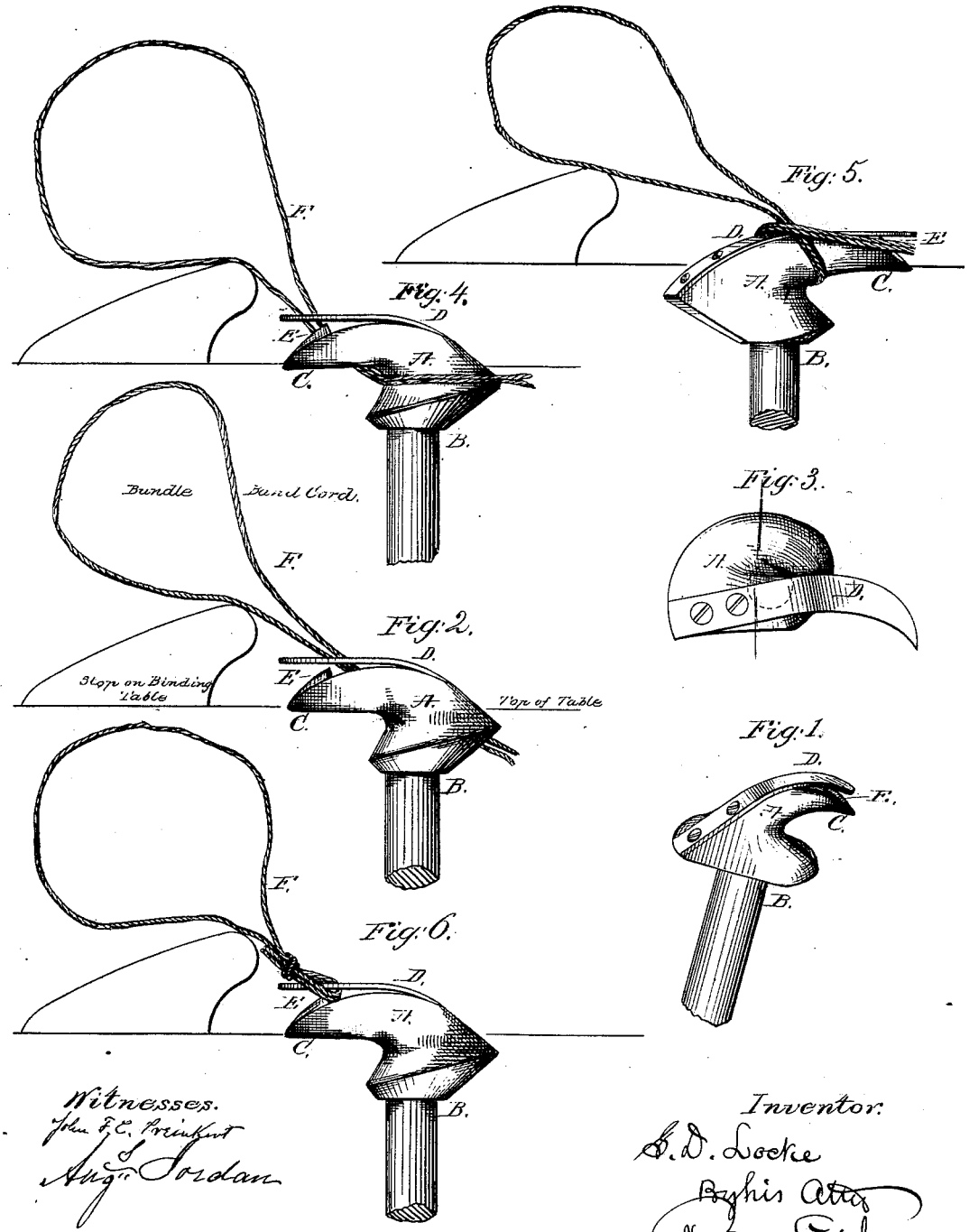
S. D. LOCKE.

Knotting-Hook for Grain-Binder.

No. 218,038. Patented July 29, 1879.



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UNITED STATES PATENT OFFICE

SYLVANUS D. LOCKE, OF HOOSICK FALLS, NEW YORK.

IMPROVEMENT IN KNOTTING-HOOKS FOR GRAIN-BINDERS.

Specification forming part of Letters Patent No. **218,038**, dated July 29, 1879; application filed March 4, 1879.

To all whom it may concern:

Be it known that I, SYLVANUS D. LOCKE, of Hoosick Falls, in the county of Rensselaer, in the State of New York, have invented new and useful Improvements in Knotting-Hooks for Grain-Binders; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my hook. Fig. 2 is a side elevation of the same in position and ready to receive the binding-cord. Fig. 3 is a plan view of the same in the same position, and Fig. 4 is a side elevation in the same position, representing the cord after being carried around the neck of the hook. Fig. 5 is a side elevation of the same in position one-half revolution from Fig. 4, showing the binding-cord looped round the neck of the hook and the two ends about to enter the jaw. Fig. 6 is a side elevation in position Fig. 2, showing the binding-cord knotted and about to be discharged from the hook.

This invention relates to an improvement in knotting-hooks for which Letters Patent were issued to me December 19, 1865, No. 51,600, and Letters Patent No. 139,008, dated May 20, 1873, to which reference is hereby made for a particular description, with a mode of operation and general construction of my device.

The binding-cord is retained between the inflexible jaws of the knotting-hook (described in said Patent No. 51,600) by a spring-latch, which, being necessarily slight, is liable to derangement, and the severed ends of such cords are discharged only by drawing through said jaws sidewise.

In my said Patent No. 139,008 one of the jaws is rigid and the other is elastic, and the binding-cord is retained between them by a a solid shoulder upon one of said jaws, which closes into a cavity in the opposite jaw.

The spring-latch in my first-named patent is necessarily slight, and is liable to derangement.

The structure of the jaws in my last-named patent is at the loop of the binding-cord, and only passed behind the shoulder by being bent into the recess directly opposite said shoulder, and is therefore less easily discharged when the knot is completed. The elastic jaw represented in said patent is also difficult and costly to manufacture with either the shoulder as represented in the drawings, or the recess as described.

My present improvement is designed to obviate both of the objections above named to the jaw as shown in my said Patent No. 139,008.

That others may fully understand my invention I will particularly describe it, having reference to the accompanying drawings.

The devices to be used in connection with this knotting-hook for the purpose of carrying the cord around the bundle and controlling the same, conducting the same to the knotting-hook, and severing the same after the knot has been formed, may be of any well-known and efficient description, and therefore are not described herein.

A is a knotting-hook, mounted upon the end of the shaft B, which turns in suitable bearings, and to which motive power is applied to rotate the hook. At one side of the knotting-hook A the curved hook or bill C projects, and to the top of said knotting-head A the elastic plate or jaw D is rigidly secured. The front end of said elastic jaw D is of similar shape laterally to the jaw or bill C, and is located directly above it. The curvature of the upper side of said bill C is, however, greater than the curvature of the jaw D, so that at their ends they are separated a sufficient distance to admit the binding-cord to enter freely between them. At a little distance back from the points of the bill C there is a spine or rib, E, inclined on its front edge and vertical on its rear edge, to form a shoulder to retain the binding-cord when it is passed between the jaws C and D while the knot is being formed.

In practice the upper surface of the bill C may be made flat or rounding, and the rib E project abruptly above it. The jaw D may not rest upon the point of the rib E, though the distance between them should be considerably less than the diameter of the cord employed for binding material.

When the cord F has been carried around the bundle by the proper mechanism, and the two ends brought together and placed obliquely within reach of the hook A, as shown in Fig. 2, the subsequent revolution of the hook causes the winding of the cord around

the neck, as shown in Figs. 4 and 5, and the entrance of the two parts of the cord between the jaws C and D, (shown in Fig. 5,) and the looping and knotting, as shown in Fig. 6. The cord is then severed, or it may be severed just before the hook reaches this last position, (shown in Fig. 6,) and the further operation of the binding mechanism or the expansion of the bundle detaches the loop (shown in Fig. 6) either by drawing the severed ends through the knot or by slipping the loop bodily out from the jaws. At this point in the operation of this device the pull which discharges the loop from the jaw is necessarily, or at least preferably, obliquely upward; and if, as sometimes happens, the severed ends do not readily draw out from the knot, owing to unevenness of the cord itself or to the tightness with which the knot is drawn, no damage will occur to the hook or jaws, because the jaw D, being elastic, will yield and spring upward and permit the loop to be drawn over the top of the shoulder, instead of being inflexibly retained there, as would be the case with the shoulder upon the elastic jaw, as shown in my Patent No. 139,008. This is the particular advantage incident to the structure shown herein; but there is also the further advantage of economy in construction due to the placing of the shoulder upon the rigid jaw, and making the elastic jaw perfectly plain and flat.

The hook thus constructed will permit the severance of the binding-cord at any desirable distance from the hook, and this is a condition of great practical importance, because when the cord is severed close to the hook the ends may separate before the knot is formed, and when severed from the hook the ends may be held in the knot and the cord broken, unless a free discharge under all circumstances is secured, as in the present device.

Having described my invention, what I claim as new is—

A turning or revolving knotting-hook having a rigid bill or jaw, C, provided with a rigid retaining-shoulder, E, combined with a flat and elastic jaw, D, substantially as set forth.

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Witnesses:

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