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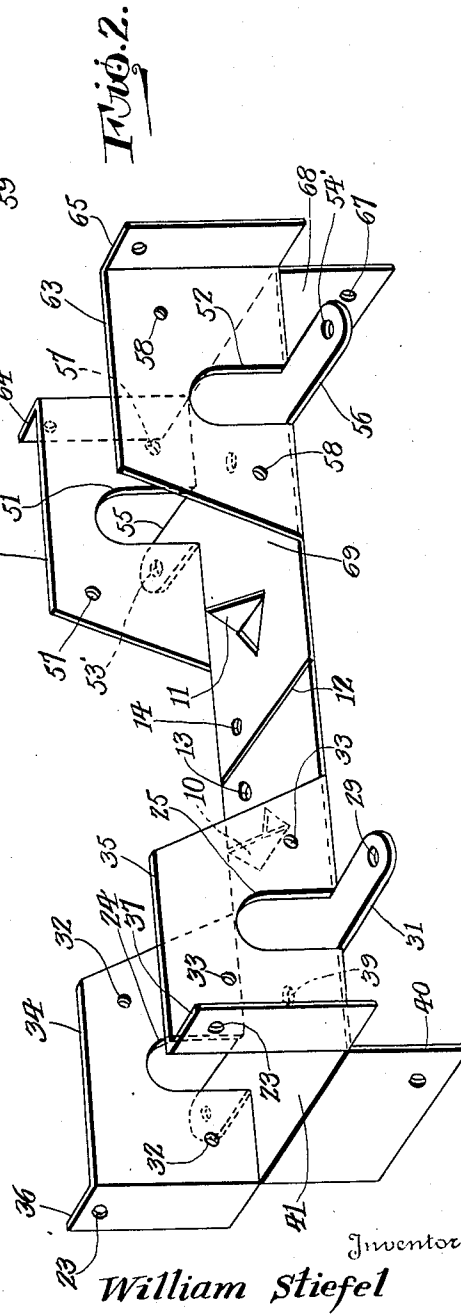
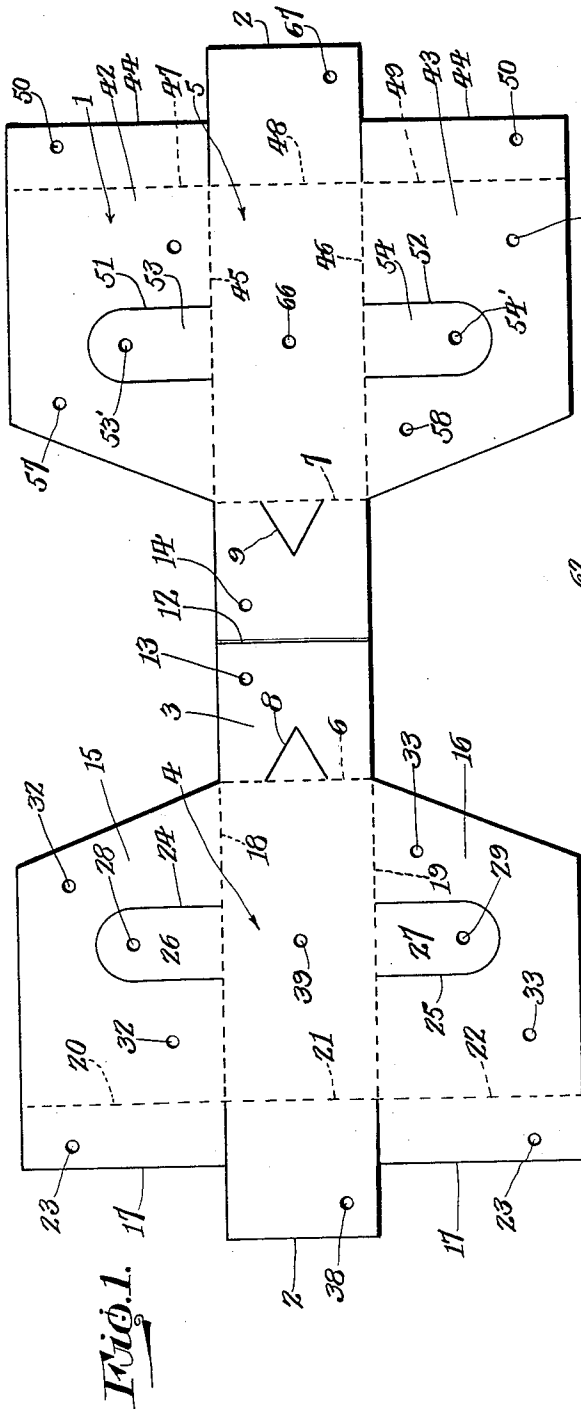
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1,945,925

METALLIC TIE STRUCTURE

Filed Nov. 8, 1932

2 Sheets-Sheet 1



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Fig. 3.

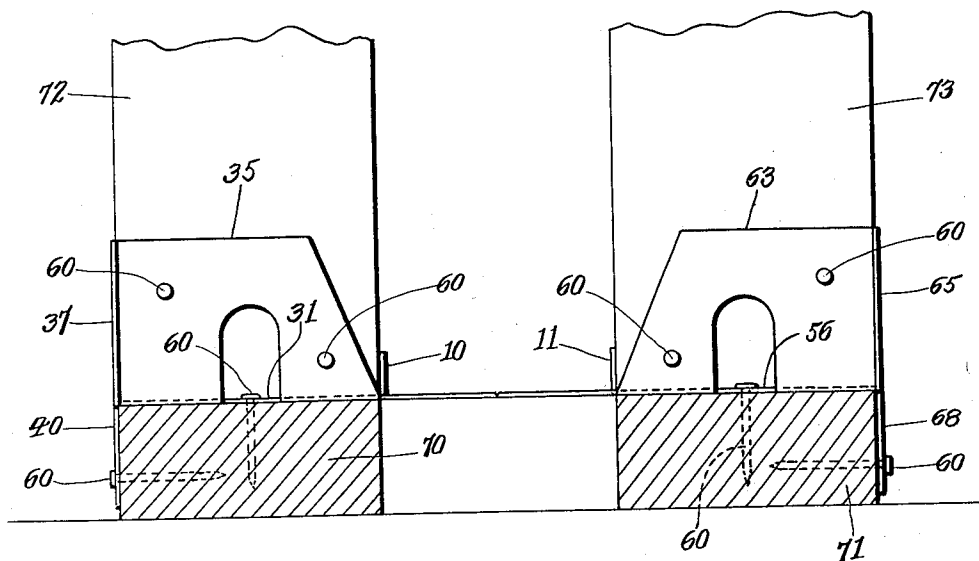


Fig. 4.

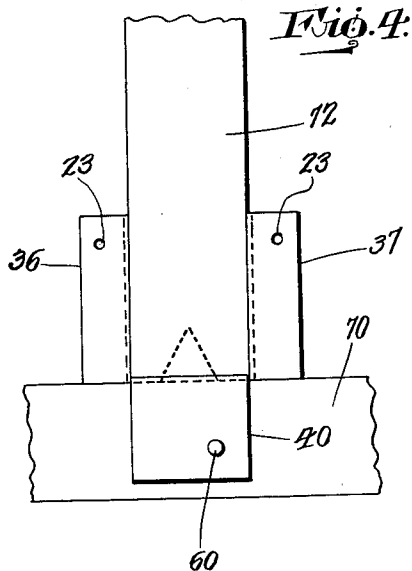
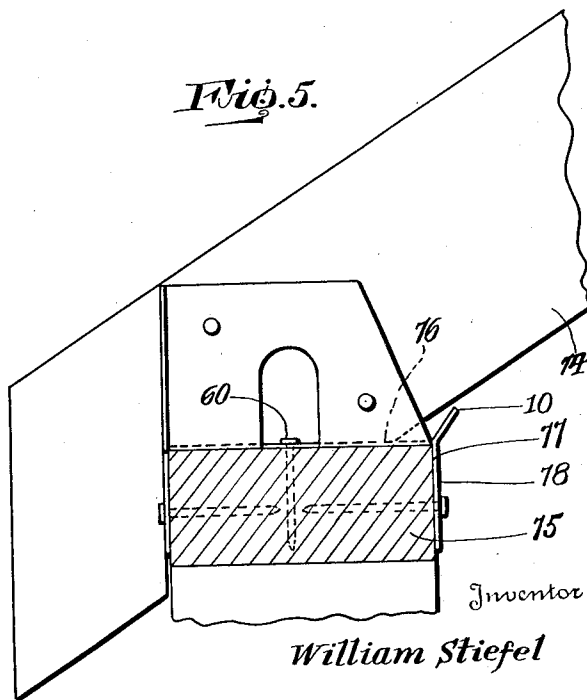


Fig. 5.



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UNITED STATES PATENT OFFICE

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METALLIC TIE STRUCTURE

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Application November 8, 1932. Serial No. 641,793

7 Claims. (Cl. 20—94)

This invention relates to a metallic tie structure for use in connection with studs, floor beams, rafters or for any other purpose for which it is found applicable, and the invention has for its object to provide, in as hereinafter set forth, a structure of the class referred to so formed as to provide for efficiently coupling together a series of structural elements of a building.

A further object of the invention is to provide, in a manner as hereinafter set forth, a metallic tie construction including a series of apertured parts angularly disposed with respect to each other for the passage of holdfast devices for coupling said parts to structural elements of a building for the purpose of tying certain of such elements together in parallel spaced relation and others in superposed arrangement.

A further object of the invention is to provide, in a manner as hereinafter set forth, a metallic tie structure having parts for tying in angular relation a plurality of structural elements of a building.

A further object of the invention is to provide, in a manner as hereinafter set forth, a metallic tie structure including means for tying a pair of sills in parallel spaced relation and for tying therewith, at a plurality of points, a floor or ceiling beam in superposed relation with respect to the pair of sills.

A further object of the invention is to provide, in a manner as hereinafter set forth, a metallic tie structure including stops for properly setting heads, studs or sills and means for tying the heads or studs relatively to the sills.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a metallic tie structure which is simple in its construction and arrangement, strong, durable, compact, thoroughly efficient in its use, conveniently handled, and comparatively inexpensive to manufacture.

To the above ends essentially and to others which may hereinafter appear, the invention consists of such parts, and such combination of parts which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a top plan view of the body part of the tie prior to the folding thereof.

Figure 2 is a perspective view of the tie structure.

Figure 3 is a side elevation of the tie showing the adaptation thereof with respect to a pair of sills and a pair of headers of struts.

Figure 4 is a view looking towards one end of the tie as shown in Figure 3.

Figure 5 is a side elevation illustrating an end portion of the tie and the adaptation thereof with respect to an inclined rafter and a sill and with the former tied to the latter.

The body of the tie is generally indicated at 1 and is formed from metallic material of the desired gauge. The body 1 includes a central oblong part 2 of the desired width and length. The part 2 consists of an intermediate portion 3 and a pair of end portions 4, 5. The portion 3 provides a coupler for connecting portions 4, 5. At the points of joinder of the portions 4, 5 with portion 3 the part 2 is transversely scored as at 6, 7 respectively. The portion 3 is formed with a pair of oppositely disposed V-shaped slits 8, 9 extending lengthwise thereof from the scores 6, 7. The slits 8, 9 provide freed portions of body 1 which are adapted to be bent upwardly at right angles to the scores 6, 7 to form stops 10, 11. The portion 3 at its transverse center is incised from one side edge to the other thereof, as at 12 to form a weakened part to permit of severing portion 3 into half if desired. The portion 3 in proximity to and on opposite sides of the incision 12 is provided with openings 13, 14 for the passage of holdfast devices.

Extending laterally from each side and of less length than that of portion 4 is an extension. The extensions are indicated at 15, 16 and each of which is of greater width than portion 4. Each extension extends from the score 6 to a point inwardly of the outer end of portion 4. The inner ends of the extension are oppositely inclined. The inclination being in a direction towards the outer end of portion 4. Each extension for a portion of its length is integral with one side of portion 4. Each extension has a portion 17 which is free of the portion 4. At the point of joinder of the extensions 15, 16 with the sides of portion 4 longitudinal extending scores 18, 19 are provided. The scores 18, 19 extend from the score 6 to the freed portions 17. A transverse score 20 is formed in extension 15. A transverse score 21 is formed in portion 4 and a transverse score 22 is formed in extension 16. The scores 20, 21 and 22 register with each other. The inner end of score 20 merges into the outer end of score 18. The score 21 merges into the outer ends of scores 18, 19 and the score 22 merges into the outer end of score 19. The freed portions 17 are positioned inwardly of and in proximity to the outer end of portion 4 and each is provided with an opening 23. The ex-

tensions 15, 16 have U-shaped transversely disposed slots 24, 25 respectively which extend from the scores 18, 19 respectively. The slots 24, 25 provide freed portions 26, 27 respectively formed with openings 28, 29 respectively. The freed portions 26, 27 provide apertured tongues 30, 31. The extensions 15, 16 are formed with spaced openings 32, 33 respectively and are bent upwardly on the scores 18, 19 respectively to provide side apertured side cheeks 34, 35 respectively. The freed portions 17 are bent outwardly upon the scores 20, 22 to provide apertured tie members 36, 37 respectively which are disposed at right angles to the cheeks. The portion 4 is formed with a pair of spaced openings 38, 39, and that part of portion 4 outwardly with respect to the score 21 is bent downwardly at right angles to the remaining part of portion 4 and provides an apertured tie member 40. The part of portion 4 between the scores 6, 18, 19 and 21 provides a combined support and tie member 41.

Extending laterally from each side and of less length than that of portion 5 is an extension. The extensions are indicated at 42, 43 and each of which is of greater width than portion 5. Each extension extends from score 7 to a point inwardly of the outer end of portion 5. The inner ends of the extensions are oppositely inclined, the inclination being in a direction toward the outer end of portion 5. Each extension for a portion of its length is integral with one side of portion 5. Each extension has a portion 44 which is free of portion 5. At the point of joinder of the extensions 42, 43 with the sides of portion 5 longitudinally extending scores 45, 46 are provided which extend from the score 7 to the freed portions 44. A transverse score 47 is formed in extension 42. A transverse score 48 is formed in portion 5 and a transverse score 49 is formed in extension 43. The scores 47, 48 and 49 register with each other. The inner end of score 47 merges into the outer end of score 45. The score 48 merges into the outer ends of the scores 45, 46 and the score 49 merges into the outer end of score 46. The freed portions 44 are positioned inwardly of and in proximity to the outer end of portion 5 and each is formed with an opening 50. The extensions 42, 43 have U-shaped transversely disposed slits 51, 52 respectively which extend from the scores 45, 46 respectively. The slits 51, 52 provide freed portions 53, 54 respectively and said portions are formed with openings 53', 54' respectively. The freed portions 53, 54 provide apertured tongues 55, 56 respectively. The extensions 42, 43 are formed with spaced openings 57, 58 respectively and are bent upwardly on the scores 45, 46 respectively to provide apertured side cheeks 62, 63 respectively. The freed portions 17 are bent outwardly upon the scores 47, 49 to provide apertured tie members 64, 65 respectively disposed at right angles to the cheeks 62, 63. The portion 5 is formed with a pair of spaced openings 66, 67 and that part of portion 5 outwardly with respect to score 48 is bent downwardly at right angles to the remaining part of portion 5 and provides an apertured tie member 68. The part of portion 5 between the scores 7, 45, 46 and 48 provides a combined support and tie member 69.

The openings in the tie members, tongues, combined supports and tie members, and the side cheeks are for the passage of holdfast means 60 for the purpose of coupling or tying together structural elements of a building. This arrangement is shown in Figures 3, 4 and 5. In Figure 3 there is shown a pair of parallel spaced sill

members 70, 71 secured to parts 41 and 69 of portions 4 and 5 and to the tie members 40 and 66. Headers or studs 72, 73 are secured to the cheeks 34, 35, 62, 63 whereby the sills and headers or studs are tied together. Figure 4 shows the sill 70 and header or stud 72.

In Figure 5 the body 1 has been separated at the incision 12 in portion 3 whereby the use of but one-half of body 1 is employed to tie a rafter 74 with a sill 75. The rafter is disposed at an inclination and is cut out, as at 76 to seat upon part 41 or 69 and to oppose tie member 40 or 68. That part 77 of portion 3 remaining is bent downwardly to form an apertured tie member 77 which is anchored to sill 75. The member 40 or 68 as well as part 41 or 69 are also anchored to sill 22. The stop 10 or 11 is bent at an inclination to provide a clearance for the rafter, the latter being anchored to the cheeks 34, 35 or 62, 63.

The tie members 36, 37, 64, 65 are for anchoring structural elements disposed at right angles to headers, studs or rafters or extending in a direction similar to that of the sills.

The showing with respect to tying structural elements together is illustrated by way of example, because the tie structure may be employed for tying together structural elements arranged in a different manner from that as shown.

What I claim is:—

1. A metallic tie structure comprising a coupling portion formed with upstanding spaced stops, an apertured combined support and tie member extended from each end of the coupling portion, a pair of spaced, apertured, parallel side cheeks integral with the sides of each combined support and tie member, a pair of oppositely extending apertured tongues integral with opposite sides of each combined support and tie member and disposed at right angles to the cheeks, an outwardly extending apertured tie member at the outer end of and disposed at right angles to each cheek, and a depending apertured tie member at the outer end of each combined support and tie member.

2. A metallic tie structure comprising a coupling portion formed with upstanding spaced stops, an apertured combined support and tie member extended from each end of the coupling portion, a pair of spaced, apertured, parallel side cheeks integral with the sides of each combined support and tie member, a pair of oppositely extending apertured tongues integral with opposite sides of each combined support and tie member and disposed at right angles to the cheeks, an outwardly extending apertured tie member at the outer end of and disposed at right angles to each cheek, a depending apertured tie member at the outer end of each combined support and tie member, said coupling portion having a transverse incision to provide a weakened part to enable the severing of such portion, and the latter being formed with an opening in proximity to and on each side of said incision.

3. In a metallic tie structure, an apertured combined support and tie member, a pair of spaced, apertured parallel side cheeks integral with the sides of and extending at right angles to said combined support and tie member, a pair of apertured oppositely extending tongues integral with the sides of said combined support and tie member and disposed at right angles to said cheeks, an outwardly extending apertured tie member at the outer end of each cheek and disposed at right angles to the latter, and a depend-

ing apertured tie member at the outer end of said combined support and tie member.

4. In a metallic tie structure, an apertured combined support and tie member, a pair of spaced, apertured parallel side cheeks integral with the sides of and extending at right angles to said combined support and tie member, a pair of apertured oppositely extending tongues integral with the sides of said combined support and tie member and disposed at right angles to said cheeks, an outwardly extending apertured tie member at the outer end of each cheek and disposed at right angles to the latter, a depending apertured tie member at the outer end of said combined support and tie member, and an upstanding stop at the inner end of the combined support and tie member.

5. In a metallic tie structure, an apertured combined support and tie member, a pair of spaced, apertured parallel side cheeks integral with the sides of and extending at right angles to said combined support and tie member, a pair of apertured oppositely extending tongues integral with the sides of said combined support and tie member and disposed at right angles to said cheeks, an outwardly extending apertured tie member at the outer end of each cheek and disposed at right angles to the latter, a depending apertured tie member at the outer end of said combined support and tie member, and an apertured extension at the inner end of the combined support and tie member.

6. In a metallic tie structure, an apertured combined support and tie member, a pair of spaced, apertured parallel side cheeks integral with the sides of and extending at right angles to said combined support and tie member, a pair of apertured oppositely extending tongues integral with the sides of said combined support and tie member and disposed at right angles to said cheeks, an outwardly extending apertured tie member at the outer end of each cheek and disposed at right angles to the latter, a depending apertured tie member at the outer end of said combined support and tie member, an upstanding stop at the inner end of the combined support and tie member, and an apertured extension at the inner end of the combined support and tie member.

7. A metallic tie structure comprising a coupling portion formed with upstanding spaced stops, an apertured combined support and tie member extended from each end of the coupling portion, a pair of vertically extending spaced, apertured, parallel side cheeks disposed lengthwise of and integral with the sides of each combined support and tie member, a pair of oppositely extending apertured tongues integral with opposite sides of each combined support and tie member and disposed at right angles to the lower ends of the cheeks, and a depending apertured tie member at the outer end of each combined support and tie member.

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45	120
50	125
55	130
60	135
65	140
70	145
75	150