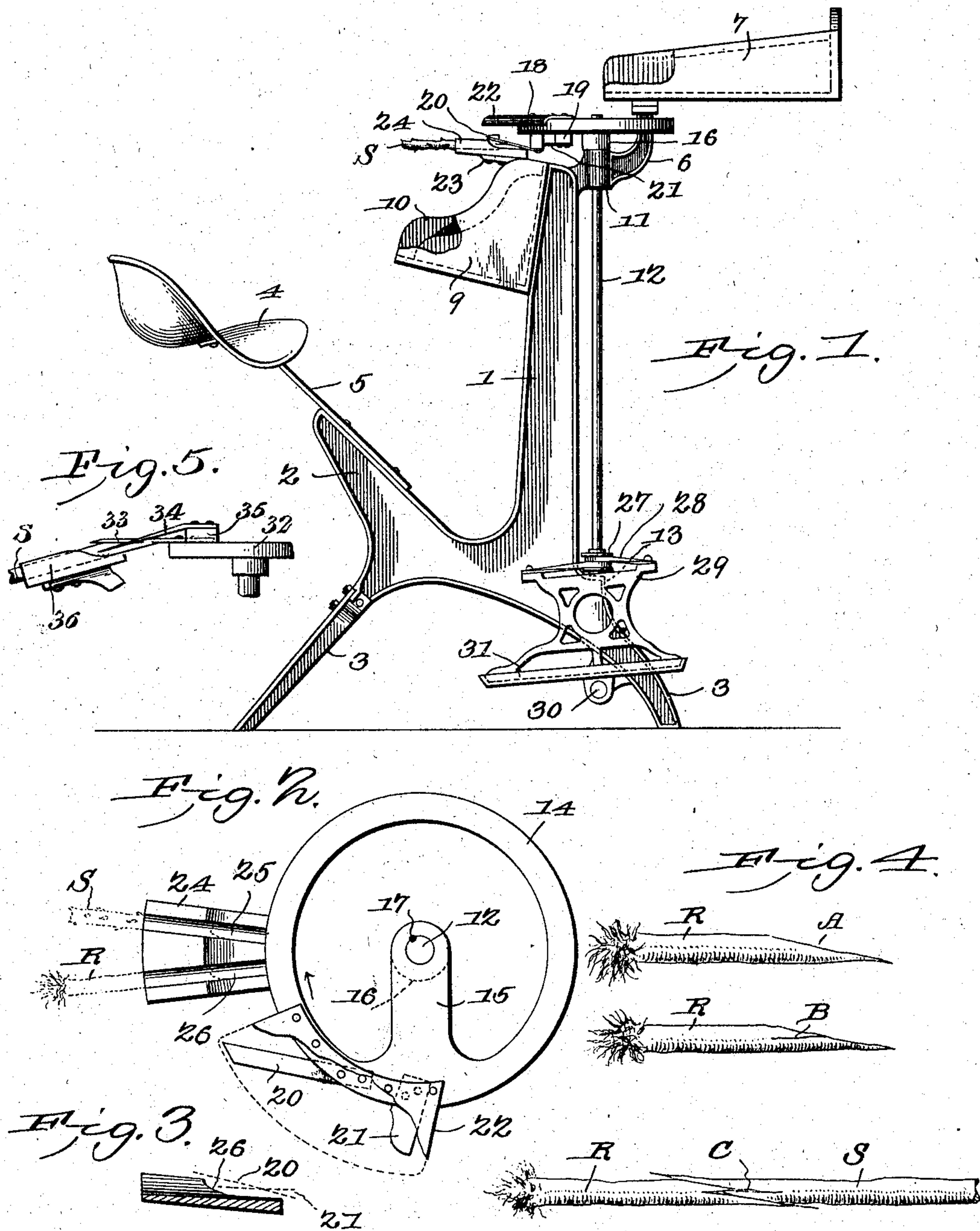


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PATENTED AUG. 1, 1905.

D. B. SPEER.
GRAFTING MACHINE.
APPLICATION FILED JAN. 13, 1905.



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UNITED STATES PATENT OFFICE.

DARIUS B. SPEER, OF BLUEGRASS, IOWA.

GRAFTING-MACHINE.

No. 796,160.

Specification of Letters Patent.

Patented Aug. 1, 1905.

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To all whom it may concern:

Be it known that I, DARIUS B. SPEER, a citizen of the United States, residing at Bluegrass, in the county of Scott and State of Iowa, have invented a new and useful Grafting-Machine, of which the following is a specification.

This invention relates to grafting-machines.

The object of the invention is in a ready, rapid, and accurate manner to bevel and split scions and roots whereby the same may be perfectly spliced.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a grafting-machine, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof.

In the drawings, Figure 1 is a side elevation, partly in section, of a machine constructed in accordance with the present invention. Fig. 2 is a top plan view of a portion of the machine. Fig. 3 is a sectional detail view of the rest or support upon which the scions and roots are held while being operated upon. Fig. 4 is a collective detail view exhibiting the various steps of cutting a scion or root leading up to the complete splice. Fig. 5 is a detail view of a slightly-modified form of the invention.

The supporting-frame of the machine comprises a vertical upright 1, an inclined seat-support 2, and legs 3, of which there are three in this instance—one at the front and two at the back. This frame is by preference made as a solid casting, although, if preferred, it may be constructed in sections and be assembled in any preferred manner. Combined with the seat-support is a seat 4, the shank 5 of which is secured to the support in any preferred manner to permit of its being adjusted to suit the operator. Projecting from the front portion of the upright is an upward-curved arm 6, which may be either integral with the upright or secured thereto, and detachably connected with the upper end of the arm is a tray

or receptacle 7, provided to receive the scions and roots that have been operated upon in the manner presently to be described. The upright also has combined with it a tray or receptacle 9, divided into two compartments by a partition 10, and these two compartments contain, respectively, the scions and the roots, which are kept separated until spliced and deposited in the tray 7, the object being to prevent confusion, and thus loss of stock, which would result if two scions were spliced instead of the root and a scion.

Journaled in a bearing 11 on the arm 6 is the upper portion of a vertical shaft 12, the lower end of which is journaled in a bearing formed in an offset 13 at the lower portion of the upright. The shaft projects beyond the bearing and carries a wheel 14, which is formed with a single spoke 15, having a hub 16 preferably integral therewith, through which the shaft passes, the hub being held combined with the shaft by means of a key 17 or other suitable means. This wheel is required only to make a part of a revolution—say about three-quarters—and a single spoke is provided which will allow it to revolve through an arc sufficient to effect beveling and splitting of the scion and the root, although the arm 6 projects upward through it.

Projecting downward from the under side of the wheel-rim are two lugs or bosses 18 and 19, which may be either integral with the wheel-rim or be secured thereto, as preferred. To the boss 18, which is the longer, is secured a beveling-knife 20, and to the boss 19 is secured a splitting-knife 21. As clearly shown in Fig. 1, the beveling-knife is disposed at an angle to the plane of the under side of the wheel, while the splitting-knife occupies a plane parallel therewith and is so disposed as to strike a scion or root along its median line. In order to protect the operator's hand from being cut in the operation of the machine, there is a shield or guard 22 provided, which is riveted or otherwise secured to the upper face of the wheel and projects outward beyond the terminals of the two knives.

The upper end of the support on the side opposite the arm 6 is provided with an offset 23, upon which is secured a work-rest 24, the same comprising a plate provided with two grooves 25 and 26 to receive a scion and a root, respectively, the forward end of the support being beveled or cut away, as at 26, to

permit the knives to perform their functions, as will be readily understood by reference to Fig. 3. The work-rest will be combined with the offset in such manner as to permit of its being adjusted to and from the knives, thus to extend the range of usefulness of the machine.

Secured to the shaft 12, near its lower end, is a flanged pulley 27, around which passes a belt 28, the ends of which are secured to a treadle 29, fulcrumed intermediate of its ends to the frame at 30, the treadle being provided with a foot-rest 31.

In the operation of the machine the operator places a scion S in the groove 25 and a root R in the groove 26, the forward ends of the two parts of the graft being projected beyond the outer end of the work-rest. Upon the treadle 29 being rocked the wheel is partly rotated, causing the knife 20 to contact with the root and bevel it and then with the scion and bevel it, as shown at A in Fig. 4, after which the knife 21 splits the root and scion, as shown at B in Fig. 4. The split parts are then placed in the compartment of the tray 7, and another scion and root are placed upon the work-rest, and so on. When the scion and roots are to be combined, a splice, such as shown at C in Fig. 4, will result which will be absolutely correct and insure growth of the scion.

In the form of the invention shown in Fig. 5 the inclination of the knives and work-rest is opposite to that shown in Fig. 1. As shown in Fig. 1 the beveling and splitting knives are secured on the under side of the wheel 14, whereas as shown in Fig. 5 these knives are arranged on the upper side of the wheel 32. Furthermore, as shown in Fig. 1 the beveling-knife is disposed at an angle to the under side of the wheel, while the splitting-knife is disposed parallel therewith, while in the form shown in Fig. 5 the beveling-knife 33 is disposed parallel with the upper face of the wheel, while the splitting-knife 34 is disposed at an angle thereto and is secured to a lug 35, carried by the wheel.

It will be seen from the foregoing description that although the machine of this invention is simple of construction it combines in a ready and practical manner all of the essentials requisite in the production of a thoroughly effective machine, and owing to the manner in which the parts are combined danger of breakage in use is reduced to a minimum.

Having thus described the invention, what is claimed is—

1. In a machine of the class described, a revoluble element carrying a beveling and a splitting knife.

2. In a machine of the class described, a revoluble element carrying a beveling-knife dis-

posed at an angle to the element, and a splitting-knife disposed parallel therewith.

3. In a machine of the class described, a revoluble element carrying a beveling and a splitting knife, the two knives being arranged in different planes, and the beveling-knife being disposed at an angle to the element.

4. In a machine of the class described, an element carrying a beveling and a splitting knife, and means for imparting horizontal rotary motion to the element.

5. In a machine of the class described, the combination with a work-rest, of a horizontally rotative element carrying a beveling-knife and a splitting-knife coacting with the work-rest.

6. In a machine of the class described, the combination with a work-rest provided on its upper side with grooves or seats, of a horizontally rotative element carrying a beveling-knife and a splitting-knife, which coact with the work-rest.

7. In a machine of the class described, the combination with a work-rest having its upper face provided with grooves or recesses, and its forward end beveled or cut away, of a horizontally rotative element carrying a beveling-knife and a splitting-knife which coact with the cut-away portion of the work-rest.

8. In a machine of the class described, the combination with an upright, of a shaft journaled in suitable bearings thereon, a wheel carried by the upper end of the shaft, a beveling-knife and a splitting-knife carried by the under side of the wheel, a work-rest disposed below the wheel and means for imparting oscillatory movement to the wheel.

9. In a machine of the class described, the combination with a horizontally rotative element carrying a beveling and a splitting knife, of a work-rest adjustable relatively to the knives.

10. A machine of the class described comprising a wheel carrying on its under side a beveling and a splitting knife, a work-rest arranged in the path of movement of the knives, a shaft having its upper end connected with the wheel, a pulley connected with the lower end of the shaft, a treadle fulcrumed intermediate of its ends upon the upright, and a belt or band passed around the pulley and having its terminals secured to the treadle.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

DARIUS B. SPEER.

Witnesses:

HENRY PLETT,
EDWARD BRUS.