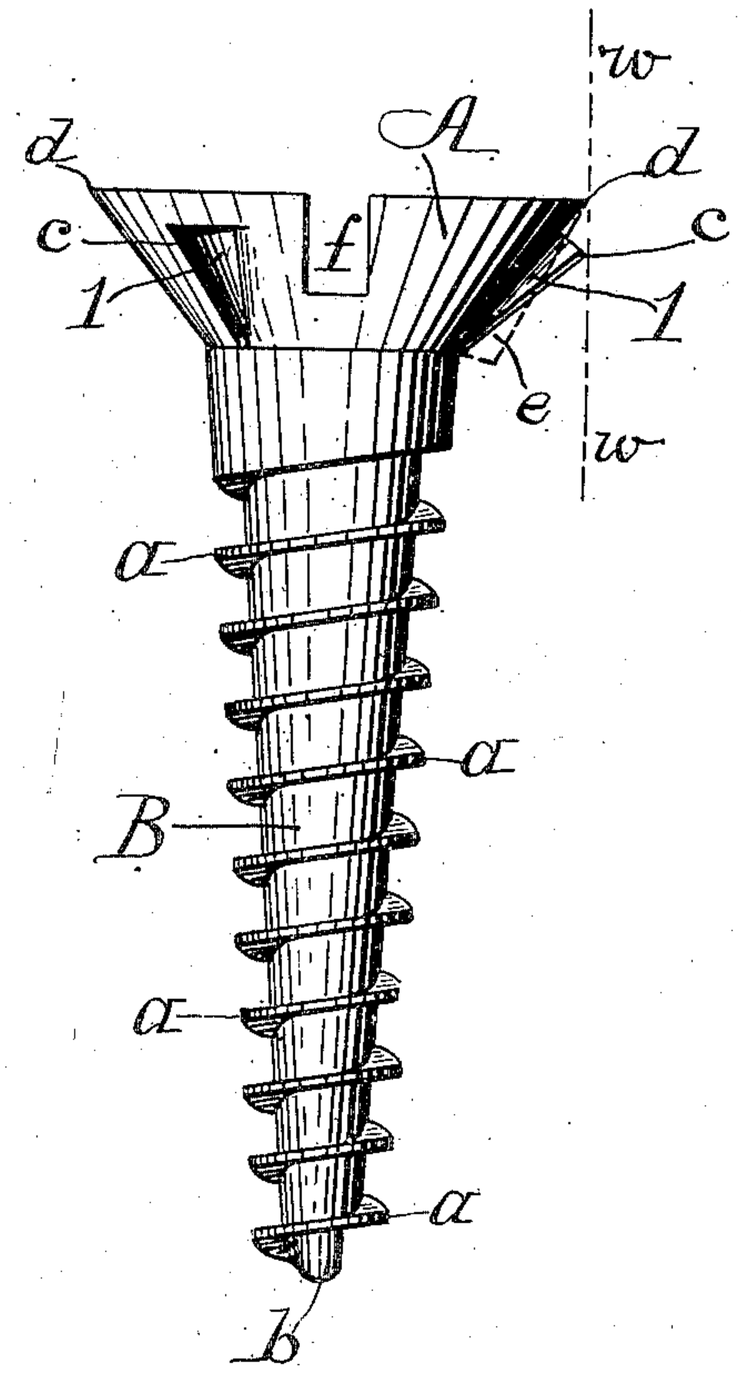
(No Model.)

W. N. RICHARDS.

SELF COUNTERSINKING SCREW.

No. 465,101. Patented Dec. 15, 1891.



ATTEST-

E. Kaukenaller

E. Butler

INVENTOR-

William N. Richards,

per Wm. C. Raymond,

his Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM N. RICHARDS, OF LYONS, NEW YORK, ASSIGNOR OF NINE-TWENTIETHS TO JOHN D. ALDEN, OF SAME PLACE.

SELF-COUNTERSINKING SCREW.

SPECIFICATION forming part of Letters Patent No. 465,101, dated December 15, 1891.

Application filed December 5, 1890. Serial No. 373,644. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. RICHARDS, of Lyons, in the county of Wayne, in the State of New York, have invented certain new and useful Improvements in Self-Countersinking Screws, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to that species of metallic screws commonly designated as "countersinking-screws," and applicable for use in wood-work and analogous purposes.

The object of my invention is to produce a screw of the character mentioned, of improved and advantageous construction and insuring satisfactory and reliable operation and service, and the limitation of the projecting of the head of the screw into the self-formed countersink in the wood farther than is desirable and concurrently insuring proper bearing therefor. Obviously, as in other devices wherein the screw is of a self-countersinking character, when my screw is screwed into wood or other operative material, it will, through the movement imparted to the stem and knife-provided head by the manipulating screw-driver, create a countersink of the exact depth requisite for the proper reception of the head of the screw, and coincidently creating a satisfactory bearing for said head.

My invention consists in the novel features of construction, details of formation, combination of the parts, and perfect adaptability for the purposes designed, as hereinafter described, and clearly enumerated in the claims hereto annexed. It is constructed as follows:

A is the circumferentially-beveled head, and B the elongated stem or shank provided with the customary threads *a a a*, &c., said threaded stem terminating in the usual point *b*. Upon the under or beveled side of the screw-head A are disposed one or more knives or cutting-blades 1, projecting both obliquely and diagonally outward from the beveled side of the head, the said lateral knife or knives extending from the bottom of the beveled surface of the head to within a short distance of its top, and the cutting blades or knives gradually taper outwardly, starting at the bottom of the beveled surface of the head and terminating at their point of greatest lateral projection, as at *c*, slightly below the top surface of the head and vertically lineal with the circumferential edge *d* of the horizontal surface of said screw-head, and whereby the circular top of the head of the screw will set into a countersink of similar dimensions at its upper portion, the lineal projection of the circumferential top edge *d* and projecting point of the knife or cutting blade 1 being clearly shown at dotted line *w w*.

By means of the afore-described upper outward projection of the knives, as at *c*, it is evident they will cut the strongest and deepest at the upper portion of the screw-head A, and with a lighter or more superficial cut at the bottom portion thereof, the cutting gradually becoming stronger and deeper upward as the cutting-edge inclining ly diverges outward to its terminating point *c*.

When deemed desirable or expedient, I can form the knives 1 in such manner that they will start gradually from or about the top of the screw-head and continuing laterally outward and having their point of greatest projection (in relation to the beveled side of the head) adjacent to the lower termination of the beveled side of the head A, as represented by dotted work *e*. *f* is the customary nick formed in the head of the screw for the insertion of the driving-blade of a screw-driver.

As is apparent, the cutting-blades 1 project outwardly beyond the peripheral surface of the beveled side of the screw-head, the distance of the cutting-edge of same from the beveled side of the head gradually increasing until its angular projecting point *c* is reached.

The projecting knives or blades 1 may be constructed by being raised up from the beveled under side of the screw-head by cutting into same with a suitable tool or other satisfactory means, or by forming the knives on the beveled side of the head without cutting into the metal thereof. In either case the cutting-blades are by choice integral with the screw-head. The small shavings created by the motion of the knives will pass upwardly at or alongside the top thereof invariably, the knives being disposed on the proper angle.

I am aware of the existence of countersinking-screws wherein their blades or cutting-knives extend continuously from the stem or

body of the screw clear to the top of the screw-head, and which are of no practical value or utility for the reason that such formation of the knives afford no shoulder or bearing for the head, and consequently, there virtually being no limitation to the rotation of the screw, continued turning thereof would obviously impel it entirely through a board, or, at any rate, being liable to enter both at its stem and head portions much farther into the wood than desirable, except through the exercise of great caution on the part of the operator. Moreover, those forms of screws having knives extending upwardly to the very top of the head, necessarily cannot hold any better, if as well as an ordinary nail or spike, as being devoid of a shoulder portion, (as embodied by the point *c* of the knife in my construction,) terminating on a lower plane than the top surface of the head and vertically lineal with its circumferential edge there is not anything for the screw-stem to work or pull against. Particularly is this apparent in the attempt of screwing two pieces of wood tightly together, the drawing of them tightly and immovably together being unattainable, owing to the non-limitation of the screw's turning.

As is obvious, by my novel formation and arrangement of the cutting-blades, in connection with the head of the screw, as embodied in my invention, a screw of simple, durable, and inexpensive construction is provided, and wherein the defects or drawbacks incidental to the employment for service of the so-termed "countersinking-screws" now existent are entirely obviated, and a perfect working and thoroughly satisfactory countersinking-screw is resultant.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A countersinking-screw provided upon the under or beveled side of its head with one or more blades diverging therefrom, whose point of greatest projection lies beneath and apart from the circumferential smooth edge bounding the head's top, and whereby a space is created vertically between said projecting point of the blade or blades and the overhead smooth boundary edge of the top of the screw-head, substantially as shown and described, and for the purposes specified.

2. A countersinking-screw having upon the under or beveled surface of its head one or more blades standing outwardly therefrom, whose point of greatest projection stands vertically lineal with the circumferential boundary edge of the top of the screw-head upon a plane lying beneath the circumferential edge of the top of said head, substantially as shown and described, and for the purposes specified.

3. A countersinking-screw provided upon the under or beveled surface of its head with one or more cutting-blades or knives projecting diagonally therefrom and obliquely thereto, the point of greatest projection of the said blade or blades standing vertically lineal with the circumferential boundary edge of the top of the head and terminating on a plane lying beneath the plane of the top of the screw-head, whereby a space is created between the circumferential edge of the head's top and the underlying projecting point of the blade or blades, substantially as described and shown, and for the purposes set forth.

4. A countersinking-screw whose head is provided at its under or beveled side with one or more cutting-blades of triangular form, extending outwardly therefrom and having an angular or V-shaped projecting point lying beneath the periphery of the top of the head and in non-contact with the screw-head, substantially as described and shown, and for the purposes set forth.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 25th day of November, 1890.

WILLIAM N. RICHARDS. [L. S.]

Witnesses:

WM. C. RAYMOND,

E. KAUKEMOELLER.