

No. 629,636.

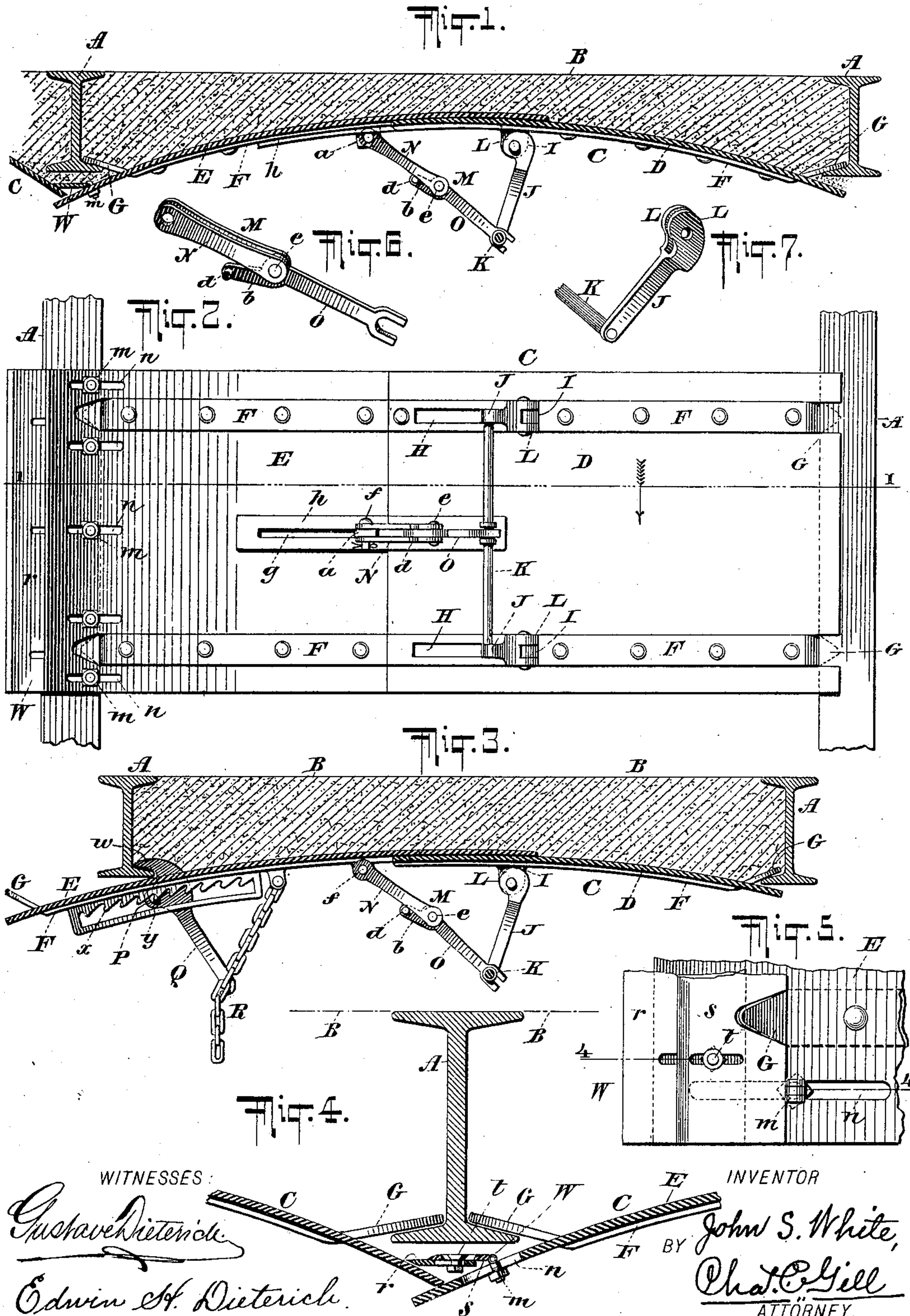
Patented July 25, 1899.

J. S. WHITE.

ARCH CENTER.

(Application filed Mar. 10, 1899.)

(No Model.)



UNITED STATES PATENT OFFICE.

JOHN S. WHITE, OF NEW YORK, N. Y.

ARCH-CENTER.

SPECIFICATION forming part of Letters Patent No. 629,636, dated July 25, 1899.

Application filed March 10, 1899. Serial No. 708,520. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. WHITE, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Temporary Centers for Use in the Construction of Floors of Buildings, of which the following is a specification.

10 The invention relates to improvements in temporary centers for use in the construction of the floors of buildings; and it consists in the novel features and combinations hereinafter described, and particularly pointed
15 out in the claims.

Temporary centers are employed as supports for the concrete or other material filled in between the floor-beams until said concrete or other material becomes sufficiently hardened, this requiring usually but a short period of time, and thereupon the centers are removed and used for a like purpose between other floor-beams. The centers are supported at their ends upon the lower flanges of the
20 floor-beams, which are usually commercial I-beams. In accordance with my invention the centers are made adjustable as to their length, so as to be extended or contracted to meet the conditions of the various spans between the floor-beams of a building, and the sections of the centers carry novel locking means, whereby said sections when adjusted may be securely fastened together. My invention not only enables the adjustment of
30 the center to suit the length of span between the beams, but facilitates the application of the centers to and their removal from the beams and insures their firm retention in position during use. In accordance with a portion of my invention I provide means for supporting concrete below the lower flanges of the floor-beams in order that the lower surfaces of said beams may, when desired, be coated with the concrete or other material simultaneously with the formation of the arch
45 between the beams.

The invention and satisfactory means for carrying the same into effect will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section

through a temporary center embodying a portion of my invention, said section being on the dotted line 2 2 of Fig. 1 and said center
55 being shown in position to form the arch between two floor-beams and as supporting the concrete intermediate said beams. Fig. 2 is a bottom view of same. Fig. 3 is a view, corresponding with Fig. 1, of the center provided
60 at one end with adjustable supports. Fig. 4 is a detached vertical section through a floor-beam and two adjoining centers and illustrates the means for covering the lower surface of the lower flange of said beam, said
65 section being on the dotted line 4 4 of Fig. 5. Fig. 5 is a top view of a portion of one end of the center, and Figs. 6 and 7 are detached perspective views of the locking devices for securing the sections of the center in their ad-
70 justed position.

In the drawings, A A denote the usual floor-beams, of commercial I shape, and between which is filled in the concrete or other material B.

The center is designated by the letter C, and its purpose is to temporarily span the space between the beams A A and support the concrete or other material B until the latter has become sufficiently hardened to admit of the removal of the center.

The center C comprises the sections D E, which overlap one another at their central portions and are strengthened by the ribs F, whose ends are preferably turned upward to form the feet G, by which the center may be supported from the lower flanges of the I-beams A, as indicated in Figs. 1 and 3. The middle portions of the section D of the center C are slotted, as at H, these slots preferably extending through the ribs F, and the corresponding portions of the section E are provided with the ears I, which extend through the slots H of the section D and have pivotally mounted upon them the levers J, which
95 are connected together at their outer ends by means of the bar K and at their inner ends are formed with the eccentrics L, which when the bar K is turned toward the left from the position in which it is shown in Fig. 1 will
100 be substantially free of the surfaces of the ribs F, through which the slots H are cut, and which eccentrics when the outer ends of the levers J and bar K are turned outward and

toward the right to the position illustrated in Figs. 1 and 3 will bear against the ribs F and operate to draw the overlapping portions of the sections D E together in order thereby to lock the sections D E in such adjusted position as may be given to them. The eccentrics L are formed in the bifurcated inner ends of the levers J, and hence they straddle the ears I and are adapted to bear upon the ribs F at both sides of the slots H, and thus they form a very secure locking means. The bifurcated inner end of the levers J is clearly shown in Fig. 7. The object of connecting the outer ends of the levers J by means of the bar K is to insure simultaneous movement in said levers J and to enable me to lock said levers in their outer position (shown in Fig. 1) from a single locking device, which device in the present instance consists of the locking-bar M, composed of the pivoted arms N O, the former being pivotally secured at its inner end to the ear *a* of the section E, and the arm O at its inner end being pivotally secured to the outer end of the arm N and at its outer end being bifurcated or forked to pass upon the cross-bar K, connecting the levers J. The arm N will be formed of the two separated corresponding pieces of metal, between whose inner ends the ear *a* will be inclosed and between whose outer ends the arm O will be pivoted, as shown in Fig. 2, and the arm O is provided with the extension *b*, carrying a transverse pin *d* to engage the edges of the arm N when said bar M is in its extended position, and has its central portions pushed inward toward the right to cause the pivotal point *e* to pass beyond the center line through the pivot *f* and cross-bar K. When the levers J are turned to their outward position shown, the bar M, being then free, may be folded, so that the outer forked end of the arm O may be conveniently and readily passed upon the transverse bar K, and thereupon the middle portions of the bar M will be pressed inward toward the right to the position illustrated in Figs. 1 and 3, this inward movement of the bar M causing the latter to have an outward wedging action against the levers J and serving not only to firmly press said levers to their outward position and causing the eccentrics L to bind against the ribs F, but also to carry the pivotal point *e* inward beyond the normal longitudinal center of the arm M, thereby causing the pin *d* to come into contact with the edges of the arm N and effectually locking the bar M in such position that the pressure exerted against it by the levers J will not be enabled to cause the folding or loosening of the arms N O. Thus after the levers J have been moved outward to draw the overlapping ends of the sections D E together said levers will be locked in position by the application to the connecting-bar K of the locking-bar M. The levers J are secured to the ears I, which are carried by the section E, and the ear *a*, to which the locking-bar M is secured, is likewise secured

to the section E, and hence the levers J and locking-bar M will always preserve their due relation to one another, no matter what the adjustment of the sections D E upon one another may be. The ear *a* projects through the slot *g* of the middle guide *h*, which is secured to the section D and has its slotted end projected over upon the section E. The ears I, projecting through the slots H of the section D, and the ear *a*, projecting through the slot *g* of the guide *h*, constitute efficient means for preserving the sections D E in due alinement with one another and for guiding said sections in their longitudinal adjustment upon one another. When the sections D E are to be lengthened or shortened by being moved from or toward one another, the levers J will be turned inward toward the left, so as to cease to act as a binding agent drawing the sections together, and after said sections have been given their adjusted position upon the lower flanges of the I-beams A the levers J will be turned to their outward locking position, and the locking-bar M will be applied to the cross-bar K and forced to its locking position, and thereupon the center will be securely held, and the concrete or other material may be filled in upon it and between the I-beams A.

The ears I and *a* define the points of a triangle, and hence they effectually prevent the sections D E from losing their true alinement with one another.

The feet G, formed by the ends of the strengthening-ribs F, turn upward through recesses in the ends of the sections D E, and hence they may be readily applied to the upper surfaces of the lower flanges of the I-beams A, while the ends of the sections D E extend below said flanges, as indicated in the drawings. The sections E or both sections of the center, if preferred, may be provided with the wing W for the purpose of permitting the covering with the concrete of the lower surfaces of the I-beams A. The wing W is connected with the section E by means of the bolts *m*, passing through elongated slots *n*, formed in said section E, the purpose of the bolts *m* and slots *n* being to enable the wing W to have a limited hinged movement and also to be adjusted longitudinally in order that the relation of said wing to the lower surfaces of the I-beams may be regulated to suit the conditions to be met. The wing W is preferably composed of strips of sheet metal *r s*, which are slotted and connected by adjusting-screws *t*. The strips *r* and *s* are by means of the screws *t* and the slots through which said screws pass rendered adjustable toward and from one another, and thus the width of the wing W may be adjusted to suit the width of the I-beam A and also to aid in regulating the space left between said I-beam and the wing to be filled with the concrete or other material. The inner end of the wing W will be supported upon the section E, and the outer end of the wing W will preferably

be supported upon the lower projecting end of the adjacent center, as illustrated more clearly in Fig. 4. I have illustrated the wing W as applied to one edge of the section E of the center C, not deeming it necessary to illustrate the same construction at the lower edge of the section D. The section D may also be, as is apparent, provided with the wing W, if desired. It will not be necessary to provide the end of the section D with the wing W if the next adjoining center to the right of the section D should be provided with the wing W, since under such arrangement the center adjoining the right-hand end of the section D would have the wing W, whose outer edge would rest upon the lower projecting edge of the section D. Where a series of the centers C are employed end to end in a building, it will only be necessary for one end of each center to be furnished with the wing W.

The means above explained for rendering the center C adjustable to suit the varying spans between the I-beams of a building will ordinarily be sufficient; but, if desired, the centers C may be rendered further adjustable by providing one end of the center with adjustable feet *w*, as illustrated in Fig. 3, wherein the center is shown as provided with the inverted rack *x* and supporting guide-rod *y*, between which rack and guide is arranged the pin P, connected with the lever Q, whose upper end is of claw shape and engages the lower flange of the I-beam A, while the outer end of said lever Q is engaged by one of the links of the chain R, the latter being suspended from the center. The lever Q is adjustable upon the guide-rod *y*, and hence may be moved longitudinally along said rod *y* and along the rack *x*, so that its foot portion *w* may be enabled to reach the I-beam A wherever the same may be. When the lever Q is not engaged by the chain R, it may be moved freely along the rack *x*; but when the foot *w* of the lever Q has reached the I-beam A said lever Q will have its lower end turned upward toward the right and its pin P brought into engagement with the rack *x*, which, in connection with the chain R, by which the lever Q will be locked in position, will prevent the pin P from moving longitudinally, and thereby the foot *w* will be held in rigid position. In order to free the lever Q, it is simply necessary to release the chain R therefrom, and thereupon the lever Q may have its lower end turned downward and toward the left for the purpose of releasing the foot *w* from the I-beam. The lever Q and its connections will be employed when desired to increase the adjustability of the center C, but will not in all cases be necessary, since the adjustment toward or from one another of the sections D E will usually be sufficient.

The method of using the centers made the subject hereof will probably be sufficiently understood from the foregoing description. The center is supported from the lower flanges

of the I-beams A, and its sections D E may be moved toward or from one another, so as to fully span the space between the I-beams, and when adjusted said sections will be locked in position by the downward and outward movement toward the right of the levers J and the application to said levers of the locking-bar M. If the lower surfaces of the I-beams are to be covered; the wing W will be adjusted to meet the conditions required, and if the lower surfaces of the I-beams are not to be covered no attention will be paid to the said wing. If the adjustment of the sections D E toward one another is not sufficient for the conditions in hand, a further adjustment may be secured by the use of the adjustable feet *w*, which may of course be at either end of the center, but will not be necessary at both ends of the center. In Fig. 1 I show one end of the center as being provided with the wing W, and this end of the center should not be provided with the adjustable feet *w*; but the other end of the center (shown in Fig. 1) may, in lieu of the stationary feet G, be furnished with the adjustable feet *w*, the latter for convenience being omitted from Fig. 1 and shown in Fig. 3.

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

1. The center C adapted at its ends to engage the floor-beams of the building and comprising the longitudinal sections D, E, which overlap and are longitudinally adjustable on one another and each of which is in the form of a sheet or plate of proper width to directly receive the concrete or like material to be filled in between said floor-beams, combined with means carried by said center for securing together the overlapping face-to-face portions of said sections in their adjusted positions; substantially as and for the purposes set forth.

2. The center C adapted at its ends to engage the floor-beams of the building and comprising the longitudinal sections D, E, which overlap and are longitudinally adjustable on one another and each of which is in the form of a sheet or plate of proper width to directly receive the concrete or like material to be filled in between said floor-beams, combined with means for guiding said sections D, E, upon and preserving their alinement with one another, and means carried by the center for securing together the overlapping face-to-face portions of said sections in their adjusted positions; substantially as and for the purposes set forth.

3. The center adapted to engage the floor-beams of a building and comprising the longitudinally-adjustable sections having the ribs and guide, said guide and ribs of one of the sections being slotted to receive ears on the other section, combined with means for locking the sections of the center in their adjusted positions; substantially as set forth.

4. The center adapted to engage the floor-beams of a building and having at its end the wing to pass below the floor-beam, combined

with means for adjusting said wing longitudinally on the center; substantially as set forth.

5 5. The center adapted to engage the floor-beams of a building and having at its end the wing to pass below the floor-beam and composed of the adjustable sections whereby said wing may be adjusted longitudinally; substantially as set forth.

10 6. The center adapted to engage the floor-beams of a building and comprising the longitudinally-adjustable sections, combined with the eccentrics for binding the overlapping ends of said sections together and means
15 for locking said eccentrics in rigid position; substantially as set forth.

20 7. The center adapted to engage the floor-beams of a building and comprising the longitudinally-adjustable sections, combined
20 with the lever pivotally secured to one section and having the eccentric to bind against the other section, and means for locking said lever in rigid position; substantially as set forth.

25 8. The center adapted to engage the floor-beams of a building and comprising the longitudinally-adjustable sections, combined with the lever pivotally secured to one section

and having the eccentric to bind against the other section, and the jointed locking-arms N, O, for locking said lever in rigid position, 30
one of said arms having the extension *b* and pin *d*; substantially as set forth.

9. The center adapted to engage the floor-beams of a building and comprising the longitudinally-adjustable sections, combined 35
with the levers pivotally secured to one section and having the eccentrics to bind against the other section, the transverse bar connecting said levers, and the jointed locking-arms N, O, having the bifurcated end to engage said 40
bar for locking both of said levers; substantially as set forth.

10. The center having at its end the rack and guide, combined with the lever having the foot and engaging said rack, and the chain for 45
locking said lever; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 7th day of March, A. D. 1899.

JOHN S. WHITE.

Witnesses:

CHAS. C. GILL,
E. JOS. BELKNAP.