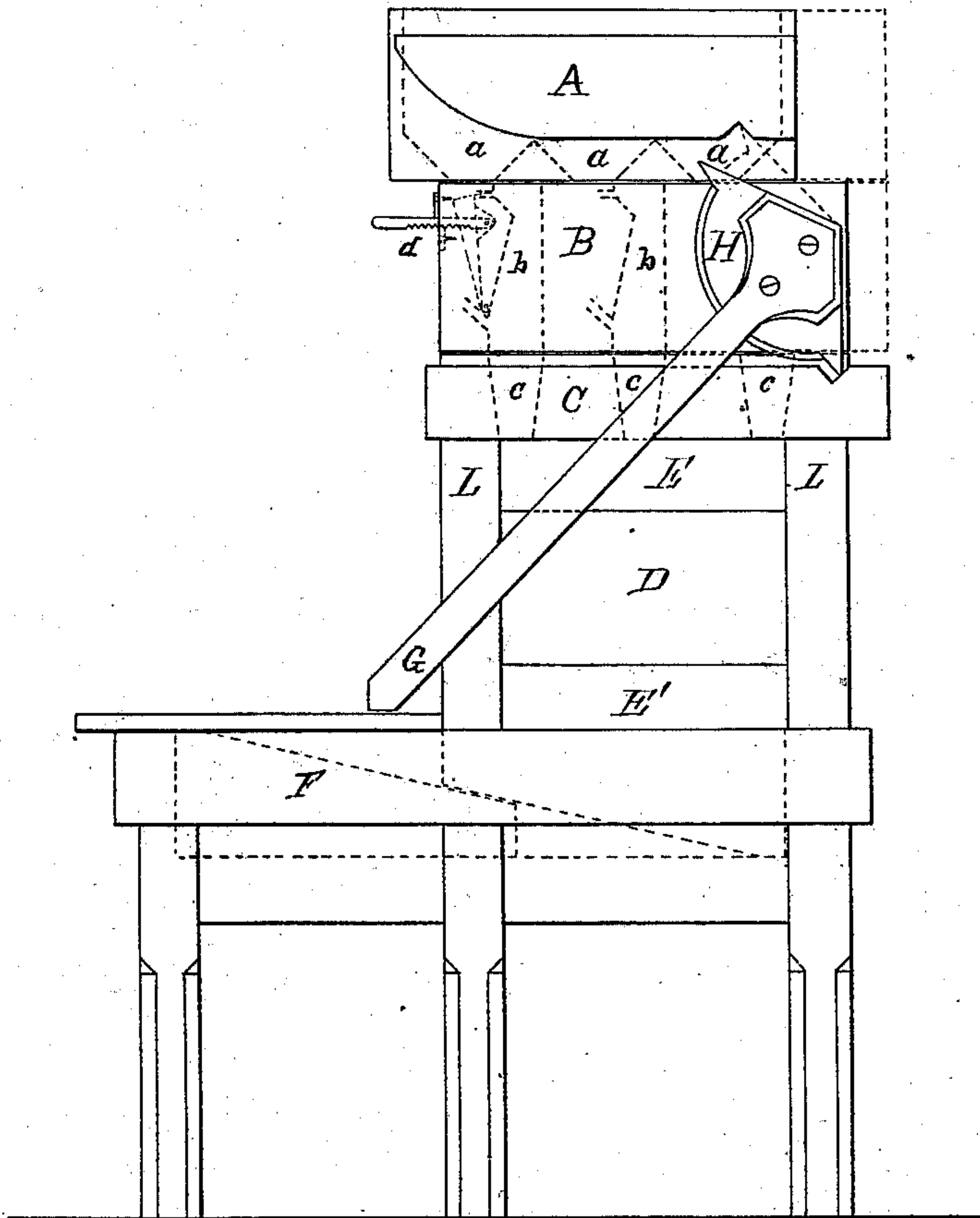


R. PICKERING.  
Automatic Box-Filler.

No. 225,072.

Patented Mar. 2, 1880.

*Fig 1.*



Witnesses

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*J. A. Tallant*

*Richard Pickering, Inventor,*

By *Geo. C. Tracy & Co.,* Attorneys.

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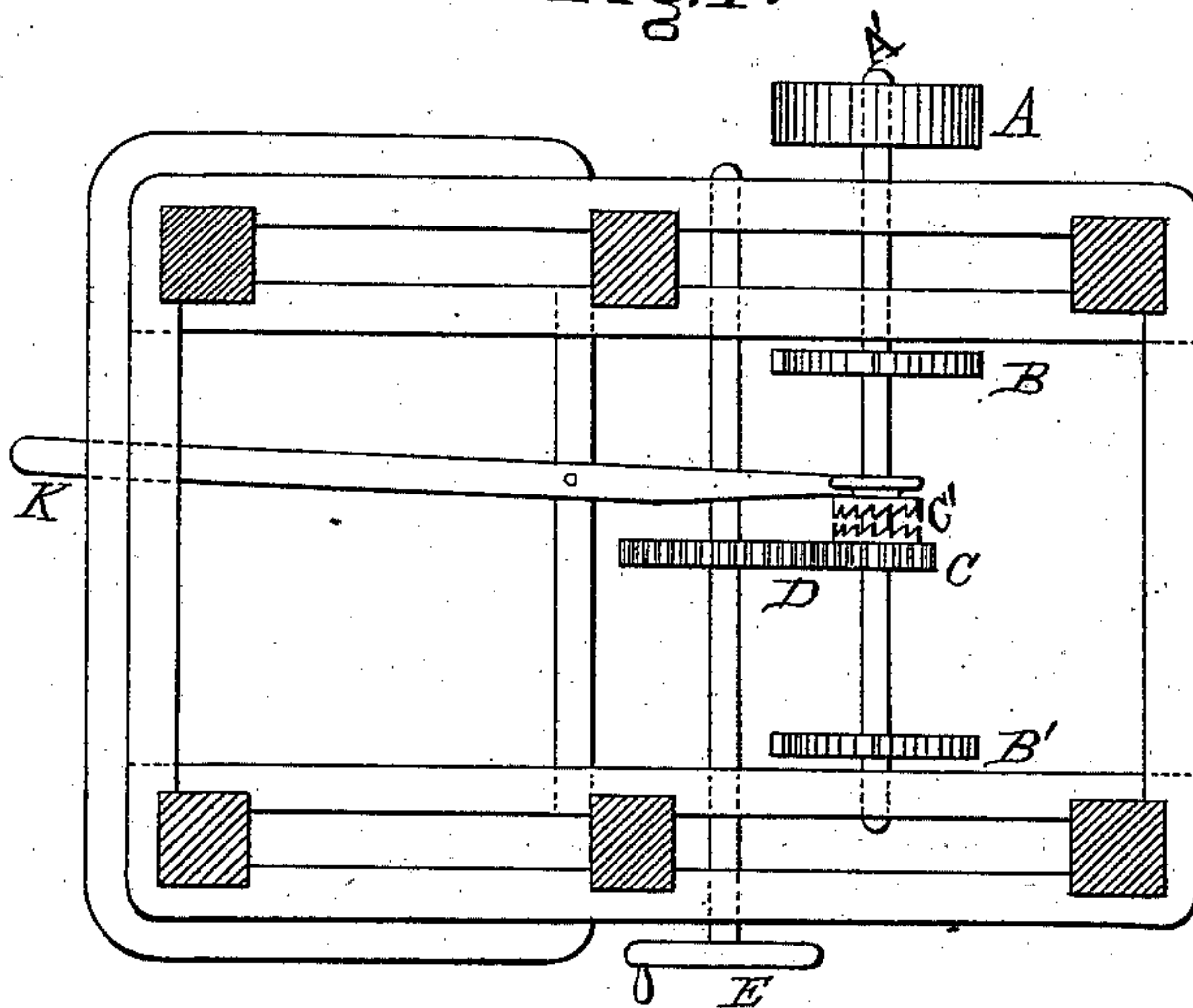
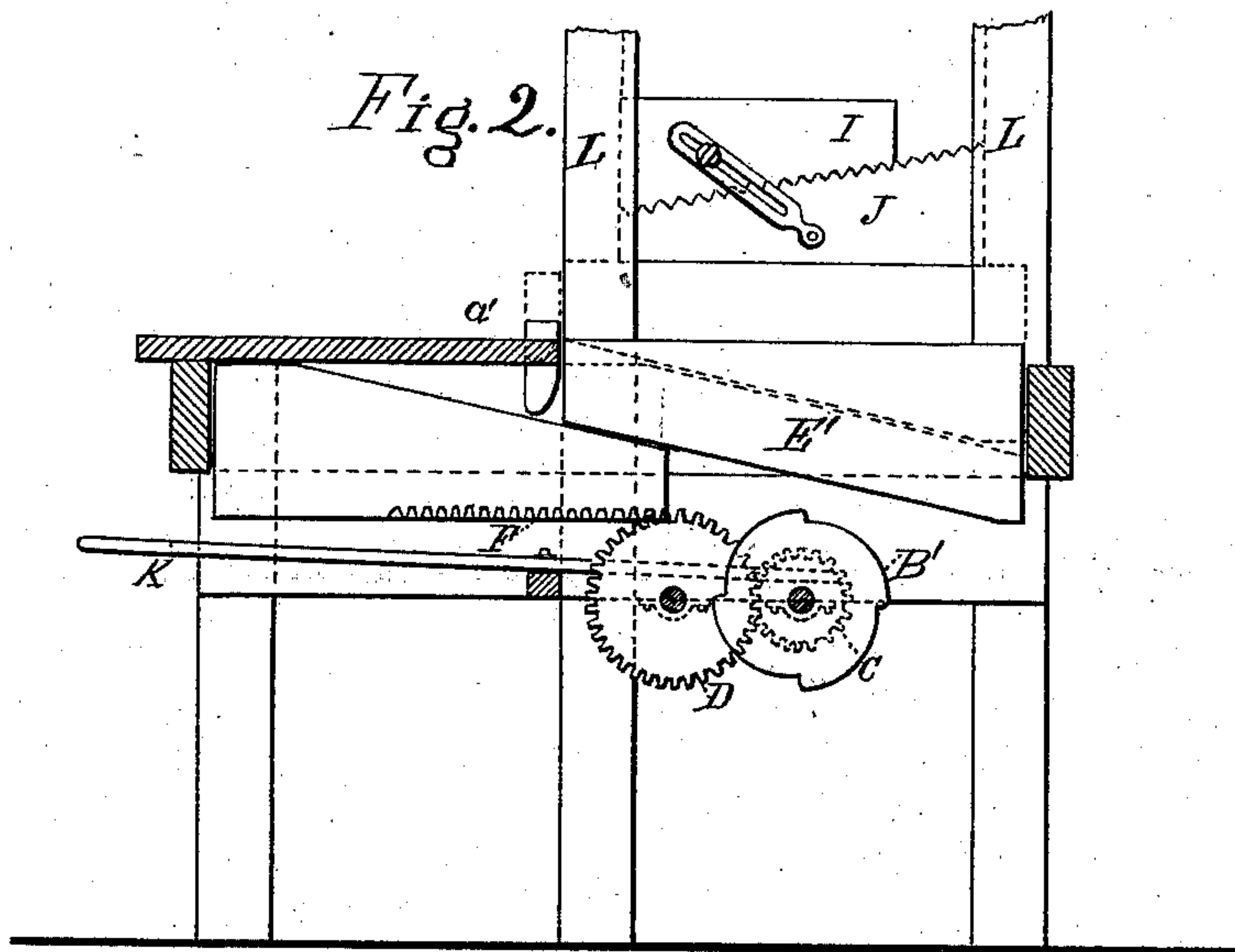


Fig. 2.



Witnesses

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J. F. Tallant

Richard Pickering, Inventor

By Geo. C. Tracy & Co., Attorneys



# UNITED STATES PATENT OFFICE.

RICHARD PICKERING, OF CLEVELAND, OHIO.

## AUTOMATIC BOX-FILLER.

SPECIFICATION forming part of Letters Patent No. 225,072, dated March 2, 1880.

Application filed August 30, 1879.

*To all whom it may concern:*

Be it known that I, RICHARD PICKERING, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Automatic Box-Fillers; 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.

My invention relates to certain new and useful improvements in machines for filling paper or other small boxes with spices and various other ground or granulated substances, the object being to measure a certain proportion of the substance and then allow it to fall into the boxes previously placed in position beneath the spouts leading thereto from the measuring-chambers.

In devices having a like object heretofore the hopper, the measuring-chambers, and the spouts have been stationary, and between each of these there has been used a plate suitably perforated as a cut-off, which, by being moved back and forth, caused the alternate opening and closing of the mouths of the hopper and measures, thus admitting the substance with which the hopper was filled to the measures, and by the movement of another plate in turn to the spouts communicating with the boxes placed underneath. By this means a greater amount of friction, clogging, and spilling of the material is caused than by the use of my improvements, the moving of the cut-off plates to and fro forcing out the material between the parts of the machine.

In my improved device these extra parts are dispensed with. I use no cut-off plates, but move the hopper and measuring-chambers alternately backward and forward to obtain the same results, thus greatly lessening the surface subject to friction.

My invention is designed to provide a system of operation that will give a free action of the air admitted of necessity with the substance from the hopper by providing a clear passage for the air to precede or follow the material while the measures are filling and emptying. The air escapes first by a hole directly over the spout brought into position when the measure is filling, and then, lastly,

by the air-passage on under side of hopper, causing greater regularity of measure, and preventing puffing, choking, and spilling of the material, and it is furthermore much simpler and direct in its action. I dispense entirely with any cut-off plates, and make the measuring-compartments and hopper movable, by this means rendering each compartment its own cut-off.

I have also greatly improved the mechanism for raising the table upon which the boxes are placed and agitating the various parts appendant thereto, to prevent the material caking or choking the passages, and also to properly pack that which is in the boxes. As more efficient I design to use a rotating hopper and measuring-chambers for fine materials, and square or oblong ones for coarser substances, and also a four-armed device, stationed on the shaft of the said rotating hopper, to equalize the gravitation, and to insure the equal distribution of fine materials when it is of a mixed character, (coarse and fine,) and prevent fine material lumping or caking in the hopper.

I have also improved the various inside compartments by coating the wood and metal surfaces with a smooth substance, (heretofore the surfaces have been left bare;) and the improvement consists in maintaining a smooth surface, thus facilitating the passing of the material, and preventing the poisonous corrosion of the metal, causing a rough surface and mixing with food material.

In the drawings, Figure 1, Sheet 1, is an elevation of my machine, showing the movement of the various devices for opening and closing the different parts, in which A is a hopper to contain the material to be transferred to the boxes. B is the series of measures, and C the spouts communicating with the measures and boxes. E is a slide moving vertically in slots in the posts L L. D is the space in which is placed the nest or tray containing the boxes. E' is the platform on which the tray is placed, the under side of which is beveled, as shown by the dotted lines, to correspond with the counter-bevel on the upper side of the sliding platform F. G is a lever operating the cam-shaped device H to move the hopper and measuring-chamber back and forth for the purpose of opening and closing the spouts.



*a a a* are the openings from the hopper to the series of measures. *b b* are the measures, (shown in section by the dotted lines.) *c c* are the spouts. *d* is a notched lever or rack, by means of which each of the measures may be adjusted for the purpose of increasing or diminishing the size of the measuring-chambers, to regulate the quantity of material which they will hold, by moving one of the walls of the measure inward or outward.

The adjusting plates or walls of the measures in the middle or inner rows may be acted upon by a triple-jointed stretcher, one joint of which is attached to the plate, one to wall back of plate, and the center joint to a rod extending to side of measure, and moved in a horizontal plane by means of a screw-nut, half of the tier moving to one side of the measuring-chamber and half to the opposite side. By this means each measure can be arranged to hold a certain weight, and then, by means of a drop-latch or thumb-screw, fastened securely in place. The adjustment of the round series of measures is obtained in the same way.

In Sheet 2, Fig. 1 is a plan of the under side of table or platform, showing the devices for raising and lowering the tray of boxes to and from the spouts, and for agitating or shaking the various parts of the machine to cause the material to pack uniformly and firmly in the boxes, and also for giving such motion to that which is in the hopper as to prevent its caking or adhering to the sides.

A is a pulley attached to shaft A', and to which are also attached the cam-wheels B B'. C is a wheel mounted on the same shaft. Power is communicated by a belt to the pulley A. C turns loosely upon the shaft A' until the teeth of the clutch C' are moved in or out of gear by the lever K; or the shaft may be made movable, and caused to throw the wheel D into or out of gear with wheel C, the latter being tight upon the shaft by means of the lever K, which for this purpose can be suitably attached to its shaft.

E is a hand-wheel, by means of which the shaft may be operated without connecting it with the pulley-shaft A', and to give the operator control over the shaking of the hopper and boxes, which he can discontinue at will as regards the hopper, and still maintain the shaking of the box-tray by raising the lock-lever *a'* and checking the raised platform from running down all the way through the medium of the hand-wheel E.

Fig. 2 is an elevation of the shaking device, as shown in plan, Fig. 1.

J J are blocks sliding in grooves in posts L L, and made movable one upon the other, with serrated edges, so that they can be raised or lowered and fastened by a suitable tie, their use being to communicate the shaking motion from the cams.

E' F are beveled blocks sliding vertically between pillars L L. When the block F is in position, as shown in Fig. 2, the cams B B

cannot act upon the tray containing the boxes or the other parts of the machine for agitating it, but is made to do so by the beveled block, which is drawn forward by the cog-wheel D engaging in the rack at F, when the wheels are put in gear, as described before.

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

1. In a box-filler, the hopper, the measures, and the spouts, arranged to open and close without an interposing cut-off, substantially as described and shown.

2. In a box-filler, the arrangement of the sliding and rotating hopper upon a series of measures to cause the alternate filling in and cutting off of the material, and opening the air-passages in said hopper to and from said measures, substantially as described.

3. In a box-filler, the arrangement of a series of measures to slide and rotate upon a series of spouts, to cause the alternate opening and closing of said spouts and air-passages in said measures, substantially as described.

4. In a box-filler, the cam-lever G H, arranged to move the hopper and measuring-chambers back and forth, substantially as described.

5. The hopper A, with its bottom constructed and arranged with alternate openings and tunnels for air-passages, the outside surface of said tunnels serving as cut-offs, substantially as described.

6. The adjustable measures *b b*, combined with an air-passage between the bottom of the same and the back part of adjusting-wall and an opening through the sloping wall of the measuring-chamber, substantially as and for the purpose described.

7. The measures *b b*, constructed with adjusting-walls, pivoted at the bottom and wholly disconnected at the top and bottom with the cut-off, substantially as described.

8. The rack *d*, or its equivalent, as described, in combination with the measures *b b*, having moving pivoted walls, substantially as and for the purposes set forth.

9. The movable platforms F E', in combination with the cog-wheels, rack, lever, cams, and rack-lever connected therewith, substantially as and for the purposes set forth.

10. The serrated blocks I J and guide-pillars L L, in combination with the movable platforms F E' and connected gears, substantially as and for the purposes set forth.

11. The box-holder tray constructed and arranged to open and close all the compartments at one operation, substantially as described.

12. In a box-filler, the spouts and air-passages of conical form, constructed and arranged to operate substantially as described.

13. The combination, with the rack *d*, of a screw-nut or cam for operating the same, substantially as described.

14. In automatic box-fillers, the process,

substantially as described, of agitating the various parts, so that the material may be firmly packed when the boxes are filled.

5 15. In automatic box-fillers, the process, substantially as described, of moving and agitating the various parts, so that the material may not choke or cake in the passages or vessels.

10 16. In a box-filler, the coating of the inside surfaces with a smooth substance, for the purpose set forth and described.

17. In a box-filler, the four-armed device mounted on the stationary shaft of the rotating hopper, serving in the manner and for the purposes set forth and described.

This specification signed and witnessed this 15  
8th day of May, 1879.

R. PICKERING.

Witnesses:

GEO. C. TRACY,  
EDW. S. TRACY.