No. 645,922. Patented Mar. 20, 1900.

J. STELZL.

BUDDING TOOL.

(Application filed Dec. 18, 1899.)

(No Model.)

Fig. 7.

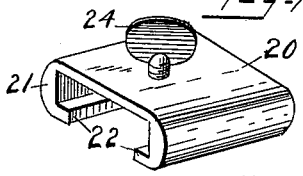


Fig. 6.

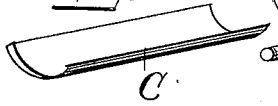


Fig. 5.

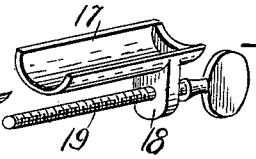


Fig. 1.

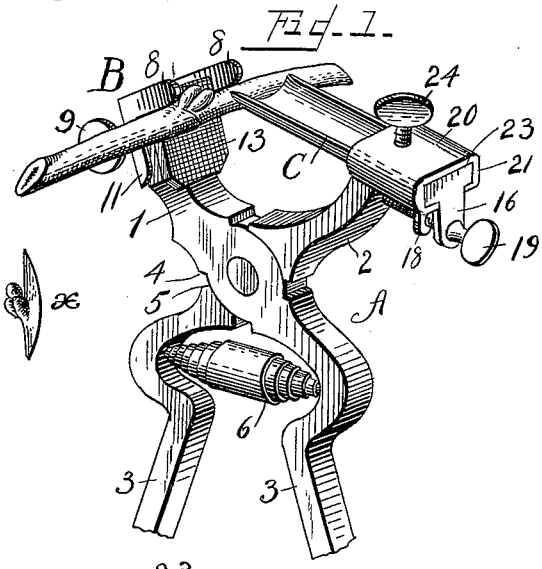
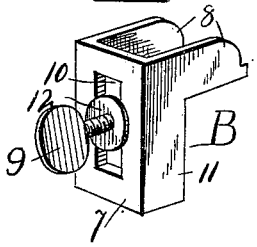


Fig. 2.



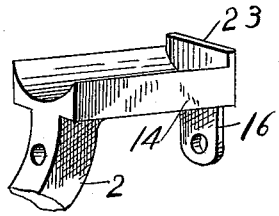


Fig. 3.

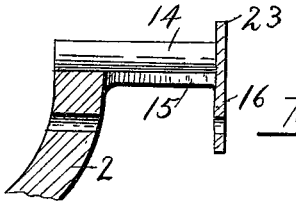


Fig. 4.

WITNESSES:

F. L. Ourand.

A. J. DuBois

INVENTOR

John Stelzl.

BY

C. J. Stockman

ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN STELZL, OF LOUISVILLE, KENTUCKY, ASSIGNOR OF ONE-THIRD TO THEODORE P. STOREY, OF SAME PLACE.

BUDDING-TOOL.

SPECIFICATION forming part of Letters Patent No. 645,922, dated March 20, 1900.

Application filed December 18, 1899. Serial No. 740,811. (No model.)

To all whom it may concern:

Be it known that I, JOHN STELZL, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Budding-Tools; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in tools for cutting buds from a twig or limb of a tree or vine to be budded onto another which has been previously prepared by said tool to receive said bud; and the invention consists in certain novel features in the construction of said tool, substantially as hereinafter described, and particularly pointed out in the subjoined claims.

The object of the invention is to provide a budding-tool of very simple, inexpensive, and durable construction, the use of which will reduce to a minimum the time required to bud and at the same time greatly increase the percentage of success heretofore attained in such operations. This object is accomplished by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a budding-tool embodying my improvements and shows a twig in position to have a bud cut therefrom. Fig. 2 is a detail view of the device for regulating the depth of the cut made by the knife. Fig. 3 is a detail perspective view, and Fig. 4 a sectional view, of the end of the jaw which carries the knife. Fig. 5 is a perspective view of the adjustable knife-carrier. Fig. 6 is a detail perspective view of the knife, and Fig. 7 is a detail perspective view of the plate which covers the knife and knife-carrier.

The same letters and numerals of reference designate the same parts in the several views.

The tool comprises a body having pivoted members, a device B secured to one of said members for supporting a limb or twig laid transversely of its member, and a knife C, having a concavo-convex forward cutting edge extending approximately lengthwise of the limb or twig, whereby a longitudinally-curved section will be removed wholly from the side of the limb or twig. This section will in the one case constitute a bud X, having the form shown immediately at the left-hand side of Fig. 1, and in the other case it provides a cut of precisely the form and size of said bud, in which said bud will accurately fit. The peculiar form of the bud and the cut in which the same is to be ingrafted and the accurate fitting of the one in the other, with the bark of the bud fitting closely to the limb bark, provide an extremely advantageous union of the parts and assure an extremely-high percentage of success in budding or grafting. It will of course be understood that the incision is covered with grafting-wax to prevent the sap from running out or souring and the bud from drying or rotting.

The device B, which engages the limb being prepared to receive the bud and the limb or twig from which the bud is being cut, not only serves to assure that the bud will fit accurately in the cut made to receive it, but it is mounted to be adjustable, so as to vary the depth of the cut made by the knife to suit the particular limb being operated on, and the knife C is mounted in a peculiar manner, whereby it may be adjusted to compensate for wear. These two features, (adjustability of the device B and adjustability of the knife C,) and particularly the detail construction of the device B and the construction of the means by which the knife is made adjustable, form important parts of the invention, which are in a measure useful independently of each other and of other features of the invention.

The detail construction of the tool devised and preferred by me will now be described.

The body A of the tool comprises two limbs, which cross each other and are pivoted together at their junction. These limbs provide two jaws 1 and 2 at one end of the tool and handles 3 3 at the other end thereof. Shoulders 4 and 5 are formed on the respective limbs contiguous to the pivot and coact

with each other to limit the extent of movement of the jaws to and from each other, and a spring 6 of suitable form, arranged to engage the handles 3 3, tends to force the jaws apart.

The device B, hereinabove referred to, comprises a back plate 7, which engages the outer surface of the jaw 1 and has inwardly-projecting flanges 8 8 at opposite sides of its upper end. These flanges extend into the space between the jaws and engage the upper surface of the twig or limb upon which the tool is operating. The flanges thus serve to control the depth of the cut made by the knife C and assure that the cut will be of the same depth, both in respect to the bud and in the limb in which the bud is to be ingrafted. Said plate is adjustably secured to the outer surface of the jaw, preferably by a thumb-screw 9, which extends through an elongated opening 10 in the plate and into the jaw 1, whereby the depth of cut to be made may be changed without requiring a change in the knife. Said plate 7 is also formed with side flanges 11, which extend longitudinally thereof and engage the sides of the jaw 1 and assist said thumb-screw 9 in holding the plate in adjusted position. Interposed between the head of the thumb-screw and the back plate is a washer 12, the purpose of which is apparent. To prevent the cutting edge of the knife C from becoming dulled by contact with the metal of the jaw opposed to said knife and also to prevent the vine or twig from slipping during the process of cutting the same, the inner surface of the jaw 1 is provided with a block or facing of rubber 13, upon which the vine or twig rests.

The knife-carrying jaw 2 has an outwardly-extended upper end or block 14, formed with a concave upper surface and with an open bottom 15. The outer end of said part 14 is formed with a depending lug 16. Mounted in the concave upper surface of said part 14 is a knife-carrier 17, having a concavo-convex body and a lug 18 Said lug 18 projects through the opening in the bottom 15 of the block 14, and through it is threaded a thumb-screw 19, which has a head at its outer end, which bears against the outer surface of said lug 16, and its inner end is secured in the jaw 2 in a manner to prevent longitudinal movement of said screw in its bearings. Thus it will be seen that by turning the screw 19 in one or the other direction the knife-carrier 17 will be advanced or retracted. The knife C is concavo-convex in cross-section and fits in said carrier and projects beyond the end of the same, as shown. It partakes of the movement of the carrier. To guard and protect the knife and carrier, there is employed a plate 20, having depending flanges 21, with turned-in ends 22. This plate slides over the block 14 and its inturned ends 22 engage the under surface of said block, while its outer end engages and is stopped by a flange 23, projecting upward from the end of said block. Threaded through the plate 20 is a thumb-screw 24, the lower end of which bears upon the knife C and holds the same rigidly upon its carrier 17.

From the above description the operation of the device will be understood and it will be apparent that the device possesses many advantages which will recommend it to those persons who desire a simple, durable, inexpensive, and easily-operated budding-tool which will assure a maximum percentage of success in the heretofore comparatively uncertain and unreliable operation of budding.

Having thus described the invention, what I believe to be new, and desire to secure by Letters Patent, is—

1. A budding-tool, comprising a pair of pivoted jaws, means on one of said jaws for supporting a limb or twig laid transversely of said jaw, and a knife carried by the other jaw, said knife having a concavo-convex forward cutting edge extending approximately lengthwise of the limb or twig, substantially as described, whereby a longitudinally-curved section will be removed wholly from the side of said limb or twig, as specified.

2. A budding-tool, comprising a pair of pivoted jaws, a plate secured to one of said jaws and having projections at opposite sides of its upper end to engage the upper surface of a limb or twig laid across the jaw, and a knife carried by the other jaw, said knife having a concavo-convex forward cutting edge extending approximately lengthwise of the limb or twig and operating to remove wholly from the side of the limb or twig a section thereof between said projections, substantially as described.

3. In a budding-tool having a knife constructed to cut wholly through a limb or twig and remove a section wholly from the side thereof, a device to engage a side of said limb or twig and regulate the thickness of the section removed, said device being adjustable in a plane at right angles to the direction of movement of the knife, for the purpose specified.

4. A budding-tool, embodying a pair of pivoted jaws having handles for operating them, a concavo-convex knife secured to one of said jaws, and adjustable means secured to the other of said jaws and operating to regulate the depth of the cut made by said knife.

5. A budding-tool, comprising a pair of pivoted jaws, a concavo-convex knife having its end inserted in one of said jaws and adjustably fixed thereto, and a means attached to the other jaw to engage the limb or twig and regulate the depth of cut made by said knife.

6. A budding-tool, comprising a pair of pivoted jaws, a knife carried by one of said jaws, and a plate adjustably secured to the other of said jaws and having inwardly-extending flanges to engage the limb or twig, substantially as described and for the purposes set forth.

7. A budding-tool, comprising a pair of pivoted jaws, a knife carried by one of said jaws, a rubber cushion secured to the opposing jaw, and means carried by said opposing jaw and overhanging the adjacent edge of said cushion, for regulating the depth of cut, substantially as described.

8. A budding-tool, consisting of a pair of pivoted jaws having handles for operating them, a knife carried by one of said jaws and having a concavo-convex forward cutting edge, a rubber cushion secured to the inner face of the other jaw, and a plate adjustably fixed to the outer surface of said other jaw, said plate having flanges projecting inwardly from opposite ends of its upper end and overhanging the contiguous end of the cushion and also having side flanges engaged with the side edges of its jaw, substantially as described and for the purposes set forth.

9. A budding-tool, having a pivoted jaw, a knife-carrier adjustably fixed to said jaw, and a knife mounted on said carrier.

10. A budding-tool, having a pivoted jaw, a knife and a knife-carrier adjustably fixed to said jaw, and a plate secured to said jaw and covering said knife and carrier.

11. A budding-tool, having pivoted jaws, means on one of said jaws to engage the vine or twig and regulate the depth of cut, a carrier adjustably fixed to the other jaw, and a knife mounted on said carrier.

12. A budding-tool, having a pivoted jaw with a concave upper end formed with a longitudinal slot and a lug, a concavo-convex carrier adjustable in said upper end and having a lug projecting through said slot, a thumb-screw threaded through the lug of the carrier and held against longitudinal movement, a concavo-convex knife upon said carrier, and a plate engaging the upper end of said jaw and covering said knife and carrier, said plate having a thumb-screw to engage said knife.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN STELZL.

Witnesses:
JOHN H. DE WITT,
W. B. THIXTON.