

J. P. SMITH.
Thrashing Machine.

No. 53,694.

Patented April 3, 1866.

Fig. 1

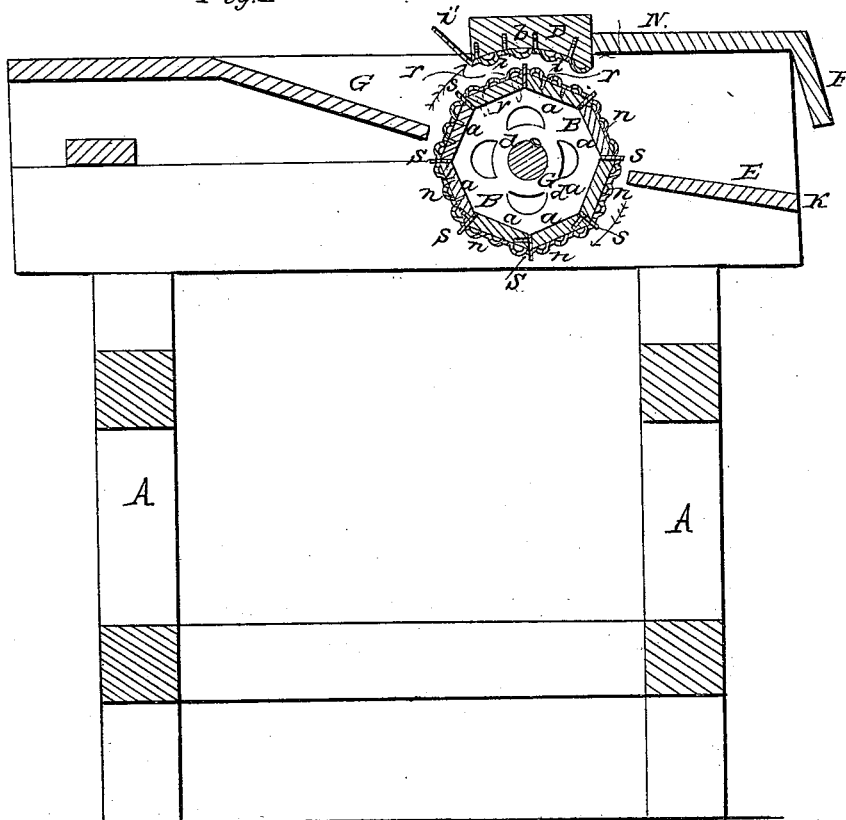


Fig. 2.

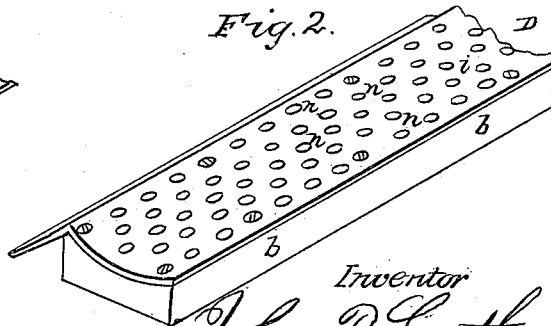
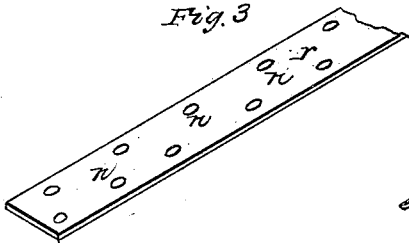


Fig. 3



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JOHN P. SMITH, OF HUDSON, NEW YORK.

IMPROVEMENT IN THRASHING-MACHINES.

Specification forming part of Letters Patent No. 53,694, dated April 3, 1866.

To all whom it may concern:

Be it known that I, JOHN P. SMITH, of the city of Hudson, in the county of Columbia and State of New York, have invented certain new and useful Improvements in Thrashing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal vertical section of the entire machine, in which is represented the cross-section of the thrashing-cylinder and concave. Fig. 2 is a perspective view of a portion of the concave in an inverted position, showing the form and construction of the same. Fig. 3 is a perspective view of a portion of one of the slabs or plates that form the exterior of the thrashing-cylinder.

Similar letters of reference indicate similar parts in all the figures.

The object of this invention is to provide a thrashing-machine which will thrash the grain from the straw without becoming clogged therewith and without breaking or injuring its quality, which will require no special appliances to insure the regular feeding of the unthrashed straw to the thrashing-cylinder and concave, and which will occupy less space when in operation and cost much less to manufacture than the most approved machines heretofore made.

It consists in the employment upon the face of the concave of short semi-spheroidal or round projections, which perform the functions of thrashing-teeth.

It also consists in certain novel arrangements of parts by which the desired advantages of making the machine to some extent self-feeding and of rendering it cheap and compact in construction are obtained.

The improvements constituting this invention are designed more especially for what are called "overshot" thrashers; but some of them may be applied with equal facility to those machines in which the straw passes under instead of over the thrashing-cylinder.

To enable those skilled in the art to understand the construction and operation of my invention, I will proceed to describe it with reference to the drawings.

A is a strong wooden frame, which supports the working parts of the machine. Near the

top of this frame, and situated transversely therein, is the cylinder B, placed upon a shaft, G, the ends of which work in suitable journal-boxes secured to the sides of said frame.

D is the concave, placed above the cylinder at a proper distance therefrom. G² is an inclined board, situated in front of the cylinder, and along which the straw is moved sidewise to the cylinder and concave to be thrashed.

E is a board placed in rear of the cylinder and somewhat inclined, so as to conduct the thrashed straw to the opening K; and N is simply a flat board designed to prevent the straw from being thrown upward as it issues from the said concave.

F is a nearly-vertical board, placed at an obtuse angle to the rear edge of the board N, and designed to deflect the straw downward as it passes from the opening K, the object of which will be hereinafter fully set forth.

The concave D consists of a plate, *i*, made preferably of cast-iron, and curved in its cross-section on the sector of a circle nearly or quite concentric with the shaft G, and firmly bolted to a solid wooden supporting-bar, *b*. Formed upon the face or lower surface of this plate *i*, at suitable distances apart, are several longitudinal rows of semi-spheroidal projections, *n*, so arranged that the spaces between the projections in one row are opposite the projections in the next row. These projections *n* are the thrashing-teeth of the concave, and from their extreme shortness and rounded contour do not break the straw, as is the case with teeth of ordinary form. The front edge of the plate *i* may extend forward beyond the edge of the supporting-bar *b*, and be turned upward at an angle thereto, as shown at *i*, to facilitate the entrance of the unthrashed straw above the cylinder. Instead of being made of cast-iron, the plate *i* may be formed of sheet metal bent into proper shape and having the projections *n* formed upon its face by indenting its opposite side with a suitable punch.

The cylinder B is polygonal in shape, and may be composed of staves *a*, held together by metallic heads *d*, one at each end, and through the center of which is passed the shaft G. In each joint between the staves is placed a thin wrought-iron bar, which of course extends lengthwise of the cylinder, and which, having its outer edge projecting out somewhat beyond the surface of the same, forms a lon-

gitudinal rib, *s*, thereon. One edge of each stave has one of these bars fastened to one of its edges by screws, which, in addition to the clamping action of the staves when held together by the heads *d*, securely hold them in their places. There may be firmly bolted upon the outer surface of each stave a cast-iron slab or plate, *r*, the exterior surface of which is furnished with rows of semi-spheroidal projections *n*, of the same shape and arranged in the same manner as those upon the face of the concave. The shape of the slabs *r* is fully shown in Fig. 3.

Such being the construction of the machine, its operation is as follows: The unthrashed straw is laid upon the inclined board *G*² in a position parallel with the cylinder *B*, and is pushed sideways along the said board until it comes in contact with the cylinder, which rotates in the direction shown by the arrow. On this the ribs *s* of the said cylinder, which project out somewhat farther than the projections *n*, catch upon the straw and carry it up between the cylinder and the concave, where it is thrashed by the joint action of the projections *n* of the concave, and the similar projections *n* of the longitudinal ribs *s* of the cylinder. As each of the ribs *s* carries up a regular and definite quantity of straw, and as, from the configuration of the surfaces of the concave and cylinder, no opportunity is afforded for the lodgment of straw between the said parts, it follows that the clogging of the machine is effectually prevented, while the rounded contour of the projections *n* prevents the breaking of the straw during the operation of thrashing, as hereinbefore

mentioned. As the thrashed straw issues from the concave it moves along the inclined board *E* and is discharged through the opening *K*, being deflected downward as it passes out by the board *F*. By this means it is caused to fall closer to the end of the machine than it would if the board *F* were dispensed with, thus causing the machine to occupy less space; and if a separator is used to separate the grain and chaff from the straw, it enables such separator to be made much shorter than would otherwise be the case. Furthermore, the board *F* assists in keeping the straw in a position transverse to the machine in passing out through the opening *K*, thus causing it to fall more evenly therefrom and in better condition for binding into bundles.

What I claim as new, and desire to secure by Letters Patent, is—

1. The concave provided with semi-spheroidal projections or thrashing-teeth *n*, substantially as and for the purpose herein set forth.
2. The deflecting-board *F*, so applied to the rear end of the machine as to deflect the thrashed straw downward, substantially as and for the purpose herein set forth.
3. The relative arrangement of the inclined board *G*², the ribbed thrashing-cylinder *B*, and the concave *D*, substantially as herein described, whereby special feeding-contrivances are dispensed with.

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Witnesses:

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