

S. D. LOCKE.
Wire-Cutter.

No. 205,108.

Patented June 18, 1878.

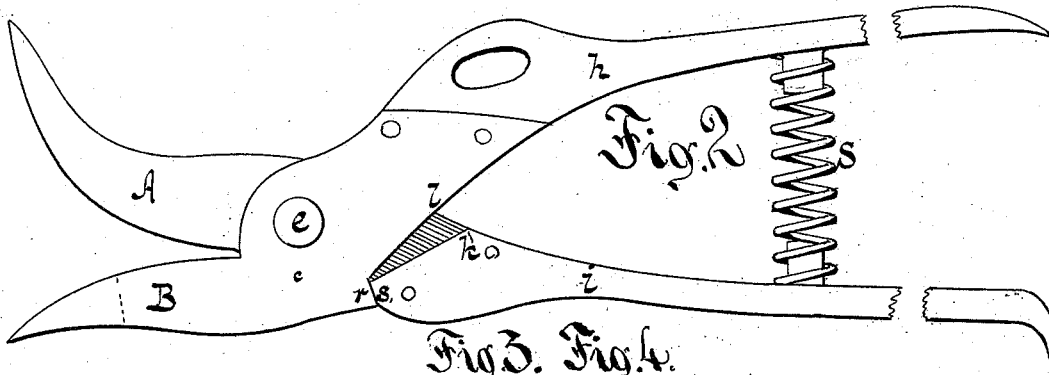
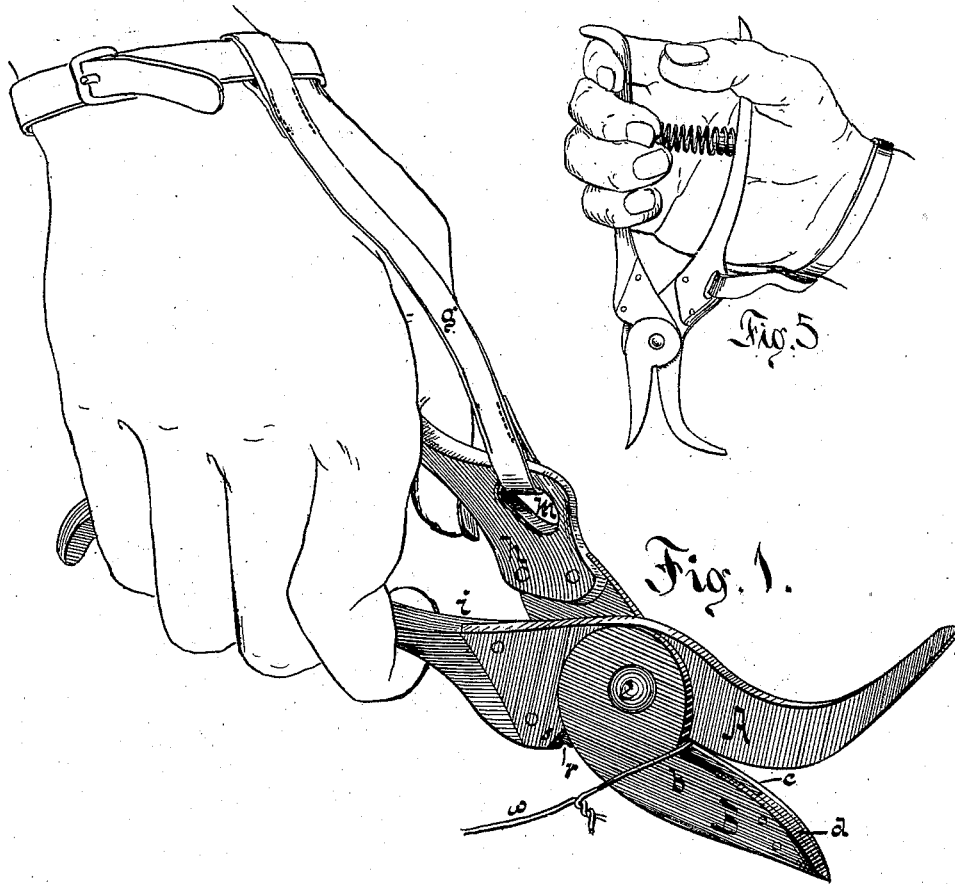
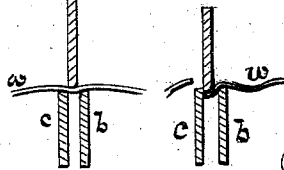


Fig. 3. Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

SYLVANUS D. LOCKE, OF HOOSICK FALLS, NEW YORK.

IMPROVEMENT IN WIRE-CUTTERS.

Specification forming part of Letters Patent No. **205,108**, dated June 18, 1878; application filed April 8, 1878.

To all whom it may concern:

Be it known that I, SYLVANUS D. LOCKE, of Hoosick Falls, in the county of Rensselaer and State of New York, have invented a new and useful Improvement on the Band-Cutter for which Letters Patent were issued to me October 17, 1876, No. 183,404, of which the following is a full and clear description.

This invention relates to that class of shears wherein one of the severed ends is griped in the act of severance, and held by the cutter during the will of the operator. Such shears or cutters are employed in the operation of pruning, grape-gathering, &c., wherein the required gripping power is slight, and is therefore sufficiently furnished by an elastic cushion or abutment secured to one blade, and against which the other blade closes, and gripes one of the severed ends between them. This structure, however, would be insufficient for the purpose of severing and withdrawing the wire bands of grain sheaves, because, first, the gripe would be dependent entirely upon the power exerted and continued by the fingers, which, in this case, would be very laborious; second, the gripe is simply compressive, and under any circumstances would occasionally fail to hold.

My invention referred to in above-named patent consisted of a cutter composed of blunt-edged shear-blades, one blade of which is female—that is, with a groove or recess to receive the opposite or male blade, one edge of said groove being a shearing-edge, and the opposite edge being a crimper, to crimp and clamp one of the severed ends against the side of said male blade, whereby said severed end is griped and held positively and without exertion on the part of the operator; and my present improvement consists in constructing my cutter with two detached plates with a clear open space extending down between them, through which any fragments of the band, or of other substances which heretofore have clogged the blades, may be discharged; and also in making the crimper slightly elastic, sufficiently so to enable it to receive and crimp wires of slightly differing sizes: also, a cutter composed of three blades, all cut from sheet metal, which may be of equal thickness,

united together and joined to handles of other material, and in shoulders arranged and adapted to limit the movement of the blades in closing.

That others may fully understand this invention, I will particularly describe it, having reference to the accompanying drawing, wherein—

Figure 1 is a perspective view of my band-cutter in action. Fig. 2 is a side elevation of the same, and Figs. 3 and 4 are transverse sections, showing in successive stages the operation of cutting and griping the wire. Fig. 5 represents, in perspective, another method of holding and using the cutter.

A is the male, and B is the female, blade of my band-cutter. These blades cross each other, and are united by a pivot screw or rivet, *e*, in the usual way.

Stop-shoulders *r s* on the blades, respectively, back of the pivot *e*, limit the opening movement of said blades, and a spring, *s'*, inserted between the handles causes them to open to their fullest extent—*i. e.*, until said shoulders meet—whenever the handles are released from pressure by the hand of the operator, so that the opening of the cutters is entirely automatic. Shoulders *l k* limit the closing of the blades.

On the upper side of the handle *h* there is a loop, *m*, for the attachment of a wrist-strap, *g*, whereby the instrument is attached to the arm or wrist of the operator, and there is, therefore, no danger of accidentally dropping the band-cutter into the feed, to the damage or destruction of the cylinder of the thrashing-machine, and to the danger of the operator.

The blade B is female and provided with a groove or recess into which the male blade A enters, as shown in Fig. 4, severing the band-wire W against the shear-edge *c* and crimping one of the severed ends of the wire against the crimper-plate *b*, as shown in Fig. 4. The clamped end of the wire is thereby held positively and without pressure from the hand in excess of the pressure necessary to overcome the expansion-spring between the handles.

It has been found that fragments of straw and dirt generally will accumulate in the

groove between the cutter and crimper in the band-cutter described in my patent above mentioned, and that said groove will become packed so full after a time as to require its removal to enable the cutter to act. This is an annoyance, and I obviate it by continuing said groove down through, so that it becomes a slot with open bottom, and obstructing matter will then be simply forced down through said slot and discharged at the bottom, and therefore the accumulation can never obstruct the action of the cutters.

It will not always be possible to procure wire of the preferred size, and the size will sometimes vary upon the same spool, and therefore it is necessary to make the crimper-plate adjustable, to adapt it to variations in the diameter of the wires used. This adjustment I find it advisable to secure by making the crimper-plate slightly elastic laterally, so that it may yield as much as may be required by slight variations in the diameter of the wire.

The operation of the device is as follows: The operator, having secured the cutter to his arm by means of the wrist-strap *g*, slips the point of the blade B under the band as the bundle comes before him, and by a movement of the fingers closes the blades and severs the band and seizes one of the severed ends between the cutting-blade and the crimper, whereby he pulls the band off while the sheaf goes into the thrasher. Relaxing the gripe of the fingers permits the spring S to separate the shears, and the end of the band will thereby be liberated, and the band itself be allowed to fall into a basket or upon the ground, thereby keeping it out of the thrashing-machine, and avoiding all possible injury by the wire to the grain, the thrasher, or to stock.

The points of the blades A B are curved outward or away from each other, so as to facilitate the entrance of the wire between them.

The several blades of my cutter are cut out from sheet metal, and they may all be cut from sheets of the same thickness, secured to hand-pieces *h i* by rivets or other suitable means. This method of manufacture saves very materially in cost, and produces effects not inferior to those produced by the ordinary methods.

The parts *b* and *c* of the blade B are united at their front end by rivets, and they are kept properly separated by an inserted piece, *d*, cut with blade A from the same sheet metal, through which also the same rivets pass.

The part *b* does not extend back to be fastened to the hand-piece *h*, but only far enough to receive the head of the pivot-pin *e*. As shown in Figs. 3 and 4, when the blades approach each other to sever the wire, the part *b* being a little higher than part *c* and distinctly rounded or beveled on its inner edge, another blade, A, being similarly rounded or

beveled on its back edge, the band-wire *w* is first bent slightly and then crowded between the blade A and part *b*. This is easily accomplished by reason of the rounded edges and elasticity of the part *b*. A further movement of the blade A severs the wire and liberates one end, while the other remains griped so long as the blade remains closed upon blade B. The jam of the wire between the blades might offer sufficient frictional resistance to prevent automatic separation if the blade A was permitted to go farther than actually necessary past the cutting-edge of B. To so limit the movement, and produce uniformity of gripe of the wire, the shoulders *k l* are adjusted to stop the movement of said blades. I prefer to limit the movements of the blades, so that they shall be arrested as soon as the cut is completed, and that the jam of the wire shall be as slight as consistent with safety, so that the power of the spring S and the muscular effort of the user may be reduced to the lowest quantity.

With the construction shown and preferred, it will be observed that the first action of the blade A is to bend the wire under the cutting-blade, and this bent form will be preserved until the completion of the cut, so that the griped end of the wire passes down between the jamming surfaces and hooks over the edge of the cutting-blade, so that, in order to pull the wire away from the shears, it is not only necessary to overcome the friction of the gripe, but to straighten out the wire also.

I am aware that pruning-shears have been made with male and female blades, whereby the twig or branch to be severed would be supported on each side of the knife-edge of the cutting-blades; but these blades, by reason of the sharp edge of the cutter, are unfitted for cutting metal, and incapable of gripping one of the severed ends.

Having described my invention, what I claim as new is—

1. A cutter with one pair of shear-edges and one pair of crimping-edges, adapted for use in severing the wire-bands around grain-sheaves, constructed with a male blade, A, and female blade B, constructed with the plates *b c* unconnected except at the outer end, so as to permit free downward discharge of obstructing matter, as set forth.

2. A cutter adapted for use in severing the bands of grain-sheaves, constructed with the blades A and *c* united to handles of different material, as set forth, and the plate *b* secured at the point to plate *c* with an interposed plate, *d*, and extending back sufficiently far only to receive the head of the pivot-bolt *e*, as set forth.

3. A cutter adapted for use in severing the bands of grain-sheaves, constructed with the blade A and the plates *b c*, the upper edge of said plate *b* being slightly higher than the upper edge of *c*, and the proximate edges of A

and *b* rounded or beveled, as described, so as to sever and gripe the wire *w* with one of the severed ends hooked under the edge of blade A, as described.

4. A cutter adapted for use in severing the bands of grain-sheaves, constructed with the blade A and the cutting-blade *c* and crimping-blade *b*, the proximate edge of A and *b* being rounded or beveled as described, combined

with the shoulders *k l*, arranged to stop the closing motion of said blades and secure uniformity of gripe upon the wire, as set forth and described.

S. D. LOCKE.

Witnesses:

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N. B. SMITH.