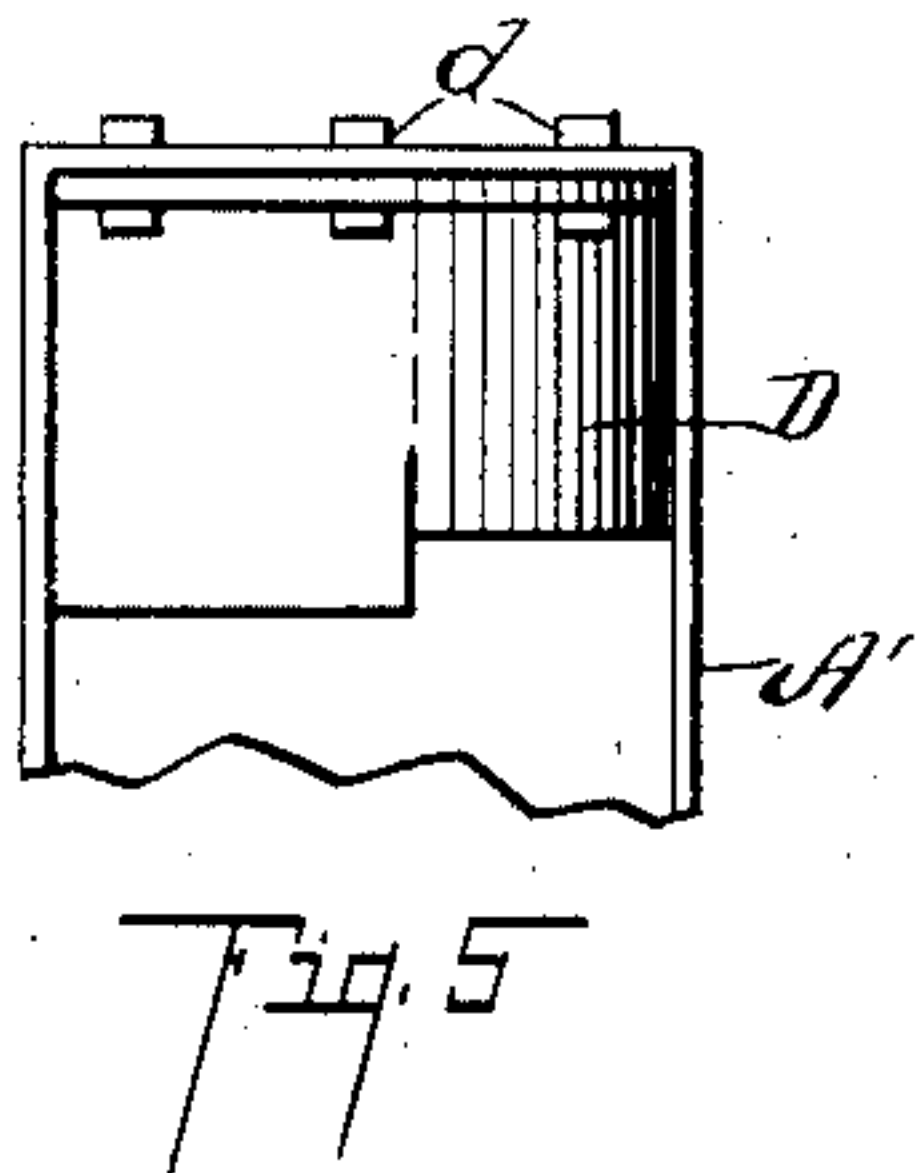
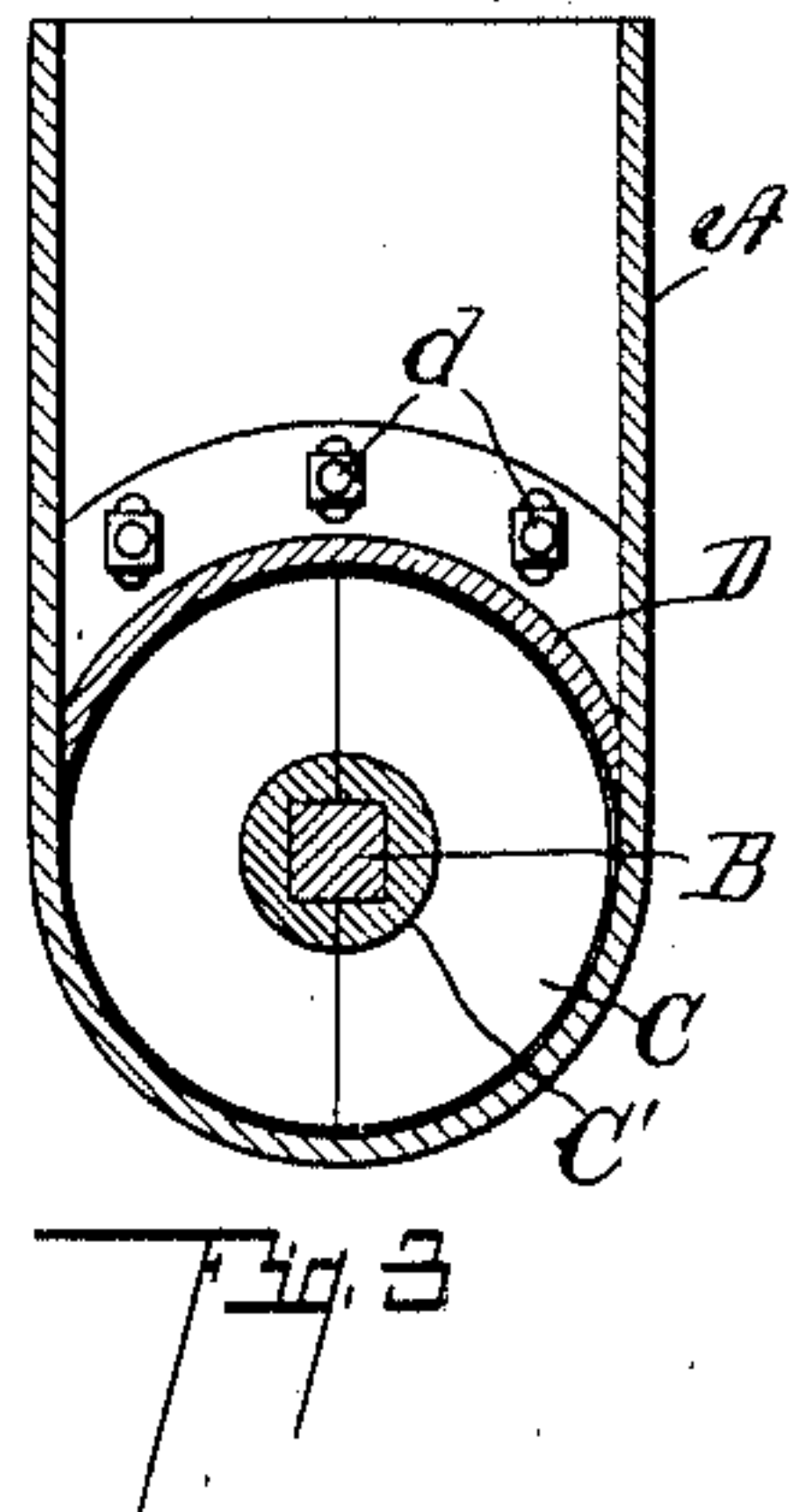
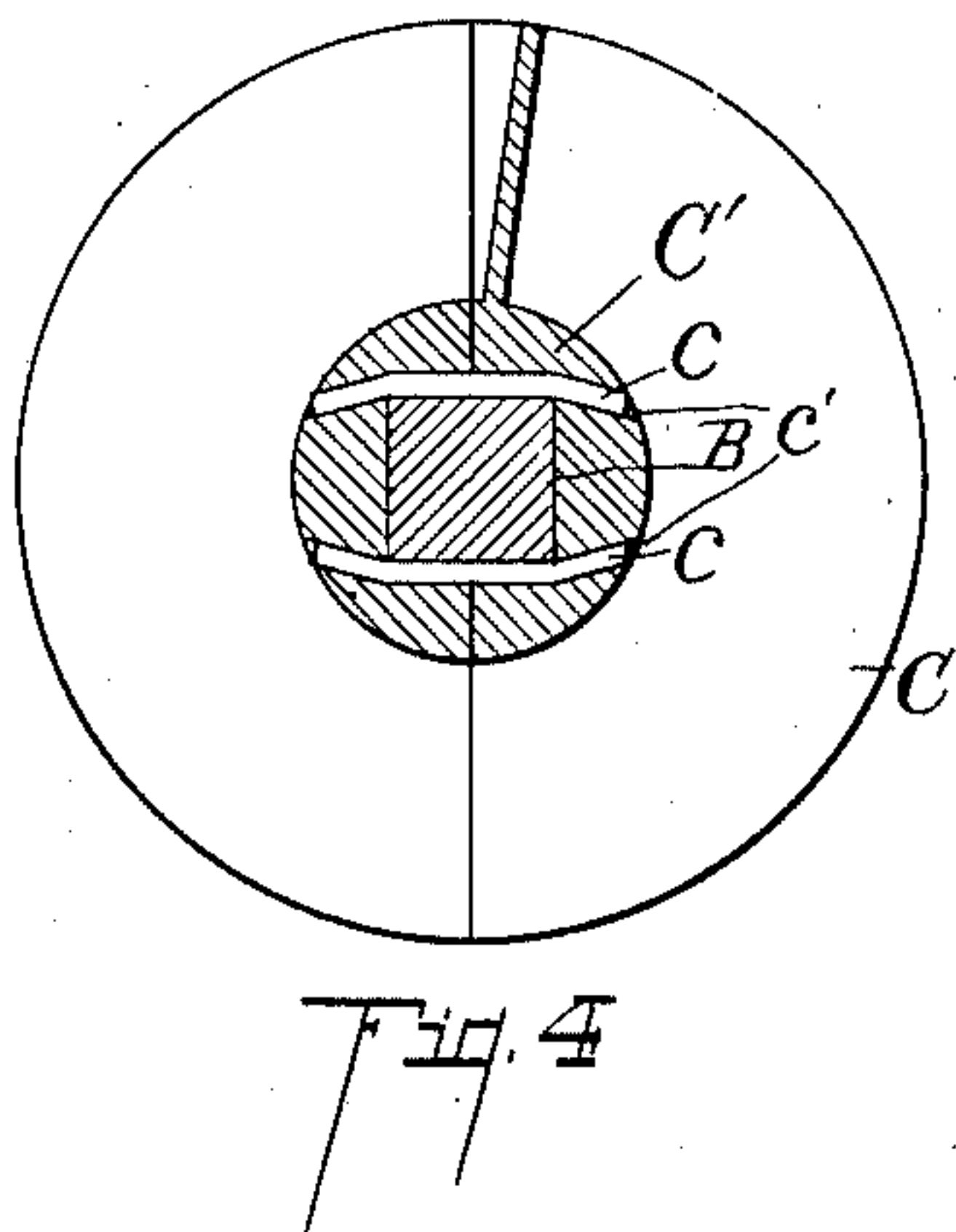
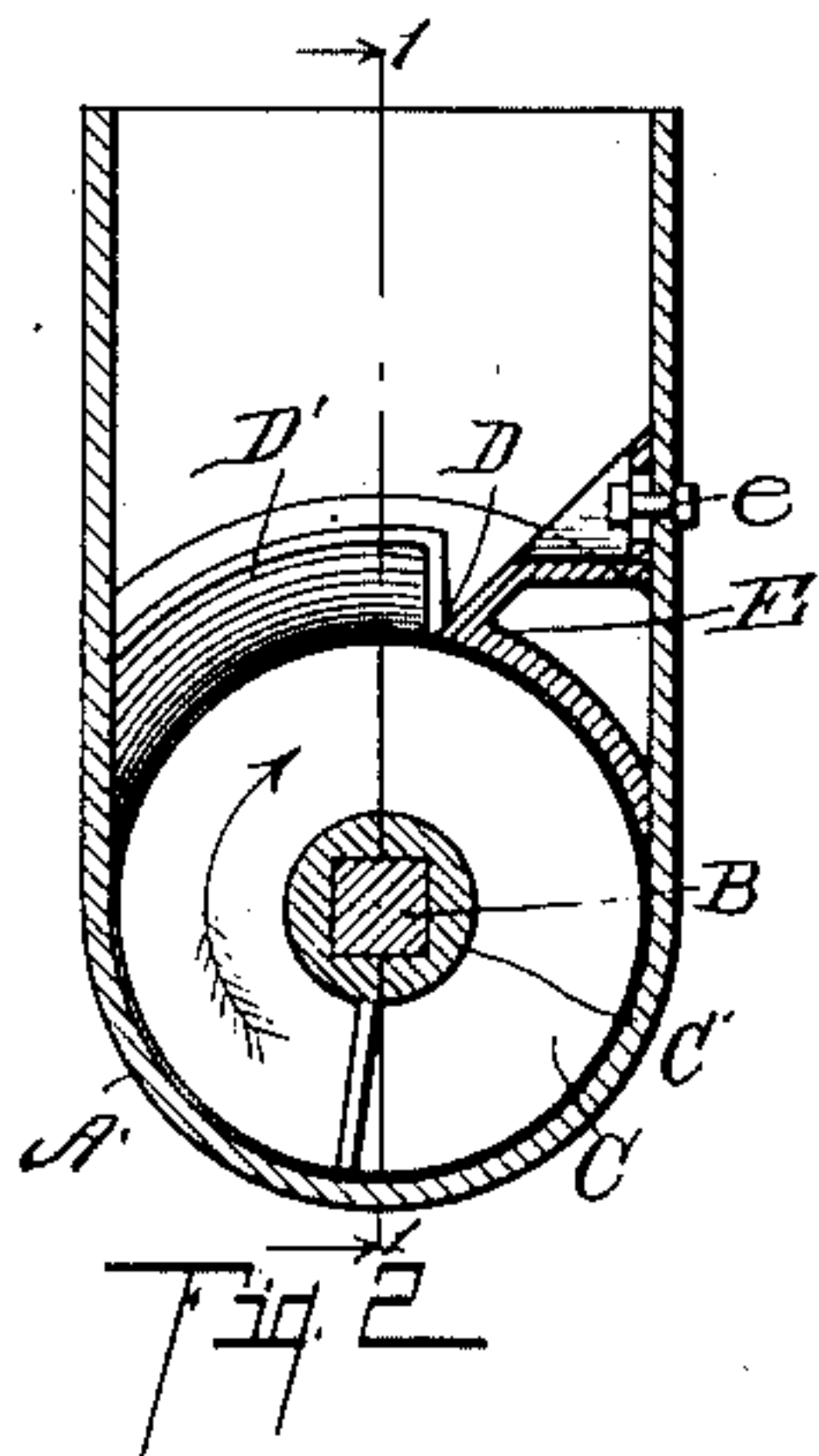
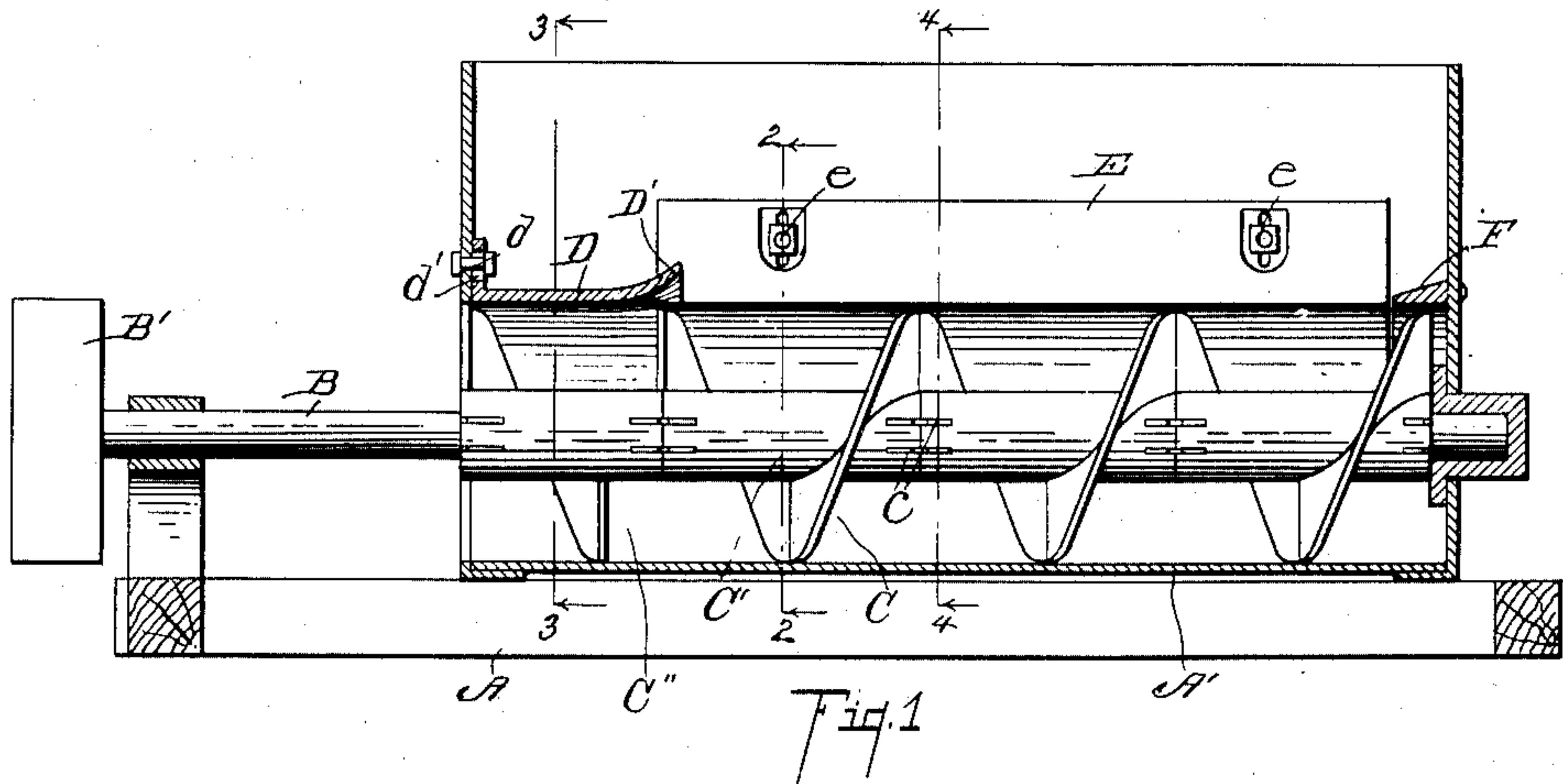


No. 879,366.

PATENTED FEB. 18, 1908.

H. D. CONWAY.  
FEED DEVICE OR FEED HOPPER.

APPLICATION FILED MAY 14, 1906.



Witnesses:  
*Lulu E. Greenfield*  
*Clara A. Sabin*

Inventor,  
*Henry D. Conway*  
By *Chappell & Co.*  
Att'ys.



# UNITED STATES PATENT OFFICE.

HENRY D. CONWAY, OF JACKSON, MICHIGAN.

## FEED DEVICE OR FEED-HOPPER.

No. 879,366.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed May 14, 1906. Serial No. 316,765.

*To all whom it may concern:*

Be it known that I, HENRY D. CONWAY, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Feed Devices or Feed-Hoppers, of which the following is a specification.

This invention relates to improvements in feed devices or feed hoppers.

My improved feed device or hopper is particularly adapted for use as a feed device for crushed stone, or other coarse material, in concrete mixing machines, such as are illustrated and described in my U. S. Letters Patent No. 793,059, issued to me on the 27th day of June, 1905, although it is desirable for use in numerous other relations.

The objects of this invention are: first, to provide an improved feed hopper adapted for feeding crushed stone and other coarse materials, which is not likely to be clogged thereby; second, to provide an improved feed hopper adapted to deliver the material very evenly; and third, to provide an improved construction of feed or conveyer screw.

Further objects, and objects relating to details of construction, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which—

Figure 1 is a longitudinal central section of my improved feed device, taken on a line corresponding to line 1—1 of Fig. 2, the shaft and screw or conveyer being shown in full lines; Fig. 2 is a transverse section on a line corresponding to line 2—2 of Fig. 1; Fig. 3 is a transverse section on a line corresponding to line 3—3 of Fig. 1; Fig. 4 is an enlarged section of the conveyer or screw, taken on a line corresponding to line 4—4 of Fig. 1, and Fig. 5 is a detail plan showing the arrangement of the shield or guard D.

In the drawings, the sectional views are taken looking in the direction of the little arrows at the ends of the section lines, and

similar letters of reference refer to similar parts throughout the several views.

Referring to the drawing: A represents the frame upon which the hopper is supported. The bottom of the hopper A' is curved in cross-section, as clearly appears in Figs. 2 and 3, its curvature corresponding to that of the spiral conveyer or feed screw.

The conveyer or feed screw shaft B is provided with suitable journals at each end, the body of the shaft being rectangular in cross-section.

The blade of the conveyer or feed screw is made up of sections C having hubs C' which are conformed to fit the rectangular portions of the shaft. The hubs C' are divided longitudinally and are secured upon the shaft by keys c which are driven into transverse slots c' formed in the ends of the hubs. These slots c' are deflected inwardly towards each other at the peripheries of the hubs, so that when the keys are driven into the same their ends are bent, thereby preventing their slipping longitudinally from the slots. This secures the screw sections firmly in position upon the shaft and, at the same time, allows their ready removal, should occasion require, it only being necessary to drive the keys out to free the same. The use of bolts or screws is thus avoided and at the same time the fastening is very secure.

A break or opening C'' is formed at the delivery end of the feed screw preferably by omitting one of the blade sections C. The object of this will be pointed out later.

At the delivery end of the hopper is a guard or shield D which extends inwardly over the screw to a point above the break or opening C' therein. The guard D is adjustably secured by means of the bolts d arranged through suitable vertical slots d' therein. The guard is curved to conform to the feed screw or conveyer, and its inner end is flared upwardly at D' to more readily allow the material to pass thereunder. The inner end of the feed screw is also provided with a guard, as F, which projects inwardly over the screw (see Fig. 1). A longitudinal guard E is also provided, the same being arranged between the end guards F and D and covering practically one-half of the feed screw. The guard E is curved to conform to the screw. The guard E is preferably adjustably secured in position by means of bolts e, arranged in the ver-



tical slots  $e'$  so that it may be adjusted relative to the screw, and is arranged so that the feed screw when in operation, revolves toward the same, as is indicated by the arrow in Fig. 2.

5 It is found in practice, that coarse materials, particularly crushed stone, are likely to become wedged between the feed screw and the hopper walls when in operation, thereby either breaking the screw or hopper  
10 or the driving means or some other part of the machine. It is to obviate this liability that I have designed my improved feed hopper. It is of course adapted for use in feeding other materials than crushed stone, or  
15 coarse material, although especially designed for that purpose.

The break in the forward end of the feed screw prevents any of the material becoming wedged between the guard D and the screw.  
20 The guard D supports the material in the hopper so that it is only fed therefrom by means of the feed screw, thus insuring an even positive feed.

I have illustrated and described my improved feed hopper in detail in the form preferred by me on account of its structural convenience and economy. I am aware, however, that it is capable of considerable variation in structural details without departing  
30 from my invention.

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

1. The combination of a hopper, the bottom of which is curved in cross-section, having a delivery opening at one end; a spiral or screw conveyer having a break in the blade thereof, at its delivery end; a vertically adjustable guard or shield arranged at the delivery end of said hopper, extending inwardly to a point above the break in the said screw or conveyer blade said shield being conformed to said screw and having its inner end flared upwardly at  $D'$ ; a shield arranged  
45 over the inner end of said screw and curved to conform thereto; and a vertically adjustable longitudinal guard or shield toward which said screw revolves, arranged between said end guards or shields and extending inwardly from the wall of said hopper curved to conform to said screw and arranged in close proximity thereto, for the purpose specified.  
50

2. The combination of a hopper, the bottom of which is curved in cross-section, having a delivery opening at one end; a spiral or screw conveyer having a break in the blade thereof, at its delivery end; a guard or shield arranged at the delivery end of said hopper, extending inwardly to a point above the break in said screw or conveyer blade said shield being conformed to said screw and having its inner end flared upwardly at  $D'$ ; a shield arranged over the inner end of said  
65 screw and curved to conform thereto; and a

longitudinal guard or shield toward which said screw revolves, arranged between said end guards or shields and extending inwardly from the wall of said hopper, curved to conform to said screw and arranged in close proximity thereto, for the purpose specified. 70

3. The combination of a hopper, the bottom of which is curved in cross-section, having a delivery opening at one end; a spiral or screw conveyer having a break in the blade thereof, at its delivery end; a guard or shield arranged at the delivery end of said hopper, extending inwardly to a point above the break in the said screw or conveyer blade said shield being conformed to said screw and having its inner end flared upwardly at  $D'$ ; and a longitudinal guard or shield toward which said screw revolves, extending inwardly from the wall of said hopper, curved to conform to said screw and arranged in close proximity thereto, for the purpose specified. 85

4. The combination of a hopper, the bottom of which is curved in cross-section, having a delivery opening at one end; a spiral or screw conveyer having a break in the blade thereof, at its delivery end; a guard or shield arranged at the delivery end of said hopper, extending inwardly to a point above the break in the said screw or conveyer blade; a shield arranged over the inner end of said screw and curved to conform thereto; and a longitudinal guard or shield toward which said screw revolves, arranged between said end guards or shields and extending inwardly from the wall of said hopper, curved to conform to said screw and arranged in close proximity thereto, for the purpose specified. 100

5. The combination of a hopper, the bottom of which is curved in cross-section, having a delivery opening at one end; a spiral or screw conveyer having a break in the blade thereof, at its delivery end; a guard or shield arranged at the delivery end of said hopper, extending inwardly to a point above the break in the said screw or conveyer blade; and a longitudinal guard or shield toward which said screw revolves, extending inwardly from the wall of said hopper curved to conform to said screw and arranged in close proximity thereto, for the purpose specified. 110

6. The combination of a hopper, the bottom of which is curved in cross-section, having a delivery opening at one end; a spiral or screw conveyer having a break in the blade thereof, at its delivery end; and a vertically adjustable guard or shield arranged at the delivery end of said hopper, extending inwardly to a point above the break in said screw and having its inner end flared upwardly at  $D'$ ; for the purpose specified. 120

7. The combination of a hopper, the bottom of which is curved in cross-section, hav- 130



ing a delivery opening at one end; a spiral or screw conveyer; a guard or shield arranged at the delivery end of said hopper, said shield being conformed to said screw and having its inner end flared upwardly at D'; a shield arranged over the inner end of said screw and curved to conform thereto; and a longitudinal guard or shield toward which said screw revolves, arranged between said end guards or shields and extending inwardly from the wall of said hopper, curved to conform to said screw and arranged in close proximity thereto, for the purpose specified.

10. 8. The combination of a hopper, the bottom of which is curved in cross-section, having a delivery opening at one end; a spiral or screw conveyer; a guard or shield arranged at the delivery end of said hopper, said shield being conformed to said screw and having its inner end flared upwardly at D'; and a longitudinal guard or shield toward which said screw revolves, extending inwardly from the

wall of said hopper, curved to conform to said screw and arranged in close proximity thereto, for the purpose specified.

25 9. The combination of a hopper, the bottom of which is curved in cross-section, having a delivery opening at one end; a spiral or screw conveyer; a guard or shield arranged over the inner end of said screw and curved to conform thereto; and a longitudinal guard or shield toward which said screw revolves, arranged between said end guards or shields and extending inwardly from the wall of said hopper, curved to conform to said screw and arranged in close proximity thereto, for the purpose specified.

30 35 In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

HENRY D. CONWAY. [L. s.]

Witnesses:

HAZEL MUNRO,  
JESSIE C. BALL.