(No Model.)

J. TÖPFER.

STRAW CUTTER.

No. 404,130. Patented May 28, 1889.

Fig: 1.

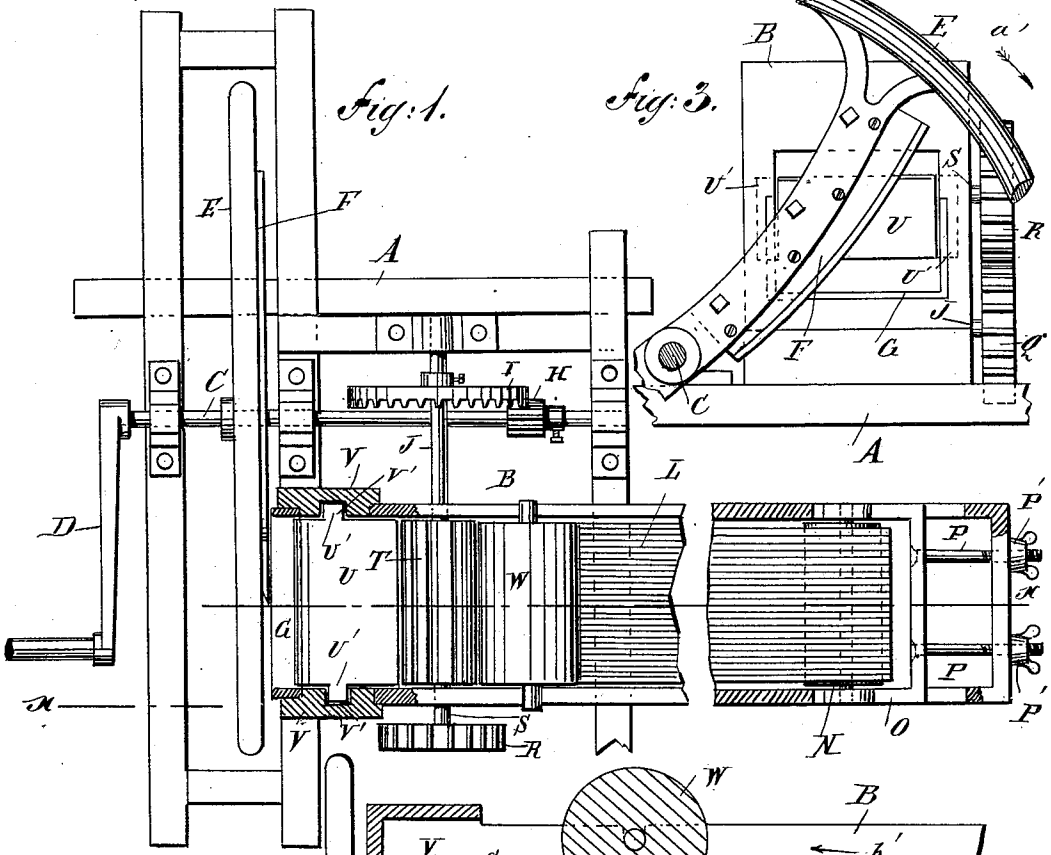
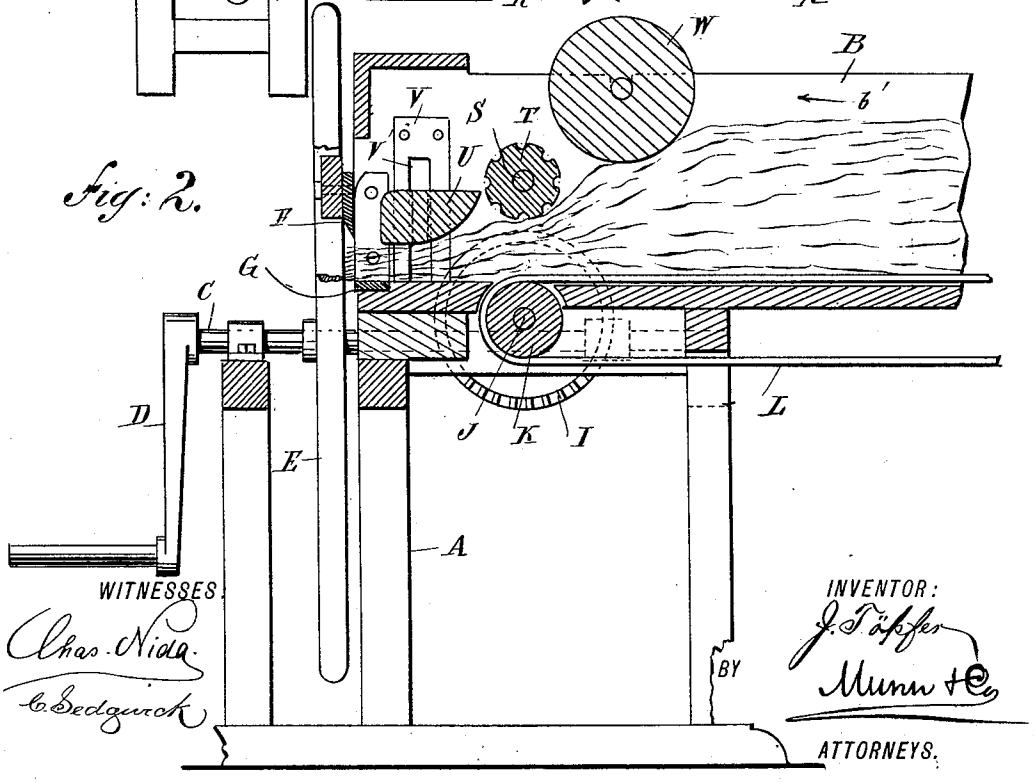


Fig: 3.

Fig: 2.



WITNESSES.

Chas. Nida.

C. Sedgwick

INVENTOR:

J. Töpfer

BY Munn & Co

ATTORNEYS.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOHN TÖPFER, OF BROOKLYN, NEW YORK.

STRAW-CUTTER.

SPECIFICATION forming part of Letters Patent No. 404,130, dated May 28, 1889.

Application filed November 20, 1888. Serial No. 291,332. (No model.)

To all whom it may concern:

Be it known that I, JOHN TÖPFER, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Straw-Cutter, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved straw-cutter which is simple and durable in construction and very effective in operation, feeding the straw automatically and holding it in place during the cutting.

The invention consists in certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement, with parts in section. Fig. 2 is a sectional side elevation of the same on the line *x x* of Fig. 1, and Fig. 3 is a front view of part of the same.

The improved straw-cutter is provided with a main frame, A, on which is mounted the longitudinally-extending feed-box B, of the usual construction. On the main frame A is mounted to rotate in suitable bearings the main shaft C, extending in line with the box B, and provided with a crank-arm, D, or other suitable means for imparting a rotary motion to the said shaft C. On the latter is secured a knife-wheel, E, carrying one, two, or more knives, F, secured by screws on the spokes of the wheel, and having their cutting-edges slightly curved, as is plainly illustrated in Fig. 3. The knives F cut on the stationary knife G, preferably made of a U-shaped steel bar secured by its ends on the sides of the box B at its front end, the middle part of the knife G being let into the bottom of the box B, and the front edge of the knife G extending slightly beyond the front end of the said box B, as is plainly shown in Fig. 2. The top of the middle part of the knife G is flush with the bottom of the box B.

On the main driving-shaft C is secured, by a set-screw or other suitable means, a pinion, H, into which meshes a gear-wheel, I, secured by a set-screw or other means on the transversely-extending shaft J, mounted to rotate in suitable bearings in the main frame A and passing beneath the feed-box B.

On the shaft J, inside of the feed-box B, is secured a roller, K, which extends at its top through a suitable slot in the bottom of the box B, so that the top of the said roller is about flush with the bottom of the box B.

Over the roller K passes an endless belt, L, the top of which rests on the top surface of the bottom of the box B, and also passes over a roller, N, mounted to rotate in a suitable frame, O, mounted to slide transversely in suitable bearings formed in the rear end of the box B. The frame O is provided with bolts P, which extend through a cross-beam on the rear end of the box B, and on the outer threaded end of each bolt P screws a winged nut, P′, for adjusting the frame O longitudinally, so as to move the roller N forward or backward to hold the belt L in proper tension.

On the shaft J, on the outside of the box B, is secured a gear-wheel, Q, which meshes into a gear-wheel, R, secured on the outer end of a shaft, S, mounted to rotate in suitable bearings in the box B, and extending transversely through the same directly above the shaft J. On the shaft S, inside of the box B, is secured a fluted roller, T, located a suitable distance above the belt L and serving to guide the straw or hay forward. In front of the fluted roller T is mounted to slide vertically a block, U, rounded off upwardly on its under side from the front to the rear, as is plainly shown in Fig. 2. The block U extends transversely in the box B, and is provided at each end with a guide, U′, fitting into a corresponding groove, V′, formed in a bracket, V, secured to the sides of the box B; or the said grooves V′ may be formed directly in the sides of the said box B at the inside. The guides U′ permit a free up-and-down movement of the block U, so that the said block rests by its own weight on the straw or hay passing over the bottom of the box B.

In the rear of the fluted roller T, inside of the box B, is mounted to rotate loosely the transversely-extending roller W, somewhat larger in diameter than the fluted roller T. This roller serves to press the straw, and at the same time to guide it under the fluted roller T.

The operation is as follows: The straw or hay to be cut is placed in the open rear end of the box B, so as to rest on the top of the endless traveling belt L. The operator now rotates the main shaft C by the crank-arm D, or other suitable means, in the direction of the arrow a', so that the knives F pass at their cutting-edges over the front end of the stationary knife G. The rotary motion of the main shaft C imparts, by the gear-wheels H and I, motion to the transverse shaft J, which, by its roller K, causes the belt L to travel in the direction of the arrow b', so that the straw or hay is fed forward under the roller W, which guides it under the fluted roller T, which compresses it slightly, until the hay finally comes in contact with the rounded-off bottom of the block U, so that the latter is lifted and rests on top of the hay or straw by its own weight. As the block U is made heavy, it compresses the hay, so that when the hay finally passes over the stationary knife G it is held firmly in place on the same for the knives F to cut the projecting part of the straw or hay.

It is understood that during the interval of two knives F passing successively over the stationary knife G a sufficient quantity of straw or hay has been fed out over the stationary knife G. This projecting portion of the straw or hay is cut off by the next following knife. Thus it will be seen that the straw or hay is firmly held in place by the block U during the cutting, and is fed forward automatically by the belt L and the fluted roller T under the said block U, as before described. When the operator desires to increase or diminish the length of the cut of the straw or hay, he changes the pinion H accordingly—that is, he removes the pinion H from the shaft C and replaces it by a smaller or larger pinion, and accordingly shifts the gear-wheel I on the shaft J by means of the set-screw. This increase or diminution in diameter of the gear-wheel H causes a faster or slower motion of the roller K, so that the straw or hay is fed forward faster or slower during the interval between two succeeding knives passing over the stationary knife G. Thus the straw or hay is accordingly increased or diminished in the length of cut, as described.

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

In a straw-cutter, the combination, with a box and a knife-wheel, of an endless belt, L, in the bottom of the box, the vertically-sliding block near the cutting end of the box, the fluted roller T above the endless belt and in rear of the said block, and the plain roller W above the fluted roller, substantially as herein shown and described.

JOHN TÖPFER.

Witnesses:
THEO. G. HOSTER,
C. SEDGWICK.