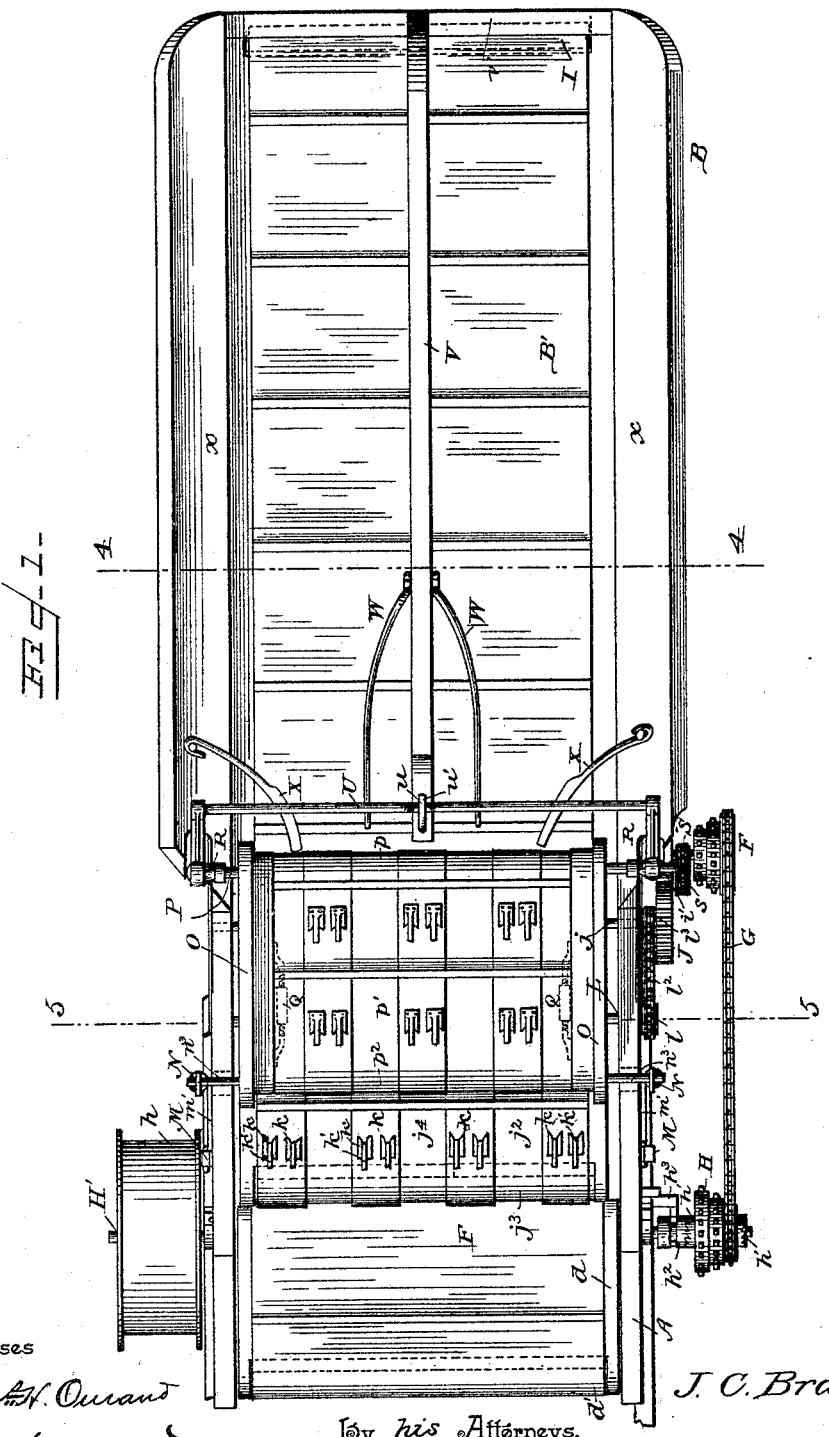
(No Model.) 3 Sheets—Sheet 1.

J. C. BRASH.

BAND CUTTER AND FEEDER.

No. 491,522. Patented Feb. 14, 1893.



Witnesses
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(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

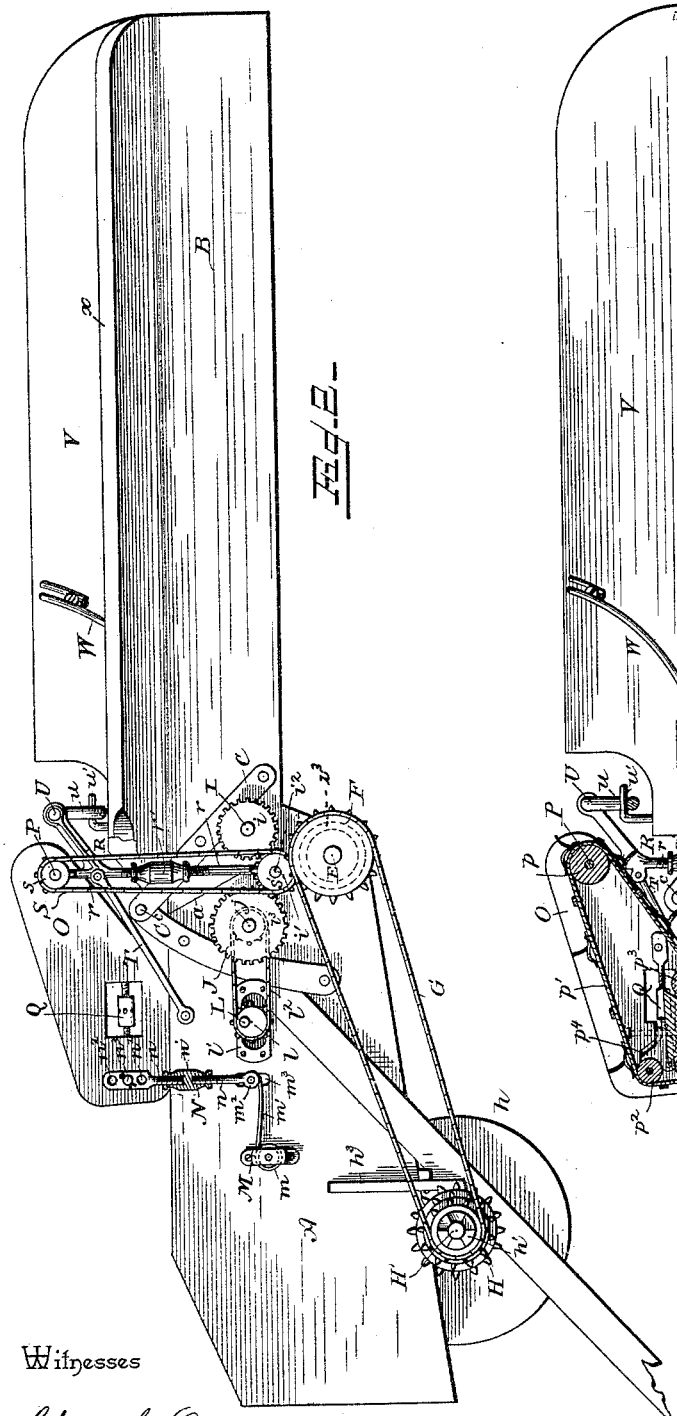
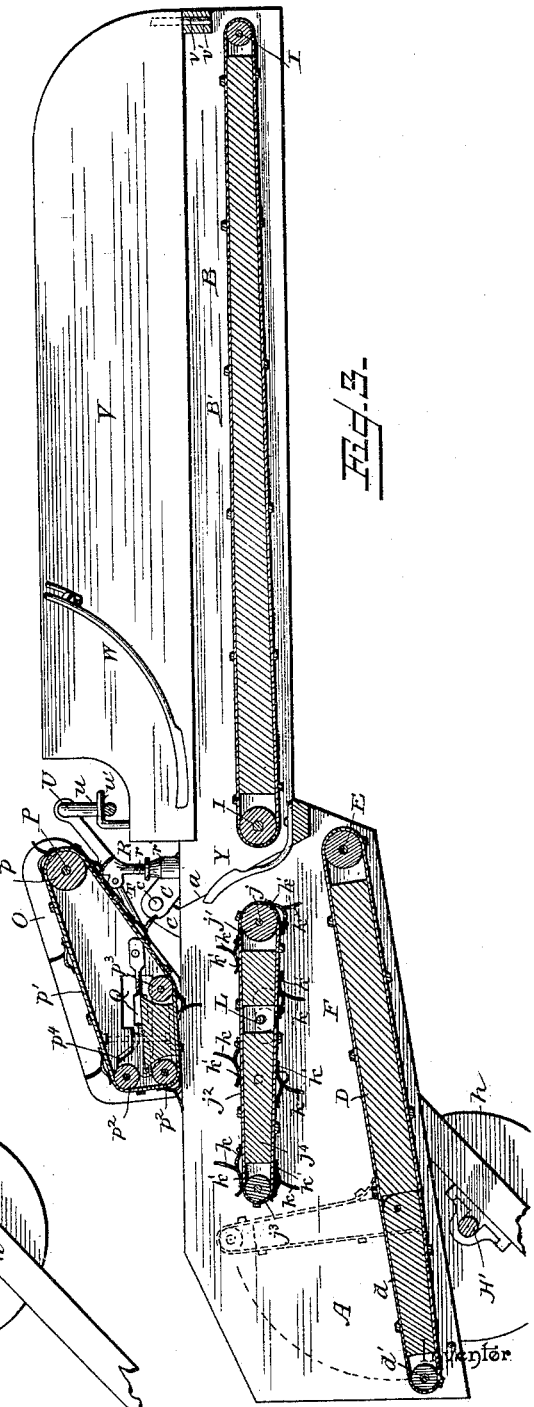


Fig. 3.



Witnesses

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Fig. 4.

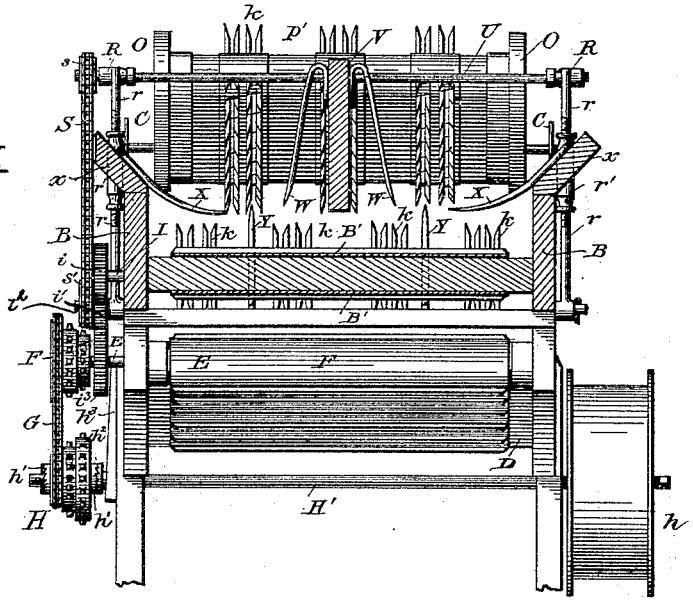


Fig. 5.

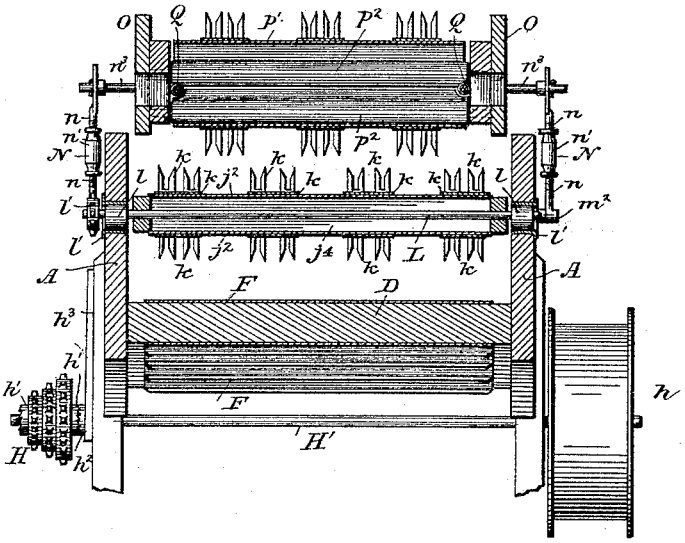
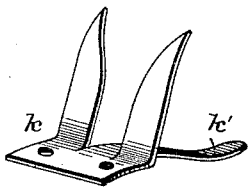


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN C. BRASH, OF LOAMI, ILLINOIS.

BAND-CUTTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 491,522, dated February 14, 1893.

Application filed September 16, 1892. Serial No. 446,077. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. BRASH, a citizen of the United States, residing at Loami, in the county of Sangamon and State of Illinois, 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 provide an improved machine of this character wherein the bands of the bundles are effectually cut, and the grain thoroughly spread and shattered before it reaches the cylinder.

To this end the primary object of the invention is to provide a machine having improved devices for securing the results noted.

With these and many 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 top plan view of a band cutter and feeder constructed in accordance with this invention. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical longitudinal sectional view thereof. Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 1. Fig. 5, is a similar view on the line 5—5 of Fig. 1. Fig. 6 is a detail in perspective of one of the forked spring teeth.

Referring to the accompanying drawings;—A represents the inner or fixed feeder frame member adapted to be fixedly secured to the cylinder end of the thrashing machine. The front ends of the opposite sides of said fixed frame member are recessed or rabbeted as at *a*, to receive the inner ends of the opposite sides of the outer or hinged frame member B, both of said frame members being pivotally connected or hinged by means of the hinge straps C, secured to the meeting ends of the members and pivoted as at *c* in order to allow the outer or hinged frame member to be thrown back over the inner fixed frame member when not in use.

Within the fixed frame member A is secured the apron platform D, provided with a hinged or pivoted member *d* carrying the innermost apron roller *d'*, said pivoted platform member being designed to be thrown up in a vertical position within the frame, as illustrated in dotted lines, in order to gain access to the cylinder without removing the feeder, the usefulness of which will readily suggest itself to those acquainted with the art. At the front end of the platform D is journaled the forward shattered grain apron roller E, which together with the inner roller *d'* accommodates the endless shattered grain apron F of ordinary construction, and designed to carry the shattered and spread grain from the devices hereinafter described, to the cylinder of the machine.

Secured to one end of the forward apron shaft E is a series of varying sprocket wheels, or more properly speaking a cone of sprockets F, which are designed to receive the drive sprocket chain G, which is driven from a similar cone of sprockets H, loosely secured or mounted upon one end of the main drive shaft H', which shaft is journaled beneath the fixed frame A, and carries upon the other end thereof the flanged belt wheel *h*, which is designed to receive the belt from the thrashing machine and the engine as an idler, and thereby communicate motion to the various parts of the band cutter and feeder. The cone of sprockets H is provided upon the opposite faces thereof with the clutch faces *h'*, which are designed to be engaged by the sliding clutch sleeve h^2. The said sliding clutch sleeve h^2 is mounted to slide upon one end of the shaft H' adjacent to said cone of sprockets, and is controlled by means of a suitably arranged operating lever h^3, which provides means for throwing the machine in and out of gear. The purpose of having clutch faces on both sides of the cone sprockets H is to allow the same to be shifted from one end of the shaft to the other, together with the other gearing of the machine, according to the position of the wheels on the separator.

Moving through the outer hinged member B is the endless bundle apron B', constructed in the usual manner and moving over the end roller shafts I, the inner shaft of which adjacent to the fixed frame member is provided upon one end thereof with a cog wheel *i*, which when the two frame members are aligned with each other is designed to mesh with the smaller adjacent idler cog wheel *i'*. The said idler cog wheel *i'*, is mounted to revolve upon

the short stub shaft i^2, projecting from one of the sides of the frame A, and is itself turned by the lower drive cog wheel i^3, fixedly mounted upon the front apron shaft E, driven by the drive chain G previously referred to. The said idler cog wheel i', also meshes with an adjacent larger cog wheel J mounted upon one end of the shaft j, journaled in opposite sides of the frame A and accommodating the drag apron belt roller j', which roller receives one end of the endless drag apron j^2, the other end of which works over the inner apron roller j^3, journaled at the inner end of the vibrating platform j^4, the other end of which is pivotally connected to the shaft j in order to allow the same a free up and down movement. Secured to the said drag apron j^2, is a series of rubber or leather belts k, upon which are secured, in series, the spring drag teeth k. The said spring drag teeth k are forked, as illustrated and are provided with the extended spring tongues k', which are designed to rest flat upon the body of the apron and to allow the said teeth to readily yield to any strain thereon and to give the same a resiliency which greatly facilitates the drag of the grain. The said apron is arranged in a direct line with the bundle apron B', and is designed to take the cut bundles therefrom and to thoroughly shatter and spread the same before passing the grain onto the shattered grain apron, as will be obvious.

Passing through the drag apron platform j^4, at a point intermediate of its ends is the operating cam shaft L. The said cam shaft L carries upon each end thereof the cams l, designed to rotate in the slotted cam boxing or bearing l' arranged in opposite sides of the fixed frame member A, and secured to one end of the cam shaft L without the frame A is the sprocket wheel l', over which passes the endless chain l^2 driven from the chain or sprocket wheel l^3, secured to one end of the apron shaft j' alongside of the cog wheel J. Now it will be readily seen that as motion is communicated to the cam shaft L, the same will necessarily move up and down with the eccentric motion of the cams and will therefore regularly vibrate the endless drag apron, and therefore materially assist in shattering and shaking the grain to evenly spread the same before passing to the shadow grain apron.

Secured to opposite sides of the fixed feeder frame A are the spring clamps M, to which are secured the coil springs m, having the forwardly extending spring arms m', the outer ends of which are connected to the pins m^2 secured to opposite edges of the drag apron platform j^4, and moving in the vertical slots m^3, so that the same have a free vertical movement with the vibrations of the drag apron, thereby providing a balancing spring support for said apron and the spreading apron now to be described. Loosely connected to the lower ends of the projecting pins m^2, are the opposite adjustable sectional connecting rods N. The said sectional connecting rods N comprise the separate members n, having adjacent reversely threaded ends engaged by the opposite adjusting thimbles n', which provide means for lengthening and shortening the rods. The upper members of said opposite connecting rods are provided with a series of adjustment perforations n^2, which receive the supporting pins n^3 projecting from opposite sides of the upper vibrating spreading apron frame O. A connection is thus provided with the upper frame O, which allows the same not only to be adjusted to and from the under drag apron, but at the same time allows the same to be simultaneously vibrated therewith. The said connecting rods are connected to the said apron frame intermediate of its ends while the outer most end of said frame is pivotally mounted upon the shaft P, which shaft carries the front spreading apron roller p, and which communicates motion to the vibrating endless spreading apron p'. The other end of the spreading apron p'' passes over the inner adjustable apron guide rollers p^2, arranged one above the other so that the spreading apron has a vertical portion which provides means for freeing its teeth from the straw which might otherwise cling thereto. An under guide roller p^3, is journaled in the sides of said spreading apron O intermediate of its ends and serves to hold a portion thereof approximately parallel with the upper portion of the under drag apron.

The end adjustable guide rollers p^2, are mounted in the opposite movable end boxes p^4, to which are connected the opposite adjustable tightening rods Q, secured to opposite sides of the frame O, and providing means for the ready adjustment of the tension of said spreading apron. The said spreading apron p', also carries a longitudinal and transverse series of forked spring teeth similar in construction to the drag teeth previously described, but reversely disposed with relation to the same so that the spring tongues thereof will be arranged to relieve the spreading teeth of the pull thereon, while the same travel between the teeth of the drag apron and serve to spread and shatter out the grain, which spreading and shattering is also assisted by the vibrations of both aprons.

The shaft P is journaled at the upper end of one of the arms of the forked supporting standards or uprights R. The said uprights R comprise the members r adjustably connected together by means of the adjusting thimbles or collars r' similar to the adjusting thimbles of the connecting rods, and the lower ends of said standards or uprights are mounted upon the stub shafts i^2, and provide means for tightening and loosening the sprocket chain S driving the spreading apron. The sprocket chain S passes over sprocket wheels s and s' respectively, the wheel s being connected to one end of the shaft P while the lower wheel s' is connected to and is driven by the idler cog wheel i' previously referred to. Braces T are connected to the

opposite uprights R and the sides of the frame A to hold said uprights rigid, but said braces are disconnected from the sides of the frame A in order to allow the spreading apron frame O to be swung forward a short distance toward the separator when the outer hinged frame member is designed to be thrown up out of the way.

A supporting rod U is secured in the other arms of the forked uprights R, and is provided with a depending central loop u, which is designed to receive the supporting hook u', secured to the inner end of the central partition board V, which is thus removably supported in position over the apron B'. The outer end of the board V is provided with a depending pin v resting in the outer supporting cross bar v' connecting the outer ends of the frame B and serving to support said board in position. Secured to both sides of the central partition board V are the opposite upper cut spring knives W, which are curved from their connection to said board over and to a point near the end of the bundle apron B', so as to cut into the bands from the upper side of the bundle. Adjacent to the location of the upper cut spring knives W are the opposite side-cut knives X. The said side-cut knives X are secured to the opposite flared sides x, of the frame B, and have their curved cutting edges arranged to enter the bands of the bundles from the sides of said frame. In order to complete the cutting devices, I secure to the extreme inner lower end of the frame B the curved under-cut knives Y. The said knives Y are also of spring metal and having their cutting edges curved around the inner ends of the apron B' and arranged so as to lie between the upper and side cut knives, so that the under portion of the bands are cut before the grain passes onto the drag apron already described. A most complete arrangement of cutting devices is thus provided, which will most effectually cut the bands from the bundles.

The speed of the various aprons can be regulated as desired, but it will of course be seen that the spreading apron travels somewhat faster than the other aprons of the machine in order to comb or spread out the grain.

From the above it is thought that the operation of the herein described band cutter and feeder will be apparent without further description.

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

1. In a feeder for thrashing machines, the combination of the fixed frame member, the outer frame member hinged to the inner fixed member, an apron platform arranged within the fixed frame member and having an inner pivoted portion, a single endless shattered grain apron passing continuously over the pivoted and unpivoted portions of said platform, the bundle apron arranged in the hinged frame member, a toothed drag apron arranged above the shattered grain apron in a line with the bundle apron, and a spreading apron arranged to travel directly above the drag apron, substantially as set forth.

2. In a feeder for thrashing machines, the combination of the fixed and hinged frame members, the shattered grain and bundle aprons moving through said frames, respectively, and a vibrating drag apron arranged above the shattered grain apron and in a line with the bundle apron, substantially as set forth.

3. In a feeder, the fixed and hinged frame members, the shattered grain and bundle aprons moving through said frames respectively, a vibrating drag apron arranged above the shattered grain apron in the fixed frame member in a line with the bundle apron, and a spreading apron arranged over the vibrating drag apron, substantially as set forth.

4. In a feeder for thrashing machines, the fixed frame member, the outer frame member hinged to the fixed frame member, the shattered grain and bundle aprons moving through said frames respectively, and in different planes, a vibrating toothed drag apron moving in the fixed frame member over the shattered grain apron therein, and a toothed vibrating spreading apron arranged to move over the drag apron, substantially as set forth.

5. In a feeder for thrashing machines, the combination with the bundle and shattered grain aprons arranged in different planes, of a regularly vibrating drag apron arranged over the shattered grain apron, and a vibrating spreading apron connected with the drag apron and having an inner approximately vertical portion, substantially as set forth.

6. In a band cutter and feeder, the fixed and hinged frame members, the shattered grain and bundle aprons moving through said frames, respectively, and in different planes, a vibrating drag apron arranged above the shattered grain apron in a line with the bundle apron, a spreading apron arranged over the vibrating drag apron, and a series of stationary spring knives arranged over and beyond the bundle apron, substantially as set forth.

7. In a feeder for thrashing machines, the combination of the fixed and hinged frame members, the shattered grain and bundle aprons moving through said frames, respectively, an apron shaft journaled in the fixed frame member near the outer end thereof, a spring supported drag apron platform pivotally connected at one end to said apron shaft, a toothed drag apron moving over said platform, means for vibrating the platform, and a toothed vibrating spreading apron arranged above the drag apron and connected with the platform thereof, substantially as set forth.

8. In a feeder for thrashing machines, the combination of the fixed and hinged frame members, the shattered grain and bundle aprons moving through said frames, respectively, an apron shaft journaled in said fixed

frame member above the apron therein, a drag apron platform pivotally connected at one end to said apron shaft and provided with side pins moving in the sides of said frame and projecting beyond the same, spring coils arranged on opposite sides of the fixed frame member and provided with extended spring arms connected to said side pins, slotted bearings arranged in opposite sides of the fixed frame, a cam shaft passing through the drag apron platform at a point intermediate of its ends and having cams on each end adapted to rotate in said slotted bearings, the toothed drag apron moving over said platform, and the vibrating spreading apron arranged over said platform, substantially as set forth.

9. In a feeder, the combination of the feeder frame and the apron passing therethrough, a vibrating drag apron platform mounted to vibrate in said frame over the apron therein and having spring supported side pins projecting through the sides of the frame, a spreading apron frame pivotally supported above the main feeder frame, adjustable connecting rods connected at their lower ends to said side pins, and adjustably connected at their upper ends to the sides of said spreading apron frame, and the toothed aprons passing over the vibrating platform and through said apron frame respectively, substantially as set forth.

10. In a feeder, the combination of the main feeder frame and the apron passing therethrough, a vibrating spring supported drag apron platform mounted in said frame, sectional adjustable uprights or standards pivotally connected at their lower ends to a suitable point of attachment on opposite sides of the feeder frame, an apron shaft connecting the upper ends of said uprights, an apron frame pivoted at one end to said apron shaft, adjustable connecting rods connecting said apron frame with said drag apron platform, side braces removably connected to the sides of said main feeder frame and to said uprights, and the outer hinged frame member, substantially as set forth.

11. In a feeder, the combination of the feeder frame and the apron passing therethrough, a vibrating drag apron platform mounted in said frame, a spreading apron frame pivotally and adjustably supported above the drag apron platform and connected thereto, a drive apron roller at one end of said spreading apron frame, adjustable bearing blocks arranged at the other end of the frame, adjusting rods connected to said bearing blocks, guide rollers journaled in said bearing blocks one above the other, an intermediate under guide roller journaled in said frame, and an endless toothed spreading apron moving over said rollers, substantially as set forth.

12. In a band cutter and feeder, the combination of the fixed and hinged frame members, the separate aprons moving in said frames respectively, a central partition board removably supported centrally above the apron in the hinged frame member, upper cut spring knives secured to opposite sides of said partition board, side cut spring knives secured to the sides of the hinged frame member adjacent to the uppercut knives, and the under cut spring knives projecting beyond the inner end of the apron in the hinged frame member at a point between the upper and side cut knives, substantially as set forth.

13. In a band cutter and feeder, the combination of the feeder frame having flared sides, the endless apron moving through said frame, a cross bar connecting the outer ends of the frame, a supporting rod arranged over the inner end of the frame and provided with a depending central loop, a central partition board resting upon said cross bar at one end and having a supporting hook removably engaging said central loop, upper cut spring knives secured to opposite sides of the partition board and curved toward the inner end of the apron, side cut spring knives secured to the flared sides of the frame adjacent to the upper cut knives, and the under cut spring knives curved around the inner end of the apron from below the same, substantially as set forth.

14. The combination with the endless apron; of the forked spring teeth secured to the apron in transverse and longitudinal series and provided with extended spring tongues adapted to bear upon the body of the apron, 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.

JOHN C. BRASH.

Witnesses:
JAMES M. BARGER,
LEEROY BARGER.