

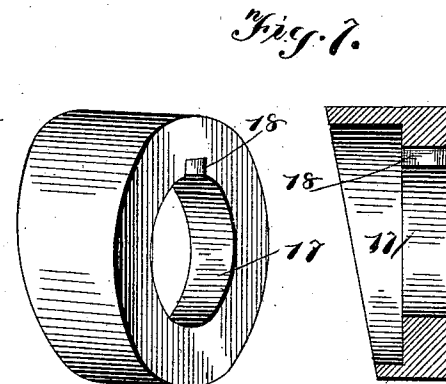
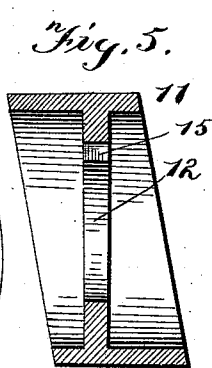
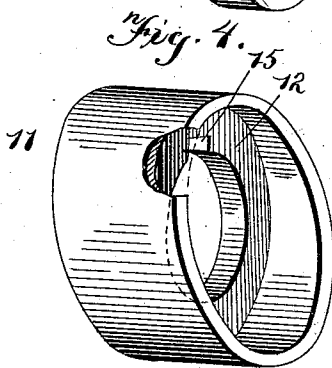
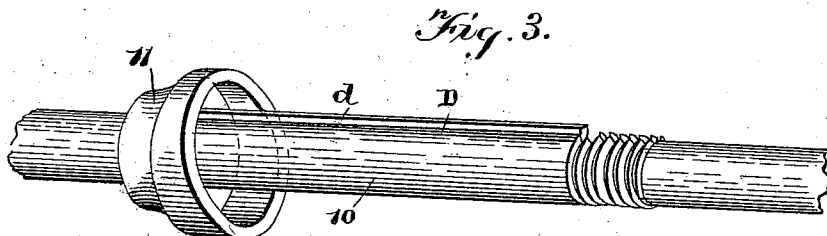
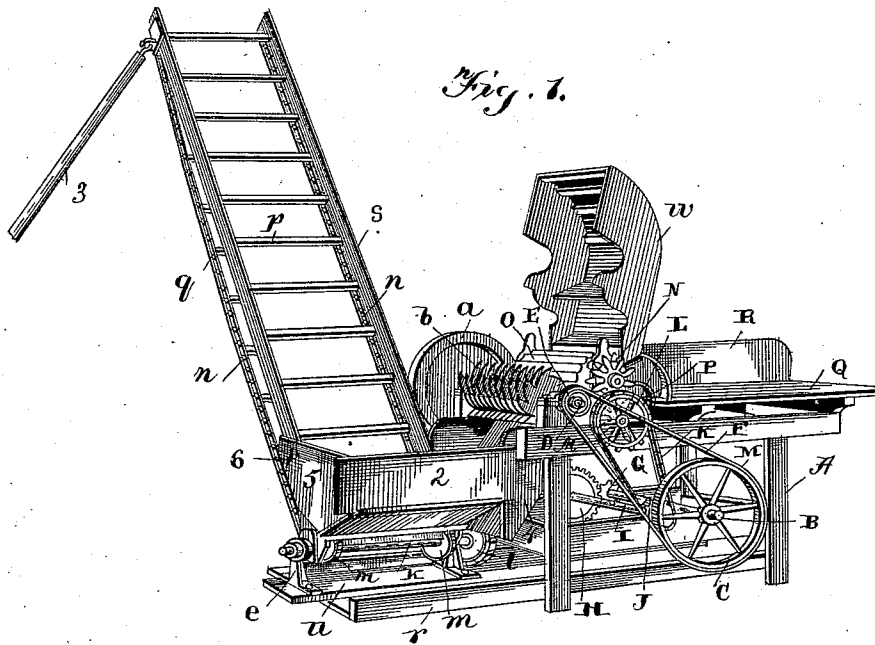
(No Model.)

2 Sheets—Sheet 1.

J. C. LESLIE.  
FODDER SHREDDER.

No. 551,774.

Patented Dec. 24, 1895.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOSEPH C. LESLIE, OF ST. ALBANS, VERMONT.

## FODDER-SHREDDER.

SPECIFICATION forming part of Letters Patent No. 551,774, dated December 24, 1895.

Application filed January 8, 1895. Serial No. 534,252. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH C. LESLIE, a citizen of the United States, residing at St. Albans, in the county of Franklin and State of Vermont, have invented certain new and useful Improvements in Fodder-Shredders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in fodder-shredders; and it consists in the construction and arrangement of parts to be fully described hereinafter and particularly pointed out in the claims.

The objects of my invention are to provide a fodder-shredder having a particular improved shaped blade or cutter, an improved novel and convenient manner of securing the shredder-blades to their shaft, and in the general arrangement and construction of the whole mechanism, whereby a combined shredder and stacker of an improved type is produced.

In the drawings, Figure 1 is a perspective view of my shredder and stacker complete. Fig. 2 is a side elevation of the machine looking from the side opposite that shown in Fig. 1. Fig. 3 is a detached perspective view of the shredder-shaft D, the blades and collars with the exception of the stationary end one being removed. Fig. 4 is a detached perspective view of one of the collars. Fig. 5 is a similar view of the same collar from the opposite side. Fig. 6 is an enlarged side elevation of one of the shredder or cutter blades. Fig. 7 is a detached perspective of the removable end collar. Fig. 8 is a detached perspective view of the shaft and the saws in position thereon. Fig. 9 is a detached enlarged view of the sprocket-wheel N.

Reference being had to the drawings, A indicates a suitable framework, and B a driving-shaft journaled therein below its top, as clearly shown in Fig. 1, and carrying at one end a pulley C and at its opposite end a cog-wheel G. Journaled also about at this same point and parallel with the shaft B is a shaft I, carrying at one end a cog-wheel H, meshing with the cog-wheel G of the shaft B, and at its opposite end a sprocket-wheel J, around which a sprocket-chain K passes, the said sprocket-chain also passing around sprocket-

wheel L, journaled to a shaft carrying the lower feed-roller *x*, the upper feed-roller O being suitably journaled and held in contact with the lower one by means of the springs P at each end of the said shaft. Just in rear of these feed-rollers is a feed-table Q, having at one edge the upright board R, and the material to be cut is placed upon this table and fed between the rollers, the cover *w* being placed down over the rollers and over the cutters, which latter will be described presently.

The shredder-shaft D is journaled outside of or beyond the feed-rollers a short distance, as shown, and carries the shredder-blades *b*, which have the specific form to be hereinafter particularly pointed out. One end of this shaft D is provided with a pulley E, around which the belt M passes from the pulley E before referred to and by means of which the shredder-blade shaft is revolved very rapidly, the opposite end of the said saw-shaft D carrying a balance or speed wheel *a*. The framework A has an extension *r* for supporting an endless carrier or stacker, and extending from a platform *u* supported upon the said extension *r* are the bearings *e*, in which a shaft *k* is journaled at right angles to the shafts heretofore referred to. The inner end of this shaft *k* is provided with a cog-wheel *l*, meshing with a cog *j*, secured to a shaft *g* extending parallel with shaft *k* and carrying at its opposite end a bevel-wheel *i*, meshing with a bevel-wheel *f*, upon the end of the shaft I, which carries the cog-wheel H hereinbefore referred to. Through the medium of this gearing the shaft *k* is revolved, as will be readily understood, and suitably supported from the framework in a manner to be presently referred to is the inclined framework *q* of the stacker or endless carrier, having at its upper end a shaft carrying a cog-wheel around which an endless belt *n* passes, the said belt also passing around sprocket-wheels *m* upon the shaft *k*, through the medium of which the belt is given a continuous movement. Connecting the belt *n* are the strips *p* moving over a central chute or bottom *s* formed in the frame *q*. By this means as rapidly as the fodder is shredded it falls into a hopper 2 at the lower end of the stacker and is then caught by the strips *p* and carried up the stacker and dumped into a pile, the upper end of the stacker being supported by poles 3. The sides of this hopper 2 are bolted to the chute 4, into which the

fodder falls from the knives and from thence to hopper 2. In this manner the hopper is supported, and the frame *g*, being secured to the hopper, is likewise supported at its lower end and at its upper end supported by the poles 3, as before mentioned.

The elevator-frame *g* is pivoted upon the shaft *k* and is bolted to the end 5 of the hopper through a slot 6, by means of which the angle or incline of the elevator can be regulated at will according to height of the stack being formed, as will be readily understood.

I will now refer to my particular form of shredder-blades *b*, which are provided with a central opening to receive the central portion of the shaft *D*, and with a slot 7 to receive the feather or key *d* extending longitudinal the said central portion of the shaft *D*. In this manner the blade is held against rotation in relation to the shaft, as will be readily understood. The peculiar form of teeth of this shredder-blade *I* desire to call attention to, which has its forward cutting-edge 8 formed on the tangent of the circle and perfectly straight, while the back or rear edge 9 is on the arc of a circle, thus forming a straight cutting-edge and a curved rear edge, which construction is found to produce the best results, and to form a smooth strip from the fodder in contradistinction to a ragged strip as heretofore formed by the blades used, so that it is not injurious and does not make the mouth of the animal sore as the other forms of cutters which have heretofore been liable to do, and, as experience has found in many cases, does cause considerable trouble to the animal on this account.

As shown in Fig. 8 the shredder-blades are placed at an angle upon the shaft, and I wish to call particular attention to my specific manner of holding these shredder-blades, whereby a light, neat and convenient construction for the manipulation of the blades in removing and adjusting them for sharpening and other purposes is accomplished. The ends of the shaft are smooth to form the journals and to receive the driving-wheels, and near the center is a smooth portion 10 provided with a longitudinal key *d*, the latter having been referred to before. At one end of this smooth portion 10 is the stationary collar 11 having its inner edge formed at an angle to the line of the shaft, as clearly shown. The intermediate collars have both edges formed on parallel angles to each other and to the angle of the inner edge of the collar 11, and each of the intermediate collars have a central web 12 which extends at right angles to the shaft and is provided with a recess 15 to receive the longitudinal key of the shaft *D*. In this manner each collar is locked against rotary movement on the shaft and holds the shredder-blades in parallel angles to the shaft, as clearly shown in Fig. 8. This construction of the collars makes a very light and convenient construction, and presents only the edges of the collars, thus making a firm hold upon the blades and a

hold at the point farthest from the shaft, making a stronger hold than would be the case if the straight-faced collar was used, without being hollowed out, as herein shown and described. The opposite end collar has its inner end formed on an angle parallel to the angle of the other collars and is provided with an end web 17, having a notch 18 for receiving the key of the shaft, by means of which this collar is also locked to the shaft. A nut 20 is placed upon the screw-threaded portion and clamps all of the collars together against the shredder-blades. In this manner the shredder-blades are rigidly held in their proper position and can be conveniently and quickly removed for either adjustment, sharpening, repairing, or for any other purpose, as will be readily understood.

The sprocket-wheel *N* is composed of two toothed wheels 25 and 26, between which is placed a circular disk 27, all of which are provided with a recess to fit a key upon their shaft to hold them against rotation and in their proper position.

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

1. In a fodder shredder, the combination of a shredder shaft having a longitudinal key-way for locking the shredder blades and collars to the shaft, the collars between the cutters, having parallel edges formed at an incline or angle to the shaft, and a central web portion adapted to engage the said key-way and the shaft, and a means for clamping the collars against the shredder blades, substantially as described.

2. The combination in a fodder shredder of a shredder shaft having a longitudinal key-way, of intermediate hollow collars adapted to have their opposite edges engage the shredder blades, and a central web portion adapted to engage the shaft and its keyway, and a means for locking the collars together, substantially as described.

3. The combination in a fodder shredder of a shredder shaft having a smooth central portion with a longitudinal keyway, one end of the smooth portion carrying a hollowed out collar, the shaft being provided with a threaded portion at the other end of the smooth portion thereof, the shredder blades placed thereon and adapted to engage the said keyway, and a series of hollow collars placed between the shredder blades and adapted to have their edges engage the shredder blades, the hollow collars having a central web adapted to engage the smooth portion of the shaft and the said longitudinal keyway, substantially as described.

In testimony whereof I do affix my signature in presence of two witnesses.

JOSEPH C. LESLIE.

Witnesses:

GILBERT A. DOW,  
CHARLES E. ALLEN.