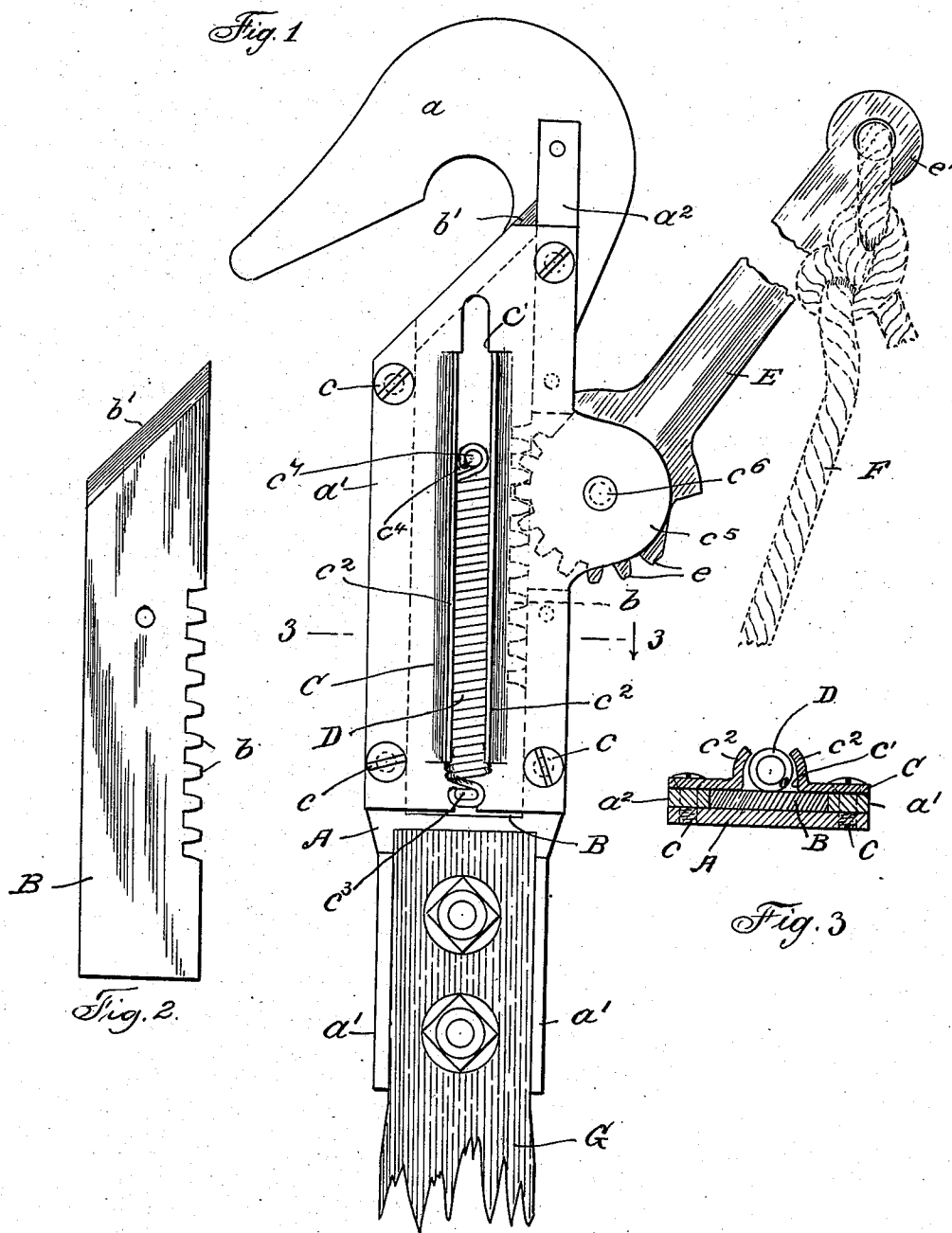


No. 893,023.

PATENTED JULY 14, 1908.

L. SIEGEL & J. BECKER.  
PRUNING SHEARS.  
APPLICATION FILED JAN. 29, 1908.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

LORENZ SIEGEL AND JOHN BECKER, OF CHICAGO, ILLINOIS; SAID BECKER ASSIGNOR TO SAID SIEGEL.

## PRUNING-SHEARS.

No. 893,023.

Specification of Letters Patent.

Patented July 14, 1908.

Application filed January 29, 1908. Serial No. 413,155.

*To all whom it may concern:*

Be it known that we, LORENZ SIEGEL and JOHN BECKER, citizens of the United States, and residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Pruning-Shears, of which the following is a complete specification.

This invention relates to improvements in pruning shears and more particularly to pruning shears of that class in which the knife blade is operated by a rack and pinion. Heretofore in devices of this class a great deal of difficulty has been encountered by pieces of bark or chips from the severed branches falling into the gear teeth and preventing the blade from returning to open position until the obstruction is removed. Furthermore it has sometimes happened that by reason of the exposed condition of the rack and pinion that people have been injured by having their fingers caught in the gear teeth.

The object of this invention is to provide a pruning shears having a rack and pinion operated blade and so constructed that the danger of chips falling into the gear connection and stopping the movement of the blade is entirely obviated.

It is also an object of the invention to provide a device so constructed that the danger of injury in the gear teeth is prevented.

A further object of the invention is to provide a very cheap, strong and simple device in which the blade is inclosed in a housing thereby protecting it from wear by reason of foreign matter coming in contact with its bearing surfaces.

The invention consists of the matters hereinafter described in the specification and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a fragmentary, side elevation of a device embodying our invention. Fig. 2 is a side elevation of the blade. Fig. 3 is a section taken on line 3—3 of Fig. 1.

As shown in said drawings: A indicates the back plate, of metal or other preferred material, forming the rear wall of the housing for the blade and provided at its upper end with a hook *a* adapted to engage over the branches to be severed. Said plate is provided on its inner side, and adjacent each

lateral edge, with a narrow strip of metal, indicated respectively by *a'* and *a''*, between which the blade B closely fits and of a thickness equal to the thickness of the blade. A front plate C is rigidly engaged on said strips by means of screws *c* which pass through said strips and engage in the plate A. The plate C is provided with a longitudinal slot *c'* therein, at either side of which is an outwardly directed flange *c''* formed by turning the metal outwardly at the sides of the slot. A coiled spring D is inclosed between said flanges and is engaged at its lower end to a lug *c'''* on the bottom of the plate C and at its upper end to a stud or screw *c''''* engaged in the side of the blade and projecting outwardly through the slot. The strip *a''* is cut away centrally to provide an opening into the side of the housing and the blade B is provided adjacent said opening with gear teeth *b* affording a rack. The plates A and C are provided adjacent said opening with ears *c''''* between which is pivoted, on a stud bolt *c'''''*, a lever or arm E, having on its inner end a segment gear *e* adapted to mesh with the rack teeth *b*. The outer end *e'* of said lever is apertured and a cable or rod F is engaged therein and extends alongside the handle G which is rigidly bolted to the lower end of the plate A between flanges *a'* on said plate. The upper end of said blade is beveled to provide a cutting edge *b'* adjacent the hook *a* and slants from its edge adjacent the back of the hook downwardly to its edge adjacent the front of the hook, thereby providing a sliding cut against the branch when the blade is operated.

The operation is as follows: The spring D acts to normally hold the blade retracted into the housing at its lower limit of movement. The hook *a* is placed over a branch and the lever E pulled downwardly, thereby causing the gear *e* to force the blade outwardly and sever the branch. As soon as the power is removed from the lever the spring D retracts the blade to normal position, when the operation may be repeated. Owing to the fact that the point of contact between the gear and rack is entirely inclosed in the housing it is obvious that chips or other obstacles cannot fall between the gear teeth and prevent the retraction of the blade. Furthermore the side flanges *c''* prevent twigs from entering between the coils of the

spring when expanded and thereby obviating a great deal of the annoyance usually accompanying a spring controlled blade.

We claim as our invention:

- 5 1. In a device of the class described the combination with a housing having an opening in one side thereof, of a lever pivoted to said housing adjacent to said opening and provided with a segment gear projecting into  
 10 the housing, a blade slidably engaged in the housing and provided with a rack thereon adapted to mesh with the gear, the point of contact between said gear and rack being concealed, and a spring lying alongside of  
 15 the blade and connected with the same and with the housing and adapted to normally hold the blade retracted.
2. In a device of the class described the combination with a housing having an opening in one side thereof, and a slot in the front,  
 20 of an outwardly directed flange at each side of said slot, a blade slidably engaged in said housing, a rack therein adjacent said spring, a lever pivoted at the rear of said housing, a  
 25 segment gear thereon extending into the housing and meshing with said rack, and a coiled spring between said flanges and engaged at its ends to said blade and housing respectively.
- 30 3. In a pruning device the combination with a blade having gear teeth thereon, a

lever having gear teeth on one end adapted to mesh with the gear teeth on said blade, a housing inclosing the point of contact between the teeth on the lever and blade, and  
 35 a spring carried on the front of said housing and engaged to the housing and blade and acting to normally hold the blade retracted.

4. In a pruning device the combination with a back plate having a hook on one end thereof, of a longitudinally slotted front  
 40 plate, means spacing said plates apart and affording an opening through one edge of the device, a blade slidably engaged between said plates and having a stud thereon projecting through the slot in said front plate,  
 45 an outwardly directed flange at each side of said slot, a coiled spring therebetween engaged at one end to said stud and at the other to the front plate, gear teeth on said  
 50 blade, a lever pivoted to the plates adjacent said opening, and gear teeth on the inner end thereof engaging the gear teeth on the blade.

In testimony whereof we have hereunto subscribed our names in the presence of two  
 55 witnesses.

LORENZ SIEGEL.  
 JOHN BECKER.

Witnesses:

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 H. R. WEIGLE.