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WILLIAM B. KINNEAR, OF NEW CASTLE, PENNSYLVANIA.

METAL BUILDING FRAME OR SASH.

999,656.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed September 24, 1910. Serial No. 583,584.

To all whom it may concern:

Be it known that I, WILLIAM R. KINNEAR, a citizen of the United States, and a resident of New Castle, county of Lawrence, and State of Pennsylvania, have invented certain new and useful Improvements in Metal Building Frames or Sash, of which the following is a specification.

This invention relates to building frames or sash constructed of angle bars (preferably of T section) in which the bars are jointed together by interlocking them in a manner to give them rigidity and strength as described in my previous application filed November 17, 1909. Serial No. 528,501.

One object of the present invention is to increase the strength of the structure and at the same time to provide a firmer joint between the parts, to which end the members are composed of a relatively thick base, relatively thinner flanges extending from opposite sides of the base, and a web extending perpendicularly to the base, preferably along the middle line thereof; the parts being interlocked as in my previous application referred to but in a manner to bring the thick bases into abutment so that not only is the bar strengthened but its connection is improved.

A further object is to provide means for securing in place the closure plates (glass, tiles, slates, or the like) which are to be fitted in the openings of the frame or sash, to which end I provide a cap which is fitted to the web of the angle iron and extending down the side thereto with a reëntrant bend entering between the web and the edge of the plate so as to confine the plate edge-wise and with a flange overlying the plate so as to hold the plate down upon the flange of the frame; the plate being preferably embedded in a plastic packing such as putty, cement or the like and the cap being preferably provided with a fibrous packing through which it bears upon the plate; and the cap being preferably made double so as to fit over the web and enter into confining relation to the two plates on opposite sides of the web. For some classes of work I provide a cam shaped dog or latch pivotally connected with the web and adapted to be brought into bearing upon the plate by swinging it upon its axis; this dog or latch being preferably fitted in an opening in the web and having a lip that enters between the web and the plate to prevent the

dog from leaving its bearing in the web and also spacing the plate from the web; the bearing flange or edge of the latch being rendered somewhat resilient so that it enters into cushioned bearing upon the plate.

A further feature consists in the method of assembling the parts which are interlocked in accordance with my previous application referred to.

The invention will be fully understood on reference to the accompanying drawings in which—

Figure 1 is a front view of a frame or sash embodying some of the features of the present invention. Fig. 2 is a section on the line 2—2, Fig. 1. Fig. 3 is a transverse section, and Fig. 4 a plan view of the interlock formed between a continuing and two abutting members. Figs. 5 and 6 are detail views showing two different sections of metal that may be used in carrying out some features of the invention. Fig. 7 is a sectional view illustrating the method of interlocking two members which are brought together in the plane in which they are to remain after the interlocking. Figs. 8 and 9 are respectively a front view and a vertical section of the retaining dog or latch.

1 represents the top rail, 2 the bottom rail, 3 the vertical stiles, 4 the cross rails and 5 the vertical bars of a frame or sash constructed in accordance with my previously filed application and involving the novel features of construction referred to in the present case. The members of this frame or sash are united by flange-interlocks 6 and web-interlocks 7, as described in my previous application, but each member not only comprises the web 8 and the lateral flanges such as heretofore employed by me, but has a relatively thick base 10 from which the web and flanges project. This base not only serves the purpose of affording greater rigidity to the bar or rail or in other words permits the use of flanges 9 which are relatively thin, but it involves a special advantage in that it affords increased abutment-bearing between the side of the base on one member and the end of the base on another member. Whereas the thin flanges are such that the tongues 11^a as heretofore employed may be more readily deflected from the plane of the flanges so that they will not break when the parts are prepared for assembling and the tongues thereafter bent to bring them into the same plane.

Bringing two members together with dowel and slot connections which prevent the abutting member moving laterally on the other member, necessitates introducing the dowel by a longitudinal movement, while the members are in the same plane in which they lie when ultimately interlocked. To permit them to be assembled and interlocked in this manner I have devised the method of deflecting the engaging tongues on the flanges in opposite directions so that after the parts are brought into abutment the tongues may be pressed into the same plane to firmly interlock the parts as suggested in Fig. 7.

I claim:—

1. In a metal building-frame or sash, frame-members, each constructed with a base, base-flanges, and a web and united by a joint comprising abutment between the bases and between the webs, and interlocks, between the base flanges; the interlocking portions of said base flanges being of less thickness than the bases.

2. In a metal building-frame or sash, frame-members, each constructed with a base, base-flanges, and a web and united by a joint comprising abutment between the bases and between the webs, and interlocks between the base flanges; the interlocking portions of said base flanges being of less thickness than the bases, the bases being thicker than the flanges, whereby the abutting bases extend beyond the plane of said interlock.

3. In a metal building-frame or sash, frame-members, each comprising a relatively thick base, relatively thinner flanges, and web perpendicular to the base, the flange of one of said members being provided with a lateral recess that receives the base of the other member and with undercuts extending from said recess longitudinally of said flange; and said other member having the end of its thick base in abutment with the side of the thick base of the recessed member and having laterally extending tongues on its flanges entering the longi-

tudinal undercuts in the first named member.

4. In a metal building-frame or sash, frame-members, each comprising a relatively thick base, relatively thinner flanges, and a web perpendicular to the base; the flange of one of said members being provided with a lateral recess that receives the base of the other member and with undercuts extending from said recess longitudinally of said flange; and said other member having the end of its thick base in abutment with the side of the thick base of the recessed member and having laterally extending tongues on its flanges entering the longitudinal undercuts in the first named member; said members also having their webs in abutment.

5. In a metal building-frame or sash, frame-members each comprising a relatively thick base, relatively thinner flanges, and a web perpendicular to the base; the flanges of one of said members being provided with a lateral recess that receives the base of the other member and with undercuts extending from said recess longitudinally of said flange; and said other member having the end of its thick base in abutment with the side of the thick base of the recessed members and having laterally extending tongues on its flanges, and said webs being constructed with an interlocking opening and projection.

6. In a frame or sash, frame-members having thick bases relatively thinner flanges and perpendicular webs, connected by joints consisting of abutments between the base and webs also laterally and longitudinally sustaining dowel and slot interlocks between the webs, and interlocks between the flanges.

The foregoing specification signed at New York, N. Y. this 27th day of June, 1910.

WILLIAM R. KINNEAR.

In presence of two witnesses:

RAYMOND H. KINNEAR,
MARY L. SULLIVAN.