

(No Model.)

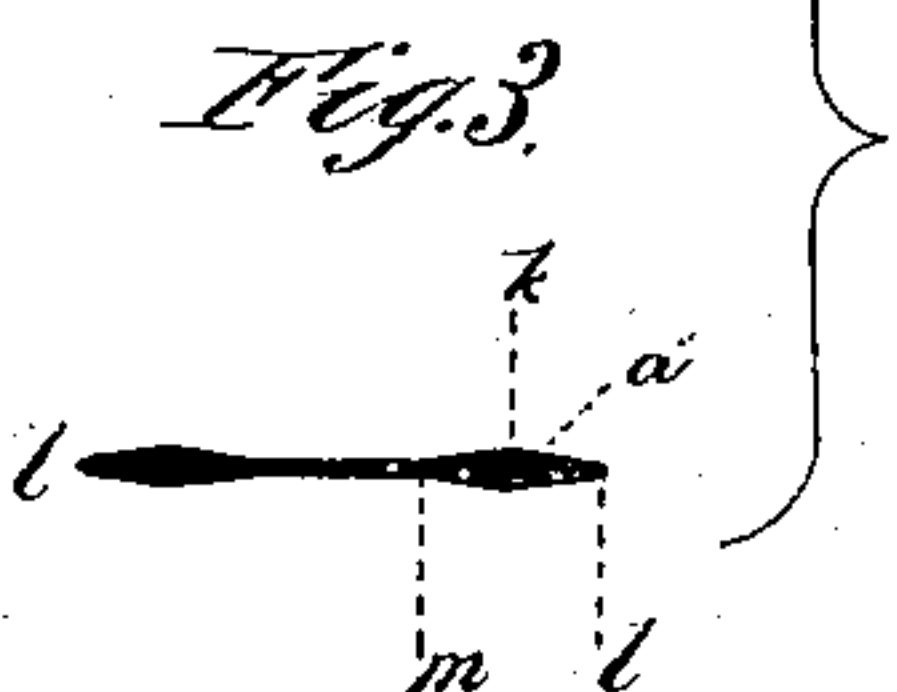
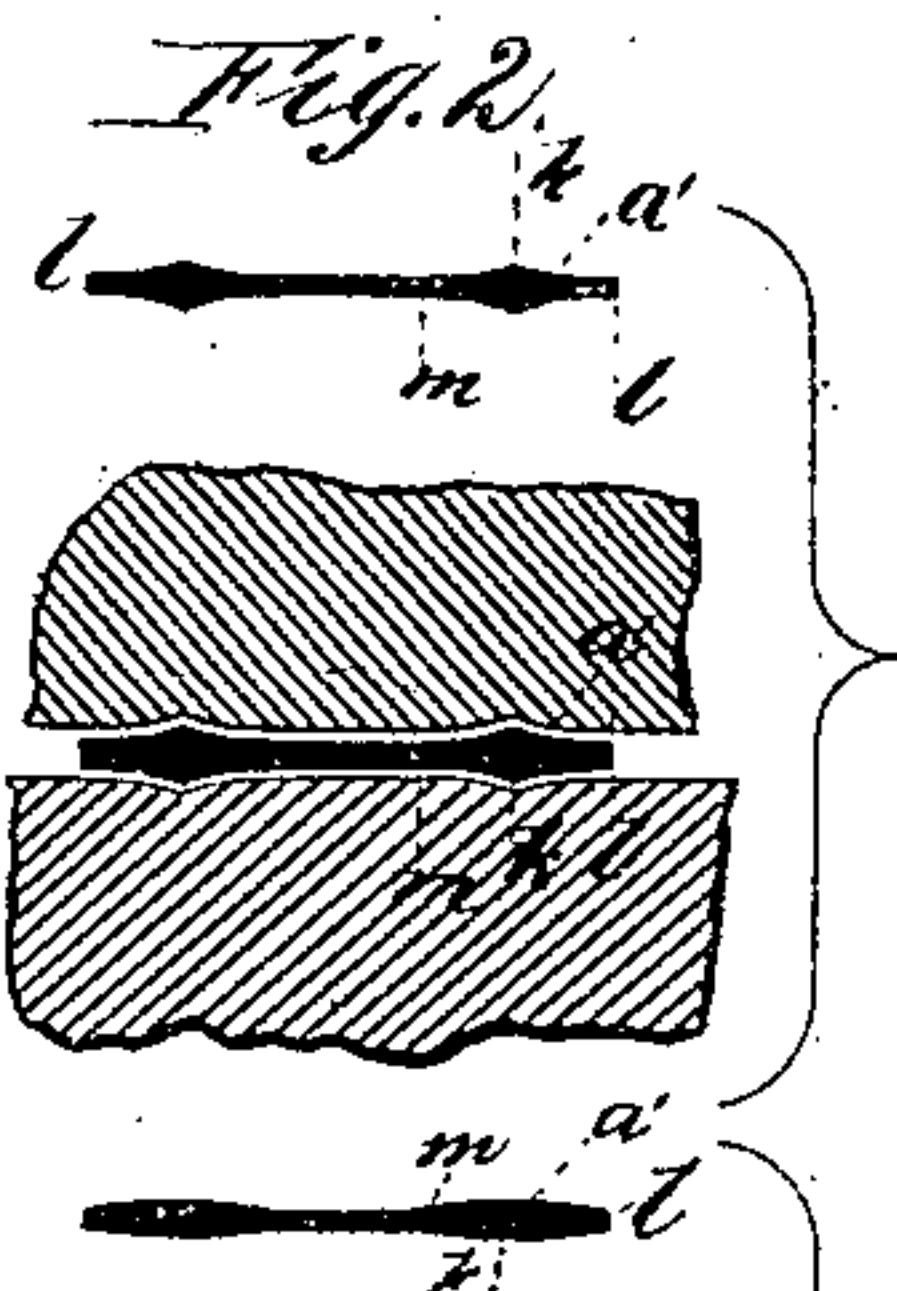
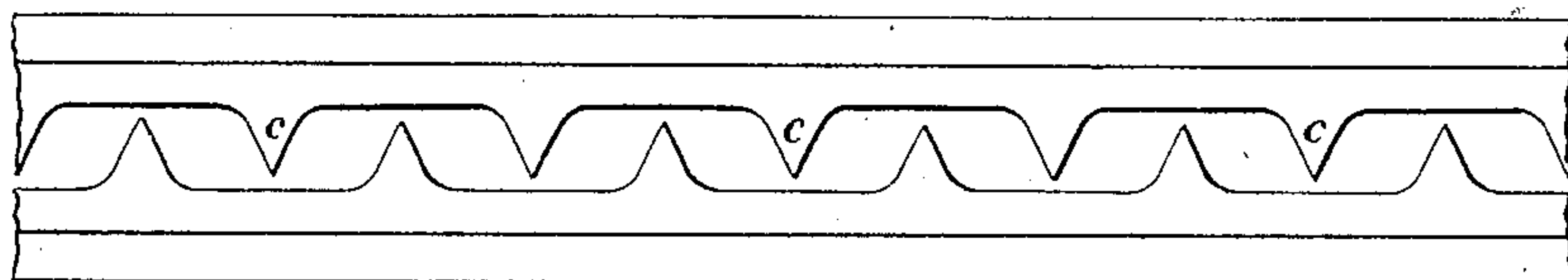
T. V. ALLIS.

BARBED WIRE BLANK FOR FENCES.

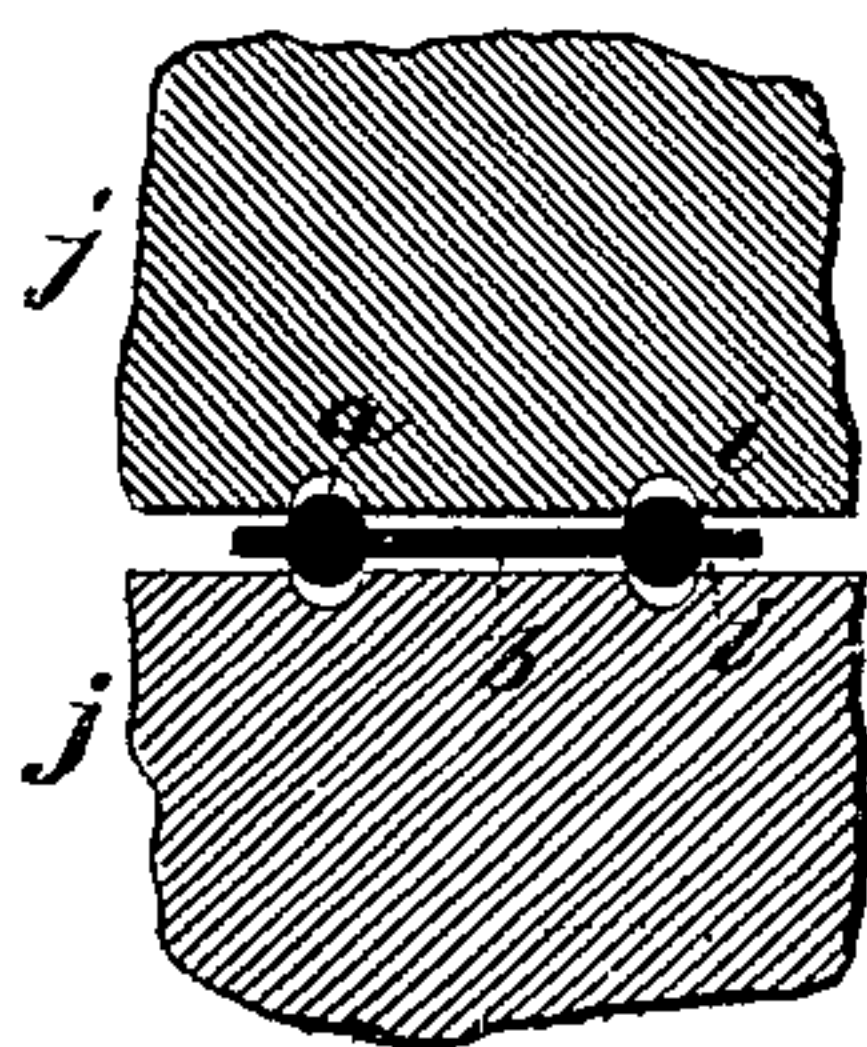
No. 248,629.

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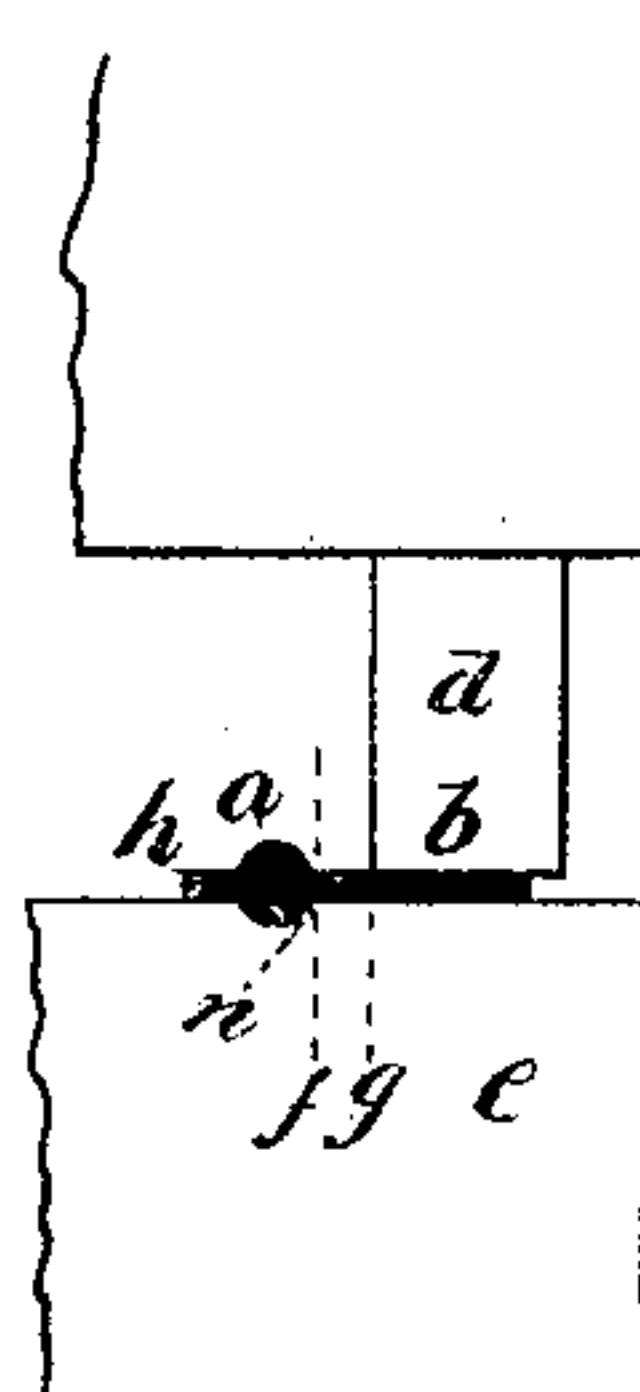
*Fig. 1.*



*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

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## BARBED-WIRE BLANK FOR FENCES.

SPECIFICATION forming part of Letters Patent No. 248,629, dated October 25, 1881.

Application filed September 18, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS V. ALLIS, of New York, county and State of New York, have invented a new and useful Improvement in Blanks for Barbed Metallic Fence-Rods, of which the following is a specification.

This invention is an improvement of the blank for barbed fencing on which a patent was allowed to me the 25th day of August, 1880, which is described as being "designed for the manufacture of twisted barbed metallic fencing, having one row of barbs made out of a fin on said rod, with narrow webs of said fin along the rod and connecting the bases of the barbs, said rod also having a narrow plain fin on the side opposite to said webs, between the barbs, of about the same width, for balancing the same when the rod is twisted after the barbs are formed on it, to make it twist straightly," and which said blank is described as "composed of two cores or ribs, connected by a thin web, to form the barbs and their connecting-webs, and a narrow fin to each core or rib opposite the said connecting-webs, to make the aforesaid balancing-fins for insuring straightness in the rods when twisted after the barbs are formed."

The prominent feature of this kind of barbed fencing is a core or rod, with barbs that are integral with the core, the core being in the natural or ordinary form of a rod—that is, round—or its approximate forms and the fins being thin and flat, which naturally led at first in the making of it to such form of the two parts in conjunction that the angles at the junctions of the core with the webs prevented the punches used in cutting away the webs and forming the points from working close to the cores, (as will be more particularly described further on,) thereby making it necessary to leave the aforesaid narrow webs for the protection of the dies, which is mainly their purpose, and they make necessary the balancing-fins. By subsequent practice and experience a form of integrally-combined core or rod and barbs, based on the same general feature, has been found out, in which it is not necessary for the protection of the die to limit the distance at which it may cut up toward

the core, and there is no need of leaving any metal between the bases of the barbs other than what constitutes the core itself, and no distinctive balancing-fin is required. It also has another advantage—viz., the metal may be rolled down into the blank from the billet with much less wear and damage to the rolls than the other, as will be more fully explained hereinafter.

The present invention consists of a blank for this improved form of rod, in which two parallel cores or ribs and a connecting-web for a row of barbs to each core or rod are made in one strip, the said cores and web being merged the one into the other by lines of uniform graduation from the thickest part of the core at center to the center of the web, wholly avoiding the abrupt change of form at the junction of the two parts, as shown in my former application, that prevented cutting as close as desired to or from the cores or ribs. The cores have equal and uniform extension on opposite sides of a longitudinal line along its thickest portion, and terminate on the web side at the line along which the cuts are to be made. From this form of blank an article of this kind of barbed fencing may be produced of which all the metal except the barbs is comprised in the core or rod without any distinctive connecting-web between the barbs or any counterbalancing-fin, and which may be twisted straight and be rolled and punched to better advantage.

In the accompanying drawings, Figure 1 is a plan of a couple of short sections of barbed fencing as made from the improved blank which is the subject of this application. Fig. 2 represents two cross-sections of the blanks, also sections of the rolls, showing the form of the grooves for shaping and reducing the blanks. Fig. 3 is a view of the blank in modified form. Fig. 4 represents a section of the blank as heretofore made, also a section of a pair of rolls, illustrating the action of rolling it. Fig. 5 is a representation of the method of punching away portions of the fins to form the barbs, and shows why the form of rod heretofore made cannot be punched close to the core, and the necessity for leaving between the barbs the



connecting-webs, which demand the balancing-fin.

As before intimated, the form at first and most naturally occurring to the mind of one proposing to make an integrally-combined rod with barbs for fencing is a core substantially in the form of a rod, *a*, Figs. 4 and 5, whether round or other equivalent form, with a fin, *b*, of thin and broad dimensions, for the barbs, the fin being mostly cut away to form barbs, as *c*, Fig. 1. The only practical way known up to this time for cutting away the surplus metal is to punch it out by a punch, *d*, and die *e*. Naturally the punch should cut close to the core *a*—say at or about the dotted line *f*; but practically it cannot be done, because the thin body *n* of metal between the groove in the face of the die for the under side of the core *a* and the cutting-edge of the die breaks off under the hard strokes of the punch; consequently the cutting-edge of the die must be located a suitable distance from the edge of the groove, and in the direction of the points of the barbs—say at the line *g*—to provide sufficient breadth of metal between said edge for strength. This prevents cutting the spaces or notches between the barbs as close to the cores as it is desirable to do, and causes the webs *f g* to be left between the barbs along the cores, and these webs make necessary the opposite balancing-fin *h*, to insure straightness when the rod is twisted. These webs also make the barbs from a web or fin of a given breadth so much shorter. The angles between the cores or ribs and webs in this form of blank also make it difficult to keep the edges *i* of the grooves in the rolls *j* in working condition, for, as will be noticed by examination of Fig. 4, the said edges are first to impinge upon the sides of the cores at points where the metal has powerful wedge-like action between said edges to wear and chip them off, thus making the cost of roll-turning very great, besides doing the work much slower than is desirable.

I propose to make a different form of this barbed fencing, in the making of which, by reason of such form, these difficulties will be avoided. The core or rib portion *a'* of this new form is greatly widened in the plane of the barbs and diminished the other way, so that without containing more metal than as heretofore made the sides extend each way in uniform lines from the center of said core to the edges *l* and *m*, in which they terminate, which said edges are of the same thickness as the web out of which the barbs are formed, and the radius of said edges is double or more than the transverse radius of the core.

The blank which I now propose for this improved form of barbed fencing consists of two cores, of double or greater breadth than thickness, connected by a web in the plane of their breadth, the sides of said cores being of such gradual and uniform shape from the center *k* to the edges *l m* that the sides of the grooves in the rolls for making the cores merge in the

plane surfaces of said rolls without any definite edges *i*, the said sides being either plane, concave, or convex, as may be preferred. It will be noticed that as these edges *i* of the grooves for making the old form of blank touch the metal before the plane portions of the rolls between the grooves and outside of them touch the fins and the webs, said edges force the metal of the cores down on the web and fins close to the cores, so as to interfere with and prevent the action of the plane portions of the rolls, except only where the metal is so pressed down from the cores. The effect of the rolls is much the greatest upon the sides of the cores. The cores are thus subject to a greater elongating or drawing stress than the fins and connecting-web, which, consequently, have a resisting effect against such elongation. The shape of the cores and their corresponding deep-roll grooves prevent lateral spread of the metal except from the centers of the cores, or thereabout outward, so that the reduction of the metal in the making of this form of blank is necessarily slow and difficult, and at the best it is limited to the working of the metal while hot, whereas it is highly desirable to work the blanks over by cold-rolling in finishing-rolls to toughen the metal and gage the blanks to size more accurately than can be well done in the reducing-rolls.

By examination of the new form of blank now presented and the roll-grooves for making it, Figs. 1 and 2, it will readily be seen that the rolls impinge alike upon the cores from center to edges, and also on the web between the cores, so as to have uniform effect across the whole breadth, by which the process of reduction from the billet is facilitated, as the metal can expand laterally as well as lengthwise. The reduction to size and for condensing the metal by cold-rolling is entirely feasible. The roll-grooves have a shape that is lasting. The dies for punching away the surplus metal to form the barbs are enabled to be in more durable form, and, lastly, the article of fencing made from this blank is better, in respect to the strength of the barbs at the junction with the core, by reason of the more gradual lines by which they merge in the cores, whereas the fins are liable to crack away from the cores in the other form, and by the facility of cold-rolling which this form affords the blanks can be rolled several gages smaller than the other can, by which the metal is made so much tougher that a rod of a given strength is furnished considerably less in weight and dimensions, whereby the consumer is served at considerably less cost, while the profit to the manufacturer will not be less, but may be more, owing to the more economical manufacture. For equal sizes the rod produced from this blank will be considerable stronger than one from the blank as heretofore made.

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

A blank for barbed metallic fencing, consisting of two cores or rods connected by a thin web, said cores or rods being of greater diameter in the plane of the web than transversely thereto, but of greater transverse diameter than the thickness of the connecting-web, and tapering each way from the highest point in said

transverse diameter by concave, straight, or convex lines which gradually merge into the plane of the web.

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