

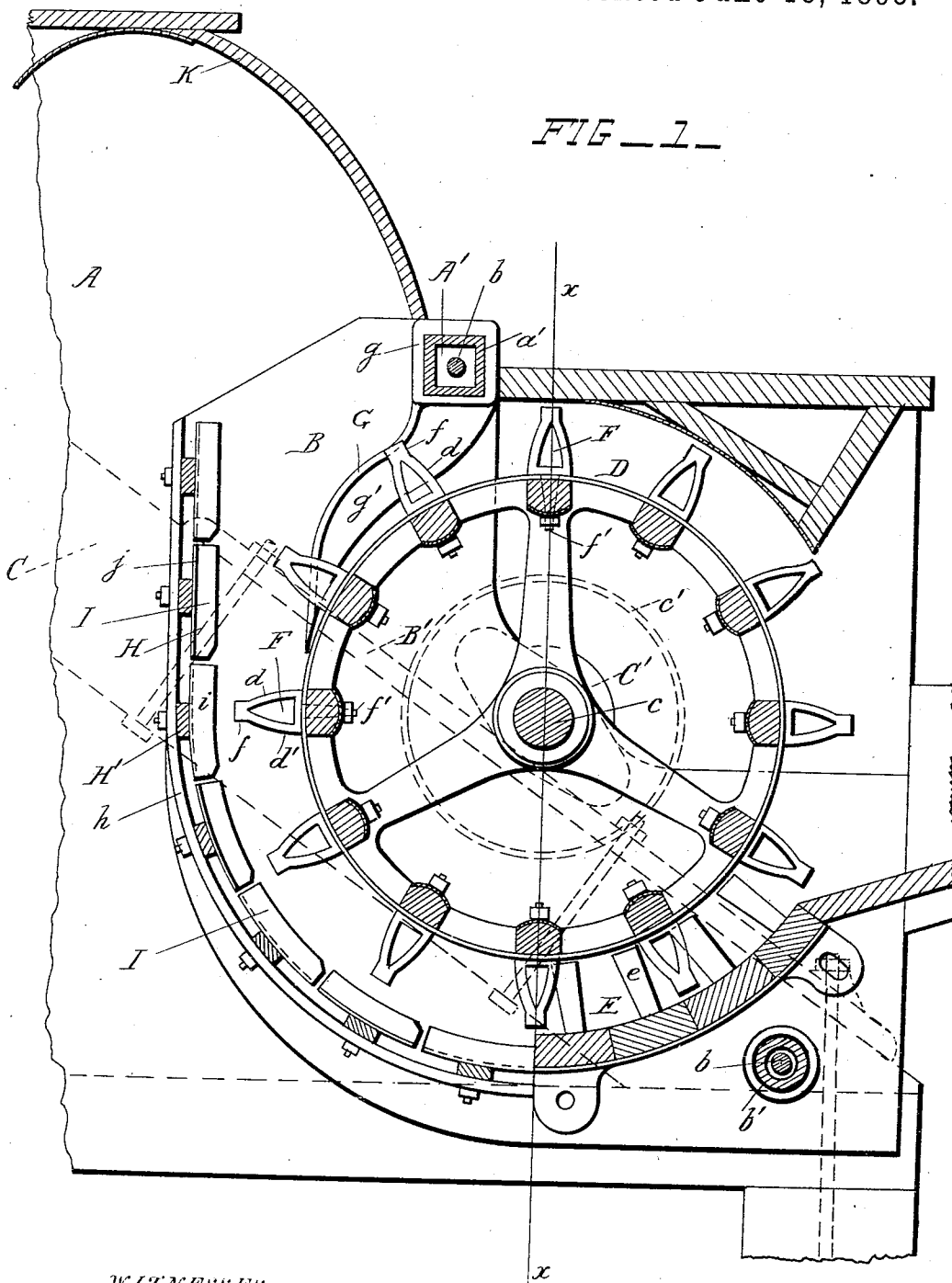
(No Model.)

2 Sheets—Sheet 1.

F. F. LANDIS.
THRASHING MACHINE.

No. 541,101.

Patented June 18, 1895.



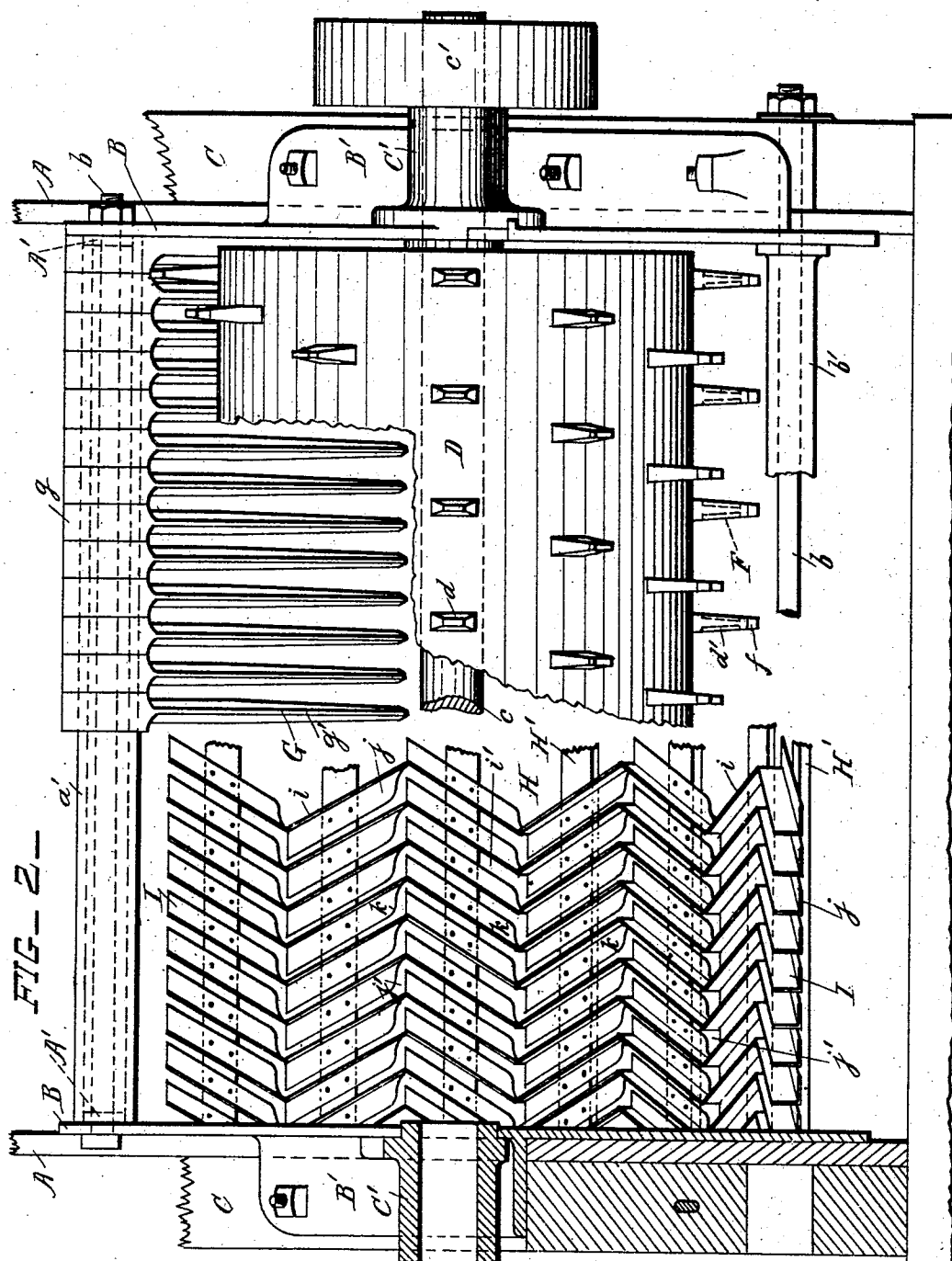
WITNESSES
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Charles H. May

INVENTOR
Frank F. Landis
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WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK F. LANDIS, OF WAYNESBOROUGH, PENNSYLVANIA.

THRASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 541,101, dated June 18, 1895.

Application filed February 27, 1895. Serial No. 539,896. (No model.)

To all whom it may concern:

Be it known that I, FRANK F. LANDIS, a citizen of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, 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 invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to thrashing machines; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a longitudinal section through the cylinder of a thrashing-machine constructed according to this invention. Fig. 2 is a front view partly taken in section on the line $x x$ in Fig. 1 and showing parts of the cylinder and the devices co-operating with it.

A is a portion of the casing of a thrashing machine.

B are two side plates secured to the casing and held apart by the distance pieces a' and b' and the bolts b .

The distance piece a' is preferably rectangular and tubular, and its ends engage with projections A' on the side plates B so that it is prevented from turning.

The side plates B are provided with flanges B' which are secured to the diagonal braces C which form a part of the frame of the casing. C' are the bearings for the cylinder shaft c , which are secured to the said side plates.

D is the cylinder which may be of any approved construction. The cylinder is secured on the shaft c and is provided with a pulley c' for driving it.

E is the concave formed in sections and provided with teeth e . The concave is secured under the cylinder, and may be constructed in any approved manner.

In carrying out the present invention the concave is preferably provided with fewer teeth than usual, and the teeth d of the cylinder are constructed in the following manner: The lower part d' of each tooth is curved on its face for about three-quarters of its length, and the remaining quarter f at the end of the

tooth is straight or radial. The back of the tooth is formed in a similar manner, so that the tooth can be turned around when worn. This tooth has a very broad base and the curvature of the face and back is considerable, so that the straw is forced toward its point as the cylinder revolves and is pressed against the lower parts of the teeth of the concave. Each tooth is preferably provided with a screw-threaded shank f' and a nut for securing it to the cylinder. The straight ends f of the teeth serve to propel the straw circumferentially of the cylinder. The sides of the teeth d are provided with lateral depressions F to enable the sides of the teeth to be effective in rubbing the grain out of the heads.

G is a series of fingers for preventing the straw from returning forwardly over the top of the cylinder. These fingers are provided with rectangular sockets g which are slid upon the rectangular distance piece or support a' . The fingers are preferably curved and have thin central webs g' on their under sides. The fingers are placed as close together as will permit the teeth of the cylinder to pass freely between them, and the lower parts of the fingers are preferably tapered.

H is a grate supported behind the cylinder. The lower part of this grate is substantially concentric with the cylinder, and its upper part is substantially vertical.

H' are horizontal supporting bars having their ends secured to flanges h on the side plates B.

I are the grate bars secured to the bars H' in rows. The bars I are angle-shaped in cross-section, and the rows of bars are arranged zig-zag, being inclined alternately in opposite directions at an angle of about thirty degrees from the vertical.

The points of the projecting flanges i of the grate bars of each row are close adjacent to those of the bars of the rows above and below, so that zig-zag passages i' are formed between the grate bars. The flanges i of the bars of each row are arranged upon one side of the bars, and those of the bars next above and below are arranged on the opposite side.

The base flanges j of the bars are placed a little distance apart so that openings j' are formed between the bars. The lower parts

of the flanges *j* are cut away and rounded at *k*, so that the openings *j'* are connected horizontally.

K is a portion of the straw deflector arranged over the grate and operating to guide the straw onto the straw shaker.

The grain is fed into the cylinder at the front part of the machine, and most of the grain is thrashed out between the cylinder and the concave. The grain which flies out from the heads strikes the projecting flanges of the grate bars, is deflected laterally by them, and falls through the openings *j'* between the bars. The greater portion of the grain is in this manner completely separated from the straw.

The straight ends of the cylinder teeth propel the straw upwardly and forwardly and rub it against the zig-zag projecting flanges of the grate bars. The base flanges of the grate bars prevent the straw from being thrust between the bars, and the remaining grain is rubbed out of the heads in the zig-zag passages *i'* and falls through the openings *j'*, very little grain being left mixed with the straw which is discharged over the top of the grate.

As fewer teeth than usual are placed in the concave, a part of the thrashing being accomplished in the passages of the grate, the straw is less broken up, cut and bruised than when all the thrashing is accomplished between the cylinder and the concave.

The straw is guided by the fingers and prevented from passing over the top of the cylinder, and the said fingers also guide the flying currents of air and dust to the rear and prevent them from blowing out at the front of the machine.

What I claim is—

1. A thrashing cylinder provided with teeth having the lower parts of their faces curved and their outer portions radially straight, substantially as described and shown.

2. A thrashing cylinder provided with reversible teeth having the lower parts of their faces and backs curved and their outer por-

tions radially straight, substantially as described and shown.

3. The combination, with a revoluble thrashing cylinder, and a concave, both provided with projecting teeth; of a grate arranged behind the said parts and provided with zig-zag bars and zig-zag openings between the bars, the lower portion of the said grate being curved, and a series of stationary fingers arranged between the upper portion of the said grate and the cylinder and operating to prevent the straw from returning over the cylinder, substantially as set forth.

4. The combination, with a revoluble thrashing cylinder, of a series of transverse supporting bars secured behind the cylinder, and a grate formed of bars arranged zig-zag in rows and secured to the aforesaid bars, continuous zig-zag openings being formed between the grate bars, substantially as set forth.

5. The combination, with a revoluble thrashing cylinder, of a grate formed of angle-shaped bars, the projecting flanges of the said bars being arranged to form substantially continuous zig-zag deflecting surfaces, and the said bars having continuous zig-zag openings between their base flanges, substantially as set forth.

6. The combination, with a revoluble thrashing cylinder; of a grate provided with angle-shaped grate bars arranged zig-zag in rows behind the cylinder, the lower points of the projecting flanges of the bars of each row being adjacent to the upper points of the projecting flanges of the bars of the row next below, and the lower parts of the base flanges of each bar being cut away and rounded, thereby forming continuous openings at the bottoms of the passages between the bars, substantially as set forth.

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

FRANK F. LANDIS.

Witnesses:

S. W. CUNNINGHAM,
F. C. CUNNINGHAM.