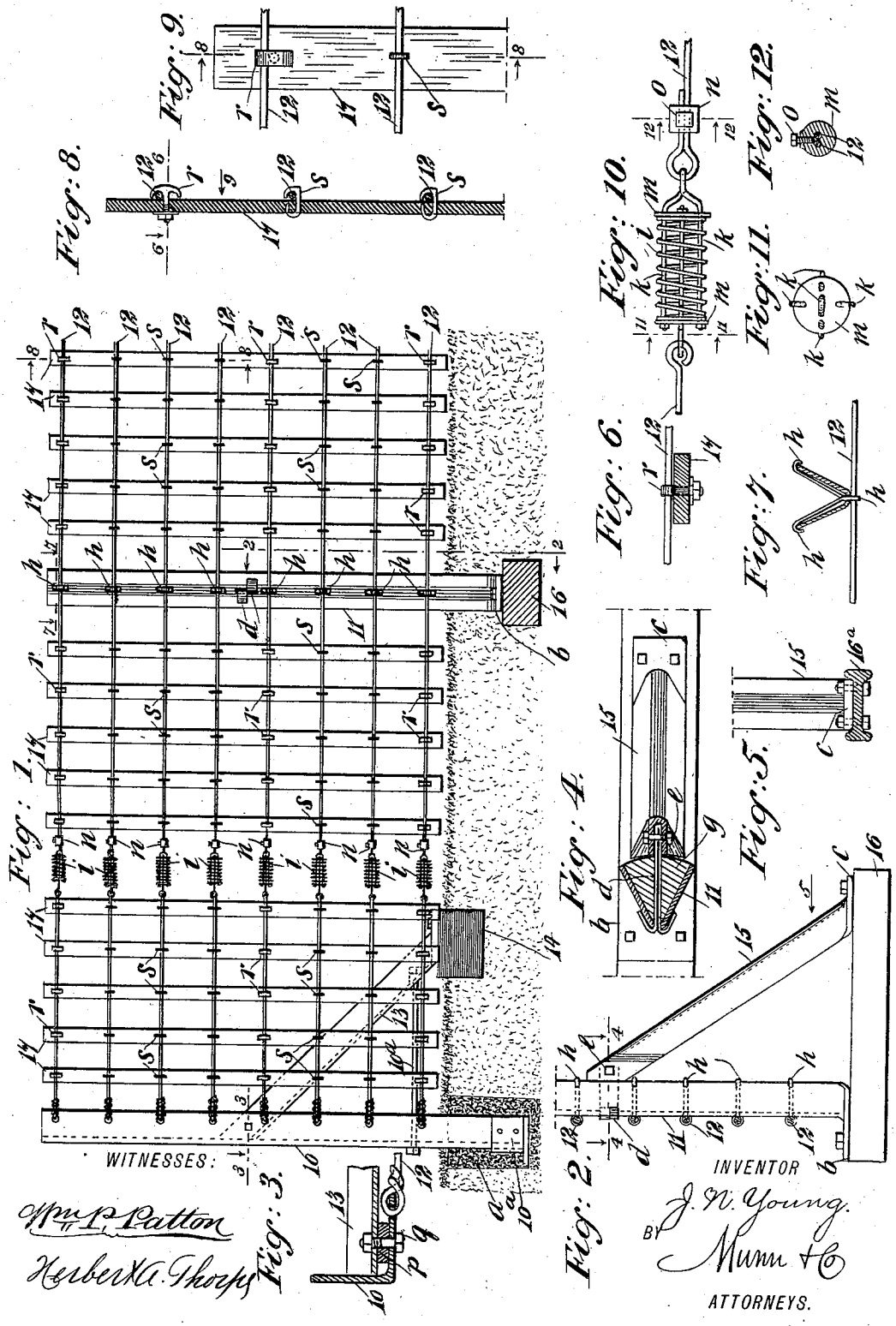
(No Model.)

J. N. YOUNG.

FENCE.

No. 563,539. Patented July 7, 1896.



WITNESSES:

Wm. P. Patton

Herbert A. Thorpe

INVENTOR

J. N. Young.

BY Munn & Co

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES NICHOLAS YOUNG, OF PARMA, MICHIGAN.

FENCE.

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To all whom it may concern:

Be it known that I, JAMES NICHOLAS YOUNG, of Parma, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Fences, of which the following is a full, clear, and exact description.

This invention relates to wire fences and particularly to a class having pickets attached to the wires of the fence.

The objects of my invention are to provide a wire fence which is very strong, is easy to erect, is adapted to withstand and compensate for the expansion and contraction of the fence-wires, is strongly braced against longitudinal and lateral strains, is provided with pickets that may be readily placed on and secured to the fence-wires, and which has posts formed of angular bent plate metal, so that the entire fence is very durable and adapted for production at moderate cost.

The invention consists in the construction and combination of parts, as is hereinafter described, and indicated in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a portion of the improved fence. Fig. 2 is a transverse partly-sectional view of a portion of the fence, showing part of an intermediate or line post of the fence, fence-wires thereon, and the brace for said post, the section being taken on line 2 2 in Fig. 1. Fig. 3 is a transverse sectional view of a corner or end post of a fence-line and of its brace, taken substantially on the line 3 3 in Fig. 1. Fig. 4 is a partly-sectional plan view of a line-post and its brace essentially on the line 4 4 in Fig. 2. Fig. 5 is an edge view of the lower portion of a line-post brace, seen in direction of arrow 5 in Fig. 2, showing a modified base-block for the line-post and said brace. Fig. 6 is a transverse sectional view of a fence-picket, showing its bolted connection to a fence line-wire, taken essentially on line 6 6 in Fig. 8. Fig. 7 is a transverse sectional view of the line-post shown in Fig. 1 on the line 7 7 in said figure, showing one means for connecting fence-wires thereto. Fig. 8 is an enlarged longitudinal sectional view of fence-pickets, showing preferred means for attaching the pickets to the fence-wires, the line of section being indicated at 8 8 in Figs. 1 and 9. Fig. 9 is a side view of the portion of a fence-picket and fence-wires thereon, seen in direction of arrow 9 in Fig. 8. Fig. 10 is an enlarged plan view of a tension device for one of the fence-wires. Fig. 11 is a transverse partly-sectional view of the device shown in Fig. 10 substantially on the line 11 11 in said figure, and Fig. 12 is a transverse sectional view of the tension device essentially on the line 12 12 in Fig. 10.

In the drawings, 10 indicates a corner-post for the improved fence, 11 is an intermediate post, and 12 are the fence-wires. The corner-post 10, which may also serve as the support for a gate to be placed in a line of the improved fence, is formed of plate metal and is angular in cross-section, as shown in Fig. 3. Preferably the post 10 is furnished with an anchor-plate 10^a, which is formed or secured on its foot so as to project laterally therefrom, as represented in Fig. 1.

To maintain the post 10 erect, it is preferably embedded in the post-hole filling *a*, that is of concrete or a like composition of cement and other material, and the post is also sustained by the plate-metal angularly-bent brace-piece 13, which has its upper end secured on the post and thence projects diagonally toward a base-block 14, which is preferably embedded in the ground, and the brace-piece has a flanged foot that is secured on the base-block by bolts or other means. There is a stay-rod 10^a extended between the post 10 and brace 13, near the foot of the brace, said rod being preferably in the form of a bolt having a head on one end and a nut on the opposite threaded end, so that the stay-rod may be inserted through perforations in flanged members of the post and brace, and be drawn tightly in place by an adjustment of its nut.

It will be seen that the series of fence-wires 12 have one end of each wire attached to a flanged member of the angular post 10, and thence are extended a suitable length for the formation of a fence-panel, and it is to be understood that at the end of a fence-panel

of any desired length the remaining ends of the wires 12 are attached to another corner-post 10.

The disposition of the braces 13 on the corner-posts 10 for a fence-line is such as will render their side portions that are adjacent to the fence-wires 12 parallel therewith, and the braces are adapted to counteract the strain imposed on the corner-posts by weight of the fence wires and pickets that may be hung on the latter. The posts 11, which are to be erected at suitable intervals along the line of the fence between the corner-posts 10 for the support of the fence-wires 12, are formed angular in cross-section of plate metal, and preferably have their integral wings or side walls spread or diverged at less than a right angle, as clearly shown in Fig. 4. The "line-posts" 11, as these parts are designated to distinguish them from the corner-posts 10, are each furnished with a flanged foot *b*, bent from the body of the post at a right angle thereto, as shown in Figs. 1 and 2, and to add strength the corner where the foot-flange is turned from the post is curved.

A plate-metal brace-piece 15, that is angular in cross-section, is provided for each line-post 11, and at the lower end of each of said braces an angularly-bent foot-flange *c* is formed thereon. The upper end of the brace 15 has its sides flattened to render them substantially parallel with each other, and so spaced apart that one end of a locking-key *d* may be introduced between the said parallel walls and be therein secured by a transverse bolt *e*, which passes through alined perforations in the post and locking-key.

The preferred construction for the locking-key *d* is clearly shown in Fig. 4, and consists of a key-body formed of a strip which is folded at its longitudinal center, so as to produce two closely-impinged key members. The split key *d* has an angular metallic filling-block *g* cast thereon, occupying such a position that the ends of the key members are permitted to project therefrom at the vertex of the angular block, the form of the latter adapting it to neatly fit within the space between the divergent walls of the post-body.

At a proper point the post 11 is longitudinally slotted in its angular corner of a size that will permit the free passage through the post of the split key *d*, and as the said key is made of pliable metal the upper end portion of the brace 15 may be removably secured to the body of the post by clenching the ends of the key *d*, said ends being oppositely bent to clench them, as clearly shown in Fig. 4, the bolted connection of the key permitting its removal from the brace 15. The point of attachment for the brace 15 on the post is so arranged with regard to the length of the said brace and its degree of divergence from the line-post 11 that the foot-flanges *b* and *c* will lie in substantially the same plane, so that the parts 11 15 may be mounted on a base-block 16 and be thereto secured by spikes or screw-bolts, the latter-mentioned means of attachment being shown in the drawings.

The line-posts of a fence having the improvements are disposed at intervals of separation so that their angular corners will extend in the same direction, and if the fence is straight said corners will lie in the same vertical plane. The base-blocks 16 project laterally from the fence-line in the same direction, so that the braces 15 will all be disposed on the same side of the fence-line.

There may be different materials used in the production of the base-blocks 14 and 16, whereon the braces of the corner-posts 10 and line-posts 11 are seated and secured—as, for example, the blocks 14 may be and preferably are made of stone, but wood may also be used, and with regard to the blocks 16 these may be formed from wood or be billets of iron, such as pieces of I-beam material of suitable length, such a base-block being indicated in Fig. 5 at 16^a.

In erecting the fence the line-posts and their braces, together with the base-blocks these parts are seated upon, are usually embedded in the ground sufficiently to locate the base-blocks below the frost-line, which will insure the stability of the fence. When the fence is extended over a low point or hollow in the surface of the ground, the base-blocks 16 may be correspondingly raised if it is desired to maintain the tops of the fence-posts in or near the same plane.

The fence-wires 12 are spaced apart any preferred degree and extend across the angular corners of the line-posts 11 and are thereto secured, preferably by the means shown in Figs. 1, 2, and 7, consisting of wire loops *h*, which are each provided with two limbs having hooks on their ends, these limbs extending from an integral ring-eye that is of a diameter which will adapt it to embrace the fence-wire it is to support. At points opposite each fence-wire oblong slots are formed in the line-posts 11 of such dimensions as will permit the limbs of the keeper-loops *h* to pass through said slots, so that the eye of each loop may be sprung over the fence-wire 11 and the limbs of the keeper-loop be diverged, so that their hooked ends may have engagement with the edges of the angular line-post, as clearly shown in Fig. 7.

It will be evident that as all the line-wires 12 of a fence are held spaced apart on the line-posts 11 by the keeper-loops *h*, as has been explained, the said fence-wires will be maintained in place, free to lengthen and shorten under influence of heat and cold. To compensate for expansion and contraction of the fence-wires due to climatic changes, a tension device has been provided to be attached to each fence-wire. These each consist of a spiral-spring coil *i*, mounted on two elongated coupling-loops *k*, that have threads on the ends of their limbs.

The washer-plates *m* are furnished for each tension device, and the said preferably-cir-

cular flat plates have each four evenly-spaced perforations formed therein to loosely receive the threaded ends or limbs of the coupling-loops *k*. The washer-plates separately have contact with the ends of the spiral coil *i*, and the loops *k*, which have their limbs inserted through the coil in opposite directions, are secured in place by nuts screwed on the projecting ends of said limbs, so as to bear against the washer-plates, and project their looped portions from the latter through central slots of the said washer-plates, this construction of parts being shown in Figs. 10 and 11. Each tension device is introduced at a preferred point in the fence-wire it engages with, and for the sake of uniformity in appearance the tension appliances are arranged one above the other, as represented in Fig. 1. To connect each tension device with a fence-wire, the latter is severed, and the severed ends are joined to the bights of the coupling-loops *k*.

Preferably one end of each wire 12 is adjustably connected with the coupling-piece *k* by means of a clamping-block *n*, the construction of which is shown in Figs. 10 and 12, it consisting of a perforated metal block, preferably cylindric in form and provided with a set-screw *o*. The remaining end portion of the line-wire 12, when it is to be attached to coupling-loop *k* by means of the clamping-block *n*, is first passed through the bight of said coupling-loop and then drawn upon to stretch the line-wire and put it under tension by partly compressing the spring-coil *i*. The said end portion of the line-wire is then folded upon itself and inserted through the clamping-block that has previously been strung on the line-wire. It is evident that if the set-screw *o* is now adjusted to bind on the folded portions of the wire 11 which occupy the clamping-block, a secure but removable connection of the tension device with the fence-wire 11 will result, and the same is true with regard to all the fence-wires that are in a like manner attached to their respective tension devices.

It is contemplated in some cases to provide pickets for the improved wire fence, and when these are to be attached to the fence-wires provision is made to afford space for the introduction of the pickets between the fence-wires and the corner-post braces 13. To this end a thick washer *p* is introduced between the top of the brace 13 and post 10, as shown in Fig. 3, and the bolt *q*, which secures the brace on the post, passes through said washer, which will so laterally remove the brace from the wing of the corner-post it is secured upon as to afford ample space for the reception of pickets between the wire and brace, as indicated in Fig. 1. The pickets 17 are preferably formed of light, strong wooden strips proportioned in length and other dimensions to suit the fence they form a part of, and the said pickets are secured in spaced order on the fence-wires, upright and preferably parallel with the posts of the fence, as represented in Fig. 1.

In Figs. 6, 8, and 9 the means for attaching the pickets to the fence-wires are clearly shown, comprising the hook-headed bolts *r*, that are three in number for each picket, these being individually located near the top, bottom, and middle of the picket, passing through perforations therein formed at points which will permit the hooked heads of the bolts to hook upon the adjacent fence-wires, that are held firmly in contact with the picket by nuts and washers on the threaded ends of the bolts.

The pickets 17 are secured on the fence-wires, which are not clamped by the bolts *r*, by hooked staples *s*, a single staple for each wire being first clenched in the picket after passing through the latter, and then hooked over the fence-wire by means of the projecting hooked head of the staple, which head may be closed down upon said wire to secure the picket firmly thereto. It is feasible to attach the staples and bolts to the pickets when the latter are manufactured, which will greatly expedite the work of erecting a line of fence having the pickets provided therefor.

I have shown and described hook-headed staples for the attachment of pickets to the fence-wires, but do not desire to be limited to such a construction, as ordinary staples having two limbs may be utilized and effectively fasten the pickets in place on the wires mentioned.

It will be seen that the improved fence may be produced from metal or other durable materials, that it may be securely erected, that longitudinal and lateral strains will not injure said fence, and that it will, if properly constructed, afford a light, strong, and very neat fence at a moderate cost for erection and incidental repairs.

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

1. In a fence, the combination of an angularly-bent plate-metal line-post, an angularly-bent plate-metal brace for said post, the brace having its angularly-divergent walls flattened and spaced parallel at the upper end, and a connection for the brace with the post, the connection comprising a doubled key having two limbs, the folded end of said key being held between the spaced parallel members of the brace, and an angular filling-block on the key, occupying the hollow of the post, the ends of the limbs of the key passing through a perforation in the line-post at its angle and folded and clenched thereon, substantially as described.

2. A fence having a post formed of angular metal, a brace for the post, a metallic block fitting snugly within a portion of the hollow of the post, and a connection passed through the block and attached to the post and brace, substantially as described.

3. A fence having a post formed of angular

metal, a block snugly fitted within the space inclosed by the members of the post, a connection attached to the post and passed through the block, and a brace formed of angular metal and inclining toward the post, the end which is adjacent to the post being flattened and having the connection passed between and secured to the flattened portion of its members, substantially as described.

JAMES NICHOLAS YOUNG.

Witnesses:
HENRY HILLER,
OSCAR SMITH.