

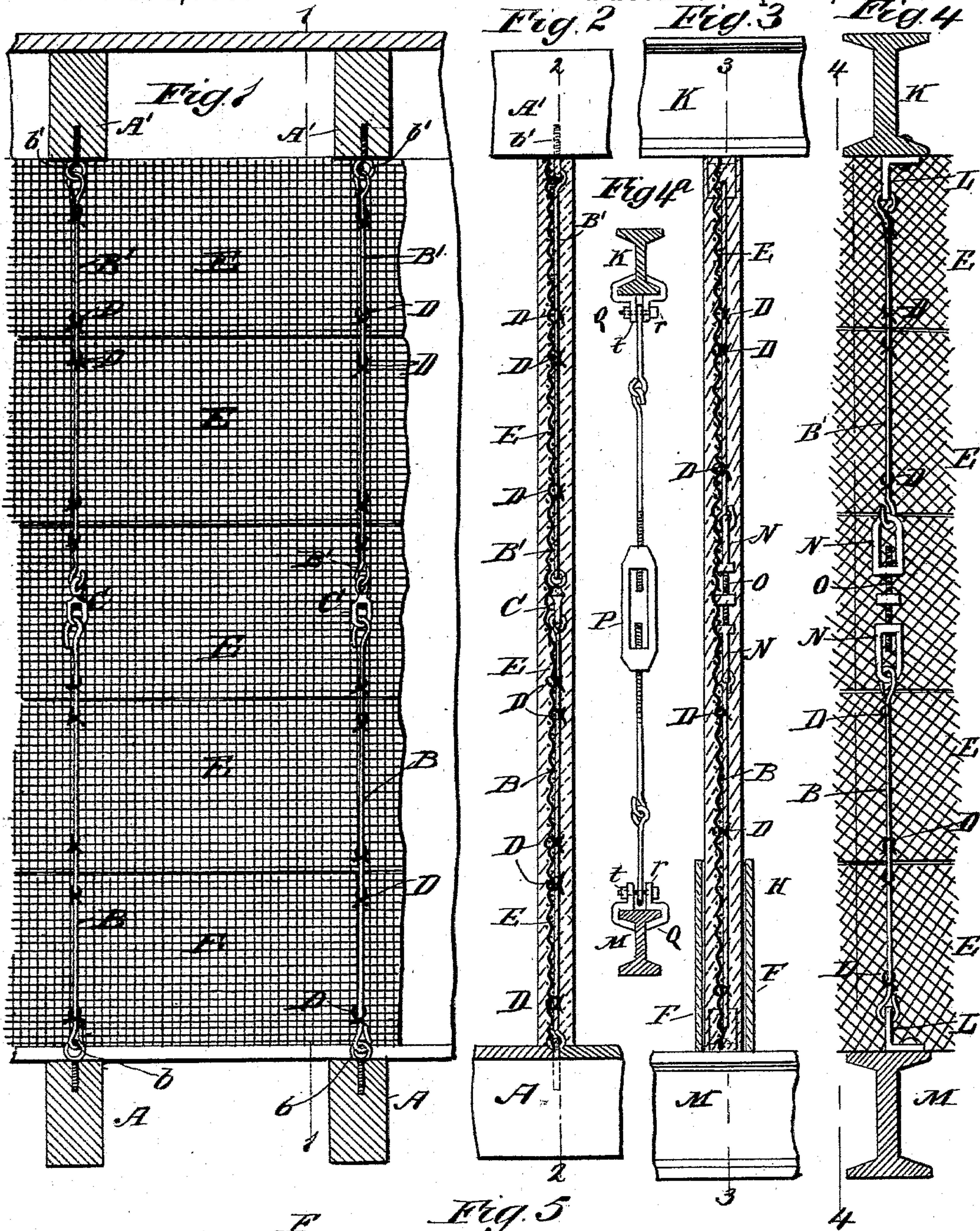
(No Model.)

I. C. JOHNSON.

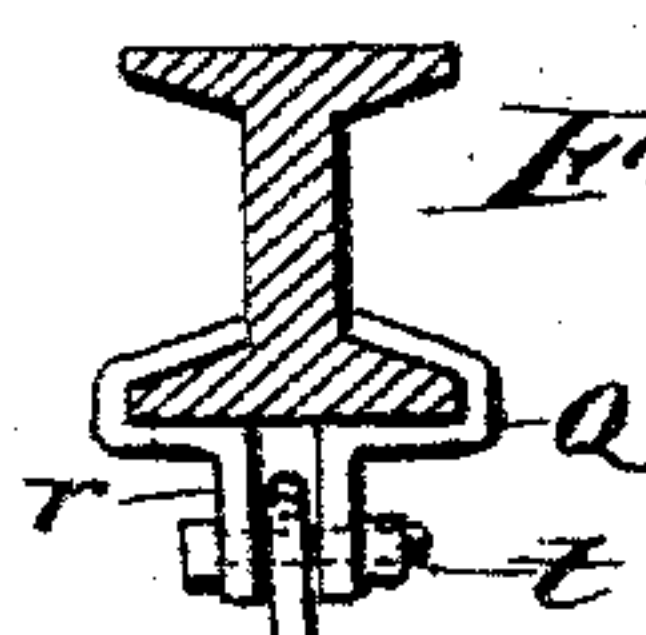
FIREPROOF PARTITION FOR BUILDINGS.

No. 494,866.

Patented Apr. 4, 1893.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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FIREPROOF PARTITION FOR BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 494,866, dated April 4, 1893.

Application filed July 2, 1892. Serial No. 438,780. (No model.)

To all whom it may concern:

Be it known that I, ISAAC C. JOHNSON, a citizen of the United States, and a resident of the city of New York, in the county and State of New York, have invented a new and useful Improvement in Fireproof Partitions for Buildings, of which the following is a specification.

My invention relates to improvements in fire proof partitions for buildings and the object of said invention is to furnish, a light, strong, and inexpensive "fire proof partition" which may be constructed without the aid of skilled labor, and with great economy of floor space.

My invention consists of upright rods connected to the floor and ceiling beams, and means for straining or tightening the said rods, in combination with a metallic netting removably fastened to said upright rods, and a plaster coating, in which said rods, netting, straining and beam attaching devices, are embedded, and concealed from view, as will be hereinafter more fully described, and the improvements particularly pointed out in the claims, reference being had to the accompanying drawings, forming part of this specification, in which

Figure 1 represents a vertical section taken on line 2, 2 of Fig. 2 through the wooden floor and ceiling beams of a building, showing one form of my improved partition, the plaster being broken away to expose the invention as applied. Fig. 2 is a vertical cross section taken on line 1, 1 of Fig. 1, showing my improved partition complete, with the plaster applied. Fig. 3 is a vertical cross section on line 4, 4 of Fig. 4, showing a completed partition, as applied to the iron beams of a building, and also the partition molding frame. Fig. 4 is a vertical longitudinal section taken on line 3, 3 of Fig. 3 of the same partition before the plaster is applied. Fig. 4^a is a vertical section through the iron floor and ceiling beams, of a building, showing a modified form of attachment of tension rods to the beams and also a modified form of the tension device. Fig. 5 is a horizontal section through a doorway, showing how my improved partition will appear, in reference to said doorway or other opening in the partition and also the

frame for molding the partition. Fig. 6 is an enlarged detail showing one method of removably attaching the tension rods to a clamp, removably fitted on an I ceiling beam.

Similar letters of reference indicate corresponding parts in all the views.

Referring to Fig. 1, A represents the wooden floor beams of a building, and A' the wooden floor beams of the floor above it, or the ceiling beams, screw eyes *b*, are entered into the upper face of the wooden floor beams A, and screw eyes *b'*, into the lower face of ceiling beams A', metallic rods B and B' formed with hooks at both ends, are engaged by one of their respective hooks, with the screw eyes *b* and *b'* as shown in Fig. 1 and the rods B, and B', after being entered into their respective screw eyes *b*, and *b'* extend in a vertical line toward each other. The adjacent hooked ends of rods B and B', are now hooked into the upper and lower eyes of a swivel C, and the necessary rigidity given to the metallic rods B, and B', by turning the screw eyes *b*, and *b'*, as tightly as may be necessary into their respective beams A and A'. The rotary movement of the screw eyes *b*, and *b'*, and their attached rods B, and B', being allowed by the swivel C, connecting the adjacent portions of rods B and B', so that the lower rod B', and its screw eye *b'*, can revolve in either direction, without affecting the upper rod B and its attached screw eye *b*, and vice versa. The metallic rods B, and B', should be stretched tightly, in a perfectly vertical line, and be located as near as possible on the center line of the partition to be built, that is, the center line lengthwise of partition, should pass through the center line of rods B and B'. Preferably I attach the screw eyes *b* and *b'*, to which the rods B, and B', are hooked, in the transverse center of each successive beam, extending with their attached hooked rods, as far as the partition is destined to run, or until the partition will meet the wall of the building. Or the screw eyes may be attached at intervals, along the longitudinal center line of the opposing faces of a floor and ceiling beam.

To form a key for the plaster that is to be applied later on, I fasten sheets of metallic netting E, of any desired mesh, or configura-

tion of mesh, by means of strong wire ties D, tightly to the metallic rods B and B', using as many ties to each strip of netting as necessary, to securely fasten the netting to the upright rods B, and B', starting at lower portion of rods or from the flooring, letting the lower edge of wire netting fit closely to the flooring, and rest against one side of the rods B, and tie the netting securely to each successive rod, as hereinbefore explained, the entire length of partition, and proceed upwardly in the same manner, the lower edge of second strip of netting meeting the top edge of lower strip of netting, and so on, until the rods B and B' are covered their entire height, with the netting up to the ceiling line, and the entire length of proposed partition, thus covering the rods B, and B', from the flooring to the ceiling, with the attached netting E.

The partition can be built upon any predetermined line, and have as many angles as necessary, the wire netting E, being bent to the proper angle, to conform to any angular deviation of the partition, or bent to suit any curve desired, in said partition. After the netting is securely fastened to rods so as to completely cover one side of the rods, from flooring to ceiling, the plaster is applied in the following manner.

Sheets of iron or boarding F, are arranged to form an inflexible, long and narrow rectangular frame, H, and the side pieces of said frame, removably fitted to the end posts G, of said frame, so as to be readily taken apart by means of screws or other simple contrivances.

The ends of this frame H, are fitted to slide in ways, formed in removable standards, placed at either end of frame, or to slide between cleats, that may be temporarily fastened to wall of building, or to any other support (not shown in drawings). These ways must be truly vertical, and the space between the inner faces of the sides of frame H, will be the thickness of the partition to be built. One side F, of the frame H, being removed from the end posts G, the frame is placed on the flooring, in a vertical position, encompassing the upright rods B, and their attached netting, E. The side F, of frame that has been previously removed, being attached to end posts G, by screws, and the posts G, entered into the vertical guide ways in standards before mentioned, or between the temporary cleats, fastened to some suitable support, so that the inner faces of the sides F, of the frame H, will coincide with the boundary lines of completed partition, taking care the rods B, are centrally placed in said frame H, I am ready to proceed with the final operation of plastering. The plaster in a slightly thickened condition is now filled closely into the rectangular frame H, until it fills the same, entirely embedding the rods and netting inclosed in the plaster, it is left to harden sufficiently, when the frame H, is raised until the bottom edge of frame H, is just below the top line of plaster already partly set, and supported in

this position by pins or other devices, entered into the standards at either end of frame before mentioned, and into the end posts G of frame H. The same operation is repeated of filling with plaster, letting it harden sufficiently and raising the frame H, for a fresh operation, until the partition is completed to the necessary height. By this means the building of a partition does not need the employment of skilled labor, as the work is purely mechanical and the inflexible nature of the sides of the frame H, and the absolutely vertical movement of the said frame, guarantees a perfectly vertical partition, with smooth and even surfaces, no finishing coat being necessary. The wire netting E, forming the strongest possible keying surface for the plaster, and the tension rods B and B' to which the netting E is fastened, being tightly strained, will prevent any settling or cracking of the plaster.

The partition when finished will be slightly less than two inches in thickness, thus making considerable economy in floor space, a great desideratum in city dwellings, and also decreases in a marked degree, the weight of such partitions, and forms one that is absolutely fire proof.

I will now describe the method, I have invented for applying my invention, to iron building beams, which is as follows:

Referring to Figs. 3 and 4 of the drawings, to the under face of a ceiling beam K, I fasten by rivets, or bolts, or other fastening, an angle iron L, by its horizontal member. The vertical member of angle iron L, is provided with an opening through which is hooked, or otherwise attached, the upper end of tension rod B'. The lowermost portion of lower tension rod B, is hooked into a similar angle iron L, fastened to upper face of floor beam M. Instead of a swivel to connect the tension rods B, and B', centrally, I use a turnbuckle N into the upper and lower eyes of which, the adjacent ends of tension rods B and B' are hooked. The opposite ends of the eyes of turnbuckle being threaded to receive a screw O, having a permanent nut centrally located, to turn the same, by, and the opposite ends of screw O, threaded in opposite directions, to engage with the threaded portions of the eyes of turnbuckle N for the purpose of tightening or loosening the tension rods B and B'. Or a single turnbuckle as P, see Fig. 4^a is used to engage with the oppositely threaded ends of the tension rods B and B', and which I consider the most preferable form, as it is decidedly the cheapest. A cheaper and better plan for attaching the tension rods to iron beams, instead of angle plates as L, is to form a clamp Q see Fig. 4^a of two metallic plates. The one portion of said clamp, fashioned to closely fit the flange of beam, as shown, extending from the web of beam, outwardly then downwardly over the edge of beam flange, then proceeding inwardly toward the transverse center of

beam, until they nearly meet, when they are bent vertically downwardly forming lugs *r*. The lugs *r*, must be tapped, to receive a headed bolt or bolts *t*, and a nut or nuts 5 screwed on the projecting screw threaded end of said bolt, securely holds the clamps in position on the flange of the beam. The space is left between the lugs *r*, for the introduction of the hooks of the tension rods B and 10 B', which are hooked over the body of bolt *t*, between the lugs *r*. Clamps of the same description are attached to upper face of floor beams, to receive the lowermost hook of tension rod B', in the same manner, between their 15 lugs, as described. The turnbuckle is used between the meeting ends of the rods B and B' as shown in Fig. 4^a and heretofore described as and for the purpose set forth.

The door frames in my partition, I make of 20 channel iron, as shown in cross section in Fig. 5, of the same width as the thickness of the partition, in which case it will serve, as a guide for the frame H, in which the plaster is placed. It is obvious the method of giving 25 rigidity to the tension rods, may be arranged in numerous ways, or single rods may be employed, with suitable tension devices, but I consider the double rods connected centrally to tension device, the most rigid.

30 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a fire proof partition for buildings, vertical metallic tension rods, stretched between the floor and ceiling beams, means for 35 attaching said tension rods, to the said floor and ceiling beams, and a turnbuckle or equivalent device, to which said tension rods are attached between their points of attachment to

the floor and the ceiling beams, to increase or 40 decrease the rigidity of said tension rods, in combination with a metallic or other non-combustible netting attached to said tension rods, to receive and support plaster or other like composition, all substantially as herein 45 shown and described.

2. In a fire proof partition, tension rods stretched between the floor and ceiling beams of a building, means for attaching said tension rods, to the said floor and ceiling beams, and 50 means for increasing or decreasing the rigidity of said tension rods, in combination with a metallic netting, removably or permanently attached to said tension rods, designed to receive and support plaster or other like com- 55 position, as and for the purposes hereinbefore described and set forth.

3. In a fire proof partition for buildings, the combination of clamps to engage the opposing faces of iron ceiling, and iron floor 60 beams, lugs formed on said clamps, to receive a clamping bolt, vertical tension rods held by said bolts, and a tension device such as a turnbuckle, acting on said tension rods, to strain them lengthwise, placed between the 65 points of attachment of said tension rods, to the said floor and ceiling beams, with a metallic netting attached to said upright tension rods to receive and support plaster or other like composition all as hereinbefore set forth. 70

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 1st day of July, 1892.

ISAAC C. JOHNSON.

Witnesses:

JOSEPH J. REICHELT,
AMASA HIGGINS.