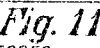
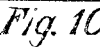
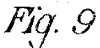
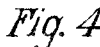
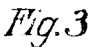
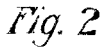
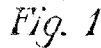


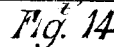
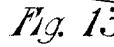
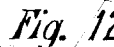
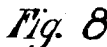
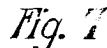
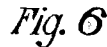
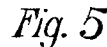
APPLICATION FILED MAR. 16, 1915.

Patented Apr. 18, 1916.



WITNESSES:

Montague Palmer
Gustave Frankel



UNITED STATES PATENT OFFICE.

HUGO ROSENSTEIN, OF NEW YORK, N. Y.

PLANE-FASTENER FOR TOY AND MODEL AEROPLANES.

1,179,656.

Specification of Letters Patent.

Patented Apr. 18, 1916.

Application filed March 16, 1915. Serial No. 14,679.

To all whom it may concern:

Be it known that I, HUGO ROSENSTEIN, a citizen of the United States, residing in the borough of Brooklyn, in the city and State of New York, have invented a new and useful Plane-Fastener for Toy and Model Aeroplanes, of which the following is a specification.

This invention relates to toy and model aeroplanes, and my improvements have particular reference to means whereby the aerofoil members may be conveniently and removably attached to the frame, said means also enabling the adjustment of said aerofoil members, in proper angular positions relatively to said frame.

To these ends my invention consists of an attaching device composed of hard drawn wire, shaped to enable it to fit over the frame bars of the model or toy and to tensionally receive an aerofoil member, which is thereby held in adjusted position.

For model or toy aeroplanes having a frame consisting of two diverging bars arranged as a V, and having a supporting aerofoil disposed toward the broader portion thereof, I employ engaging wires, one for each bar, bent in two places to provide opposing, end hooks, to tensionally engage opposite edges of said aerofoil, and thus hold it in place upon the frame.

The forward aerofoil, which forms the elevator plane, is connected to the narrow portion of the V frame by a bent wire having two opposed socket portions, to receive, respectively, the frame bars; the intermediate wire portion being bent to comprise a receiving socket, above the frame, for the rear edge of said elevator plane; and the free ends of said wire being crossed and bent to provide terminal socket portions to tensionally engage with advance portions of the frame bars.

In a modified form of my invention, wherein the wire attaching devices are intended for use with a type of model or toy aeroplane having a single bar as a frame, the supporting aerofoil, in this instance, is connected to said bar by a wire which is doubled upon itself, forming a socket at its closed end to engage beneath said bar, its arms crossing above said bar, there forming a receiving socket with the upper surface of said bar for the aerofoil, and its free ends formed into hooks which engage as sockets with said

bar. In this modified device, the rear aerofoil or elevator plane is attached to the frame bar by a wire which is folded upon itself, engaged at its closed end with a stud extending above the frame bar, and formed into hook like sockets at its free ends, which engage beneath the frame bar, thus leaving an inclosed space above the frame bar to receive the aerofoil.

Other features and advantages of my said invention will be hereinafter referred to.

In the drawings: Figure 1 is a perspective of a form of the device embodying the invention. Fig. 2 is a top view of the same. Fig. 3 is a side elevation of the same. Fig. 4 is a front elevation of the same. Fig. 5 is a perspective of a second form of the device embodying the invention. Fig. 6 is a top view of the same. Fig. 7 is a side elevation of the same. Fig. 8 is a front elevation of the same. Fig. 9 is a perspective of a third form of the device embodying this invention. Fig. 10 is a top view of the same. Fig. 11 is a side elevation of the same. Fig. 12 is a perspective of a fourth form of the device embodying the invention. Fig. 13 is a top view of the same. Fig. 14 is a side elevation of the same.

In the form of my invention which is illustrated in Figs. 1 to 8 inclusive, wire fastening devices for the supporting and elevating aerofoils are shown, the frame bars A B being shown only in part, for the purpose of indicating the relation between said devices, the frame members, and the aerofoils. Also diagrammatically the supporting aerofoil is shown in part at C and the elevator aerofoil at D.

The frame bars A, B, which are here shown as rectangular in cross section, may form together a V frame, as indicated in Fig. 1.

The supporting aerofoil C is attached to each of the frame bars A, B, as by separate devices composed of pieces of spring wire each bent at *a b* to form separate rectangular sockets shown in Fig. 5, to receive, at different points, a bar of the frame, the connecting portion *c* of said wire being bowed or bent upwardly, thus leaving a slight clearance between said wire and the upper surface of the bar, to receive an aerofoil stiffening rod (not shown). Said piece of wire, beyond the bent portions *a* and *b* respectively, is formed into inwardly directed hooks *d e*, to receive, respectively the

front and rear edges of the supporting aerofoil and thus to attach the latter to the frame. Said aerofoil C is commonly made of stiff material, and is arched slightly, to give it a desired camber, in inserting it in the hooks *d e*, which latter are spaced apart the necessary distance to limit the expansion of said aerofoil as arched for its introduction to said hooks, whereby its tendency to expand in its confined relation therein affords a desired tensional engagement of said aerofoil upon and to its frame.

The wire which engages the elevator aerofoil D to the frame bars (Figs. 1 to 4), is bent inwardly at *f* and *g* to receive the bars A, B, respectively, the intermediate wire portion being formed into a hook like cradle *h*, opening rearwardly to provide a receiving socket for the forward edge of aerofoil D, said cradle *h* being supported above the upper surface of the frame, by the upstanding wire portions *i j*. By this arrangement of the cradle *h* the aerofoil D is given a desired angle of incidence, enabling it to serve as an elevator.

Rearwardly of the bends *f* and *g*, the free arm *k l* of the wire are crossed, beneath the frame, said arms terminating in socket like hooks *m n* which, respectively, engage with the frame bars B, A, and have upturned lips *m' n'*, to also receive the rear edge of the aerofoil D''.

In the modified form of toy or model aeroplane, for which the attaching devices shown in Figs. 9 to 14 are shown, a supporting aerofoil, as E (see Fig. 9) is fitted between the upper surface of frame bar F and the crossed strands of a wire which is bent at *o* and there fitted over said bar F, its free ends having the socket like hooks *p q*, which also engage said bar, the intermediate, crossed portion of said wire thus lying above the upper surface of said bar and attaching the aerofoil to the frame. The forward or elevator aerofoil G in this modification, (see Figs. 12 to 14), is at-

tached to the bar F by a wire device folded at *r*; where it engages with a stud *s*, that projects upwardly from bar F, the arms *t t* of said wire terminating in socket like hooks *u u*, which embrace the bar F.

Other variations may be resorted to within the scope and spirit of my invention, and parts thereof used without others.

I claim:—

1. An aerofoil attaching device for model or toy aeroplanes, the same comprising a strand of spring wire, bent to form opposite frame bar engaging sockets and having engaging means for the opposite edges of an aerofoil, said engaging means being spaced apart a less distance than the width of the aerofoil, to tensionally hold the latter as sprung, to provide a cambering curvature for said aerofoil.

2. A device for attaching an aerofoil to the V frame of a model or toy aeroplane, the same comprising a strand of spring wire, intermediately bent at opposite points to form embracing sockets for the diverging bars of said frame, the closed portion of said strand being raised above the frame and there formed into a receiving cradle for the forward edge of said aerofoil, and the free arms of said device, being crossed beneath the frame, said arms terminating in socket portions to respectively engage the frame bars and to receive the rear edge of said aerofoil.

3. Means for attaching an aerofoil to the bars of a V frame for toy or model aeroplanes, the same comprising a pair of spring wire members, each bent at separate points to engage a frame bar, and the extremities of said members being formed into inturned hooks to receive the opposite edges of said aerofoil.

HUGO ROSENSTEIN.

Witnesses:

SAMUEL FLEISHMAN,
PHILIP WITTENBERG.