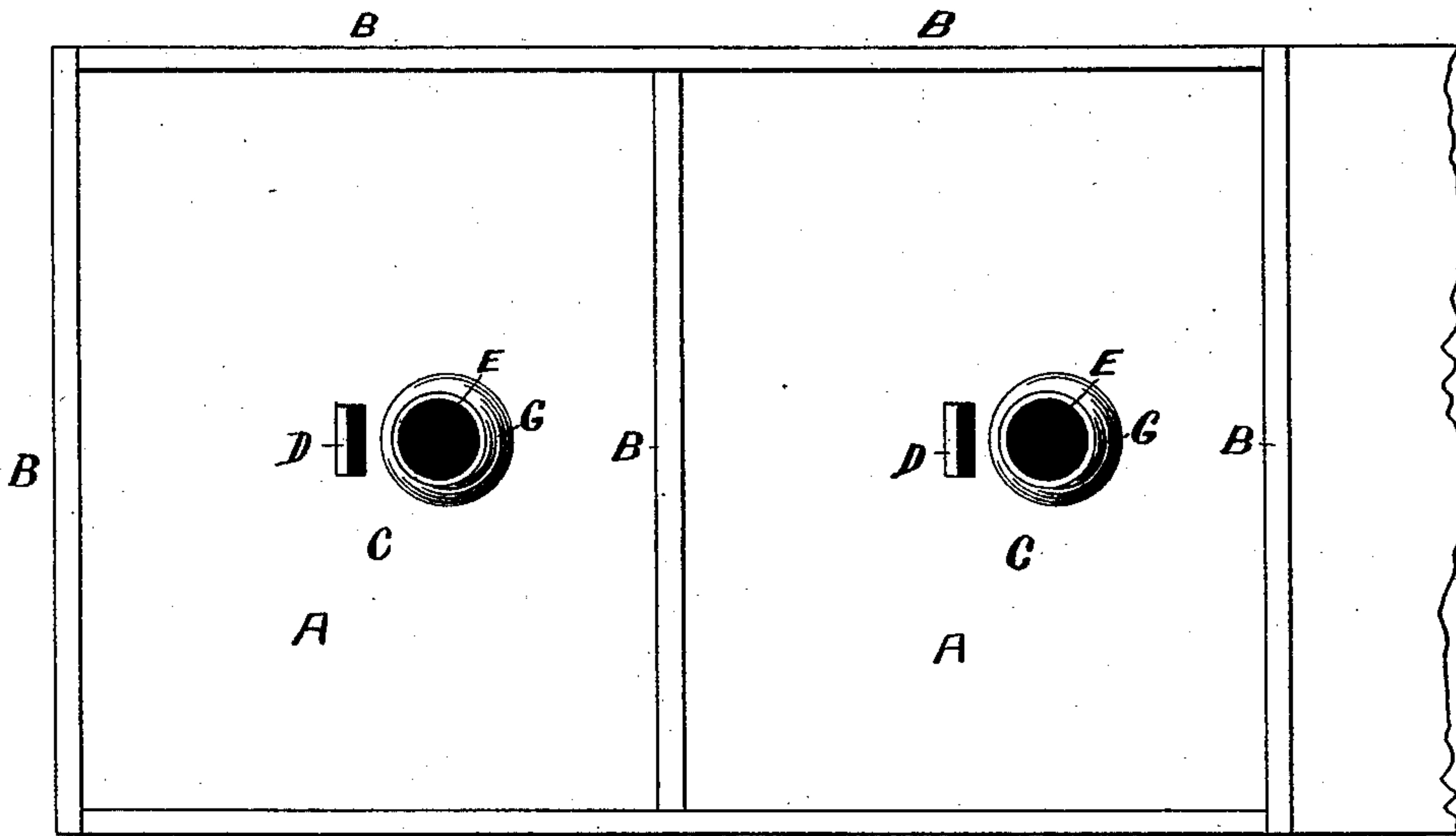


Fig. 2.

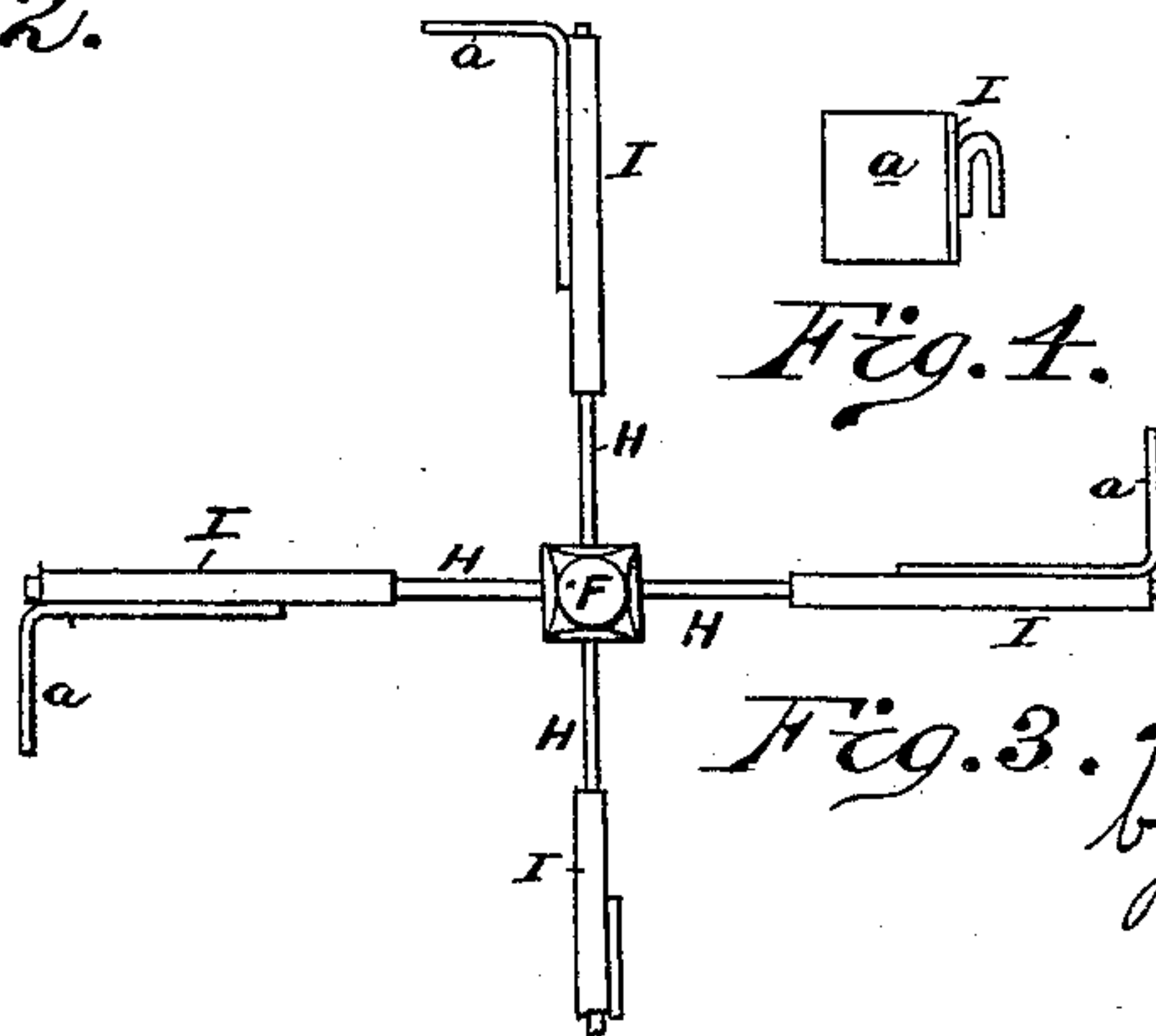


Fig. 4.

Fig. 3.

WITNESSES:

John Lefferts  
John F. Halbach

INVENTOR

Henry S. Garrison  
by his attorney  
Walter W. Calhoun

# UNITED STATES PATENT OFFICE.

HENRY S. GARRISON, OF CEDARVILLE, NEW JERSEY.

## SAND-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 428,600, dated May 27, 1890.

Application filed March 18, 1889. Serial No. 303,685. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY S. GARRISON, a citizen of the United States, residing at Cedarville, in the county of Cumberland and State of New Jersey, have invented certain new and useful Improvements in Sand-Washing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in sand-washing machines; and the object of my invention is to furnish a machine which will thoroughly cleanse the sand of all the dirt which remains in it after it has been riddled. My machine consists of a box having an inclined bottom and a shaft perpendicular to this bottom, and furnished with arms which sweep along the inclined bottom, thoroughly agitating the sand and carrying it to the front of the box, where it falls either into another similar machine or onto the ground.

In the drawings, Figure 1 is a central sectional elevation of two of my machines; Fig. 2, a plan of the boxes; Fig. 3, a plan of the shaft and arms, and Fig. 4 an end view of a removable blade which is attached to the arms.

A is the box, which consists of sides B B B and an inclined bottom C. The bottom is furnished with a hole D, through which the dirty water escapes, and with a hole E, through which the shaft F passes.

G is a raised lip surrounding hole E to prevent water and grit from entering this hole and injuring the bearings of shaft F. The shaft F is furnished with arms H, to which are attached blades I for agitating the sand. The arms are arranged as shown in Fig. 1—that is, only one-half or two-thirds of them act to agitate the sand, their inner part being cut up so as to allow the water to pass under them when the arms are being revolved. The lower end of the shaft F rests in a step K, and the shaft is furnished with a pulley L or other device, by means of which it may be driven.

The sand after being dug is put through a riddle in the usual manner to separate from it the stones, lumps of clay, and other large impurities, and is then placed in the box A, into which a stream of water is continually

running. The shaft F being revolved causes the arms H and blades I to agitate the sand and carry it up the inclined bottom, from which it falls either into the second machine, where the operation is precisely similar, or onto the floor.

The agitation of the sand causes the dirt, which is of less specific gravity than the sand, to rise to the top, and it passes away with the water through the hole D in the bottom of the box. This hole is placed near the water-level, so that no sand will escape through it. For some purposes one washing would be sufficient, for others two or more would be necessary, and in order to save handling the machines would be then placed as shown in the drawings.

The detachable blades I are made as shown, their outer ends *a* being bent over, as shown in Fig. 3, to hold the sand and carry it up to the top of the inclined bottom. It will be seen from Fig. 1 that the blades extend considerably beyond the upper end of the bottom, so that the blades may throw the sand out of the box.

I claim—

1. In a sand-washing machine, the combination, with a box having an inclined floor, of a shaft journaled therein and agitators upon the shaft, said floor having an outlet for the water intermediate its lowest point and the journal of the shaft, substantially as described.

2. In a sand-washing machine, the combination, with a box having an inclined floor, of a shaft journaled therein and agitators upon the shaft, said floor being provided with an outlet for the water and with a raised lip around the journal of the shaft, substantially as described.

3. In a sand-washing machine, the combination, with a box having a series of inclined floors, each having a shaft journaled therein, of agitators for each floor, said floors being so arranged that the agitators of one floor deliver the sand from the highest point of the floor directly to the lowest point of the adjacent floor, substantially as described.

4. In a sand-washing machine, the combination, with a box having an inclined floor, of a shaft journaled therein, arms secured to the



shaft, the outer ends of which project over the edge of the floor at the highest point, substantially as described.

5 5. In a sand-washing machine, the combination, with a box having an inclined floor, of a shaft journaled therein, arms secured to the shaft and blades secured to the arms, the outer ends of which are bent at an angle to the arms, substantially as described.

10 6. In a sand-washing machine, the combination, with a box having an inclined floor, of

a shaft journaled therein, arms secured to the shaft, and removable blades secured to the arms, the lower edge of each of which is cut up at its inner end, substantially as described. 15

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

HENRY S. GARRISON.

Witnesses:

ALLISON CAMM,

JOSIAH B. SHEPPARD.