(No Model.) 2 Sheets—Sheet 1.

T. V. ALLIS.

METHOD OF MAKING METALLIC FENCING.

No. 507,197. Patented Oct. 24, 1893.

Fig. 1.

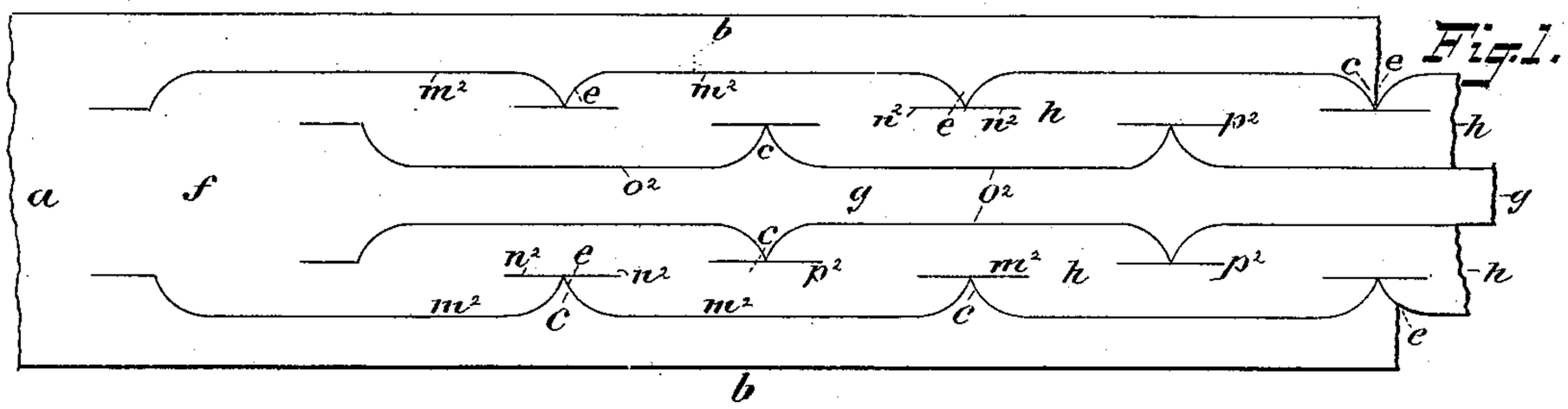


Fig. 2.

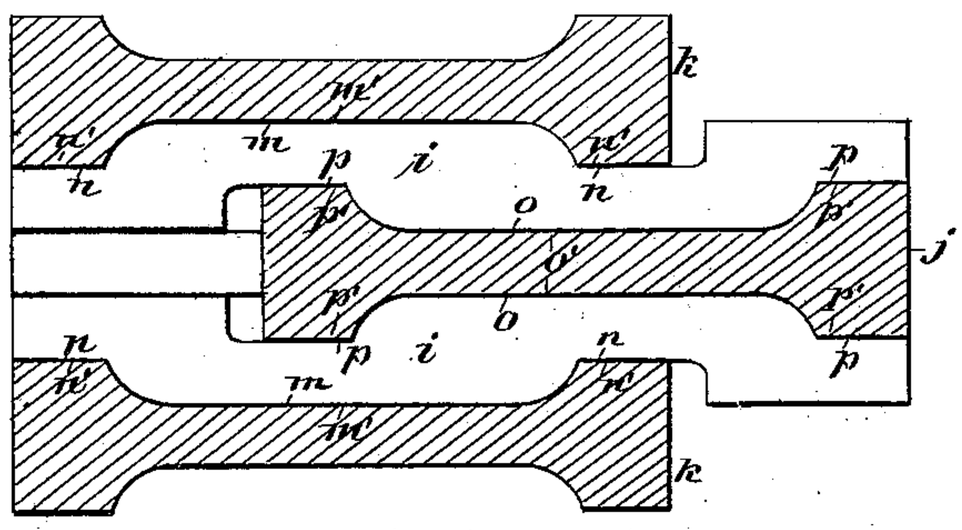


Fig. 3.

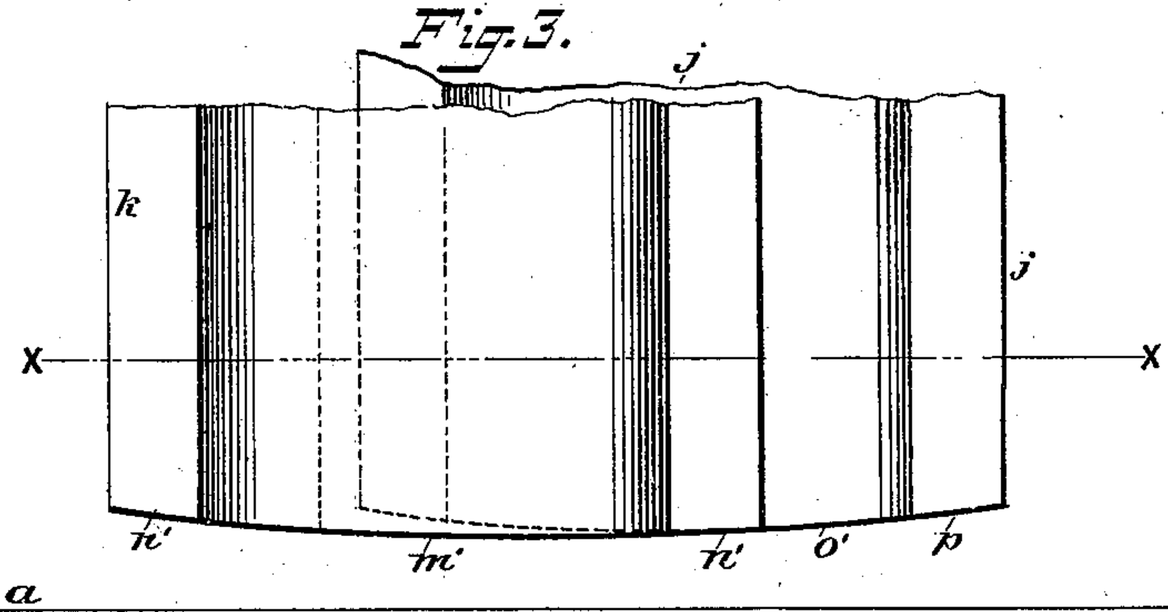
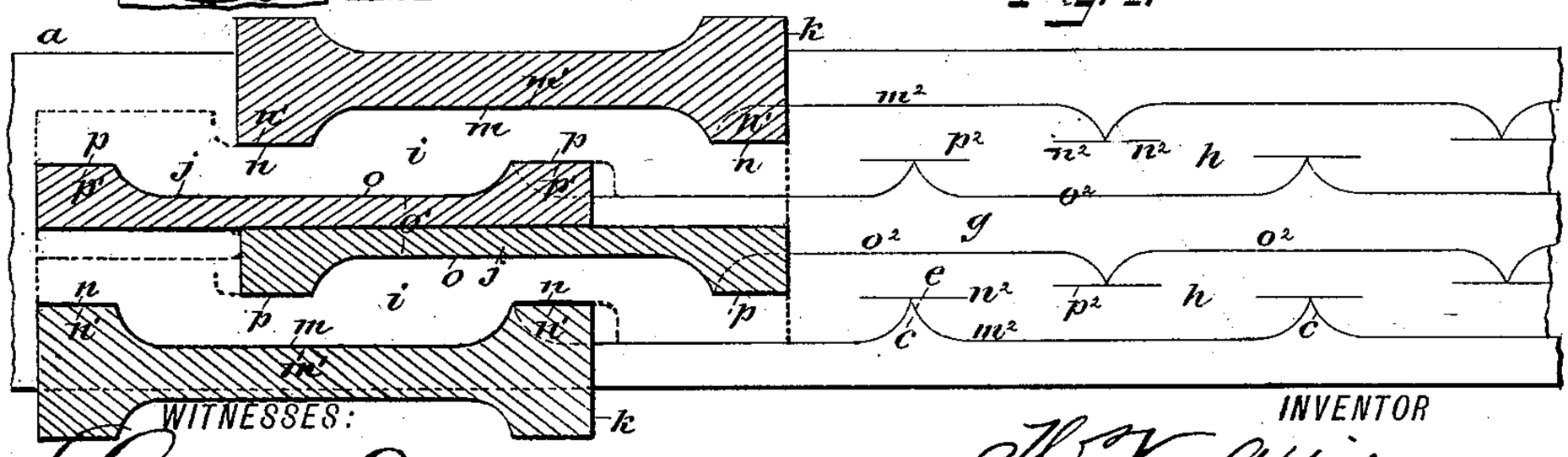


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

T. V. ALLIS.

METHOD OF MAKING METALLIC FENCING.

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Fig. 5.

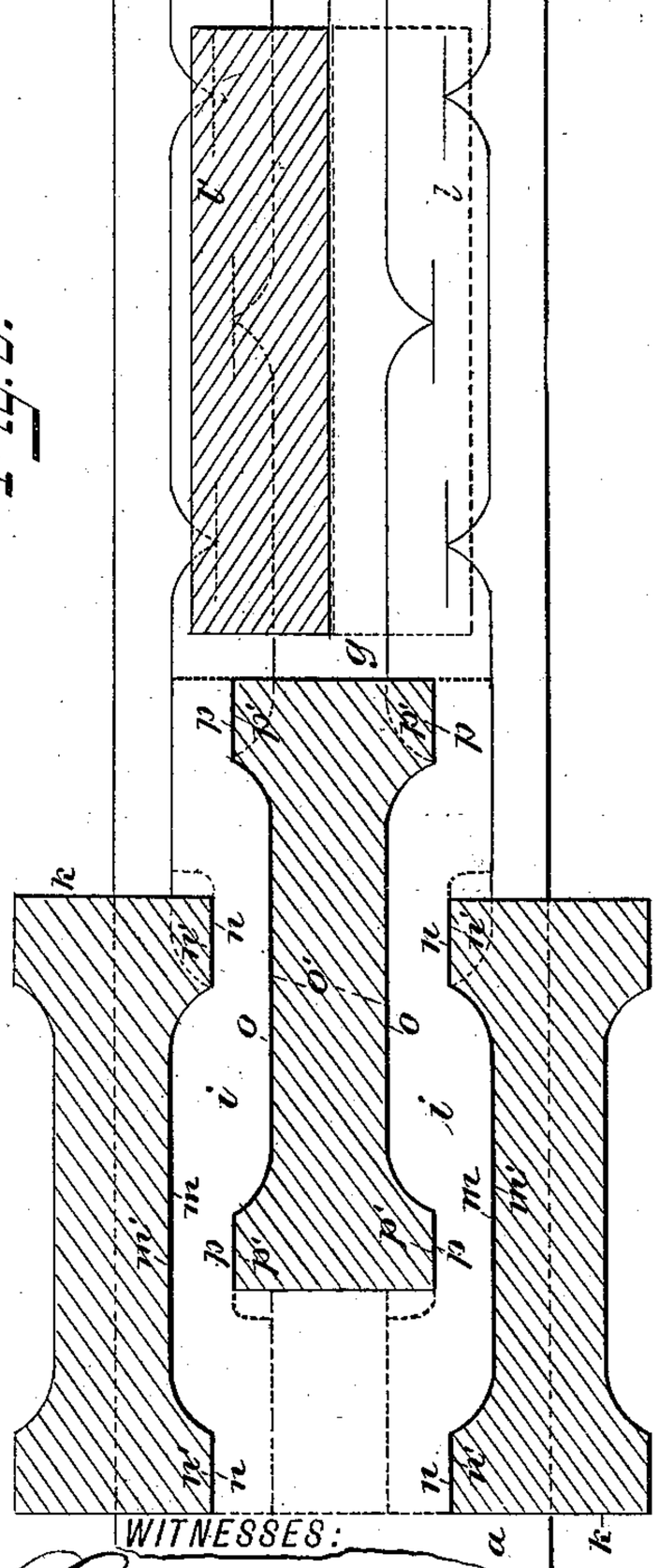
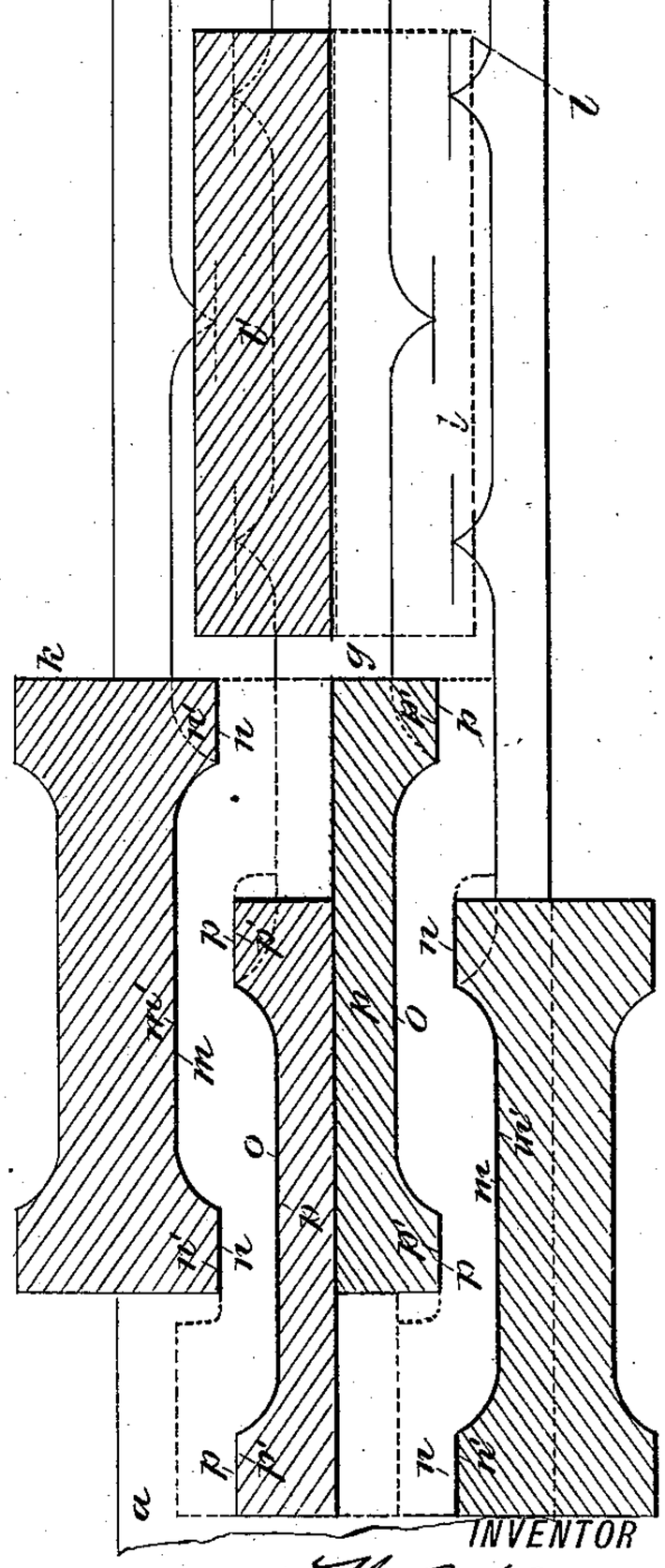


Fig. 5.



UNITED STATES PATENT OFFICE.

THOMAS V. ALLIS, OF NEW YORK, N. Y.

METHOD OF MAKING METALLIC FENCING.

SPECIFICATION forming part of Letters Patent No. 507,197, dated October 24, 1893.

Application filed November 30, 1888. Serial No. 292,277. (No specimens.)

To all whom it may concern:

Be it known that I, THOMAS V. ALLIS, a citizen of the United States, reiding at New York city, in the county and State of New York, have invented certain new and useful Improvements in Methods of Making Metallic Fencing; 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.

My invention relates to an improved method of making both barbed and ornamentally notched metallic fencing strips from one blank strip and whereby three or four barbed strips having integral barbs projecting from one edge, or one of said barbed strips having barbs on both edges and in the plane of the strip and two unbarbed but ornamental strips having notched edges may be produced from a blank strip in a simple and expeditious manner and without waste of material by a simple system of slits forming barbs on one and notches in the other of the edges separated by the slits and so that the notches are produced alternately along the edges of the notched strips, and on the barbed strips having both edges barbed, the barbs are either alternate or opposite as preferred, all as hereinafter described, reference being made to the accompanying drawings in which—

Figure 1, is a diagram showing three barbed strips and two notched strips all produced from one blank by a system of slits producing without waste two barbed strips having barbs on one edge from the margins of the blank, also a barbed strip from the middle of said blank having barbs on both edges, and also two notched strips from between the middle and outer barbed strips. Fig. 2, is a horizontal section of the upper or movable dies and face views of the bed dies which I employ for producing these strips, the section of the upper dies being taken on the line X X of Fig. 3. Fig. 3, is a side elevation of the said dies, together with a blank strip between the upper and lower dies as in the process of slitting it. Fig. 4, is a horizontal section of the upper dies, diagram of a partly cut blank strip and face views (partly dotted) of the lower dies showing a modified arrangement of the dies for producing the barbs alternately on the middle barbed strip. Fig. 5, is a horizontal section of the upper dies diagram of a partly cut blank strip and face views (partly dotted) of the lower dies also a horizontal section of the upper die and face view (dotted) of the lower die of a pair of slitting dies showing an arrangement whereby the middle barbed strip may be divided into two strips each having barbs on one edge, and Fig. 6, is substantially the same as Fig. 5, but modified for disposing the barbs of the middle barbed strips alternately.

In another application for a patent for an improved method of making barbed fencing filed at the same time with this and marked A, I have represented the making of two barbed strips and one ornamentally notched strip from one blank of suitable width for said three strips by cutting the barbed strips from the margins of the blank in lines diverging inward at suitable intervals along the blank to form the points or barbs on the marginal strips and notches on the edges of the middle strip. In this application I represent the enlargement of the said method by starting out with a much wider blank and producing said middle unbarbed and notched strip in suitable width for three or four strips and further slitting it so as to produce one strip barbed on both edges or two barbed on one edge and two notched strips of suitable width for fencing purposes and being notched on both edges same as the intermediate strip produced by the invention described in the before mentioned application.

In Figs. 1 and 4, the blank and strip diagram represents the wide blank *a*, nearly double the width of the blank as before used for making three strips; *b*, shows a barbed strip partly cut from each margin of the blank, on lines diverging inward of the blank at intervals so as to produce the barbs *c*, and at the same time produce corresponding notches *e*, on the edges of the wide intermediate portion of the strip *f*, left between strips *b*, said barbs and notches either being at opposite points on the respective margins of the blank as in Figs. 1, and 5, or at intermediate points as in Figs. 4 and 6. Besides so producing the two barbed strips *b*, from the margins of the blank I cut the wide middle web *f*, into three or four other strips by cutting from its middle por-

tion the barbed strip g, and thereby producing the notched strips h, from the marginal portions of said middle barbed strip and intermediate to the marginal barbed strips b, said strip g, having barbs on both edges, either oppositely or intermediately according as the barbs of strips b, are opposite, or intermediate. And again using a still wider blank a, as in Figs. 5 and 6, I make the middle double barbed strip wider and produce therefrom two barbed strips g', having one edge barbed by slitting it apart along the middle in a straight line thus making four barbed strips and two notched strips all from one blank without any waste of material and without any cutting other than merely slitting the blank into the respective strips.

Various contrivances of dies may be employed for carrying out this method of multiplex production as a single pair of dies having cutting edges adapted to cut one strip b, from the edge of the blank by cutting from the point of one barb to another at each operation and also cutting slits n^2 described further on, the strip being fed successively to said dies a like distance at each operation, then said strip being reversed and the other margin similarly fed along the dies, then being again reversed and fed along the dies so as to cut one of the notched strips h, from one edge of the middle barbed strip g, and again reversed and finally fed along the dies so as to cut the other notched strip h, from the other edge of the middle barbed strip g, and completing the operation. When the middle barbed strip is made wider for the production of the two strips g', it will after being produced as above be passed along another pair of plain slitting dies for being split along the middle as represented in Figs. 5 and 6. But for accomplishing all these operations during one passage of the blank along the machine I employ the two duplex bed or stationary dies i, duplex intermediate movable die j, and two single acting movable dies k, and where the middle barbed strip is to be split apart, the two plain slitting dies l, l' all of which will preferably be arranged in one gang to operate together. The duplex bed dies i, having one cutting edge m, n, on one side and the single acting dies k, have corresponding cutting edges m', n', coacting therewith and together with them being in the proper form for cutting the slits m^2, n^2, by which the marginal barbed strips are cut apart from the wide notched strip f. They are together suitably placed as to their distance apart, and in reverse of each other as to the salient portions m, of the edges of the bed dies for simultaneously cutting the two barbed strips from strip f, being placed directly opposite or coincident lengthwise as in Fig. 2, when the barbs of the two strips b, are to be coincident, but they overlap from center to center as in Fig. 4, where said barbs are to be intermediate. On the other side of the bed dies i, they have the similar edges o, p, but reversed as to their salient projections relatively to those of edges m, n, said edges also overlapping each other from center to center, and also being laterally apart a space equal to the width of the notched strips p, to be made which together with the corresponding duplex cutting edges o', p', of the movable die coacting therewith and together with them being in the proper forms for cutting both the slits o^2, p^2, by which the notched strips n, are cut apart from the middle barbed strip g, they cut the middle barbed strip from between the two notched strips and thus complete the process of making five strips from the blank, but when said middle strip is to be split apart for two strips the dies i, i', are located farther along in the gang for so slitting said strip successively to the production of it from between the notched strips, as represented in Figs. 5 and 6.

It is to be noted that the duplex edges of movable die j, are coincident with each other lengthwise as in Figs. 2 and 5 and edges m, of the bed dies and the corresponding edges m', of the single acting movable dies are also coincident, where the barbs of the outside strips b, and of the middle strip g, are coincident respectively as in Fig. 1, but where said barbs are to be alternate as in Figs. 4 and 6, the edges of said middle movable die j overlap each other from center to center, also the edges m, n, of the bed dies and the corresponding edges m', n', of the single acting movable dies k, as in Figs. 4, and 6, the die j, being in this case represented as constructed in two parts divided lengthwise and being advanced one beyond the other. This is necessary because the cutting ends of the dies do not terminate coincidently at their cutting ends in consequence of having to be made convex as represented in Fig. 3, in order to shear gradually into the metal at the ends of the slits to prevent distorting it thereat, for cutting slits terminating at each end in solid metal. The parts n, n', and p, p', of the cutting edges extending beyond the parts m, m', and o, o', are prolongations employed to extend the cutting edges lengthwise of the strip and away from the angles of the notches and points far enough beyond where the points of the barbs are produced and which must be cut entirely through the metal to make them sharp and fine to enable the dies to shear cut from the surface at the extreme ends of the slits and at the same time so reach through the metal at the points, and they are also useful in producing the slits n^2, p^2, at the bottoms of the notches in the strips n, to oppose by the intact inner edges of the slits, the tendency of the stresses concentrating in the angles of the notches to cause cracks.

The single acting dies k, are represented as made with duplex cutting edges but it is not because they serve any purpose in the machine except that when one edge has become worn too much for use the other edge may be brought into use by reversing the die and

both edges may be sharpened by the same amount of grinding as is necessary for sharpening only one edge and thus both the dies and the labor of sharpening are economized, and they are interchangeable with each other and with the dies *j*, except where said dies are divided as in Figs. 4, and 6. Dies *i*, are also made in counterpart of their respective sides, so that they are likewise reversible in their own positions and interchangeable with each other as occasion may require.

What I claim, and desire to secure by Letters Patent, is—

1. The method of producing metallic barbed, also unbarbed and notched ornamental fencing strips together from one and the same blank which consists of cutting from each edge or marginal portion of a plain blank strip a barbed strip having barbs at intervals along the edge cut apart from the rest of the blank and thereby also producing an intermediate unbarbed strip having notched edges and being of suitable width for three or more fencing strips, and cutting from the middle portion of said strip, a barbed strip having barbs on both edges and thereby forming notches in the edges of both the strips cut apart from it, the latter strips being notched in their other edges by cutting the first barbed strips therefrom, substantially as described.

2. The method of producing metallic barbed, also unbarbed and notched ornamental fencing strips together from one and the same blank, which consists of cutting from each edge or marginal portion of a plain blank strip a barbed strip having barbs at intervals along the edge cut apart from the rest of the blank, and thereby also producing an intermediate unbarbed strip having notched edges and being of suitable width for three or more fencing strips, and cutting from the middle portion of said strip a barbed strip wide enough for two strips and having barbs on both edges, and thereby forming notches in the edges of both of the strips cut apart from it, the latter strips being notched in their other edges by cutting the first barbed strips therefrom, and finally slitting the double edged barbed strip apart along the middle, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS V. ALLIS.

Witnesses:
W. J. MORGAN,
W. B. EARLL.