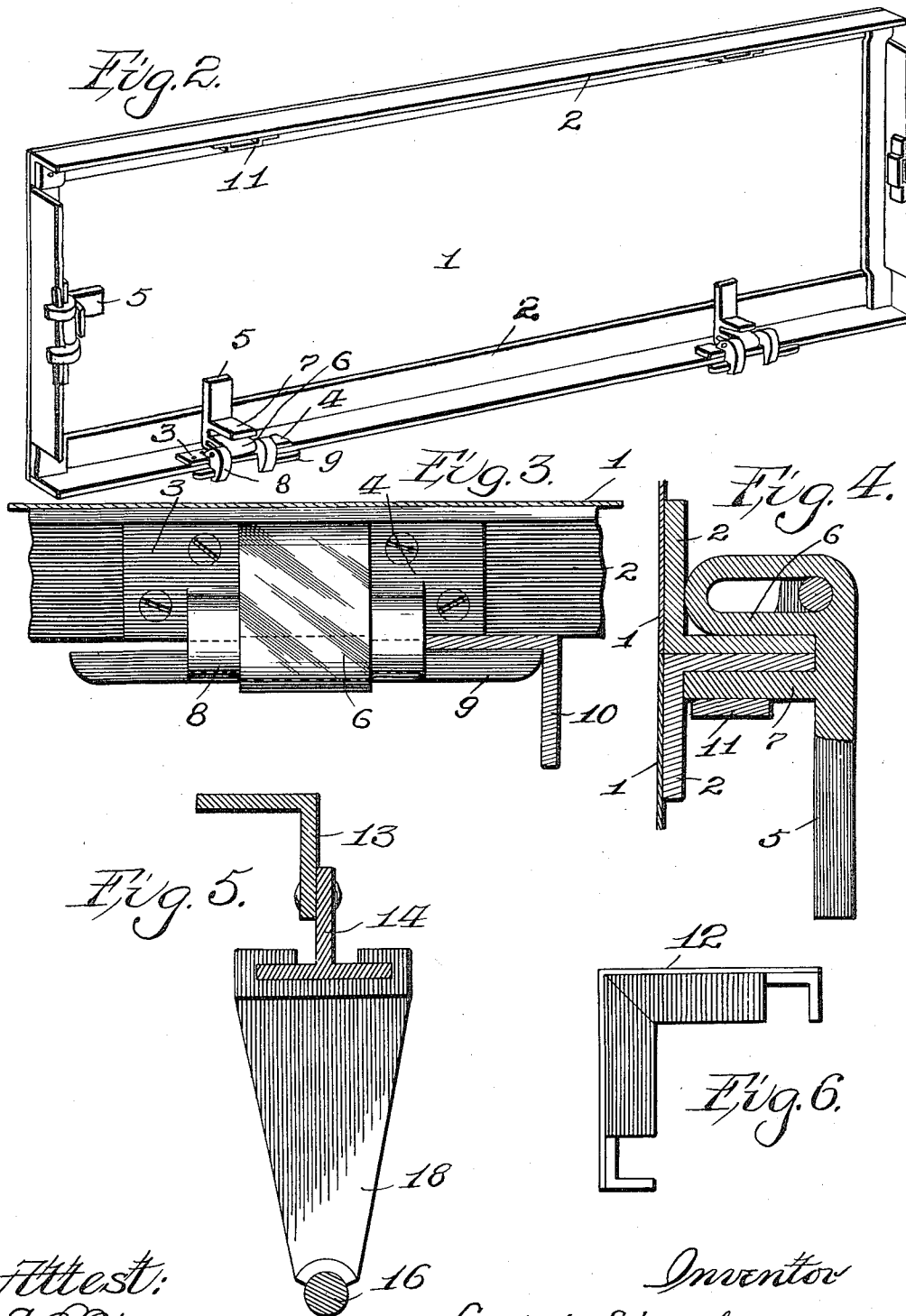


L. EISENKRAMER.
METAL FORM FOR MONOLITHIC CONCRETE STRUCTURES.
APPLICATION FILED MAY 15, 1911.

1,052,328.

Patented Feb. 4, 1913.

2 SHEETS—SHEET 2.



Attest:
E. L. Wallace.
N. G. Butler.

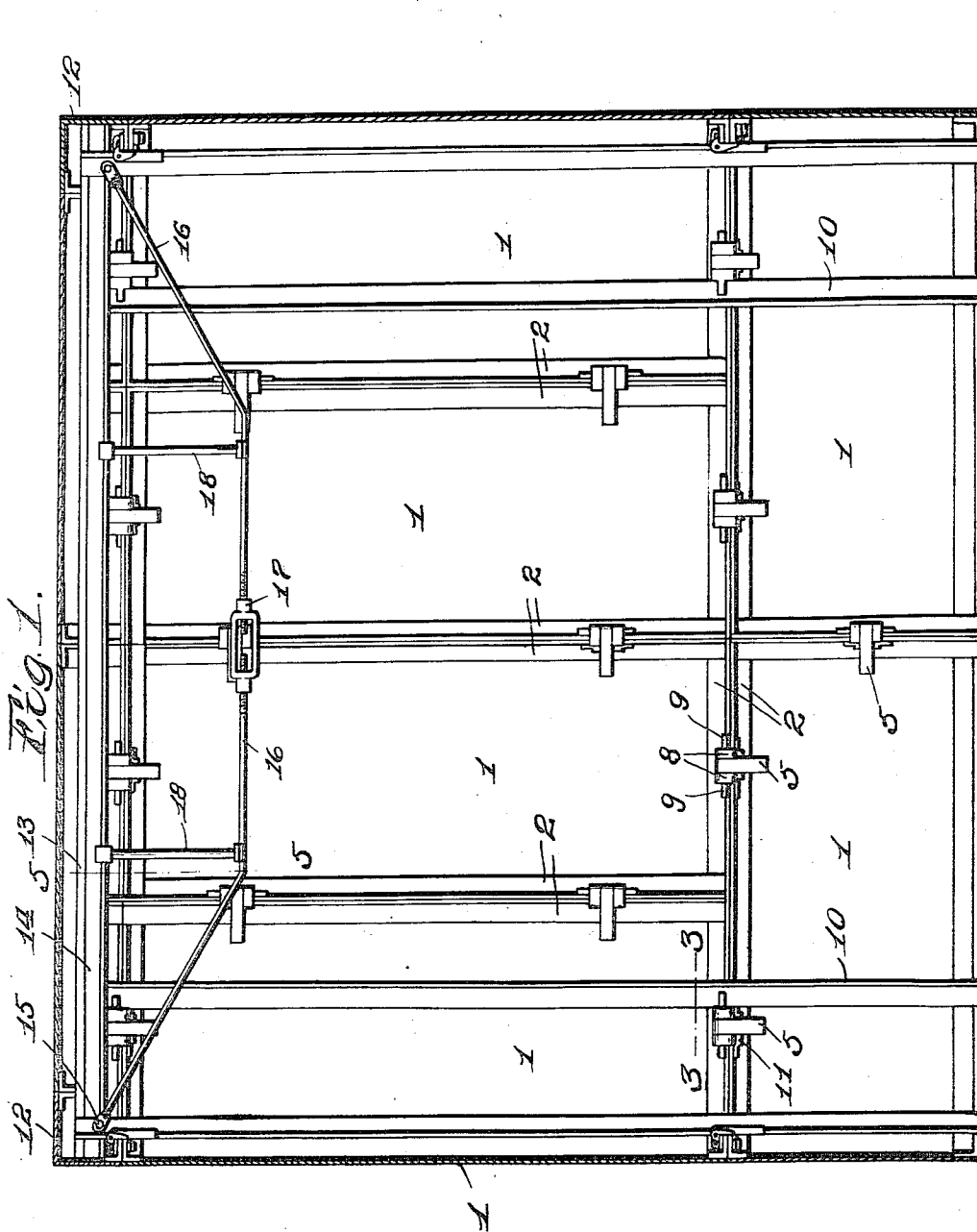
Inventor
Ludwig Eisenkramer
by Hydon Longue-Atty.

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UNITED STATES PATENT OFFICE.

LUDWIG EISENKRAMER, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-THIRD TO
MICHAEL LIEBSTER, OF ST. LOUIS, MISSOURI.

METAL FORM FOR MONOLITHIC CONCRETE STRUCTURES.

1.052,328.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed May 15, 1911. Serial No. 627,368.

To all whom it may concern:

Be it known that I, LUDWIG EISENKRAMER, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Metal Forms for Monolithic Concrete Structures, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in metal forms for monolithic concrete structures, and the object of my invention is to construct a form of sections, each section being provided with marginal reinforcing flanges and with locking devices so that the sections may be held in either a horizontal or vertical position, and the locking devices coating with keys in the form of angle irons to hold the sections in perfect alinement, which keys obviate the necessity of employing stays between the sections as required at the present time in the formation of a wall. And a further object of my invention is to construct a truss for supporting the overhead sections, which truss obviates the necessity of employing supporting devices extended from the floor below and results in a free operating space.

With the above purposes in view my invention consists in certain novel features of construction and arrangement of parts as will be hereinafter more fully described, pointed out in the claims and illustrated by the accompanying drawings, in which—

Figure 1 shows, in section, a form consisting of a number of my improved sections set up for the purpose of forming the walls and ceiling of one room of a building; Fig. 2 is a perspective of one of my improved form sections; Fig. 3 is a detail, sectional plan taken on the line 3—3 of Fig. 1; Fig. 4 is a sectional elevation illustrating one of my improved locking devices; Fig. 5 is an enlarged, transverse, sectional elevation taken on the line 5—5 of Fig. 1; and Fig. 6 is an end elevation of one of my improved corner sections.

Referring by numerals to the accompanying drawings: 1 designates the body portion of one of my improved sections and con-

sists preferably of a single piece of sheet metal. This metal is preferably galvanized so as to present a smooth surface to the concrete and also to protect it against moisture to prevent rust. The sheet 1 is reinforced at its margins by means of angle irons 2.

3 and 4 designate journal bearings which are secured to the angle irons 2, and 5 designates a locking device which is journaled between the bearings 3 and 4. The locking device consists of a single piece of metal having spaced apart jaws 6 and 7 which, as shown in Fig. 4, are designed to embrace the angle irons 2 of abutting sections, the jaw 6 being slotted so that the locking device may be moved relative its journal, as will be made clear hereinafter.

The journal bearing 3 has formed integral therewith a projecting stop 8 which is arranged to engage the angle iron 2 of an abutting section for the purpose of alining the sections.

The journal bearing 4 has formed integral therewith a key seat 9 which, as shown in Fig. 3, is designed to receive and hold the key 10 in the form of an angle iron for the purpose of holding in alinement and trussing a number of joined sections.

Carried by the angle iron 2 opposite the one supporting the locking device there is a keeper 11 arranged to embrace the lowermost jaw 7 of the locking device when the same is in a locking position, the keeper being designed to prevent longitudinal movements of sections relative each other. These locking devices are preferably located, as shown in Fig. 1, so that the sections may be locked together with some of the sections at right angles to others.

12 designates the body portion of a corner section which is preferably constructed of a single piece of sheet metal bent in angle form, this corner section being equipped with the same locking devices as the section 1.

13 designates a key which is held in a manner identical with the key 10 to the sections forming the ceiling. Secured to the key 13 is a T-iron 14.

As shown in Fig. 1 of the drawings, certain of the keys 10 are perforated so as

to receive the pins 15 for the support of the truss rods 16, the inner ends of the truss rods being adjustably connected by means of devices such as turn buckles 17.

18 designates supports which are slidably connected with the T-iron 14 and designed to ride the truss rods 16. These supports are preferably made of a single piece of metal of sufficient strength and rigidity to withstand the strain when the turn buckles are moved to tighten the truss rods as required to take up whatever sag there may be throughout the length of the T-iron 14, key 13 and the sections of the ceiling.

By reason of the projections 8 the body portions 1 of the sections are held in perfect alinement with each other and, by reason of the key seats 9 and the keys 10, the sections are held against sagging. This construction makes it possible to do all of the work of assembling from one side of the sections.

Heretofore it has been necessary in setting up structures of this kind employing a two-sided form, as for walls and the like, to wire or otherwise join the two sections.

By reason of the size of the sections and the peculiar arrangement of the locking device some of the sections may be arranged vertically, as clearly shown in Fig. 1. This arrangement of the locking devices has a twofold advantage, one being to employ the sections in different positions, as just set forth, and the other advantage being to fix the locking devices of the sections so that they may not be displaced or lost when not in use.

The arrangement and construction of the truss for the overhead or ceiling sections make it possible to dispense with supports extended from the ceiling to the floor below, as is ordinary, the advantage of the

truss being the free operating space in the room or inclosure formed by the sections.

I claim:

1. In a metal form for monolithic concrete structures, a form unit comprising a rectangular sheet, marginal reinforcers for said sheet, pivoted locking devices having spaced-apart jaws secured at intervals to two of said marginal reinforcers, and keepers secured to the remaining marginal reinforcers and arranged in the same manner at like intervals as the said locking devices, so that complementary units may be secured together without regard to relative arrangement of the units.

2. In a form for monolithic concrete structures, a plurality of rectangular sections or units, each section having angular marginal references, two margins of each section having secured thereto locking devices comprising a member pivotally secured to the marginal reinforcers and having a pair of spaced-apart jaws, devices secured to the said margins for causing said sections or units to register vertically, devices secured to said marginal reinforcers adjacent said locking devices and arranged to receive truss keys, keepers secured to the remaining margins of each unit and disposed identically like the said locking devices, so that the locking devices and keepers of different sections or units will have coöperative positions regardless of the arrangement of the different sections.

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

LUDWIG EISENKRAMER.

Witnesses:

E. L. WALLACE,
N. G. BUTLER.