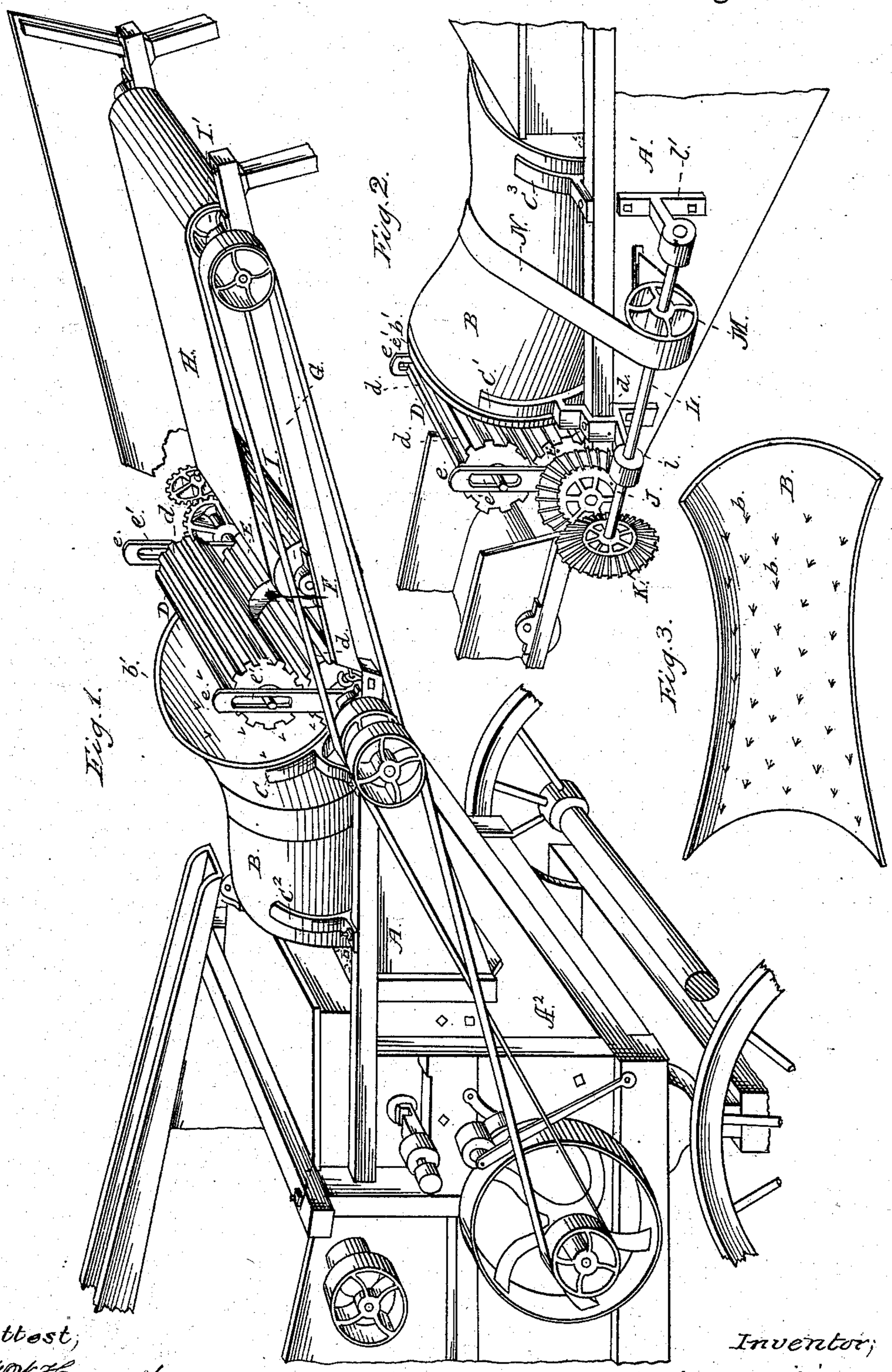
(No Model.)

# W. H. LIGHTCAP.

## FEEDING APPARATUS FOR THRASHING MACHINES.

No. 262,064. Patented Aug. 1, 1882.




Attest;
H. W. Howard
M. J. Clagett

Inventor;
William H. Lightcap
by Dyer & Ulbert
Attys.

# UNITED STATES PATENT OFFICE.

WILLIAM H. LIGHTCAP, OF HAZEL GREEN, WISCONSIN.

## FEEDING APPARATUS FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 262,064, dated August 1, 1882.

Application filed January 16, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. LIGHTCAP, of Hazel Green, in the county of Grant and State of Wisconsin, have invented new and useful Improvements in Feeding Apparatus for Thrashing-Machines; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to certain improvements in apparatus for feeding unthrashed straw to thrashing-machines, whereby the bundles of grain fed to the machine may pass successively under the influence of a band-cutter, feeder, and distributer before reaching the thrashing-cylinder, thus enabling the grain to be delivered to the cylinder in the most satisfactory manner necessary to accomplish good and thorough work; and the invention consists in the novel construction of the distributer and its novel arrangement with relation to the thrashing-cylinder; in the novel construction of the feeding device and its novel arrangement with relation to said distributer and the band-cutting device, and in the various novel combinations of the above-mentioned elements with one another and with suitable means for operating them in conjunction with the thrashing-cylinder shaft, all as will be hereinafter more fully set forth and claimed.

In order that persons skilled in the art may understand the construction and operation of my improvements, I will now proceed to describe the same with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my improvements as applied to a thrashing-machine; Fig. 2, a perspective view of the same and of the means employed for operating the distributer, and Fig. 3 a view in detail of said distributer.

A suitable frame for supporting the several parts of my improved feeding apparatus is formed by extensions or wings A A′, arranged upon each side of the thrashing-cylinder compartment $A^2$, and secured in a permanent manner to the main frame-work of the thrashing-machine. These wings extend forward a sufficient distance to allow the feeding and distributing devices to be properly mounted thereon, and are of a suitable size and strength to safely sustain said parts and the necessary means for operating them. The upper surfaces of the wings are in the line of a horizontal plane passing just over the thrashing-cylinder, while their under surfaces are made on a bevel or incline, so that when united by a base or bottom board they will form an inclined mouth or chute leading to the throat of the thrashing-cylinder. Lengthwise this chute, and at an incline to the throat of the thrasher, a hollow casing, B, consisting of two truncated cones meeting at their small ends, is arranged, having its sides concaved so that the center shall be considerably less in diameter than the ends, and being armed upon its interior with teeth or projections *b*. The casing is properly supported by means of bracket-arms C C′ and $C^2$ $C^3$, arranged respectively upon each side at or near the ends, and secured to wings A A′ by means of bolts or in any other suitable manner. The bearing-surface of these bracket-arms is curved so as to fit nicely against the body of casing B at the points of support, and thus permit its revolving therein. The outer end of the casing is provided with a flange, *b′*, which, engaging with the sides of the brackets or arms C C′, arranged at that point, prevents any longitudinal movement toward the throat of the thrasher. The casing is preferably made of cast-iron and in three or more longitudinal sections or parts, (shown in Fig. 3,) which can be secured together in any of the usual ways resorted to by machinists. The teeth provided upon its interior are of steel or chilled iron, and are secured to each of the sections before uniting them in the usual manner. The diameter of the casing at its ends should be nearly equal to the width of the chute in which it is placed, and its length should be from three to four feet, in order to accomplish the most satisfactory work of distributing the straw to the thrashing-cylinder.

In front of casing B two cylinders or rollers, D E, are suitably mounted so as to discharge the straw fed by them directly into said casing. The rollers D E are provided with grooves *d d*, which extend from end to end of each, for the purpose of taking hold of the straw and drawing it between them. The lower roller has suitable bearings upon the wings A A′, while the upper one is journaled in longitudi-

nal slots *e' e'*, with which its vertical supports *e e*, secured to said wings, are provided. By this arrangement various-sized bundles of the unthrashed grain can be fed between the rollers and the rollers be just as effective in feeding the straw toward the distributing device as though the bundles were all of a similar size.

In front and at or near the center of the rollers I provide a knife, F, for cutting the bands of the bundles of grain as they are being fed into the machine. This knife has its lower end rigidly secured to the front of the inclined chute, and it curves backward, as shown, with its upper end extending across the feed-opening between the rollers D E.

To the front of the wings A A' is secured in a removable manner, as shown, a frame, G, provided with a carrying-belt, H, upon which the bundles of grain are placed to be fed to the machine. This belt is mounted upon rollers I I' and driven by pulleys arranged respectively upon the end of the feed-roller E and that of roller I'. The frame is properly supported at its front ends by uprights. The carrying-belts should be about flush with the feed-opening between the rollers D E, and be slightly raised at its receiving end. Upon one end of roller E is provided a pulley for communicating motion from the driving-shaft of the thrashing-machine. The other end of the roller is provided with a cog-wheel, J, which meshes into a similar cog-wheel, K, provided upon the end of shaft L, arranged at a slight incline upon the side of the wing A', being journaled in suitable bearings or supports *l l'*, secured to the side of said wing by bolts or in any other suitable way. A pulley, M, is mounted upon this shaft in line with the center of the cylindrical casing B, for the purpose of imparting motion thereto by means of a belt, N, passing around said pulley and casing, as shown.

From the above description it will be readily seen that the carrying-belt H, feed-rollers D E, and the distributer B are operated from the driving-shaft of the thrashing-cylinder and in conjunction therewith.

The operation of the apparatus is as follows: The bundles of grain are conveyed by the carrying-belt under the influence of the feed-rollers, which spread out the straw sufficiently to permit the cutting-knife to cut the band and allow the then loosened straw to be drawn forward and deposited within the distributing device, where by means of its revolutions the straw is brought in contact with the teeth upon its interior surface and thoroughly loosened and separated before reaching the thrashing-cylinder. The incline of the distributer is such as to allow the proper progress of the straw through its interior, which, on account of its concavity, causes the straw to be pressed closer together as it passes the center, so that when it reaches the thrashing-cylinder it is spread out in fan-like form, and thus fed into the cylinder regularly and evenly and with any desired rapidity.

The employment of my improved feeding apparatus avoids all tendency toward "slugging" the machine—that is, drawing into the cylinder too great a quantity of straw in a bunch—and by its use the bundles are properly cut open and the straw thoroughly loosened and separated and fed regularly and evenly in a continuous stream into the thrasher.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The combination, with a thrashing-machine provided with wings A A', of the concaved cylindrical casing B, armed upon its interior with teeth *b*, and arranged at an incline between said wings, supports, or bearings C C', $C^2$ $C^3$, and suitable means, substantially as described, for revolving said casing, as and for the purpose set forth.

2. The combination, with a thrashing-machine, of the concaved cylindrical casing B, armed with teeth *b*, feed-rollers D E, provided with grooves *d d*, and mounted at the receiving end of said casing, and suitable means, substantially as described, for operating said rollers and casing conjointly, as set forth.

3. In a thrashing-machine, the combination of the distributer B, feed-rollers D E, band-cutting knife F, and suitable means, substantially as described and shown, for operating the distributer and feed-rollers conjointly from the driving-shaft of the thrashing-cylinder, as and for the purposes set forth.

This specification signed and witnessed this 1st day of December, 1881.

WILLIAM H. LIGHTCAP.

Witnesses:
JNO. L. BUETTELL,
MONROE M. CADY.