

(No Model.)

2 Sheets—Sheet 1.

E. C. & G. R. SHAW.
BAND CUTTER AND FEEDER.

No. 563,078.

Patented June 30, 1896.

FIG. 1.

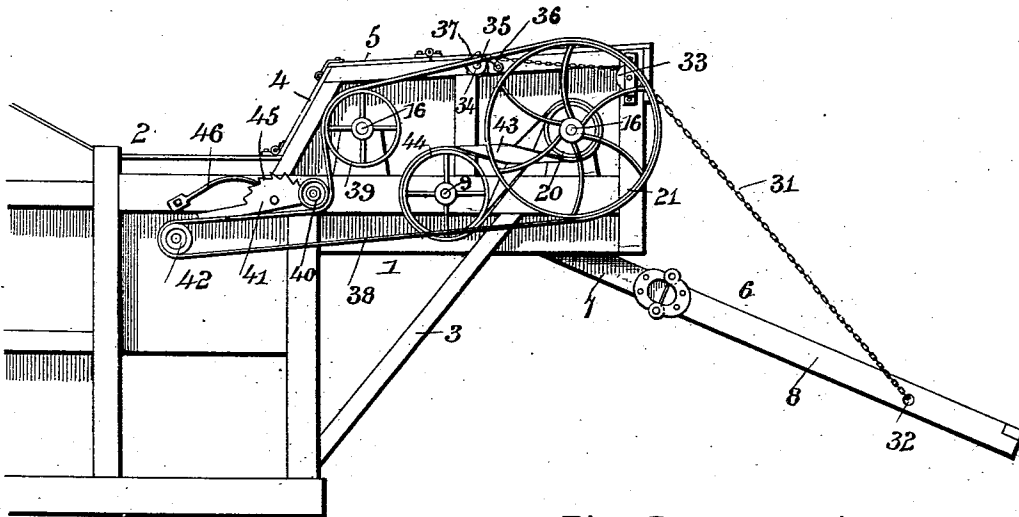


FIG. 5.

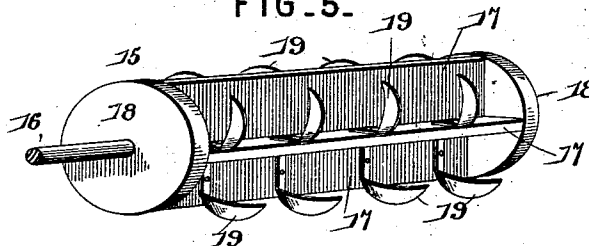
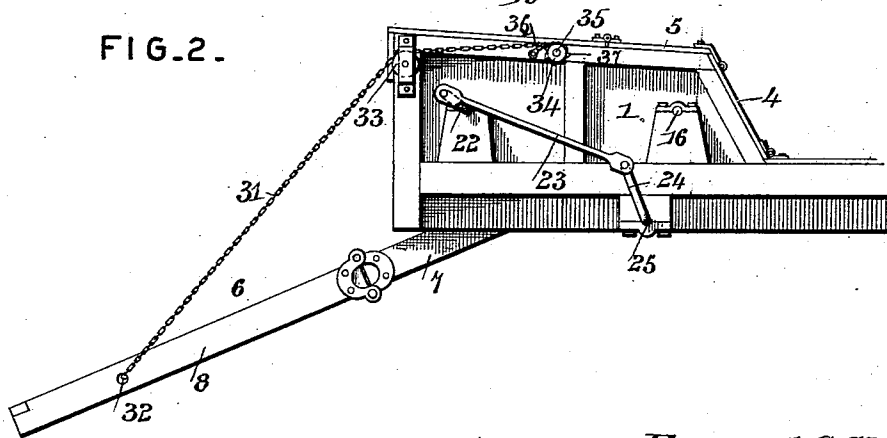


FIG. 2.



Witnesses

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(No Model.)

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FIG. 3.

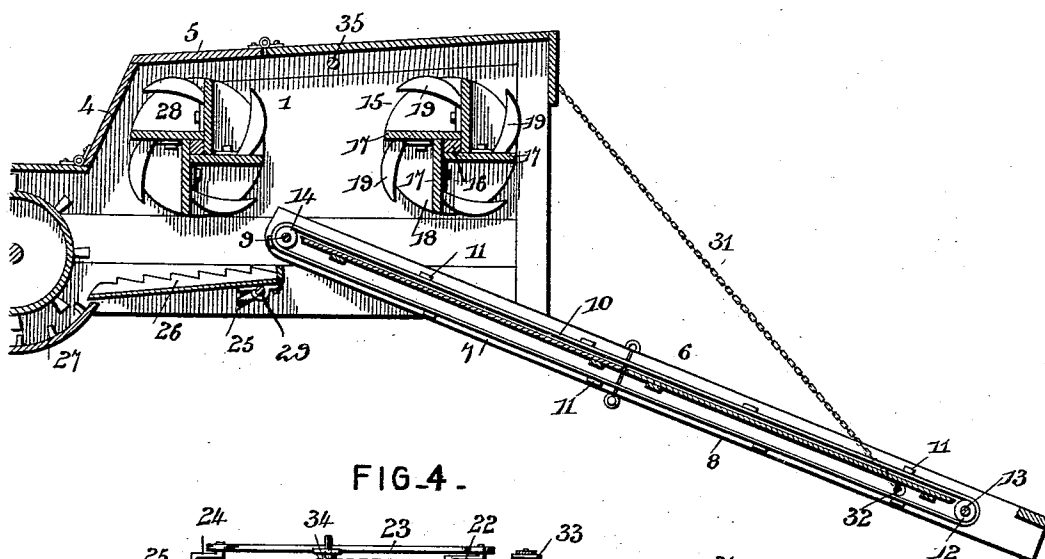
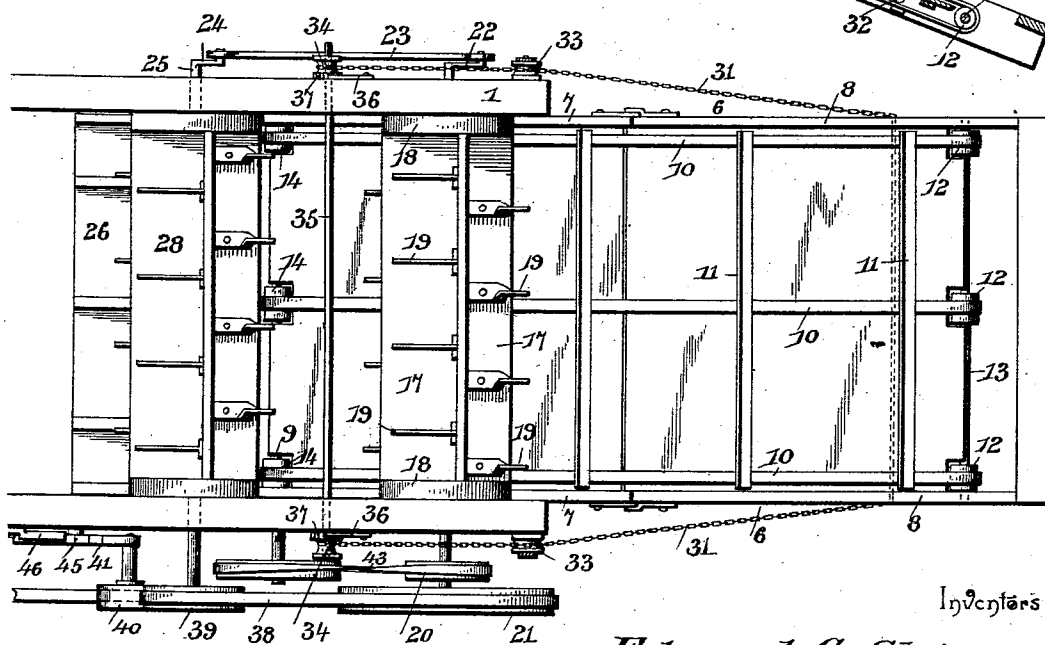


FIG. 4.



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UNITED STATES PATENT OFFICE.

EDWARD C. SHAW AND GEORGE R. SHAW, OF RUSHMORE, MINNESOTA.

BAND-CUTTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 563,078, dated June 30, 1896.

Application filed May 21, 1895. Serial No. 550,129. (No model.)

To all whom it may concern:

Be it known that we, EDWARD C. SHAW and GEORGE R. SHAW, citizens of the United States, residing at Rushmore, in the county of Nobles and State of Minnesota, have invented a new and useful Band-Cutter and Feeder, of which the following is a specification.

This invention relates to certain new and useful improvements in band-cutters and feeders, and has for its object to provide an improved attachment of this character which can be folded into a compact form, and which when in operation will sever the bands of the bound bundles and thoroughly and effectively loosen the grain and feed the same to the threshing-cylinder in such a manner as to obviate choking and other objections incident to an uneven feed or in cases where the grain is fed in bunches.

The improvement consists of the novel features which hereinafter will be more fully set forth and claimed, and which are shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a band-cutter and feeder of the present invention, showing it attached to a threshing-machine of ordinary construction. Fig. 2 is a reverse side view of the attachment. Fig. 3 is a longitudinal section of the same. Fig. 4 is a top plan view having the cover of the box or casing removed. Fig. 5 is a detail view of the cutting-cylinder.

The casing 1 is attached to the framework 2 of a thresher of ordinary construction in any preferred manner, and is strengthened by upwardly-inclined braces 3, and is provided on its upper side with two doors 4 and 5, by means of which access is had to the interior of the casing for cleaning or repairing the cutter and beater cylinders and for other desired purposes.

The bundle-carrier 6 is composed of two parts 7 and 8, which are secured at their inner ends by a hinge or pivotal joint, whereby the outer part 8 is adapted to fold either up or down to reduce the size of the attachment when moving the machine from one place to another, and this bundle-carrier has pivotal connection at its inner end to the lower portion of the casing, being journaled or mounted upon a shaft 9, extending transversely of the casing and supported at its ends therein.

This bundle-carrier 6 is of usual formation, and comprises a series of endless belts 10, connected by transversely-disposed slats 11, and supported at their outer ends upon rollers 12, mounted upon a shaft 13, and at their inner ends upon rollers 14, keyed upon the shaft 9, by means of which motion is transmitted to the endless belts 10 to operate the bundle-carrier in the usual manner for feeding the bundles or sheaves to the cutting-cylinder 15.

The cutting-cylinder 15 is located above the bundle-carrier and a short distance from its inner or delivery end, and comprises a shaft 16 and a series of transversely and tangentially disposed wings 17, having each two adjacent wings disposed substantially at right angles, and having the end portions of all the wings attached to circular heads 18, mounted upon the shaft 16. A series of blades 19 are attached to the wings 17, and have their outer portions curved and sharpened, so as to sever the bands which encompass or bind the bundles of grain. These blades are formed from strips of steel which have their shank portions twisted so as to occur at right angles to the width of the blade and to form firm and positive attachment with the wings of the cutting-cylinder. The shaft 16 of the cutting-cylinder is extended at each end beyond the sides of the casing, and one end is supplied with a small band-pulley 20 and a large band-pulley 21, and the opposite end of the said shaft has a crank 22, which is connected by a pitman 23 with a corresponding crank 24 on a transversely-disposed rocker-bar 25, by means of which a jiggling motion is imparted to the feed board or pan 26 at the inner lower end of the casing and directly in front of the concave 27 of the thresher.

A beater-cylinder 28 is similar in construction to the cutting-cylinder, and is located about in the same plane with the said cutting-cylinder and nearly above the delivery end of the bundle-carrier and the receiving end of the feed board or pan 26, and a detailed description of this cylinder is not deemed necessary as its parts correspond with similar parts of the cutting-cylinder, and the detailed description of the latter will apply thereto, the corresponding parts being designated by similar reference-numerals.

It may be well to state, however, that the blades 19 provided on one wing occur opposite the spaces between and out of line with the blades carried by the adjacent wings, thereby covering substantially the entire space between the sides of the casing, so as to both cut the bands and thoroughly and effectually loosen the grain. This disposition of the blades applies to both the cutting and the beater cylinders.

In the case of damp grain it will be seen that the blades will separate the bunches and prevent the grain being fed to the thresher in bunches, thereby obviating the possibility of choking the threshing-cylinder, which is of common occurrence when the grain is damp, owing to the said grain being fed to the thresher in bunches. The blades are attached to the rear side of the wings and extend therefrom at about right angles, thereby preventing the lodgment of the grain upon the shank portions of the blades and leaving the front side of the wings unobstructed.

The feed board or pan 26 is located at the inner lower side of the casing, and is supported at one end in proximate relation to the concave 27, and is journaled at its opposite end upon a crank portion 29 of the rocker-bar 25, and receives its jiggling or reciprocatory movements from the said rocker-bar 25. A series of notched bars 30 are disposed in parallel relation and secured to the upper side of the feed board or pan 26, and extend parallel with each other and with the sides of the casing, and are adapted in the operation of the invention to loosen and lighten the grain prior to the delivery of the same into the thresher.

In order to adjust the distance between the cutting-cylinder 15 and the bundle-carrier, the latter is adapted to be raised and lowered at its outer end, and any suitable means may be provided to effect this result, and, as shown, consist of a rope or chain 31, passing loosely through openings 32 in the sides of the bundle-carrier near the outer end of the latter, thence over guide-pulleys 33 at the upper end of the casing 1, and having its ends secured to and adapted to wind upon spools 34, fastened upon the ends of a transverse shaft 35, journaled in the sides of the casing, and means for rotating the said shaft and holding the same in the located position, the holding means consisting of a detent-pawl 36 to engage with teeth 37, provided on the contiguous spool 34. Thus it will be seen that a rotation of the shaft 35 in either direction will result in a vertical adjustment of the outer end of the bundle-carrier 6, whereby the desired result is attained.

The several parts may be rotated in any convenient manner, and, as shown, are operated by the following instrumentalities: A drive-belt 38 passes around the large band-pulley 21, over a band-pulley 39 on the end of the shaft of the beater-cylinder 28, thence under a pulley 40 of a lever 41, thence around

a pulley 42, mounted upon a power-driven shaft of the thresher, thereby driving the cutter and beater cylinders and the feed board or pan. The bundle-carrier is actuated and receives its power by means of a cross-belt 43, passing around the band-pulley 20 and a corresponding band-pulley 44 on the end of the shaft 9.

The lever 41 forms an essential part of the belt-tightener, and has a segmental portion 45, which is toothed to be engaged by means of a pawl 46, whereby it is held in the located position when adjusted to secure the required tension upon the drive-belt 38.

From the foregoing it will be seen that the blades of the cutting-cylinder both serve to sever the bands and at the same time loosen the grain, and the blades of the beater-cylinder serve solely to lighten and loosen the grain and disintegrate and separate bunches, thereby obviating a choking of the thresher. The wings of the two cylinders, besides forming supports for the blades, serve in the rotation of the cylinders to create a strong blast of air, which materially assists in the loosening of the grain and serves to force the same into the thresher, said blast of air preventing the accumulation of chaff or light substances within the feeding attachment.

Other objects and advantages than those herein set forth will be apparent, and in the embodiment of the invention it will be understood that changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. In a band-cutter and feeder, the combination with the grain-feeding devices, of a cylinder comprising circular heads, longitudinal wings attached at their ends to the heads and at their inner edges to a shaft, and blades secured at their inner ends to the rear side of the wings and extending therefrom at approximately right angles, and having their outer edges curved and their end portions projecting a short distance beyond the path of the outer edges of the wings and in the rear of the respective wings to which the said blades are attached, substantially as shown and described.

2. A band-cutter and feeder consisting of a casing open at its outer and lower side and provided with doors at its inner and upper side, a bundle-carrier projecting a short distance within the lower portion of the casing to partially close the lower side thereof and having pivotal connection with the said casing, a shaft having spools upon its opposite ends and adapted to be secured against backward rotation, a chain or cord having its middle portion passing loosely through openings in the sides of the bundle-carrier near its outer end and having its ends secured to and adapted to be wound upon the respective

spools for raising and lowering the outer end
of the bundle-carrier, a vibrating feed-board
closing the remaining portion of the lower
side of the casing and extending from the de-
5 livery end of the bundle-carrier to the
threshers, and two cylinders of similar con-
struction arranged in the same plane and in
the upper portion of the casing, the one above
the feed-board, and the other above the inner
10 end of the bundle-carrier to loosen the grain
and to create a blast of air through the cas-
ing, each cylinder comprising longitudinal
wings and blades, the latter being secured to
the rear side of the wings and projecting

therefrom at about right angles, and having 15
their outer edges curved and their end por-
tions projecting a short distance in the rear
of and beyond the path of the outer edges of
the wings to which the respective blades are
attached, substantially as set forth. 20

In testimony that we claim the foregoing
as our own we have hereto affixed our signa-
tures in the presence of two witnesses.

EDWARD C. SHAW.

GEORGE R. SHAW.

Witnesses:

E. J. SUTHERLAND,

W. J. JONES.