

(No Model.)

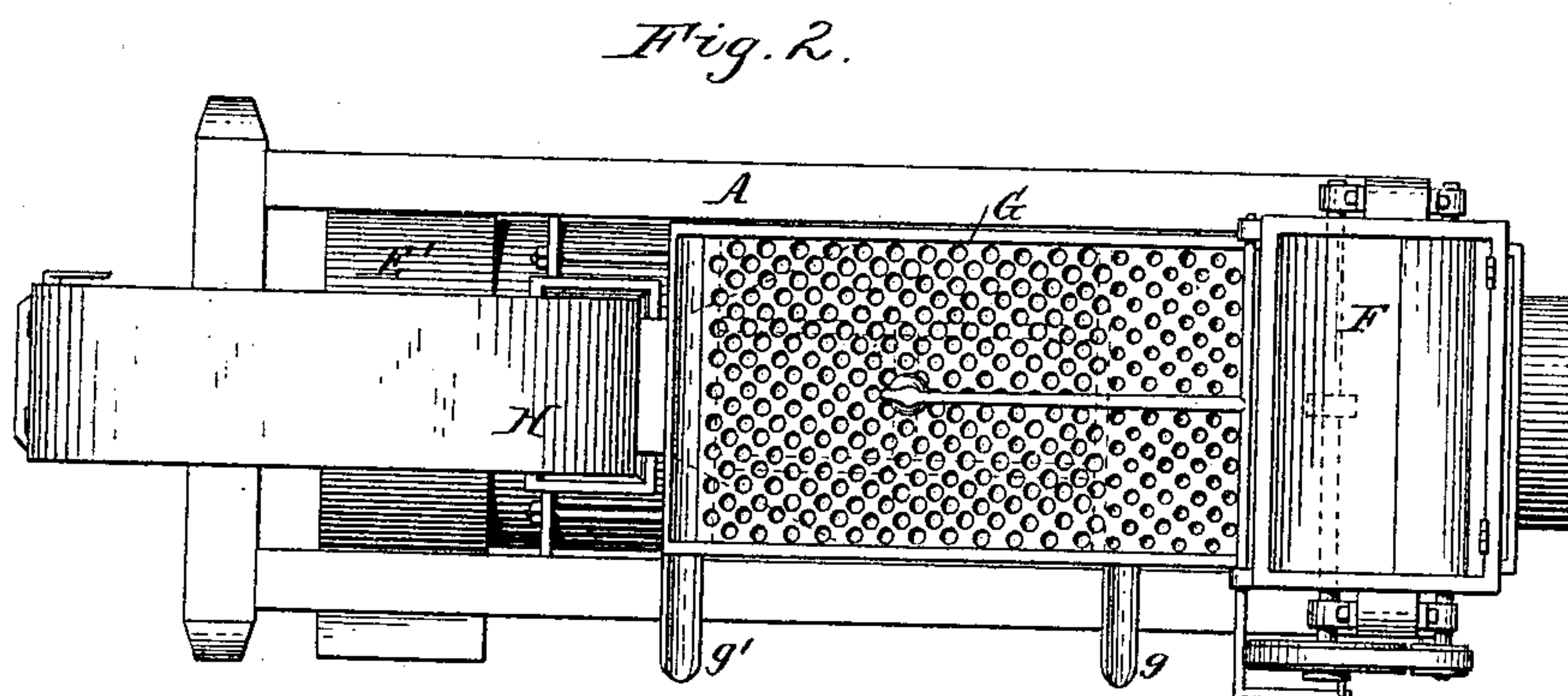
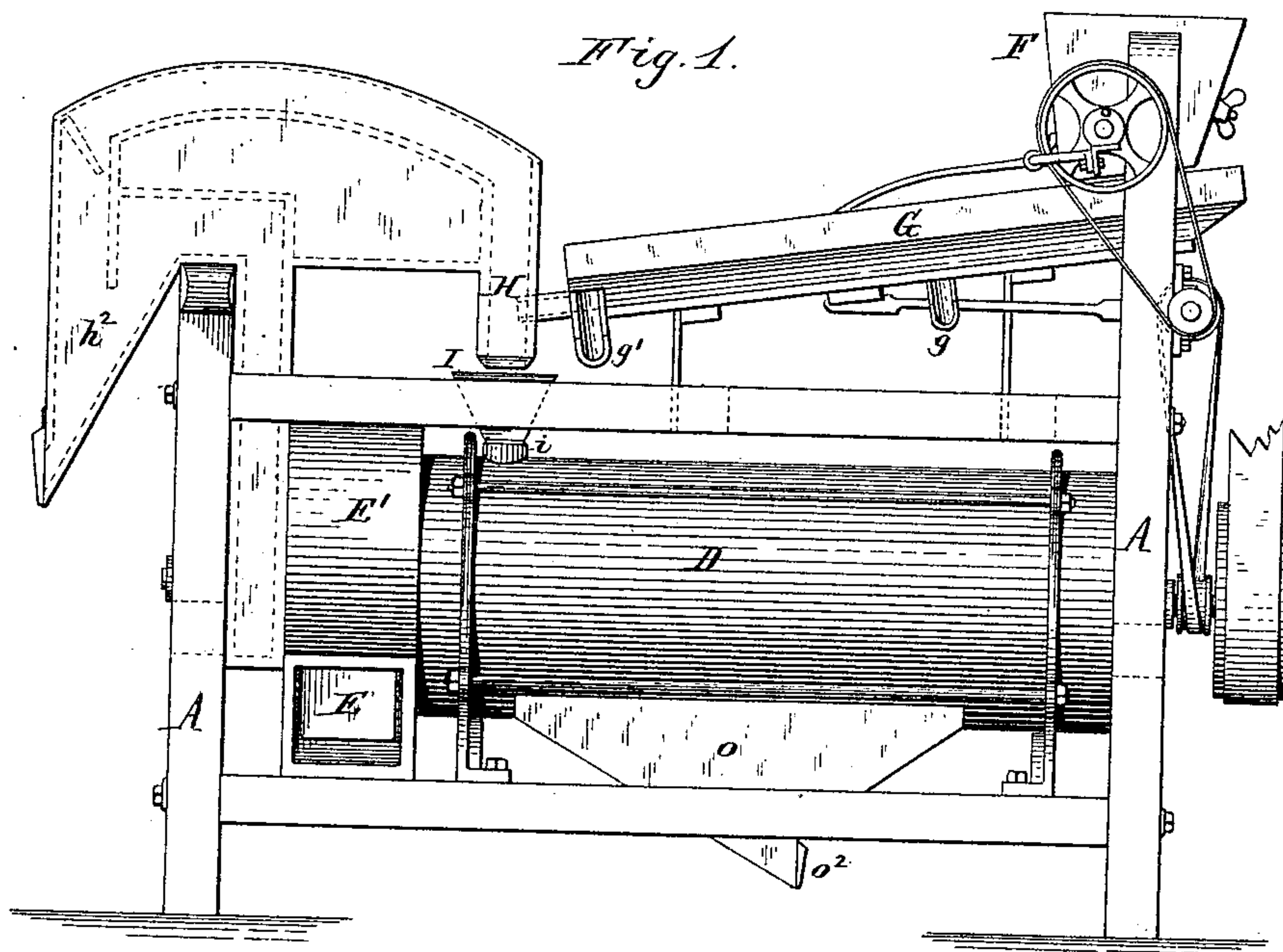
2 Sheets—Sheet 1.

G. S. CRANSON.

GRAIN SCOURER AND SEPARATOR.

No. 328,385.

Patented Oct. 13, 1885.



Theo. L. Popp.  
Geo. C. Pitman.

Witnesses

Giles S. Cranson, Inventor.

By Wilhelm Bonner.

Attorneys.

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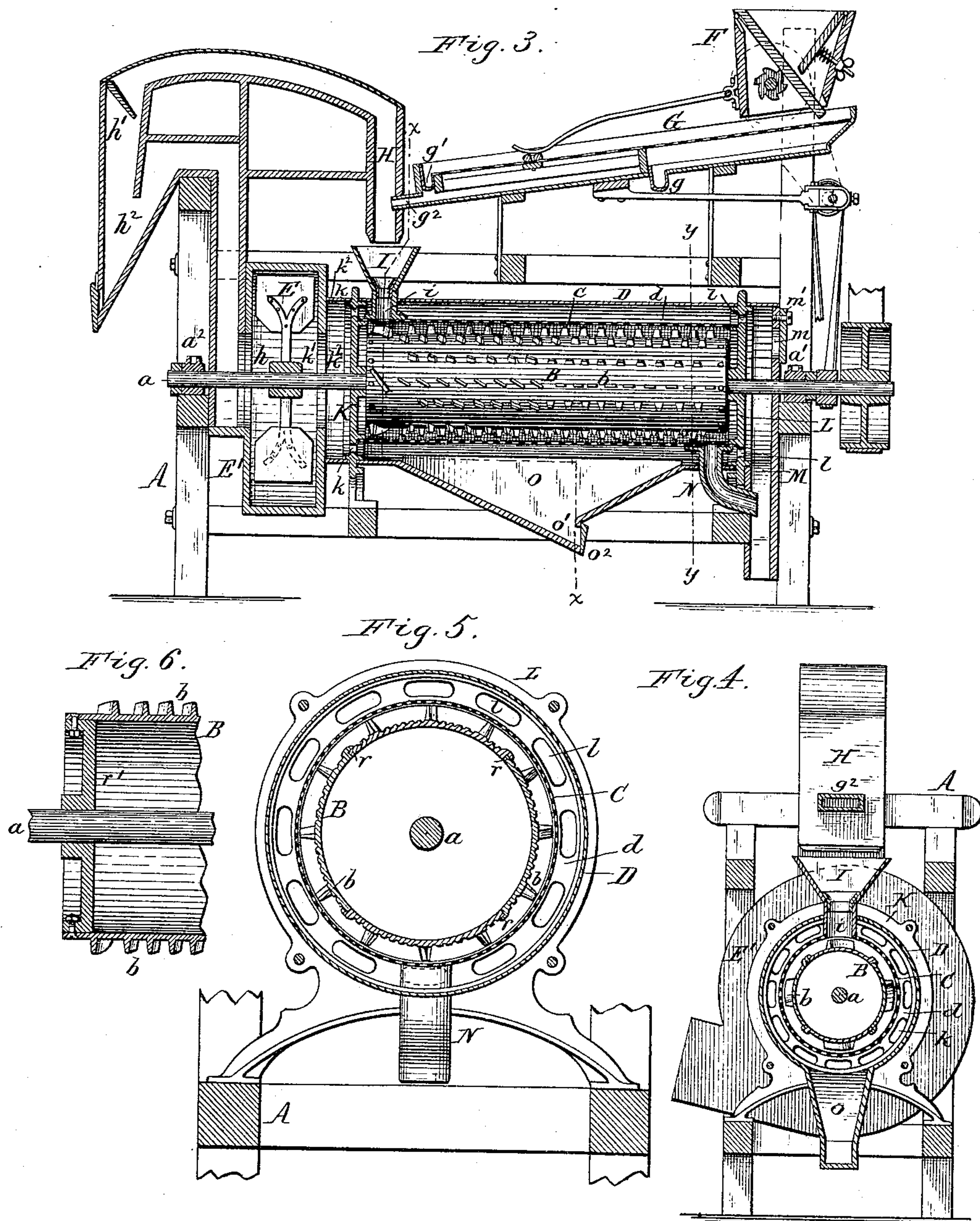
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By Wilhelm O. Bomer  
Attorneys.



# UNITED STATES PATENT OFFICE.

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

## GRAIN SCOURER AND SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 328,385, dated October 13, 1885.

Application filed April 8, 1885. Serial No. 161,546. (No model.)

*To all whom it may concern:*

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

This invention relates to an improvement in that class of combined grain scourers and separators which comprise a horizontal perforated scouring-cylinder in which the grain is scoured by arms or teeth secured to a revolving drum and wind-trunks in which the grain is freed from the light impurities.

The object of my invention is to produce a simple and compact machine of this kind which will effect a more perfect cleaning or scouring of the grain, and a more complete separation of the detached impurities from the grain.

My invention consists, to these ends, of the improvements in the construction of the machine, which will be hereinafter fully set forth, and pointed out in the claim.

In the accompanying drawings, consisting of two sheets, Figure 1 is a side elevation of my improved machine. Fig. 2 is a top plan view of the same. Fig. 3 is a longitudinal sectional elevation of my improved machine. Fig. 4 is a cross-section in line *x x*, Fig. 3. Fig. 5 is a cross-section, on an enlarged scale, in line *y y*, Fig. 3. Fig. 6 is a sectional elevation of one end of the scouring-drum on an enlarged scale.

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

A represents the stationary main frame, and *a* the longitudinal shaft supported in bearings *a'* *a''*, secured to the frame A.

B represents the scouring-drum, secured to the shaft *a*, and provided on its periphery with projecting arms or flights *b*.

C represents the perforated scouring-cylinder surrounding the drum B, and D the tight case which surrounds the cylinder C. *d* is the annular air-passage formed between the cylinder C and case D.

E represents the fan-blades, secured to the shaft *a* near the feed end of the scouring-cylinder, and F represents the fan-case, which incloses the blades or wings E.

F represents the stationary feed-hopper,

supported on an upward extension of the frame A, and G represents the shaking-shoe or separating-screen, which receives the grain from the feed-hopper and sifts out the sand and other fine material, which escapes through a spout, *g*, and the stones, straws, &c., which tail off and escape through a spout, *g'*, while the grain passes through the lower portion of the screen, and is discharged through a spout, *g''*.

H represents the preliminary separating wind-trunk, which receives the grain from the spout *g''* and separates the light impurities from the grain. This air-trunk is connected with the eye *h* in the outer head of the fan-case, and is provided with a regulating-valve, *h'*, and a chess-hopper, *h''*, in the usual manner.

I represents the hopper which receives the grain from the lower end of the ascending leg of the preliminary wind-trunk and conducts the same to the interior of the scouring-cylinder C, by means of a spout, *i*, which extends through the air-passage *d*.

K represents the head which closes the feed end of the scouring-cylinder, and which is provided with openings *k* in line with the annular passage *d*, through which the latter communicates with the inner eye, *k'*, of the fan-case by a short cylinder or tube, *k''*.

L represents the head which closes the tail end of the scouring-cylinder, and which is provided with openings *l*, in line with the annular passage *d*, through which air is drawn into said passage from the subsequent wind-trunk M, which latter is arranged at the outer side of the head L.

N is the discharge-spout through which the grain is delivered from the scouring-cylinder C into the wind-trunk M. *m* is an air-opening formed in the wind-trunk M, and provided with an adjustable cover, *m'*, whereby the admission of air to the trunk M through said opening can be regulated or shut off, as may be necessary, to regulate the air-current passing through the wind-trunk M.

O is a hopper or receptacle formed at the lower side of the case D and opening into the annular air-passage *d*, for collecting the scorings or heavy material which drops out of the air-current in the passage *d*. The hopper O



is provided with a discharge-opening,  $o'$ , having a valve,  $o^2$ , by which the accumulated material is discharged from time to time.

The scouring-cylinder is constructed of wire-cloth woven of square or edged steel wires, whereby the grain is frequently turned in its passage through the cylinder and thoroughly scoured by contact with the sharp edges of the cloth. The rotating arms or flights  $b$  bring the grain forcibly in contact with the wire-cloth cylinder and cause the kernels to rub against each other, whereby the dust, dirt, and loose outer skins of the kernels, as well as the projecting portions of the awns, are completely detached without breaking the grain. This renders the machine especially effective for scouring buckwheat, and also renders the machine very useful for scouring and cleaning wheat and other grain.

The flights  $b$  upon the front portion of the drum  $B$  are inclined to feed the material toward the discharge end of the scouring-cylinder, while the flights upon the rear portion of the cylinder are arranged at right angles to the direction of rotation, whereby the grain is retarded in the rear portion of the cylinder and effectually scoured before it is discharged. The drum  $B$  is composed of sections connected by longitudinal overlapping joints  $r$ , secured at their ends to heads  $r'$ , which are fastened to the shaft  $a$ . The surface of the drum  $B$  is provided with longitudinal ribs or corrugations which increase the scouring action.

The grain, which has been freed from the coarse foreign matter by the sieve  $G$  and the light impurities by the preliminary wind-trunk  $H$ , enters the scouring-cylinder  $C$ , and is scoured in the same partly by contact with the sharp edges of the wire-cloth and partly by attrition. The scoured grain escapes from the cylinder  $C$  by the spout  $N$ , and enters the

subsequent wind-trunk  $M$ , in which it is freed from the light impurities, which latter are carried off by the air-current passing upwardly through the wind-trunk  $M$ . This air-current enters the passage  $d$  through the openings  $l$  in the head  $L$ , and in passing through the passage  $d$  removes the fine impurities, which are forced through the perforations of the scouring-cylinder. The heavy impurities drop out of the air-current into the enlargement  $O$ , the air-current being weakened to some extent by said enlargement, while the light impurities continue in the air-current, and are carried with the same through the openings  $k$  in the head  $K$  and the tube  $k^2$  to the fan.

I do not in this application desire to claim the general features of the scourer and separator which are claimed in another application for a patent showing an upright machine and filed of even date herewith, Serial No. 161,545, but limit this application to the specific improvements in the construction of the horizontal machine which are pointed out in the claim.

I claim as my invention—

The combination, with the perforated horizontal scouring-cylinder  $C$  and inclosing-case  $D$ , separated by an annular space  $d$ , and the fan  $E$ , of the heads  $K$   $L$ , provided with openings  $k$   $l$ , the wind-trunk  $M$ , arranged on the rear side of the head  $L$  and communicating with the openings  $l$ , and the spout  $N$ , which delivers the scoured grain into the wind-trunk  $M$ , substantially as set forth.

Witness my hand this 30th day of March, 1885.

GILES S. CRANSON.

Witnesses:

JNO. J. BONNER,  
CARL F. GEYER.