(No Model.) 2 Sheets—Sheet 1.

G. W. PARSONS.

BAND CUTTER AND FEEDER.

No. 549,583. Patented Nov. 12, 1895.

Fig. 1.

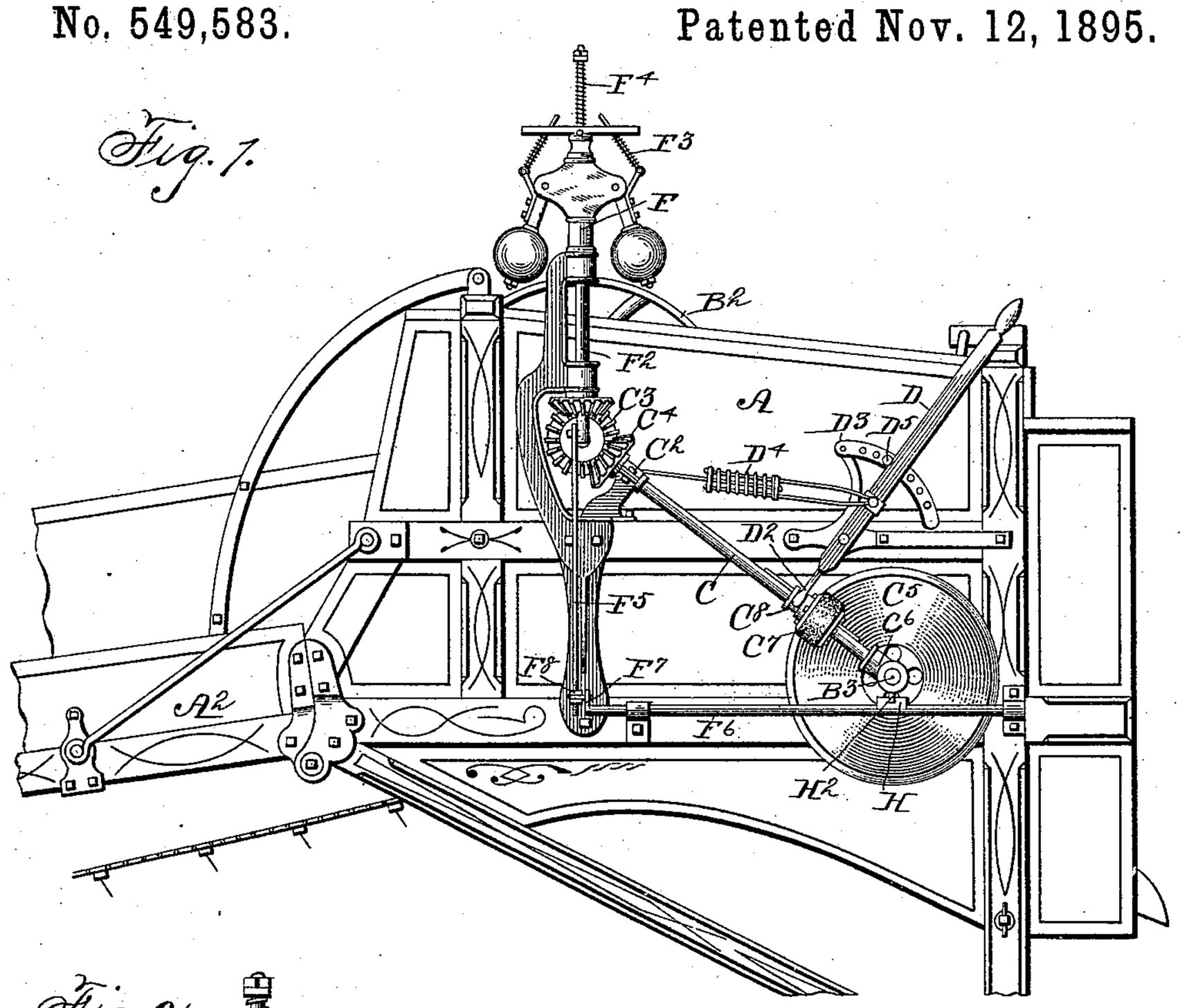

Fig. 2.

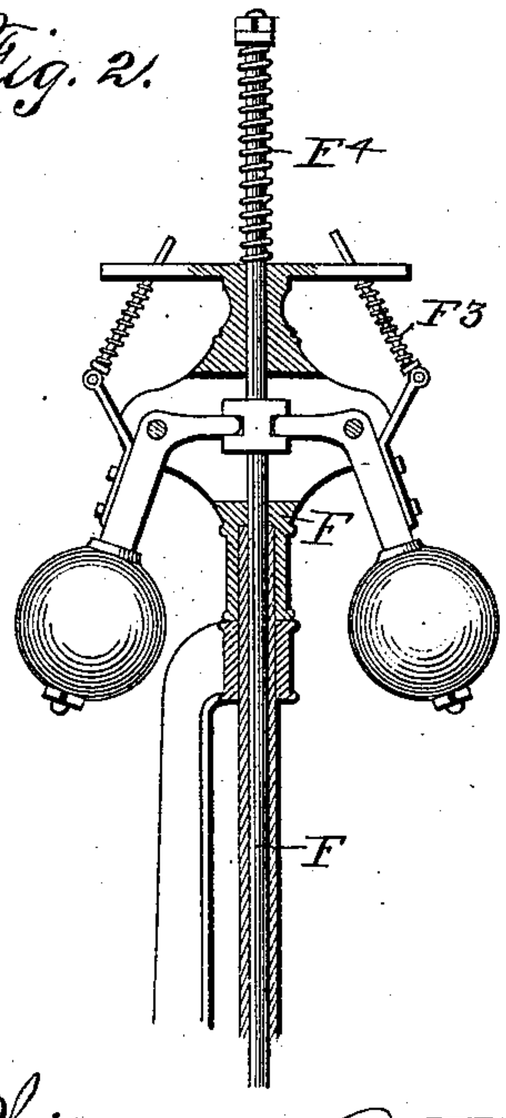

Fig. 4.

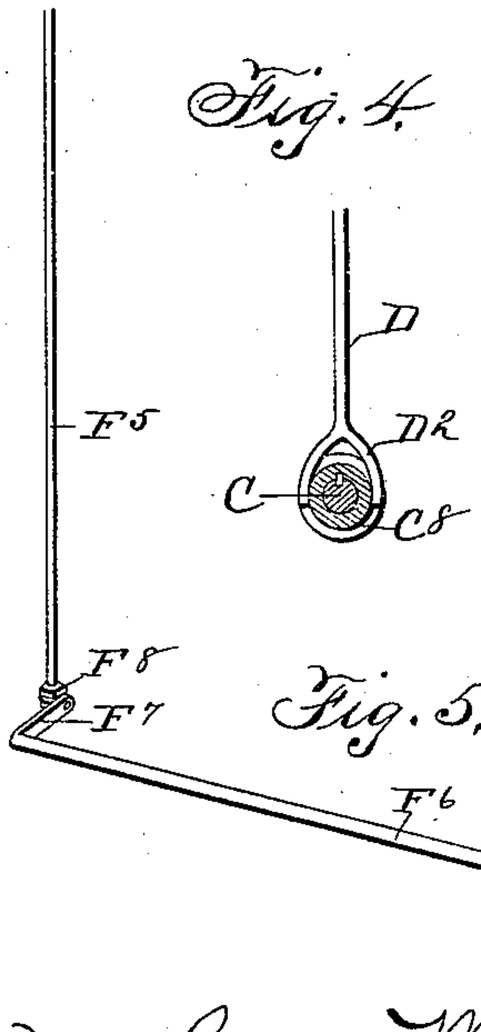

Fig. 3.

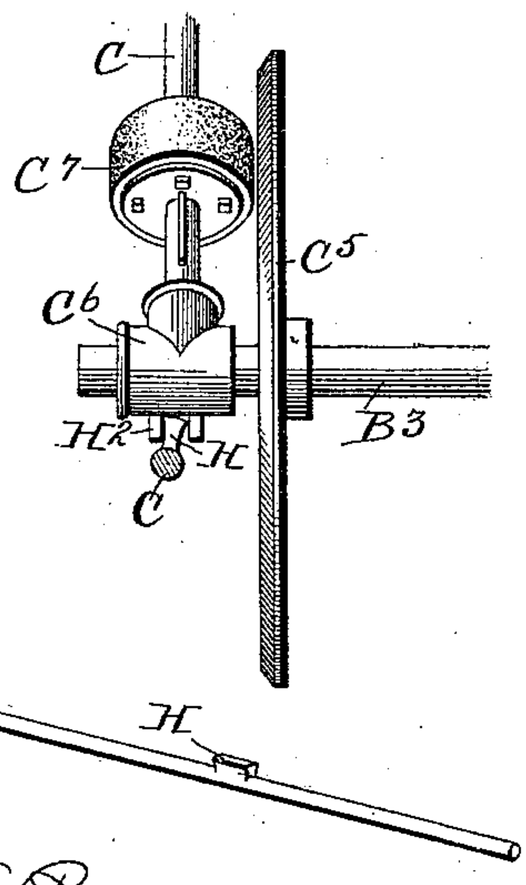

Fig. 5.

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(No Model.) 2 Sheets—Sheet 2.

G. W. PARSONS.

BAND CUTTER AND FEEDER.

No. 549,583. Patented Nov. 12, 1895.

Fig. 6.

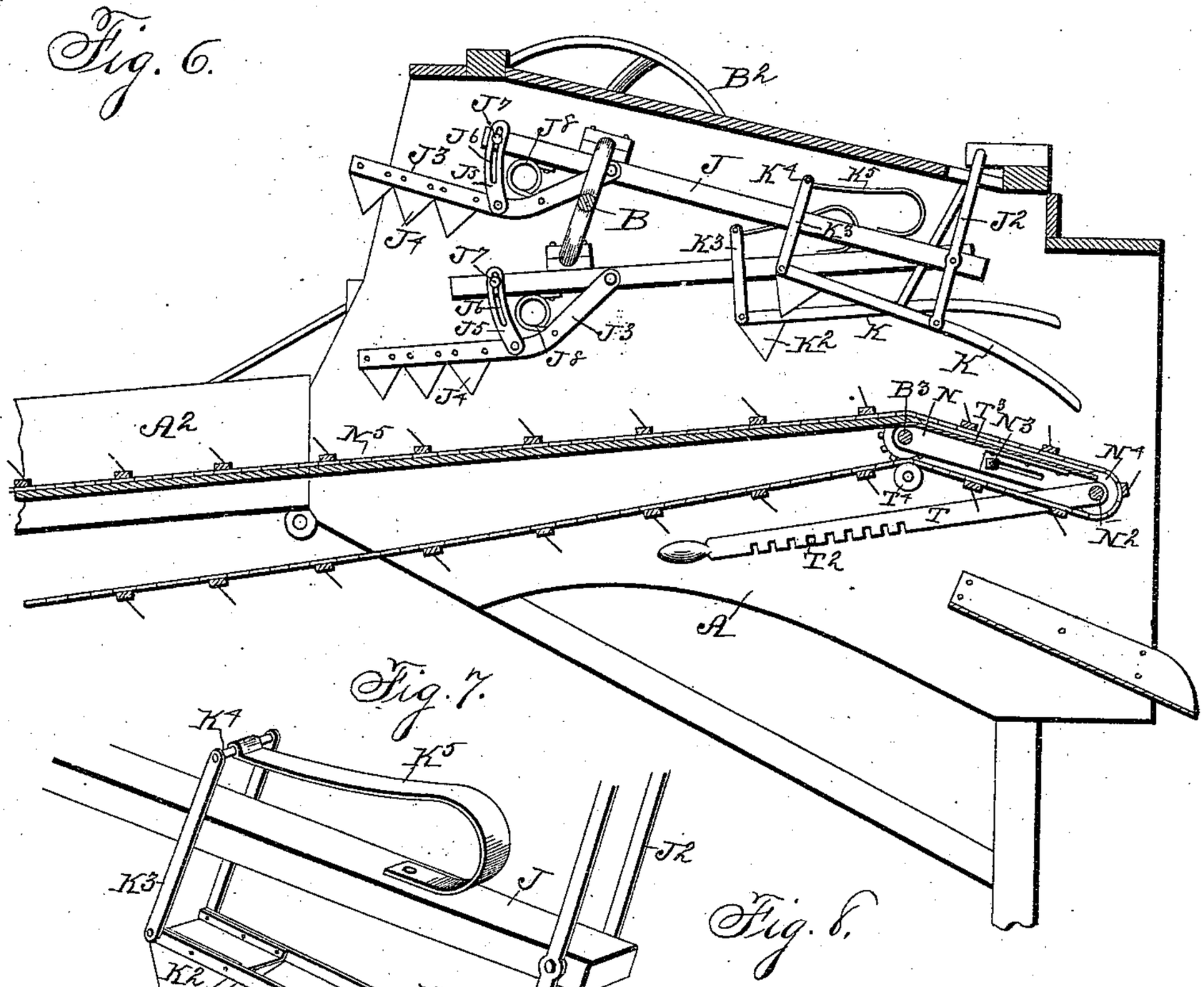


Fig. 7.

Fig. 8.

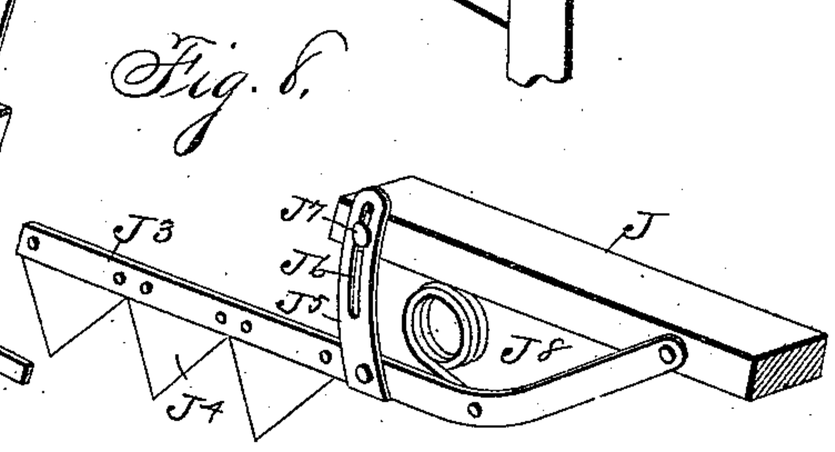
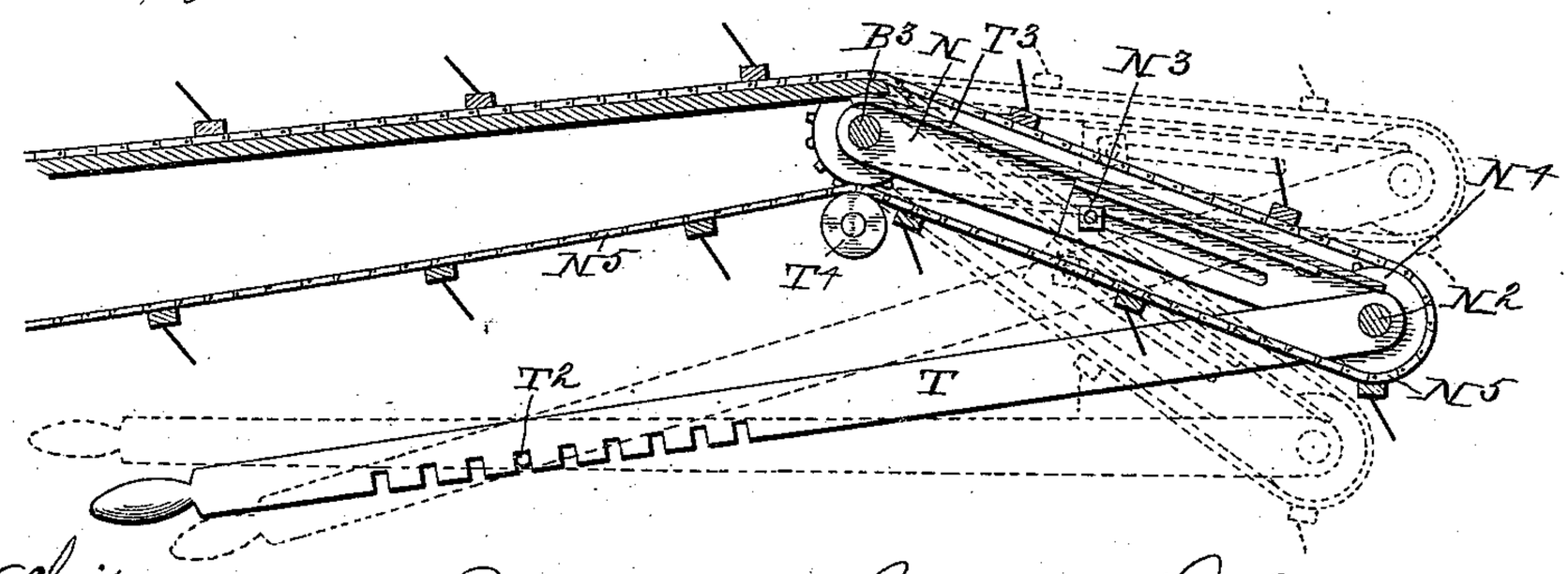


Fig. 9.



Witnesses:
W. J. Sankey,
R. H. Orwig.

Inventor: George W. Parsons,
By Thomas G. and J. Ralph Orwig, Attys.

UNITED STATES PATENT OFFICE.

GEORGE W. PARSONS, OF NEWTON, IOWA, ASSIGNOR OF THREE-FOURTHS TO FRED L. MAYTAG, W. C. BERGMAN, AND A. H. BERGMAN, OF SAME PLACE.

BAND-CUTTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 549,583, dated November 12, 1895.

Application filed November 17, 1894. Serial No. 529,091. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. PARSONS, a citizen of the United States of America, residing at Newton, in the county of Jasper and State of Iowa, have invented an Improved Band-Cutter and Feeder, of which the following is a specification.

The objects of this invention are, first, to provide a band-cutter and feeder with means whereby the power transmitted to the shaft that operates the band-cutting mechanism may be transmitted to the feeding mechanism and the speed of rotation of the latter be quickly and easily adjusted or stopped independently of the former.

A further object is to provide a governor whereby the feeding mechanism is automatically stopped when the speed of rotation of the thrashing machinery falls below a certain predetermined speed and before the band-cutting mechanism is stopped.

My object is, further, to provide improved band-cutting mechanism and improved means for advancing the grain to the thrasher.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the band-cutter and feeder, showing the speed-controlling device and governor. Fig. 2 is a detail sectional view of part of the governor. Fig. 3 is a detail view of the brush-wheels and accompanying parts. Fig. 4 is a sectional view showing the connection between the operating-lever, the sliding brush-wheel, and the shaft. Fig. 5 is a detail perspective view showing the connecting-rods between the governor and the shaft in which the sliding brush-wheel is mounted. Fig. 6 is a vertical longitudinal sectional view of the complete band-cutter and feeder. Fig. 7 is a detail perspective view of the auxiliary band-cutting mechanism and feeding device. Fig. 8 is a like view showing the band-cutting knives on the forward end of the oscillating bars, and Fig. 9 is a detail side view showing the rear end of the carrier.

Referring to the accompanying drawings, the reference-letter A is used to indicate the frame of the band-cutter and feeder, which may be of any desirable construction, and is adapted to be connected with the frame of a thrashing-machine.

A^2 is a chute leading to its forward end, and an endless carrier, hereinafter described, passes over said chute to convey bundles of grain through the band-cutter and feeder into the thrashing-machine.

Near the forward end and top of the band-cutter and feeder is mounted a crank-shaft B, adapted to operate the cutting mechanism, as hereinafter described. Said shaft is driven by the belt-wheel B^2, which is connected with the thrashing-machine.

B^3 is a shaft rotatably mounted in the rear lower corner of the frame and having the endless carrier passed thereover and operated thereby, as hereinafter explained.

Motion is imparted to the shaft B^3 from shaft B as follows:

C indicates a shaft mounted in a bearing C^2, fixed to the machine-frame, said bearing being made large enough to allow the other end of the shaft a slight lateral movement.

C^3 indicates a bevel gear-wheel fixed to the shaft B, and C^4 is a like wheel in mesh therewith and fixed to the shaft C.

C^5 is a brush-wheel or disk fixed to the shaft B^3.

C^6 is a T-bearing slidingly mounted on the outer end of the shaft B^3 and having the lower end of the shaft C bearing therein. C^7 is a brush-wheel feathered to the lower end of said shaft C and normally in contact with the wheel C^5 and having an annular groove C^8 formed in its hub. It will be obvious that this wheel C^5 will be rotated by the wheel C^7 and that its speed will be proportioned to the relative distance that the wheel C^7 is placed from the center of the wheel C^5. This is controlled by means of a lever D, fulcrumed to a suitable part of the machine-frame and having a forked end D^2 resting in the annular groove C^8. D^3 is a perforated segmental bar in proximity to said lever, and D^4 is a contractile spring attached to the lever and to a stationary support to normally pull the lever forwardly and force the small brush-wheel toward the center of the larger brush-wheel. D^5 is a pin placed in one of the perforations in said rack to counteract the effect of the

spring and hold the small brush-wheel at any desirable position relative to the center of the larger one. When the lever is operated in such a manner as to throw the smaller brush-wheel beyond the periphery of the larger one, the said spring will automatically return the same to its original position as soon as released.

To automatically stop the shaft B^3, and thereby prevent the feeding mechanism from being operated when the speed of the shaft C has fallen below a certain point, but not stopped, I have attached a centrifugal ball-governor F to the machine-frame geared to the bevel gear-wheel C^3 and so arranged that the sliding shaft F^2 therein will be forced downwardly when the balls are elevated by centrifugal force.

F^3 are springs arranged to cushion the balls of the governor against an upward movement, and F^4 is a spring at the top of the sliding shaft F^2 to cushion said shaft against a downward movement. F^5 is a rod connected with the lower end of the shaft F^2.

F^6 is a rock-shaft mounted in suitable bearings secured to the machine-frame, having a crank-arm F^7 on one end adjustably connected with the lower end of the shaft F^2 by the nuts F^8, so that when the shaft F^2 moves vertically the said rock-shaft will be turned.

H indicates an integral lug on the upper side of the rock-shaft, and H^2 are two downwardly-projecting pins secured to the under side of the T-bearing C^6 and having the lug H interposed between them, so that a downward movement of the shaft F^2 will cause the lug H to bear against the inner pin H^2 and hold the smaller brush-wheel firmly to the larger one; but when the speed of the governor diminishes the shaft F^2 will be drawn upwardly, the lug H pressed against the outer lug, and the smaller friction or brush wheel pressed outwardly from engagement with the larger one, and the movement of the endless carrier stopped until the thrashing-machine has again attained a certain speed.

J indicates bars pivotally attached to the crank-arms of the shaft B and extended horizontally rearward with their rear ends supported by the hangers J^2, which are pivoted to a suitable elevated support and pivotally attached to the bars with their lower ends projecting below said bars. An arm J^3 is pivoted to the forward end of the bar and has the knife-blades J^4 attached thereto. J^5 is a segmental bar fixed to the said arm J^3 and provided with a slot J^6, through which a bolt J^7 is passed into the bar J, and J^8 is a coil-spring attached to the under side of the bar J and to the arm J^3 to serve as a cushion and permit the knives to move upwardly relative to the bar, when they engage a solid substance or penetrate too deeply into a bundle of grain, thus permitting the knives to be set low enough to engage the bands on the smallest sheaves of grain, and also to permit the largest bundles to pass through without cutting too deeply thereinto, as would be the case if the knives were fixed to the bar. On the rear ends of said bars I have provided an improved auxiliary band-cutter, grain-leveler, and distributer, as follows:

K K indicate two parallel side pieces pivotally attached to the lower ends of the hangers J^2. At their forward ends three parallel knife-blades K^2 are fixed. The said forward ends are yieldingly supported by means of the arms K^3 passing upwardly above the bar J and connected by a cross-piece K^4, which in turn is supported by a spring K^5, fixed to the top of the bar, as shown. The rear ends of these parallel side pieces are extended beyond the bars and curved downwardly to guide the grain to the thrashing-cylinder. By this arrangement it will be obvious that a longitudinal sliding movement will be given to the said side pieces as required to draw the top portion of the sheaves of grain beyond the under portion, and thus distribute the same evenly over the endless carrier.

N N indicate two arms pivoted to the shaft B^3 and having the shaft N^2 mounted in their outer ends. These arms are made adjustable longitudinally by means of the bolt N^3. N^4 are sprocket-wheels mounted on the outer ends of the said shaft N^2, adapted to receive the sprocket-chains N^5 of the endless carrier. It will now be obvious that this section of the endless carrier will be capable of swinging to any desirable position relative to the thrashing-cylinder of a separator, or be dropped downwardly, so that convenient access may be had to the cylinder, as indicated by dotted lines in Fig. 9, so that the section may be shortened by sliding the arms N together and taking a few links from the chains. To adjust this carrier-section to any desirable incline, I have provided a rack T, pivoted at one end to the shaft N^2 and adapted to engage a pin T^2, fixed to the side of the machine-frame. T^3 indicates a sheet-metal platform attached to the tops of said arms and extended under the platform of the endless carrier.

T^4 is a chain-tightener placed directly beneath each of the sprocket-wheels of the shaft B^3, as clearly shown in Fig. 9.

Having thus described the construction, arrangement, and combination of the various elements of the invention, it will be obvious that the relative speed of the band-cutting mechanism and the feeding mechanism may be quickly and accurately controlled, or the latter stopped by the lever D, and that the governor will automatically stop the feeding mechanism when the speed of the thrashing-machine has slackened below a certain predetermined degree and thereby prevent the feeder from delivering grain to the thrasher when it is not being operated at the proper speed to thrash, and, further, that no grain will be fed to the thrasher when being started until it has attained a sufficient headway.

It will be obvious, further, that the band-

cutting knives will not be forced deeply into large bundles of grain and will engage and sever the bands of the smaller bundles and that the bundles will be evenly distributed over the carrier. The hinged end of the carrier-platform will aid in feeding the grain properly to the thrashing-cylinder, as the platform may easily be adjusted to adapt itself to varying conditions of the grain and may be dropped downwardly to provide convenient access to the thrashing-cylinder.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a band cutter and feeder for thrashing machines, the combination of a suitable frame, a shaft adapted to be driven from the thrashing machine mounted therein, band cutting mechanism connected with said shaft, a second shaft mounted therein, mechanism connected therewith for feeding grain to a thrashing machine, a shaft geared to one of said shafts, a brush wheel feathered thereon having an annular groove in its hub, a brush wheel connected with the remaining one of said shafts normally in contact with the aforesaid brush wheel and a lever fulcrumed to a part of the machine frame and having a bifurcated end inserted in said annular groove, for the purposes stated.

2. In a band cutter and feeder for thrashing machines, the combination of a suitable frame, a shaft adapted to be driven from the thrashing machine mounted therein, band cutting mechanism connected with said shaft, a second shaft mounted therein, mechanism connected therewith for feeding grain to a thrashing machine, a shaft geared to the first mentioned shaft, a brush wheel feathered thereon having an annular groove in its hub, a brush wheel fixed to the end of the second shaft normally in contact with the aforesaid brush wheel and a lever fulcrumed to a part of the machine frame and having a bifurcated end inserted in said annular groove, a perforated segment in juxtaposition to the lever, a pin adapted to enter said perforations and a spring adapted to exert a yielding pressure on said lever.

3. In a band cutter and feeder, the combination of a suitable frame, a shaft mounted thereon adapted to be driven from the thrashing machine, band cutting mechanism connected with the said shaft, a second shaft mounted therein, mechanism connected therewith for feeding grain to a thrashing machine, a shaft geared to the first mentioned shaft, a brush wheel fixed thereto, a brush wheel fixed to the second shaft normally in contact with the first brush wheel, a centrifugal ball governor geared to the first mentioned shaft and means connected therewith whereby the brush wheels are held in contact when the first mentioned shaft rotates at or above a certain speed and when the balls fall below a certain point the brush wheels will be disengaged, for the purposes stated.

4. In a band cutter and feeder the combination of a suitable frame, a shaft rotatably mounted therein, band cutting mechanism connected therewith, a second shaft, means connected therewith for advancing grain, a shaft geared to the first shaft, a suitable bearing to support the upper end thereof, a T bearer mounted on the second shaft and having the connecting shaft inserted therein and having two pins on its under side, a brush wheel fixed to said second shaft, a brush wheel feathered to the connecting shaft, means for sliding the feathered brush wheel, a governor geared to the first mentioned shaft, a rod attached thereto and arranged to be forced downwardly when the governor is rotated, a rock shaft mounted in suitable bearings at the side of the machine frame, and having an inwardly projecting arm attached to said rod and a lug on its other end interposed between the two aforesaid pins on the T bearer, for the purposes stated.

5. The combination with a band cutting device comprising a crank shaft and a number of bars pivoted thereto, of a hanger at the rear end of each bar pivoted to an elevated support, and to the bar and projecting below the same, a frame having one or more knife blades thereon pivoted to said hanger beneath the bar and projecting rearwardly and downwardly beyond the bar, a spring attached to the upper end of the bar and rods for connecting the spring and said frame, substantially as and for the purposes stated.

6. In a band cutter and feeder, the combination with a shaft in the rear end of the machine having two sprocket wheels on its ends, and an endless carrier passing through the machine and driven by said shaft, of two arms pivoted to said shaft and extended rearwardly, a platform fixed to the top of said arms, a shaft mounted in the outer end of said arms, sprocket wheels on the ends of said shaft having said carrier passed thereover, a rack pivoted to said shaft and a pin fixed to the machine frame to be engaged by said rack, for the purposes stated.

7. In a band cutter and feeder, the combination with a shaft in the rear end of the machine having two sprocket wheels on its ends, and an endless carrier passing through the machine and driven by said shaft, of two arms pivoted to said shaft and extended rearwardly, a platform fixed to the top of said arms, a shaft mounted in the outer end of said arms, sprocket wheels on the ends of said shaft having said carrier passed thereover, a rack pivoted to said shaft and a pin fixed to the machine frame to be engaged by said rack, and means for longitudinally adjusting said arms, for the purposes stated.

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