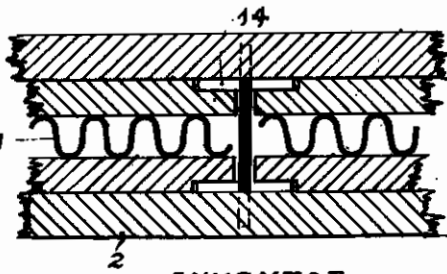
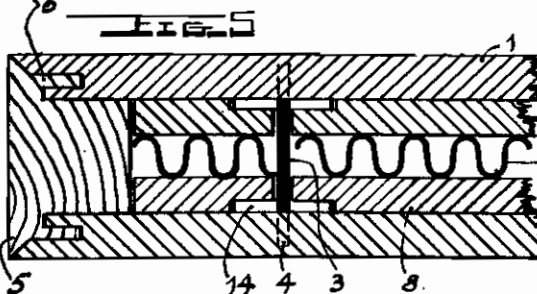
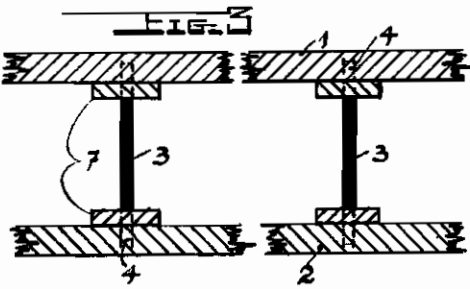
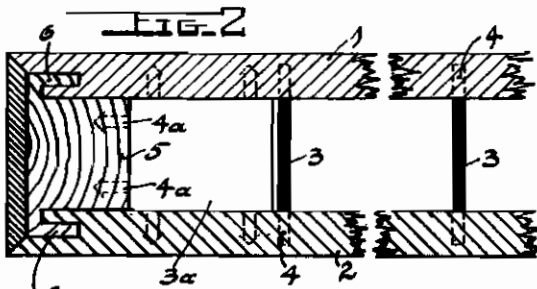
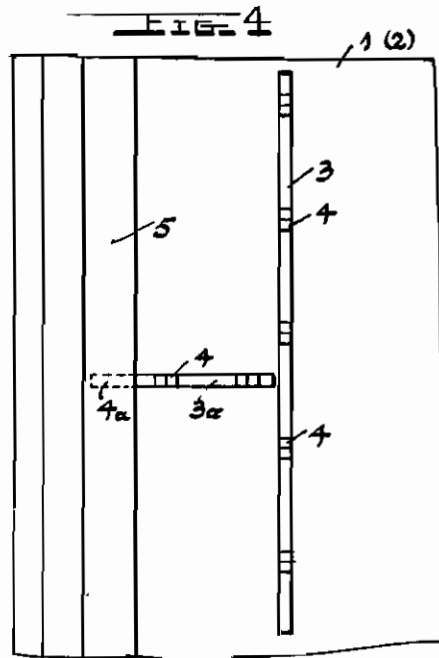
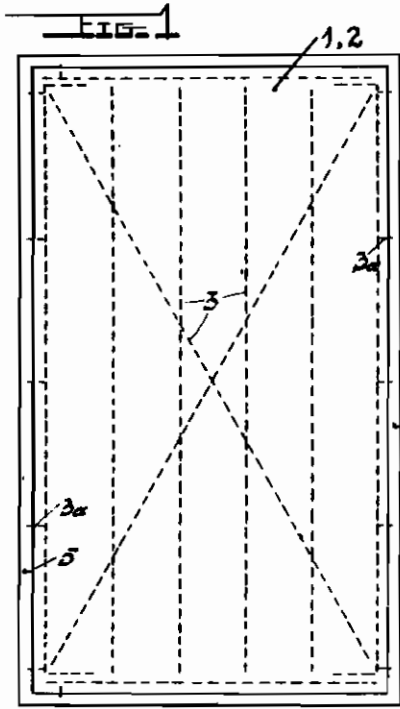


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3 Sheets-Sheet 1

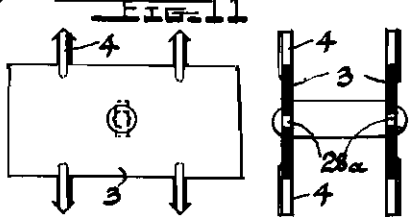
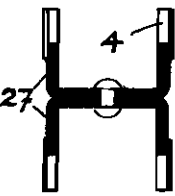
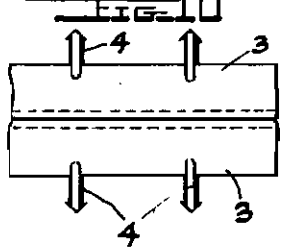
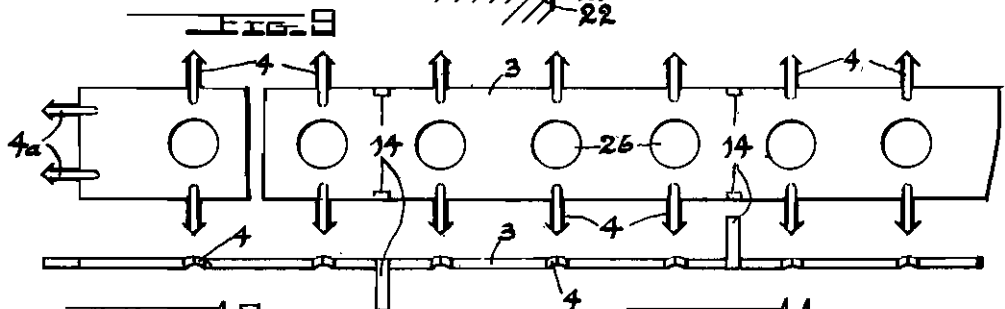
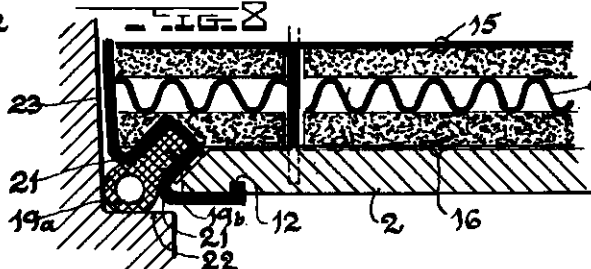
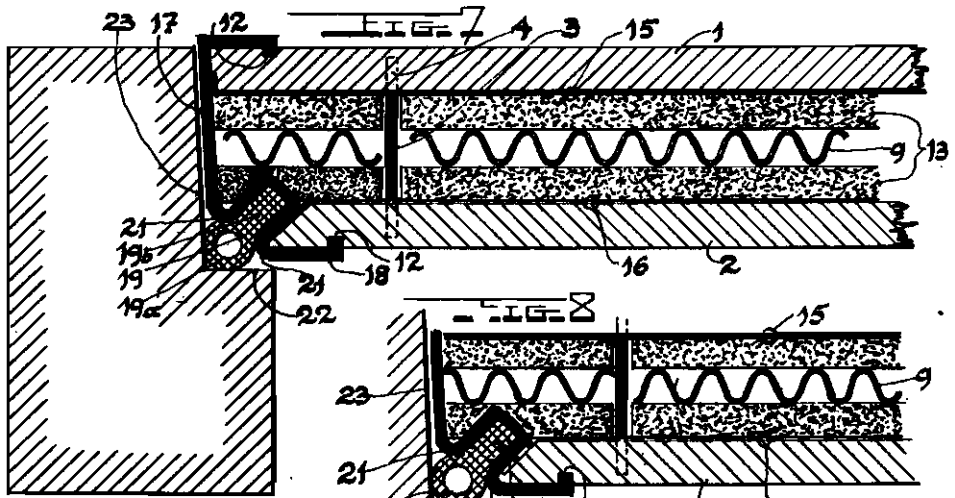
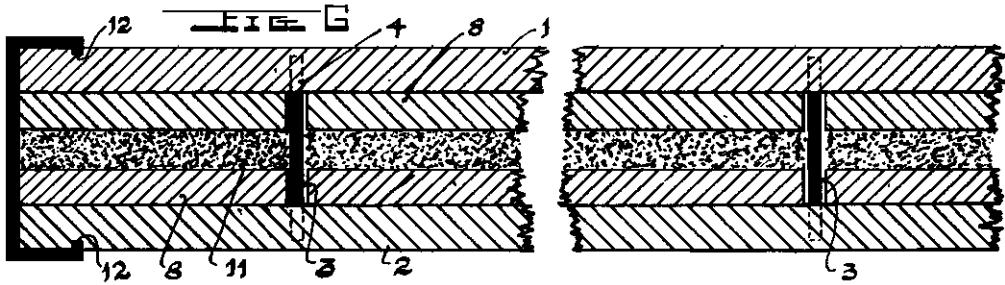


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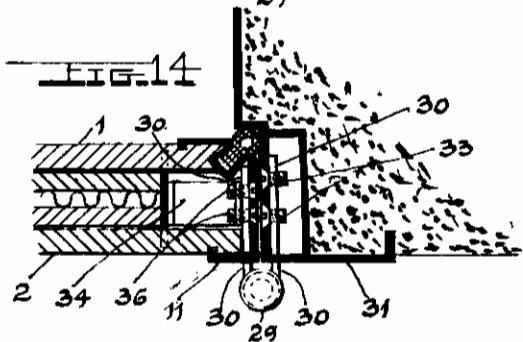
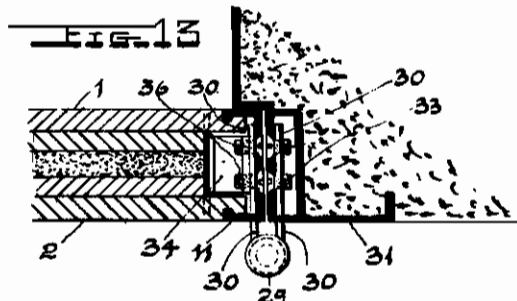
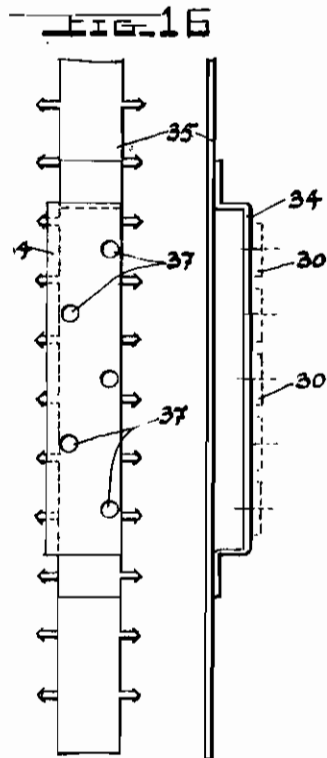
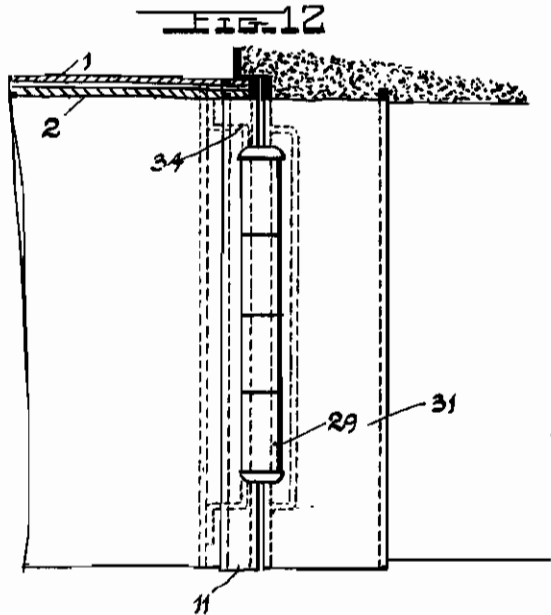
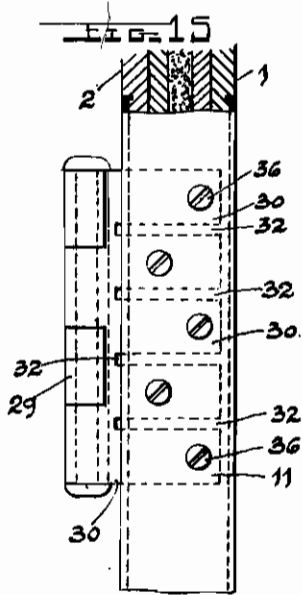
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ALIEN PROPERTY CUSTODIAN

REINFORCED DOOR OF WOOD AND/OR INSULATION MATERIAL

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Application filed October 23, 1940

The present invention relates to a reinforced door of wood and/or insulation-material, to be used in rooms, halls, lofts and cellars, gates, garages and such like.

The object of the invention is to provide a door, which in a known way is manufactured with coveringplates of veneer or such like, with reinforcing-bars between the coveringplates instead of the usual intermediate layer of wood or such like material, by which the coveringplates in usual way are connected to each other and the door is given the necessary solidity. The reinforcing-bars are also beside connecting the coveringplates to each other holding them at an adapt distance from each other, so that the door gets a suitable thickness and strength against torsion and other bad shapes.

A further object is the arranging of insulating-plates inside the covering-plates, between the reinforcing-bars, which insulating-plates, if possible may be covered with metalplates, are insulating against warmth, cold and sounds, and between them a fireproof insulating-plate may be arranged or another fire-proof insulating material may be inlaid, so that the door besides insulating against warmth etc. as mentioned also is fireproof. The fireproof plates or material may also be arranged nearest to the covering-plates, perhaps with wave-board or such like as intermediate layer.

Further objects are the especial form of a gas-tight tightening-list, an especial door-hinge and some details by the reinforcing-bars etc., which all will be nearer described below.

In the accompanying drawings various forms of the invention are skeleton-like shown by way of examples.

Fig. 1 is an elevation of a door according to the invention on a small scale, and by broken lines is shown an alternative for inlaying of the reinforcing-bars in the door.

Fig. 2 shows on a full scale a plan cut from the border a little way into the door, through a list of veneer-covered wood, which cover the border-plain, the covering veneer-plates and the reinforcing-bars.

Fig. 3 shows an execution of the door, manufactured by especial thin veneer-plates with by glue or in another way fastened ribs of wood or other fitting material inside the covering-plates for fastening for the teeth on the reinforcing-bars.

Fig. 4 shows an outcut from the border of the door, where the nearest covering-plate is taken

away, and one can see the arrangement of the reinforcing-bars by the border of the door.

Fig. 5 shows the same as Fig. 2, but insulating-plates are arranged between them inside the covering-plates.

Fig. 6 shows the same as fig. 2 and 5, but with a border-covering-list of metal and with a fire-proof plate or a fire-proof material inlaid between the insulating-plates.

Fig. 7 shows a door according to the invention with fire-proof insulating-plates inside the covering-plates and with an intermediate layer of sheet-iron or an iron-net between the covering-and the insulating-plates, and also with border-covering of metal, by which a tightening-list for gas-tight closing of the door is arranged.

Fig. 8 shows a modified arrangement for fastening for the tightening-list.

Fig. 9 shows a side-view and a quercut of a part of a single reinforcing-bar in full scale.

Fig. 10 and 11 show a side-view and quercut of two different executions of double reinforcing-bars.

Fig. 12 shows from before seen a hinge for doors with border-covering of metal.

Fig. 13 shows a horizontal-cut through the hinge of a door with border-covering of metal without tightening-list in frame of steel.

Fig. 14 shows the same as fig. 12, but the border-covering is here supplied with a tightening-list.

Fig. 15 shows the form of the hinge and the arranging of this inside the border-covering, and

Fig. 16 shows a fastening-iron for the hinge, which iron itself is fastened to the reinforcing-bar, which is lying nearest to the border.

The covering-plates 1 and 2 of veneer or another fitting material are mutual firm connected by each other with suitable distance between them by means of reinforcing-bars 3, which along both the borders are formed with in the covering-plates entering teeth 4, as the breadth(height) of the reinforcing-bars 3 is fitted after the wished distance between the covering-plates 1,2, and the thickness of the bars is fitted after the wished stiffness in the reinforcing and in the reinforcing-teeth 4.

The simplest and lightest forming a door according to the invention is shown in Figs. 2 and 3, which show the door formed of two covering-plates 1,2, the necessary number of reinforcing-bars 3 and one along the border of the door running list 5, which covers the borderplains and enters between the borderplains. This list is to hold the borders of the covering-plates firm to-

gether formed with an against the door turning, lengthways running rib 6 on each side, which rib is pressed into corresponding grooves in the covering-plates 1.2 border-planes. In Fig. 2 is also indicated, how the border-list 5 may be connected to the covering-plates by means of small reinforced bars 3a, which have teeth as well at the borders as at the one end.

By the in Fig. 3 shown form are the cover-plates 1.2 too thin to give necessary fastening for the teeth on the reinforcing bars, as these must not put out outside the covering-plates. Therefore are inside the covering-plates, between these and the reinforcing-bars, with glue or in another way strength-ribs of wood or other fitted material fastened for fastening for the teeth 4 on the reinforcing-bars 3.

By the performance, which is shown in Fig. 5, insulation-plates 9 for insulation against warmth, cold and sounds are arranged inside the covering-plates, between the reinforcing-bars. These plates are put in between the covering-plates, before the border-covering-lists 5 are to be placed on the door, and a plate 9 of wave-board or such like between them is holding the insulating-plates pressed against the covering-plates 1.2.

By the form shown in Fig. 6 is in addition to the insulating-plates 8 between these also arranged a fire-proof plate, or a fire-proof material is inlaid, so that the one covering-plate will be fire-proof insulated from the other one. That is this figure shown border-covering 11 of metal, whose sides are bended into a right angle and covering the border-plain of the covering-plates 1.2, has edges bended into a right angle 12, which are pressed into grooves outside the covering-plates 1.2, whereby is attained that the border-covering is fastened to the border of the door without use of screws or other especial fastening-means.

By the form shown in Fig. 7 there are arranged fireproof insulating-plates 13 inside the covering-plates 1.2. Between the insulating-plates 13 is here also inlaid an intermediate layer 9 of wave-board or the like. To hold the insulating-plates at position even if the one covering-plate by fire should be destroyed, there are arranged hooks 14 (Figs. 5 and 9) on the reinforcing-bars, or there is for example arranged a thin iron-plate 15 between the covering-plates and the insulating-plates. This iron-plate is then selected as thin that the teeth of the reinforcing-bars simply are pressed through the plate by pressing into the wood. There may also instead of an iron-plate be laid a preferably fine-meshed netting 16 between the covering-plates and the insulating-plates. The in Fig. 6 shown border-covering 17 of metal is formed with an inwards enlarged groove 19 wherein is arranged a tightening-list 19 of rubber or other tight, elastic material. This tightening-list 19 is formed with a tubular part 19a and in a piece with this formed handle-formed part 19b, which is thinnest nearest to the tubular part and thicker to the end, that is gets a good fastening in the inwards enlarged groove 18 in the border-covering. For the matter of the tightening the rubber-list is so formed that a tightening part 21 is lying against the borders of the groove 18. The groove 18 and the handle-formed part 19b may also be formed with parallel sides as indicated in Fig. 8, and the both parts are then formed with grooves in the longitudinal direction or with other roughness for fastening for the handle-formed part of the

tightening-list in the groove. The tightening part 19a of this list is tubular and agreeable to the invention so arranged, that it putting with the one side against the door-impact 22, does be bended over to the door-case itself 23, so that there will be shaped two in 90° angle at proportion to each other standing tightening-flats with a between them lying air-canal 24 in the corner between the door-impact 22 and the door-case 23. When the pressure against the door-impact ceases, the pressure against the door-case ceases too, and the door does go freely in and out in this.

The simple reinforcing-bar 3, shown in fig. 9, is stamped out of a band-formed material and formed with spear-point-formed teeth 4, which to enlarge the strength are bended at the querdirection. Reinforcing-bars for doors with fire-proof insulating-inlay may be formed with hooks 14, existing of separately teeth, stamped out of the bar-material and bended into a right angle to the bar-plan. These hook-arrangements will hold the insulating-plates at position, also if the one covering-plate by fire should be burnt up. To prevent the passing over from the one border to the other one on the reinforcing-bar of heating by fire, there are between each pair of teeth (one on each side of the bar) stamped out a hole 26 in the middle of the bar. In special cases it may be effective to use double or compound reinforcing-bars, which for example are shown in Figs. 10 and 11, where respectively is shown a bar, compound of two bars with U-formed querssection 27, and with toothed borders, and with the back-flats firm connected to each other, and a bar compound of two single bars of the same type as shown in Fig. 8, which are connected to each other with between them lying connecting-pieces 29 with down-turned tops 28a, which are firm riveted to the bars 3. Where border-covering-lists of wood are used (Figs. 2 and 5), it is of importance that the lists are firm connected with the covering-plates. For this object the reinforcing-bars on the ends may be formed with extra teeth 4a, which will be pressed into the border-list, when this does be pressed at position in the door, as the reinforcing-bars in that case must be so adjusted, that the teeth 4a just are in position to be pressed into the border-lists, when these do be put on. On the sides of the door, where normally none reinforcing-bars are ending, there may be inlaid short pieces 3a of reinforcing-bars with extra teeth 4a, turning against the border-list (Fig. 2).

The reinforcing may be performed with whole reinforcing-bars or with such cut up into shorter or longer pieces. The reinforcing-bars may also be bended in any suitable geometrical form, and the forming in details may of course be varied in different manners.

By the in Figs. 12-16 shown form and arranging of the hinges for a door with border-covering of metal in steel-case the fastening-plates 30 of the hinge 29 are arranged inside as well the border-covering 11 as the steel-case 31, as the plates 30 by means of horizontal slits 32 are parted into for example 5 parts 30, which through slits in the bended outward planes of the border-covering 11 and in the steel-case 31 are put inside these parts, where they are fastened directly in the steel-case with from the outside through the case put machine-screws 33, whose heads are senked down in the case, and for which treaded holes are arranged in the fastening-plates 30 on the concerning side of the

hinge, while they in the door are fastened at a for that purpose arranged fastening-iron 34, which may be fastened to an extra reinforcing-bar 35, or to the ordinary by the door-border lying reinforcing-bar 3, which then is to be arranged at one regarding hereto suitable distance from the door-case. The hinges are then to be fastened to the iron 34, and the border-covering 11 by means of through this and the plate 30 freely carried machine-screws 36, for which threaded holes 37 are arranged in the fastening-iron 34.

The advantages by parting the fastening-plates and the arranging of these on the border-coverings inside the steel-cases are a consequence of that thereby is shunned weakening of the

border-covering and the door-case by a proportionally long slit, which a not parted fastening-plate would stipulate, and that as well the border-covering as the door-case constitute unbroken quite plain planes.

The advantages by the invention in its entirety lie in the possibilities for a extraordinary rational manufacturing, in that the material for connecting of the covering-plates not can be influenced by climatic actions, so that the door does be quite stable, and as it appears from the preceding, the extensive practicability to as it will all objects where altogether doors of wood or composition-material may be brought to employment.

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