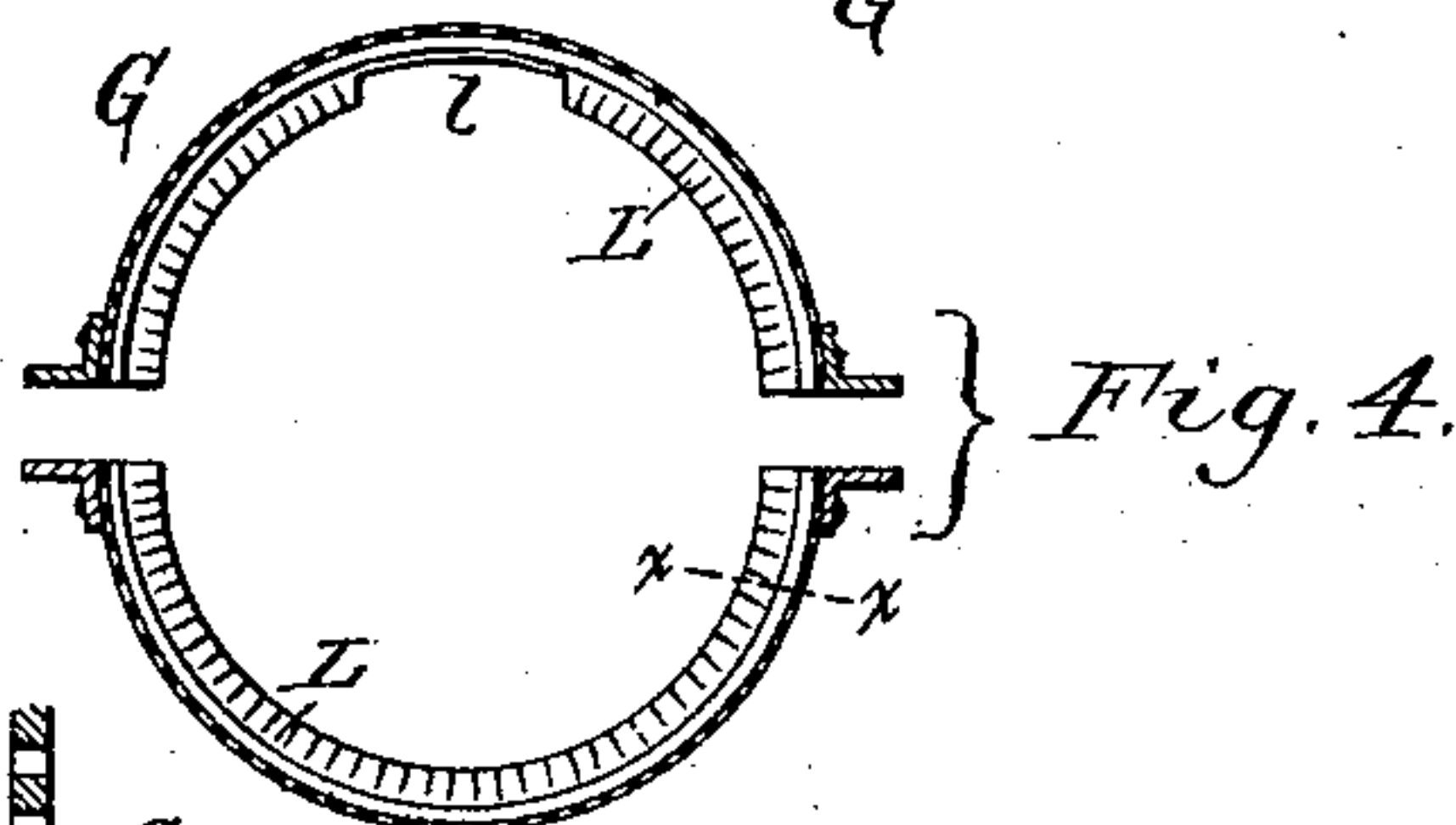
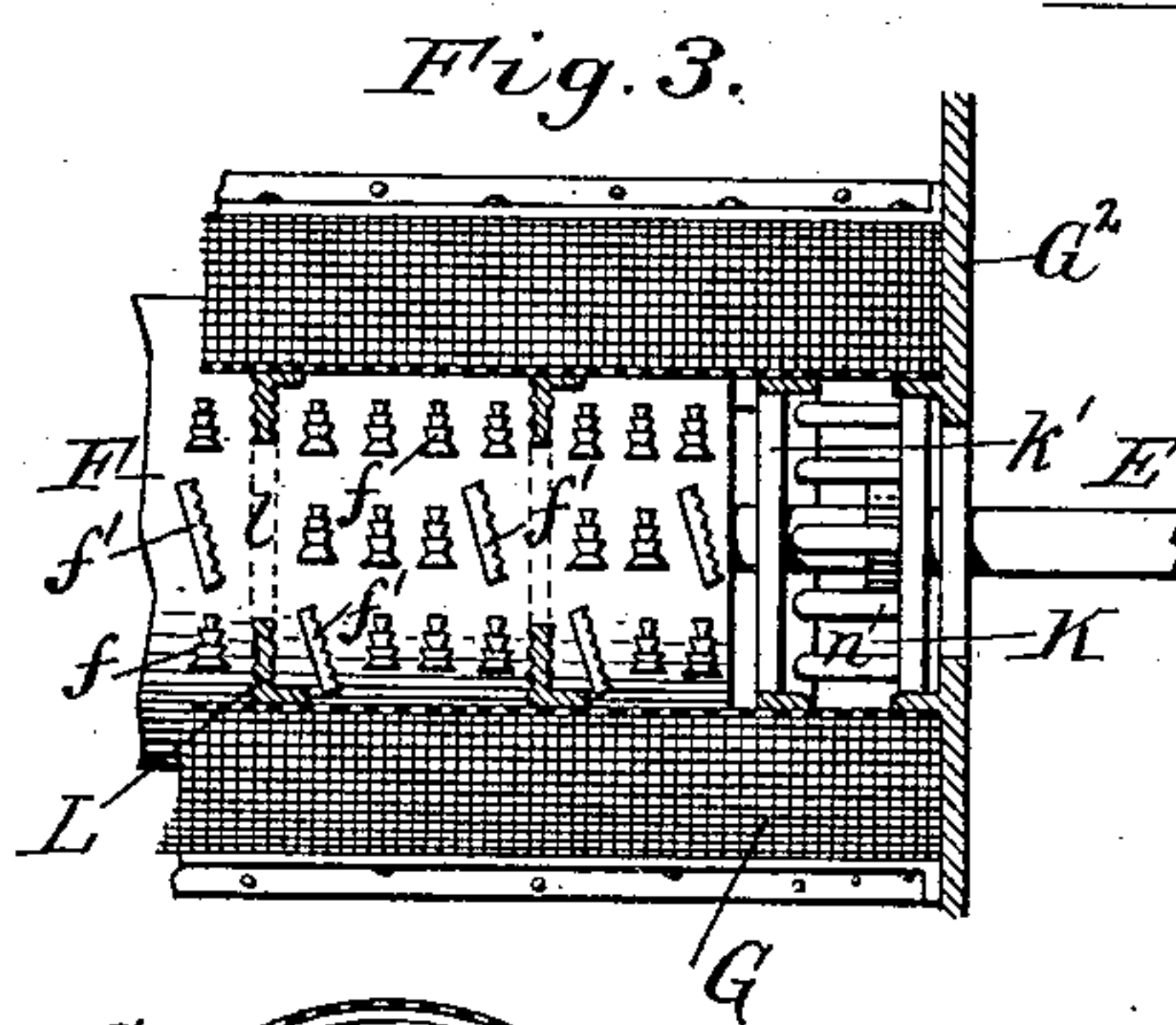
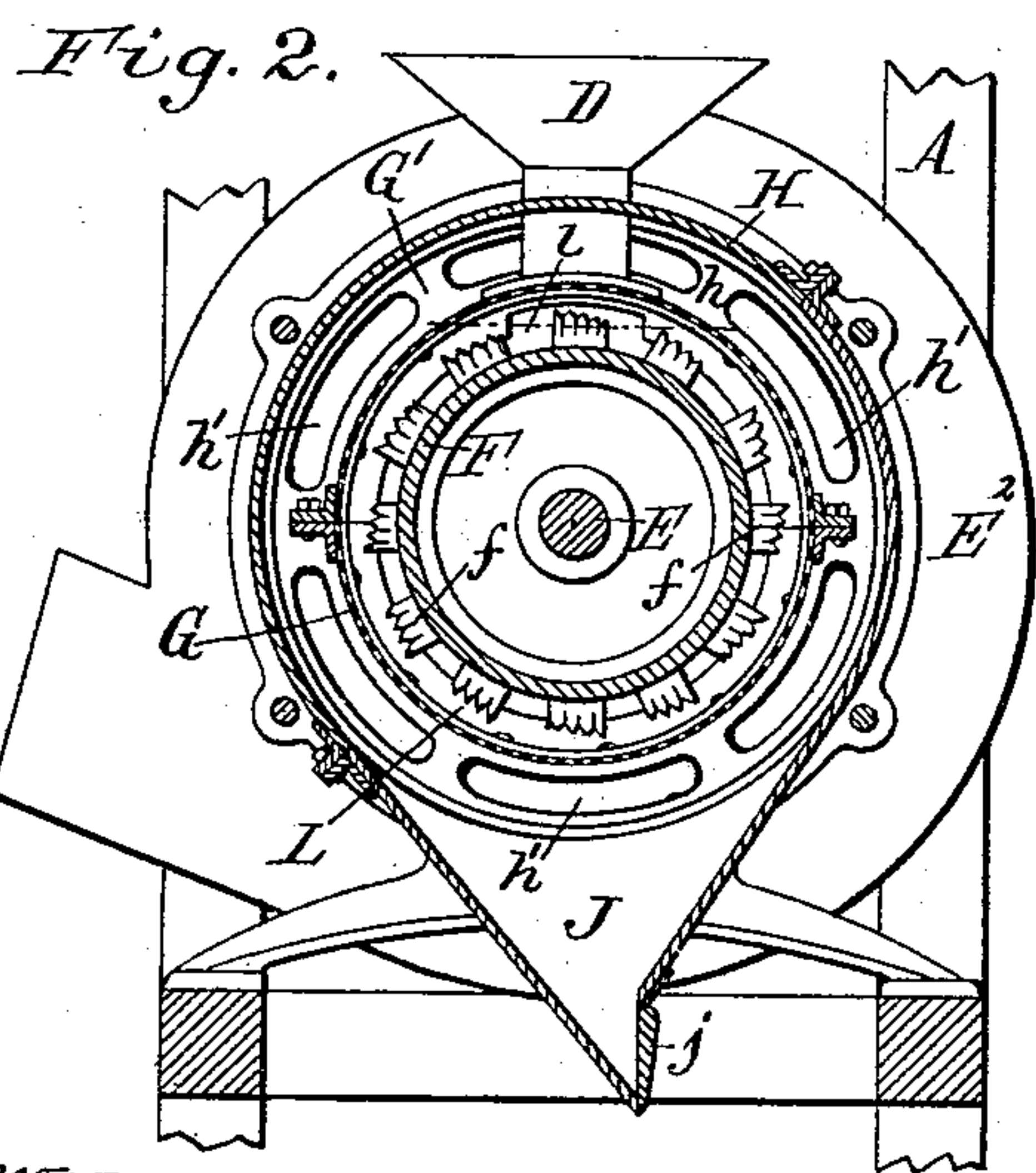
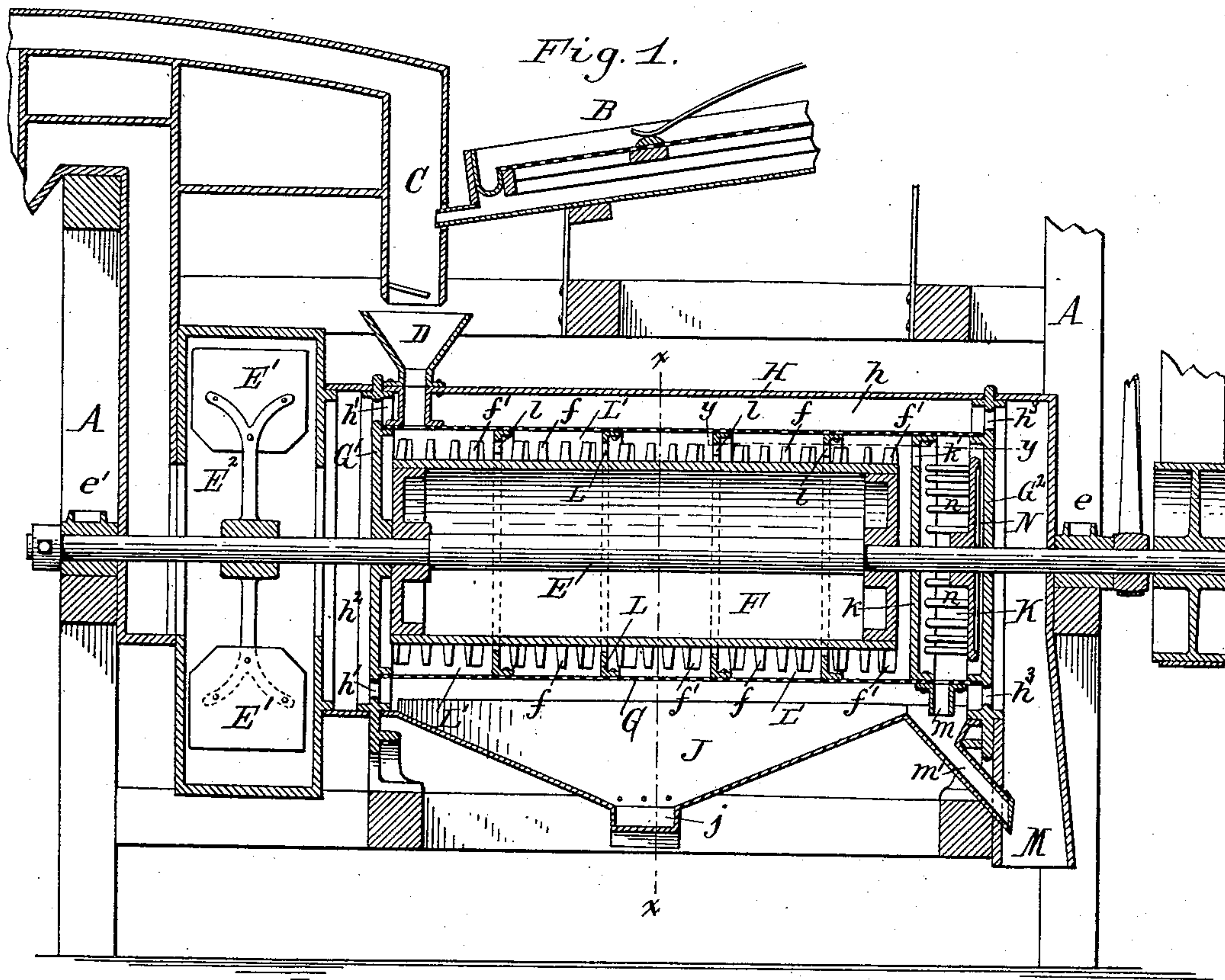


(No Model.)

G. S. CRANSON.  
GRAIN SCOURER.

No. 407,722.

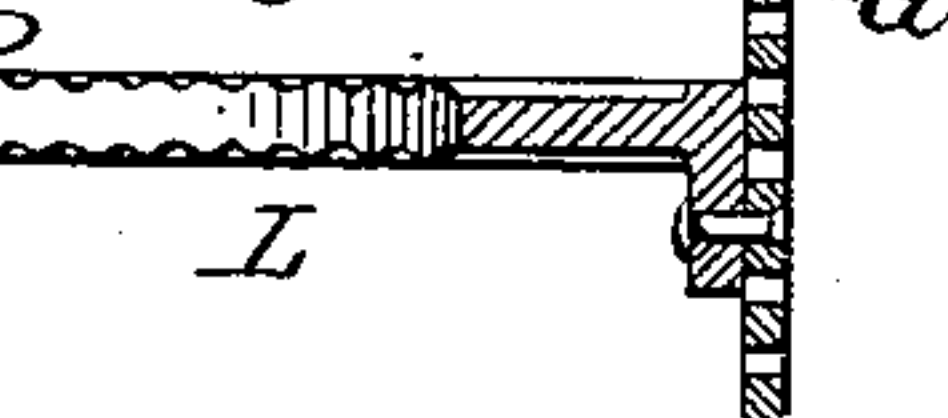
Patented July 23, 1889.



Witnesses:

Theo. L. Popp  
Geo. J. Buchheit Jr.

*Fig. 5.*



G. S. Cranson Inventor.  
By Wilhelm Honner  
Attorneys.



# UNITED STATES PATENT OFFICE.

GILES S. CRANSON, OF SILVER CREEK, NEW YORK.

## GRAIN-SCOURER.

SPECIFICATION forming part of Letters Patent No. 407,722, dated July 23, 1889.

Application filed April 9, 1888. Serial No. 270,034. (No model.)

*To all whom it may concern:*

Be it known that I, GILES S. CRANSON, of Silver Creek, in the county of Chautauqua and State of New York, have invented new and useful Improvements in Grain-Scourers, of which the following is a specification.

This invention relates to that class of grain-scourers in which the kernels are cleaned by rubbing against each other and against metallic surfaces, and which consist, essentially, of a horizontal scouring-case through which the grain passes slowly and a toothed drum or cylinder whereby the grain is scoured as it passes through the case.

A machine of this character is described and shown in Letters Patent of the United States No. 356,273, granted to me January 18, 1887, and the present invention is an improvement on said machine. In the machine covered by said patent the passage of the grain through the scouring-case is effected by means of inclined flights arranged upon the scouring-drum, and the discharge of the material from the case is regulated by a yielding valve which closes an opening arranged at the tail of the scouring-case. It frequently happens that an excessive tension is applied to this valve, in which case the discharge of the grain is unduly retarded, thereby producing an excessive pressure of material near the tail end of the case, which causes the tail portion of the case to wear rapidly, while its head portion receives comparatively little wear. An unyielding swinging valve has also been employed to regulate the discharge of the grain from the scouring-case; but this construction is open to the same objection, as the valve is liable to be closed to an undue extent.

The object of my invention is to overcome this objection and to provide the machine with means whereby the movement of the grain is more uniformly retarded in all portions of the scouring-case and the wear is more evenly distributed over the inner surface thereof.

My invention has the further object to improve the construction of the scouring-case and the outer casing inclosing the same, so as to afford convenient access to the toothed scouring-drum when required.

The invention consists of the improve-

ments which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of my improved grain-scourer. Fig. 2 is a cross-section thereof in line  $x x$ , Fig. 1. Fig. 3 is a longitudinal section in line  $y y$ , Fig. 1. Fig. 4 is a transverse section of the divided scouring-case, showing one of the retarding-rings secured to the same. Fig. 5 is a horizontal section in line  $x x$ , Fig. 4, on an enlarged scale.

Like letters of reference refer to like parts in the several figures.

A represents the stationary main frame of the machine, B the preliminary separating-screen, and C the separating wind-trunk through which the grain passes from the screen B to the feed-hopper D.

E represents the horizontal shaft journaled in bearings  $e e'$ , secured to the frame A and carrying near one end the fan-blades  $E'$ , which rotate within a case  $E^2$ .

F represents the scouring drum or cylinder secured to the shaft E and provided on its surface with teeth or stirrers  $f$  and at suitable intervals with inclined flights  $f'$ , which convey the material toward the tail end of the machine.

G is the perforated scouring-case surrounding the scouring-drum F and supported on the main frame A by two frames  $G^1 G^2$ .

H represents the tight casing inclosing the perforated scouring-case G, and  $h$  is an air-passage formed between the latter and the inclosing-casing H. This passage communicates with one eye of the fan  $E'$  by means of openings  $h^1$ , formed in the frame  $G^1$ , and a passage  $h^2$ , and it receives air through openings  $h^3$ , formed in the frame  $G^2$ . The heavier material, which passes through the perforations of the scouring-case, drops into a hopper J, from which it is automatically discharged through an opening provided with a valve  $j$ . The light dust is removed from the hopper J by air-currents entering through the openings  $h^3$ .

K represents the discharge-chamber, arranged at the rear end of the scouring-case G and separated from the same by a partition or plate  $k$ , which is provided in its upper portion with a discharge-opening  $k'$ .



L represents a series of rings or annular partitions arranged transversely in the annular space between the drum F and the scouring-case G, whereby the latter is divided into a number of chambers or compartments L'. The rings L are provided in their upper portions with escape openings or recesses *l*, through which the grain passes from one compartment L' to the next following compartment. The grain enters the compartment at the head of the machine, and is retained in the same a certain length of time before escaping into the next compartment. The grain then passes into the next compartment, where it is confined a certain period of time, and so on through all the compartments until the last compartment is reached, when the grain will have undergone a thorough scouring action. From said last compartment the grain is discharged into the chamber K through the opening *k'*. In this manner the movement of the grain through the machine is sufficiently retarded to insure a thorough scouring of the grain, while at the same time preventing an undue pressure in any portion of the case and causing all portions of the latter to wear uniformly. This construction dispenses with the use of the regulating-valves heretofore employed, and thus precludes the possibility of applying an exorbitant pressure to the inner surface of the scouring-case.

The sides of the rings or annular partitions L are preferably corrugated, as shown, to increase the scouring-surface of the machine. The inner edges of the rings are arranged so closely to the scouring-drum that no material can escape between the latter and the rings, except through the openings *l*. The grain which passes into the chamber K is discharged from said chamber through spouts *m m'* into the final discharge-spout M. An annular row of rotating stirrers *n* is preferably arranged in the discharge-chamber K, which stirrers are secured to a disk N, mounted on the driving-shaft E.

The outer tight casing H is divided longitudinally and obliquely into two sections, and the feed-hopper D is formed on or secured to the upper section and the dis-

charge-hopper J is formed on or secured to the lower section, as shown in Fig. 2. The scouring-case G is divided lengthwise, preferably horizontally, and the rings or partitions L, secured to the same, are also divided, as shown in Figs. 2 and 4. By this construction the upper sections of the tight casing H and scouring-case G can be removed and convenient access be had to the scouring-drum for making repairs when necessary.

I claim as my invention—

1. The combination, with the horizontal scouring-case provided at opposite ends with an inlet and an outlet for the grain, of a scouring-drum arranged within said case, and a series of retarding-rings secured to the inner side of the scouring-case in the annular space between the drum and the scouring-case and provided with openings in their upper portions through which the grain passes from one compartment to the next, substantially as set forth.

2. The combination, with the horizontal perforated scouring-case provided at opposite ends with an inlet and an outlet for the grain, of a scouring-drum arranged within said case and provided with scouring-teeth and inclined flights, and a series of retarding-rings secured to the inner side of the scouring-case in the annular space between the drum and the scouring-case and having openings in their upper portions through which the grain passes from one compartment to the other, substantially as set forth.

3. In a grain-scourer, the combination, with the perforated scouring-case G, divided longitudinally, and the feed-hopper D and receiving-hopper J, of the inclosing-casing H, divided lengthwise and obliquely, one of the sections of the casing carrying the feed-hopper D and the other section the receiving-hopper J, substantially as set forth.

Witness my hand this 21st day of March, 1888.

GILES S. CRANSON.

Witnesses:

P. A. C. STEVENS,  
T. W. SULLIVAN.