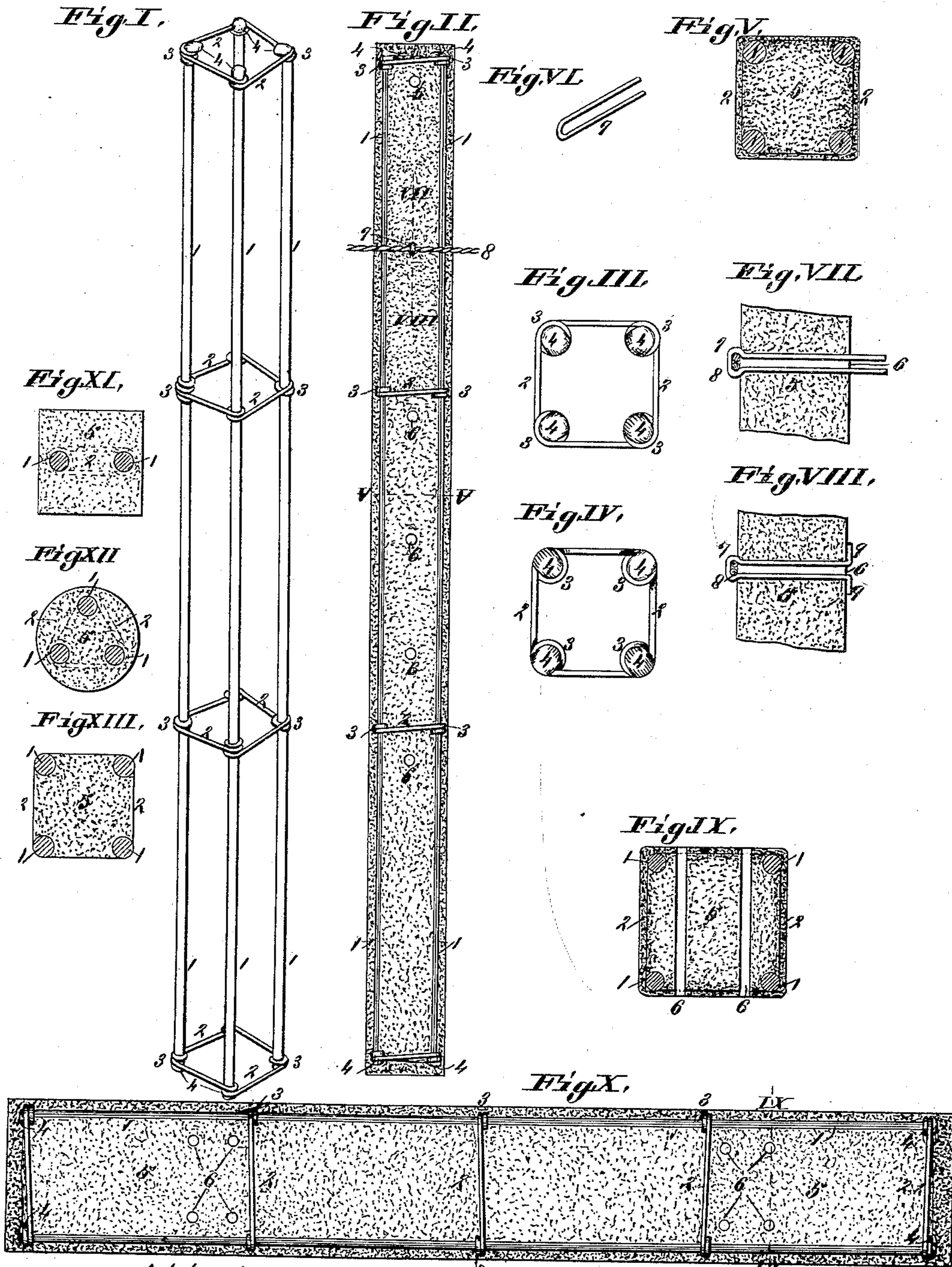


(No Model.)

O. A. STEMPEL.
POST, RAIL TIE, BEAM, &c.

No. 411,360.

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UNITED STATES PATENT OFFICE.

OMAR A. STEMPER, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
FERDINAND MEYROSE, OF SAME PLACE.

POST, RAIL-TIE, BEAM, &c.

SPECIFICATION forming part of Letters Patent No. 411,360, dated September 17, 1889.

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To all whom it may concern:

Be it known that I, OMAR A. STEMPER, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Posts, Rail-Ties, Beams, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to devices, by the combination of metal rods or wires with concrete, glass, or other substance not subject to decay, to form fence and other posts, pillars, railway-ties, beams, &c.; and the invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a perspective view of a metal frame prepared ready for filling or incorporating with concrete or other material not subject to decay, for the construction of fence-posts, &c. Fig. II is a vertical section of a fence-post, and shows the metal frame, the concrete filling, the holes through the post for seating the staples, and fence-wires secured to said post by said staples. Fig. III is an enlarged transverse section of one end of the metal frame, and shows the terminal hooks of its vertical rods turned inward over the embracing-coil of the connecting-wire. Fig. IV is a like view showing the hooks projecting outward over the coils. Fig. V is an enlarged transverse section taken on line V V, Fig. II, and shows the vertical rods, their connecting-wires, and a filling of concrete or other material. Fig. VI is a perspective view of the staple that fastens the wire to the post. Fig. VII is an enlarged vertical detail section taken on line VII VIII, Fig. II, and shows the concrete filling, the hole for the staple through the post, the staple seated in said hole, and the fence-wire in said staple. Fig. VIII is a like view showing the ends of the staple clinched for its retention in its seat. Fig. IX is a vertical section taken on line IX IX, Fig. X, and shows the metal frame and concrete or other filling not subject to decay of a railway cross-tie. It also shows the bolt-holes for seating the bolts that secure the rail-chair to the tie. Fig. X is a longitudinal section of the cross-tie, and shows the metal frame, concrete filling, and bolt-holes for the attachment of

the chairs to the ties. Fig. XI is a transverse section of a modification for a post, &c., and shows two vertical rods with their connecting-wire in conjunction with the concrete or other material with which the metal frame is combined. Fig. XII is also a transverse section of a modification, and shows three vertical rods with their connecting-wire; and Fig. XIII is a transverse section of another modification, in which the concrete filling is located wholly inside the metal frame.

Referring to the drawings, in which similar figures of reference indicate like parts in all the views, 1 represents the longitudinal metal rods, tubes, or wires that, with the connecting-wires 2, constitute the metal frame. The wires are preferably given a tie-coil 3 around each rod, so as to definitely secure said rods at equidistant positions from each other. Hooks 4 at the terminals of the rods lap over the coils of the end ties, either turning inward, as in Figs. I, II, and III, or outward, as in Fig. IV, and said hooks co-operatively and relatively prevent the slipping of the rods from the wire ties in either direction. A filling and inclosure of indestructible material 5—such as concrete, glass, or other substance that is not subject to decay—is molded or otherwise deposited within the said metal frame, and preferably extends sufficiently outside the same to be a perfect inclosure for the metal from the inroads of moisture and of the atmosphere. By this means the metal, which may be of iron or any other suitable material, is preserved from rust and attrition, and as the material by which it is inclosed, except for its frangibility, is virtually indestructible, not being subject to decay, the said metal frame obviates said frangibility and gives the article thus manufactured a backbone that under ordinary circumstances cannot be broken, the correlative positions of the materials and their correlative qualifications each making provisions to countervail the lack in qualification of the other, so as to co-operate to form a post, railway-tie, beam, or other article that combines the strength of the metal with the undecaying, and therefore indestructible, properties of the concrete, glass, &c.

Holes 6 are provided in the fence-post or

railway-tie, and in those in the post the staples 7, which hold the fence-wire 8, are seated. The holes should be placed relatively at the distance apart that it is required for the wires to be placed. After the stretching of the wire along the line of fence the points of the staples are passed over it at each post and driven through the holes in said posts, as seen in Figs. II and VII, and are then clinched at 9, as shown in Fig. VIII, to hold the wire in place.

The holes 6 in the railway cross-ties serve as bolt-holes for the attachment of the rail-chairs.

The longitudinal pieces of the metal frames may be of iron or other metal rods or wire, or they may be of metal tubes, such as gas-pipes. Gas-tubes are well adapted for use in the construction of beams, cross-ties, &c., where the structure is subject to much cross strain, as their tubular construction insures great strength for the amount of metal used.

The invention is especially well adapted for use in the manufacture of fence-posts, railway cross-ties, &c., in prairie countries or any country where timber is or has become scarce, for it can be produced in such places at about the same cost as in others where the timber article is cheap from the abundance of material; but the invention is also of advantage even where timber is plentiful and cheap, in consequence of the lasting qualities of the posts and other articles that are constructed out of imperishable material, when it is combined and constructed as above described, being both fire-proof and indestructible from decay.

In Figs. XI and XII are shown modifications, in which in the first case only two longitudinal rods and in the latter three are used, in which cases they are connected by wire with a coil-tie, as in the case of four. I do not confine myself to any number of longitudinal rods, for the number may be reduced or increased as desired, as will best accord with the structure for which it is intended. When only one of the longitudinal rods shown is used, of necessity there can be no connecting-wires; but I prefer, except it may be for some especial uses, to use more than one longitudinal rod, which rods, with their connecting-wires, are a brace to each other, and when, as in most cases, four such are used, filled in and inclosed within concrete or other solid imperishable material which is impervious to air and moisture and to the inroads of rust and decay, the structure largely combines the properties with the stiffness and fibrous cohesive tenacity of the metal, with also the unyielding and imperishable properties of the concrete, glass, or other like substance not subject to decay or to bend or warp, as will metals alone under a severe strain or extreme heat.

In Fig. XIII is shown a modification in which the metal frame is outside the con-

crete or other imperishable substance, in which form my invention may be adopted for certain especial uses; but for most uses, especially where exposed to the weather, the use of this modification is not preferred, for the metal frame is not, as in the other forms, protected from the moisture of the atmosphere, and consequently is subject to the inroads of rust.

The invention is of practical utility for many purposes not noted in the above description, such as columns in buildings, in which either concrete or glass is too frangible for such purpose when uncombined with my metal frame. Glass columns in which are molded the said metal frames can thus be constructed, and, while inexpensive, they may be made both serviceable and ornamental. The glass can be colored or of varied hues to suit the taste. When the filling of said pillars is of concrete, they (the pillars) are easily susceptible of embellishment by stucco-work.

Among other uses to which the invention is adapted is that of sills and like parts in the construction of frame and other buildings, especially in basements where there are foundation supports beneath the sills that support them and are subject to damp. In the formation of the structure the metal frame may be located and fixed in the center of a mold, and the concrete, glass, or other material not subject to decay be run in around it while in a plastic condition, and when rigid be removed from the mold; or the structure may be formed by any other suitable means.

Although I have provided staples for the attachment of the wires to the posts when the invention is used for fence-posts, and such is the preferable means of attachment of the wires, yet should other means of attachment be desired at any time, by setting the posts with said holes running in line with that of the wire said wire can be threaded through the holes and the attachment-staples then dispensed with.

I claim as my invention—

1. The combination of the metal frame, the filling and inclosure of imperishable material 5, that protects said frame from the inroads of moisture and rust, and said frame arranged to protect said structure from breakage, the said structure provided with holes for seating staples, and the staples that hold the wires to said posts, seated in said holes, substantially as and for the purpose set forth.

2. The combination of longitudinal metal rods and girding-wires connecting said rods and a filling and inclosure of indestructible material 5, arranged to protect said frame from the inroads of moisture and rust, and said frame arranged to bind and hold said material from breakage, and hooks on the ends of said rods for preventing said wires from slipping off, substantially as set forth.

3. The combination of longitudinal metal

rods and girding-wires having tie-coils embracing said rods, a filling and inclosure of indestructible material 5, arranged to protect said frame from the inroads of rust, and said
5 frame arranged to bind and hold said material from breakage, and hooks on both ends of said rods projecting inwardly for prevent-

ing said wires from slipping off, substantially as set forth.

OMAR A. STEMPEL.

In presence of—

BENJN. A. KNIGHT,
SAML. KNIGHT.