2 Sheets—Sheet 1.

W. H. HART.

Hinge.

No. 216,399. **Patented June 10, 1879.**

Fig. 1.

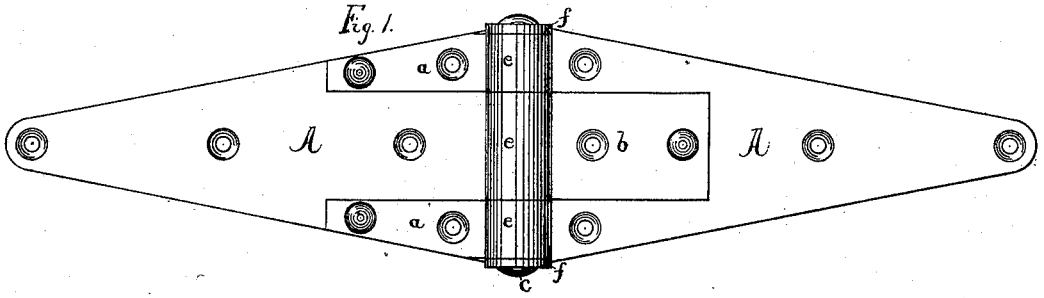


Fig. 2.

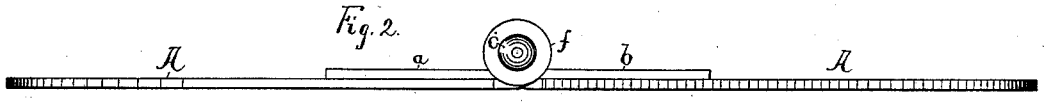


Fig. 3.

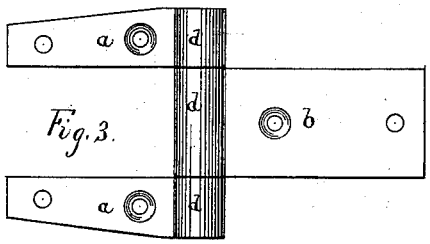


Fig. 4.

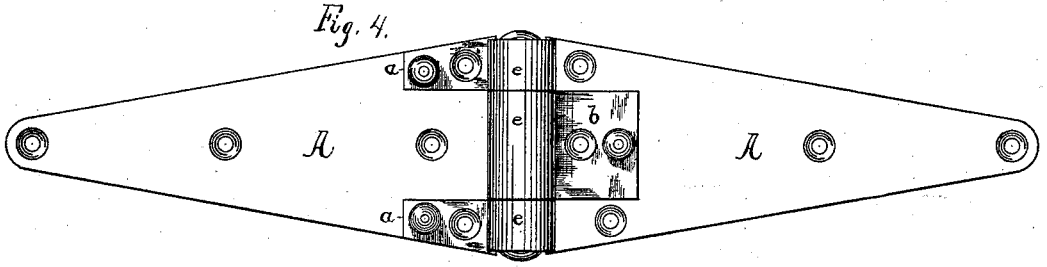
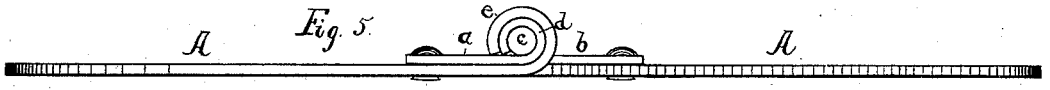


Fig. 5.



Witnesses

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2 Sheets—Sheet 2.

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Hinge.

No. 216,399. **Patented June 10, 1879.**

Fig. 6

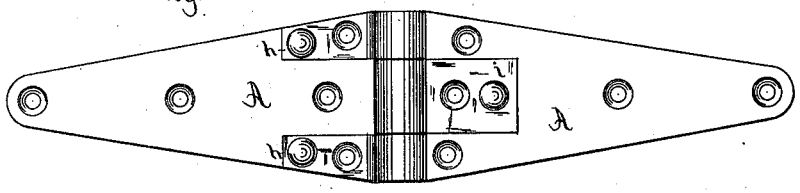


Fig. 7.

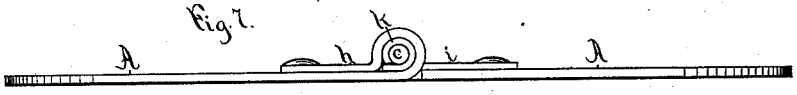


Fig. 8.

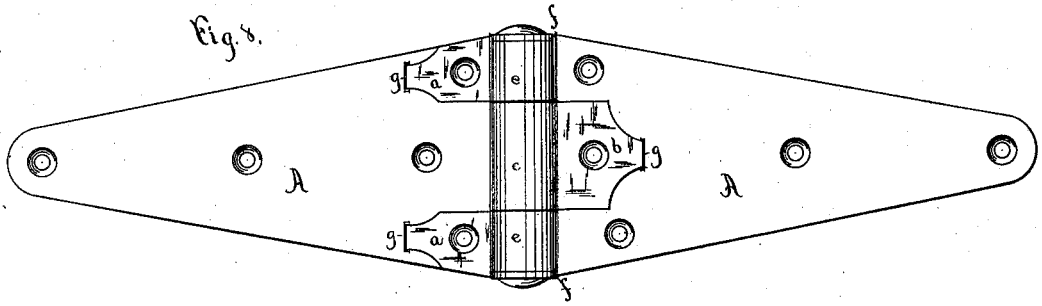
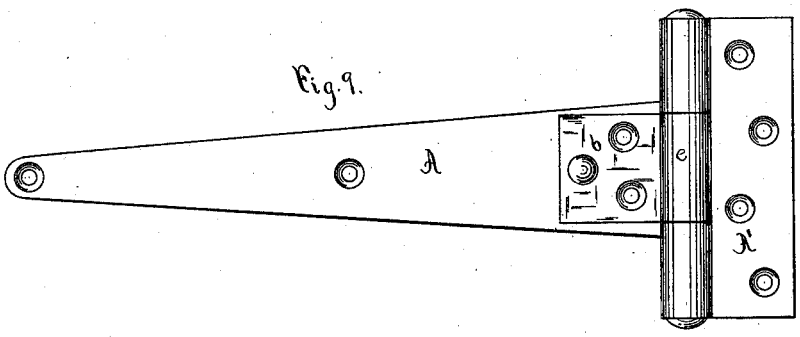


Fig. 9.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM H. HART, OF NEW BRITAIN, CONNECTICUT.

IMPROVEMENT IN HINGES.

Specification forming part of Letters Patent No. **216,399**, dated June 10, 1879; application filed March 1, 1879.

To all whom it may concern:

Be it known that I, WILLIAM H. HART, of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Hinges, of which the following is a specification.

The invention is designed, principally, for strap and T hinges for outdoor use, and its object is to strengthen the hinge at the junction of the leaves and knuckles; and the invention consists, first, of a hinge having two thicknesses of metal coiled around the pintle at the knuckle-joint, and two thicknesses on the portion which spans the junction of the leaf and knuckle, while the body of the leaves are of a single thickness only. A washer may also be placed on the pintle at the ends of the knuckles. Second, of the main leaf, having a large coil left open on one side, in combination with the supplemental leaf with small coil formed thereon, said small coil being inserted in the larger one, and the supplemental leaf extending outward through the opening for a portion of and on one side of the main leaf; and, third, of the supplemental leaf, one end of which forms one thickness of metal in the knuckle, the body of which spans the junction of the main leaf and knuckle, and the outer end of which has a bent lug taking into the body of the leaf proper, all of which several features of invention are hereinafter more fully described.

In the accompanying drawings, Figure 1 is a front elevation of a hinge which embodies my invention. Fig. 2 is an edge view of the same. Fig. 3 is a front elevation of detached parts thereof. Fig. 4 is a front elevation of a hinge which also embodies my invention. Fig. 5 is an edge view of the same with the ends of the pintle unheaded. Fig. 6 is a front elevation of a hinge which embodies certain features of my invention. Fig. 7 is an edge view for the same. Fig. 8 is a front elevation of a hinge, showing the same invention as in Figs. 1 and 2, and also an additional improvement; and Fig. 9 is a front elevation of a T-hinge which embodies my invention.

In all of the figures except Figs. 3 and 9, A A designate the two leaves of the hinge, which may be of any ordinary form, although principally designed only for strap and T hinges. In Fig. 9 one hinge-leaf is marked A′, while the strap-leaf, like those in the other figures, bears the same letter. In Figs. 1, 2, 3, 4, 5, and 8 there is shown a set of inner knuckles formed on the end of supplemental leaves *a b a*. These knuckles *d* are formed of the size of knuckles in an ordinary hinge, and are designed to receive the pintle *c* in the ordinary manner. In Fig. 2 the knuckles *d* and supplemental leaves *a b a* are shown as detached from the other parts of the hinge, the same being formed separately and in the form shown.

The leaves A A are formed substantially in the usual manner, except that their knuckles *e* are made larger, so as to embrace the inner knuckles, *d*, and the coils are not quite closed, so as to leave room for the supplemental leaves to extend outward from them, as shown in the edge view, Fig. 5, in which the pintle is unheaded. The inner knuckles are then driven into the knuckles of the leaves proper, with the supplemental leaves parallel to and in contact with the main leaves, as shown in Figs. 1, 2, 4, 5, and 8. The supplemental leaves may be then secured to the main leaves by a rivet or lugs, as shown, or they may have screw-holes coinciding with those in the main leaves, through which the screws for securing the hinge in place will be passed, and thereby secure the supplemental leaves at the same time. If a self-lubricating hinge is desired, then the parts shown in Fig. 3 may be galvanized, while the body of the hinge is in plain ungalvanized iron.

In order to make a better finish I place washers *f* of about the same diameter as the knuckles *e* at each end thereof, and let the pintle extend through them, so that when headed the whole are securely and neatly held together, as shown in Figs. 1 and 2; but the same hinge may be finished without said washers, as shown in Fig. 4.

In Fig. 8 the ends of the supplemental leaves *a b a* are provided with bent lugs *g*, formed in one and the same piece of metal with said leaves, which lugs pass through holes in the leaves A A, and their ends headed, clinched, or upset to secure them together, as shown.

In Figs. 6 and 7 the supplemental leaves *h i h* are formed in one and the same piece

with the leaves A A, and are an extension of the main knuckles. This feature, when of a size to receive the ordinary pintle, is not a matter of my invention. I have made the knuckles larger, so as to receive the inner knuckles, *k*, Fig. 7, of galvanized or tinned iron, or of other non-oxidizing material, which inner knuckles may be in sections and of the form shown in Fig. 7, or they may be cylindrical and in sections, or in one piece extending the whole length of the pintle, less the headed portion.

For a T-hinge all of the knuckles and both leaves may be made double, as hereinbefore described; but I prefer to make the leaf A′, which forms the top part of the T, and its knuckles of a single thickness of heavy iron, and the strap-leaf A, the supplemental leaf *b*, and the coils thereof of thinner metal, so that the combined thickness of the leaf A and its supplemental leaf *b* will be about equal to the thickness of the leaf A′, and the hub of the hinge will be of uniform size from end to end, as shown in Fig. 9, in which figure the leaf A, supplemental leaf *b*, and the coils thereof which form the knuckles of said leaf are formed the same as hereinbefore described for a strap-hinge; and if desired to make the same self-lubricating, then the supplemental leaf and its coil or inside knuckle may be galvanized or tinned.

One advantage arising from my invention is that the body of the leaves may be made thinner than in the ordinary hinge, while the extra thicknesses will strengthen the hinge at its vital points, thereby producing a much stronger hinge for the same weight than the ordinary one.

I claim as my invention—

1. The hinge having two thicknesses of metal coiled around the pintle at the knuckle-joint and two thicknesses at the portion which spans the junction of the leaf and knuckle, while the greater portion of the body of the leaves are of only a single thickness, substantially as described, and for the purpose speci-

2. In a hinge, the ordinary main leaf having a large coil left open on one side, in combination with the supplemental leaf, with small coil formed thereon, said small coil being inserted in the larger one, and the supplemental leaf extending outward through the opening in said large coil for a portion of and on one side of the main leaf, substantially as described, and for the purpose specified.

3. In a hinge having two thicknesses of metal in the coil of its knuckle, the supplemental leaf, one end of which forms one thickness of metal in the knuckle, the body of which spans the junction of the main leaf and knuckle, substantially as described, and for the purpose specified.

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Witnesses:
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