

K. BERNHARD.  
IRON STRUCTURE FOR OVEN BUILDINGS.  
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899,503.

Patented Sept. 29, 1908.

Fig. 1.

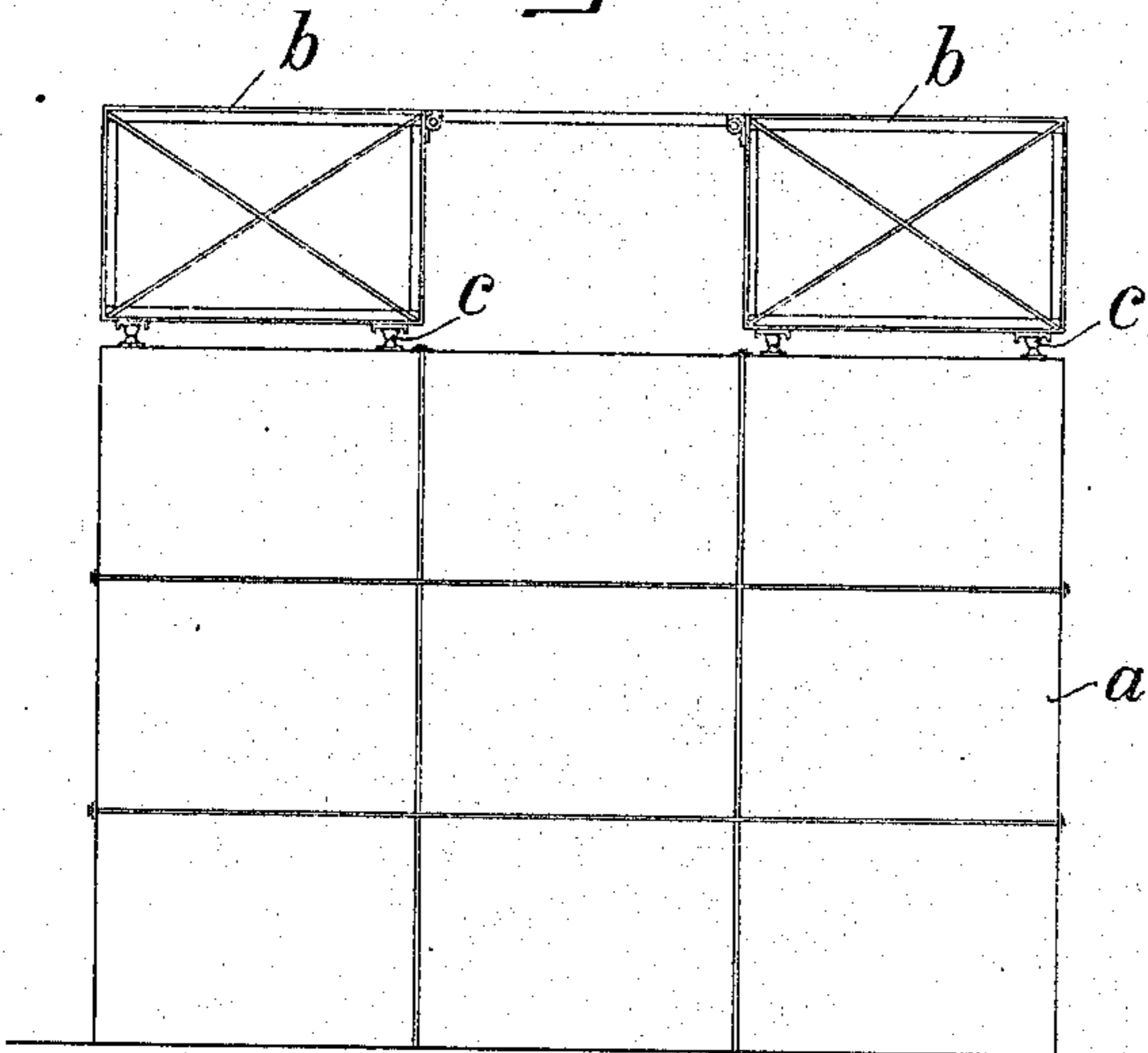


Fig. 2.

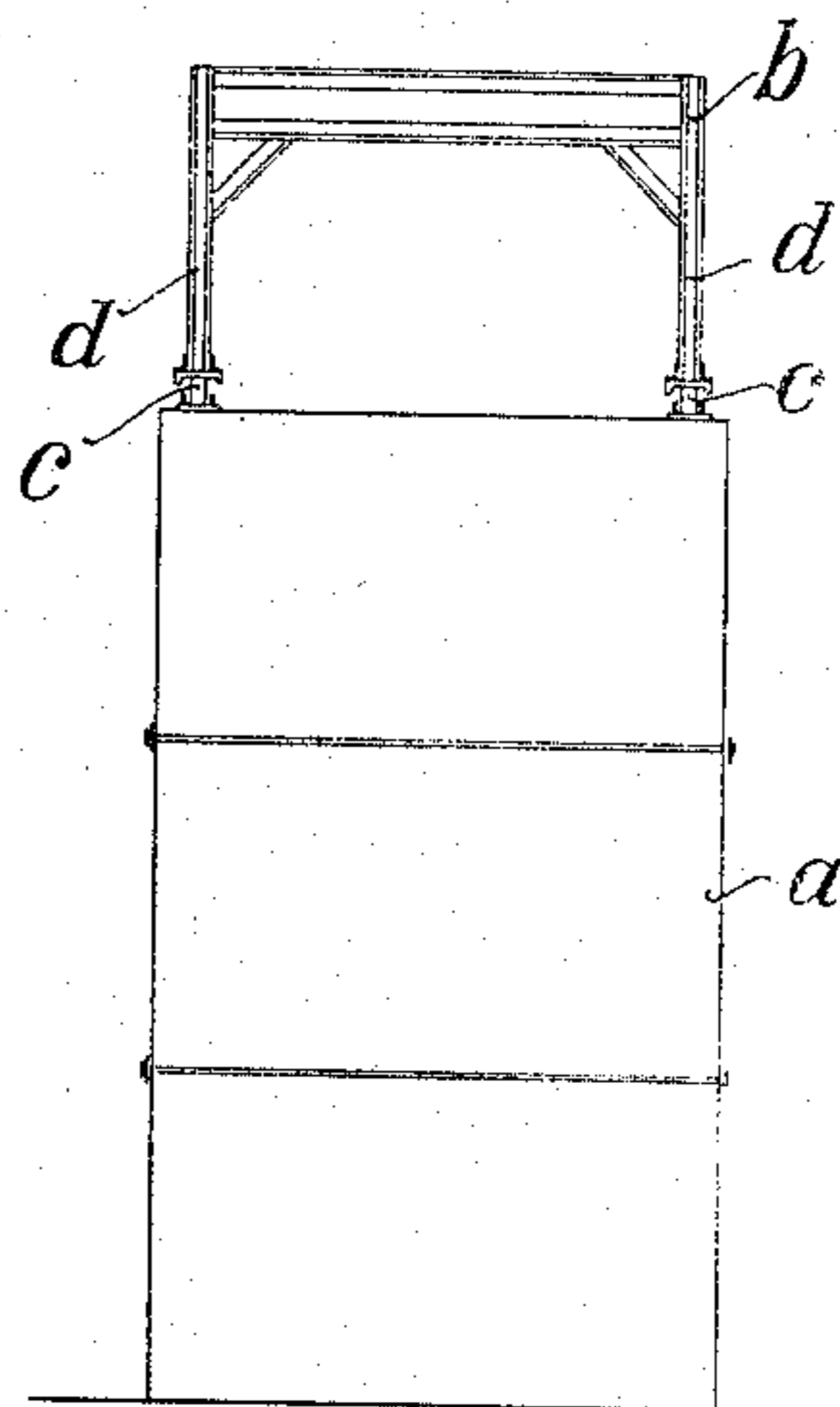


Fig. 3.

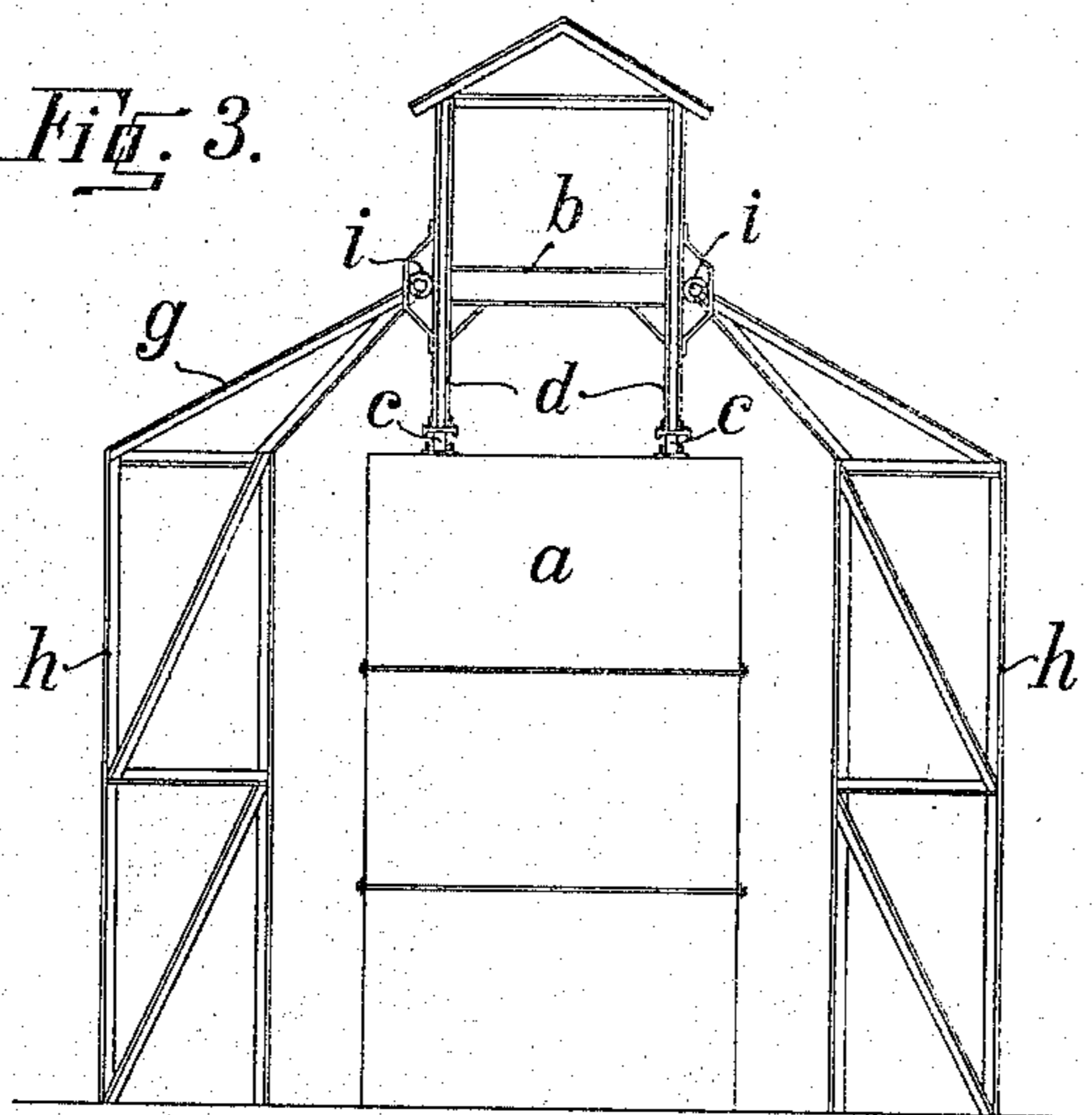


Fig. 4.

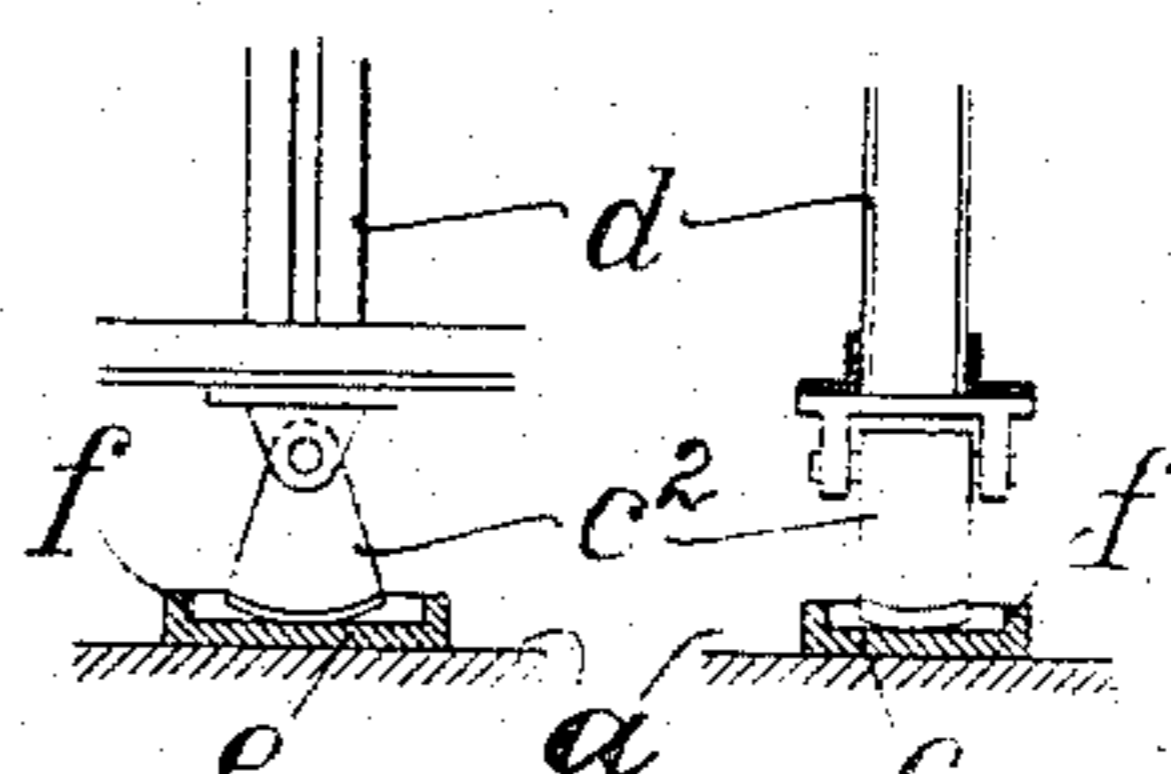
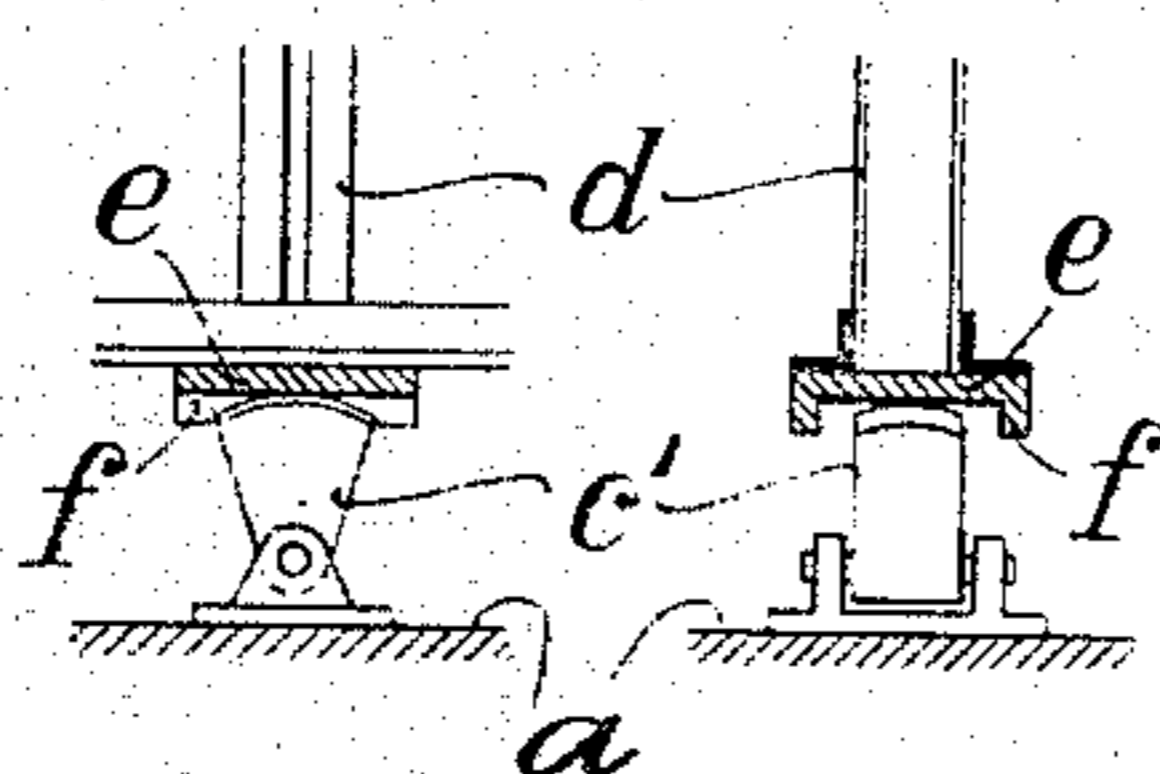
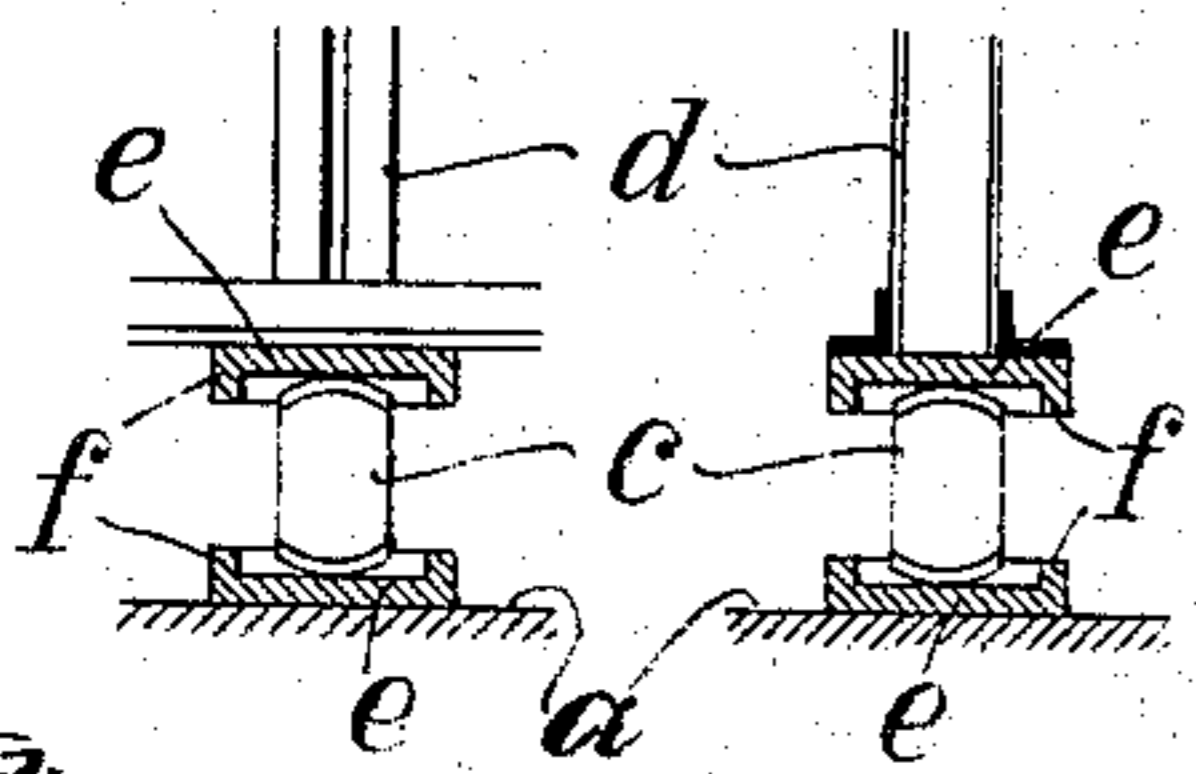
Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.



Witnesses:

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# UNITED STATES PATENT OFFICE.

KARL BERNHARD, OF BERLIN, GERMANY.

## IRON STRUCTURE FOR OVEN-BUILDINGS.

No. 899,503.

Specification of Letters Patent.

Patented Sept. 29, 1908.

Application filed March 20, 1907. Serial No. 363,336.

*To all whom it may concern:*

Be it known that I, KARL BERNHARD, a subject of the Emperor of Germany, and resident of Berlin, Germany, have invented certain new and useful Improvements in Iron Structures for Oven-Buildings, of which the following is a specification.

My invention relates to the iron structure of buildings or houses containing ovens, or retorts which structure serves to support the roof as well as the bunkers and charging devices. Iron structures of this character have frequently been carried entirely, or in part, upon the ovens or their anchoring framework and have been rigidly connected with such ovens or framework. Such rigid connection has in practice proved objectionable, on account of the motion of the oven or furnace, due to expansion and contraction, this motion being transmitted to the iron structure and creating therein injurious strains, which cannot be figured accurately, and in view of which the parts have to be made much heavier than would be required otherwise, so that the advantage of using the oven or furnace as a partial support is at least a very doubtful one. To avoid these injurious additional strains, which in some cases may be much greater than the main strains due to weight, I have devised my present invention, according to which the iron structure is connected with the oven, or its anchoring framework, not rigidly, but loosely, or movably, so that the brickwork of the oven or furnace may move independently of the supporting framework of the building. The vertically acting weight of the roof and of the charging devices, which are connected with the framework of the roof, is borne directly by the oven structure. The side walls of the building can be simply suspended from the roof and thus a considerable economy can be effected, as compared with the usual construction of such buildings.

In the accompanying drawings I have illustrated several embodiments of my invention.

Figures 1 and 2 are a side view and end view respectively of an oven, which serves as the only support for the framework carrying the bunkers and the charging devices. Fig. 3 illustrates a form of my invention in which the framework is connected with the roof structure. Figs. 4, 6 and 8 are side views of the joints employed by me between the

framework and the oven, and Figs. 5, 7 and 9 are corresponding end views.

In Figs. 1 and 2 the oven or furnace *a*, which may be of any suitable construction, and consists of masonry or brickwork, carries on its upper surface a supporting framework *b* for the bunkers and charging devices. This framework consists of several sections, linked together by pivotal connections, as indicated in Fig. 1, so that each will to a certain extent move independently of the others. This framework *b* rests on rolling members, such as balls, rolls, or roll segments *c*, which may be journaled or seated on the upper surface of the oven, or on the framework *b* itself.

Figs. 4 and 5 show upon an enlarged scale a construction in which ball segments *c* are loosely supported on the upper surface of the oven *a*. On these ball segments the posts *d* of the framework *b* rest by means of plates *e*, located at the lower ends of said posts, and provided, if desired, with lateral flanges *f*. Similar plates are located on the upper surface of the oven.

In Figs. 6 and 7 I have shown another construction in which the roll segments *c'* are pivotally supported on the oven and carry the posts *d* in the same manner as previously described.

In Figs. 8 and 9 the posts *d* are pivotally connected with roll segments *c''* which are loosely supported on plates *e*, resting on the upper surface of the oven in the same manner as in Figs. 4 and 5.

It will be seen that in each of these constructions the oven receives the vertical downward strain from the supporting posts *d*, but these posts are capable of moving relatively to the oven, in case the latter should expand or contract in heating or cooling.

In Fig. 3 the supporting framework *b* is carried by the oven *a* in the same manner as hereinbefore described, and has in addition a peculiar connection with the roof structure *g* of the building *h*, allowing the framework *b* to move vertically, yet preventing its horizontal movement. For this purpose the framework *g* of the roof is provided at the inner ends with rolls *i*, engaging either the supporting posts *d*, or special guide posts. Lateral strains are thus transferred to the building *h*, while at the same time a sagging of the oven will have no influence on the building *h*.

The supporting posts *d*, resting on the oven

or on its anchoring framework loosely, as by means of balls, rolls, or segments of such elements, will not follow the oven in any of its lateral movements, and thus detrimental stresses in the framework will be avoided.

I claim as my invention:

1. The combination with an oven, of a framework located above the oven, and rolling connections interposed between the oven and the framework.

2. The combination, with an oven and the building wherein such oven is contained, said building including a roof projecting above the oven, of a supporting framework having a loose connection with the top of the oven and arranged in guiding engagement with and between parts of the roof.

3. The combination, with the oven, of a supporting framework resting on the oven

and having a loose connection therewith, and the building containing said oven and provided with a roof having members projecting towards each other and in sliding engagement with the said framework to guide the same vertically.

4. The combination, with the oven, of a supporting framework resting thereon loosely and comprising sections connected with each other loosely, so as to be capable of movement relatively to one another.

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

KARL BERNHARD.

Witnesses:

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WOLDEMAR HAUPT.