W. E. BALL.

Pruning Shears.

No. 143,114. Patented September 23, 1873.

FIG. 1.

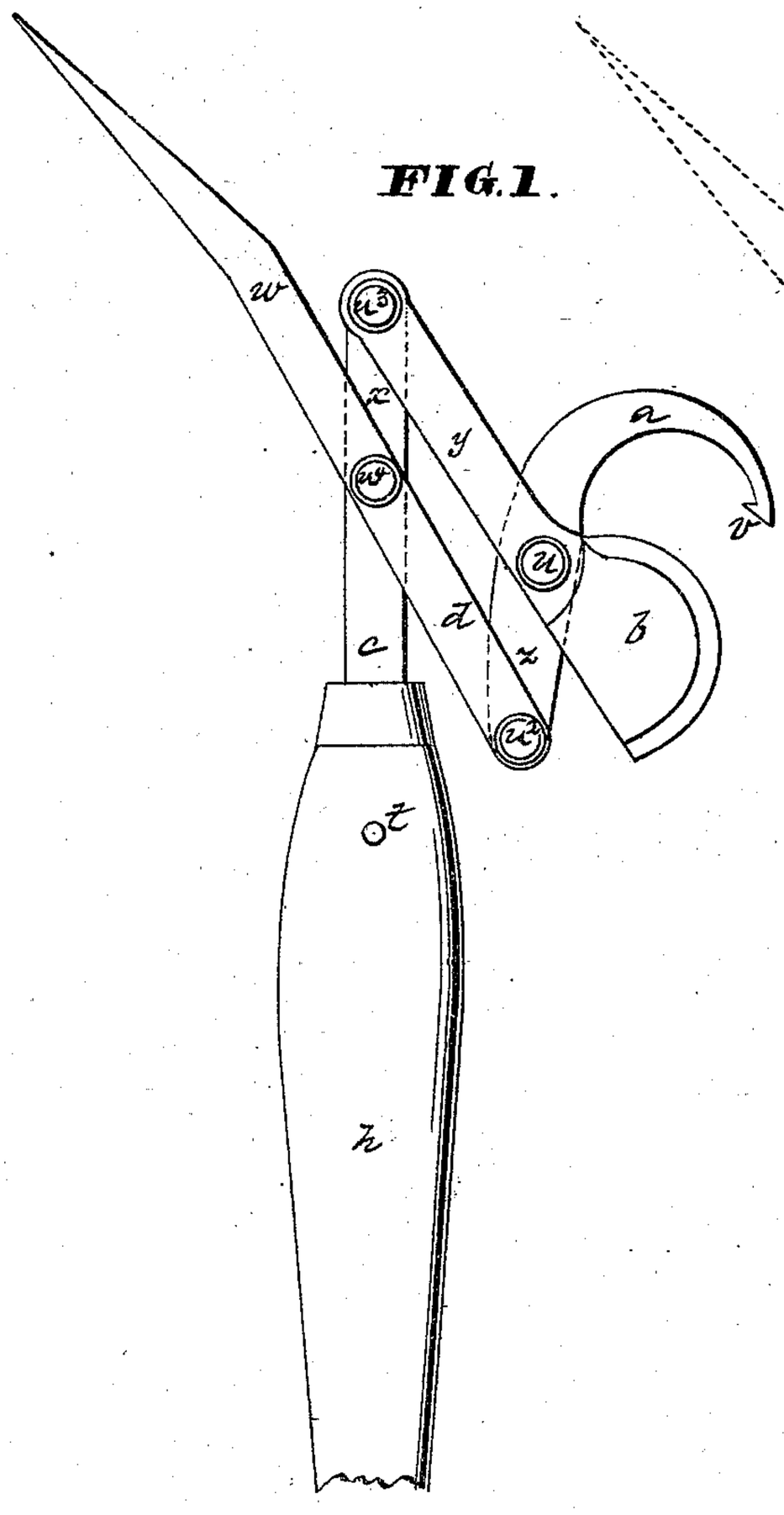
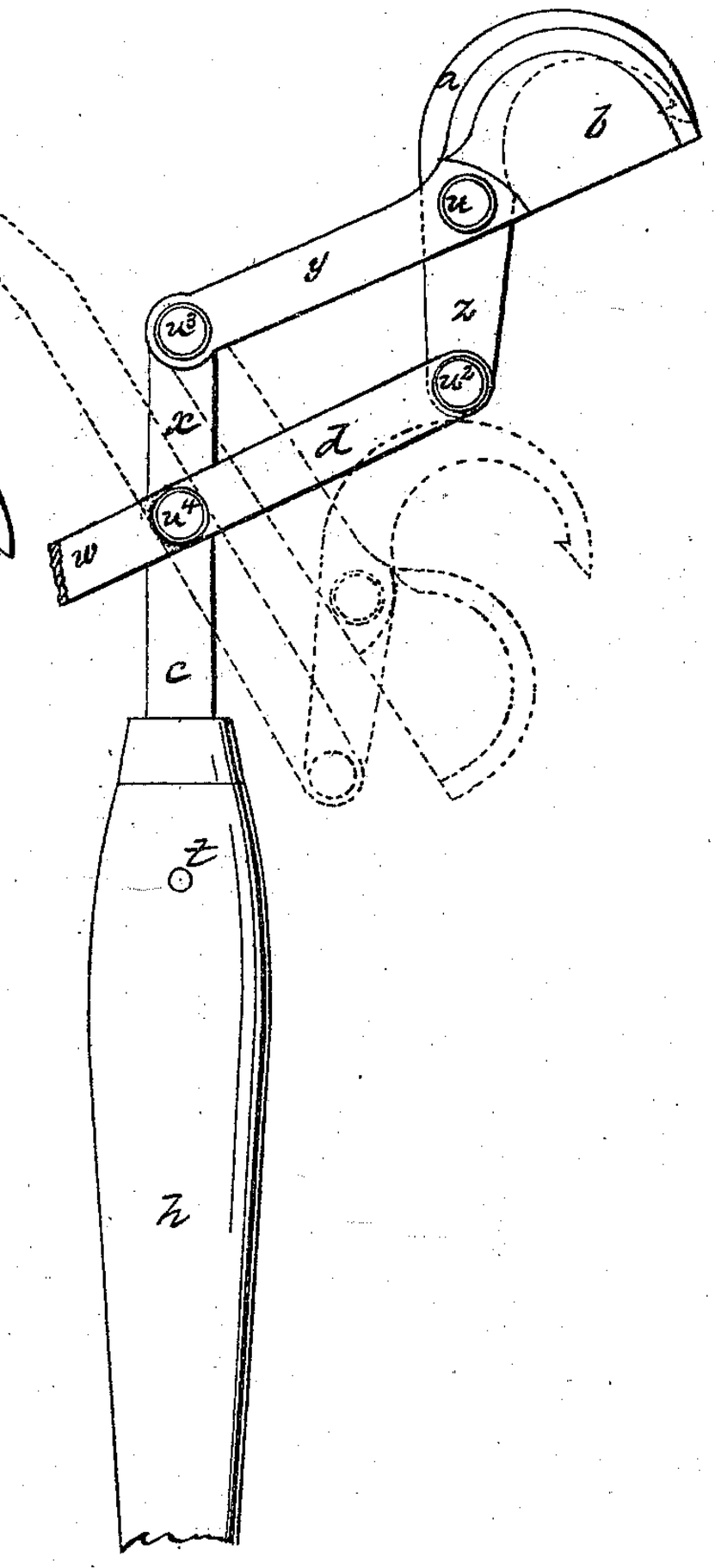


FIG. 2.



WITNESSES:

Jas. L. Lewis

Walter Allen

INVENTOR.

William E. Ball

By Knight Bros Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM E. BALL, OF BETHESDA, OHIO.

IMPROVEMENT IN PRUNING-SHEARS.

Specification forming part of Letters Patent No. **143,114**, dated September 23, 1873; application filed February 27, 1873.

To all whom it may concern:

Be it known that I, WILLIAM E. BALL, of Bethesda, in the county of Belmont, Ohio, have invented a certain Improvement in Pruning-Shears, of which the following is a specification:

This invention relates, primarily, to pruning-shears for cutting elevated boughs, arranged for operation, by means of a single handle, without pull-cords or other auxiliaries, in a superior manner. The invention consists in a combination of peculiarly-constructed parts, whereby one and the same pair of shears is adapted to be employed either as long shears with a single handle, or as short shears with a pair of handles, with equal efficiency; also, in constructing the hook-jaw of this form of shears with a smooth surface to oppose the cutting-blade, and with one or more holding spurs or teeth at its extremity.

Figure 1 is an elevation of a pair of shears, illustrating this invention, the jaws being represented in open position. Fig. 2 is a similar view, showing in full lines the jaws as closed, and in dotted lines the open position to which the jaws gravitate.

A pair of improved pruning-shears, constructed according to this invention, comprises an upper hooked jaw, *a*, with a short lever-arm, *z*; a cutting-jaw, *b*, with a convex blade and a long lever-arm, *y*; a straight handle-tang, *c*, with a short lever-extension, *x*; and a link, *d*, connecting the lever-arm *z* of the cutting-jaw *a* to the handle-prong *c*, with a second handle-prong, *w*, formed by an extension of the link *d*, at a proper angle thereto. One or more holding spurs or teeth, *v*, are formed at the extremity of the hook-jaw, and the remaining surface of the jaw is left smooth.

This arrangement furnishes a superior cutting-abutment, and has been found to hold to better advantage than the common arrangement, in which the point is left smooth and the teeth are arranged nearer the hinge of the jaws.

The jaws *a* and *b* are united by a pivot-bolt, *u*, and attached to the link *d* and the lever-extension *x* of the handle-tang *c* by pivot-bolts u^2 and u^3. The link *d* is united to the handle-tang *c* by a pivot-bolt, u^4.

In the primary use of the shears a long handle, *h*, is applied to the tang *c*, as in the illustrations, and secured by a pin, *t*, or its equivalent. To cut a bough, it is caught by the hook-jaw *a*, and, by a swinging pull on the handle, acting through the tang *c*, link *d*, and lever-arm *y*, the jaws are forcibly drawn together, and the limb is severed. The jaws then drop to the position represented in full lines in Fig. 1 and by dotted lines in Fig. 2. In this position the lever-stem *z* of the hook-jaw *a* is vertical, and parallel, or nearly parallel, to the extended straight handle-tang *c x*, and the convex blade of the cutting-jaw *b* is below the horizontal. A perfectly wide opening of the jaws is thus secured. When the jaws are closed the cutting-blade overlaps the hook-jaw, so as to completely sever the limb. In this movement the long lever arm or stem *y* imparts to the cutting-jaw the powerful stroke it requires.

The link *d*, corresponding in length, as described, supports the hook-jaw in vertical position, as represented, to engage with elevated limbs with the greatest facility.

When short shears are required, a pair of handles are applied to the tangs *c* and *w*.

The improved shears are thus adapted to be used either for high or low trimming, and to take the place of two ordinary implements.

When the implement is used as short shears the jaws move at different rates of speed, and, consequently, with greater efficiency, owing to the difference in the lengths of the lever arms or stems, while the necessary leverage for the operation is obtained in the handles. The jaws proper occupy the same position, relatively to each other, in either form of the shears.

The broad idea of adapting pruning-shears for operation by a single handle is not claimed. Neither is the general combination of parts claimed, irrespective of the several features of construction specified.

The following is claimed as new:

1. The cutting-jaw *b*, constructed with the long lever arm or stem *y* and the link *d*, cor-

responding in length to said stem *y*, and constructed with the supplemental handle-tang *w* at an angle thereto, as described, in combination with the hook-jaw *a* having a short arm or stem, *z*, and the straight extended handle-tang *c x*, these parts being pivoted together, and operating either with a long pull-handle, *h*, or a pair of short handles, as set forth.

2. The smooth hook-jaw *a*, having the spur or tooth *v* at its extremity, as described, in combination with the cutting-jaw *b* having a convex blade, for the purpose specified.

WILLIAM E. BALL.

Witnesses:

JAS. L. EWIN,

WALTER ALLEN.