Feb. 6, 1962 J. S. COLOMBINI 3,019,867

KNOCKDOWN DOOR

Original Filed May 28, 1956

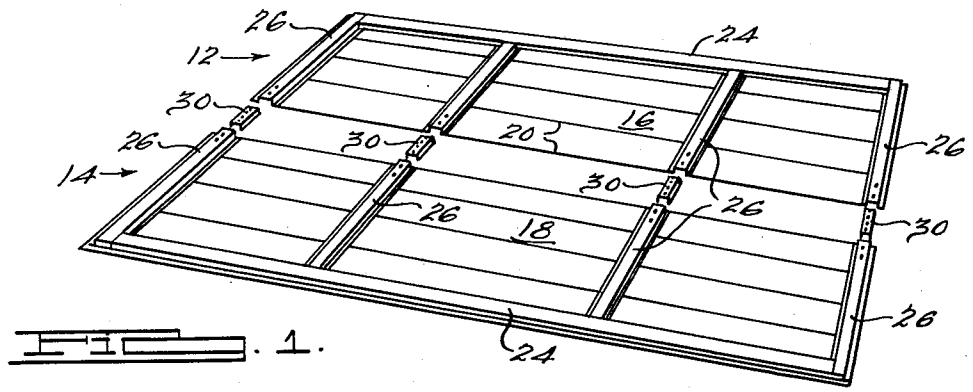


FIG. 1.

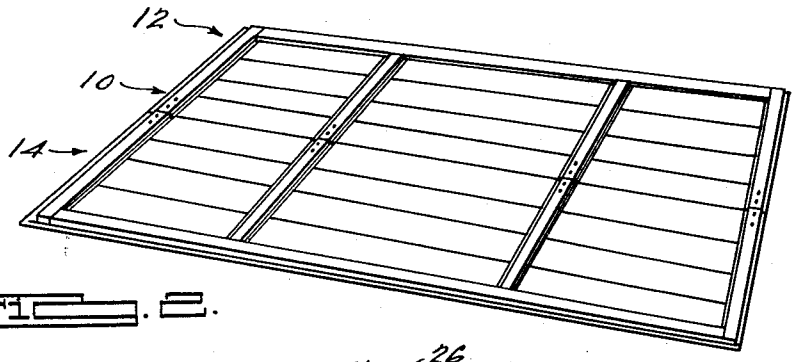


FIG. 2.

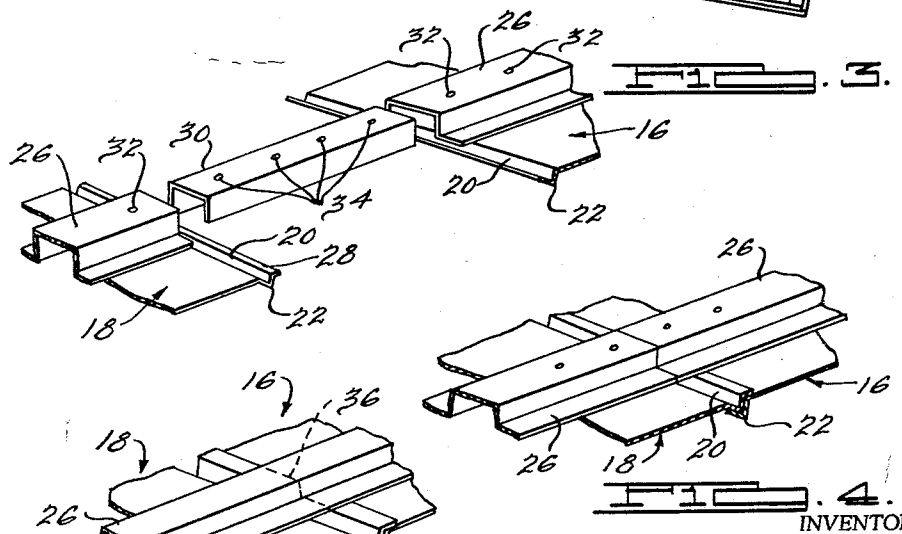


FIG. 3.

FIG. 4.

FIG. 5.

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KNOCKDOWN DOOR

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Original application May 28, 1956, Ser. No. 587,804, now Patent No. 2,948,956, dated Aug. 16, 1960. Divided and this application Feb. 1, 1960, Ser. No. 5,770
1 Claim. (Cl. 189—46)

This invention relates to a sheet metal door construction and has particular reference to a sheet metal garage door of knockdown construction so as to facilitate shipping and handling of the door.

A principal object of the invention is to provide a new and improved sheet metal door.

Another object of the invention is to provide a garage door or the like constructed so that the same may be separated into two halves after manufacture to facilitate handling and shipping of the door in knockdown relation, and which may thereafter be readily assembled into a complete door at the installation in which it is to be used.

Other and further objects of the invention will be apparent from the following description and claim and may be understood by reference to the accompanying drawing, which by way of illustration shows a preferred embodiment of the invention and what I now consider to be the best mode in which I have contemplated applying the principles of my invention. Other embodiments of the invention may be used used without departing from the scope of the present invention as set forth in the appended claim.

In the drawings:

FIG. 1 is a perspective view showing the two separate but similarly formed door sections prior to their assembly;

FIG. 2 is a perspective view of a completed door;

FIG. 3 is an enlarged fragmentary perspective view showing the manner in which the two halves of the door are adapted to be secured together;

FIG. 4 is a view similar to FIG. 3 but showing the parts in assembled relation; and

FIG. 5 is a perspective view of a portion of the door during one stage in the manufacture thereof.

A complete or assembled door **10** is illustrated in FIG. 2 as viewed from the inner side of the door. The door is illustrated in FIG. 1 in its knocked-down condition as comprising an upper half **12** and a lower half **14**, which are adapted to be secured together to complete the door **10**. The two halves of the door **12** and **14** are generally similar in construction and may comprise sheet metal panels **16** and **18** respectively, each of which may be formed from a single sheet of metal or from two or more sheets suitably secured together to provide a panel of the required size.

Each of the panels **16** and **18** are provided with spaced parallel grooves **20** forming ribs **22** projecting from the outer surface thereof to provide rigidity and an attractive appearance to the door. A frame member **24** extends along one edge of each door section and is disposed parallel to the grooves **20** therein. Each door section also includes a series of spaced parallel frame elements **26** secured on the inner side of the panel and disposed perpendicular to its frame members **24**. The frame members **24** and the frame elements **26** may be made from the same stock cut to suitable lengths, and as shown may be generally channel-shaped in cross section with the open side of the channel facing the door panel.

As illustrated in FIGS. 3 and 4, the upper door section **12** has a groove **20** formed along its lower edge and the panel **18** of the lower half of the door has a marginal groove **20** along its upper edge, with the panel **18** being

extended in the form of a short flange **28** beyond the marginal groove **20**. The frame members **24** and the frame elements **26** may be secured to their respective door panels in any suitable manner such as by spot welding. In their assembled relation as shown in FIGS. 2 and 4, the upper and lower door sections **12** and **14** are secured together by means of connecting elements **30** in the form of sheet metal channel sections which are adapted to be telescopically received within the channels defined by the frame elements **26**. The frame elements **26** on each door section project a slight distance beyond the planar surface of the panel to which they are secured and terminate substantially at the level of the bottom of the V defined by the marginal groove **20** of the panel. When the two panels or door halves are asssembled the marginal grooves on each panel will be in the nested relation shown in FIG. 4 while the frame elements **26** on the panels will be aligned and in endwise engagement with each other. The door sections may be readily assembled by inserting one of the connecting elements **30** into each frame member **26** on the upper door section **16** and then securing the connecting elements within such frame members by suitable bolts passing through apertures **32** in the frame members **26** and aligned apertures **34** in the connecting elements **30**. Thereafter the lower door section may be moved up against the upper door section so that the projecting portions of the connecting elements **30** will enter the channels defined by the frame members **26** on the lower door section and to nest the marginal grooves **20** on the two door sections in the relation shown in FIG. 4. Bolts or screws are then employed for fastening the channels **26** of the lower door section to the connecting elements **30** and the door is then completely assembled and ready to be installed. The panels **16** and **18** are made of relatively thin gauge metal so as to have sufficient resiliency to enable the marginal grooves on the two door sections to be fitted together during assembly of the door.

FIG. 5 illustrates one stage in the manufacture of the door in which the vertical frame elements **26** extend continuously between the upper and lower frame members **24** rather than being initially cut to a length appropriate for each door half prior to being secured onto their respective door panels. It contemplated that the upper and lower panels **16** and **18** may be arranged in the relation they will assume in a completed door, that is, with the marginal grooves of the panels in nested relation as shown in FIG. 5. Thereafter single lengths of the frame elements **26** are laid across the assembled panels **16** and **18** between the top and bottom frame members **24**. After the frame members **26** have been welded or otherwise secured onto both the upper and lower door sections the frame members **26** may be cut as by a saw along the dotted line indicated at **36** in FIG. 5. The line **36** along which the series of frame elements **26** are severed lies in a plane parallel to the bottom of the marginal grooves **20** of the two door sections so that there will be clearance for a saw or other cutting tool during the severing operation. Since the marginal flanges or grooves of the upper and lower door sections are not secured together, the two door sections thus formed by severing the frame elements along the line **36** will correspond to the upper and lower sections **12** and **14** illustrated in FIG. 1. The two door sections may thus be handled and shipped in their knockdown condition along with an appropriate number of connecting elements **30**. At the place of installation the door sections are assembled as previously described.

An important advantage in construction the door as described above is in the fact that proper alignment of the frame elements **26** during final assembly of the door is insured since the aligned pairs of frame members were

originally a single length during manufacture and must necessarily align properly when the two door sections are reassembled.

The foregoing construction provides a light weight relatively rigid sheet metal door which is economical to manufacture, easy to handle, and inexpensive to transport due to its knockdown construction, and which may be easily assembled by the user of the door.

This application is a division of my prior copending application Serial No. 587,804, filed May 28, 1956, for "Knockdown Door," now Patent No. 2,948,956, issued August 16, 1960.

While I have illustrated and described a preferred embodiment of my invention, it is understood that this is capable of modification, and I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such changes and alternations as fall within the purview of the following claim.

I claim:

A sheet metal door of the knockdown type comprising two similarly formed door halves secured together, each door half comprising a sheet metal panel having a generally planar surface and a series of parallel substantially V-shaped grooves forming ribs projecting from one side thereof, a frame member extending parallel to said ribs

along one edge of each panel, each panel having spaced and parallel channel-shaped frame elements secured thereon and disposed perpendicular to said frame members, each panel having a marginal groove formed along its opposite edge, said frame elements on each panel extending across said grooves and projecting beyond the planar surface of the panel and partially across the marginal groove at said opposite edge but terminating inwardly from the marginal edge thereof, said panels being arranged with their said marginal grooves in nested relation and with their frame elements in aligned and abutting relation, and a connecting element telescopically received within the channels of each aligned pair of frame elements and secured thereto thereby securing said panels together said connecting elements constituting the sole means for securing the two door halves together to complete the door.

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