

No. 698,182.

Patented Apr. 22, 1902.

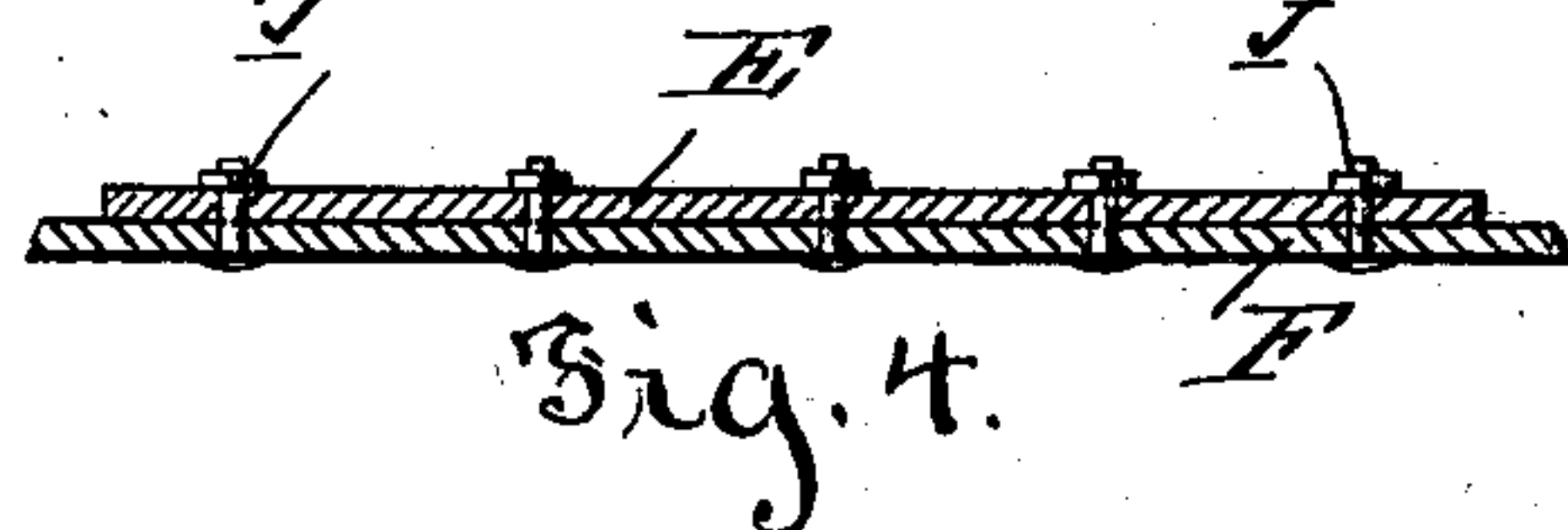
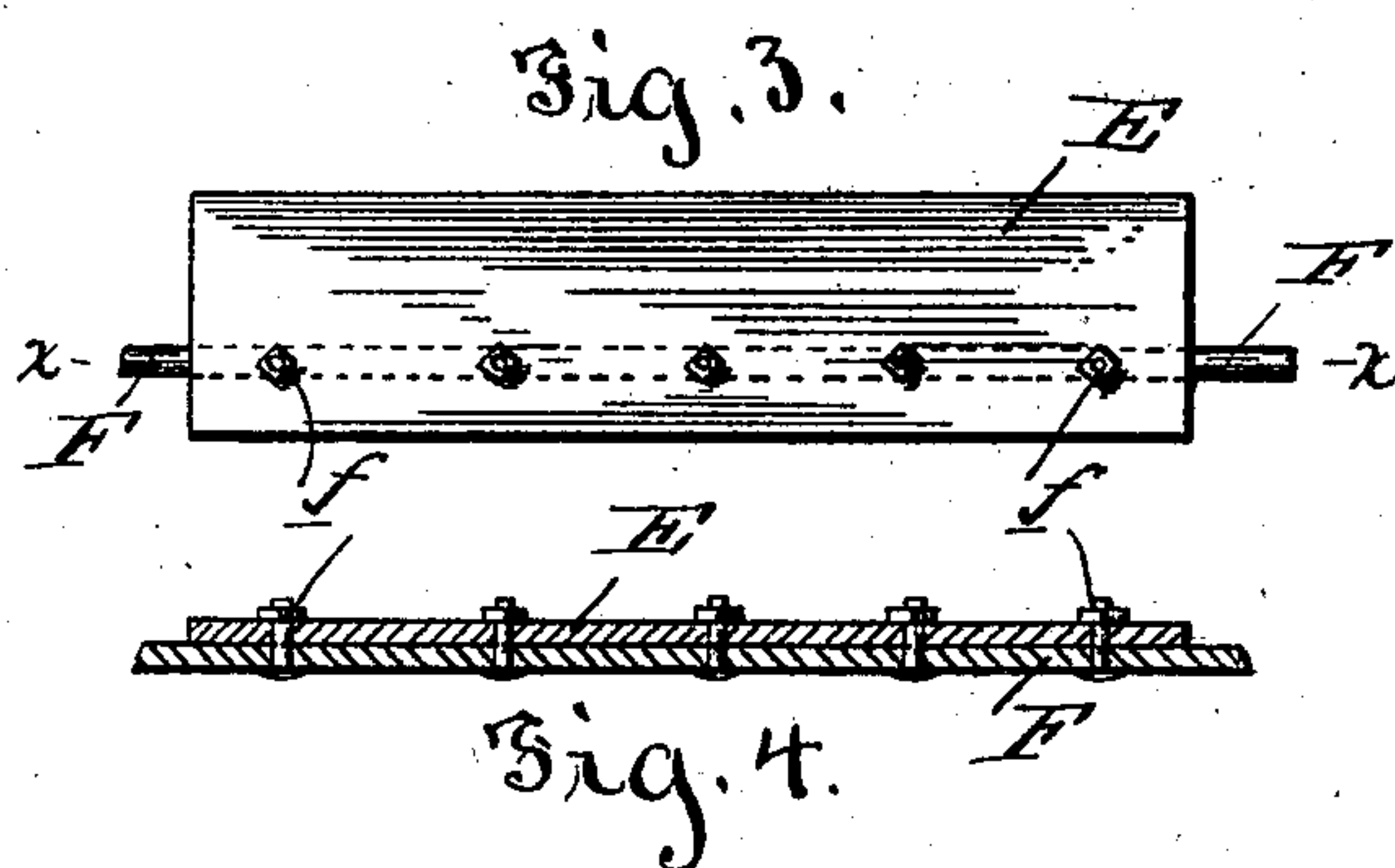
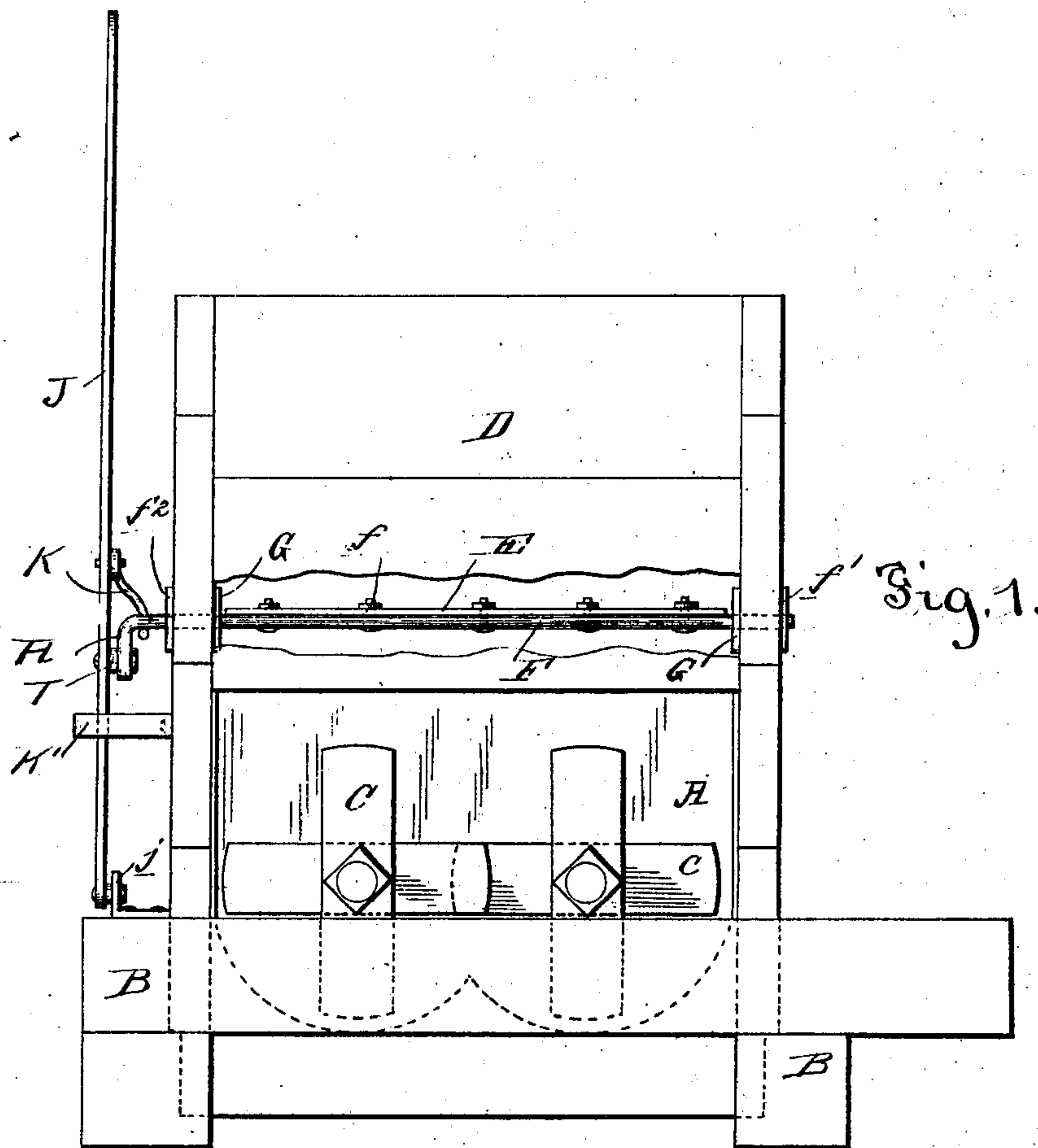
C. T. DRAKE.

HOPPER BOTTOM FOR MIXERS OR THE LIKE.

(Application filed June 7, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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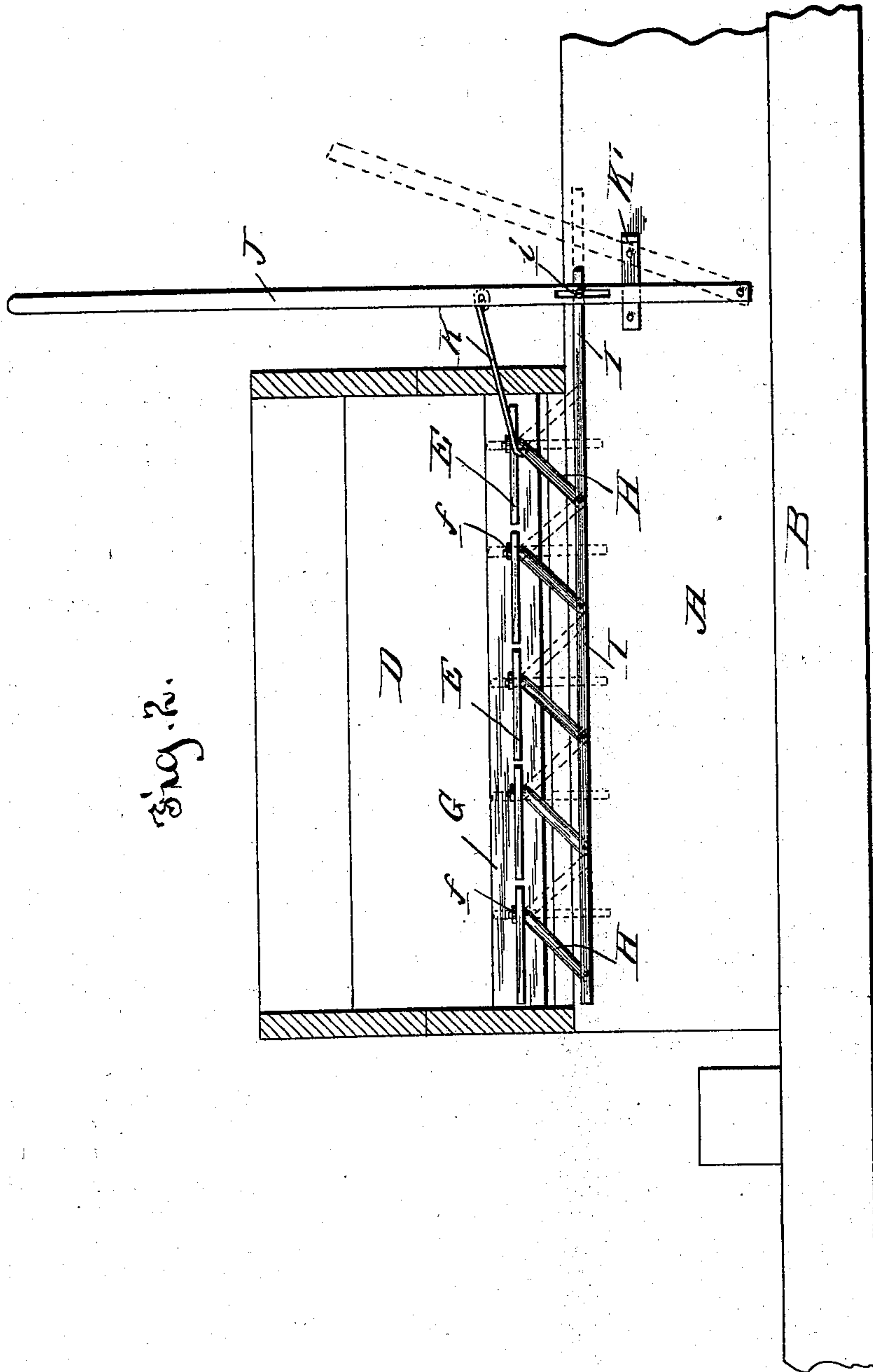
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# UNITED STATES PATENT OFFICE.

CHESTER T. DRAKE, OF CHICAGO, ILLINOIS.

## HOPPER-BOTTOM FOR MIXERS OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 698,182, dated April 22, 1902.

Application filed June 7, 1901. Serial No. 63,527. (No model.)

*To all whom it may concern:*

Be it known that I, CHESTER T. DRAKE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hopper-Bottoms for Mixers or the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in hopper-bottoms designed, primarily, for use in connection with a measuring receptacle or hopper adapted to discharge its contents into a mixer or the like, but susceptible of many other applications.

A primary object of the invention is to construct a dumping-bottom of a series of parallel sections or slats pivoted to the walls of the receptacle and provided with means for imparting a simultaneous operation to all of the sections.

The invention further embraces the idea of a novel manner of securing the sections or slats to their pivot-bars that the weight of the contents of the hopper or receptacle thereon will greatly assist the tilting of the sections when the operating means has been initially manipulated.

The invention further relates to novel details and arrangements of the several parts, as will more fully appear from an inspection of the detailed description hereinafter and the appended claims, when taken in connection with the drawings forming part hereof.

In the drawings a preferable embodiment of the invention is illustrated for the sake of clearness in understanding the invention, and when hereinafter referring to the same like reference characters refer to corresponding parts in the several views.

Figure 1 is an end view of a measuring hopper or receptacle supported upon a mixing-chamber of any usual or preferred construction, parts being shown in section to show the improved bottom in operative position. Fig. 2 is a side elevation of Fig. 1 with the side wall of the receptacle taken away and showing the open and closed positions of the bottom-sections; and Figs. 3 and 4 are detailed views of one of the sections, showing

the manner of supporting the same upon its pivot-rod.

Referring more specifically to the drawings, A designates a mixing-chamber of any suitable type supported in any desired manner, as by beams B, and C represents the mixing-blades rotatably mounted in the chamber. Directly above the mixing-chamber, supported thereby or constituting a continuation thereof, is a measuring receptacle or hopper D, so disposed as to be capable of discharging its contents into a mixing-chamber. At the lower portion of this receptacle D is provided my improved tilting bottom, which may now be described.

The bottom comprises a series of parallel sections or slats E, adapted normally to occupy a horizontal plane and constitute an unbroken bottom or support for the receptacle D. Each of the sections to one side of the longitudinal center thereof is provided with a pivot-rod F, the same being secured thereto through the medium of bolts *f*. The free end of each supporting-rod passes through and is supported in a bearing-plate *f'* on the opposite side of the receptacle and at its opposite end is supported in a corresponding bearing-plate *f''* at the other side of the receptacle. On the insides of the walls of the receptacle wearing-plates G are provided to protect the said sides, the same being usually constructed of wood. Each pivot-rod is provided with an offset portion or crank H, the lower ends of which are pivoted to the horizontally-disposed shifting rod I. The end of the rod I is in turn pivoted to the main operating-lever J, pivoted to a bracket *j* on the mixer-frame through the medium of the slot-and-bolt adjustable connection *i*.

From so much of the description the operation of the bottom may be understood, the sections of the bottom being arranged in a horizontal plane, as shown in full lines, Fig. 2. The bottom of the receptacle is effectually closed, and any material thrown therein to be measured will be supported upon said sections, the operating-lever occupying a substantially vertical plane, as shown, thereby retaining the shifting rod and the cranks pivoted thereto in their foremost positions. When it is desirable to dump the material from the measuring chamber or hopper into



the mixing-chamber therebeneath, the sections of the bottom are tilted by throwing the operating-lever to the right in the position shown by dotted lines, whereby the shifting  
 5 rod will be drawn in the same direction, throwing the cranks upon their pivots in the same general direction, and consequently tilting the sections into a vertical plane, also shown by dotted lines. The material is thereupon  
 10 free to drop through the spaces intermediate the sections. The operation of dumping is effectually assisted by the weight of the contents of the receptacle upon the extended surface of the sections or slats to the left of their  
 15 pivot-rods.

To lock the operating-lever in vertical position and maintain the bottom sections in alinement, a catch K is pivoted to said lever and is adapted to be thrown over the extended  
 20 portion of the pivot-rod nearest thereto immediately adjacent the crank portion thereof, while to prevent an excessive fall of the lever to the right a stop K' is provided at the side of the mixing-chamber.

25 From the above it will be apparent that by a relatively simple construction and arrangement a hopper-bottom is afforded which for efficiency and easy manipulation will be found to be an improvement over any analogous  
 30 constructions in the art.

Having thus described this invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a hopper, the combination with the  
 35 sides thereof, of a tilting bottom comprising a plurality of parallel sections eccentrically journaled in and extending through the opposite sides of the hopper, a crank secured to each of said sections outside of the hopper,  
 40 and means for simultaneously oscillating said cranks and thereby swinging said sections in the same direction into and out of alinement.

2. In a hopper, the combination with the sides thereof, of a tilting bottom comprising  
 45 a plurality of parallel sections, rods journaled in the opposite sides of the hopper to which said sections are eccentrically secured, a crank on an end of each of the said rods, and  
 50 means connected to the cranks on said rods for simultaneously swinging all of the sections in the same direction into and out of alinement, substantially as described.

3. In combination with a hopper or receptacle and suitable supports, a tilting bottom  
 55 comprising a plurality of parallel sections eccentrically pivoted in the sides of the recep-

tacle, wear-plates on the insides of the walls of the receptacle through which the pivots of the sections extend, a crank secured to each of said sections outside of the hopper, and  
 60 means for simultaneously oscillating said cranks and thereby swinging said sections in the same direction into and out of alinement.

4. In combination with a hopper or receptacle and suitable supports therefor, a tilting  
 65 bottom comprising a plurality of parallel sections adapted to normally occupy a horizontal plane, a pivot-rod for an end of each section, a crank on each pivot-rod, means in communication with all of the cranks for simultaneously swinging in the same direction all  
 70 of the sections into and out of alinement, and a stop for limiting the movements of the said means, substantially as described.

5. In combination with a hopper or receptacle and suitable supports therefor, a tilting  
 75 bottom comprising a plurality of parallel sections, pivots for said sections, a crank extending outwardly from each section, a shifting rod pivoted to all of the cranks, a pivoted  
 80 operating-rod, having a slot therein, and a projection fixed to said shifting rod and slidably engaging the slot in the operating-lever.

6. In combination with a hopper or receptacle and suitable supports therefor, a tilting  
 85 bottom comprising a series of pivoted parallel sections adapted to normally occupy a horizontal plane, a crank on each section, a shifting rod connected to all of the cranks, a pivoted operating-lever connected to the shifting  
 90 rod, means for limiting excessive movement of the operating-rod and a catch adapted to engage one of the cranks to lock the operating-lever in normal position, substantially as described.

7. In a hopper, the combination with the sides thereof, of a tilting bottom comprising  
 a series of eccentrically-pivoted parallel sections, a crank on each section outside of the  
 100 hopper, a pivoted operating-lever, means connecting said lever to the crank on each section, and a fastening device pivoted to the operating-lever for retaining the same in position through engagement with one of said sections to maintain the sections in alinement,  
 105 substantially as described.

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

CHESTER T. DRAKE.

Witnesses:

O. PETERSON,  
 J. M. WEBER.