

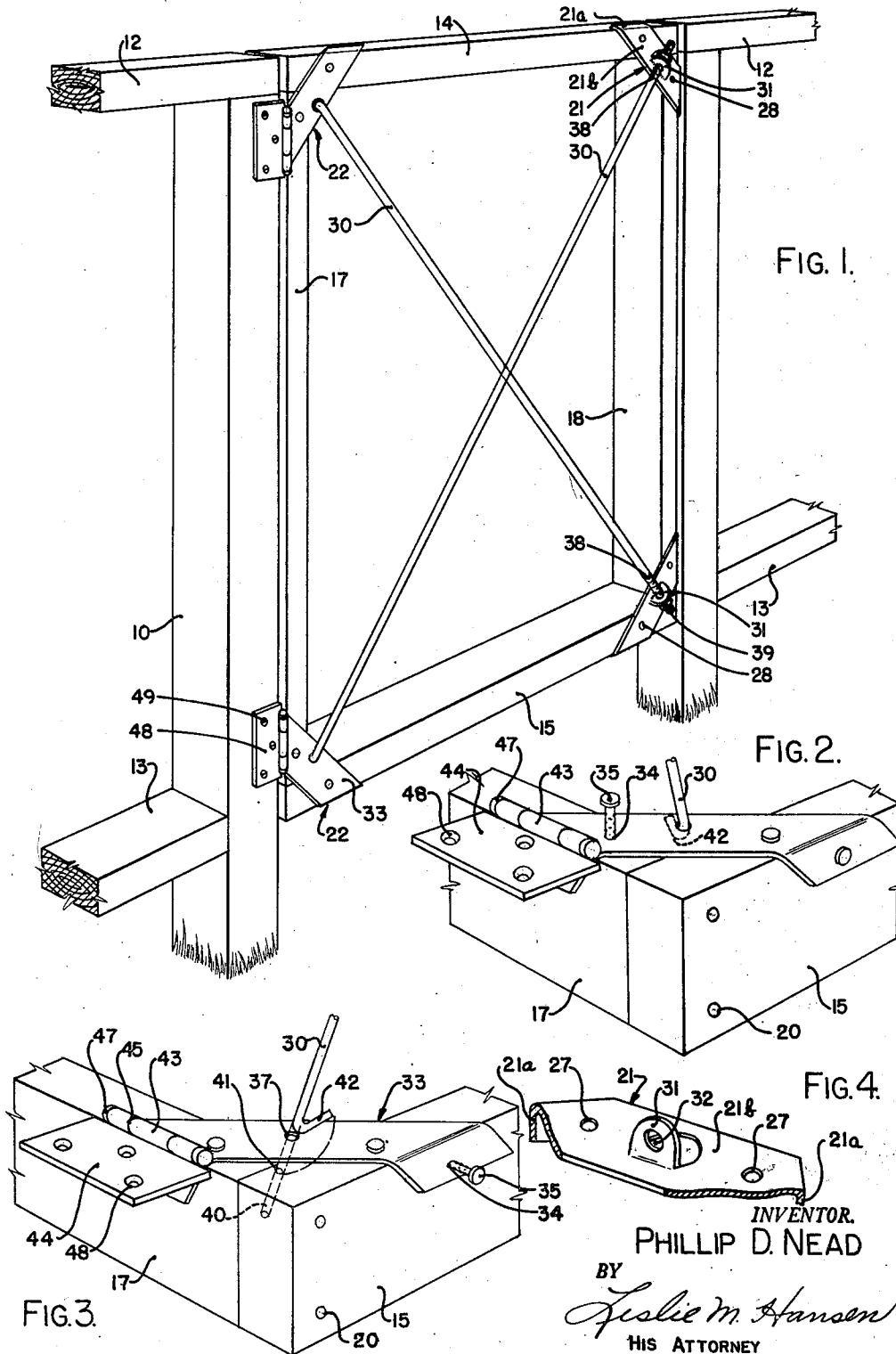
May 31, 1955

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2,709,313

ADJUSTABLE HINGE-BRACE GATE

Filed Oct. 22, 1951



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ADJUSTABLE HINGE-BRACE GATE

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Application October 22, 1951, Serial No. 252,508

1 Claim. (Cl. 39—87)

The present invention relates to gate hardware and pertains more particularly to a set of fittings which can be mounted on a rectangular wooden frame to provide a strongly reinforced, angularly adjusted, fence gate frame, with hinged mounting means incorporated therein.

In making wooden frame fences, the making and hanging of the gates therefor constitutes a difficult and exacting part of the task. Also, when the fence has been built, the gate is the part of the fence which is subjected to the most use and abuse, and is the part which is most apt to get out of order.

The present invention contemplates the provision of an improved set of hardware fittings which can be marketed in the form of kits, and, by providing such kits in only a few different sizes, will permit the construction of strong, rigidly braced and angularly adjustable gates of a large number of different sizes.

It is also an object of the invention to provide a set of gate hardware with easily applied paired elements for mounting on diagonally opposite corners of the gate, the pairs of elements being adapted to be connected by adjustable, diagonally extending bracing means, the elements for one side of the gate being provided with hinge mounting means.

These and other objects and advantages of the invention will be apparent from the following description and the accompanying drawings, wherein

Fig. 1 is a fragmentary perspective view showing a gate frame mounted in a fence frame by means of hardware embodying the present invention.

Fig. 2 is an enlarged fragmentary perspective view of a corner of the gate frame shown in Fig. 1.

Fig. 3 is a view generally similar to Fig. 2 and indicating successive steps in the cutting off and bending to shape of the diagonal bracing rod for connecting diagonally opposite pairs of corner fittings.

Fig. 4 is an enlarged fragmentary perspective view of the rod receiving portion of one of the fittings on the corner of the gate frame which is diagonally opposite to the hinged fitting shown in Figs. 2 and 3.

Referring to the drawings in detail, a fence frame A comprises a pair of conventional wooden gate posts 10 and 11 mounted in upright position with their lower ends embedded firmly in the ground. The gate posts 10 and 11 are spaced apart to receive a rectangular gate frame B therebetween. Usual top rails 12, 12 and lower rails 13, 13 are secured to the gate posts 10 and 11, respectively, in a suitable manner.

The rectangular gate frame B comprises a horizontal top rail 14 and bottom rail 15 of a length to have a free swinging fit in the space between the gate posts 10 and 11. Upright stiles 17 and 18 are mounted to extend vertically between the ends of the gate rails 14 and 15.

The gate frame members 14, 15, 17 and 18 may be initially secured together by nails 20 (Figs. 2 and 3). This initial nailing may be relatively light, since the hardware of the present invention provides strong retaining and bracing means for securely holding the gate frame

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members in properly assembled and adjusted position.

The illustrated hardware embodying the invention comprises a pair of fittings 21, 21 for mounting on the corners of the free side of the gate frame B, and a second pair of hinged corner fittings 22, 22 for mounting on the corners of the other side of the frame B and providing hinged support therefor.

Each of the corner fittings 21, 21 comprises a body portion 24 formed of a strip of relatively rigid metal, for example, 16 gauge sheet steel, for gates up to approximately 36" in width. Metal of somewhat heavier gauge may be employed for wider gates as required. End portions 21a on both ends of each of the body strips 21, 21, are bent downwardly at right angles to a central portion 21b of the strip along lines disposed at 45° to the longitudinal edges of the strip, and at 90° to each other. Nail receiving holes 27 (Fig. 4) are provided as required in each bracket strip 21 and nails 28 are driven through each of the holes 27 and into the underlying gate frame members to secure the brackets to the frame, and to strengthen the frame corner structure.

For receiving a diagonal bracing rod 30, an ear 31 (Figs. 1 and 4) is cut from the metal of each of the corner fittings 21, 21 substantially centrally of the central portion 21c thereof. Each ear 31 is bent upward at right angles to the portion 21c from which it is cut, as shown best in Fig. 4. A hole 32 is provided in each of the ears 31, freely to receive the threaded end portion 30a of the rod 30 therein.

The hinged corner fittings 22, 22 are for mounting on the other side of the gate frame B and diagonally opposite fittings 21, 21. Each of the hinged corner fittings 22, 22 comprises a sheet metal body portion 33 of sheet metal similar in size and shape to the corner fittings 21, 21 described previously herein. The hinged corner fittings 22, 22 also are provided with nail holes 34 (Fig. 3) to receive nails 35 similarly to the fittings 21.

For receiving the hook-shaped opposite end of the diagonal bracing rod 30 from that inserted in the hole 32 in the ear 31 of the diagonally opposite fittings 21, each hinged fitting 22 has an anchor hole 37 provided centrally of its body portion 33. The diagonal bracing rods 30, 30 preferably are furnished in straight lengths as indicated in solid lines in Fig. 3, with one end portion 38 thereof threaded to receive a nut 39 thereon. The length of the rods 30, 30 to be furnished with each kit is determined by an arbitrarily selected maximum diagonal dimension of a gate frame upon which the kit is adapted to be mounted.

For gates having diagonal dimensions smaller than those of the predetermined maximum size, the unthreaded end portions 40 (Fig. 3) of the rods 30 may be cut off to a required length as indicated at 41 in Fig. 3. To determine the proper length to which to cut the rods 30, 30 the wooden gate frame B first is assembled, and the corner fittings 21, 21 and 22, 22 are nailed thereto, as shown in Fig. 1. A nut 39 then is screwed approximately halfway down the threaded portion 38 of the rod 30, and the rod is inserted in the hole 32 in the ear 31 of one of the fittings 21. The rod is drawn through the ear 31 until the nut 39 bears against the ear 31.

The unthreaded end portion 40 of the rod then is laid across the anchor hole 37 in the body portion 33 of the diagonally opposite hinged corner fitting 22, and the rod is cut off at a distance beyond the hole 37 to allow for the bending of the hook 42 thereupon. The end portion of the rod 30 then is bent reversely upon itself through an angle which may be approximately 135° to form the hook 42 for insertion in the anchor hole 37 in fitting 22. The hooked end portion 42 of the rod 30 then is inserted in the anchor hole 37. When both of the rods 30, 30 are mounted as shown in Fig. 1, the nuts 39, 39 may be

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screwed down to place the rods 30, 30 under desired tension.

A central, pintle-receiving hinge element 43 is welded to the body portion 33 of each hinged fitting 22 by welding it along the line of bend of the body portion 33 which is adapted to lie adjacent the gate post 10. The two hinged fittings 22, 22 thus are similar, but opposite to each other.

A pivotally mounted hinge plate portion 44, similar to one-half of an ordinary butt type hinge, is mounted on each of the hinge elements 43, and a pintle 47 is inserted through axially aligned holes provided therefor in the hinge plate portion 44 and the hinge support portion 43. The hinge plate portion 44 is provided with usual holes 48 for receiving mounting screws 49 whereby the hinge plate portion 44 can be secured to the gate post 10.

After the gate is mounted, and at any time thereafter when the necessity should arise, the gate can be adjusted to raise or lower its free side upon which the fittings 21, 21 are mounted as required. This adjustment can be made by changing the adjustment of the nuts 39, 39 on their respective bracing rods 30, 30. Both rods can be drawn to desired degrees of tautness at any time by adjusting the nuts 39, 39.

While I have illustrated and described a preferred embodiment of the present invention, it will be understood however, that various changes and modifications may be made in the details thereof without departing from the spirit and scope of the invention as set forth in the appended claim.

Having thus described the invention, what I claim as new and desire to protect by Letters Patent is defined in the following claim.

I claim:

A gate structure comprising a rectangular wooden frame consisting of a pair of upright stiles at the sides

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thereof, and a top and bottom rail in abutting relation with said stiles, a corner fitting mounted at each corner of said frame and comprising a plate portion overlying a side of the abutting portions of a stile and a rail at each corner of said frame, each of said plate portions having nail receiving holes therein over the stile and the rail at its corner, a nail driven through said nail holes into the stile and rail respectively therebeneath to tack the parts together, a pair of corner embracing tabs formed integrally with the plate portion and bent at right angles thereto and to each other, said tabs overlying the outer edges of the abutting stile and rail beneath their respective plate portions, a hinge plate pivotally mounted along the exterior angle between the plate portion and a tab thereon of the two corner fittings at one upright edge of said frame, and tensioning means interconnecting diagonally opposite pairs of said corner fittings to urge the fittings of each of said pairs toward each other to force the abutting stiles and rails of said frame into tight abutment with each other and to brace the gate diagonally of said frame.

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