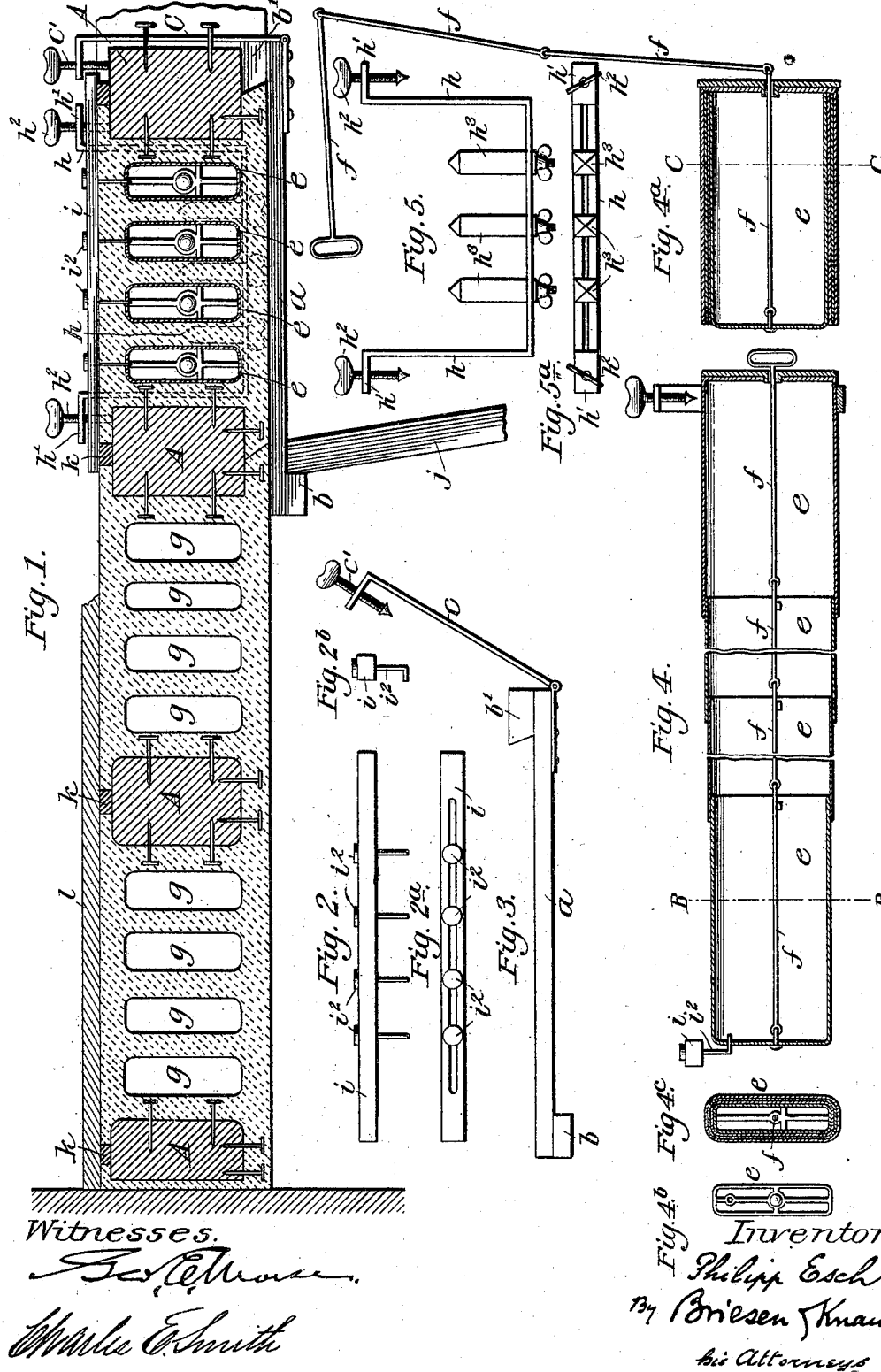


P. ESCH.

PROCESS OF AND APPARATUS FOR CONSTRUCTING FIREPROOF FLOORS.

(Application filed Aug. 2, 1899.)

(No Model.)



Witnesses.

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UNITED STATES PATENT OFFICE.

PHILIPP ESCH, OF FRANKFORT-ON-THE-MAIN, GERMANY.

PROCESS OF AND APPARATUS FOR CONSTRUCTING FIREPROOF FLOORS.

SPECIFICATION forming part of Letters Patent No. 646,964, dated April 10, 1900.

Application filed August 2, 1899. Serial No. 725,822. (No model.)

To all whom it may concern:

Be it known that I, PHILIPP ESCH, architect, a subject of the Emperor of Germany, residing at Frankfort-on-the-Main, Germany, have invented certain new and useful Improvements in Apparatus for Constructing Fireproof Floors, of which the following is a full, clear, and exact description.

My invention relates to an apparatus for constructing fireproof floors; and my invention will be described with reference to the accompanying drawings, which show an apparatus embodying my invention.

In the drawings, Figure 1 is a sectional view of the apparatus and also shows the method of procedure. I have shown a flat arch as the preferred form of construction, although the invention is equally applicable to other forms of arches. Fig. 2 is a side view. Fig. 2^a is a plan, and Fig. 2^b an end, view of a device for supporting one end of the collapsible chamber-formers hereinafter referred to. Fig. 3 is a side view of the centering. Fig. 4 is a longitudinal sectional view of a collapsible chamber-former. Fig. 4^a is a similar view showing the same collapsed. Fig. 4^b is a sectional view taken, let us say, along the line B B of Fig. 4. Fig. 4^c is a sectional view taken, let us say, along the section-line C C of Fig. 4^a. Fig. 5 is a side view, and Fig. 5^a a plan view, of the bridge for supporting and spacing one end of the respective chamber-formers apart.

I will first describe the apparatus employed.

Referring for the moment to Fig. 3, *a* is a suitable centering provided at one end with a batten *b* and at the other end with a batten *b'*, the two battens being on opposite sides or faces of the centering and having a hinged bracket or brace *c* pivoted to one edge, which bracket or brace is provided with an adjusting-screw *c'*.

Referring next to Figs. 4, 4^a, 4^b, and 4^c, I have shown in these figures a collapsible or telescoping chamber-former comprising a series of tubular members *e*, adapted to be collapsed or withdrawn one within the other, as shown in Fig. 4^a, and to be extended, as shown in Fig. 4, the collapsing being accomplished by the jointed rod *f*, which when pulled, as

shown in Fig. 4^a, will telescope the parts *e* together. This chamber-forming device is adapted to form the chambers *g* in the floor-arches, several such devices being employed, as will now be explained, with reference to Fig. 1.

Referring now to Figs. 5 and 5^a, *h* is a bridge provided with ears *h'*, through which adjusting-screws *h²* pass. The bridge *h* is provided with adjustable spacing-pieces *h³*, the function of which will be explained.

Referring now to Figs. 2, 2^a, and 2^b, *i* is a supporting-strip provided at intervals with loops or hangers *i²*.

Referring now to Fig. 1, I will describe the mode of procedure by which the floor-arches are formed. *A* are the floor beams or joists between which the floor-arches are to be formed. These floor beams or joists are studded, preferably, with headed nails, which project a slight distance from the joists. The centering is first put in place, being supported at one end by the strut *j* and at the other end by the hanger or bracket *c*, the adjusting-screw *c'* of the hanger or bracket serving to properly adjust the centering. The chamber-formers, of which there may be several, as shown in Fig. 1, are supported and spaced apart in the interspace between the joists or beams, being supported at one end (see Fig. 4) by the bridge *h*, the spacers *h³* entering between the said chamber-formers, and at the other end by the hooks *i²* of the strip *i*. I preferably place small furring-strips *k* upon the joists. When the parts are thus in place, the plastic material is cast around them. This plastic material is preferably composed of any light cement or concrete. I have found that a cement made of powdered or ground pumice-stone answers well for the purpose and cast smoothly, so as to form a smooth sealing. As soon as the cement is set—let us say to a degree sufficient to sustain its own weight—the operating devices are removed, preferably by removing the supports *i* and *h* for the chamber-formers and collapsing the same and withdrawing them from the structure in any desired manner. The structure may be allowed to dry and the flooring *l* may be afterward put on, being nailed to the furring-strips.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

- 5 1. In an apparatus of the character described, the combination of a plurality of telescoping sections adapted to be withdrawn one within another and hand-operated means coöperating with said sections for withdrawing them one within another.
- 10 2. In an apparatus of the character described, the combination of a former comprising a plurality of telescoping sections adapted to be withdrawn one within another, hand-operated means coöperating with said
15 sections for withdrawing them one within another and an adjustable U-shaped support adapted to be adjustably supported upon the floor-beams and to support the former.
- 20 3. In an apparatus of the character described, the combination of a plurality of formers each comprising a plurality of telescoping sections adapted to be withdrawn one

within another, hand-operated means coöperating with the sections of each of said formers for withdrawing them one within another 25 and an adjustable U-shaped support adapted to be adjustably supported upon the floor-beams and to support the former, said support having adjustable spacing-pieces for maintaining the formers properly spaced apart. 30

4. In an apparatus of the character specified, the combination of a plurality of collapsible formers, hand-operated means for collapsing said formers, an adjustable U-shaped support adapted to be adjustably supported upon the floor-beams and to support 35 the formers at one end and a beam-supported strip carrying supporting-hooks adapted to engage the formers and maintain them properly spaced apart.

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Witnesses:

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