J. DOERKSEN.

Affixing Knives to Straw Cutters.

No. 45,396. Patented Dec. 13, 1864.

Fig. 1.

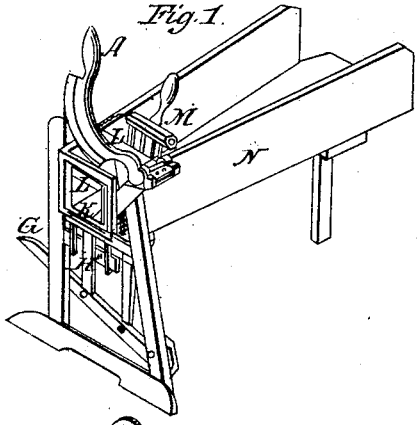
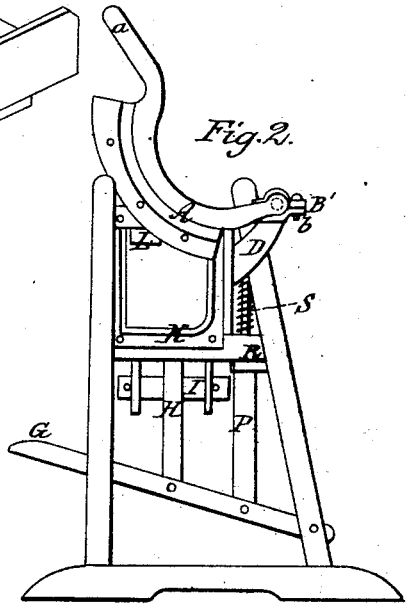


Fig. 2.



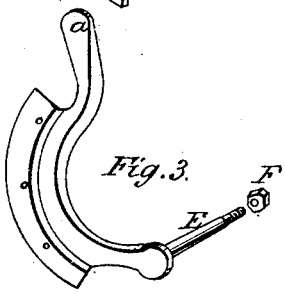
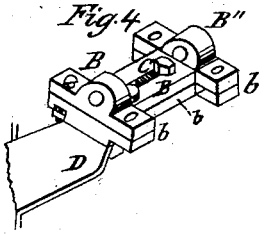


Fig. 3.

Fig. 4.



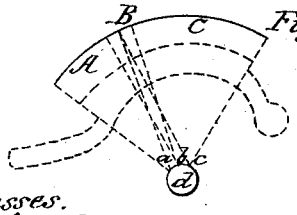


Fig. 5.

Witnesses.
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UNITED STATES PATENT OFFICE.

JACOB DOERKSEN, OF DERRY CHURCH, PENNSYLVANIA.

AFFIXING KNIVES TO STRAW-CUTTERS.

Specification forming part of Letters Patent No. **45,396**, dated December 13, 1864.

To all whom it may concern:

Be it known that I, JACOB DOERKSEN, of Derry Church, in the county of Dauphin and State of Pennsylvania, have invented new and useful Improvements on Machines for Cutting Straw, Hay, &c.; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the cutter; Fig. 2, a front elevation enlarged; Fig. 3, the knife or cutter, with its attached fulcrum-pin E, showing the screw end and nut F; Fig. 4, the compound-box, made adjustable by a slot, *c*, and headed screw bolts, B′ B″, the upper portion, through which the fulcrum pin E, Fig. 3, passes, moves on the lower portion by means of slots and bolts, for keeping the edge of the knife close to the flange of the mouth plate K, as time and use may require its adjustment. This lower portion, *b*, is affixed by its end piece, D, to the mouth-plate or machine, as shown. Fig. 5 illustrates the peculiar ellipsoidal curve A B C of the cutting-edge of the knife or blade A, with its handle, &c., to which it is attached.

The three centers *a b c* around a common center, *d*, exhibit the method of forming the curve found to be the most efficient for the purpose such a knife is intended, being peculiarly adapted to the office it has to perform. The degrees included and the radii are proportionally the same to obtain the terimeters of the curve of any increase in size, and require no elaborate mathematical proof of the problem.

The nature of my invention consists in the form and attachment of the knife. The other portions, box, treadle, clamp, &c., are of the ordinary kind. I also attach a spring support, P, to the treadle G, having a spiral spring, S, as shown. This I believe to be a new arrangement, but claim no portion of the machine as my invention, excepting the construction of the knife or cutter A, in combination with the adjustable boxes B′ B″, as shown and above set forth.

This knife or cutter is also made slightly concave on its inner face, so that the back and edge of the blade only come in contact with the flange, which is around three sides of the mouth-plate K, thereby lessening the friction and securing a better cutting-edge. As the flange wears, the knife or blade can be adjusted simply by means of the burr F on the screw-ended shaft E or fulcrum-pin, Fig. 3, forming a part of the knife or handled cutter A, combined as shown. This, in combination with the double boxes, slotted and combined in the manner shown and set forth, constitutes my chief invention and what I deem novel, and, having tested the utility and efficacy of the ellipsoidal curve of the blade or cutting-edge after numerous experiments, proved this to be a decided improvement over convex or straight or otherwise curved edge heretofore in use.

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

The construction of the knife A, with its handle *a* and fulcrum shaft or pin E, screw and nut F, with the attached ellipsoidal cutting-blade, constituting Fig. 3, in combination with the compound or double boxes B′ B″, with its slot *c* and screw-bolts between them, resting on the base-plate *b*, attached by its brace D to the machine, as shown, substantially in the manner and for the purpose specified.

JACOB DOERKSEN.

Witnesses:
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H. A. EARHART.