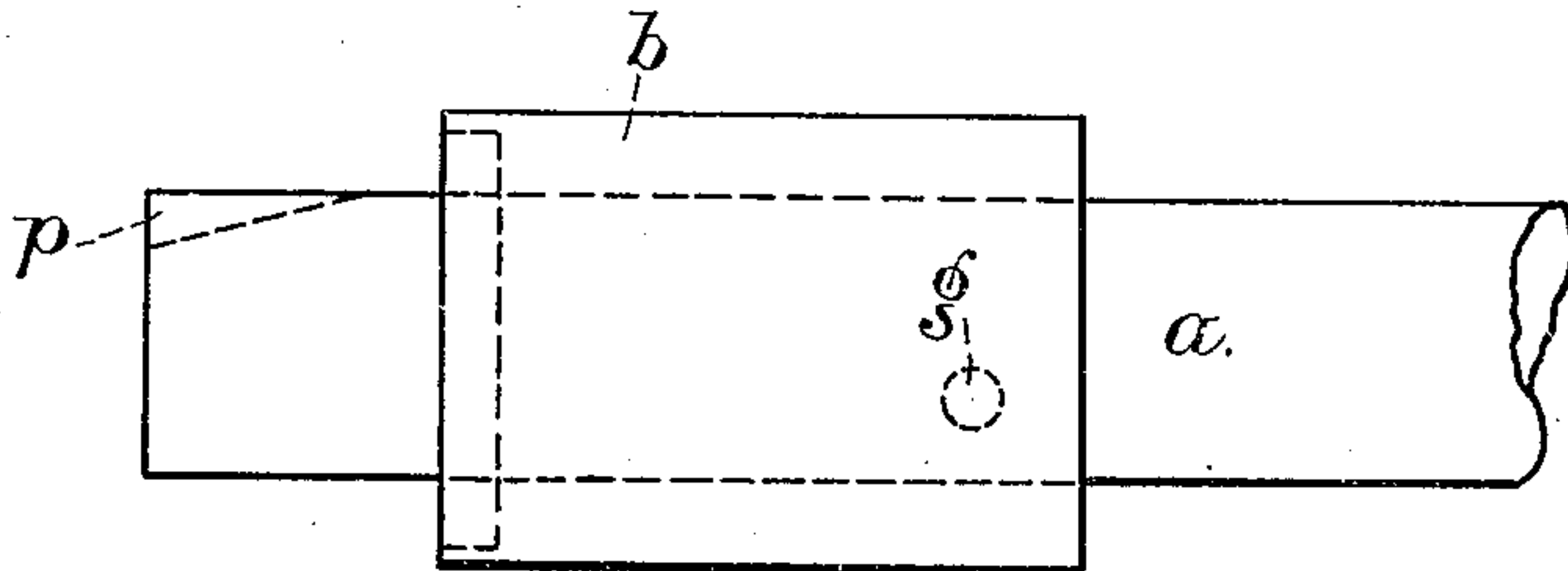


No. 809,269.

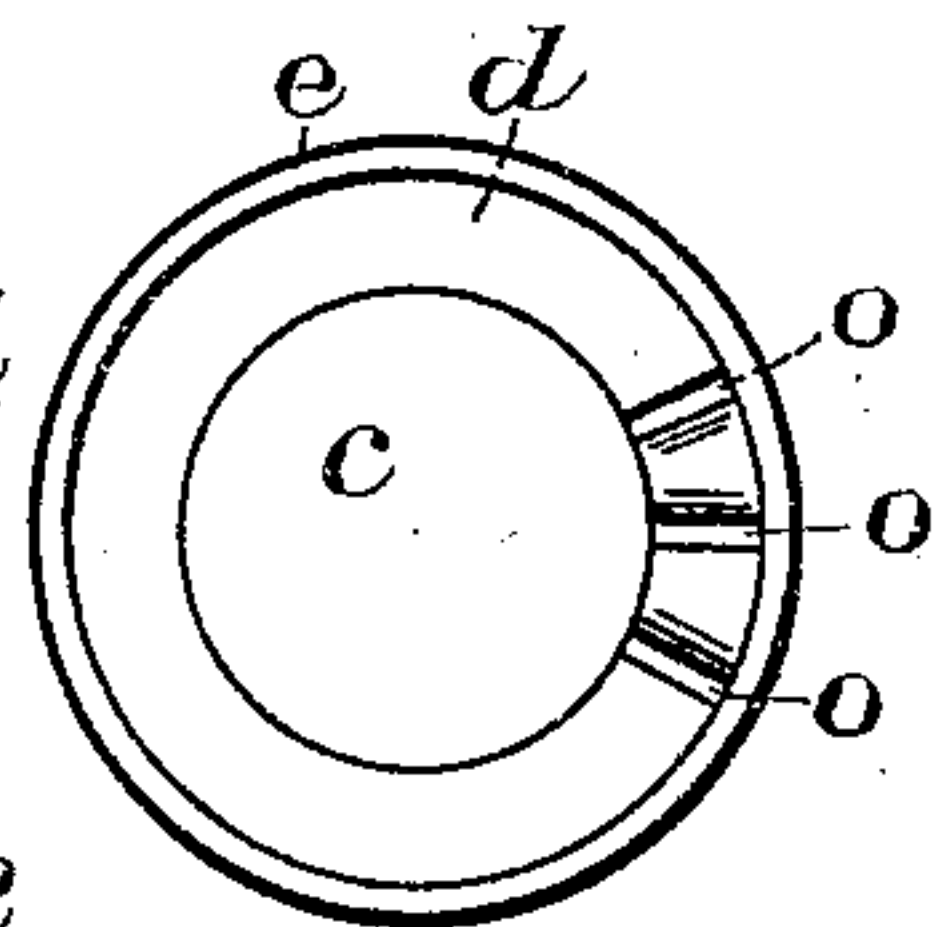
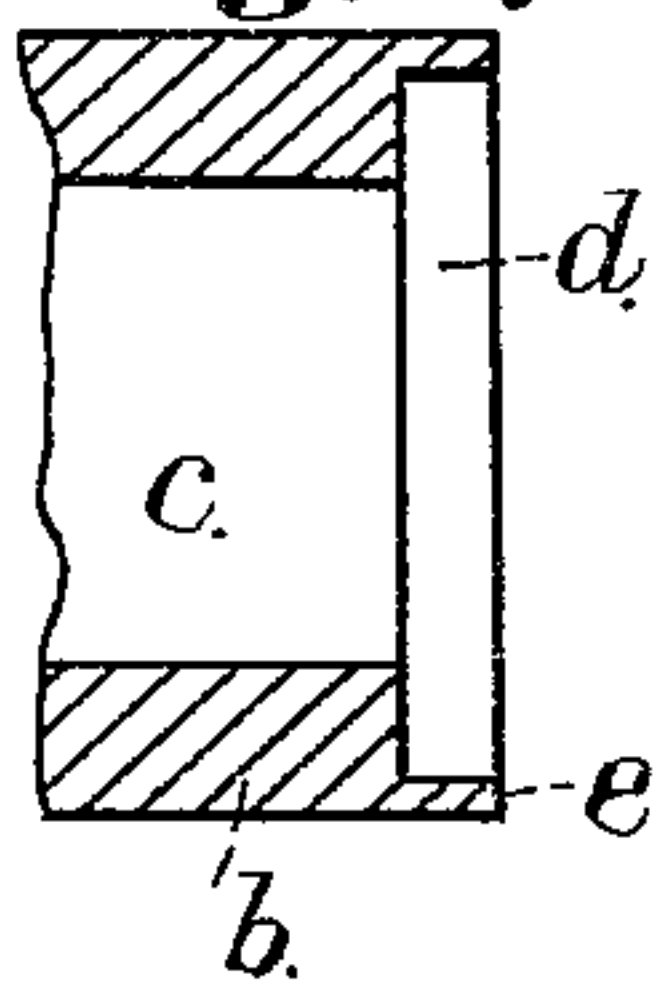
PATENTED JAN. 2, 1906.

M. C. LOVEJOY.  
COILING MACHINE.  
APPLICATION FILED JULY 13, 1905.

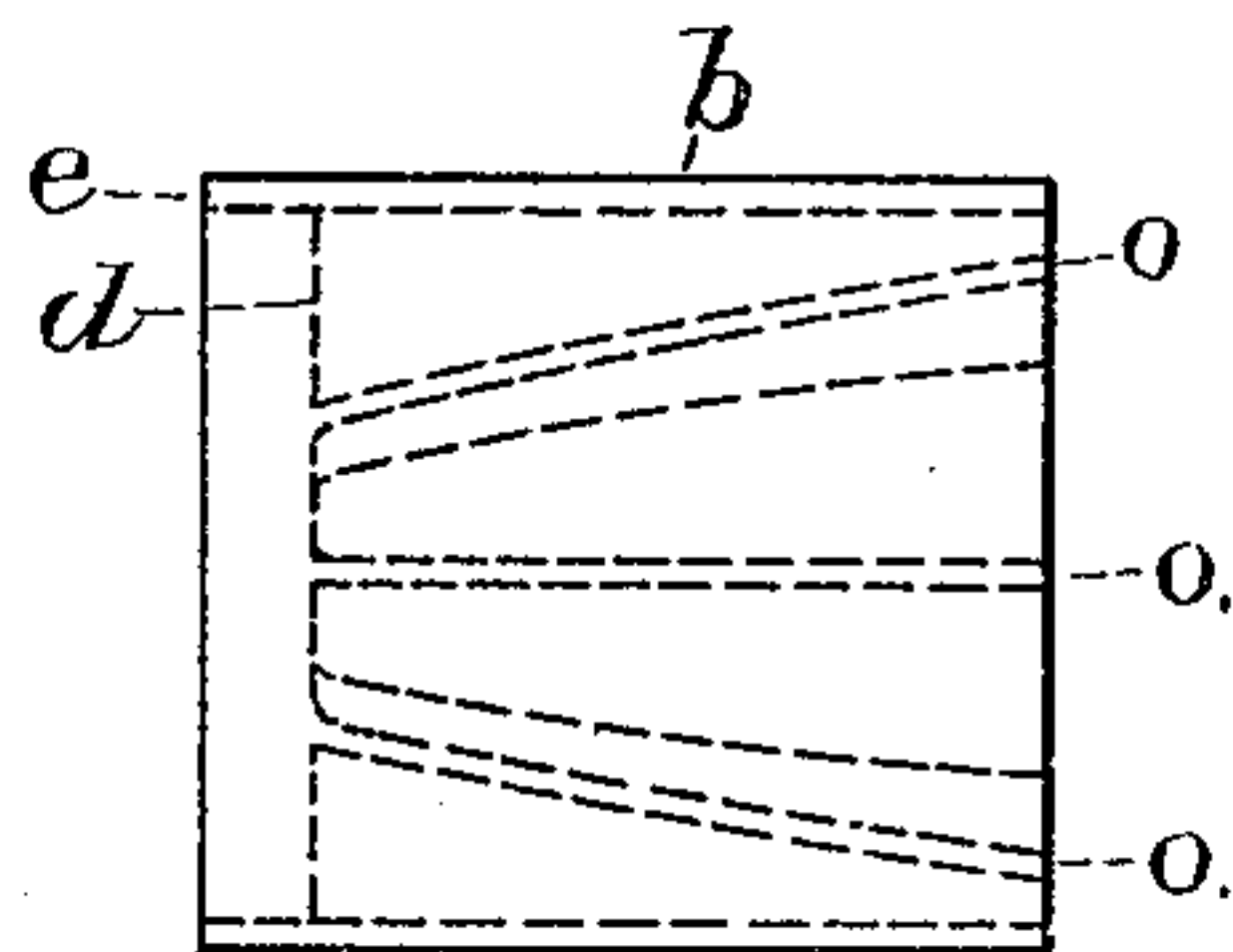


*Fig. 1.*

*Fig. 5.*

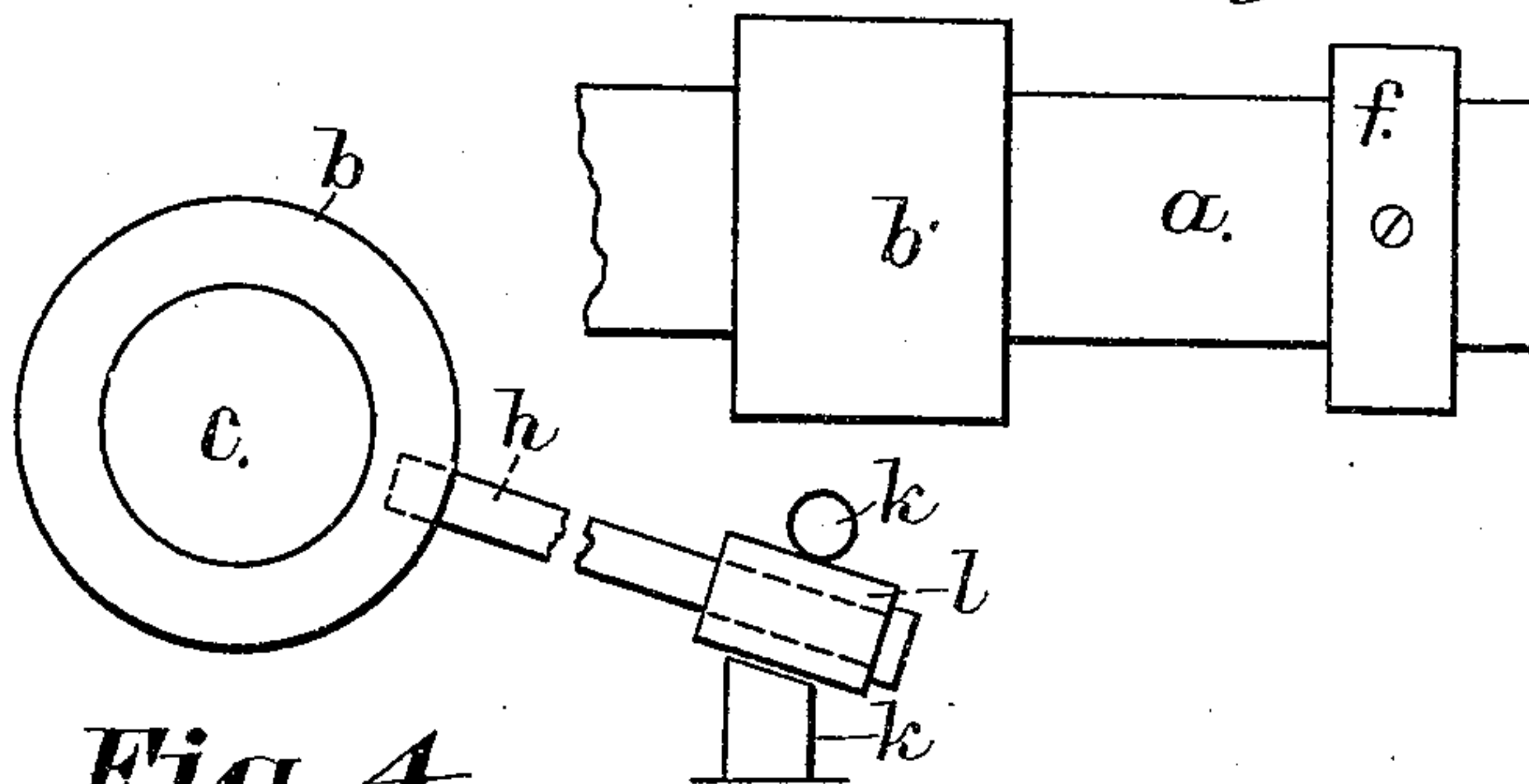


*Fig. 2.*



*Fig. 3.*

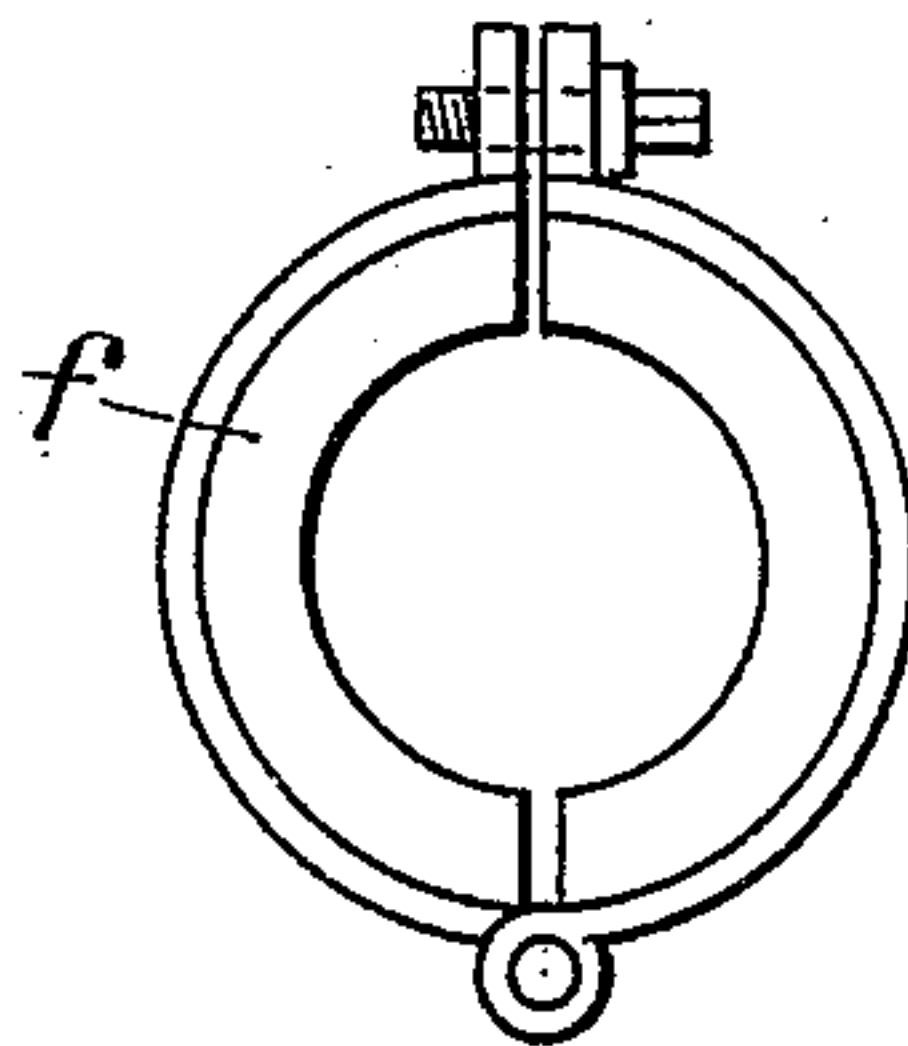
*Fig. 6.*



*Fig. 4.*

*Witnesses:*

*John W. Anderson*  
*A. C. Berry*



*Fig. 7.*

*Inventor.*

*Marcellus C. Lovejoy*  
*by F. E. Bird*  
*Atty.*

# UNITED STATES PATENT OFFICE.

MARCELLUS C. LOVEJOY, OF PORTLAND, MAINE, ASSIGNOR TO EDWARD  
M. LANG, JR., OF PORTLAND, MAINE.

## COILING-MACHINE.

No. 809,269.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Original application filed February 27, 1904, Serial No. 195,543. Divided and this application filed July 13, 1905. Serial No. 269,442.

*To all whom it may concern:*

Be it known that I, MARCELLUS C. LOVEJOY, a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented an Improvement in Coiling-Machines; and I hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to machines for producing spirals or coils from continuous thin strips or ribbons of the softer metals and their alloys, and it is my purpose to provide a machine which will effect this end in the most economical and expeditious manner.

My invention consists in a shaft, a former provided with a recess in the end adapted to receive the material and form the successive rings of the coil or spiral and also with an opening to receive the shaft, means whereby the shaft may be prevented from revolving while the other revolves, and suitable means for giving the material the required tension as it enters the device.

In the mechanism in which I have embodied my invention and which is hereinafter described I have provided for the revolution of the shaft.

In the description of the invention reference is made to the drawings, in which—

Figure 1 is a side elevation of the shaft and former. Fig. 2 is an end view of the front of the former. Fig. 3 is a side elevation of the former. Fig. 4 is an end view of the rear of the former and the holding device. Fig. 5 is a vertical longitudinal section of the former shown in Fig. 2. Fig. 6 is a side elevation of the shaft, former, and collar. Fig. 7 is an end view of a modification of the collar.

The shaft *a* is of the ordinary construction, journaled, preferably, only at the end where power is applied. The former *b* has a longitudinal circular opening *c* sufficiently large to permit the shaft to revolve within it. The front end of the former *b* has a recess *d* concentric with the center of the opening *c*, the outer side of the recess being formed by the circular shoulder *e*, from which the recess extends inwardly to the opening *c*. The width of the recess *d* should be equal to the width of the material to be treated. At some convenient point the wall of the former *b* is slotted

outward from the opening *c* to a width substantially equal to the width of the material to be treated. The slot *o* thus made may be parallel with the axis of the shaft or may extend diagonally or at an angle to the shaft; but I prefer that the former be provided with two or more slots varying from one another in direction. The wall of the recess *d* on either side of the entrance of the slot *o* into the recess may be slightly beveled on either side, as shown in Fig. 2. Various means may be used to hold the former from revolving while left free to slide upon the shaft. Such means are shown in Fig. 4. As shown in Fig. 4, an opening is made in the side of the former *b*, into which is inserted the rod *h*, which at its outer end is so secured as to prevent any revolution of the former, while at the same time movement longitudinally upon the shaft *a* is permitted—as for example, as shown in the drawings in Fig. 4. The outer end may slide between two rods or bars *k k* placed parallel with the shaft, and to reduce friction the outer end of the rod *h* may be provided with a pulley or sleeve *l*.

The operation of the device is as follows: A continuous strip of metal of the required uniform width and thickness having been provided, it is carried or passed through one of the slots *o* in the wall of the former *b*, choice being made of the slots in accordance with the degree of tension required, the tension being least in the slot axial with the shaft and increasing as the angle of the slot *o* with the shaft increases. When the end passes through the entrance of the slot *o* into the recess *d*, it is seized and held by hand or other means and pressed into the recess formed between the shaft and the shoulder *e* and the end then secured to the shaft. This may be effected by simply wrapping the end of the ribbon about the shaft, or the shaft may be slotted, as shown in Fig. 1, and the end placed within the slot *p*, or the end may be secured in the collar; hereinafter described. However secured, in either of these methods the shaft being slowly rotated draws the ribbon within the recess *d*, thus forming the material into a ring. After two or three revolutions of the shaft the grip of the rings of the coil upon the shaft is such that their opposition suffices to keep the other material as it is fed in within the recess *d*. The desired speed is then given to the shaft.



As the coils are formed the former *b* gradually retracts until the shaft has been filled, when the spiral already formed may be removed and the process repeated.

5 Instead of pressing the material within the recess either by hand or tool when the operation is commenced, as above stated, a collar *f* on the shaft at the end opposite to the face of the recess may be used. (See Fig. 6.) Such  
10 collar may be provided with a suitable shoulder to enter the recess *d* and also with a slot to receive and hold the end of the material. The collar may be held to the shaft by a set-screw or may be made in two parts hinged  
15 and fixed upon the shaft by means of a set-screw through lips on the free ends or other means which will readily suggest themselves in such manner that it may be removed speedily when desired. Provision may in  
20 such case be made for holding the end of the material between the two parts.

What I claim is—

1. The combination of a shaft, a former provided with a circular opening and a circular  
25 recess in the end around said opening, means whereby said former is prevented from revolving while free to slide upon the shaft and a passage extending from end to end of said

former of equal width with said circular recess, substantially as set forth. 30

2. The combination of a shaft, a former provided with a circular opening and also a circular recess in the end around the opening, an opening in the face of said recess connecting with a slot or passage extending to the rear  
35 end of said former and conforming in shape to the material to be treated and means whereby said former is prevented from revolving while free to slide upon said shaft, substantially as described. 40

3. The combination of a shaft, a former provided with a circular opening for the reception of the shaft and with a circular recess in the end thereof around said opening, an opening in the face of said recess extending diagonally  
45 rearward through said former and within the walls thereof of equal width and of a shape conforming to the material to be treated, substantially as described.

In testimony that I claim the foregoing as  
50 my invention I have hereunto set my hand this 10th day of July, A. D. 1905.

MARCELLUS C. LOVEJOY.

In presence of—

FRANK H. HASKELL,  
GEO. E. BIRD.