

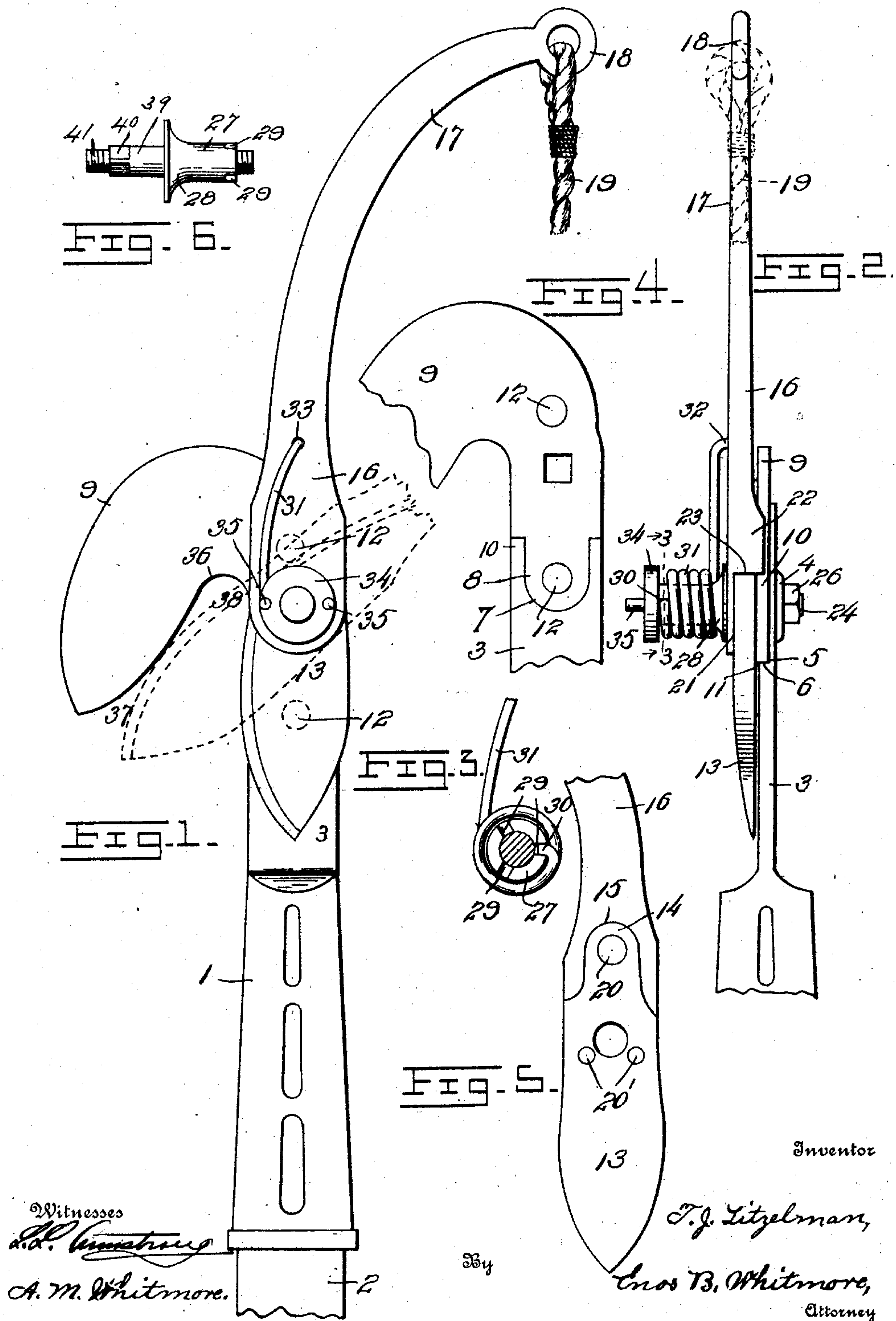
T. J. LITZELMAN.

PRUNER.

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907,065.

Patented Dec. 15, 1908.



UNITED STATES PATENT OFFICE.

THADDEUS J. LITZELMAN, OF WILLIAMSPORT, PENNSYLVANIA.

PRUNER.

No. 907,065.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed April 16, 1908. Serial No. 427,490.

To all whom it may concern:

Be it known that I, THADDEUS J. LITZELMAN, of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Improvement in Pruners, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

This invention relates to certain new and useful improvements in pruners of that class designed for heavier work, such as pruning trees, and it has for its objects among others to provide an improved construction of pruner in which the movable blade is designed to be operated by a cord or the like, a stiff spring being provided for automatically returning the movable blade to its normal position, and novel means being employed for adjusting this spring according to the circumstances under which it is to be employed.

The cutting blades are of tempered steel while the extended parts to which said blades are attached may be of iron. The blades are set into or partially embedded in their holders so there can be no lateral motion of the blades, the blades being further held to place by means of rivets passed through the blades and holders. The holder of the movable blade is provided with a lateral projection adjacent the edge of the cutter, which is adapted to engage the adjacent edge of the other cutter to form a stop so that the spring can open the blades to a predetermined point; neither can the movable blade be moved beyond a fixed point determined by the opposite end of said projection. The parts are readily assembled or disassembled, the blades are interchangeable and are so constructed and ground as to give a shear cut in both directions, both outward and inward.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings which, with the numerals of reference marked thereon, form a part of this invention and in which—

Figure 1 is a side elevation of a pruner embodying the present invention. Fig. 2 is an edge view of the same, that is, looking at right angles to Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 2 looking in the direction of the arrow. Fig. 4 is a detail of one of

the blades and its holder. Fig. 5 is a detail of the other blade and its holder. Fig. 6 is a detail of the pivot bolt removed.

Referring to the drawings 1 designates a holder or barrel tapered as shown best in Fig. 1 and designed to receive a pole 2 which may be of greater or less length and by means of which the operator is enabled to reach limbs more or less elevated. This barrel or holder is shown as provided upon one side of its extended part 3 with a boss or raised portion 4 adapted to be engaged by the retaining nut soon to be described, and upon its opposite face it is formed with a halved out or cut-away portion 5 forming a shoulder 6, and with a curved cavity 7 in which is received a correspondingly shaped portion 8 of the fixed cutting blade 9, the body portion 10 of which rests upon the halved out portion of the part 3, the shoulder 11 of said cutting blade engaging the shoulder 6 of the portion 3. The blade is retained in position by means of rivets or the like 12 which pass through the portion 3 and through the portions 8 and 10 of the blade, thus firmly securing the latter in position and preventing lateral movement of the blade in its holder.

13 is the movable blade. It is provided with an extension 14 preferably rounded, as seen best in Fig. 5 and adapted to seat in a correspondingly shaped recess 15 in the arm 16 which latter is curved, as shown at 17, and provided at its free end with an eye or opening 18 designed for the attachment of a cord or the like 19 by which said arm 16 and the movable knife 13 may be actuated. This blade 13 is secured to its arm by means of a suitable rivet or the like 20, and additional rivets 20' as seen in Fig. 5, and the arm is halved out at 21, as shown best in Fig. 2, and is provided with a laterally projecting part 22, as seen clearly in Fig. 2, one side of which is adapted to engage the blade 9 upon its back edge to limit the movement of the arm 16 in the one direction under the influence of the spring, and the shoulder 23 thus formed is designed to engage the blade 9 in the opposite direction of movement of the arm 16 under the force applied to the chord, and thus prevent the movable blade from moving too far over the fixed blade.

The blades are connected in the following manner. 24 is a bolt passed through a circular opening in the movable blade and its arm, and through a polygonal opening in the fixed

blade and its holder, the bolt having a circular portion 39 received in the movable blade and a polygonal portion 40 received in the polygonal opening of the fixed blade. Beyond the polygonal portion is a screw-threaded portion 41 adapted to receive a nut 26 which is screwed up thereon and against the boss 4 of the holder extension 3, as seen clearly in Fig. 2. Upon the opposite side of the device the bolt is formed with an enlarged portion 27 that part of which adjacent the movable blade being cone shaped, as at 28, and the outer end of this bolt is provided with a plurality of radial openings or slots 29 into any one of which is designed to be engaged the inwardly extending end or arm 30 of a stiff spring 31 which is coiled about the enlarged portion 27 of the bolt, as seen clearly in Figs. 2 and 3, the other end of said spring being extended substantially parallel with the adjacent portion of the arm 16, the free end thereof being bent at substantially right angles, as seen at 32, and engaged in an opening 33 in said arm. The extreme outer end of this bolt is screw-threaded and receives a nut 34, in this instance shown as provided with studs or projections 35 for receiving a wrench or spanner for tightening or loosening the said nut. This nut screws up against the bent end 30 of the spring and serves to keep the same in its slot in the end of the bolt and at the same time covers and protects the slots in the end of the bolt. By changing the inwardly extended arm 30 of the spring from one slot to the other, the necessary adjustment and regulation of the tension of said spring is accomplished.

The blades are ground so as to form the upwardly extended recess 36 in the fixed blade, and the cutting edges are so disposed that when they are brought so that they are just tangent to each other they meet primarily at a point about one inch from the two points of the blades, leaving quite a considerable open space upon each side of the tangent point or where they primarily meet, as shown at 37 and 38 in Fig. 1. This form gives to the two cutting edges a shear cut in two directions, outward and inward, the two cutting edges being convexed in opposite directions.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What is claimed as new is:—

1. In a pruner, a fixed blade, a movable blade, means for connecting the same and a spring connected with the carrier of the movable blade and adjustably connected with said connecting means.

2. In a pruner, fixed and movable blades, means connecting the same having a plurality of radial slots at one end, and a spring sleeved upon said connecting means with one end attached to the carrier of the movable

blade and its other end engageable in one of said slots.

3. In a pruner, fixed and movable blades, means connecting the same having a plurality of radial slots at one end, a spring sleeved upon said connecting means with one end attached to the carrier of the movable blade and its other end engageable in one of said slots, and a nut on the end of said connecting means covering said slots and the end of the spring.

4. In a pruner, a fixed blade and its holder with a polygonal opening therethrough, a movable blade and its carrier with a cylindrical opening therethrough, a bolt passed through said openings and having correspondingly shaped portions, nuts upon the opposite ends of said bolt, one end of said bolt being enlarged, and a spring coiled about said enlarged portion with one end affixed to the end of the bolt and the other to the carrier of the movable blade.

5. In a pruner, a fixed blade and its holder with a polygonal opening therethrough, a movable blade and its carrier with a cylindrical opening therethrough, a bolt passed through said openings and having correspondingly shaped portions, nuts upon the opposite ends of said bolt, one end of said bolt being enlarged, and a spring coiled about said enlarged portion with one end adjustably connected with the end of the bolt and covered by the adjacent nut and the other to the carrier of the movable blade.

6. In a pruner, a holder for a blade having a halved out portion and a contiguous recess, and a cutting blade supported on said cut away portion and having an extension conforming to and seated in said recess, and means securing said blade and holder together and preventing lateral movements of the blade.

7. In a pruner, a holder for a blade having a halved out portion and a contiguous recess, and a cutting blade supported on said cut away portion and having an extension conforming to and seated in said recess, and means securing said blade and holder together and preventing lateral movements of the blade, said holder and blade having engaging shoulders.

8. In a pruner, a holder for a blade having a halved out portion and a contiguous recess, and a cutting blade supported on said cut away portion and having an extension conforming to and seated in said recess, and means securing said blade and holder together and preventing lateral movements of the blade, said holder having a laterally projecting part forming a stop.

9. In a pruner, a fixed blade and a movable blade and means pivotally connecting them, said blades having their cutting edges convexed in opposite directions and ground to leave an open space upon each side of the

tangential point where the cutting edges
primarily meet, combined with means for
operating the movable blade, and a spring
acting in opposition to such operating means
5 and having one end adjustably connected
with the means connecting the blades.

In witness whereof, I have hereunto set

my hand this 14 day of April, 1908, in the
presence of two subscribing witnesses.

T. J. LITZELMAN.

Witnesses:

HENRY E. PAGE,

FREDERIC C. ERDMAN.