(No Model.) 2 Sheets—Sheet 1.

G. S. GARTH.

STRAW CUTTER.

No. 342,199. Patented May 18, 1886.

Fig. 1.

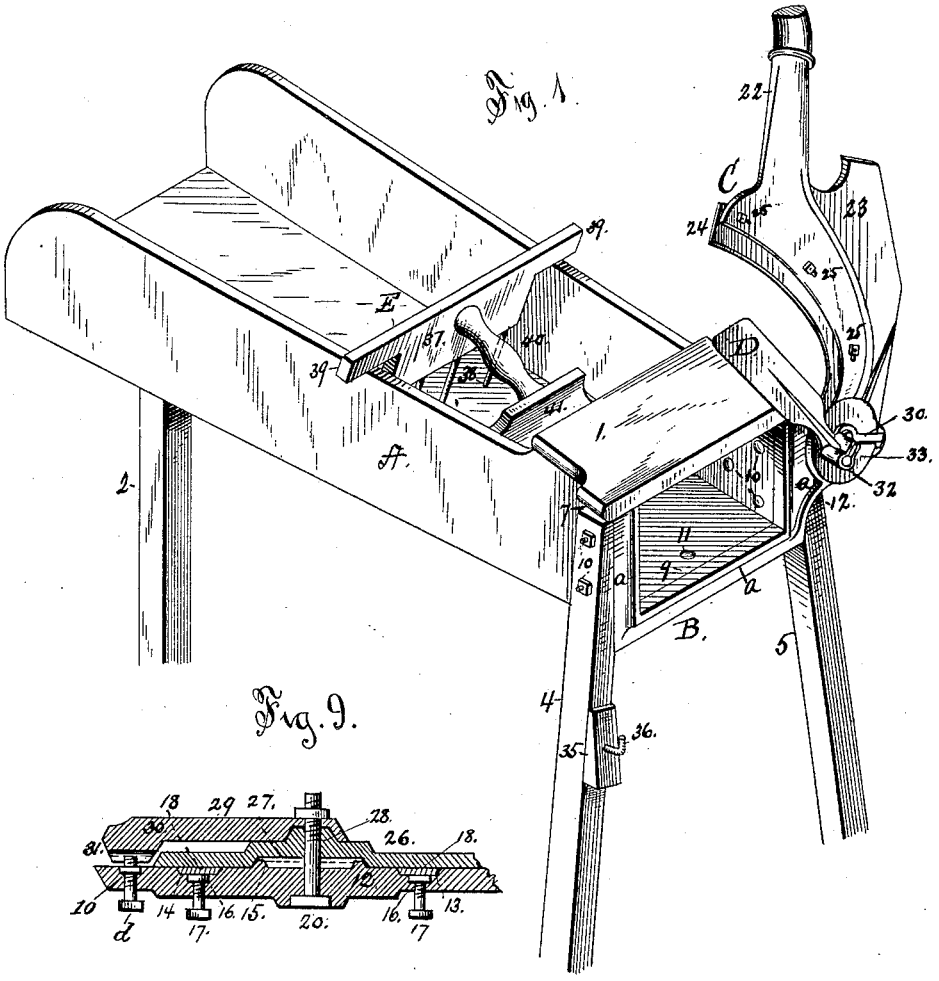
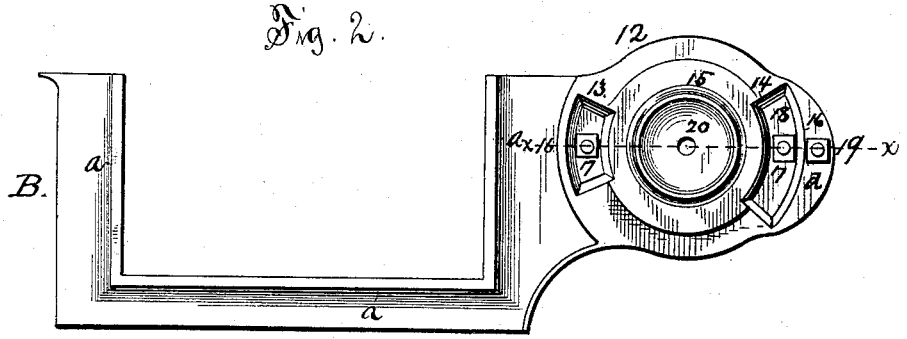
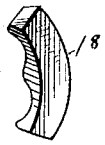


Fig. 9.

Fig. 2.





WITNESSES

F. L. Ourand.

J. Thomson Cross.

INVENTOR

Geo. S. Garth.

by A. G. Hyltunn

Attorney.

(No Model.) 2 Sheets—Sheet 2.

G. S. GARTH.

STRAW CUTTER.

No. 342,199. Patented May 18, 1886.

Fig. 3.

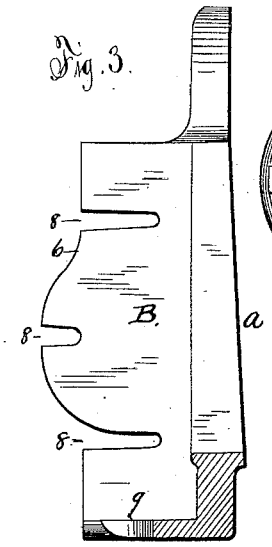


Fig. 4.

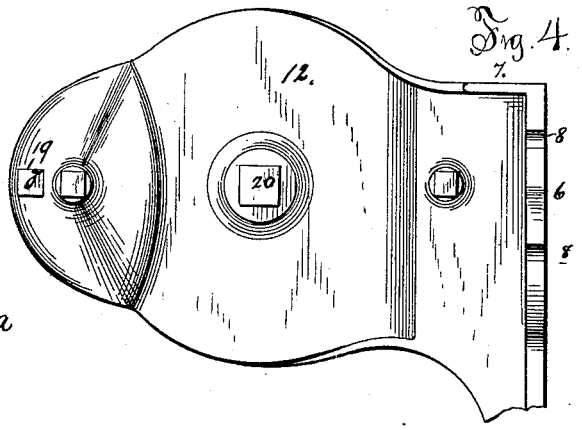


Fig. 6.

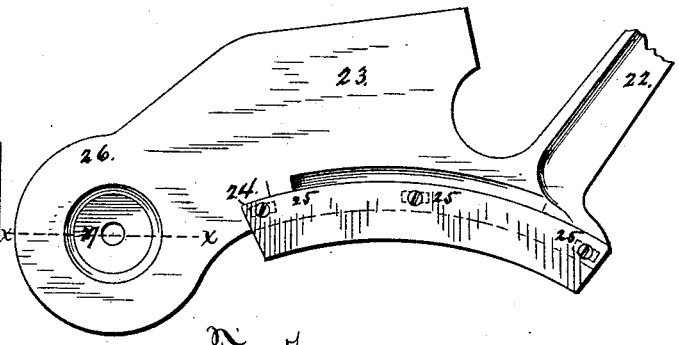


Fig. 5.

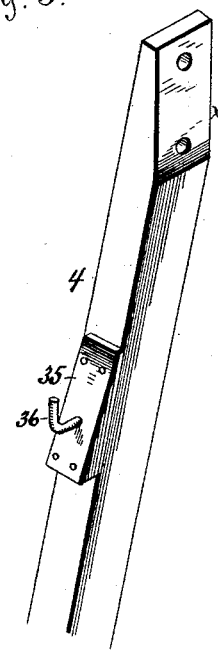
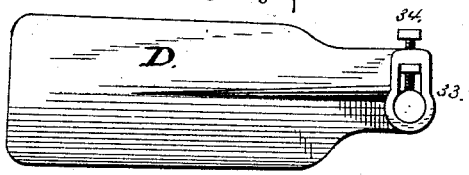


Fig. 7.



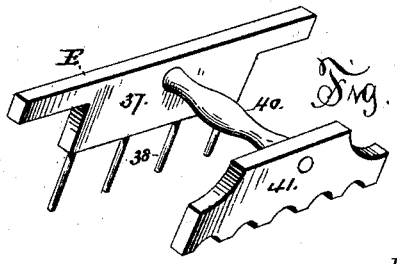


Fig. 8.

WITNESSES

F. L. Ourand

J. Thomson Cross.

INVENTOR

Geo. L. Garth

by A. G. Duplessis

Attorney.

UNITED STATES PATENT OFFICE.

GEORGE SUTTEN GARTH, OF MILL HALL, PENNSYLVANIA.

STRAW-CUTTER.

SPECIFICATION forming part of Letters Patent No. 342,199, dated May 18, 1886.

Application filed March 8, 1886. Serial No. 194,423. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SUTTEN GARTH, a citizen of the United States of America, residing at Mill Hall, in the county of Clinton, in the State of Pennsylvania, have invented a new and useful Straw-Cutter, of which the following is a specification.

This invention has relation to improvements in straw-cutters of that kind provided with a throat-piece or frame, and having a pivoted knife; and the objects are, first, to provide a machine of the kind named, and for the purpose of cutting straw and similar substances, which may be readily and conveniently taken apart and packed for shipment; and, second, to improve existing constructions by simplifying their mechanism and increasing their durability and utility. With these objects in view my invention consists in the novel construction and combination of parts, as will be hereinafter fully described, and as will be specifically and clearly pointed out in the claims.

My improvements are fully illustrated in the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a perspective view of the machine ready for operation. Fig. 2 is a front elevation of the throat-piece or frame, with the fulcrum-plate with one of the adjustable bearing-plates removed and shown in detail. Fig. 3 is a vertical sectional view of the throat-piece or frame. Fig. 4 is a rear view of the fulcrum-plate. Fig. 5 is a view of one of the front legs. Fig. 6 is a rear view of the knife-lever and fulcrum-head. Fig. 7 is a view of the gage-plate. Fig. 8 is a perspective view of the rake, and Fig. 9 is a longitudinal central sectional view, taken through the fulcrum and lever-heads on the lines *x x* of Figs. 2 and 6.

In the drawings like parts are identified by similar notations.

Reference being had to the drawings, the letter A designates the feed-cutter box, which may be made of any desirable dimensions, and consists of a bottom piece having side pieces secured thereto, and arranged generally to converge in the direction of the throat of the machine, and over the forward end of the box is fastened a throat-cover, 1, which is arranged at an incline depending toward the knife end of the box. The box at the rear is supported by a single standard, 2, having its upper end mortised in a cross-head, which is secured to the bottom of the box by screw-bolts. The front legs, 4 and 5, are plain supports having their upper inner faces chamfered to set the feet out and brace the set of the box.

The letter B designates the throat-piece or frame. This consists of a metal casting, or of steel struck into proper shape to set about the end of the box.

More specifically describing the throat-piece, it consists of a metal frame-plate to set over the ends of the bottom and sides of the box, and is formed with a flange, 6, extended back from the inner face at right angles to the face along the bottom of the frame and up the sides thereof, and the edge of the frame next to the handle has an edge flange, and both sides have cap-pieces 7, to set over the upper ends of the legs to form seats for supporting the frame and knife mechanism. In the side flanges and in the bottom flange are formed open-ended slots 8 9. The side flanges fit snugly against the outer faces of the side pieces of the box, and the bottom piece sets under the bottom board, the open-ended slots of the side flanges taking in the bolts 10, projected through the sides of the box, and the slot in the bottom of the frame slipping straddle of the bolt 11, projected through the bottom of the box. The slots being somewhat flared, the throat-piece is drawn up snug and tight against the box and held firmly, in all its connections, in position. Cast as a part of the throat-piece is the fulcrum-plate 12, having a circular bearing-surface formed with seats 13 14, to receive adjustable bearing-plates, and also having an annular ridge or plate, 15, on its face, to set within an annular groove or seat in the fulcrum-head 26, hereinafter described. In the center of the seats 13 and 14 are formed nut-seats 16, having bolt-holes through which set-screws 17 are passed, and in the seats 13 and 14 are arranged bearing-plates 18. These bearing-plates are preferably segments of a

circle, and their purpose is to afford means for readily correctly and securely adjusting the range of the knife-lever in its relation to the face-plate of the throat-piece. About the face of the throat-piece is a ridge or flange, *a*, which is inclined slightly from the top of the side pieces to the bottom, substantially as shown in Fig. 3 of the drawings, the purpose being to give the knife a better cutting-bearing in its sweep, this because the tendency of the cut is to throw the knife out from the face of the throat-piece and give an uncertain or yielding cut to the bundle of straw, which uncertainty increases in the downward progress of the knife, leaving the ends projecting ragged and sometimes uncut; but by making the face inclined, as stated, this difficulty is largely remedied or wholly overcome and the cut is made clean and thorough. The outer end of the fulcrum-plate is extended somewhat beyond the edge of the fulcrum-head of the knife-lever, and is formed with a nut seat and bolt-hole, 19, through the latter of which is arranged an adjusting-screw, *d*, the end of which takes the notch of the arm of the retaining-washer and keeps the nut of the bearing-bolt from turning off. I thus provide an adjustable washer to take up wear, and which may be set at any adjustment to suit the union of the parts at this point. In the center of the fulcrum-plate is a bolt-hole through which is projected the bearing-bolt 20, which has its square or angular head sunk in a seat in the outer face of the fulcrum-plate, and is thus kept from turning. As heretofore stated, the throat-piece fits snugly about the end of the cutter-box on the bolts named, which bolts 10 are projected through the front legs and have applied to their projecting ends threaded nuts, whereby the box, the throat-piece, and the legs are held firmly and securely together, and each in its proper place and relation.

The letter C designates the cutting-knife lever, having a handle, 22, extended therefrom, and formed with an evener, 23, extended above the knife 24, which last consists of a curved piece of steel having its seat in the face of the lever, substantially as shown. The knife-seat in the lever is provided with elongated holes 25, arranged with their length in the direction of the length of the lever, and through which the knife-bolts are passed. These elongated bolt-holes permit a knife to be applied which has its bolts set at different distances from one removed. Cast to the lever, as a part thereof, is the fulcrum-head 26, consisting of a plate having formed therein an annular groove or pit, 27, to fit over the ridge or plate of the fulcrum-plate. The connection of these elements gives a bearing to the parts in combination, and causes the lever-head to move on a true arc without putting all the strain on the bearing-bolt holding them together, the bolt, as stated, not moving or turning. In the center of the groove or seat 27 is a bolt-hole, 28, through which the bolt 20 passes, and a nut applied on the end secures the parts together, as will be stated. A washer, 29, sets over the projecting end of the bolt 20, and is formed with an arm, 30, terminating in an inward-projecting lug, 31, formed with a notch to set over and on the end of the adjusting-screw 19 in the fulcrum-plate, the purpose being to prevent the nut on the fastening-bolt from being loosened by the movements of the lever-head.

I am aware that a washer with an arm is shown in my former patent, No. 109,197, dated November 15, 1870, wherein a plate is interposed between the lever-head and the washer, and the arm of the washer stayed on a lug on the lever-head; but such a construction is not applicable to the present machine, since the washer would turn with the lever-head and eventually turn off the nut on the fastening-bolt; and my improvements in this relation consist in the adjusting-screw through the fulcrum-plate and staying the end of the washer-arm on that element, which permits the lever-head to move independently of the washer, and thus the arm is set in one position and the fastening-nut not jeopardized. The adjusting-screw also provides means for adjusting the arm of the washer to its proper bearing in any changes of the parts, whether resulting from designed adjustment or by reason of wear. On the outer face of the lever-head is formed a gage lug or post, 32, and on this is arranged the eye 33 of the gage D. This gage is a metal plate having an eye at the end to slip over the gage-post, said eye being provided with a set-screw, 34, by which the gage is secured to the post.

On the front leg, nearest the hand-side of the box, I fix a block, 35, made to incline outward from its top toward the bottom, and in this block is fixed a hook, 36, to stop the downward movement of the knife. The object of this construction is to prevent the lever from being broken if struck by a passing object moving in the direction of the mouth of the box, and guarding against the same danger if struck by an object going in the opposite direction. This is attained because the block gives a rest to the handle in the one direction and the hook in the other, thus shortening the purchase on the fastening-bolt, or giving no purchase at all.

The letter E designates the rake. This is comprised of the rake-head 37, provided with projecting teeth 38, and formed with end projections, 39, which set over and on the edges of the side boards of the cutter-box and prevent the teeth from striking the bottom of the box. To the rake-head is secured a handle, 40, extended at right angles to the head, and has fixed to its other end a cross-head, 41, formed with notches in its lower edge, this cross-head serving as a presser-bar to set on the straw.

The machine is readily set up or taken down. To set it up the hind leg is secured in place. The bolts of the front end are then put in their places. The throat-piece or frame may then be slipped in position and the lower or

bottom bolt be screwed up. The front legs are then put on the bolts and the nuts applied and screwed up. The knife mechanism, if detached from the throat-piece, may be then set and secured in place and the knife and lever adjusted by the adjusting-screws and bearing-plates in the fulcrum-plate, when the machine is ready for operation.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the cutter-box and the front legs thereof, of the throat-piece or frame having flanges set at right angles to the face part and formed with open ended slots, and fastening-bolts projected through the sides of the box, the open-ended slots and the front legs, substantially as described.

2. The combination, with the cutter-box and a throat-piece or frame formed with a fulcrum-plate provided with an adjusting-screw through its projecting face edge, of a knive-lever formed with a fulcrum-head to set against the fulcrum-plate, a fixed bolt projected through the fulcrum-plate and extended through the fulcrum-head of the knife-lever and forming the pivot of the latter, a washer on the projecting end of the said bolt formed with an arm terminating in a notch to set over the end of the adjusting-screw in the projecting face edge of the fulcrum-plate, and a fastening-nut on the fixed bolt, substantially as described, and for the purpose stated.

3. The combination, with the cutter-box and its front supports, and bolts projected through the side pieces of the box and upper ends of the front legs, of a throat-piece or frame formed with a flange set at right angles to the face of the frame, and said flange adapted to set between the sides of the box and the inner face of the front legs, and provided with slots flared outward, whereby the throat-piece is drawn up close to the bottom of the box, substantially as described.

4. The combination, with a cutter-box and the knife-lever thereof, of a throat-piece formed with a fulcrum-plate having the knife-lever pivotally secured thereto, and having seats formed therein, bearing-plates disposed in said seats, and set-screws to adjust the bearing-plates, whereby the knife-lever may be adjusted in its sweep over the face of the throat-piece and in its bearing on the fulcrum-plate, substantially as described, and for the purpose stated.

5. The combination, with a cutting-box and a cutting-knife, of a knife-lever formed with a knife-seat having bolt-holes elongated in the direction of the length of the lever, whereby a knife with bolts set at different distances may be used on the same knife-lever, substantially as described.

6. The combination, with a cutting-box and the knife-lever pivoted thereto, of the block 35, having its outer face inclined, as described, and provided with a hook, 36, substantially as described, and for the purpose stated.

7. The rake composed of a rake-head having extended end pieces to set over the sides of a cutter-box, and teeth fixed in the head, a handle set in the said rake-head at right angles thereto, and a cross-head on the end of the handle to serve as a presser-bar, substantially as described.

8. The combination, with a cutting-box, of the rake composed of a rake-head with extended end pieces to set over and on the sides of the cutting-box, and teeth fixed in the head, a handle set in the said rake-head at right angles thereto, and a cross-head on the end of the handle to serve as a presser-bar, substantially as described.

9. The combination, with a cutting-box and the throat-piece thereof having a fulcrum-plate formed with a central circular bearing on its face provided with a fixed bolt projected centrally through the same, and formed with seats in the face of the plate, and an adjusting-screw passed through the extended end of the fulcrum-plate and bearing-plates disposed in the seats of the plate and adjustable therein, of a knife-lever having pivotal bearing on said fixed bolt, and formed with a fulcrum-head having a central circular receptacle to set over the bearing in the fulcrum-plate, a washer on the fixed bolt having an arm terminating in a notch to set over the end of the adjusting-screw in the extended end of the fulcrum-plate, and a fastening-nut, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

GEORGE SUTTEN GARTH.

Attest:

S. M. McCORMICK,

W. L. MERWIN.