

(No Model.)

4 Sheets—Sheet 1.

J. S. KEMP.  
FERTILIZER DISTRIBUTER.

No. 405,561.

Patented June 18, 1889.

FIG-1-

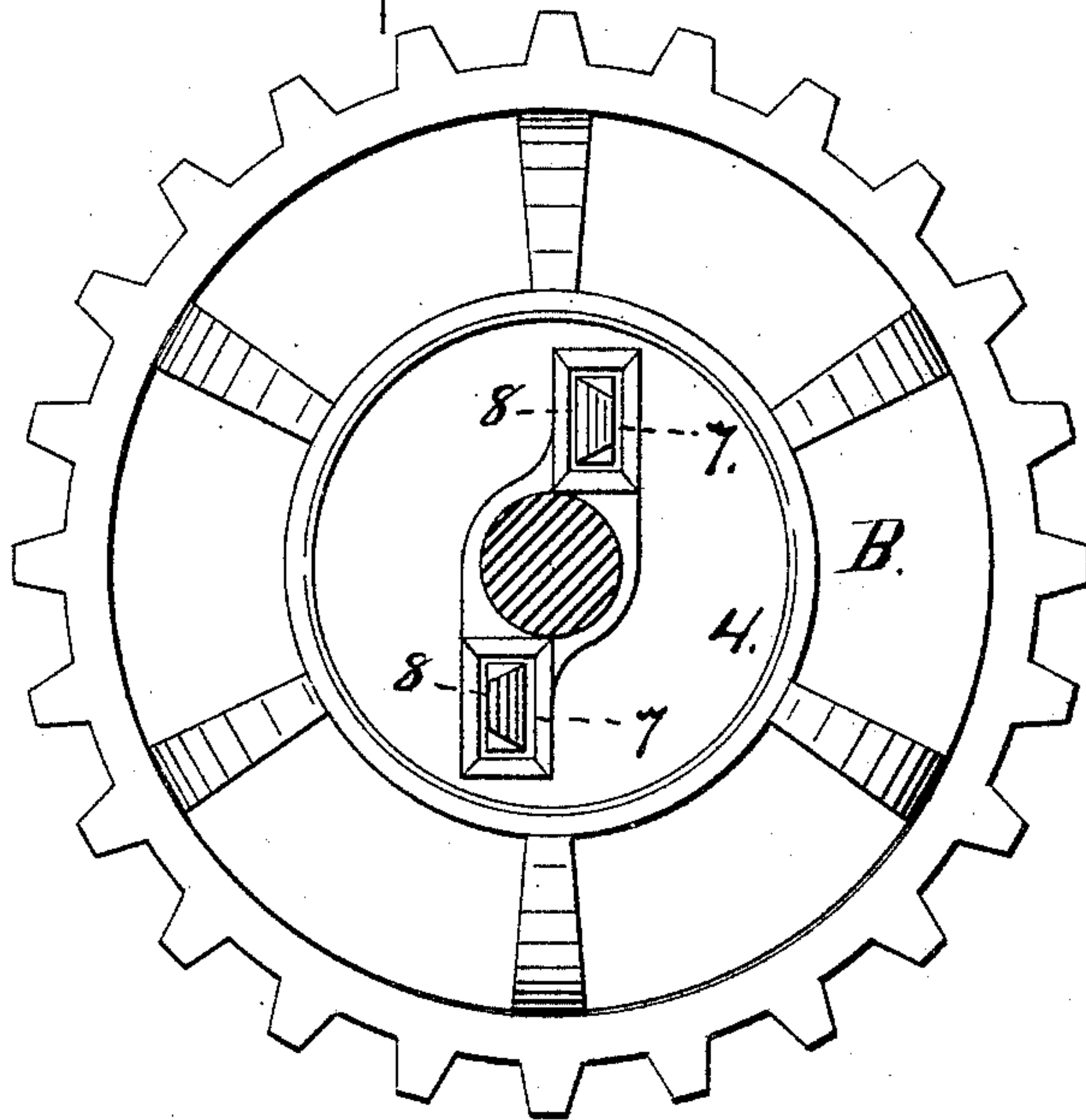
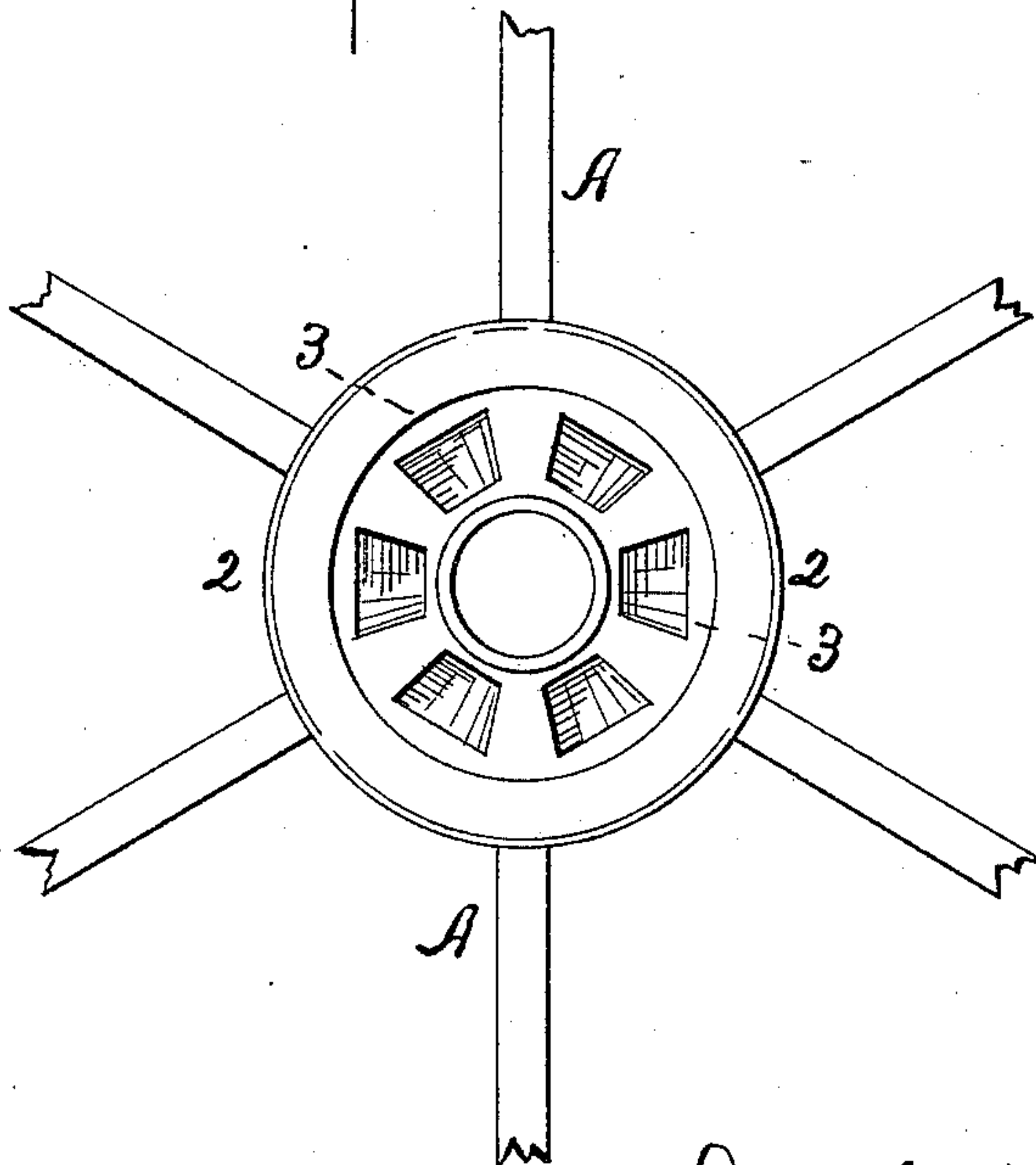


FIG-2-



Witnesses —

*Wm C. Raymond*  
*Chas. H. Hovey*

Inventor —

*Joseph S. Kemp*  
*By his Attorney*  
*L. Smith*

(No Model.)

4 Sheets—Sheet 2.

J. S. KEMP.  
FERTILIZER DISTRIBUTER.

No. 405,561.

Patented June 18, 1889.

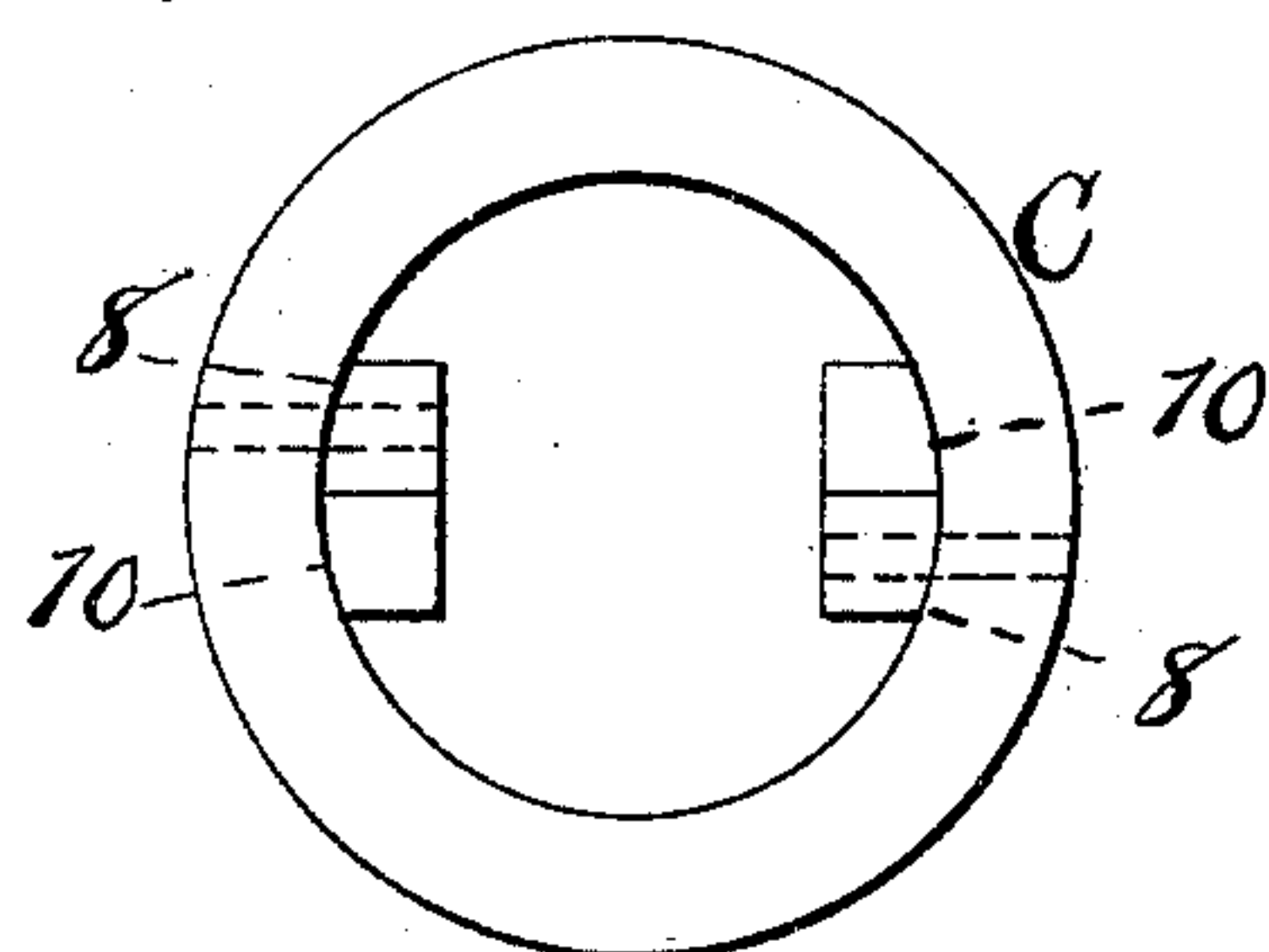


FIG-3-

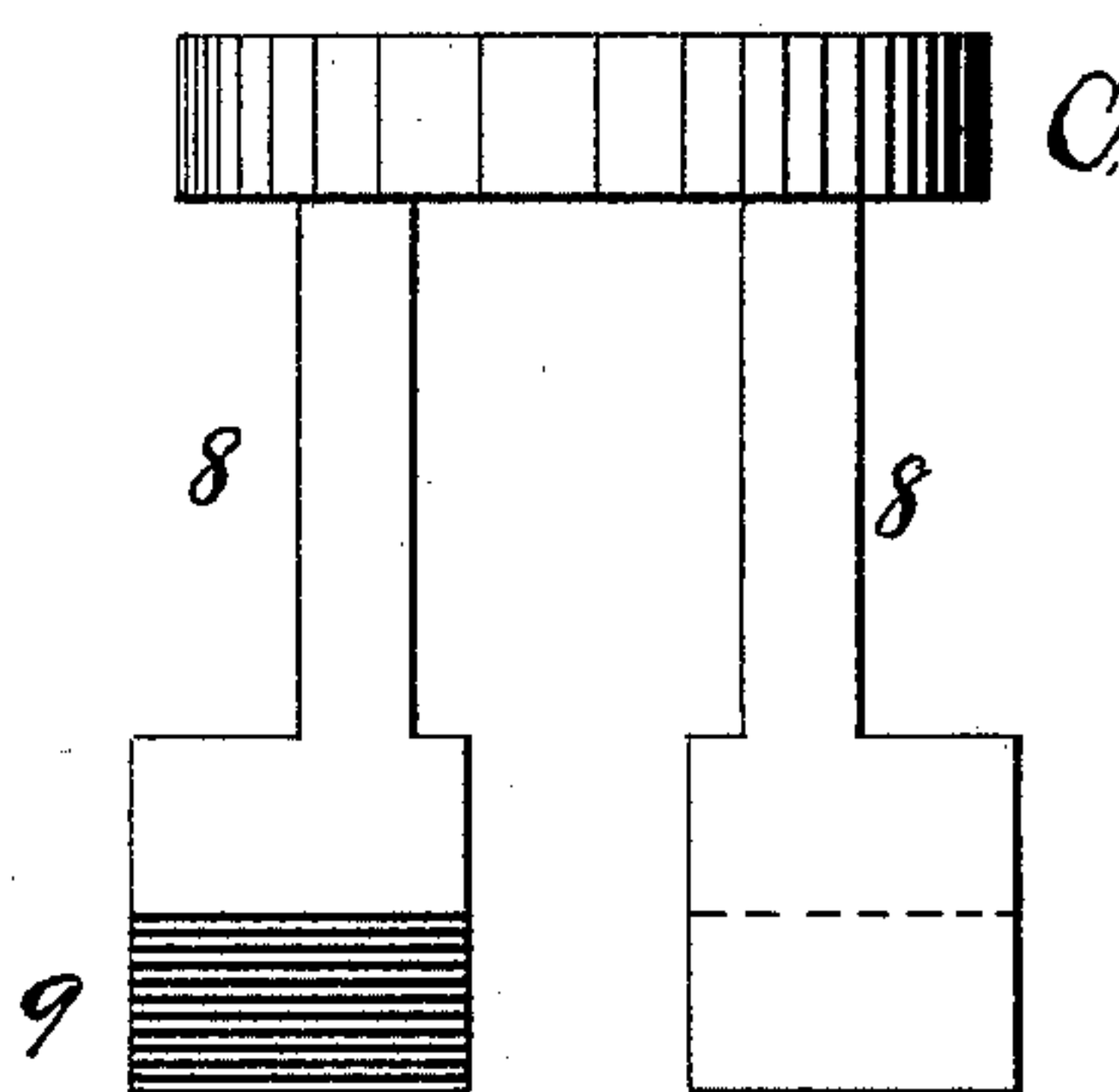


FIG-4-

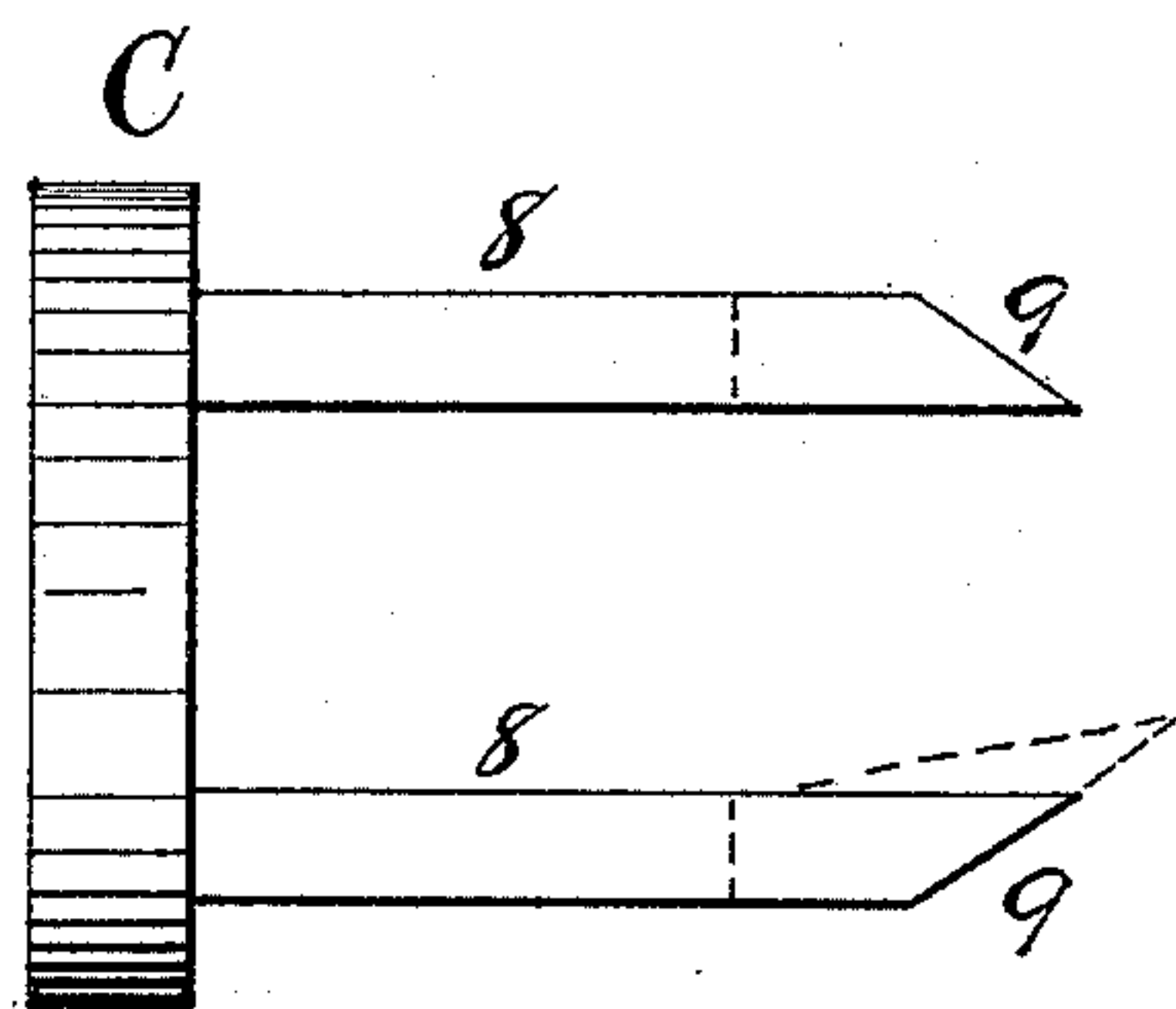


FIG-5-

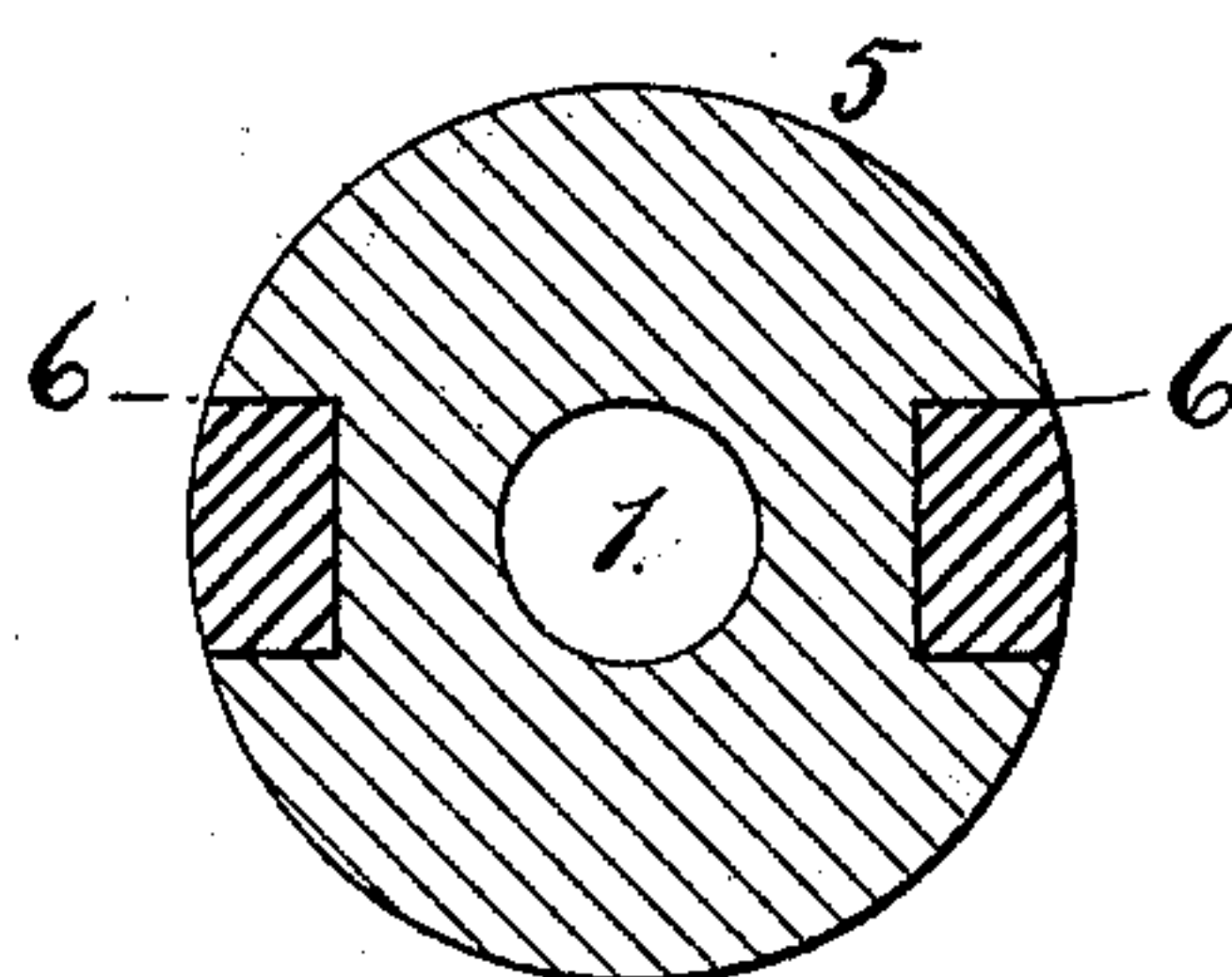


FIG-6-

Witnesses—

*Wm. C. Raymond*  
*J. L. Stevens*

Inventor—

*Joseph S. Kemp*  
By *his Attorney*  
*A. Smith*

(No Model.)

4 Sheets—Sheet 3.

J. S. KEMP.  
FERTILIZER DISTRIBUTER.

No. 405,561.

Patented June 18, 1889.

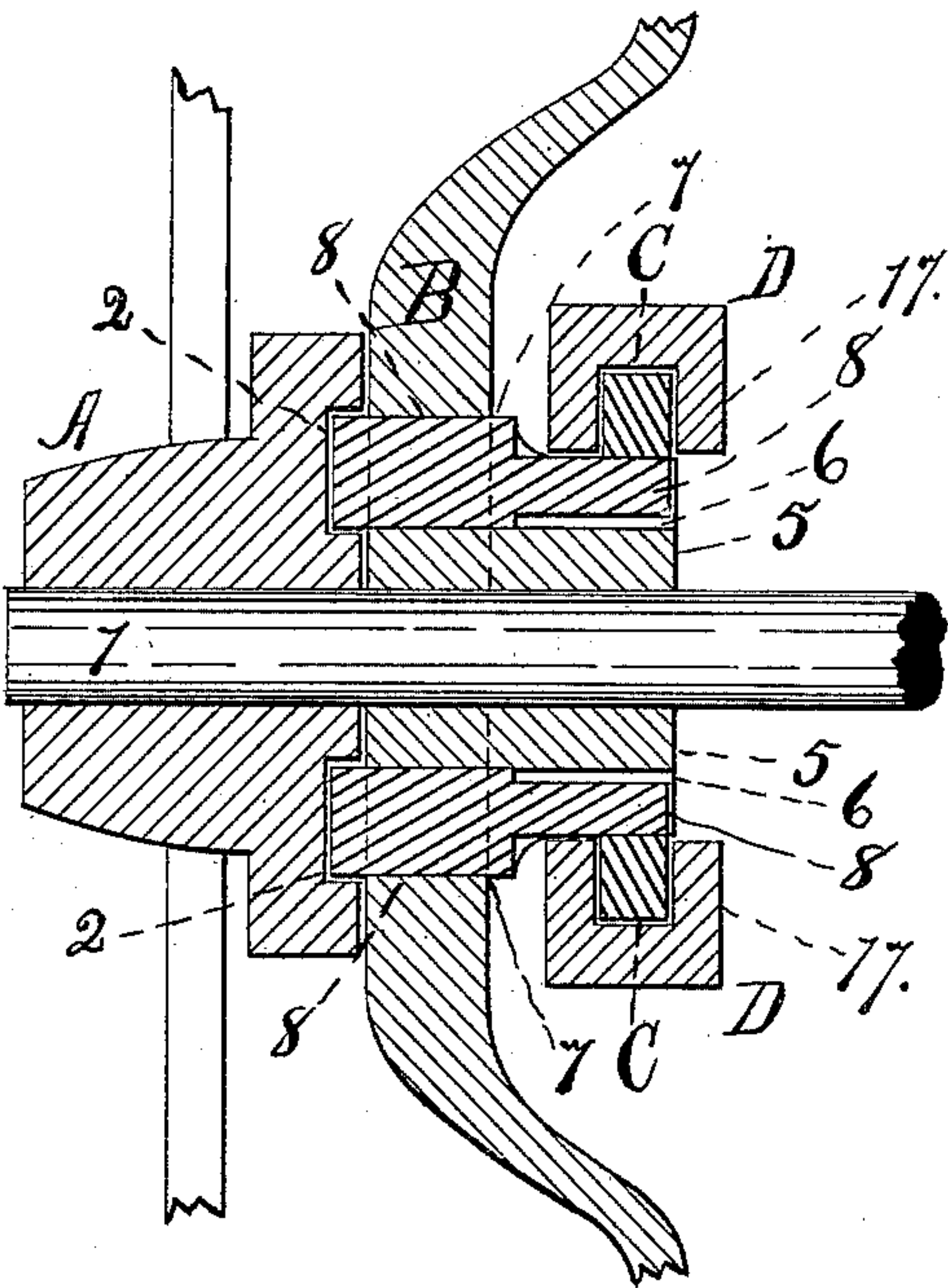


FIG-7-

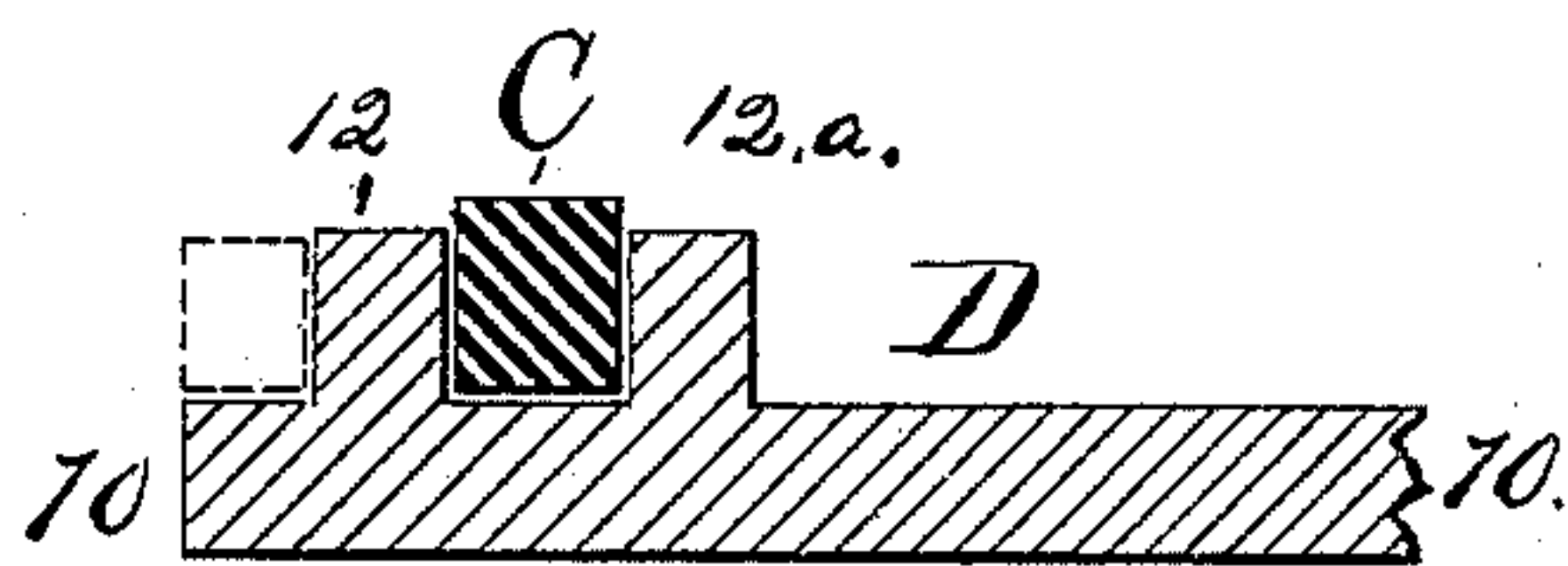
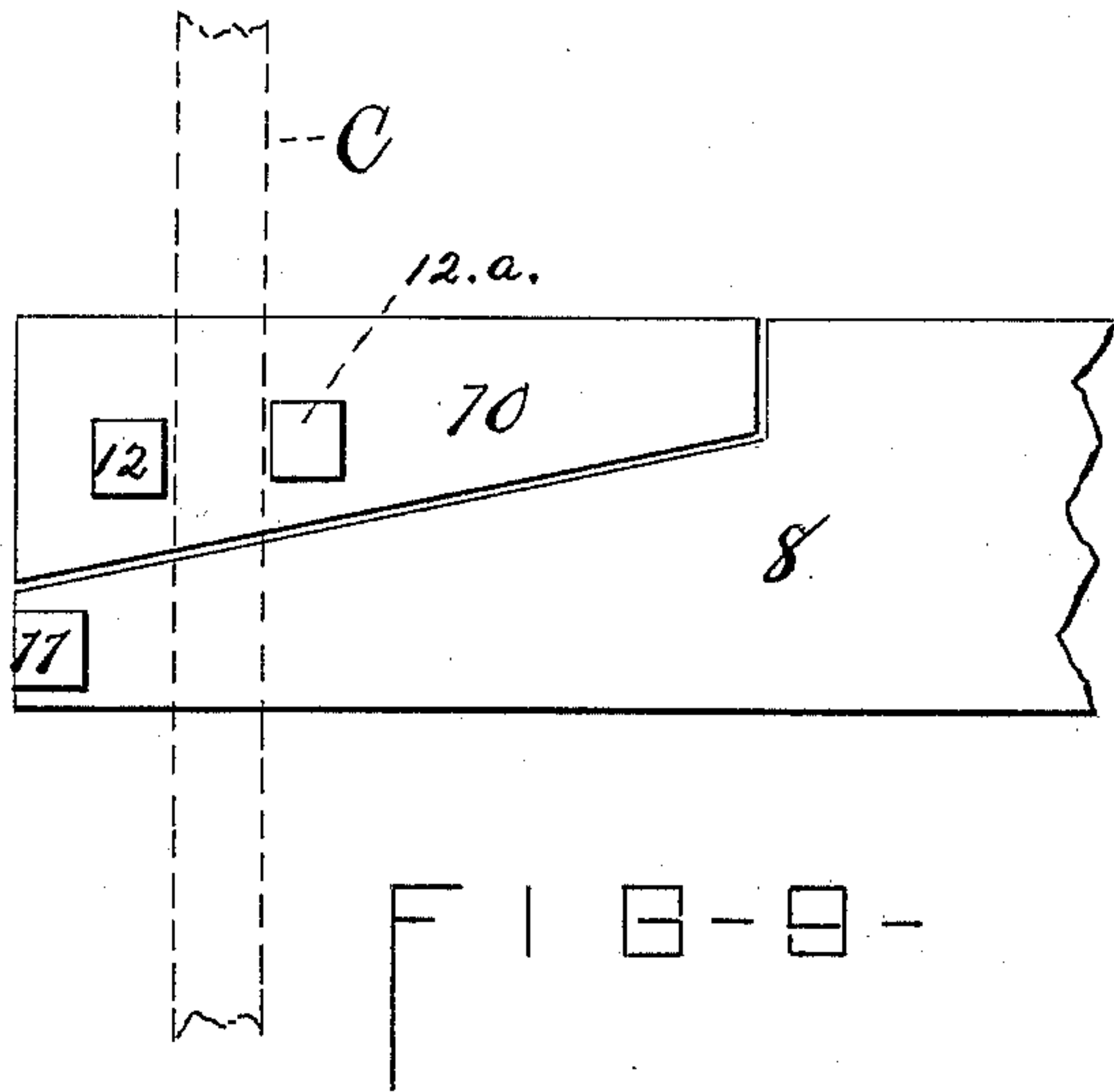


FIG-10-

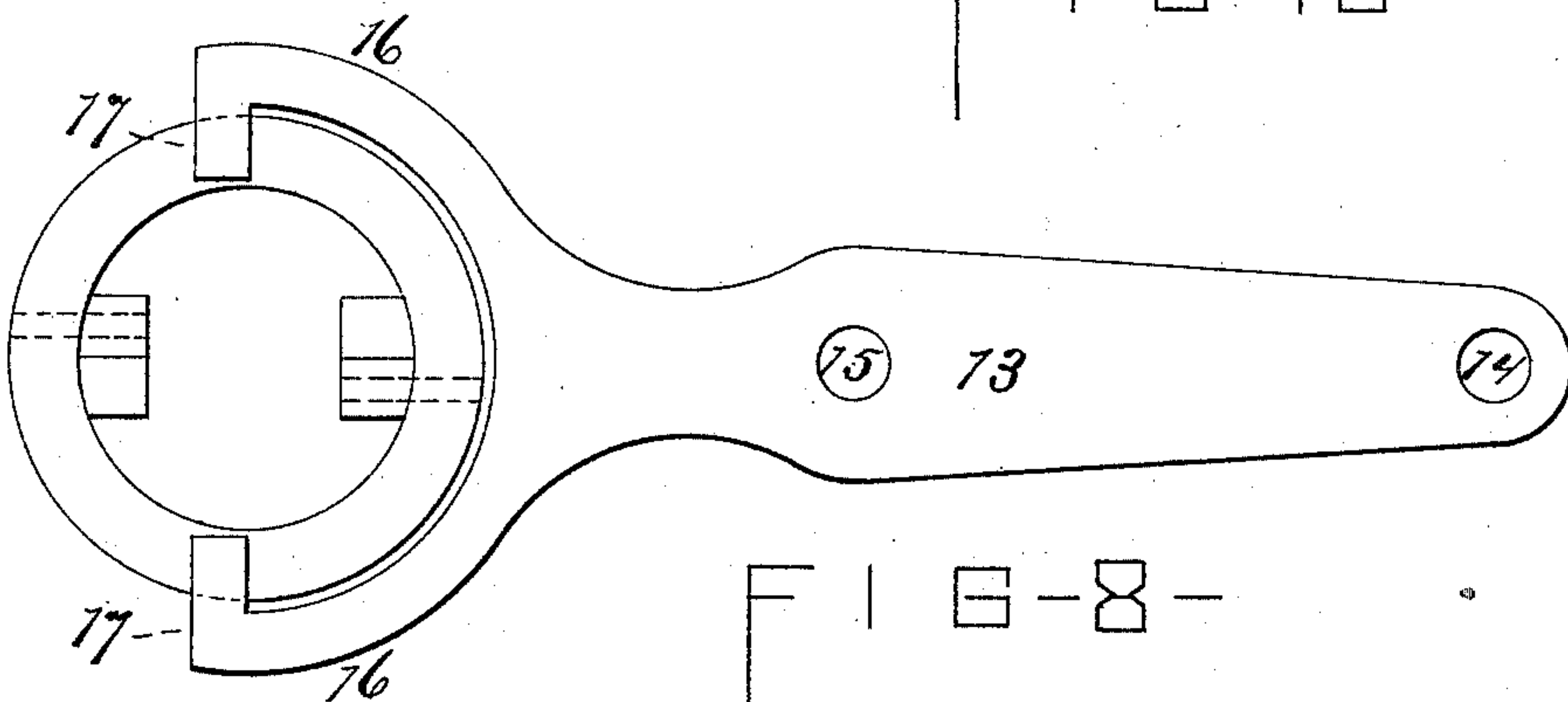


FIG-8-

Witnesses—

Wm. C. Raymond  
A. Strong

Inventor—

Joseph S. Kemp  
By his Attorney  
L. Smith



(No Model.)

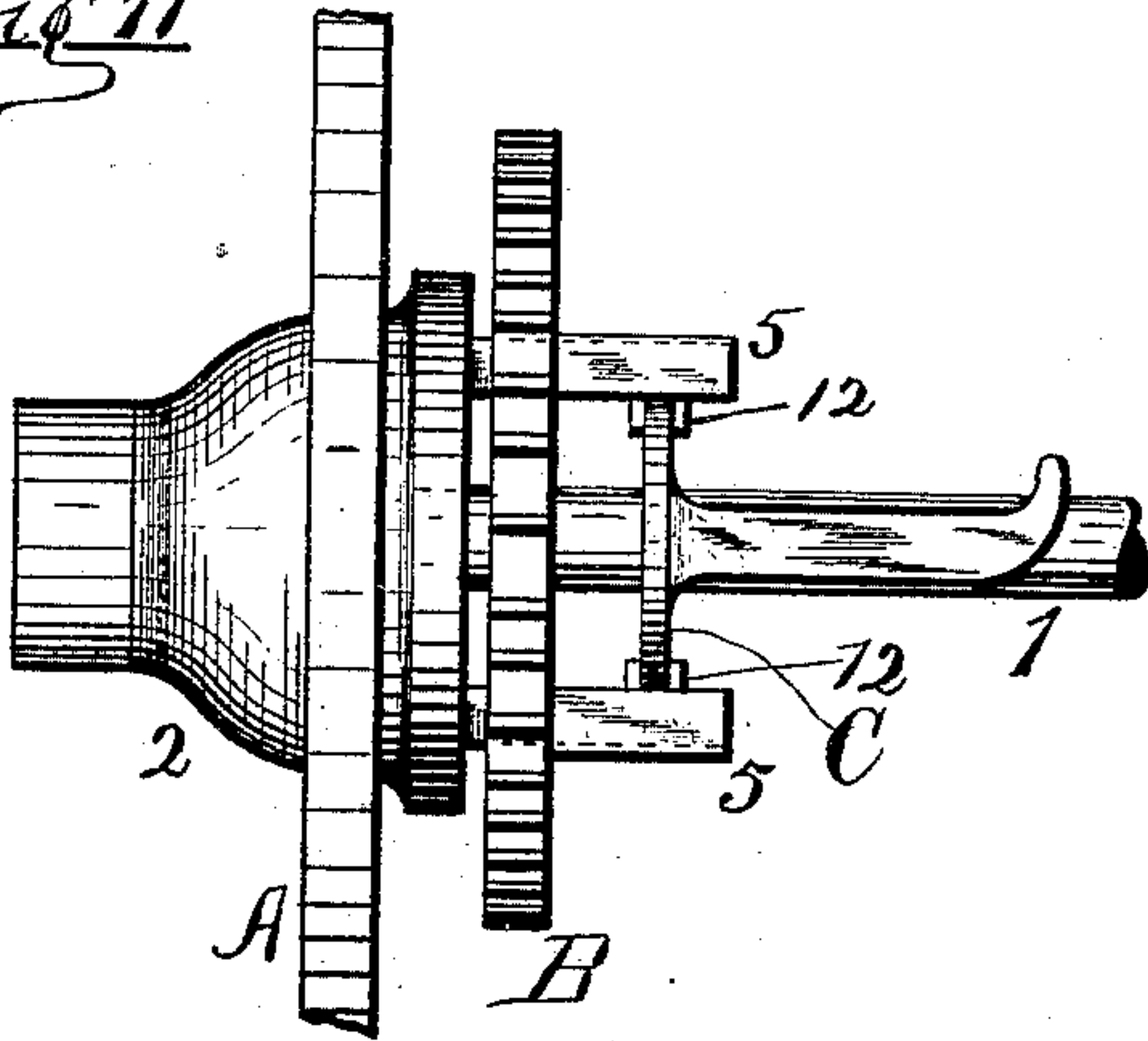
4 Sheets—Sheet 4.

J. S. KEMP.  
FERTILIZER DISTRIBUTER.

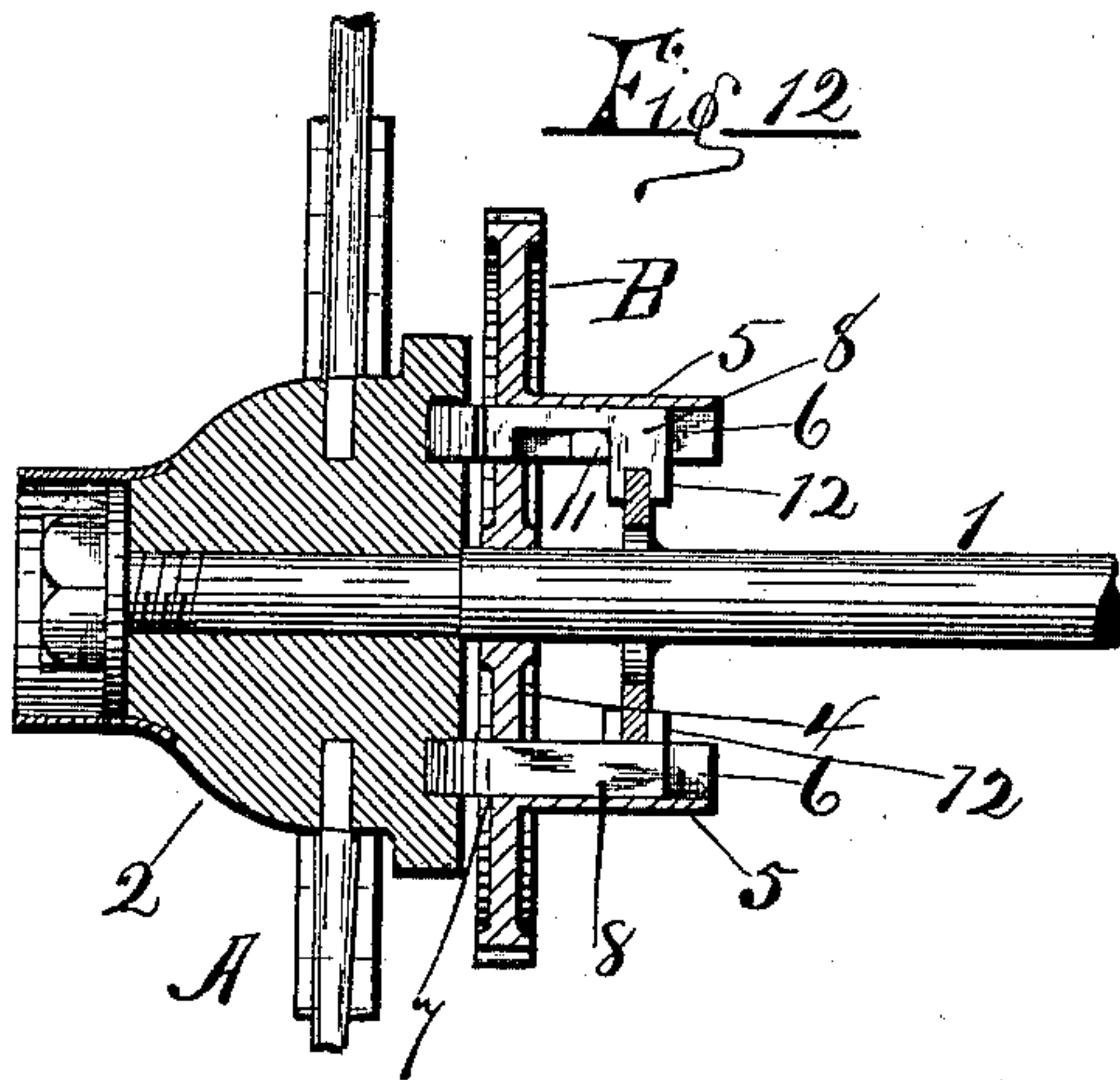
No. 405,561.

Patented June 18, 1889.

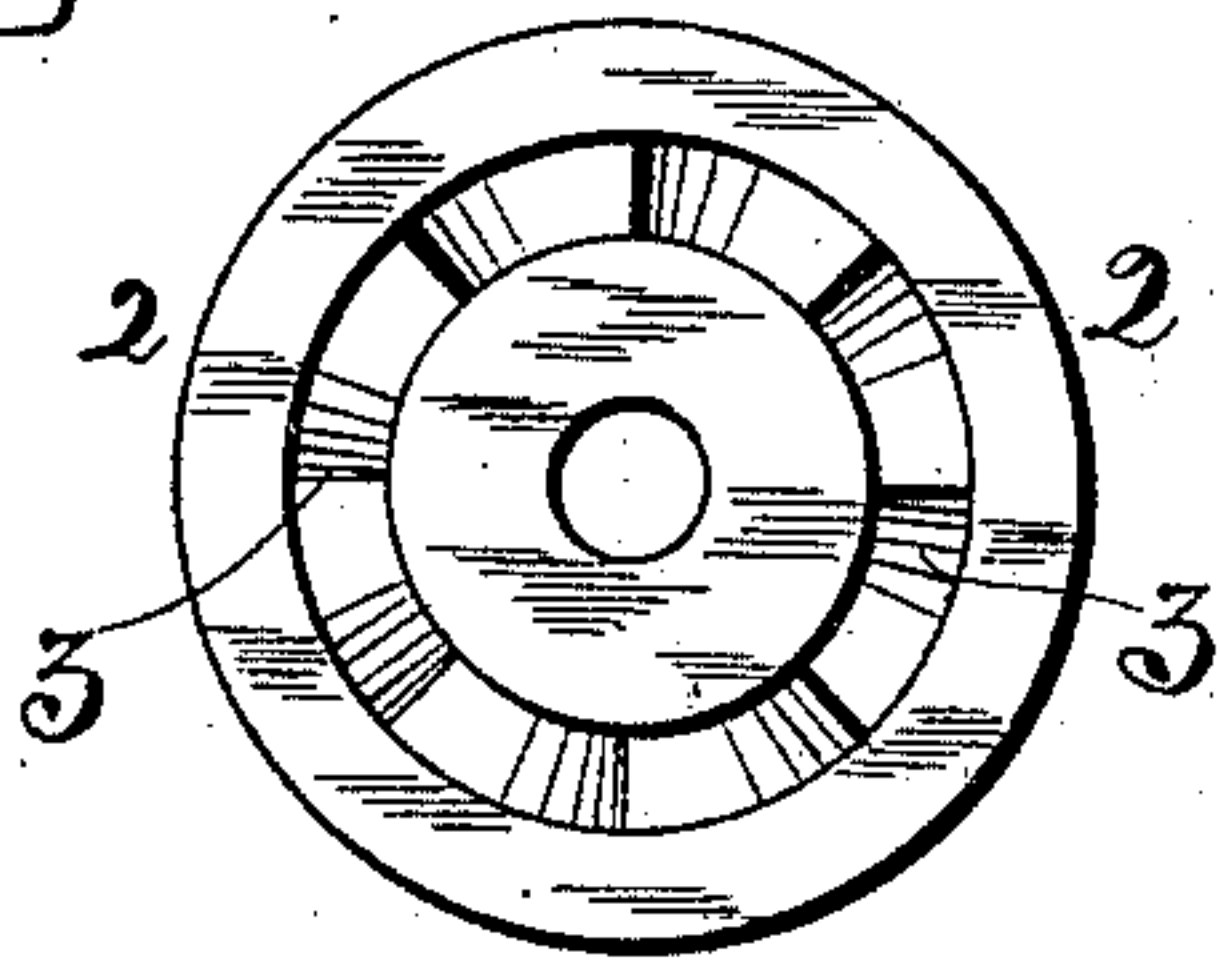
*Fig 11*



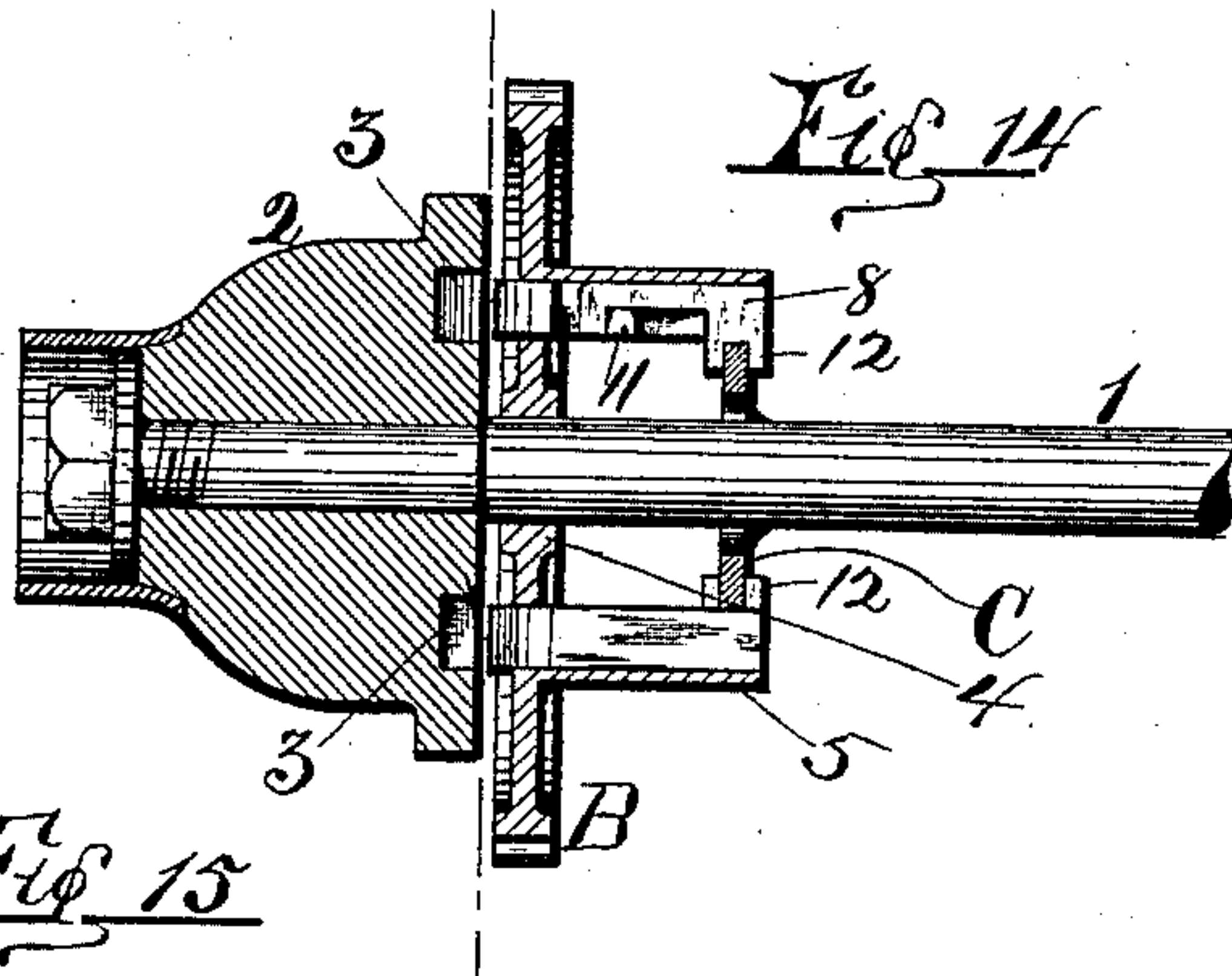
*Fig 12*



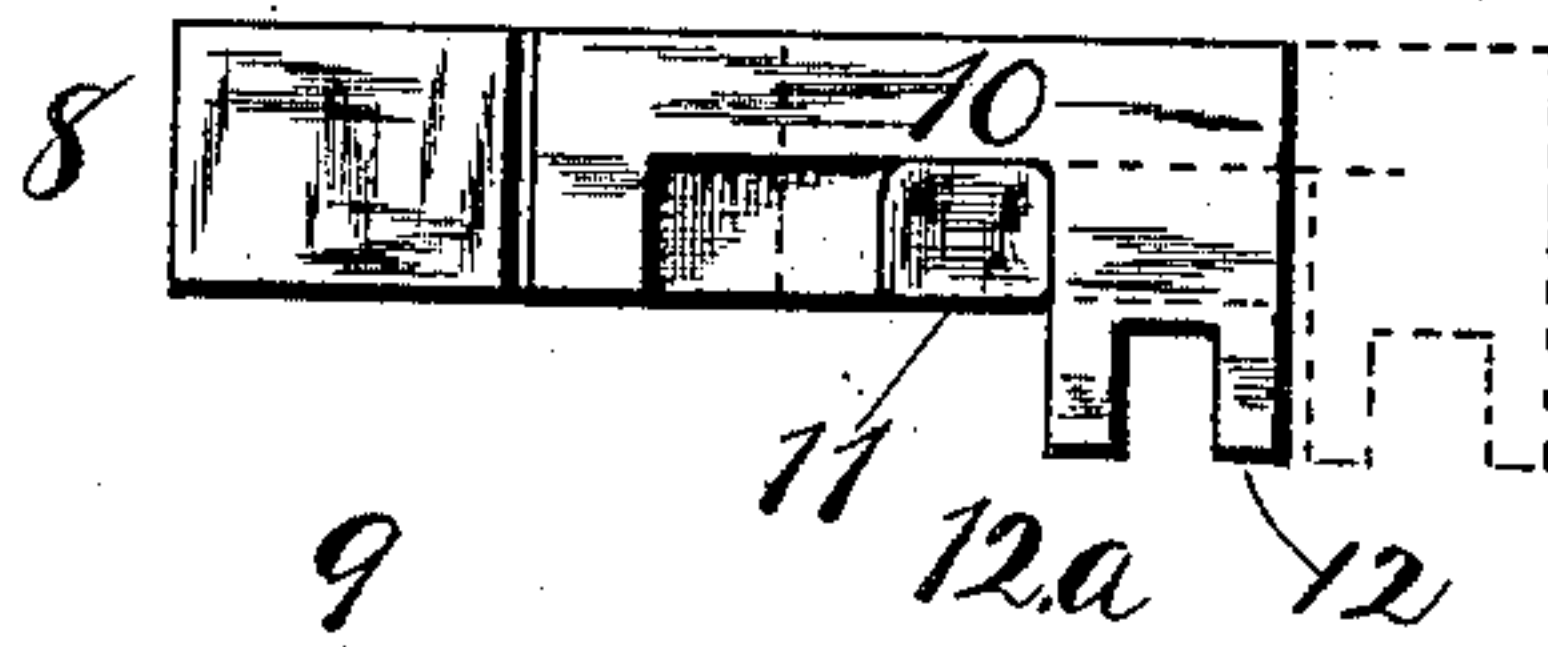
*Fig 13*



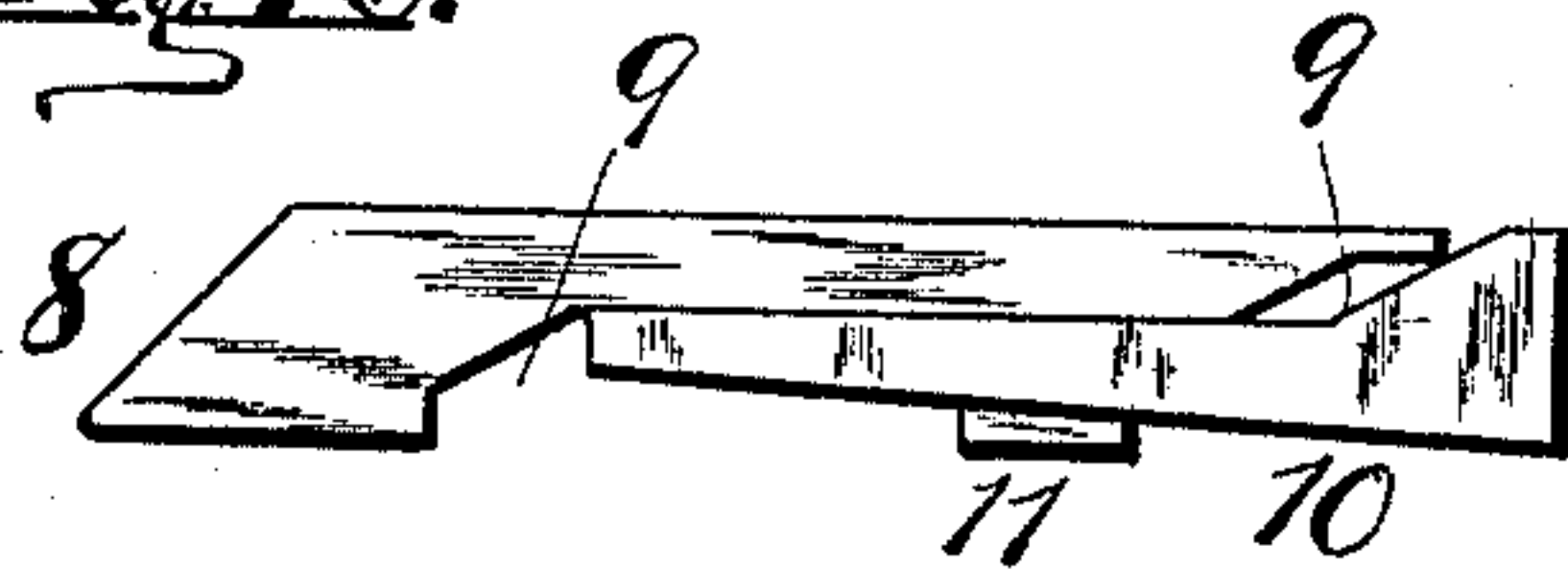
*Fig 14*



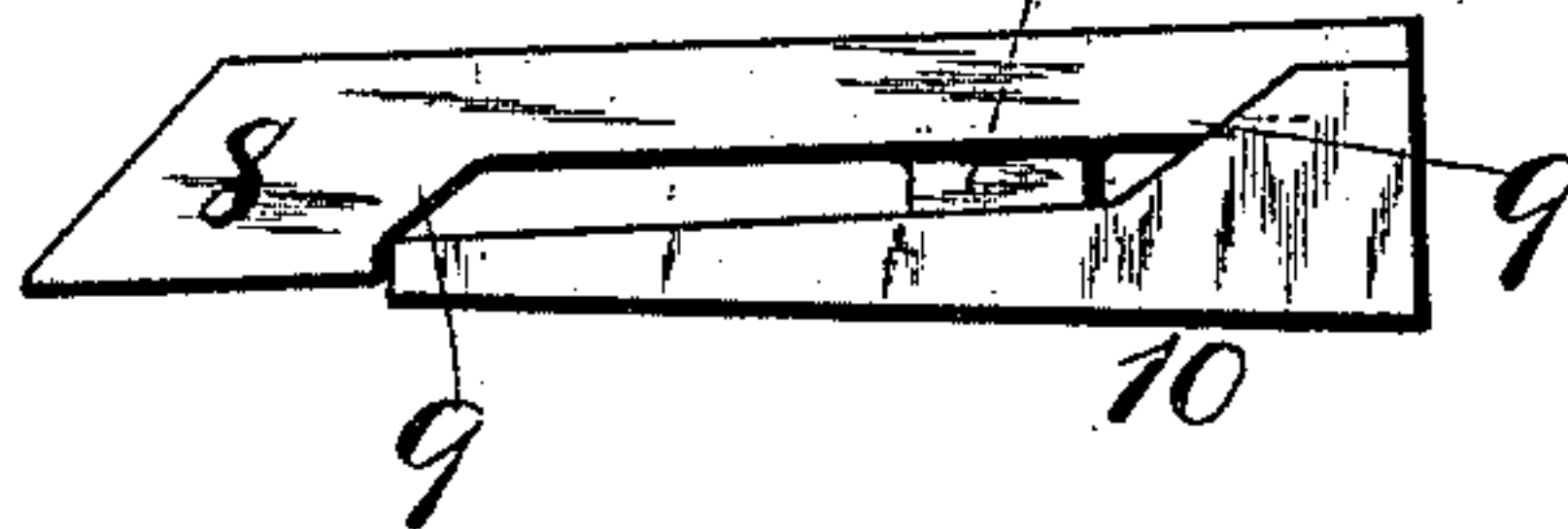
*Fig 15*



*Fig 16*



*Fig 17*



Witnesses

*Jacob Van Lanett*  
*H. P. Denison*

*Joseph S Kemp* Inventor

By his Attorney *A. Smith*



# UNITED STATES PATENT OFFICE.

JOSEPH SARGENT KEMP, OF MAGOG, QUEBEC, CANADA.

## FERTILIZER-DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 405,561, dated June 18, 1889.

Application filed June 15, 1887. Serial No. 241,378. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH SARGENT KEMP, of the village of Magog, in the county of Stanstead, Province of Quebec, Canada, a citizen of the Dominion of Canada, have invented certain new and useful Improvements in Fertilizer-Distributers, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of the main gear-wheel. Fig. 2 is a plan view of the inner end of the hub of the drive-wheel, showing the rack. Figs. 3, 4, and 5 are details of the pawls and ring. Fig. 6 is a transverse section of the hub of the main gear-wheel. Fig. 7 is a vertical section of the drive-wheel, gear-wheel, and clutch mechanism in position upon the main axle. Fig. 8 is a plan view of the shifter and pawl-ring in engagement; Fig. 9, a plan view of the bipartite pawl. Fig. 10 is a vertical section of the pawl-ring and the wedge of the pawl. Fig. 11 is a side elevation showing the wheel and gear locked together by the pawl-and-ratchet mechanism. Fig. 12 is a vertical section of Fig. 11. Fig. 13 is a plan view of the rack. Fig. 14 is a vertical section showing the pawls drawn back free from the ratchet. Fig. 15 is a side elevation of the pawls and wedge in the locking position, the dotted lines indicating the drawback of the wedge. Fig. 16 is a top plan of the pawl and wedge unlocked, the wedge being drawn back. Fig. 17 is a top plan of the pawl and wedge in the locking position which they assume when the parts are thrown outward together to engage with the rack.

My invention relates to the mechanism for operating the apron of a fertilizer-distributer, and its object is to simplify the construction and improve the utility of the machine.

It consists of the several novel features of construction which are hereinafter described, and which are specifically set forth in the claims hereunto annexed.

It is constructed as follows:

A is a wheel of the cart, or the rear wheel on one side of the wagon, when four wheels are used, journaled loosely upon the axle 1, passing through the hub 2, in any ordinary manner. In the inner face of the hub and surrounding the axle-hole I form the circular

ratchet 3, consisting of a metallic plate set into the hub and properly secured. The axle 1 is so mounted upon the frame of the distributor that it can rotate freely in its boxes or bearings.

B is the main gear-wheel, secured to the axle and rotating with it and operating to transmit the power, by a sprocket-chain or other belt, or a train of gears, to the movable apron. In the drawings I show this gear as a sprocket-wheel, consisting of a hub 4 and arms and rim, as shown in the drawings. Inside of the hub proper and forming a part thereof is the sleeve 5, which fits upon the axle also. In the periphery of this sleeve and longitudinally I cut grooves 6, which are coincident with the mortises 7 through the hub 4.

C is a metallic ring fitting of itself loosely upon the inner end of the sleeve 5, which ring operates the sliding pawls 8. These pawls consist of a bar of metal of proper size to fit loosely in the grooves 6, and each is provided with a head having a beveled point to fit the ratchet 3, the head fitting loosely in the hub-mortises 7. At their inner ends these pawls are beveled for some distance, as shown at 9, and 10 is a wedge having on one side the same bevel as the pawl, the two beveled surfaces lying together; also, upon the inner end of each pawl I erect a stud 11, and upon each wedge I erect two studs 12 12<sup>a</sup>, the space between them being sufficient to freely receive the ring C, and when the wedge and pawl are placed together the studs 11 and 12 are out of line a little, especially as to the stud 12, as shown.

D is my shifter for throwing the pawls into engagement with the ratchet 3 and for disengaging them therefrom, consisting of a body or shank 13, provided with holes 14 15 and with the curved arms 16 of proper form and size to embrace the ring C. Each of these arms is provided with an inwardly-projecting stud 17, which is slotted wide and deep enough to receive the ring C edgewise sufficiently to give a good hold upon it. Through the hole 15 I insert the bolt which connects the shifter to the frame of the machine, the bolt fitting loosely in the hole, and in the hole 14 I fasten a rod, the other opposite end of which is connected to an ordinary lever



mechanism (not shown) by which I can draw this rod inward or throw it outward. I also interpose a spring between the shifter and the frame of the machine, either upon this  
5 rod or upon the bolt in the hole 15.

It is operated as follows: When I wish to throw my clutch, consisting of the ratchet and pawls, into engagement, I force the yoke end of the shifter outward, and the arms 16 carry  
10 ring C outward, which first strikes the stud 12<sup>a</sup>, and shoves the wedge outward until it engages with the stud 11, and from thence forward and outward the pawl and wedge move outward together until the pawl is fully en-  
15 gaged with the rack 3. While so engaged the wedges (so called) act to support and steady the inner ends of the pawls, but do not bind them in the slots. Then the forward rotation of the wheel carries with it the gear B, rotat-  
20 ing that and the main axle, and this axle rotation transmits the power to and rotates another gear like unto B, mounted upon the opposite end of the axle on the other side of the distributor; also, when the clutch is so en-  
25 gaged and the team backs up the reverse rotation of the wheel causes the points of the pawls to slip backward from one rack-tooth to another, and consequently the gear B does not then rotate, and the spring behind the  
30 shifter operates to automatically throw the teeth into the rack, the same as though separate springs were mounted upon each pawl. To throw the clutch out of this engagement, I draw the shifter-arms inward, which throws  
35 the ring C against the stud 12, drawing the wedge back and simultaneously loosening the wedge in the slot 6, and when the wedge strikes the outward side of the stud 11 from that point the ring draws back the wedge and pawl  
40 together as though they were one piece, they then being in the position shown in Fig. 16.

The utility of the wedges in connection with the pawls consists in the fact that the withdrawal of the wedge first loosens the pawl, so that there is a moment when the pressure  
45 of the rack-tooth upon the pawl is reduced to a minimum, and at that moment the pawl is very easily withdrawn from engagement with the tooth.

In Fig. 3 I also show the pawls without any  
50 wedge-section and as connected rigidly or pivotally to the ring by a bolt or rivet, and in Fig. 5 I show the points of the pawls as hooking inward in order to give a better hold upon the rack, especially so when the faces  
55 of the rack-teeth are in like degree inclined inward toward their bases.

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

1. A clutch mechanism consisting of a rack, 60 a sliding pawl beveled, as shown, and provided with a stud 11, a wedge provided with studs 12, and a ring engaging with the wedge and the pawl, substantially as shown and de-  
65 scribed.

2. In a clutch, a bipartite pawl consisting of a shank having an inclined edge behind the point, and a point and a wedge fitting against the inclined part of the shank, sub-  
70 stantially as described.

3. In a clutch, a bipartite pawl provided with upright studs, in combination with a ring engaging with the studs upon the pawl-sec-  
75 tions, substantially as described, for the purposes set forth.

In witness whereof I have hereunto set my hand this 19th day of March, 1887.

JOSEPH SARGENT KEMP.

In presence of—

C. W. SMITH,

ANNE B. TOMLINSON.