

No. 855,299.

PATENTED MAY 28, 1907.

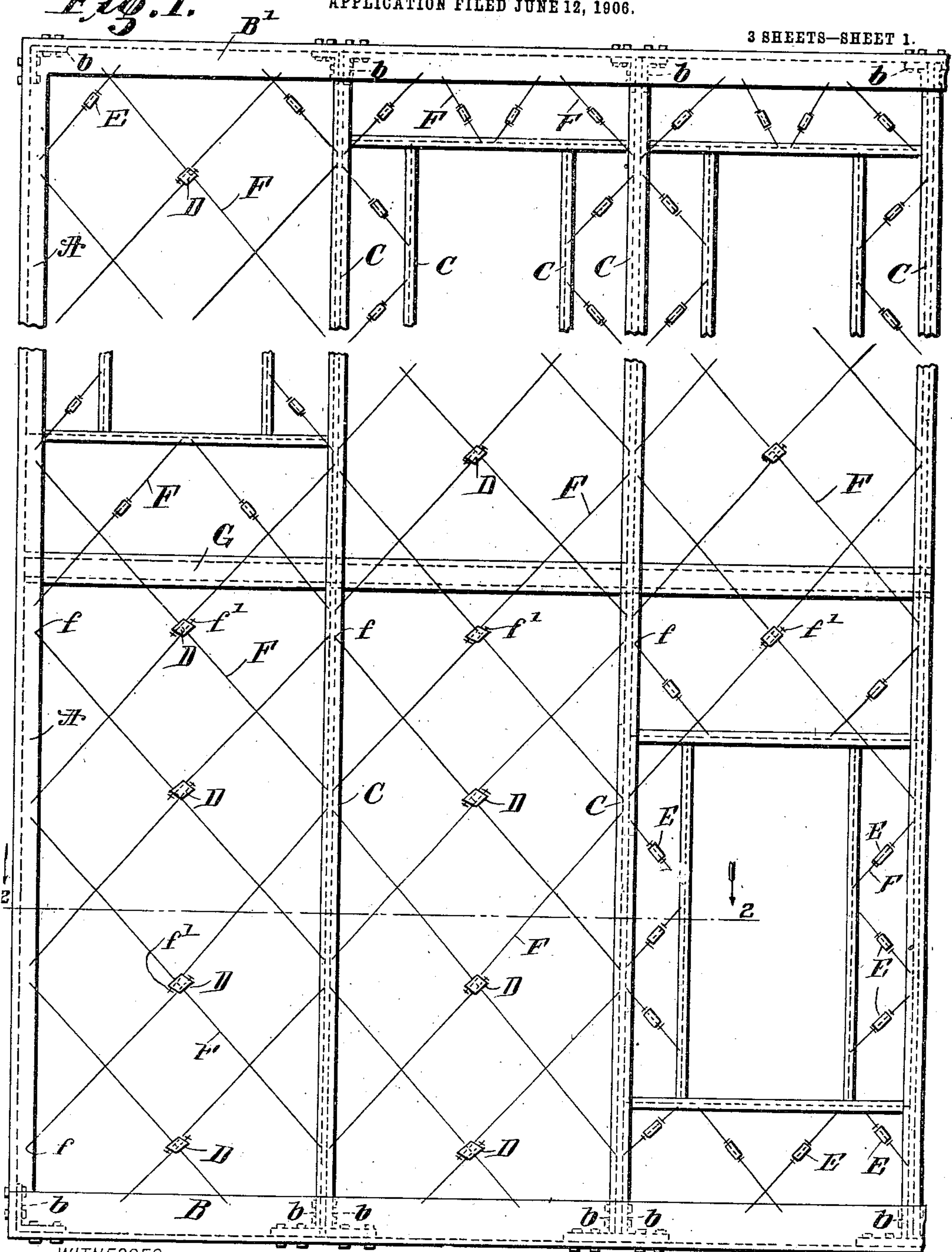
G. GEORGENSON & J. E. HENNEN.

REINFORCED CONCRETE CONSTRUCTION FOR BUILDINGS AND OTHER  
STRUCTURES.

*Fig. 1.*

APPLICATION FILED JUNE 12, 1906.

3 SHEETS—SHEET 1.



WITNESSES  
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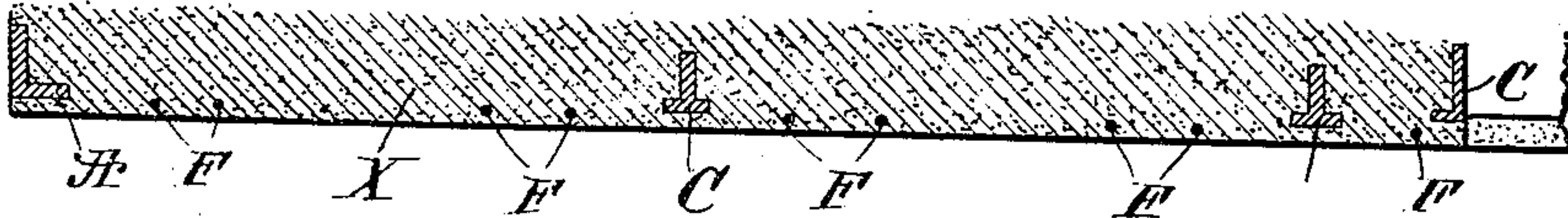
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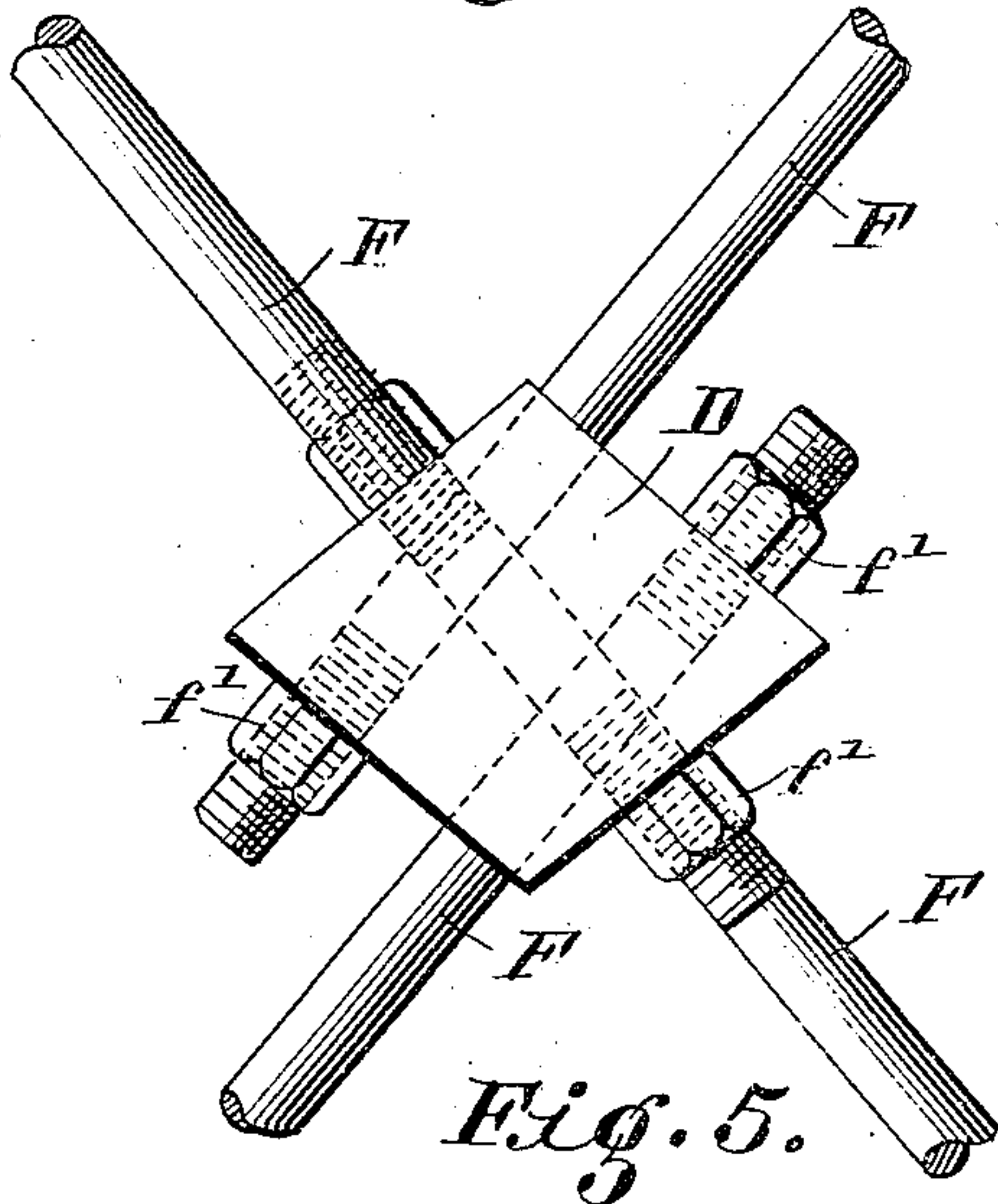
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*Fig. 2.*

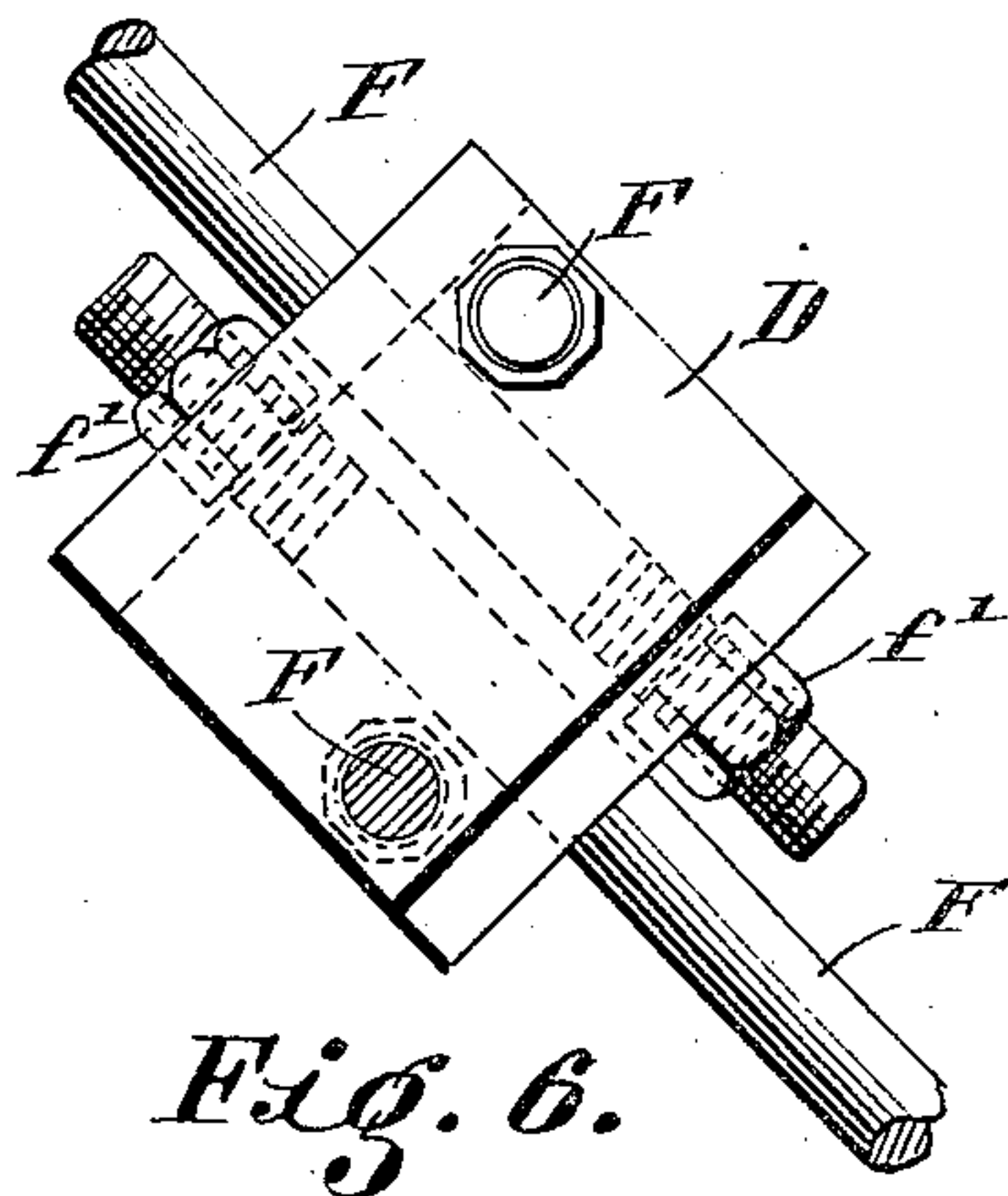
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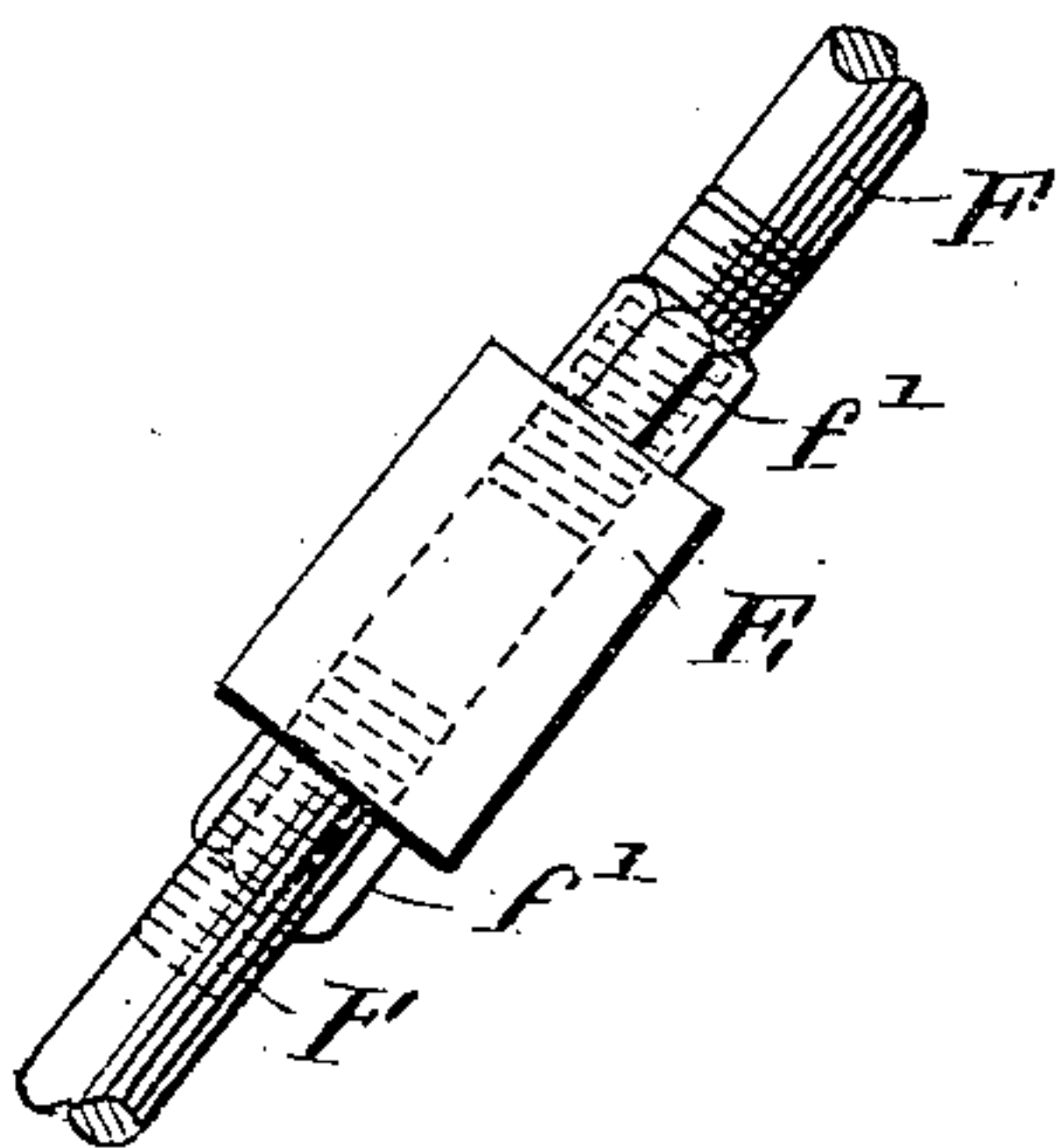
*Fig. 3.*



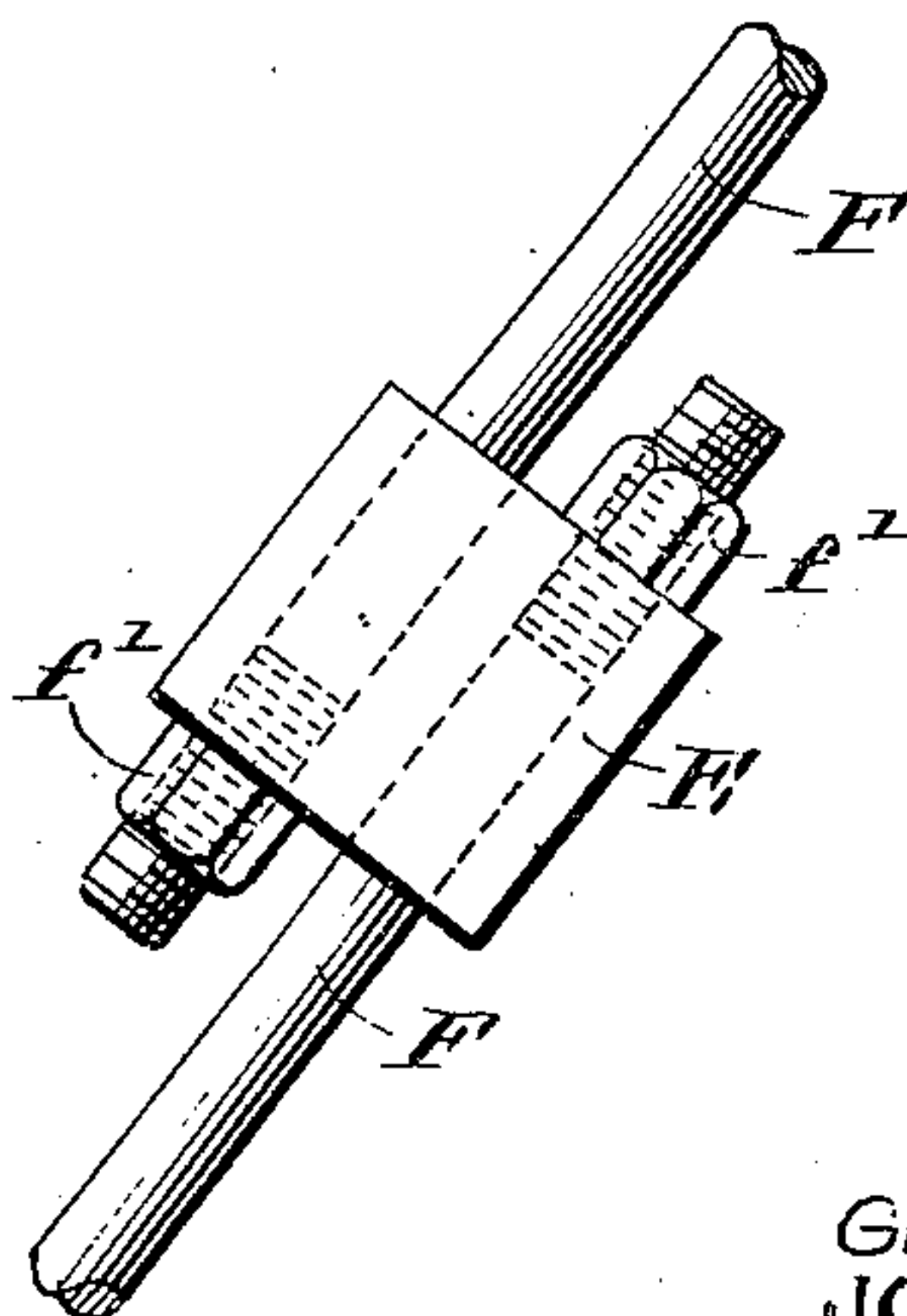
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



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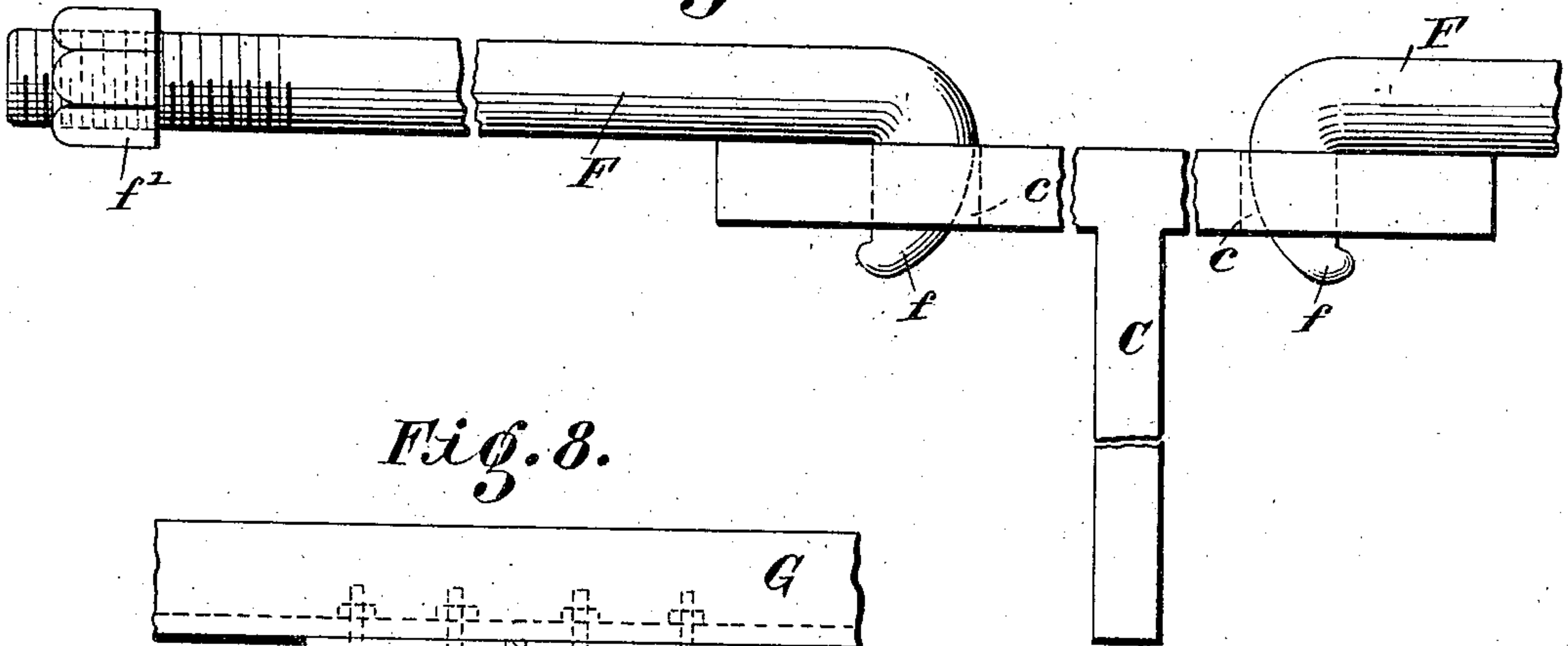
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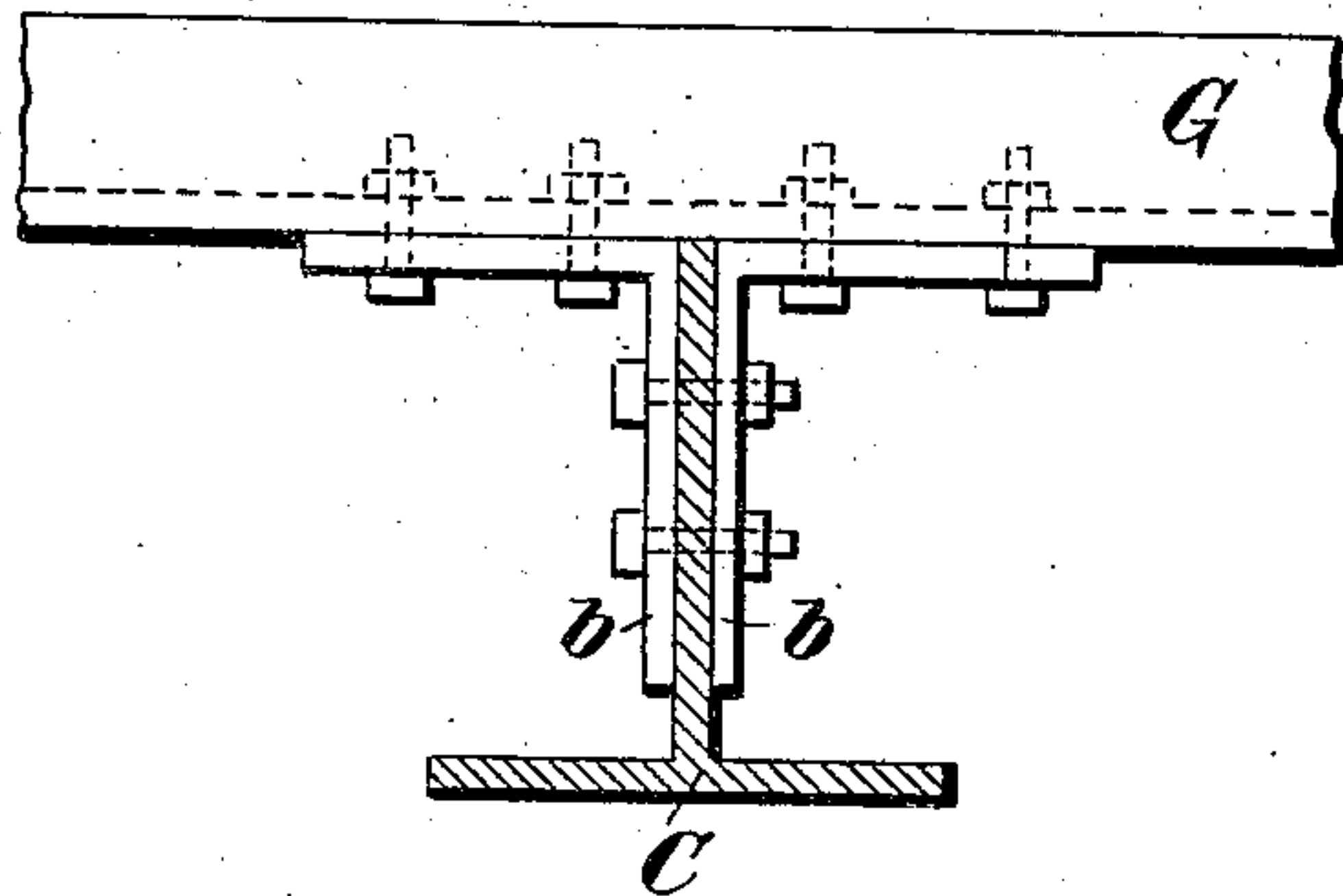
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*Fig. 7.*

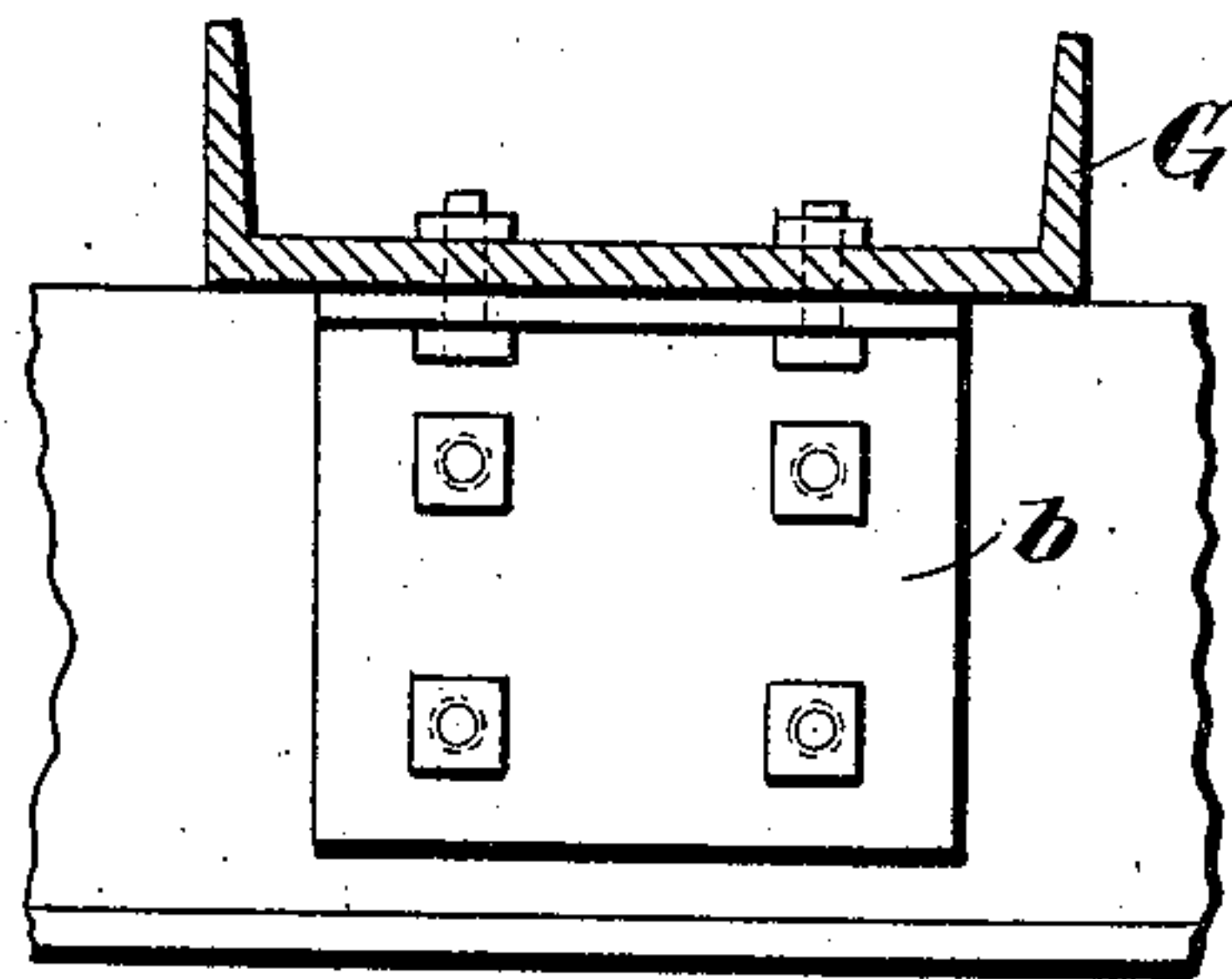
3 SHEETS—SHEET 3.



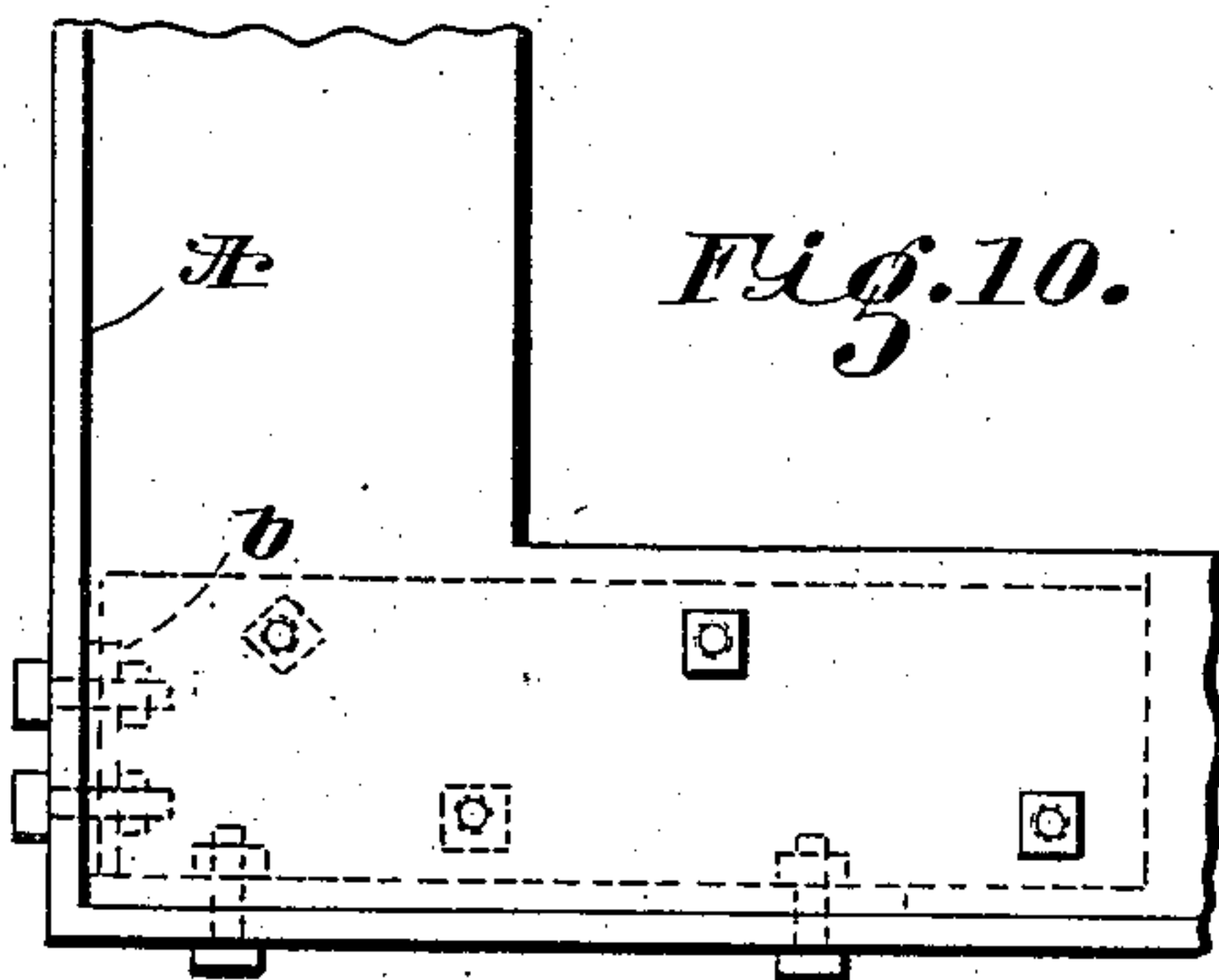
*Fig. 8.*



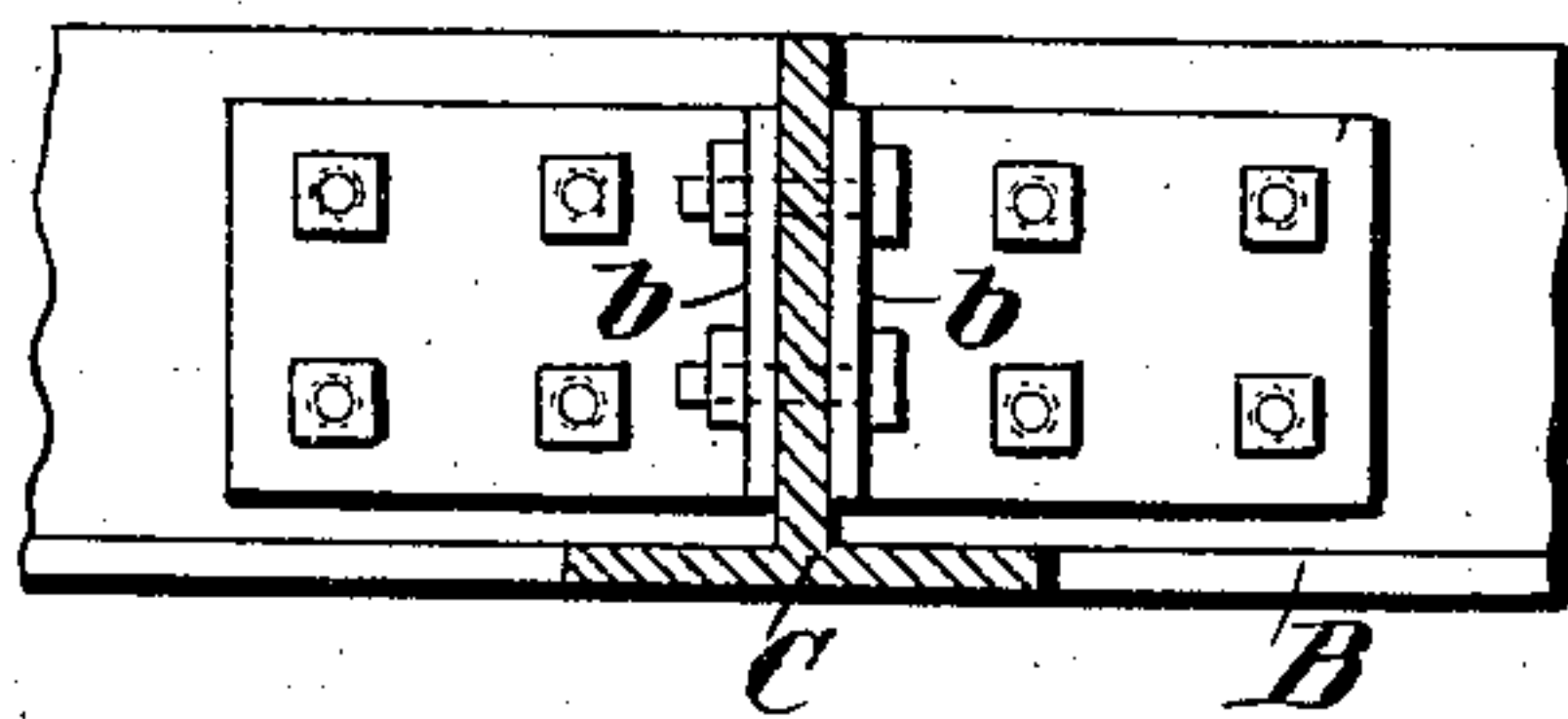
*Fig. 9.*



*Fig. 10.*



*Fig. 11.*



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# UNITED STATES PATENT OFFICE.

GEORGE GEORGENSON AND JOSEPH EDWARD HENNEN, OF FOND DU LAC,  
WISCONSIN.

REINFORCED CONCRETE CONSTRUCTION FOR BUILDINGS AND OTHER STRUCTURES.

No. 855,299.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed June 12, 1906. Serial No. 321,307.

*To all whom it may concern:*

Be it known that we, GEORGE GEORGENSON and JOSEPH EDWARD HENNEN, citizens of the United States, residing at Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented a new and useful Improvement in Reinforced Concrete Construction for Buildings and other Structures, of which the following is a specification.

This invention is a re-inforced concrete construction for buildings or other structures, characterized particularly by a combination of sills, beams and studding and diagonal tie or brace rods, these parts being made of metal and forming the skeleton for a body of concrete applied thereto, to form the complete wall or partition.

The object of the invention is to produce a structure which will sustain to a high degree all kinds of strains or stresses, particularly those incident to unequal settling or heaving, without cracking or dismemberment. It is believed that a building constructed as specified may be raised at one or both ends or sides without injurious consequences, and will retain its shape in all positions.

A further feature of the structure is its cheapness and wide range of application, since all parts of the iron work may be readily carried in stock and thus be available for immediate use, without the delay incident to special rolling or casting. Special lengths may be quickly cut or bent from standard stock at any ordinary forge or shop, and windows or door ways set where desired, with little work or expense.

An embodiment of the invention is illustrated in the accompanying drawings, in which

Figure 1 is an elevation of the iron skeleton or framework of a wall. Fig. 2 is a section on the line 2—2 of Fig. 1, with the concrete applied. Figs. 3, 4, 5 and 6 are plan and edge views of couplings between the diagonal ties. Fig. 7 is a detail showing the way the tie rods are connected to the studding or beams. Figs. 8 and 9 are details showing the connections between the upright columns or studding and the floor beams. Figs. 10 and 11 are detail views of the base plates.

Referring to the drawings specifically, A

indicates the corner upright or column of the iron work, set upon sills B and connected to the floor supporting beams G.

C are the intermediate uprights or studding, and B' the roof beams at the top. The beams, sills and uprights are secured together in any proper manner, as by angle pieces b and bolts. The shapes of the iron work may be those most appropriate or desirable.

We have shown the corner posts of L-iron, the studding of T-iron and the floor beams of channel iron, which are good shapes for the respective parts and well suited to receive the brace or tie rods. These rods are shown at F, and are placed to form diagonal braces from one beam or post to another. Said rods may be bars of round, square or other shape, and each rod has at one end a hook f, and at the other end is threaded to receive nuts f'. The flanges of the main posts and beams are provided at appropriate intervals with holes c in which the hooks f are engaged and the rods are crossed to form a net work of ties which bind the main beams together and also form an excellent support or reinforcement for the concrete X in which the iron work is finally embedded.

The ends of the rods are connected together by couplings consisting of metal blocks shown at D and E, having holes there-through to receive the threaded ends of the tie rods, and the couplings and rods are tightened by the nuts f' screwed on the rods against the blocks. The blocks E are single, that is, have holes to receive the ends of two rods; those D are double, to receive four rods. It is within the scope of our invention to run the rods vertically and horizontally, or at any intermediate angle, the essential feature being tie rods between the main irons, and means to tighten the rods. Instead of the hooks f the ends of the rods may be connected to the columns and girders by nuts or otherwise, depending somewhat on the metal shapes used, and the angle at which the rods extend.

Door and window openings are made by setting in suitable posts and beams, which are tied and braced by the rods connected thereto in manner similar to that above described.

The concrete is molded and built up upon



the iron framework so constructed, and the tie rods and couplings act as anchors and braces to hold the same, so that when completed a solid and unitary structure is produced which will effectually sustain strain applied to any of its parts.

We claim

1. A reinforced concrete structure, comprising framework composed of corner uprights, sills connected with the lower ends of the uprights, roof beams connected with the upper ends of the uprights, floor supporting beams connected with the uprights intermediate the sills and the roof beams, studding connected with the beams and sills intermediate the corner uprights, brace or tie rods connecting the parts with each other, each brace comprising a plurality of sections having at one end a hook for engaging the structure and having the other end screw threaded, a block having openings to receive the ends of the converging sections, nuts engaging the screw threaded ends of the sections for tightening said braces, and a concrete fill-

ing, said tie rods forming a reinforce and a support for the filling.

2. A reinforced concrete structure comprising a framework composed of corner uprights, sills connected with the lower ends of the uprights, roof beams connected with the upper ends of the uprights, floor supporting beams connected with the uprights intermediate the sills and the roof beams, studding connected with the beams and sills intermediate the corner uprights, brace or tie rods connecting the parts with each other, each brace comprising a plurality of sections having at one end a hook for engaging the structure, means for engaging the ends of the converging sections, whereby to secure them together, and a concrete filling, said brace or tie rods forming a reinforce and a support for the filling.

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JOSEPH EDWARD HENNEN.

Witnesses:

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