

(No Model.)

2 Sheets—Sheet 1.

G. S. CRANSON.

GRAIN SCOURER.

No. 329,365.

Patented Oct. 27, 1885.

Fig. 1.

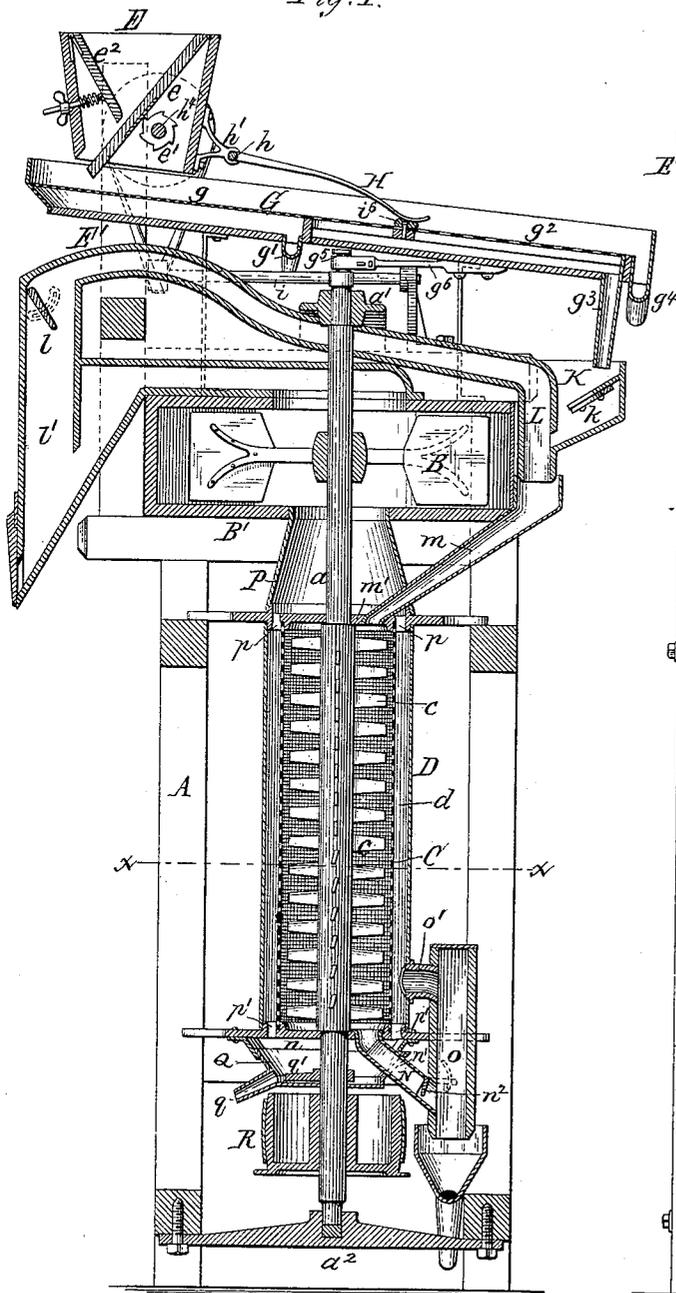
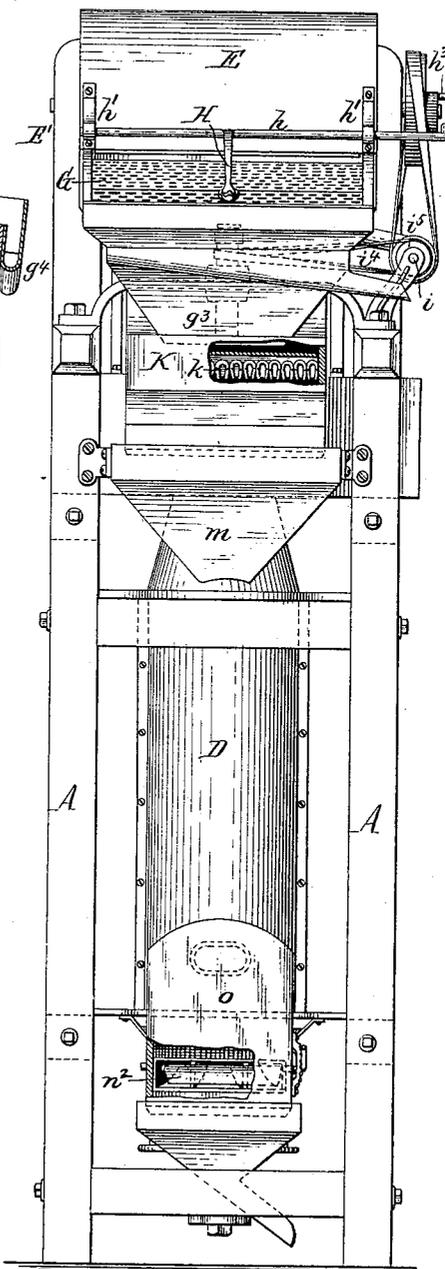


Fig. 2.



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(No Model.)

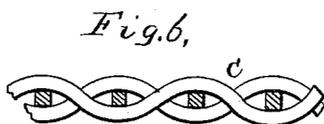
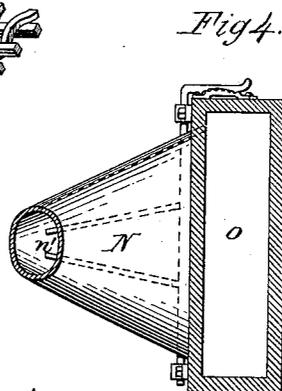
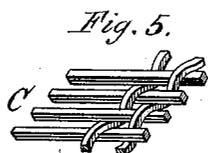
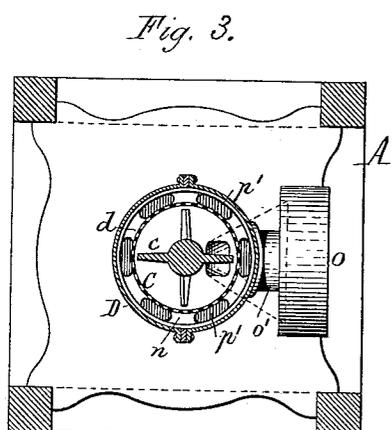
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

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

GRAIN-SCOURER.

SPECIFICATION forming part of Letters Patent No. 329,365, dated October 27, 1885.

Application filed April 8, 1885. Serial No. 161,545. (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, of which the following is a specification.

This invention relates to an improvement in that class of grain-scourers which contain a vertical perforated scouring-cylinder in which the grain is scoured by revolving arms or stirrers, 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.

My invention consists, to that end, of the improvements in the construction of the machine, which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings consisting of two sheets, Figure 1 is a sectional elevation of my improved machine. Fig. 2 is an elevation at right angles to Fig. 1. Fig. 3 is a horizontal section in line $x x$, Fig. 1. Fig. 4 is a horizontal section through the discharge-spout of the scouring-cylinder and the wind-trunk connected therewith. Fig. 5 is a perspective view of a portion of the scouring-cylinder. Fig. 6 is a sectional view of the wire-cloth of the bolting-cylinder, on an enlarged scale.

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

A represents the upright stationary frame of the machine; a , the vertical shaft, arranged centrally in the frame A and supported in bridge-trees a' a'' .

B represents the fan-blades secured to the upper portion of the shaft a , and B' the case inclosing the blades B.

c represents the arms or stirrers secured to the lower portion of the shaft a , and C the perforated scouring-cylinder surrounding the stirrers c .

D represents the tight case or jacket which surrounds the perforated cylinder C, and d the annular space or air-passage formed between the cylinders C and D.

E represents the stationary feed-hopper secured to an upward extension, E', of the frame

A, and provided with a movable inclined board, e , which is jarred by a ratchet-wheel, e' , and an adjustable board, e'' , whereby the feed is regulated.

G represents the separating-screen arranged below the feed-hopper, and having its head portion g covered with finely-perforated metal, which permits only sand and similar fine material to pass through, which is discharged through a spout, g' , while the lower portion, g'' , of the screen is covered with coarsely-perforated metal, which permits the grain to pass through, which is discharged through a spout, g'' , while the coarse foreign matter—such as straw, stones, thistle-heads, &c.—tail off and are discharged through a spout, g'' . The shoe is vibrated by a crank or eccentric, g'' , secured to the upper end of the shaft and connected with the shoe by a rod, g'' .

H represents a knocker which strikes the lower portion, g'' , of the screen, which is most liable to become filled up by grain lodging in its perforations. This knocker is mounted on a horizontal shaft, h , which is provided with a short trip-arm, h'' , which is depressed at given intervals by a revolving pin or projection, h'' .

K represents the hopper, which receives the grain from the shaking shoe, and which is preferably provided with magnets k , whereby particles of iron contained in the grain are intercepted.

L represents the preliminary wind-trunk, which receives the grain from the hopper K, and in which the light impurities are removed from the grain by the air-current before the grain is delivered into the scouring-cylinder. This wind-trunk connects with the upper eye of the fan-case B', and is provided with a regulating-valve, l , and a chess-hopper, l' , in the usual manner.

m represents the spout whereby the grain is conducted from the preliminary wind-trunk L into the scouring-cylinder C through an opening in the top plate, m' , of said cylinder. This cylinder is constructed of wire-cloth woven of square or edged steel wires, as represented in Figs. 5 and 6, 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 stirrers *c* bring the grain in forcible contact with the wire-cloth cylinder, and also cause the kernels to rub against each other, whereby the dust, dirt, and the loose outer skins of the kernels, as well as the projecting portions of the germs, are completely detached without breaking the grain. The action of the edged wire-cloth and stirring-arms is neither a violent beating action nor a cutting or rasping action, whereby the kernels of grain would be broken or their cuticle destroyed, but a rubbing action which removes the detachable impurities and projecting portions of the kernels—such as the fuzz or beard and portions of the chits—and which cleans and polishes the cuticle. 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 lower arms, *c*, are inclined, as represented in Fig. 1, to resist the downward movement of the grain in the cylinder C, thereby retarding the grain and subjecting the same longer to the action of the scouring apparatus.

N represents the discharge-spout, leading from the bottom plate, *n*, of the scouring-cylinder to the subsequent wind-trunk *o*. The spout N increases in width from the cylinder C to the wind-trunk *o*, and is provided with downwardly diverging ribs or deflecting-strips *n'*, whereby the grain is divided and distributed across the width of the spout.

*n*² represents a regulating-valve arranged in the spout N, whereby the grain can be retained a greater or less length of time in the scouring-cylinder. This valve may be provided with a spring or weight which tends to close it, and a cord whereby it can be opened from any convenient part of the mill.

o' represents a sleeve or short tube, whereby the upper portion of the subsequent wind-trunk *o* is connected with the annular air-passage *d* between the cylinder C and case D.

The upper end of this passage is connected with the lower eye of the fan-case B' by a tapering tube or hood, P, which communicates with the passage *d* by openings *p* formed in the top plate, *m'*, of the scouring-cylinder.

The air and light impurities which travel upwardly through the wind-trunk *o* pass through the tube *o'* into the space *d*, and thence through the openings *p* and hood P into the fan-case, thus shortening the subsequent wind-trunk materially. The bottom plate, *n*, of the scouring-cylinder is provided with openings *p'*, through which the chaff and heavy screenings which drop out of the air-current are discharged. This material is received in a receptacle, Q, which is suspended below the plate *n'*, and provided with a discharge-spout, *q*, through which the material is discharged by a revolving arm, *q'*, secured to the shaft *a*.

The upper edge of the receptacle Q is arranged at a short distance below the bottom plate, *n*, to form spaces through which the air can pass to the openings *p'*, and through the same into the annular passage *d*.

R is the driving-pulley secured to the shaft *a* below the receptacle Q.

My improved machine is very simple and compact, and effects a most thorough cleaning of the grain with a scouring-cylinder of much smaller size than those heretofore employed, while it also effects a complete separation of the impurities from the scoured and polished grain.

I am aware that wire-cloth woven of edged wire has been used for scouring cylinders in connection with revolving serrated plates, and I do not claim such construction.

I do not claim any of the improvements in the construction of the separating shoe or screen or in the knocker mechanism, as these features are merely shown and described for the purpose of illustrating a complete machine.

I claim as my invention—

1. In a grain-scourer, the combination of a scouring-cylinder constructed of wire-cloth which is woven of edged or angular wire, and rotating arms or flights arranged at different angles to the movement of the grain in different portions of the scouring-cylinder, the flights near the feed end facilitating the movement of the grain through the scouring-cylinder, and the flights near the discharge end retarding the same, substantially as set forth.

2. The combination, with the vertical scouring-cylinder C and inclosing-case D, having an intervening space, *d*, the top and bottom plates, *m' n*, provided with openings *p p'*, and the fan B, of the wind-trunk *o*, connected with the space *d*, and the spout N, extending from the bottom of the scouring-case to the wind-trunk, substantially as set forth.

3. The combination, with the vertical scouring cylinder C and inclosing-case D, having an intervening space, *d*, the top and bottom plates, *m' n*, provided with openings *p p'*, and the fan B, of the receptacle Q, suspended below the bottom plate, *n*, and a revolving stirrer, *q'*, whereby the screenings are discharged from the receptacle Q, substantially as set forth.

4. The combination, with the vertical scouring-cylinder C and inclosing-case D, having an intervening space, *d*, and the wind-trunk *o*, connected with said space, of the flaring discharge-spout N, provided with downwardly-diverging strips *n'*, substantially as set forth.

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

GILES S. CRANSON.

Witnesses:

JNO. J. BONNER,
CARL F. GEYER.