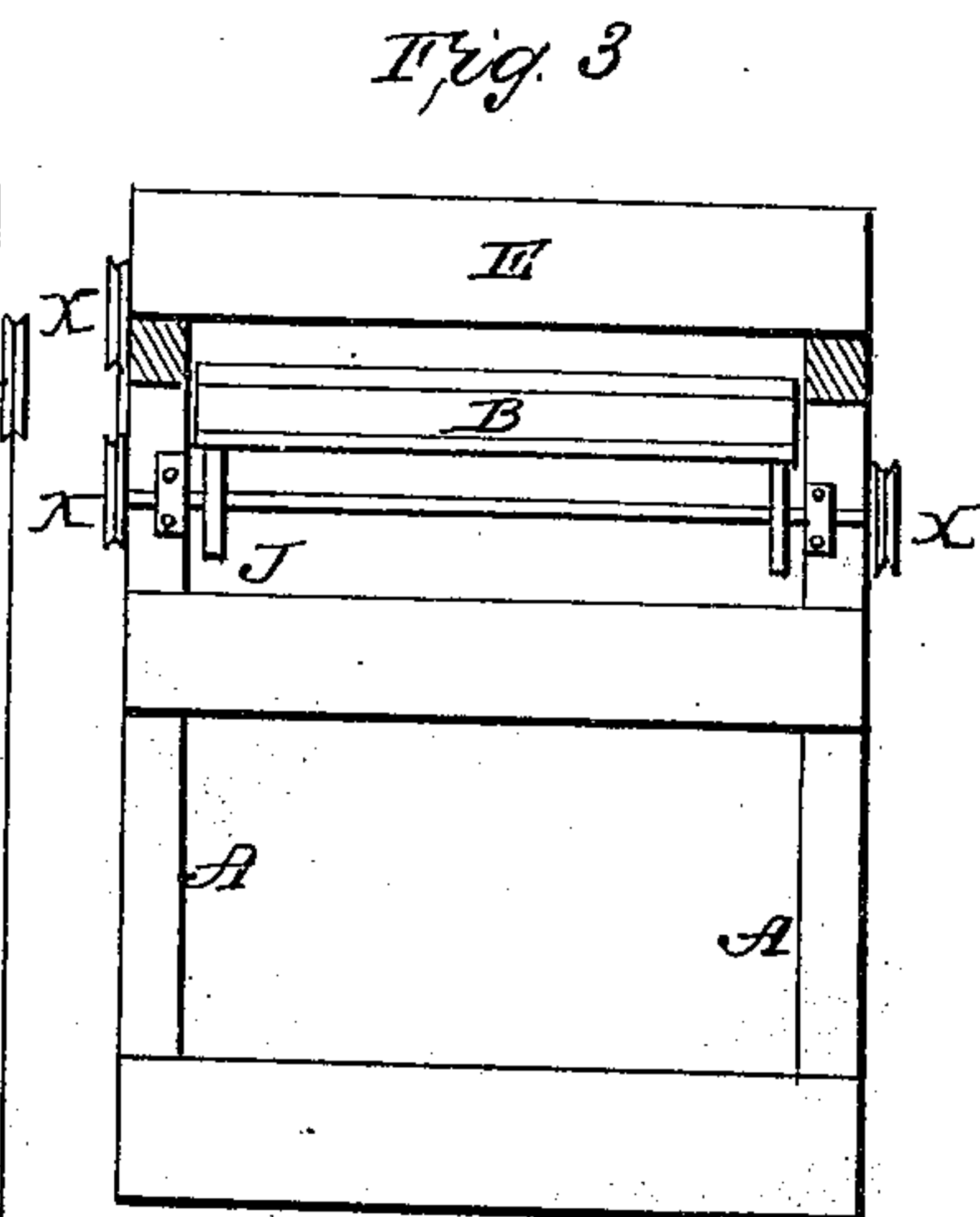
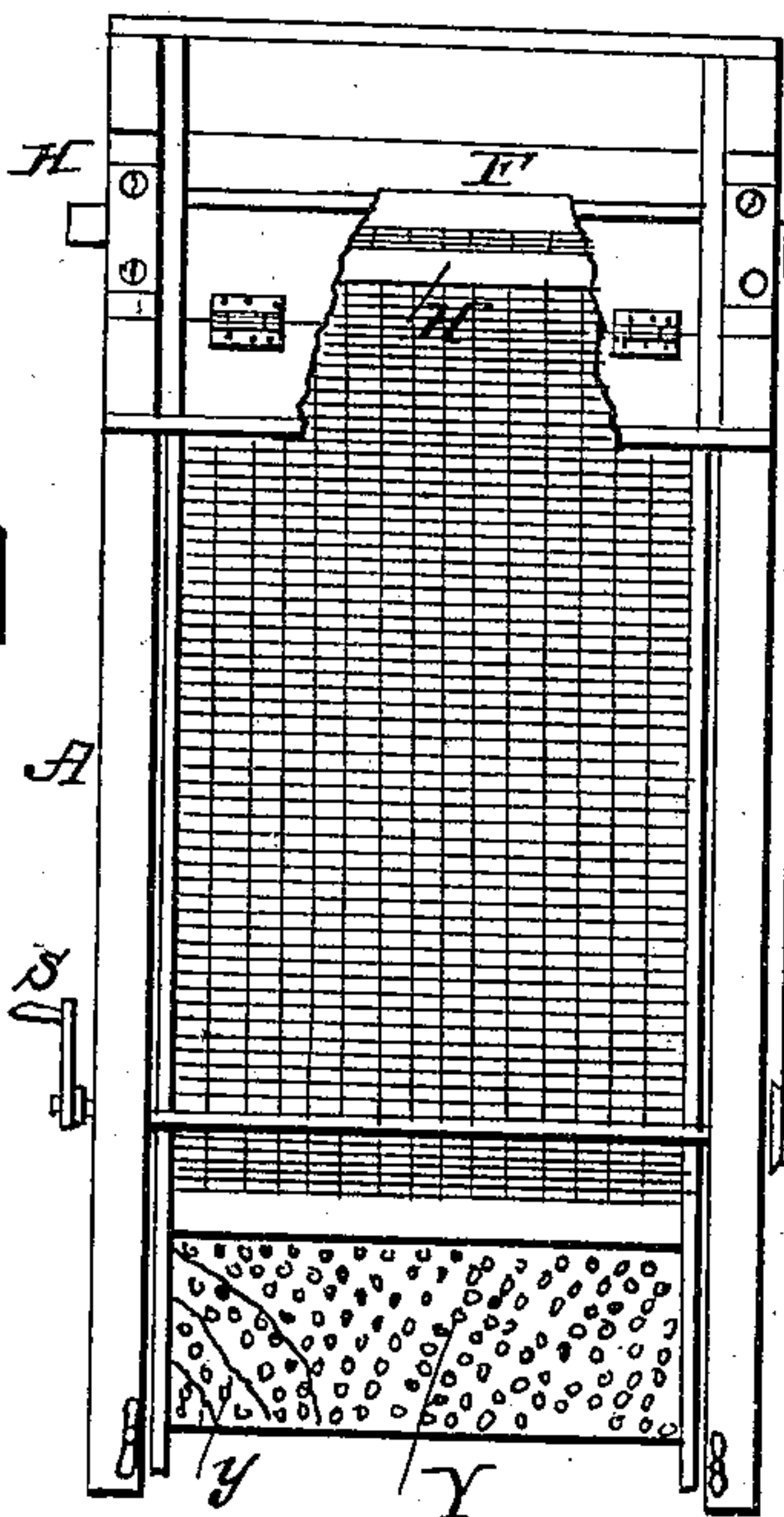
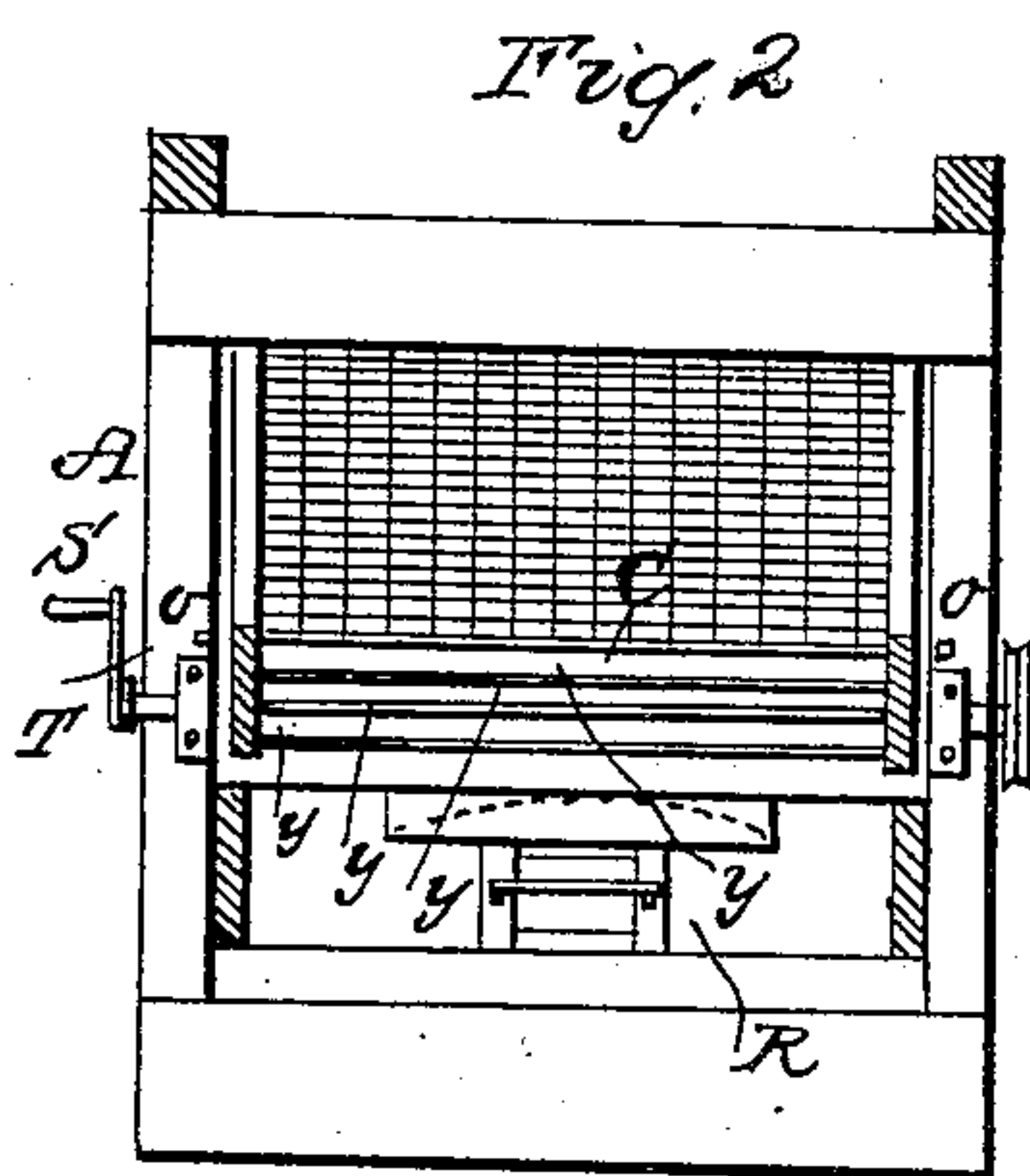
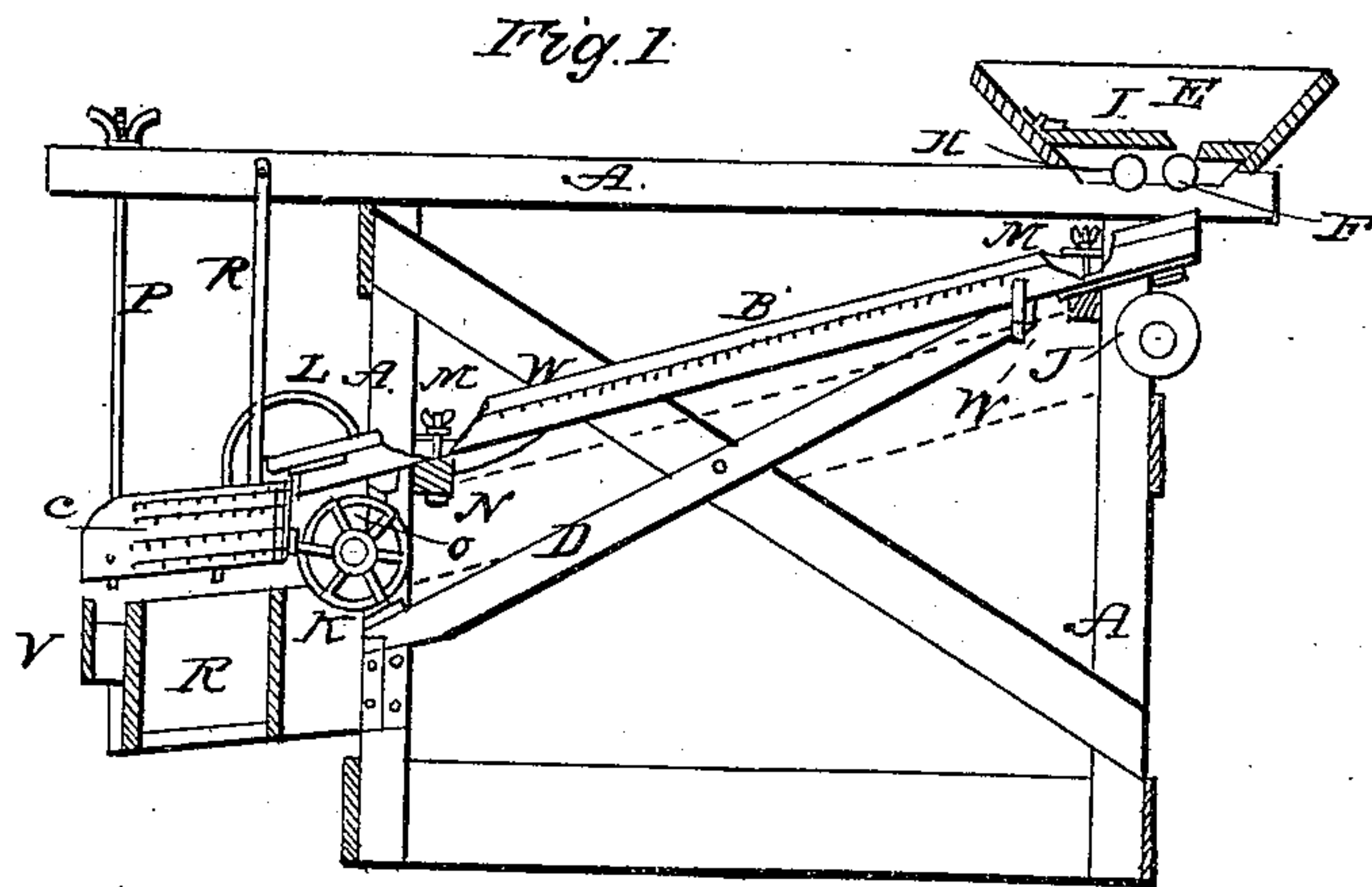


A. HUNTER.  
Grain Winnower.

No. 90.844.

Patented June 1, 1869.



Witnesses  
H. M. Kenzie  
J. S. Gould

Inventor  
Andrew Hunter

# United States Patent Office.

ANDREW HUNTER, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 90,844, dated June 1, 1869.

## IMPROVEMENT IN GRAIN-SEPARATOR.

The Schedule referred to in these Letters Patent and making part of the same.

### To all whom it may concern :

Be it known that I, ANDREW HUNTER, of the city and county of San Francisco, in the State of California, have invented or discovered new and useful Improvements in Machines for Separating Grain; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a side view.

Figures 2 and 3 are end views.

Figure 4 is a top view, with a portion of same removed, to better show the various parts of the machine.

A A is a frame-work of wood.

B is a chute, of any required length, having a downward inclination from front to rear.

C is a chute or frame-work, with plates inclining to the rear end.

D is a lever, for striking against the upper end of the chess-chute.

E is a hopper, arranged with feed-rollers.

F is a revolving roller, to carry the grain on to the screen or chute.

H is an eccentric roller, for raising the lid or feed-board.

I is the lid or feed-board, hinged to the inside of the bottom of the hopper.

J J are eccentrics, for vibrating the upper end of the chute.

T is a shaft, with cam or ratchet-wheels, K K, for giving a vertical vibratory motion to the chutes and levers.

L L are springs, for keeping the chute C against cam-wheels K K.

M M are set-screws, for raising and lowering the chute.

N N are adjustable bars for the chute to rest on.

O O are set-screws, for giving any required vibration to chute C.

P P are hangers, for suspending frame C, with set-screws for changing the elevation of the plates.

R is a box, for receiving the clean grain.

S is a crank, for rotating the cam-shaft, or the same may be done by any other known means.

V is a chute, for carrying off the barley and larger grains.

X X are pulleys, for rotating feed-rollers and eccentric-shaft.

### Operation.

The machine being set in motion, the eccentric-roller is turned, as may be desired, to raise the feed-

board I, in order to let the grain on the screen W W. The small and imperfect grain and foul seeds pass through; the wheat and larger grains pass over screen W W on to the perforated plates Y Y Y Y.

The wheat passing through said plates, the oats, barley, straw, &c., pass over the end of the plates.

By the use of different-size screens, any number of separations can be given.

The separations are produced by cam or ratchet-wheels, the levers or eccentrics striking against the bottom and end of the chutes.

The degree of concussion or blow is regulated by means of the set-screws O and M, or other suitable device.

The upper and lower end of chute B receive a blow, by means of cam or ratchet-wheels, levers, and eccentrics, sufficient to move the grain freely down the screen.

The cam-wheels strike against the end of chute C, producing a horizontal vibration and percussion sufficient to move the barley and oats off the plates, and pass the wheat through them into box R, the barley and oats into spout V.

Having thus described my machine, and its mode of operation,

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

1. The formation of the chute B and C, with screen W W, and perforated plates Y Y Y Y, and inclining as shown in fig. 1, substantially as described, and for the uses and purposes as hereinbefore set forth.

2. The combination, with the grain-separating chutes, of the mechanism substantially such as herein described, for imparting a horizontal vibratory, or both horizontal and vertical vibratory movement to the same, in the manner and for the purposes set forth.

3. The combination of cross-bars N N with chutes B and C, set-screws O and M, and pulleys X X, substantially as described, and for the uses and purposes hereinbefore set forth.

4. The combination of hopper E, feed-board I, feed-roller F, eccentric-roller H, substantially as described, and for the uses and purposes hereinbefore set forth, said combination of hopper, feed-board, and rollers to be attached to any machine for similar uses.

In testimony whereof, I have signed my name to this specification, before two subscribing witnesses.

ANDREW HUNTER.

Witnesses:

J. W. MCKENZIE,

A. S. GOULD.