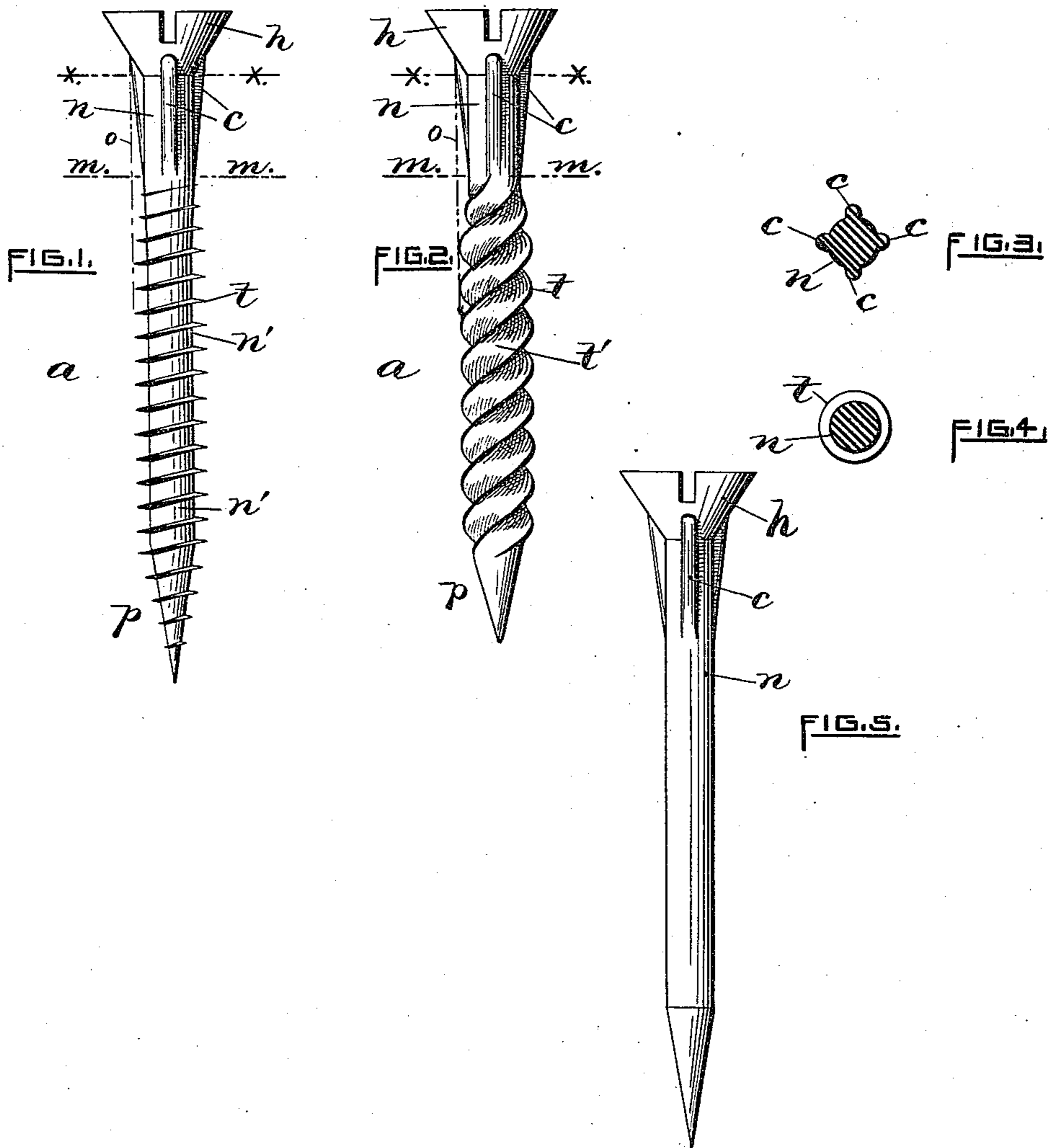


(No Model.)

C. D. ROGERS.
ROLLED WOOD SCREW.

No. 430,236.

Patented June 17, 1890.



WITNESSES.

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CHARLES D. ROGERS, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE
AMERICAN SCREW COMPANY, OF SAME PLACE.

ROLLED WOOD-SCREW.

SPECIFICATION forming part of Letters Patent No. 430,236, dated June 17, 1890.

Application filed January 20, 1890. Serial No. 337,463. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. ROGERS, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Rolled Wood-Screws; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

In rolled wood-screws having enlarged screw-threads—that is, screws in which the diameter taken across the thread exceeds that of the normal size of the wire or unthreaded portion—it is usual with some manufacturers to make the head of the screw enlarged, as compared with the shanks of ordinary wood-screws, the size being determined by or having a certain ratio to the diameter of the threads, instead of the wire itself. In the ordinary standard wood-screw having cut threads the diameter is substantially uniform throughout, except at the point portion, the diameter of the head exceeding that of the wire by a certain number of sizes or gages. It was undoubtedly this fact which caused certain rolled-screw makers to adopt the proportions used by manufacturers of cut screws, the difference being that in the former case the diameter of the thread is taken as the unit of measurement instead of the wire itself, as in the latter case, as before stated. In view of these facts, it is evident that the amount of metal composing the head of a rolled screw having enlarged threads is much greater than in the head of an ordinary or cut wood-screw. At the same time the lateral projection of the side of the head, from its junction with the shank, obviously considerably exceeds that of the head of a cut screw. Therefore the head of the rolled screw is not quite so stiff in a lateral direction, nor is it capable of resisting so great a torsional strain as a screw having a shank of larger diameter.

Attempts have been made to overcome the defects just referred to by increasing the

amount of metal at the intersection of the shank with the head. In United States Patent granted to me July 19, 1887, No. 367,011, I have shown and described a rolled wood-screw, in which the neck portion or unthreaded part of the screw has a substantially cone-shaped form. While such construction enables the screw to withstand greater strains, which may be applied to it in lateral and torsional directions, yet substantially the same result may be attained by a less quantity of metal distributed in a different manner.

The object I seek to attain is to stiffen and strengthen the heads and unthreaded shanks of rolled wood-screws provided with enlarged threads, at the same time disposing the metal for the purpose, so that only a minimum amount of stock is required.

To that end my improvement consists in providing the cylindrical shank with a series of comparatively narrow integral projecting ribs which commence at or near the beginning of the thread and extend longitudinally therefrom in a divergent direction until they intersect the side of the head at a point which measured across the head is substantially equal to the diameter of the screw taken across the enlarged screw-threaded portion. The stock which I preferably use for screws of this class is that known as "low steel" or "homogeneous" metal, because in order to produce heads upon the screw-blanks the metal is necessarily upset or swaged to a much greater extent than would be required for the heads of common cut screws. The ribs are formed upon the blank simultaneously with the forming of the head by upsetting the metal in a heading-die provided with a corresponding number of grooves having the form or counterpart of the ribs to be produced.

In the accompanying drawings, Figure 1 is a side elevation of an enlarged rolled thread wood-screw provided with my improvement. Fig. 2 is a similar view of a drive-screw or screw-nail having enlarged multiple threads or spirals of coarse pitch and also provided with a series of strengthening-ribs. Figs. 3 and 4 are cross-sectional views taken on lines

xx and mm , respectively, of Figs. 1 and 2; and Fig. 5 is a side elevation of the headed screw-blank before being subjected to the screw-threading machine.

5 Referring again to the drawings, n indicates the body or shank of the screw-blank, and also the unthreaded portion of the completed screw a , contiguous to the head h .

10 In Fig. 1 the screw-threads t are raised from the body of the blank by the rolling process—that is, the blank is placed between a pair of reciprocating dies provided with suitably-shaped ribs and grooves which act to raise the thread, the metal flowing laterally instead
15 of longitudinally, the diameter across the thread considerably exceeding that of the blank or unthreaded portion n .

The screw-nail shown in Fig. 2 is produced in a similar manner to that just described,
20 the form of the thread-forming ribs and grooves of the dies obviously being modified. In the screw-nail the space or root t' of the threads is curved, whereas that of the screw shown in Fig. 1 is straight or cylindrical, as
25 at n' . As hereinbefore stated, the head h is equal to that of a common screw whose shank has a diameter the same as the screw-threads t . Consequently the heads of such rolled screws contain more metal. It will be seen
30 that the screw presents an apparent structural weakness at the point where the shank n and head h unite, or on the line xx . In order, therefore, to increase the strength and

stiffness of such rolled screws at the point named, I provided the shank with a number of
35 raised ribs c , which commence, say, at the beginning of the screw-thread t and extend therefrom in a divergent direction longitudinally of the shank, and finally terminate in the side of the screw-head at a point which,
40 if prolonged therefrom, would touch and be parallel with the outer edge of the screw-thread, as indicated by the dotted line o , and also parallel with the axis of the screw. These ribs or feathers c are produced in the head-
45 ing-dies, which have correspondingly-shaped grooves cut therein for the purpose, the metal of the wire or rod from which the blank is made being upset into them simultaneously with the forming of the head. Obviously the
50 number of the ribs and the shape of them transversely may be varied from those represented by the drawings without departing from the spirit of the invention.

I claim—

55 A screw having its shank or unthreaded portion provided with longitudinal ribs or projections extending from the head toward the threaded portion.

In testimony whereof I have affixed my signature in presence of two witnesses. 60

CHARLES D. ROGERS.

Witnesses:

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GEO. H. REMINGTON.