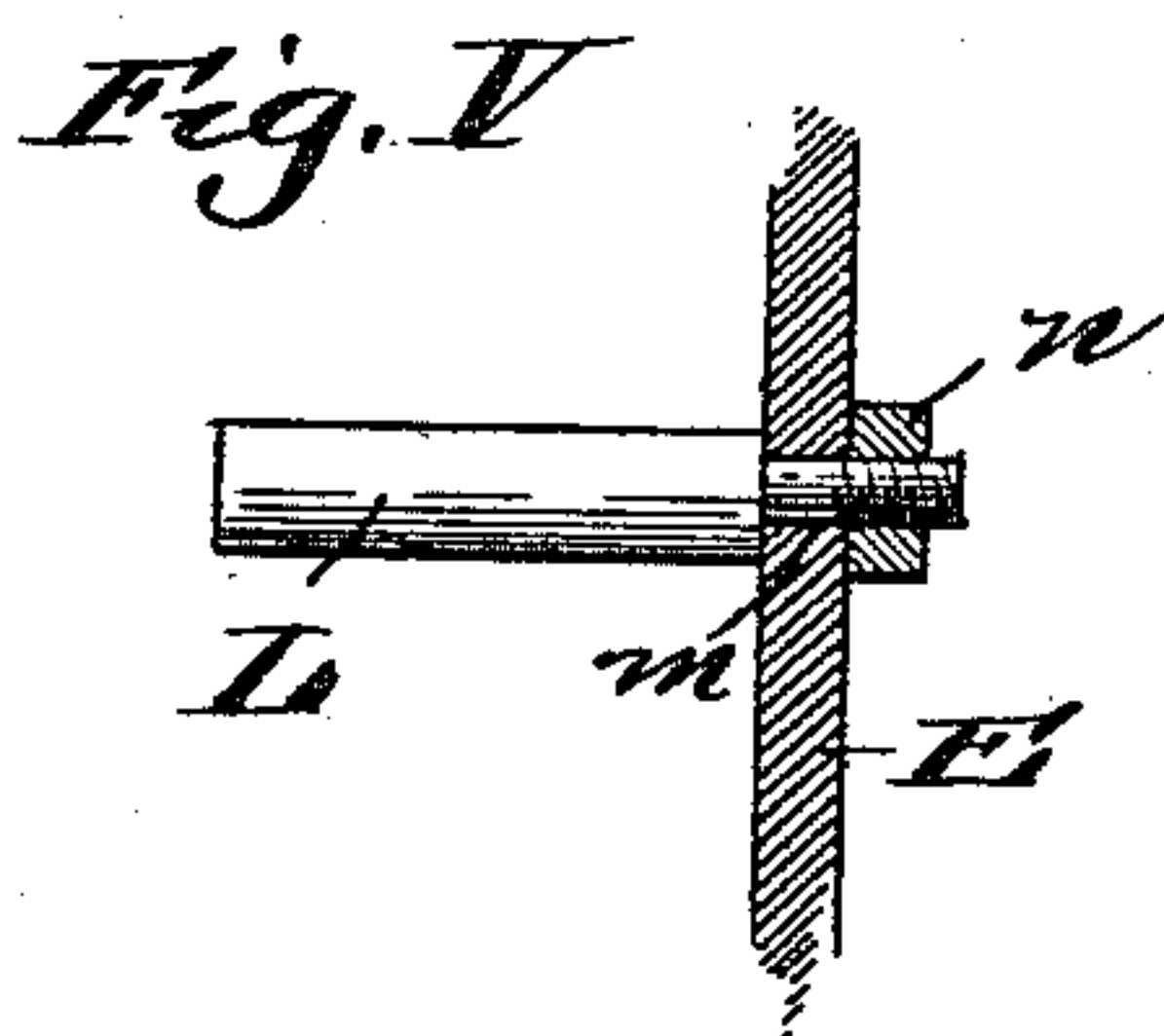
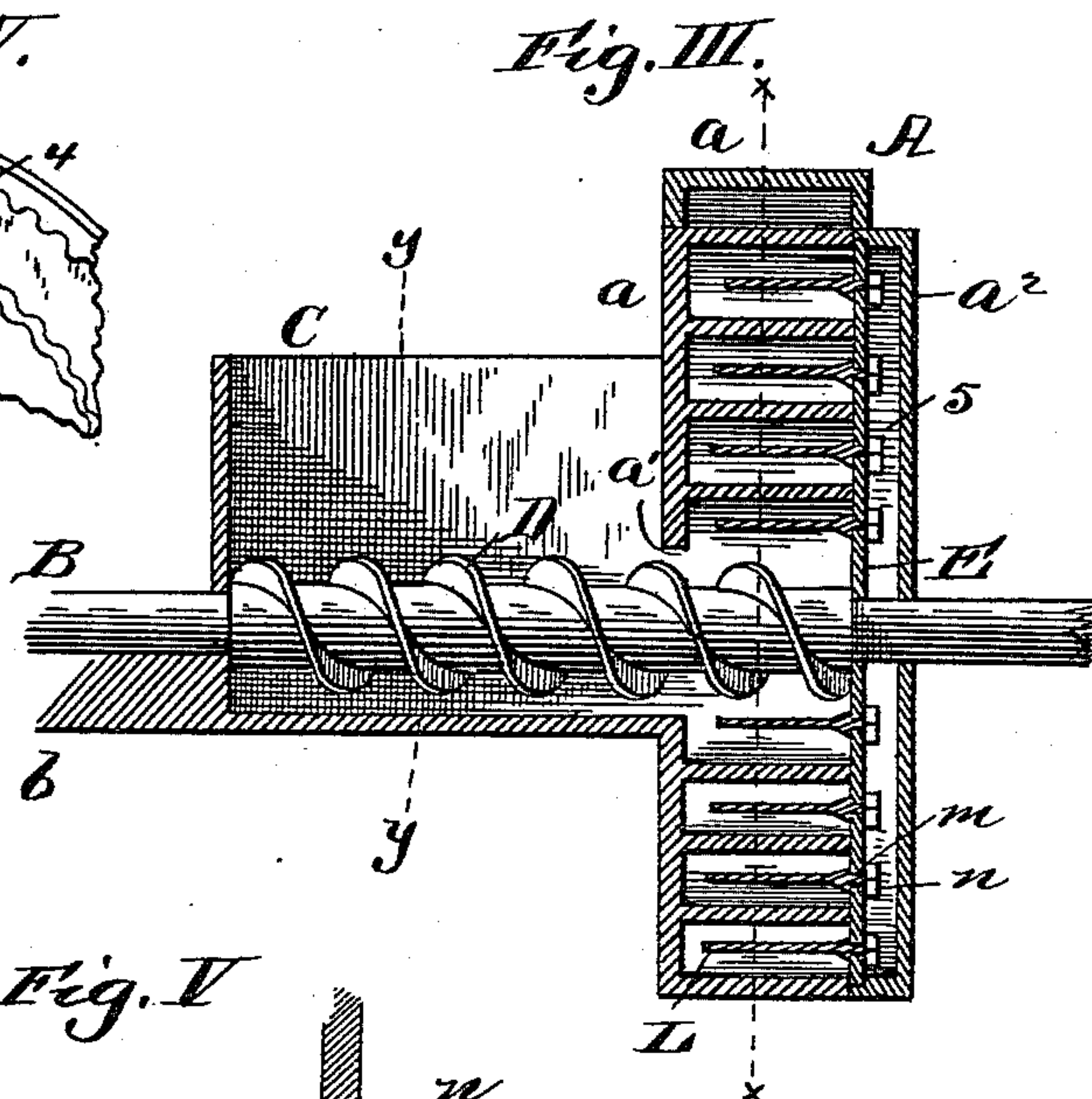
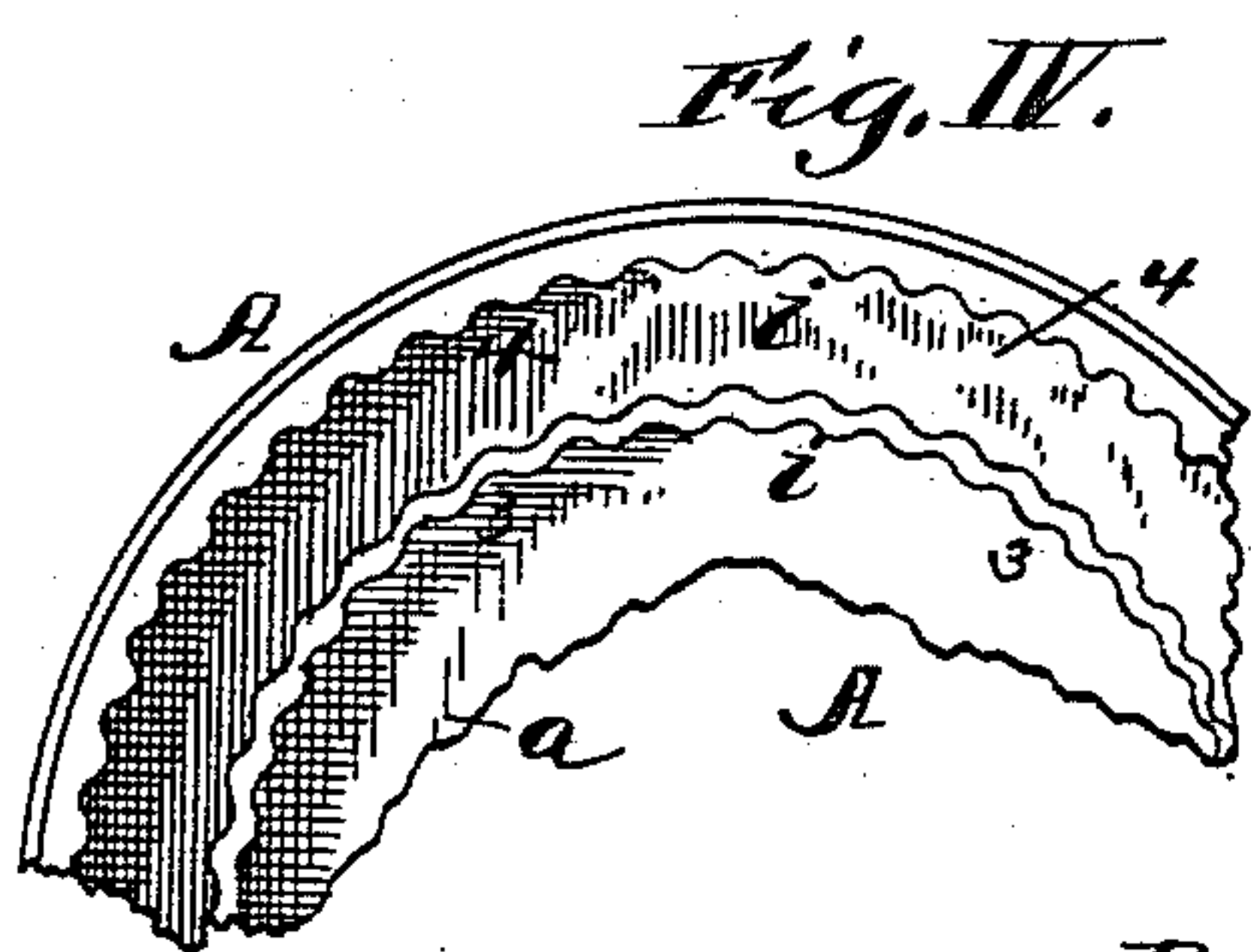
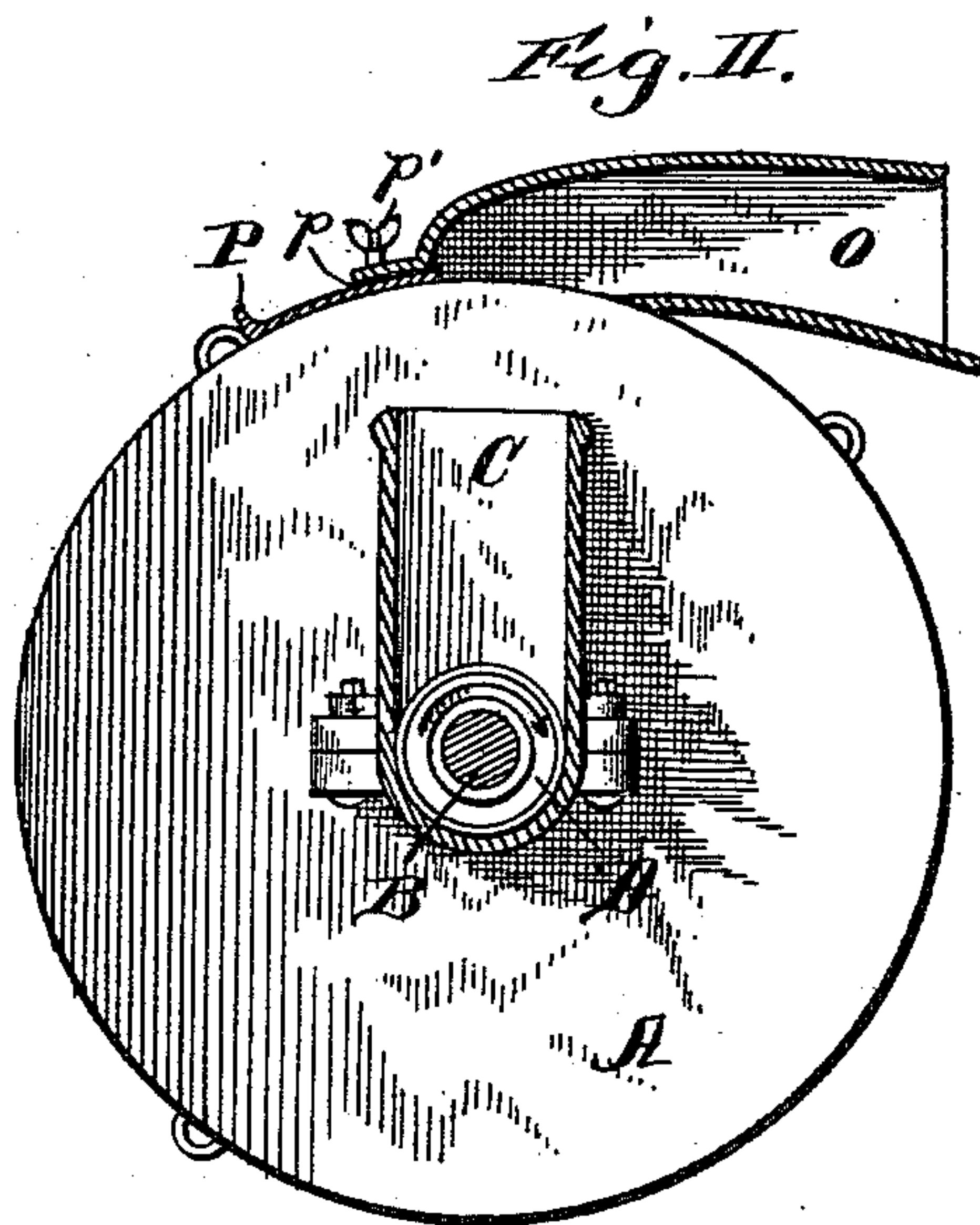


H. H. RING.  
GRAIN SCOURER.

Patented Aug. 25, 1891.



J. B. M. C. Givv.  
N. D. Berukaid

Inventor.  
Henry H. Ring  
By his attorney,  
Edson Bros.



# UNITED STATES PATENT OFFICE.

HENRY H. RING, OF LAIRDSVILLE, ASSIGNOR TO WALDRON & SPROUT, OF MUNCY, PENNSYLVANIA.

## GRAIN-SCOURER.

SPECIFICATION forming part of Letters Patent No. 458,495, dated August 25, 1891.

Application filed April 2, 1891. Serial No. 387,399. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY H. RING, a citizen of the United States, residing at Lairds-  
ville, in the county of Lycoming and State of  
5 Pennsylvania, have invented certain new and  
useful Improvements in Grain-Scourers; 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  
10 which it appertains to make and use the same.

The present invention relates to improve-  
ments in grain-scourers; and the object is to  
provide simple and durable means for expedi-  
tiously and thoroughly cleansing grain of  
15 any adhering dirt or sand, as well as to re-  
move the thin coating or skin which adheres  
to the kernels, and a further object is to pro-  
vide for the adjustment of parts and regulate  
the action of the beaters on the kernels, ac-  
20 cording to the condition of the grain.

In another application (Case C) filed by me  
on the same day as this application, Serial No.  
387,398, I have illustrated the adaptation of  
my scourer for use in connection with a grain  
25 separator and cleaner; but I do not confine  
myself to this particular use of the present  
improvement, as it can be advantageously  
used by itself or in any relation where it is  
desired to accomplish the expeditious and  
30 thorough scouring of grain.

The invention consists in the combination  
of a shaft, a shell or casing situated at one  
side of a hopper and divided into a series of  
concentric compartments arranged with their  
35 outlet-openings out of line, a screw-conveyer  
carried by said shaft and arranged to posi-  
tively feed the grain from the hopper axially  
into the shell or casing, a rotary disk carried  
by the shaft within the casing or shell, and  
40 beaters rigid with said disks and arranged in  
the compartments of the case.

My invention further consists in the novel  
construction, combination, and adaptation of  
parts, as will be hereinafter fully explained.

45 To enable others to understand my inven-  
tion more readily, I have illustrated the same  
in the accompanying drawings, in which—

Figure I is a vertical sectional view taken  
through the machine on the plane indicated  
50 by the dotted line  $xx$  of Fig. III. Fig. II is  
a view of the machine with the delivery-spout

and the feed-hopper in section and the cas-  
ing in elevation, the section of the feed-hop-  
per being on the line  $yy$  of Fig. III. Fig.  
III is a vertical sectional view of the machine 55  
on a plane at right angles to the section shown  
by Fig. I, and indicated by the dotted lines  $zz$   
of Fig. I. Fig. IV is a detail view of a por-  
tion of the shell or casing and the concentric  
partitions therein. Fig. V is a detail view, 60  
partly in section, showing the construction by  
which the adjustment of the beater-blades on  
the rotary disk is effected.

Like letters and numerals of reference de-  
note corresponding parts in all the figures of 65  
the drawings, referring to which—

A designates the annular case or shell, which  
is placed in a vertical fixed position on a suit-  
able frame, and B is the horizontal shaft, which  
extends axially through said annular shell 70  
and through a feed hopper or receptacle C,  
provided at one side of the case or shell. Said  
horizontal shaft may be supported in any  
suitable manner, either by a single long bear-  
ing  $b$  or by two separate bearings, as may be 75  
preferred. One of the sides of the annular  
case or shell A is closed by a head  $a$ , in which  
is formed an axial feed-opening  $a'$ , while the  
other side of the case or shell is closed by a  
face plate or head  $a^2$ , suitably bolted or other- 80  
wise secured to said shell. The upper side  
of the hopper or receptacle C is open for the  
free introduction of the grain therein, while  
the lower side of the hopper is curved. (See  
Fig. II.) In the hopper is a screw conveyer 85  
D, which is suitably fixed to the shaft B, and  
this screw conveyer operates close to the  
curved bottom of the hopper. The screw-  
conveyer extends into the case or shell through  
the axial feed-opening  $a'$  therein, and this 90  
conveyer terminates close to the rotary disk  
E, which is arranged within the case or shell,  
and is suitably fixed or secured to the shaft  
B, so as to be positively rotated thereby in  
the case or shell. 95

The interior of the case or shell is divided  
into a series of compartments 1, 2, 3, and 4  
by a series of partitions or walls F G H, which  
are concentric with each other and with the  
annular shell or case A. These annular par- 100  
titions or walls are rigid or integral with the  
head  $a$  of the case or shell, and they extend



therefrom for a suitable distance toward the face-plate  $a^2$ , so as to leave a space or chamber 5 between the partitions and said face-plate, in which chamber the rotary disk E is arranged, as shown by Fig. III. The interior surface of the annular shell and the opposing faces of the concentric partitions or walls thereof are roughened by corrugating or fluting them, as at  $i$ , (see Fig. IV,) to enable said surfaces of the shell and its partitions to act with better effect on the grain. The series of concentric partitions or walls F G H are provided with openings  $f g h$ , and the shell A has an outlet-opening  $j'$ , said series of openings being out of line with each other. Thus the opening  $f$  from the chamber 1 is out of line with the opening  $g$  from the chamber 2, and the opening  $h$  from the chamber 3 is out of line with the openings  $g j'$  from the chambers 2 4. (See Fig. I.) By this arrangement of the outlet-openings from the several chambers and use of the beaters L and the rotary disk E, I am enabled to cause the grain to travel or pass around each chamber before it is delivered into the other surrounding chamber, and thereby more thoroughly effect the scouring and cleansing of the grain.

A multiplicity of beaters L are provided on the rotary disk E, and said beaters are arranged in a number of circular rows, which are concentric with each other, one row or series of beaters being arranged in each of the chambers. These beaters are carried by the rotations of the disk E around the concentric chambers, and they act upon the grain in conjunction with the corrugated partitions to thoroughly and quickly remove any adhering particles of dust and the thin coating or skin on the kernels of the grain. Each beater or blade is of peculiar form or shape, the same being convexo-convex in cross-section, and each beater or blade is formed with a threaded stud  $m$ , which passes through an aperture in the disk E and receives a nut  $n$  to firmly hold the beater in place on the disk. The beaters or blades may be arranged on the rotary disk, so that their convex surfaces face the corrugated walls or partitions, as indicated in Fig. I, or the beaters may be turned part way around at an angle to said walls or partitions, or they may be adjusted transversely across the compartments, in which they travel or operate, according as it is desired to subject the grain to a hard or easy scouring operation, the manner of fastening the blades admitting of their adjustment with facility and ease. A discharge-spout O is clamped or fixed to one side of the case or shell to receive the grain from the opening  $j$  in the case A, and across this opening  $j$  is adapted to be adjusted a regulating gate or valve P, which is fitted to a slot  $p$  in the discharge-spout O, and is held in place by a binding-screw  $p'$ , to regulate the escape of grain from the scouring-chambers.

The operation of my improved machine may be described briefly as follows: The shaft

B, being rotated by any suitable means and the grain deposited in quantities in the hopper, the screw conveyer D positively forces the grain from the hopper into the inner chamber 1 of the case or shell, from whence it passes successively to the chambers 2 3 4 by the openings  $f g h$ . As the screw conveyer continues to feed and push the grain into the chamber 1 and the beaters are carried around the series of chambers by the disk E, the grain is positively forced and pushed through the successive chambers and at the same time subjected to the beating or scouring action by the beaters and the corrugated walls or partitions in the flutings. By adjusting the regulating-slide the rate of travel or escape of the grain can be regulated and the force of the beaters on the grain can be controlled by the position of the beaters in reference to the walls of the compartments in which the beaters operate.

I am aware that changes in the form and proportions of parts and details of construction of the mechanism herein shown and described as an embodiment of my invention can be made without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such modifications as fall within the scope of my invention.

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

1. In a grain-scourer, the stationary shell or case having the axial inlet-opening therein on one side and provided with a series of concentric walls or partitions forming the series of concentric compartments, the openings in said walls or partitions being out of line with each other, combined with a rotary disk arranged within the closed side of said shell or case close to the walls or partitions therein, and a series of beater-blades carried by the disk and fitted in the compartments of said case or shell, substantially as described.

2. In a grain-scourer, a stationary shell or case provided with the axial inlet on the one side thereof and having a series of concentric partitions or walls forming a series of connected compartments, the openings in said walls between the compartments being out of line with each other, in combination with a hopper or inlet arranged laterally to the case or shell, a shaft carrying a feed-screw that enters the central compartment of the shell, a rotary disk fixed to the shaft, and the blades or beaters carried by the disk and arranged in the compartments of said shell, substantially as and for the purpose specified.

3. In a grain-scourer, the combination of a shell or case divided into a series of connected concentric compartments, a hopper, a shaft passing axially through said shell or case, a feed-screw carried by the shaft and operating in the hopper and central compartment of the case, the disk carrying the beaters or blades which travel in said compartments of



the shell, and the regulating gate or valve operating in the outlet from the case or shell, substantially as and for the purpose set forth.

5 4. In a grain-scourer, the combination, with a shell or case, of a rotary disk carrying the beaters or blades, which are capable of adjustment thereon relatively to the walls of the compartments in which said beaters operate, substantially as and for the purpose set forth.

10 5. In a grain-scourer, the combination, with a shell or case provided with a series of compartments, of a rotary disk and the beaters carried by said disk and arranged in the compartments of the shell, said beaters being  
15 convexo-convex in cross-section and adjustable on the disk relatively to the walls of the compartments in which they operate, substantially as and for the purpose set forth.

20 6. In a grain-scourer, the combination, with a shell or case having the concentric walls

forming the compartments and the rotary disk, of the beaters or blades adjustably clamped on the disk and operating in said compartments of the case or shell, substantially as described.

25 7. In a grain-scourer, the combination of a case or shell having the corrugated concentric partitions, a shaft, a rotary disk, and the convexo-convex beaters clamped on the disk and adjustable thereon relatively to the corrugated walls forming the compartments in  
30 which the beaters operate, substantially as and for the purpose set forth.

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

HENRY H. RING.

Witnesses:

D. B. DYKINS,  
JOHN WALDRON.