(No Model.) 2 Sheets—Sheet 1.

J. W. REGIER.

BAND CUTTER AND FEEDER.

No. 523,997. Patented Aug. 7, 1894.

FIG. 1.

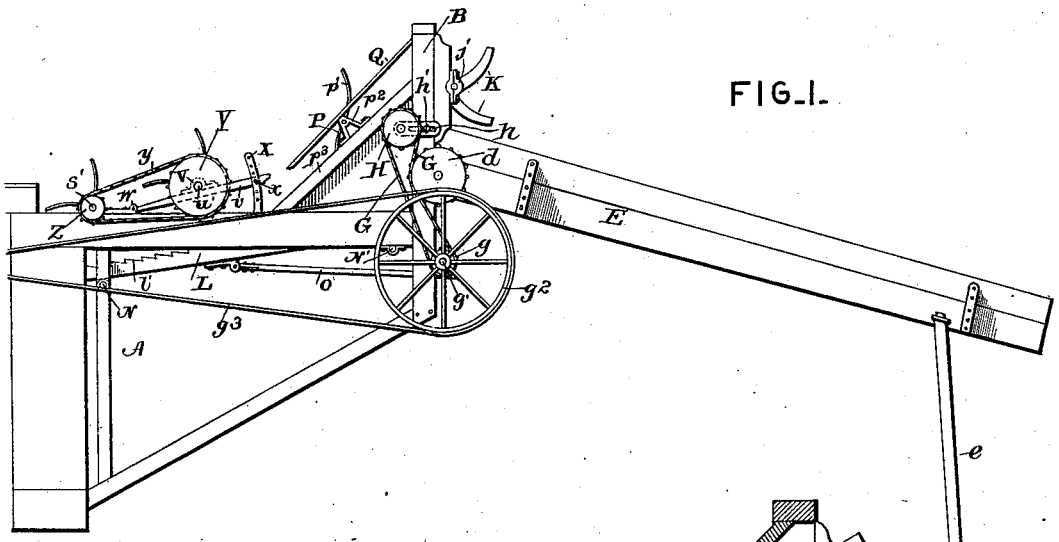
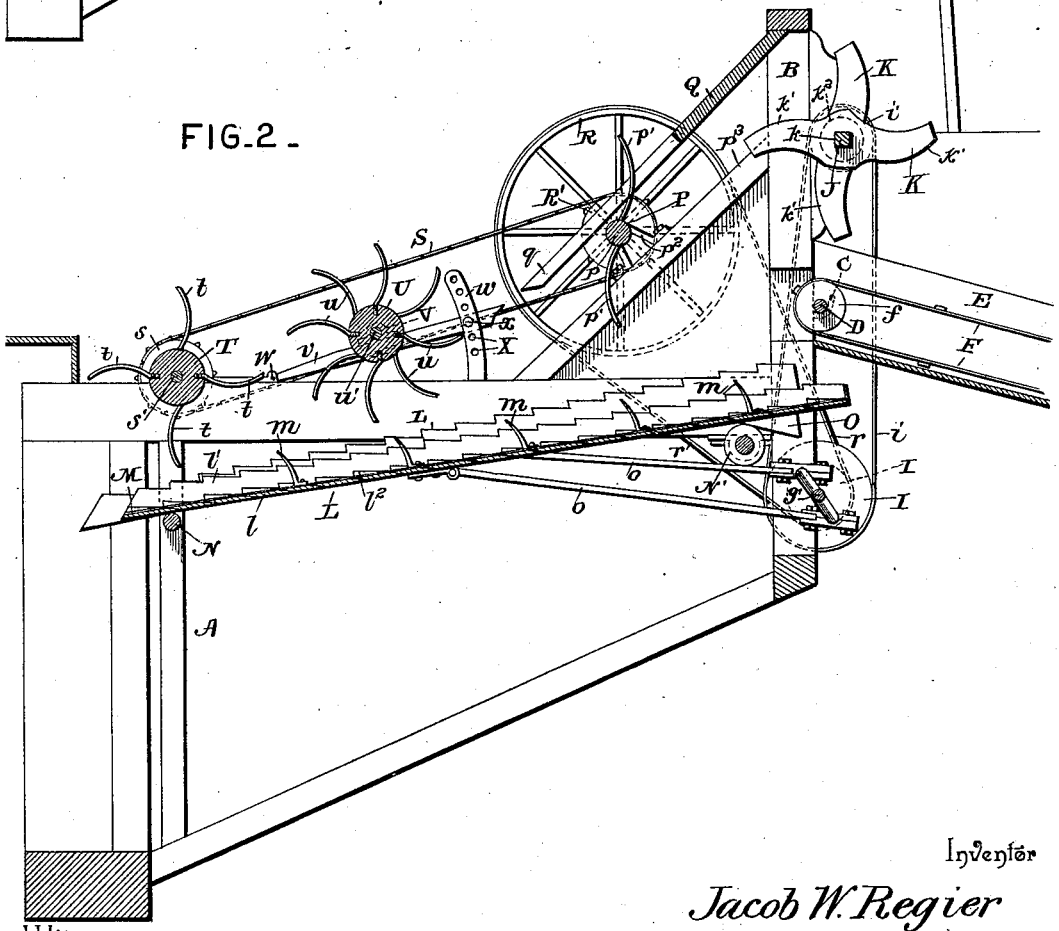


FIG. 2.



Inventor

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Witnesses

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 3.

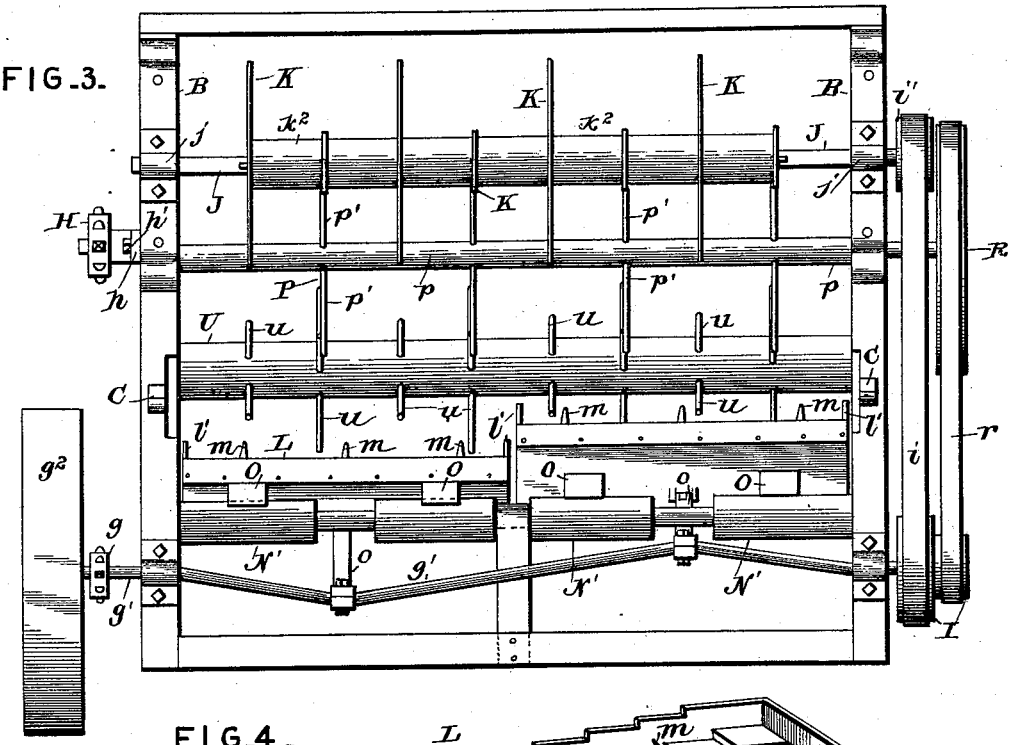


FIG. 4.

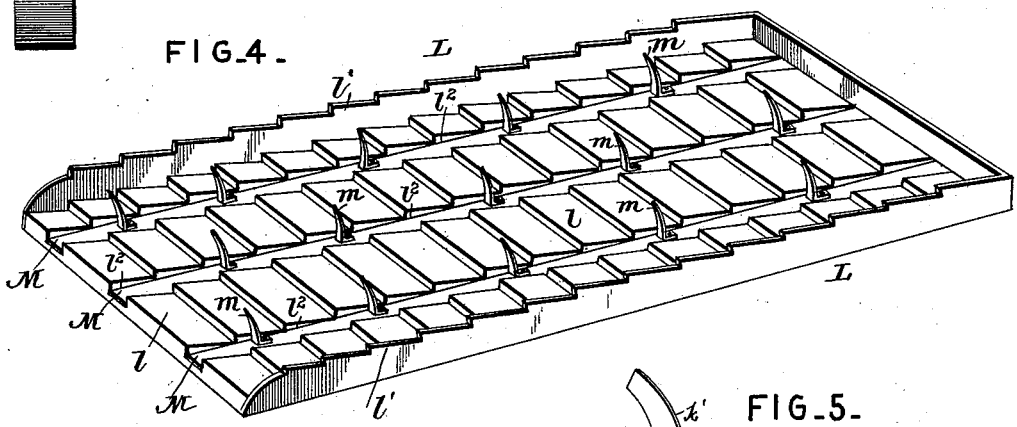


FIG. 5.

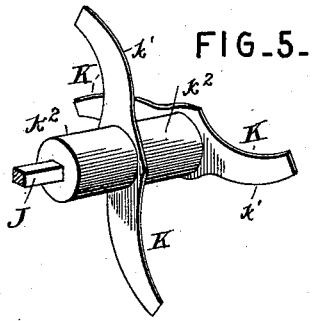
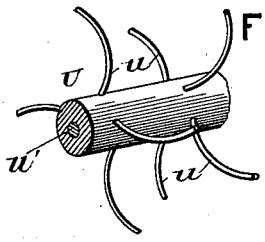


FIG. 6.



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UNITED STATES PATENT OFFICE.

JACOB W. REGIER, OF MOUNDRIDGE, KANSAS.

BAND-CUTTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 523,997, dated August 7, 1894.

Application filed October 23, 1893. Serial No. 488,929. (No model.)

To all whom it may concern:

Be it known that I, JACOB W. REGIER, a citizen of the United States, residing at Moundridge, in the county of McPherson and State of Kansas, have invented a new and useful Band-Cutter and Feeder, of which the following is a specification.

This invention relates to band cutters and feeders; and it has for its object to effect several improvements in machines of this character whereby the same will more effectually cut the bands from the bundles, and positively feed and spread the grain into the thrasher.

To this end the main and primary object of the present invention is to simplify and render more efficient band cutting and self feeding machines.

With these and other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a side elevation of the band cutter and feeder constructed in accordance with the present invention. Fig. 2 is a central vertical longitudinal sectional view thereof. Fig. 3 is an end view of the machine, the bundle carrier being omitted. Fig. 4 is a detail perspective of one of the vibrating feed pans. Fig. 5 is a detail in perspective of a section of the band cutter. Fig. 6 is a similar view of a section of one of the feed rollers.

Referring to the accompanying drawings, A represents a feeder frame suitably arranged and braced at the cylinder end of a thrashing machine, and said feeder frame A, is provided at its outer end with the upright bearing frame B, having at opposite sides thereof the supporting hooks C, adapted to detachably receive the roller shaft D, mounted at one end of the bundle carrier frame E. The bundle carrier frame E, is of ordinary construction and is suitably supported at its outer end on the legs *e*, while inside of the same is arranged to travel the bundle apron F, traveling at one end over the roller *f*, mounted on the roller shaft D, and said roller shaft D, carries upon one end thereof outside of the frame E, the sprocket wheel *d*, which is engaged by one side of the sprocket chain G. The sprocket chain G, is driven from the sprocket pulley *g*, mounted on one end of the double crank shaft *g'*, alongside of the band wheel g^2, which receives a belt g^3, from the thrashing machine cylinder and serves to communicate motion to the several parts of the band cutter and feeder. The upper end or portion of the sprocket chain G, is adapted to turn on the idler sprocket H, journaled on one end of the slotted bearing arm *h*, which is adjustably attached to one side of the upright bearing frame B, on the bolt *h'*.

The double crank shaft *g'*, carries upon the end opposite the band wheel and sprocket pulley the adjacent belt pulleys I, one of which drives the knife belt *i*, the upper end or portion of which belt passes over the pulley *i'*, mounted on one end of the knife shaft J. The knife shaft J, is squared and has the opposite spindle ends thereof journaled in the shaft bearing boxes *j*, attached to opposite sides of the bearing frame B, above the detachable end of the bundle carrier, and said squared knife shaft is adapted to receive a series of alternately arranged double knife blades K. The double knife blades K, are provided with central squared openings *k*, to fit the shaft and the opposite curved cutting portions *k'*, and said double cutting blades, alternating at substantially right angles to each other, provide a wide and effective knife area which insures the cutting of the bands of the bundles as they are fed under the knives by the bundle carrier F. Spacing sleeves k^2, are arranged on the knife shaft J, between the double knife blades and serve to hold the same properly in position.

When the bundles of grain reach the band cutter just described, the same are relieved from their bands and thrown onto the oppositely vibrating feed pans L. The oppositely vibrating feed pans L, are arranged at an angle side by side within the feeder frame A, and in a line with the cylinder of the thrashing machine in connection with which the band cutter and feeder is employed, and each of said feed pans L, is provided with overlapping bottom boards *l*, forming a notched bottom and notched side flanges *l'*, arising

above the plane of the notched bottom and combining therewith to form a surface which will positively feed the grain downward to the thrasher cylinder, and said feed pans are each further provided with a longitudinal series of parallel grooves l^2, in which are removably fitted the prong strips M. The prong strips M, have separately attached thereto at regularly spaced intervals the curved forwardly disposed feed prongs m, which project above the bottom boards and positively engage the grain and form important auxiliaries of the feed pan to insure the positive feeding of the grain onto the cylinder, it being understood that the prong strips and also the prongs thereon may be removed if found necessary or desirable.

The inclined oppositely vibrating feed pans L, are supported to reciprocate on the oppositely arranged supporting rollers N and N′, respectively, the latter of which rollers N′, is arranged on the frame A, at one side of the end bearing frame B, and is adapted to be engaged by the inclined vibrator lugs O, attached to the under sides of the feed pans near their upper outer ends, to provide means for raising such ends of the feed pans as the same are alternately reciprocated, and thereby causing the feed pans to have a vibratory motion, in which motion the upper ends of the pans are given an upward pitch or throw, while the lower ends remain unvaryingly in the one plane of reciprocation. The said feed pans are reciprocated alternately by means of the pitmen or connecting rods o, pivotally connected at one end to the bottom of the feed pans at an intermediate point and at their other ends to the separate cranks of the double crank shaft g'.

The cut grain, as it leaves the upper end of the bundle carrier and the band cutter, is distributed and forced down onto the upper ends of the vibrating feed pans by means of the rotating grain packer P. The grain packer P, comprises a packer shaft p, and an oppositely arranged series of curved packing fingers p', which are carried around in a direction by the shaft p, so as not only to free the band cutter from the grain, but also to force it onto the feed pans, and the opposite ends of the packer shaft p, are journaled in suitable bearings p^2, secured on the bearing bars p^3, arranged at one side of the bearing frame B. The packer fingers p', are relieved of any grain which might cling thereto by means of the inclined fender board Q. The inclined fender board Q, declines from the top of the bearing frame B, at one side and immediately in rear of the band cutters to a point over and beyond the packer shaft and is provided with longitudinally disposed parallel slots q, which are sufficiently wide to permit the packer fingers p', to pass therethrough, and said board not only serves to free the packer P, of clinging grain, but by reason of its disposition at one side and immediately in rear of the band cutter, any grain which would otherwise be thrown out of the machine by the band cutter will be caught by the board and deflected down onto the feed pans.

The packer shaft p, carries at one end the large belt wheel R, and adjacent smaller chain wheel R′, the belt wheel R, being adapted to receive one end of the drive belt r, the other end of which is driven from one of the belt pulleys I, on one end of the double crank shaft. The smaller chain wheel R′, on the packer shaft gives motion to the chain belt S, which extends to and engages a chain wheel s, on one end of the end roller shaft s', journaled in suitable bearings at the inner end of the frame A, next to the thrashing machine cylinder and said end roller shaft s', has mounted thereon the end feed roller T. The end feed roller T, is provided with a series of curved alternately arranged feed teeth t, which work in close proximity to the lower inner ends of the feed pans, and serve to give a force feed to the grain agitated toward the cylinder by such feed pans, and at a point intermediate of the end feed roller T, and the rotary packer P, is arranged a second intermediate adjustable feed roller U. The intermediate feed roller U, is provided with a series of alternately arranged curved feed teeth u, corresponding to the arrangement and disposition of the feed teeth on the end roller T, and is mounted on a roller shaft u', the extremities of which are journaled in the bearings V, which are secured to the opposite adjustable bearing arms v. The opposite adjustable bearing arms v, are hinged at one end as at W, to opposite top sides of the feeder frame J, and are adapted to have their other free ends disposed at one side of the curved adjustment arms w.

The curved adjustment arms w, are secured to opposite top sides of the feeder frame and are provided with a longitudinal series of perforations X, adapted to receive the adjustment pins x, which also engage the free end of the bearing arms v, to hold the same fixed in any adjusted position. The swinging adjustment of the bearing arms v, provide means for accommodating the intermediate feed roller to all characters of grain, and such roller combines with the end feed roller to complete a positive force feed for the grain on the vibrating feed pans.

The roller shaft u, carries at one end a chain wheel Y, which accommodates the chain belt y, driven from the chain pulley Z, on one end of the roller shaft s', of the end roller.

Now from the foregoing it is thought that the construction, operation and many advantages of the herein described band cutter and feeder will be apparent to those skilled in the art, and I will have it 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, and desired to be secured by Letters Patent, is—

1. In a band cutter and feeder, the combination with the feeder frame and the bundle carrier connected with one end thereof; of the rotary band cutter located above the delivering end of the bundle carrier, a vibrating feed pan arranged within the feeder frame, a fixed rotating grain packer arranged above the pan near the receiving end thereof, a fixed end toothed feed roller arranged over the delivering end of the pan, a second toothed feed roller arranged intermediate of the rotating packer and the end feed roller, and means for adjusting the intermediate roller toward and away from the feed pan, substantially as set forth.

2. In a band cutter and feeder, the combination of the feeder frame, the bundle carrier connected to one end of said frame, the rotary band cutter mounted at the same end of the frame above the bundle carrier, alternately vibrating feed pans mounted within the feed frame at an angle, a rotating grain packer arranged above the receiving ends of the feed pans and having a series of curved packing fingers, and an inclined imperforate fender board disposed immediately in rear and at one side of the band cutter and declining to a position over the grain packer said board being provided with a series of slots accommodating the packer fingers, substantially as set forth.

3. In a self feeder of the class described, the combination with a frame; of alternately vibrating feed pans supported to reciprocate at an angle within the frame and arranged side by side, each feed pan being provided with a notched bottom, opposite notched side flanges, and a series of parallel longitudinal grooves formed in the notched bottom, longitudinal prong strips M, removably fitted in the longitudinal grooves, and a series of forwardly curved feed prongs *m*, separately attached to the top sides of said prong strips, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JACOB W. REGIER.

Witnesses:
FRANK DÜCH,
WM. DYCK.