

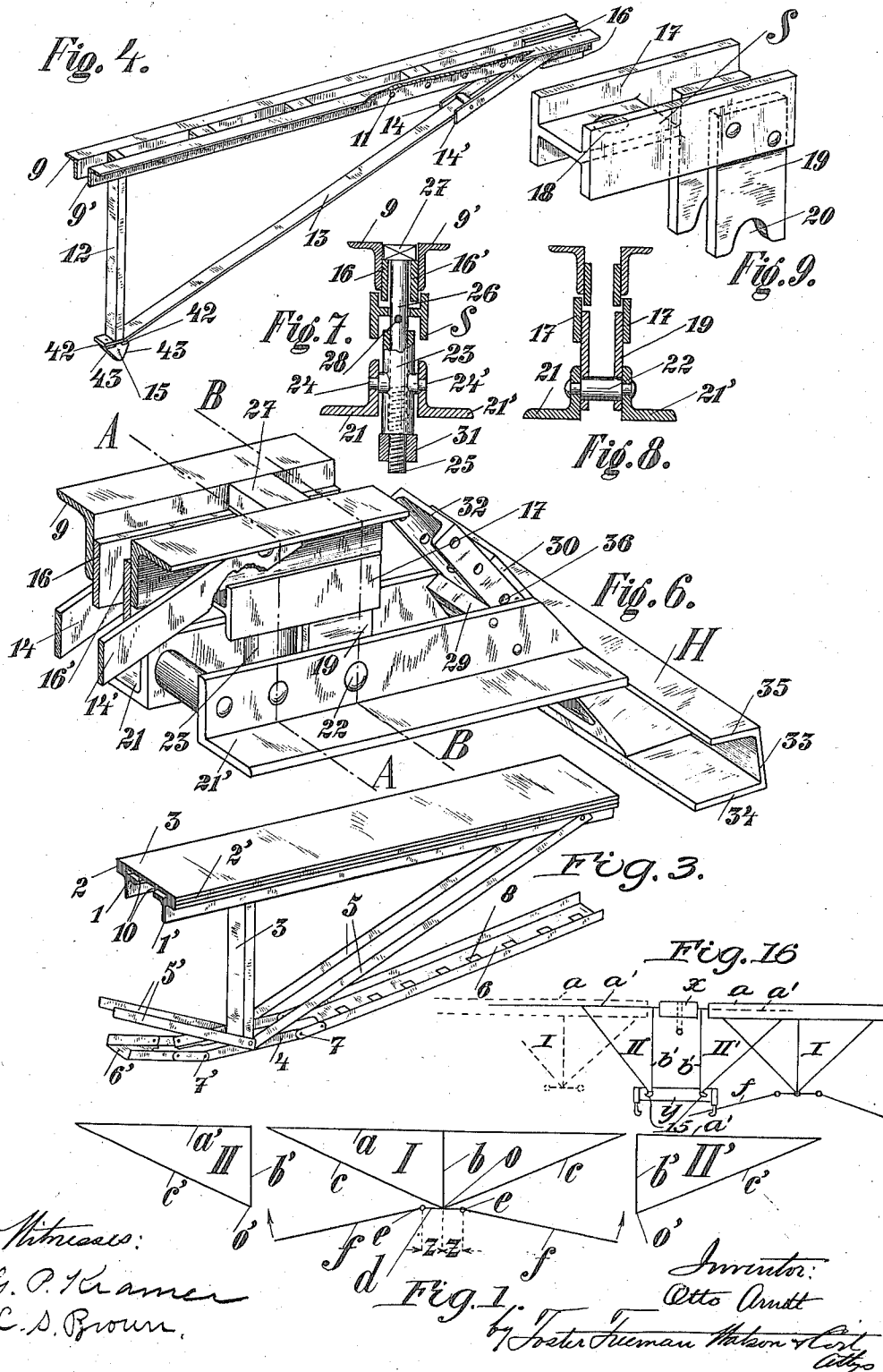
O. ARNDT.
 TEMPLET FRAME.

APPLICATION FILED FEB. 19, 1912.

1,233,743.

Patented July 17, 1917.

3 SHEETS—SHEET 1.



Witnesses:
 G. P. Kramer
 C. S. Brown.

Inventor:
 Otto Arndt

Foster Freeman Watson & Co.
 Attys.

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3 SHEETS—SHEET 2.

Fig. 15.

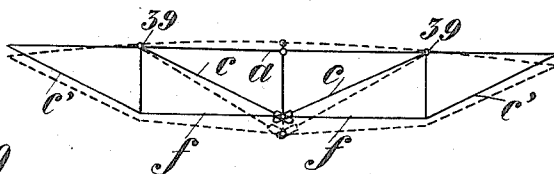


Fig. 10.

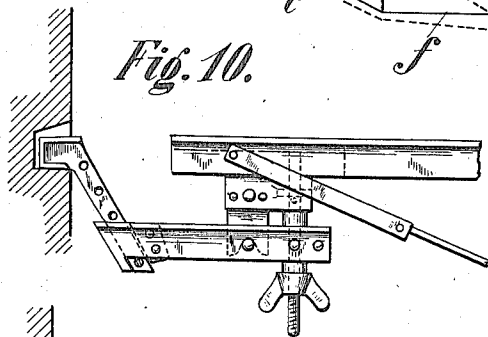
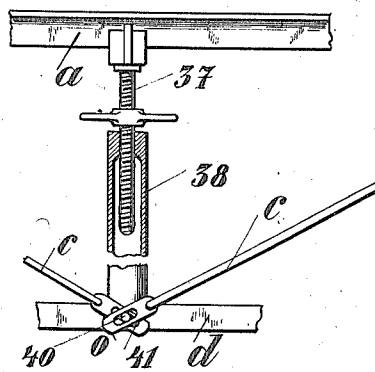


Fig. 13.

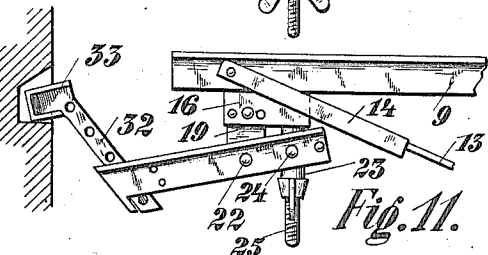


Fig. 11.

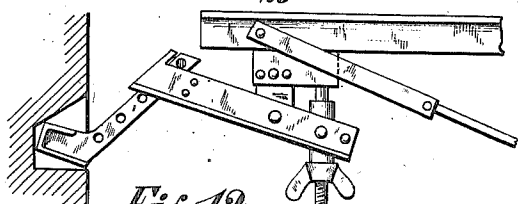


Fig. 12.

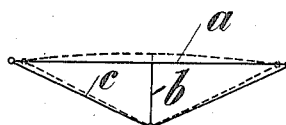


Fig. 14.

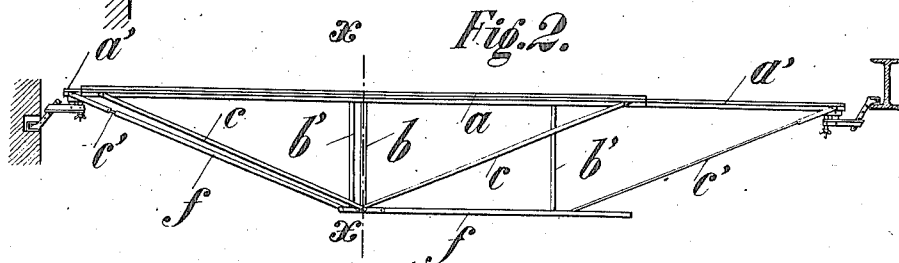
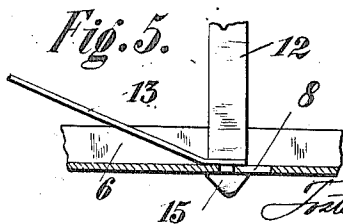


Fig. 2.

Fig. 5.



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3 SHEETS—SHEET 3.

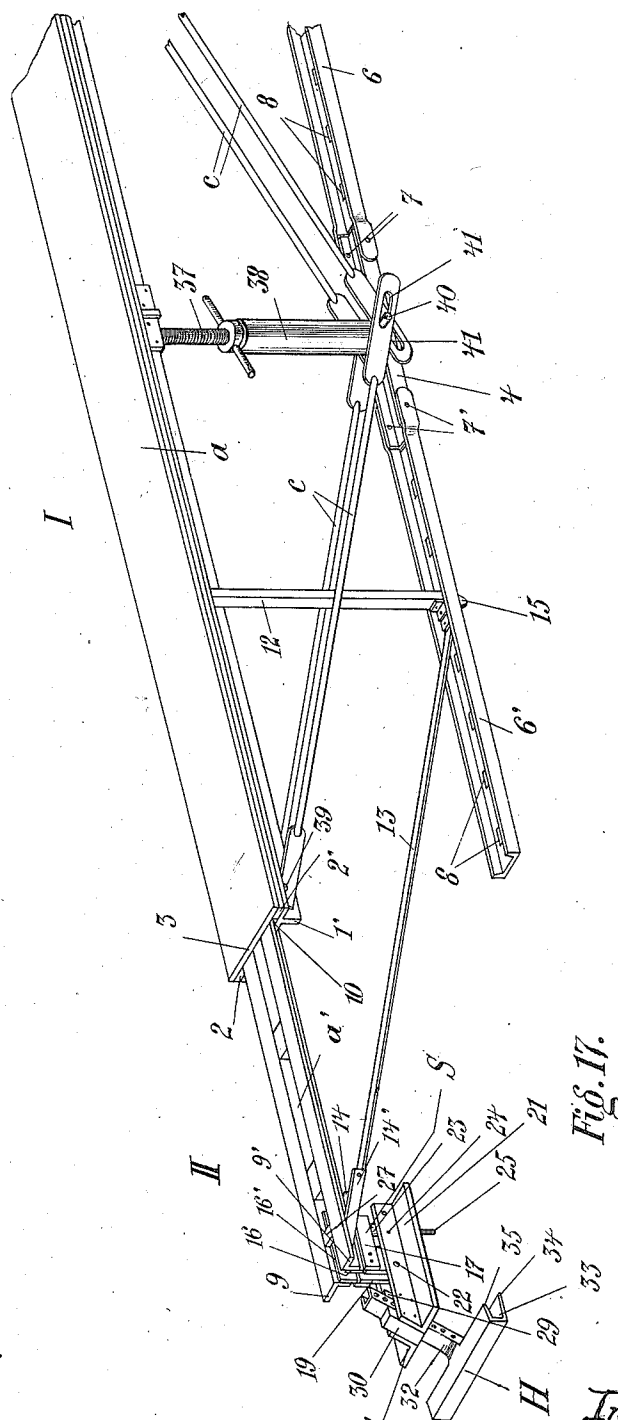


Fig. 17.

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UNITED STATES PATENT OFFICE.

OTTO ARNDT, OF LIEGNITZ, GERMANY.

TEMPLET-FRAME.

1,233,743.

Specification of Letters Patent.

Patented July 17, 1917.

Application filed February 19, 1912. Serial No. 678,475.

To all whom it may concern:

Be it known that I, OTTO ARNDT, a subject of the German Emperor, residing at Liegnitz, Germany, have invented certain new and useful Improvements in Templet-Frames, of which the following is a specification.

This invention relates to a templet frame for use in manufacturing and plastering solid ceilings, which advantageously differs from the well known ones by the fact that it cannot only be adjusted for different spans and heights, but also can be suspended as required to the ceiling girders or joists or placed on walls, and finally can be used for very large spans and loads, as in all positions it forms an exceedingly stable truss or structure. This is obtained owing to the fact that the trusses adjustable relatively to each other for the purpose of modifying the span, and capable of being fixed in position, can be combined into one frame or truss in various adjusted positions, as the length of the connecting rods used for the said combination, can be modified to suit any adjustment.

The templet frame is shown diagrammatically in Figure 1, while Fig. 2 is a front elevation of the same, namely in the left hand part (the central line is marked $x-x$) it is shown completely pushed together, while in the right hand part it is shown pulled out and suspended to a ceiling girder or joist.

Fig. 3 is a perspective view of a portion of the central truss,

Fig. 4 is a perspective of one of the two end trusses, and

Fig. 5 is a detail.

Fig. 6 shows the suspension or supporting device at the end of the end trusses,

Figs. 7 and 8 are sections on lines A—A or B—B, of Fig. 6, and

Fig. 9 is a detail view, while Figs. 10–12 are intended to illustrate the method of adjusting the suspension and supporting device.

Fig. 13 shows a detail of one construction of the central truss, and

Figs. 14 and 15 illustrate its operation.

Fig. 16 is a diagrammatic view.

Fig. 17 is a perspective assembled view of a central truss and end truss.

The templet frame consists of the central truss I and the two end trusses II II' of identical shape and construction. For small spans, either only one end portion II or II'

alone or in combination with the other end portion, or the central portion I alone, could be used. The central truss I comprises an upper member a , a central column or strut b and ties c . At the joint o of the strut b and of the tie rods c , there is arranged a short cross-bar d on which are arranged, at distances z from the joint o , hinge pins e about which the rods f can rotate. Each end truss consists of the upper member a' , strut b' and tie rod c' . If in case of larger spans all the three frames I, II and II' are to be used together, the upper members a' of the end trusses II and II' are pushed, according to the span, along the upper member a of the central truss I and fixed in the desired position, whereupon a composite truss or frame is formed from three trusses by turning the connecting rods f upward about the hinge pins e , in the direction of the arrow in Fig. 1, and connecting them to the bottom joints o' of the end trusses II and II' (right hand part of Fig. 2). In order to make this connection possible for various spans, the connecting rods are suitably prepared.

The upper member a of the central truss I is box-shaped and consists (Fig. 3) of T-girders 1, 1', the intermediate parts 2, 2' projecting back and the covering plate 3 connecting all the parts together. The strut b , like the bottom cross-bar d , is formed by the U-irons 3 or 4, the U-iron 4 is connected to the webs of the upper T-irons, 1, 1' by means of two pairs of iron bars 5, 5, and 5', 5' which form the tie rods c . To the flanges of the U-girders 4 are pivoted by means of hinges 7, 7' the flanges of U-girders 6, 6' which represent the connecting rods f for connecting the central truss to the end trusses. The web of the U-irons 6 6' is provided with a number of holes 8 arranged next to each other.

The upper member a' of the end trusses II and II' is formed (Fig. 4) by a pair of angle irons 9, 9' fitting into the grooves 10 formed between the covering plate 3 and the T-girders 1, 1' of the upper member of the central truss I, and adjustable in the said grooves. In order to secure the end trusses in the position given to them relatively to the central truss, the angle irons 9, 9' are provided with holes 11 through which pins can be introduced. To the upper member of the end truss is connected, as a strut b' , a U-iron 12, and to the latter an iron

bar 13 laid flat and forming the tie rod *c'*. The said iron bar 13 is connected in the manner shown in Fig. 4, to the iron bars 14, 14' arranged on the angle irons 9, 9' and placed edgewise. For the purpose of firmly securing the end trusses to the central truss, the former are provided in the extension of the U-iron struts 12, with hooks 15 with bevel faces 43 and lateral notches 42 with which engages the inner edge of the hole 8 into which the hook 15 is introduced (see also Fig. 5); on the left hand side (Fig. 4) a bevel face or portion and notch are provided in order to enable the end trusses to be introduced into the central truss also in the opposite direction (that is to say, with the lateral point directed inward, the end truss being turned about the column *b'* as axis to an angle of 180°), and to enable several such central trusses to be formed with the end truss into a longer frame than would have been possible by using only three parts I, II, II'. This is diagrammatically illustrated in Fig. 16. As shown in the drawings the ends of the upper member *a'* of either end member II or II' project beyond the connection of said member with the strut *b'* or the tie rod so that the ends of the upper member can either be laid on a wall, or connected with an end support, as in Figs. 10 to 12. Similarly, as shown in Fig. 3, the ends of the upper members *a* of the portion I of the truss project laterally beyond the connection with the tie rods. By arranging the two end parts (II, II'), as above described and as illustrated in Fig. 16, a main truss section I may be connected with both. In this use of the invention the two sections or parts II, II' are connected at the top by a girder section X and at the bottom by a U-iron member Y which is provided with openings to receive the hooks 15, and also with means for attaching the rods *f* of the main sections.

For supporting or suspending the frame, the device shown in perspective in Fig. 6 is used. To the ends of the angle irons 9, 9' are riveted inside plates 16, 16' forming a guide for a peculiarly shaped part S (Fig. 9) situated below them, in its longitudinal movements in the direction of the upper members. The part S consists of a horizontal double T-iron part, the web of which is partly removed, or it is constituted by two iron bars with a U-iron piece arranged between them. In the remaining portion of the web is arranged an opening 18. At the part of S from which the web has been removed are riveted to the inner side downward, extending plates 19 provided at the foot with a recess 20. The plates 19 rest with their recesses on a pin 22 secured to two outer angle irons 21 21'. In the direction toward the center of the templet frame there is arranged between the angle irons

21, 21' a guide sleeve 23 rotatably mounted by means of lateral pins 24, 24' in the angle irons 21, 21' (see also Fig. 7). Through the sleeve 23 passes a bolt 26 provided at the lower end with a screw thread and passing also through the hole 18 in the web of the part S, the head 27 of the said bolt resting on the above mentioned plates 16 at the ends of the upper member of the end trusses. The bolt is provided with a hole for a pin 28 (Fig. 7) on which rests the part S, so that the latter is supported on the one hand by the pin 28, and on the other hand by the pin 22. The angle irons 21, 21' are extended outward, beyond the pin 22 and formed there, for instance by means of two insertion pieces 29, 30, into a shoe for the proper suspension or supporting part H. On the lower end 25 of the bolt 26 is screwed a thumb nut 31.

The shape of the part H is that of an inverted T, the web 32 of which, as well as its lower portion 33, are formed into a U-iron. In that way, the lower portion 33 is provided both with a lower and an upper flat supporting surface 34 or 35. The web portion 32 does not rest vertically on the bottom portion 33 but obliquely, that is inclined upward toward the center of the ceiling. The object of this is to widen upward the foot projection of solid ceilings in the usual manner.

Owing to this construction, the supporting device can be used in the following manner.

If the parts are erected together in the position shown in Fig. 6, it will be possible, as shown in the left hand side of Fig. 2, to support the frame on a wall, the flat lower surface 34 of the part H acting as a wall plate. The templet can however be also suspended to a ceiling girder or joist (right hand half of Fig. 2), to which end it is merely necessary to place the angle irons 21, 21' to a certain extent on their heads. The part H is then directed downward and rests with the surface 35 on the lower flange of the ceiling girder or joist. In both cases, by shifting the parts H in the shoes constituted by the parts 21, 21', 29 and 30, the height of the templet frame can be modified. For fixing the part H in the position adjusted, it is provided with holes 36 through which pins are introduced. An adjustment to the desired height of the frame finer than could be obtained with the holes 36, can be obtained by screwing the thumb nuts 31 upward or downward, whereby the parts are brought from the position shown in Fig. 10, into that shown in Fig. 11 or Fig. 12. The screwing down of the nuts 31 is however chiefly intended for enabling the frame to be easily lowered without any danger, after the ceiling has been completed. Without altering the position of the parts H in the shoes, the latter can also be shifted

to and fro in the longitudinal direction of the upper members, after unscrewing all the nuts 31, with the part S, and in that way the templet frame could be adjusted in a more accurate manner to the span required, than would be possible with the assistance of the holes 11. During the shifting, the bolt heads 27 slide along the plates 16, and in that way only the span of the frame but not its height, is altered.

Sometimes it is necessary to arch or buckle upward the upper member of the templet frame, and in order to enable this buckling to be done, the central column or strut *b* of the central truss I can be constituted by a tension screw. The screw proper 37 is secured to the upper member of the central truss and engages with a nut 38 secured to the cross-bar *d* (Fig. 13). In that construction the buckling upward could be effected however only in the upper member of the central truss in accordance with Fig. 14, but not also in the upper members of the end trusses. For that reason, in the present case, the tie rods *c* of the central truss, instead of being secured to the upper member at the points 39, are connected to it so as to be able to rotate to a certain extent, and moreover the tie rods *c* are not secured to the central strut *b* constituted by the tension screws 37, 38, but are connected so as to be adjustable within certain limits, so that on the screw being stretched, the nut 38 together with the cross-bar *d*, can be slightly lowered, while this movement at first does not bring about any buckling upward of the top member of the central truss. This can be obtained by providing on the cross-bar *d*, as shown in Fig. 13, a pin 40 and providing the ends of the tie-rods *c* with slots 41 with which engages the pin 40. If the screw is extended for buckling upward the top member of the templet frame, then the pin 40 is first moved to the end of the slots 41 of the rods *c* which thereby are slightly turned in the pivot point 39. As, however, in this case the joint *o* of the central truss is moved downward, instead of the upper member *a* upward, there will be at first no buckling upward of the latter, but during the lowering of the joint *o* the connecting rods *f* and the tie rods *c'* of the end trusses will exercise a tension on the upper members of the said end trusses, so that the upper members will move downward at the ends, in the manner shown in Fig. 15. When however the pin 40 has reached the end of the slots, then a further lowering of the joint *o* can no longer take place, and accordingly during further stretching of the screw the upper member will be forced upward, and in that way buckled upward. Instead of arranging the pins 40 on the cross-bar *d* and providing ends of the tie rods *c* with slots, the pin

could also be provided on the tie rods, and the slots in the cross-bar. If necessary, the struts *b'* could also be formed into tension screws.

For the purpose of shipping, the end trusses II II' are pushed in completely into the central truss I, so that the struts *b'* are close to the strut *b*. It is preferable to calculate the distance *z* (Fig. 1) of the pivot pins *e* on the cross-bar *d*, from the joint *o*, in such manner that in the said pushed together position the connecting rods *f* could be folded from outside against the tie rods *c'*, as shown in Fig. 2.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A templet frame comprising main and auxiliary trusses, adapted to be telescopically adjusted bodily relative to each other, and a connecting rod supplemental to and pivotally connected with the main truss and provided with means for engaging an auxiliary truss to maintain the auxiliary truss in the desired adjusted relation to the main truss.

2. A templet frame comprising a main truss, auxiliary trusses having their upper members engaged with the upper member of the main truss whereby the several trusses may be bodily adjusted longitudinally relative to each other, and connecting rods supplemental to and pivotally mounted on the main truss and each provided with means for engaging an auxiliary truss to maintain the several trusses in the desired adjusted relation.

3. A templet frame comprising main and auxiliary trusses each complete and adapted for independent use, said main and auxiliary members being bodily adjustable longitudinally, and apertured connecting rods supplemental to and pivotally mounted on the main truss, the apertures in each of said rods being adapted to receive a part on an auxiliary truss, for the purpose described.

4. A templet frame comprising a main truss including an upper member, a lower member, means connecting said members and permitting relative vertical movement between them, a screw interposed between and adapted to control separation of the members of said main truss, and an auxiliary truss connected with the main truss by means permitting it to be adjusted bodily relative to the main truss.

5. The combination with a templet frame comprising a plurality of trusses adapted to be bodily adjusted longitudinally relative to each other, of a shoe supported by and adapted to be adjusted longitudinally of an end truss, and a supporting hook mounted in and adjustable vertically relative to the shoe.

6. The combination with the end truss of a templet frame, of a shoe supported by

said truss, a supporting hook connected with and adapted to be adjusted vertically relative to the shoe, and means for rocking the shoe and attached hook about a horizontal axis.

7. The combination with a templet frame formed of a plurality of trusses, including lateral trusses, adapted to be moved relatively to each other, each of which has an upper and lower member adapted to be moved and adjusted relatively to each other, of hooks inclined upward at the ends of the lateral trusses, an upper and a lower flat support to said hooks, shoes in which the hooks are movable upward and downward and means for moving and adjusting the hook along the lateral truss.

8. The combination with a templet frame formed of a plurality of trusses, including

lateral trusses, adapted to be moved relatively to each other, each of which has an upper and lower member adapted to be moved and adjusted relatively to each other, of hooks inclined upward at the ends of the lateral trusses, an upper and a lower flat support to said hooks, shoes in which the hooks are movable upward and downward and a slide adapted to be displaced along the upper member of the lateral truss and a pin on which the shoe is rotatable.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OTTO ARNDT.

Witnesses:

MOSKO FINZI,
ERNEST KATZ.