

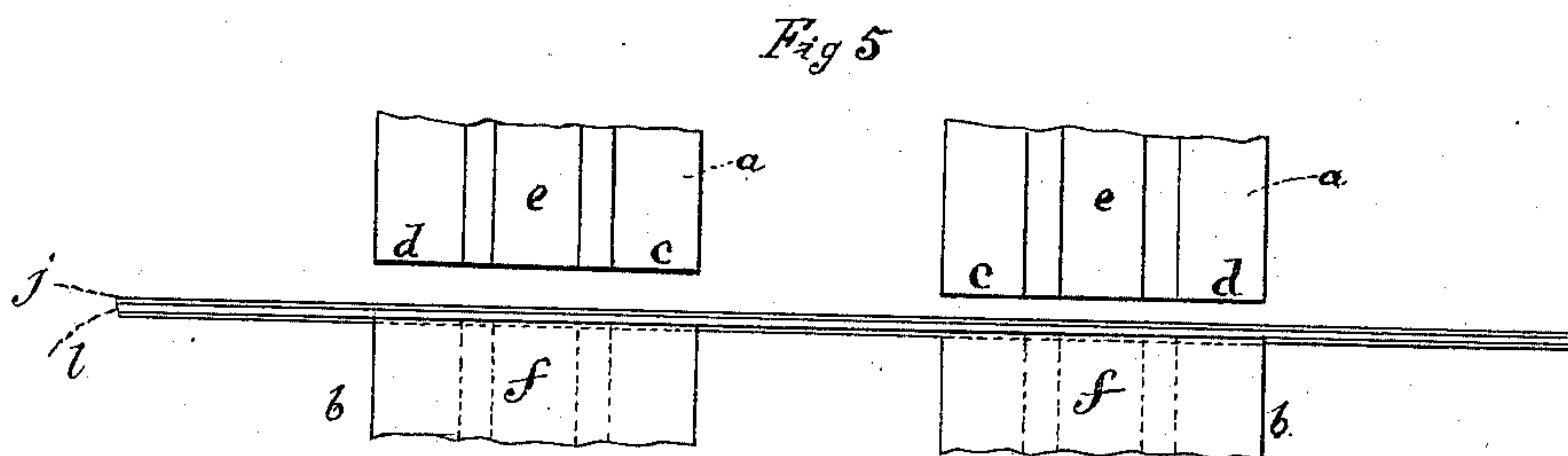
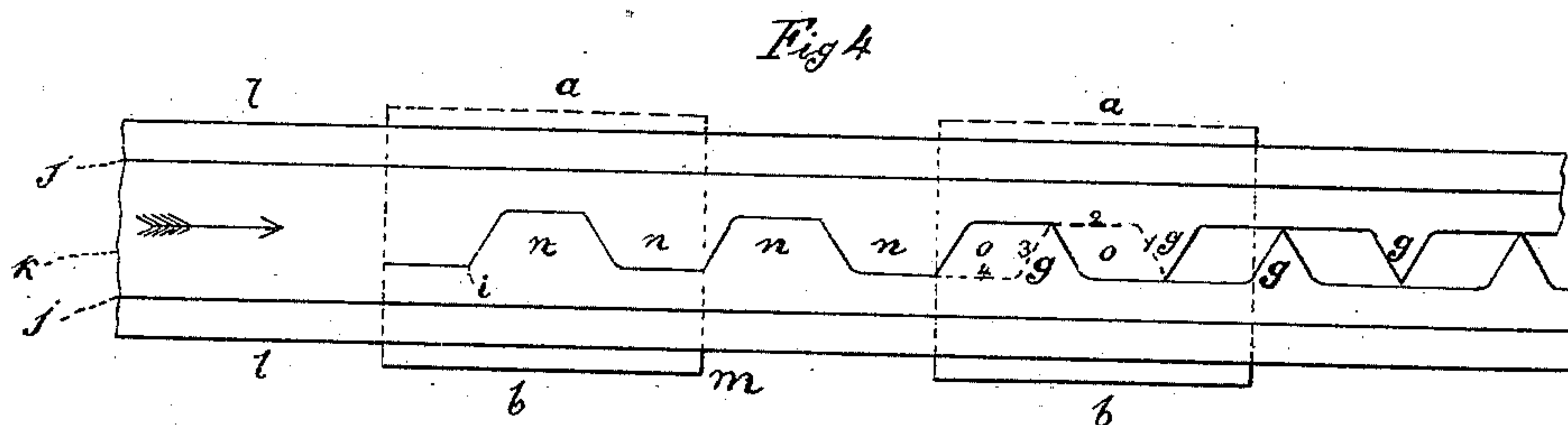
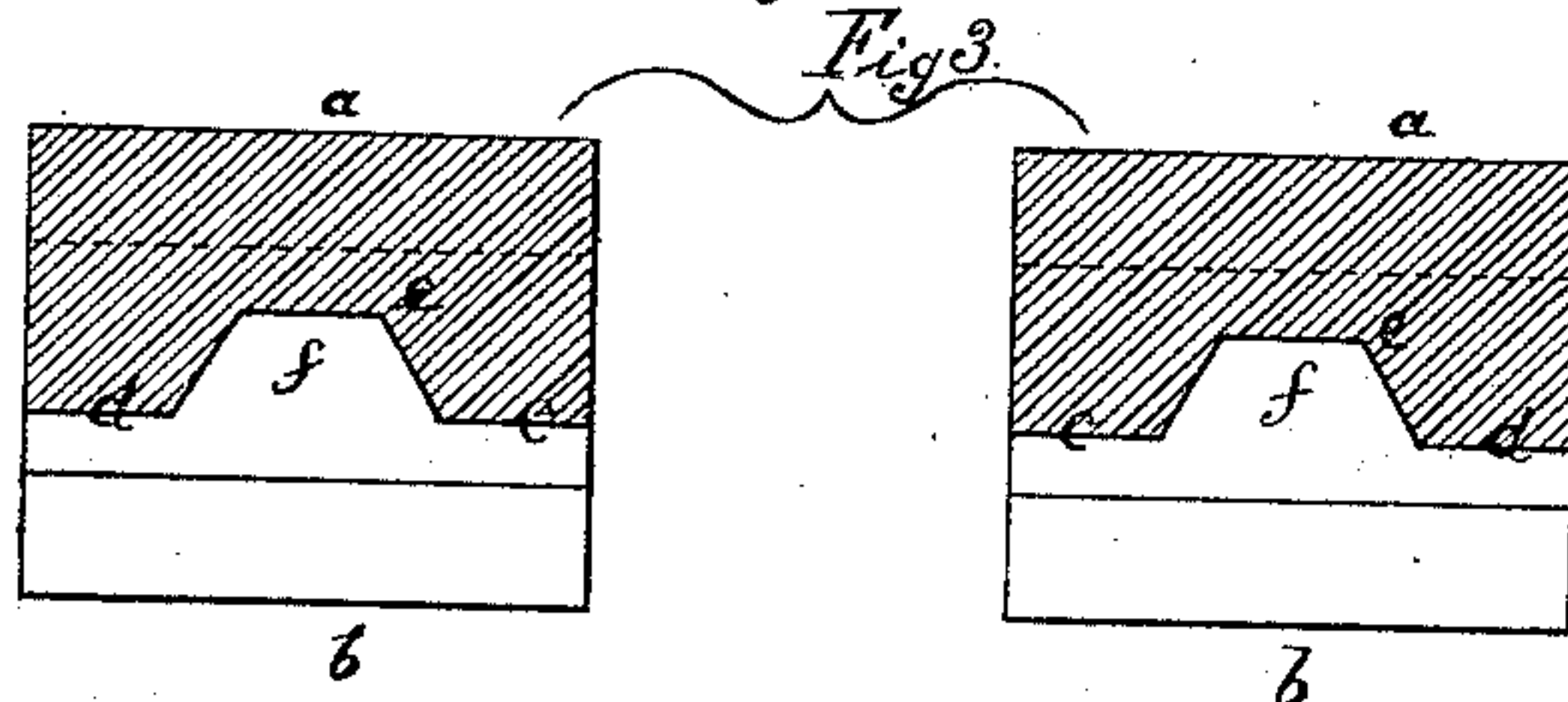
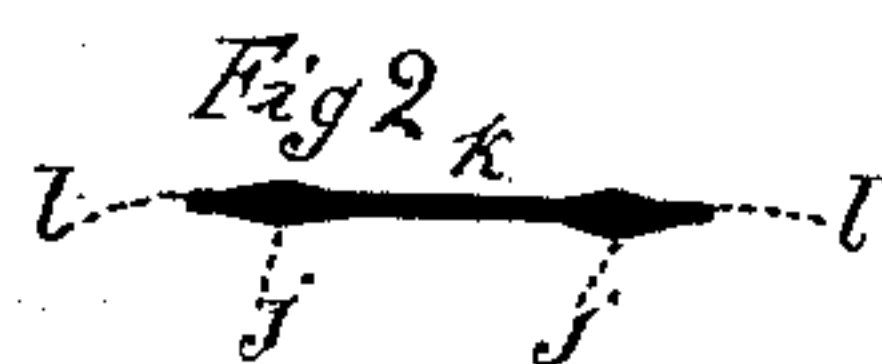
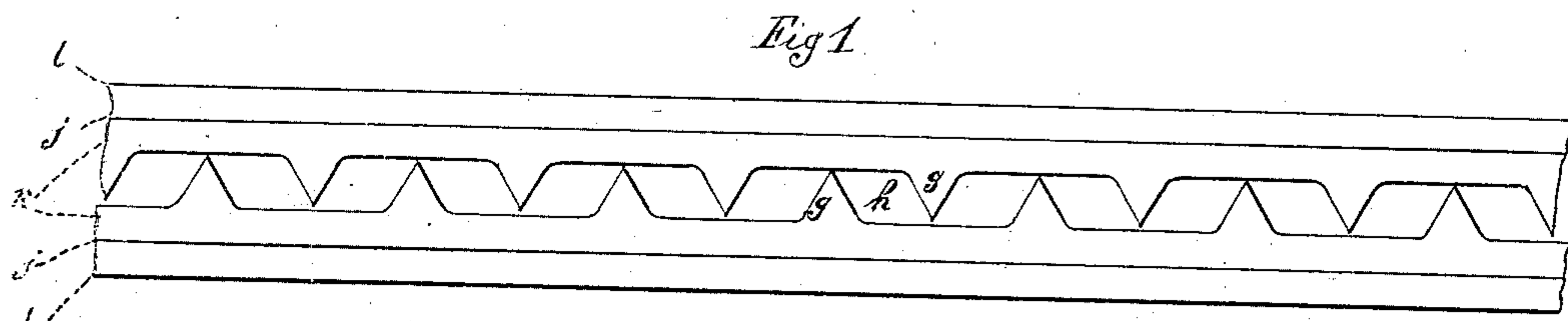
(No Model.)

A. P. THAYER.

DIE FOR MAKING BARBED STRIPS.

No. 310,622.

Patented Jan. 13, 1885.



WITNESSES=

St. Morgan.
Dr. Morgan

INVENTOR

Anton P. Thayer.

UNITED STATES PATENT OFFICE.

ANSON P. THAYER, OF BROOKLYN, NEW YORK, ASSIGNOR TO THOMAS W. HALL, OF SAME PLACE.

DIE FOR MAKING BARBED STRIPS.

SPECIFICATION forming part of Letters Patent No. 310,622, dated January 13, 1885.

Application filed November 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, ANSON P. THAYER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Dies for Making Barbed Metallic Fencing, of which the following is a specification.

This invention consists of improvements in the dies for making two rods of barbed metallic fencing from a double blank strip by the method represented in the patent to H. L. Arnold, February 26, 1884, No. 294,105, which consists in first shearing the blank apart in a zigzag line along the middle web, thus forming two rods, each having projections and notches of equal length, which projections contain the material for the barbs and the waste material to be cut away between the barbs; and, second, shearing or punching off the waste pieces from the projections of the said rods, and thereby completing the barbs. The dies consist of two pairs of similar form, whereof one die has a groove in the side corresponding to the form of the notches to be made, and the other die has a rib on its side corresponding to the projections to be made in shearing the blank strip apart, as above stated. These two pairs of dies are placed side by side and located a distance apart equal to the distance between the barbs on the rods; but they may be double, treble, or any multiple of said distance apart, and the blank strip is fed along them from one pair to the other a distance equal to the distance from barb to barb at each movement. The first pair of dies shears the blank apart on a zigzag line partly along the base lines of the barbs of the respective rods cut apart from the blank, and partly along diagonal lines crossing from one to the other of the base lines and forming projections alternately on the two separated rods, which projections are as wide as one barb and one waste piece to be cut away. The second pair of dies shears along a precisely similar zigzag line; but the said pair is so adjusted with relation to the first pair that they cut out the waste pieces from between the barbs and complete the same. The form of the dies is very simple and adapted to cut the blank and form

the barbs by shearing, which is easier and less wearing to the dies than punching.

The essential object of making the two pairs of dies separate from each other and locating them apart, instead of placing them close together, as they may be arranged, is that one pair that cuts out the waste pieces may be made to do its work before the other pair that does the slitting by making the movable die of the said waste-cutting pair a little longer or so as to project a little lower than the movable die of the slitting pair to do its work first, and thus more effectually divide the work than could be done with the dies placed close together, and thereby enabling the machine to work much easier, all as hereinafter more fully described, reference being made to the accompanying drawings, in which—

Figure 1 is a plan view of a couple of barbed metallic fencing-rods such as are to be produced from a double blank strip by the said improved dies. Fig. 2 is a transverse section of the double blank strip from which the said barbed rods of Fig. 1 are to be produced. Fig. 3 is a plan view of the bed-dies and horizontal section of the movable dies of my invention. Fig. 4 represents diagrams of the horizontal forms of said dies with a partly cut blank strip laid thereon to illustrate the operation of the dies; and Fig. 5 represents a front elevation of the dies with a blank strip between them.

For each pair of dies I make one grooved die, *a*, and one ribbed die, *b*, the groove *c* and the rib *f* being arranged longitudinally along the middle of one side of each, and so that the plain faces of the dies fit each other at *c d*, each side of the rib and groove, which fit each other. The depth of the rib and groove is equal to the length of the barbs *g* to be made, and the width of the said groove and rib is equal to the width of one barb *g* and one space *h*, from which the waste material is to be cut away between the barbs of the respective rods. The width of the faces *c* is half the distance between the bases of the barbs of one rod, but the width of faces *d* may be less, and, except for avoiding the sharp angle that would be formed at one edge of grooves *c*, and also except that it is better not to have the slit by

the first pair of dies terminate at the angle *i*, said faces *d* might be dispensed with altogether, or the faces *d* may be omitted in the first pair of dies and faces *c* used instead. The double blank strip to be separated and barbed consists of the two parallel cores or ribs *j*, connected by the intervening thin web *k*, and having outer thin webs or flanges, *l*. The cores or ribs *j* are sometimes made more prominent; but the form here shown is considered the best. It will be seen that the blank strip being fed into the dies from the direction indicated by the arrow, Fig. 4, to the side *m* of the first pair, and then advanced from *i* to *m* successively to each operation of the dies, said strip will be sheared by the first pair of dies in the zigzag line represented across said first pair of dies, and between them and the second pair, making the wide projections *n* and corresponding notches alternately on the respective rods thus separated from each other, and when crossing the second pair of dies these wide projections *n* will be cut away along the dotted lines 1, 2, 3, and 4, by which the waste pieces *o* will be sheared away, and the barbs *g* will be completed. This result is effected by the pairs of dies being adjusted in such relation to each other that the first pair will cut along one side of the barbs and one side and one end of the waste pieces, and the other pair of dies will cut along the other side of the barbs and also along the other side and end of the waste pieces by overlapping half the cut of the first pair. The dies will be mounted in any approved way for operating the movable ones either by a reciprocating stock, or by a rocking arm or shearing-lever. In Fig. 5 I have represented the right hand movable die *a* a little longer than the other, to make it cut first to divide the resistance.

Similar dies may be made with two or more ribs and grooves in each pair to adapt them for cutting greater lengths of the strip at each operation, with which dies the feed movements of the strip will be correspondingly increased; but I reserve such arrangement for a separate application for a patent.

It will be seen that the space between the two pairs of dies allows the rod pressed down under the movable die of the second pair to be sprung down sufficiently to enable said movable die to be made enough larger than the movable die of the first pair to entirely complete its work before the slitting dies close together on the rod, thus effectually dividing the work so that the concussive force is diminished by one-half, whereas it cannot be materially divided with dies placed side by side because the offset between the faces of the two movable dies would break the lowermost rod.

In the Arnold case before referred to a single

pair of dies is employed comprising the same number of ribs and grooves, which are also of the same size and form as in this case; but they are consequently located only the distance apart that the barbs are on the completed rods, which makes about double the amount of work to be done at once, because it prevents the division of the work which I accomplish by constructing each rib and groove in separate parts and separating the cutting-edges a greater distance and arranging the pairs for cutting at different times. The two pairs may be separately adjusted to better advantage. There is a considerable economy in grinding them to an edge, because when made separate a piece of the edge of one die chipped off will not require the grinding of the whole. The temper may be more certainly fixed in the separate dies, and a crack in the hardening results in less waste, because the dies of my contrivance are proportionately smaller. The simple form of the dies in this case enables them to be made by rolling to such exactness of form and dimensions that but little or no finishing is required, while the form of the double dies of Arnold is one that cannot be made with practical success by rolling.

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

1. In dies for simultaneously slitting a double blank strip apart and forming two barbed rods therefrom by means of dies having two grooves, *e*, and ribs *f*, relatively disposed for first slitting the strip apart by one rib and groove, and, second, shearing off the waste pieces by the other rib and groove, the said ribs and grooves respectively formed in separate pairs of dies which are separately located a distance of one or more feed movements of the blank strip apart, substantially as described.

2. In dies for simultaneously slitting a double blank strip apart and forming two barbed rods therefrom by means of dies having two grooves, *e*, and ribs *f*, relatively disposed for first slitting the strip apart by one rib and groove, and, second, shearing off the waste pieces by the other rib and groove, the said ribs and grooves respectively formed in separate pairs of dies which are separately located a distance of one or more feed movements of the blank strip apart, and the pair making the second cut arranged to cut in advance of and complete its work before the action of the first pair, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ANSON P. THAYER.

Witnesses:

C. A. THAYER,
S. H. MORGAN.