

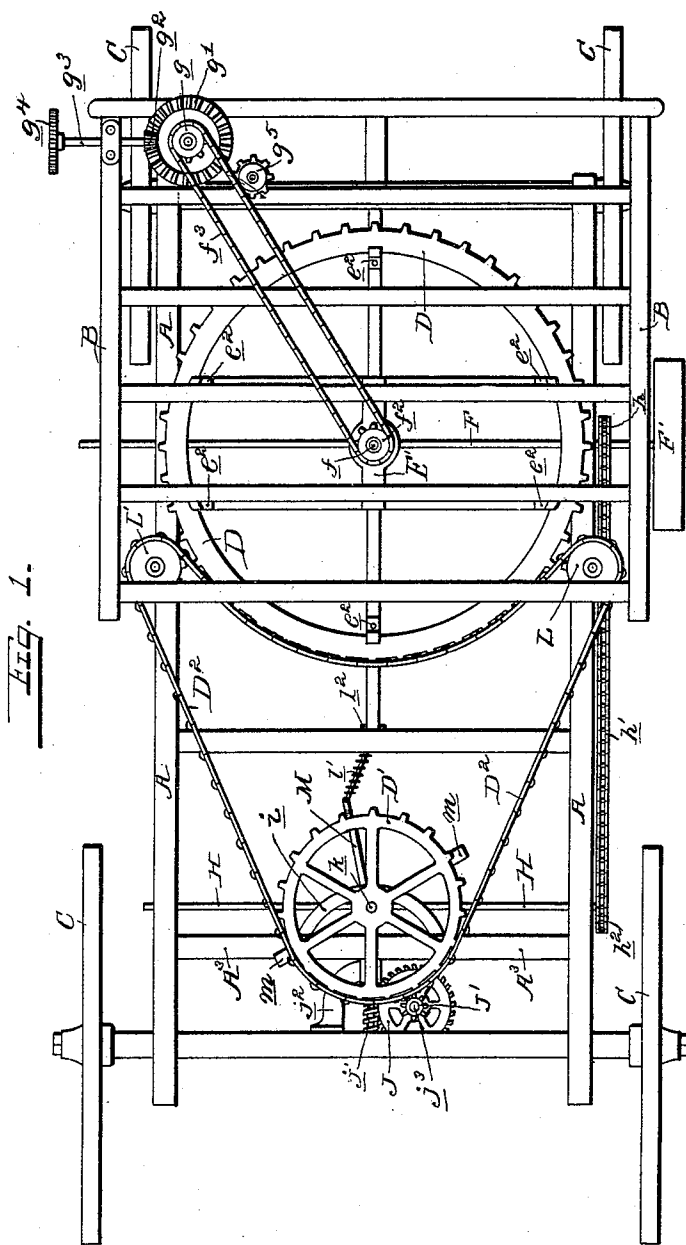
(No Model.)

4 Sheets—Sheet 1.

J. GALLAND.
STRAW STACKER.

No. 499,381.

Patented June 13, 1893.



WITNESSES.

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John L. Smith.

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By A. L. Smith & Son, ATTYS.

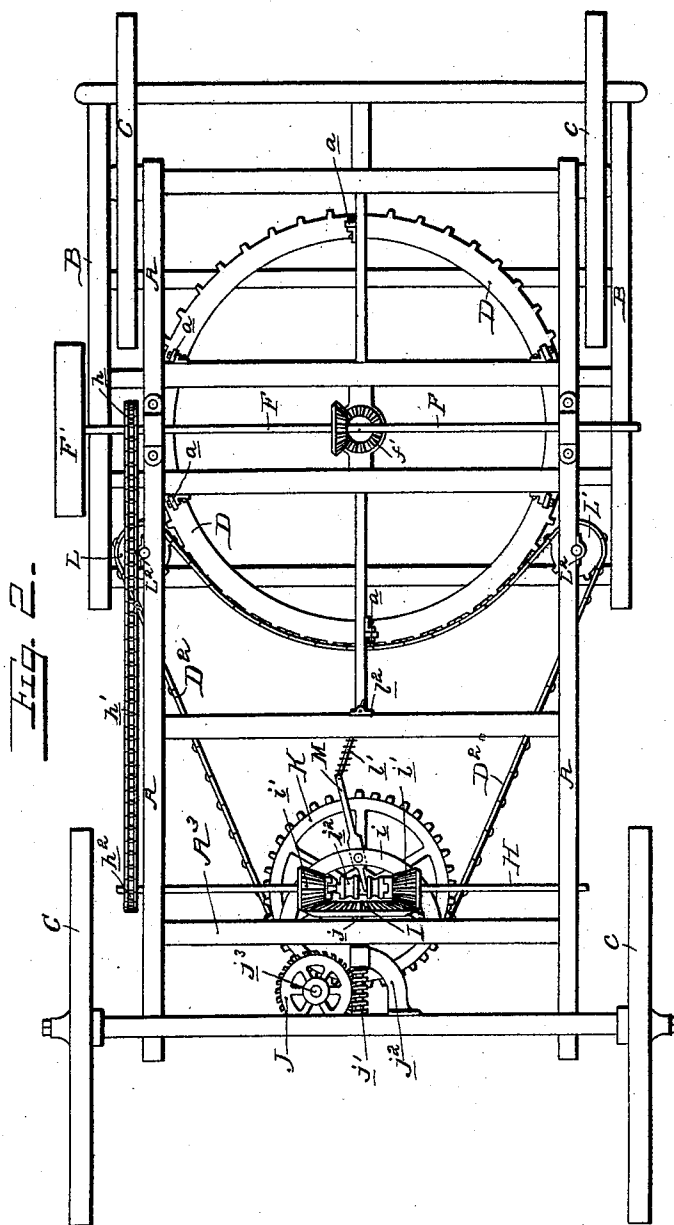
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4 Sheets—Sheet 2.

J. GALLAND.
STRAW STACKER.

No. 499,381.

Patented June 13, 1893.



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(No Model.)

4 Sheets—Sheet 3.

J. GALLAND.
STRAW STACKER.

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FIG. 3.

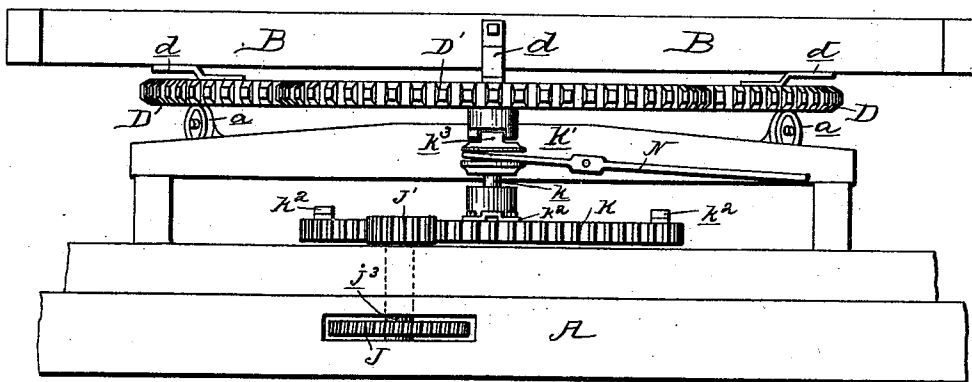
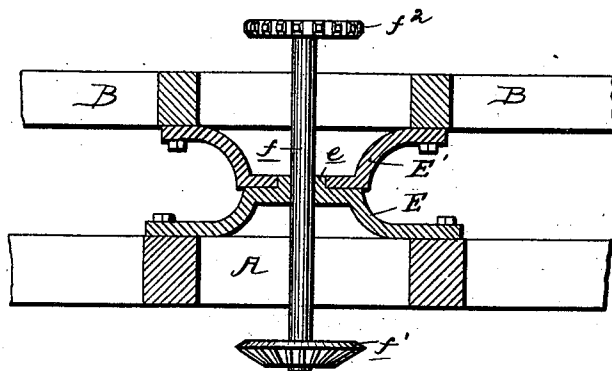


FIG. 4.



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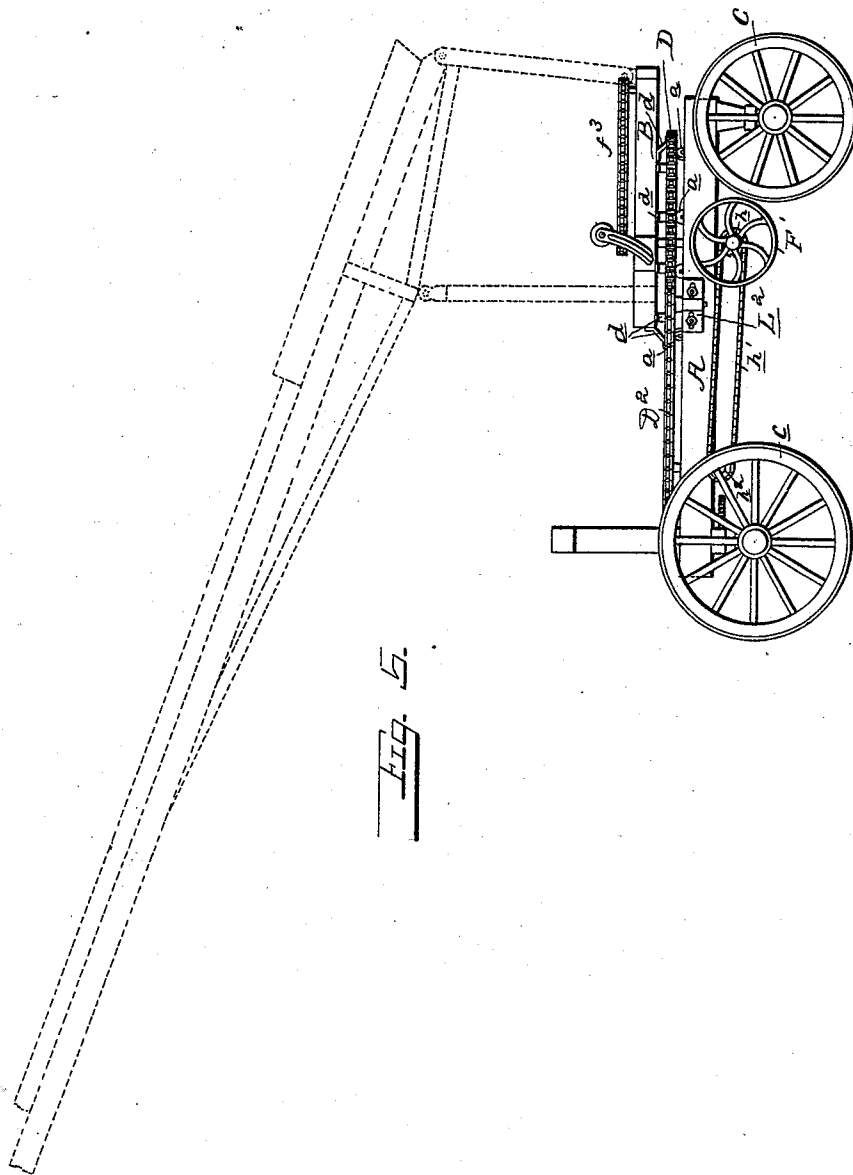
(No Model.)

4 Sheets—Sheet 4.

J. GALLAND.
STRAW STACKER.

No. 499,381.

Patented June 13, 1893.



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UNITED STATES PATENT OFFICE.

JOSEPH GALLAND, OF MANSFIELD, OHIO, ASSIGNOR TO THE AULTMAN & TAYLOR MACHINERY COMPANY, OF SAME PLACE.

STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 499,381, dated June 13, 1893.

Application filed March 1, 1893. Serial No. 464,228. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH GALLAND, a citizen of the United States, and a resident of Mansfield, county of Richland, and State of Ohio, have invented a new and useful Improvement in Hay and Straw Stackers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to the mechanism for swinging the carrier-supporting frame and carrier or stacker on the vertical axis of the former, and, for permitting said frame to remain temporarily at rest, at each end of its vibratory movement, and it consists in the combination with the carrier-supporting frame of a turn-table, made in the form of a sprocket wheel and a drive chain for actuating said wheel arranged to resist the tendency of the turn-table to tilt, due to the weight of the extended carrier overhanging said table upon one side, the arrangement being such, also, that where, for any reason it becomes desirable, the table and carrier can be made to revolve on their vertical axis.

In the accompanying drawings—Figure 1 is a plan or top view of so much of a stacker as is necessary to show my improvements. Fig. 2 is a bottom view of the same. Fig. 3 shows, in end elevation, the gearing for actuating the swinging carrier frame. Fig. 4 is a longitudinal, vertical section through the turntable centering device: and Fig. 5 is a side elevation showing the elevator in dotted lines to indicate its relation to the other parts.

The machine, in its general construction and arrangement of truck frame, swinging carrier frame and carrier, is similar to that described in Letters Patent granted to Henry Stephan, December 16, 1890, No. 442,751, and need not therefore be described in detail further than is necessary to an understanding of my improvements.

A indicates a strong, rectangular frame, mounted upon carrying wheels C, C, and B is the rectangular carrier frame, supported on the truck frame A.

D indicates the turntable, made in the form of a ring having sprocket teeth on its periphery and firmly bolted to the frame B, through

interposed, angular or Z-shaped brackets *d*, which raise the frame sufficiently above the sprocket ring to prevent its interference with the drive chain actuating said ring. The ring D is supported on a series of friction rollers, *a*, *a*, secured to cross bars and central longitudinal bars of the frame A, as shown, said rollers permitting an easy rotation of the ring, which is centered and held in proper working relation to the rollers by means of centering plates E and E', secured, one to cross bars of the frame A and the other to similar bars of the frame B. These plates or angular brackets are made in the form substantially as shown in section, Fig. 4, and in the plan and bottom views, Figs. 1 and 2, being expanded in width into annular or disk form, centrally of their length, where one rests on the other one, E, having a central, tubular stud *e*, which projects up through a central opening in and forms a bearing for the part E', which rests and turns on the part E. Angular or Z-shaped brackets *e*², secured to the frame A, and extending up inside of and engaging the ring, may be further used for centering and steadying the movements of the ring.

The hollow stud *e* has journaled in it an upright shaft *f*, upon the lower end of which is secured a miter or bevel wheel *f*', in mesh with a similar gear wheel fast on a transverse shaft F, provided at one end with a band wheel F', to which motion is imparted from any convenient power. The upper end of the shaft *f* carries a sprocket-wheel *f*² from which, through a drive-chain *f*³, motion is imparted to a sprocket wheel *g* fast on a short upright shaft, journaled in suitable bearings on the frame B and carrying a bevel gear *g*', in mesh with a bevel pinion *g*², fast on a short, transverse shaft *g*³, also mounted in bearings on the frame B and carrying a sprocket wheel *g*⁴, from which motion is imparted to the carrier in a manner that will be readily understood. By this arrangement of gearing for actuating the carrier which will be supported upon the frame B to swing with it, in any usual manner, a uniform working relation of said gearing to the carrier will be always maintained and all cramping or binding of the parts avoided.

*g*⁵ is an idle sprocket wheel, carried by the

frame B and which may be made adjustable, if desired, for regulating the tension of the chain f^3 .

The shaft F carries a sprocket wheel h , from which a drive chain h' extends to a similar wheel h^2 , on a rear, transverse shaft H, mounted in suitable bearings on the frame A and carrying two bevel pinions, i and i' , loose on the shaft and facing each other, and an interposed clutch collar or sleeve i^2 , feathered to and sliding on said shaft and by means of which either of the pinions i or i' , may be engaged to the shaft to rotate with it. The pinions i and i' are in mesh with a bevel gear I, fast on a short, longitudinally arranged shaft j , journaled in a bracket j^2 on the frame A and provided on its rear end with a worm or screw j' , which engages and drives a worm wheel J, fast on the lower end of a short, upright shaft j^3 , journaled in bearings on the frame A. The upper end of this shaft j^3 carries a spur pinion J', in mesh with and actuating a spur gear K, fast on a short upright shaft k , mounted in suitable bearings on the frame A. The upper end of the shaft k has a large sprocket wheel D' mounted loosely on it and between said sprocket wheel and the spur gear K, the shaft k has a collar or sleeve k' , feathered to it to move up and down on said shaft. The upper end of this sliding collar is clutch faced, to adapt it to engage a corresponding face on the lower end of the hub of the sprocket wheel D'. The teeth k^2 of the clutch face of the collar k' , are made of less width than the sockets in the end of the hub of wheel D', which said teeth enter, as shown in Fig. 3, so that when the direction of rotation of the shaft k is reversed, the movement of said shaft being slow, in consequence of the use of the worm and screw for operating it, as described, an interval of rest is allowed to the wheel D' before it starts to move in the opposite direction. This is important, for the turn-table sprocket wheel D is connected with and driven from the sprocket wheel D' by means of the drive chain D² and as the turn-table is vibrated, swinging the carrier from side to side, the latter is allowed to remain stationary for a brief interval, say from twenty to thirty seconds at each end of its swinging movement, thereby adapting the stacker to build up the ends of the stack as rapidly as it builds up the central portion thereof.

L, L', indicates two idle sprocket wheels secured by means of brackets L² to the longitudinal bars of frame A, one to each side and made adjustable longitudinally and which engage and take up slack in the chain D². The idlers L, L', are placed well forward of the rear edge or side of the sprocket ring D, and at the sides of the latter, and the drive chain, instead of passing around the sprocket ring passes outside of and around in front of the idlers and thence back, around the rear side of the ring or on that side adjacent to its driving sprocket wheel D, as shown, the ar-

range being such as to cause the drive chain to hug tightly said rear side or edge of the ring D. This is regarded as important, inasmuch as the long, and frequently heavily loaded carrier overhangs said side of the turntable and its actuating mechanism, as indicated by the dotted lines in Fig. 5, and tends by its weight to tilt the turn-table or cause it to sag on that side, a tendency that is resisted by the arrangement of the drive chain to press against that side of the sprocket ring turntable, whereas if the chain were passed around the table the tendency to sag and the wear of the journals and bearings would be greatly increased.

A transverse frame bar A³ adjacent to the shaft H has a semi-circular bar l or other suitable form of bracket attached to it, on which to pivot a lever M, having a fork on one end engaging a groove in the clutch collar i^2 for moving the latter into or out of engagement with either of the pinions i or i' . The opposite or forward end of this lever underlies the gear K projecting beyond its periphery and is bifurcated to receive a cross head pivot on the rear end of a rod l' , which passes through a tapering slot in the frame bar A³ and through a perforated swiveling block l^2 , pivoted to the forward face of said bar, and between said block l^2 and the pivot of rod l' a spiral spring surrounds said rod, the tension of said spring being exerted to push the end of the lever away from the swiveling block l^2 .

The upper face of the spur gear K has a series of sockets k^2 on it at regular intervals and into any one of which an arm or lever m may be inserted. This arm or lever is adapted to come in contact with the upper arm of the fork on the lever M and to vibrate the latter from one side of a longitudinal line to the other, for shifting the clutch i^2 from one pinion i to the other i' , or vice versa, for changing the direction of movement of the turn-table. Two of these levers m may be used, one on each side of the lever M for automatically reversing the direction of movement at regular intervals.

N is a lever pivoted to the vertical face of one of the truck frame bars and provided at one end with a fork engaging a groove in the clutch collar k' . By vibrating this lever N, the clutch collar can be thrown out of engagement with the sprocket wheel, permitting the latter to stand still for any purpose and as long as required, while its actuating mechanism continues to revolve.

By the use of the sprocket wheel turn-table and its actuating drive chain and sprocket wheel as described, with the tripping levers m removed, a continuous rotary movement can be given to the carrier frame, when, from any cause, such movement is found to be desirable; or said frame, with the carrier can, when desired, be swung from side to side in the usual manner, and, with the clutch mechanism described, when so swung, will be allowed to remain at rest at each end of its

throw, long enough to cause the stack to be built up at the ends as rapidly as at intermediate points.

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

10 1. The combination in a straw stacker of the carrier supporting frame, the sprocket wheel forming the turn-table on which said frame is mounted, and the drive chain and its actuating sprocket wheel for operating said turn-table, said chain being arranged to press against and act upon the weighted side of the sprocket wheel adjacent to its actuating sprocket wheel, substantially as described.

2. The combination in a stacker of the carrier supporting frame, the carrier supported thereon, the sprocket-wheel turn-table on which said frame and carrier are mounted, 20 the drive chain arranged to engage the side or edge of the turn-table adjacent to its actuating mechanism, and the sprocket-wheel actuating said drive chain, substantially as described.

25 In testimony whereof I have hereunto set my hand this 27th day of February, A. D. 1893.

JOSEPH GALLAND.

Witnesses:

BENJAMIN BAIR,
E. W. GANZ.