

No. 720,747.

H. SIEGWART.

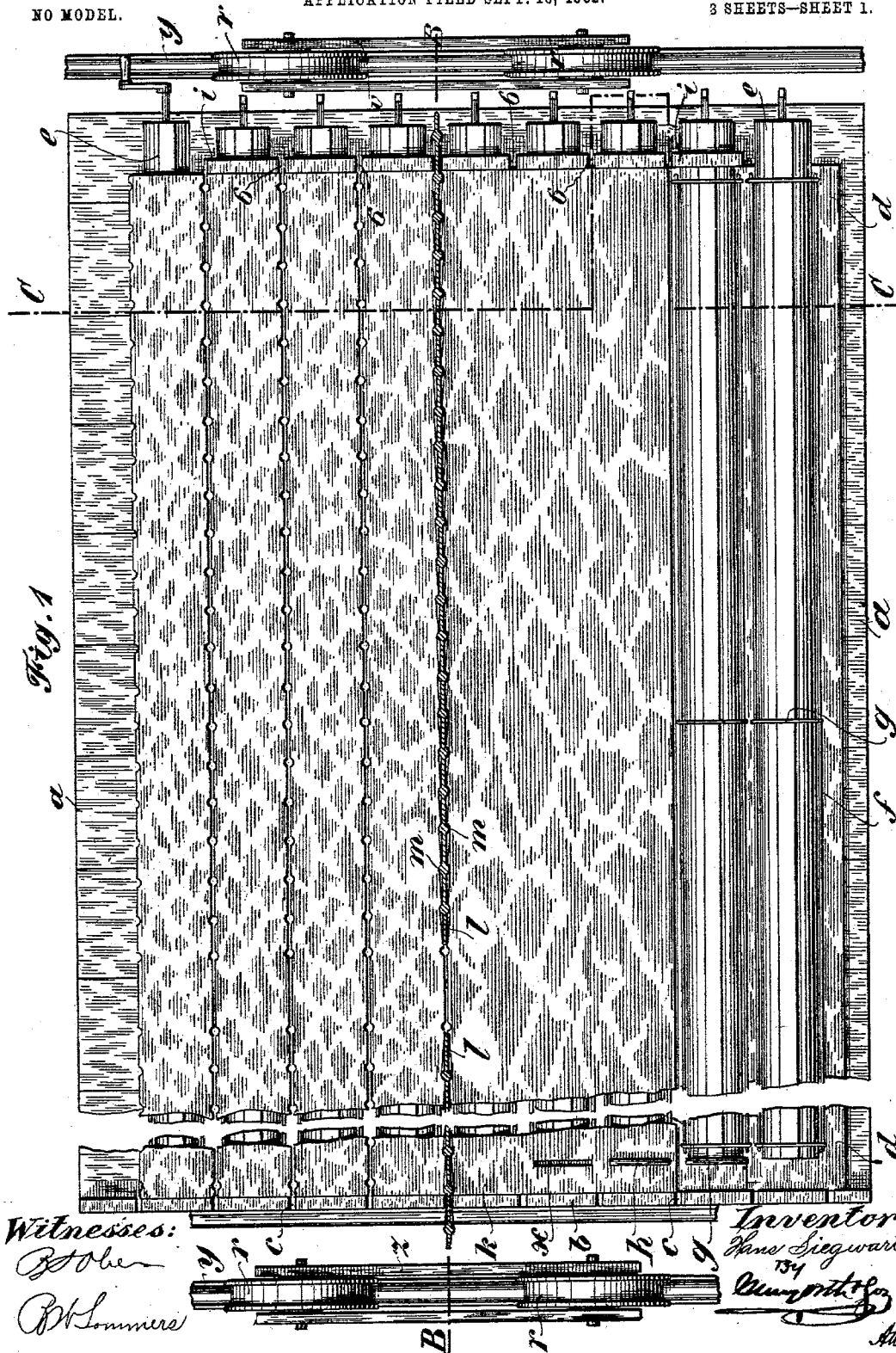
PATENTED FEB. 17, 1903.

MANUFACTURE OF CONCRETE BEAMS, GIRDERS, &c., WITH IRON BARS
INLAID, FOR BUILDING PURPOSES.

NO MODEL.

APPLICATION FILED SEPT. 18, 1902.

3 SHEETS—SHEET 1.



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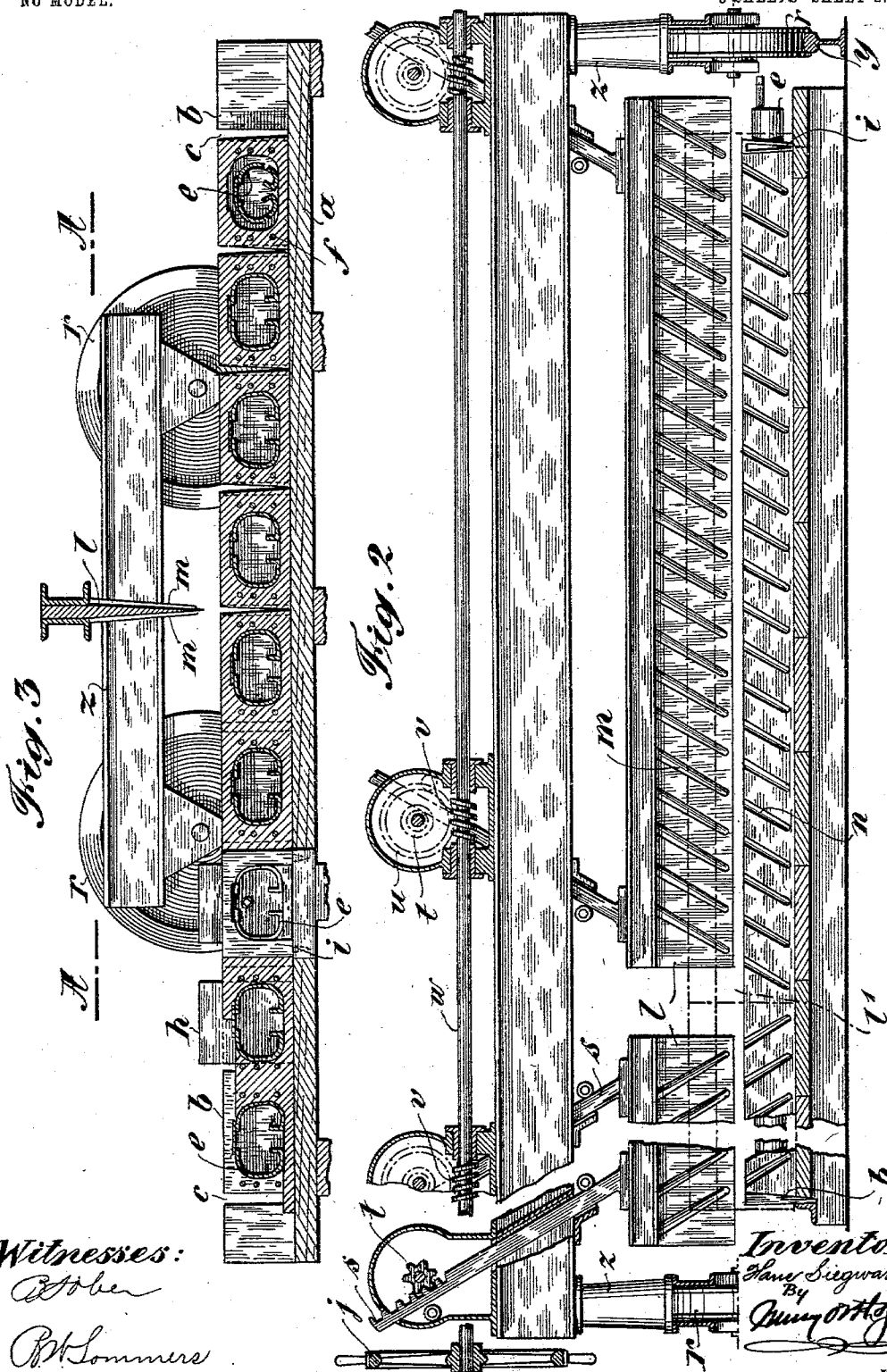
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3 SHEETS—SHEET 2.



Witnesses:

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Inventor:

Hans Siegwart

By *Wm. H. Lommer*

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3 SHEETS—SHEET 3.

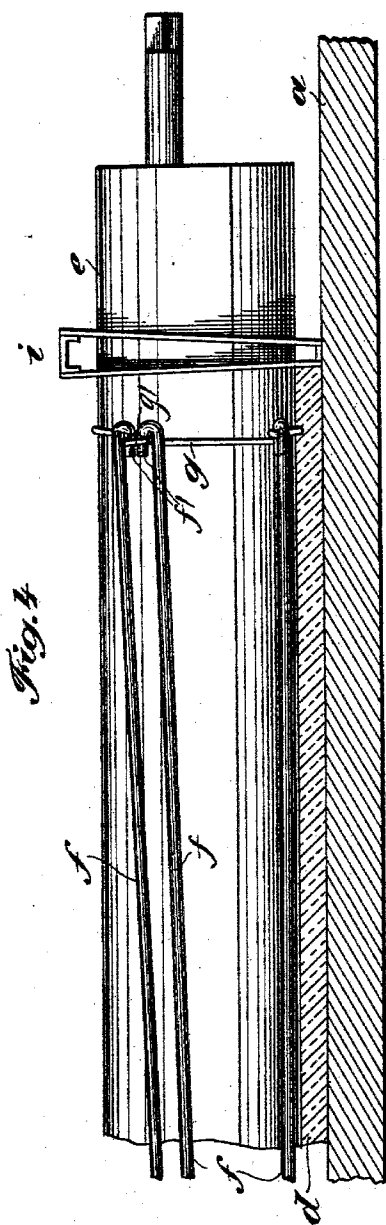


Fig. 4

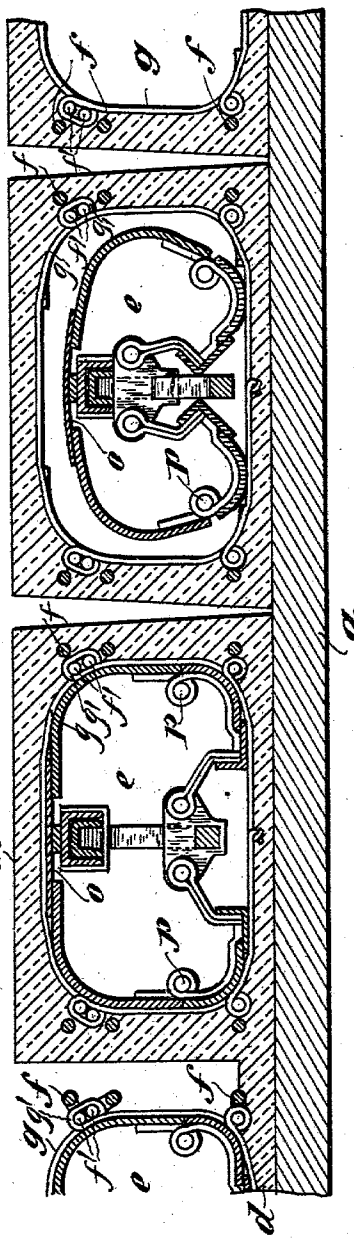


Fig. 5

Witnesses:

Attest

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UNITED STATES PATENT OFFICE.

HANS SIEGWART, OF LUCERNE, SWITZERLAND.

MANUFACTURE OF CONCRETE BEAMS, GIRDERS, &c., WITH IRON BARS INLAID, FOR BUILDING PURPOSES.

SPECIFICATION forming part of Letters Patent No. 720,747, dated February 17, 1903.

Application filed September 18, 1902. Serial No. 123,940. (No model.)

To all whom it may concern:

Be it known that I, HANS SIEGWART, architect, a citizen of the Republic of Switzerland, and a resident of Lucerne, Switzerland, have
5 invented certain new and useful Improvements in the Manufacture of Concrete Beams, Girders, and the Like, with Iron Bars Inlaid, for Building Purposes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable
10 others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon,
15 which form a part of this specification.

My invention relates to apparatus for the manufacture of hollow columns, beams, girders, and the like for building purposes from a plastic material. For this purpose I employ a core or mold capable of being collapsed
20 after the column is molded and withdrawn from the interior of the column at one end. The columns are made in a single sheet with the molds embedded therein and cut by suitable devices.
25

Referring to the drawings, in which like parts are similarly designated, Figure 1 is a top plan view, partly cut away, on the lines A A, Fig. 3. Fig. 2 is a section on line B B,
30 Fig. 1. Fig. 3 is a section on line C C, Fig. 1. Fig. 4 is a side view of a portion of the mold in position, and Fig. 5 is a transverse section showing the molds in relative position to the finished column.

35 A horizontal bed *a*, preferably, though not necessarily, made of wood, on which the columns are formed, has a vertical side wall *b*, which forms the end of the molded column. This side wall *b* is provided with vertical slots
40 *c*, extending from its upper edge to the bed *a* and of a distance apart equal to the width of a column. A layer *d* of plastic material of which the columns are to be made, preferably of beton, concrete, or Portland cement, is placed upon the bed *a*, and upon this are
45 laid the hollow cores *e*, capable of being contracted in cross-section. On the latter are secured rods *f* to be embedded in the side walls of the hollow columns and mounted on the cores so as to be suitably spaced around
50 the column and a suitable distance from their

outer surfaces. To this end spacing-wires *g* are employed, which are twisted or looped at *g'* around the hook ends *f'* of the rods *f*. The hollow mold, with the rods *f* secured thereto, 55 is placed upon the sheet *d* of plastic material a slight distance from the end wall *b*, and the open end of said mold is closed by plate *h*. Over the opposite end of the hollow mold is placed a fork *i*, whose pointed or 60 sharpened ends are driven into the bed. These forks are also distanced from one another, as shown at 6, and are the same distance apart as the vertical slots *c* in the wall *b*, and the distance between the fork and the wall *b* is 65 the length of the column to be made. After the cores have been placed in proper position upon the sheet of material *d* the spaces around them are filled in with beton or the like and also covered with a layer *k* of beton, so as 70 to entirely inclose the core. The space between the end wall *b* and the plates *h* is also filled with beton, after which these plates *h* are withdrawn, and the holes *x*, Fig. 1, that are left thereby are also filled with beton. 75 There will thus be formed a continuous sheet containing a plurality of hollow cores capable of being cut into separate columns, and for this purpose I employ two knives *l*, capable of moving toward one another and down- 8c ward at the same time, so as to have a shearing action during the cutting.

The knives *l* are carried by a frame *z*, mounted on rollers *r* on a suitable track *y*, parallel to the bed of the machine. These 85 two knives are in the same cutting plane, and each knife is supported by inclined parallel racks *s*, engaging a pinion *t* on the worm-gear *u*. All of the worm-gears are operated by worms *v* on a single actuating-rod *w*, moved 90 by the hand-wheel *j*. They are thus moved downward and toward each other through the material until the two knives abut, as clearly seen from the dotted lines, Fig. 2. The knives are well beveled and provided on both sides 95 with ribs *m*, which are inclined and parallel to the direction of the motion of the knife, the object of these ribs being to form inclined grooves *n* in the sides of the column without 100 hindering the cutting action of the knives. The knives pass through the slot *c* in the wall *b* and at the same time between the forks *i*

at the opposite end of the column and not only act to cut the columns apart, but at the same time compress the material sidewise.

In order to prevent the successive columns 5 from being distorted during the cutting, each cut after being made is filled with fine sand. After the mass has hardened the cores are removed. These cores *e* are built up of several parts and comprise a spring top plate *o* 10 and pairs of side sections hinged at *p*. By this construction the collapsible cores can be altered in section and to any desired form, so that they can be readily withdrawn from the hollow columns.

15 The wires *g*, binding the longitudinal rods *f* to the hollow core, are of course left in the column after withdrawing the core.

Having thus described my invention, what I claim as new therein, and desire to secure by 20 Letters Patent, is—

1. The method of forming columns, which consists in forming a bed of plastic material with parallel cavities therein and cutting the 25 bed of material into strips between the cavities, substantially as and for the purpose set forth.

2. The method of forming columns, which consists in forming a bed of plastic material having transverse cavities therein closed at 30 one end and cutting the material into strips, substantially as and for the purpose set forth.

3. The method of forming columns, which consists in forming a bed of plastic material having cavities therein, embedding in the material rods surrounding the cavities and cutting the material into strips between the cavities, substantially as and for the purpose set 35 forth.

4. The method of forming columns, which consists in forming a bed of plastic material having transverse cavities therein, embedding in the material rods, tied together and surrounding each cavity, cutting the bed into strips between the cavities and forming on the 40 faces cut sets of grooves, substantially as and for the purpose set forth. 45

5. The method of forming columns, which consists in forming a bed of plastic material having transverse cavities closed at one end, embedding in the material and around the 50 cavities rods tied together, cutting the material into strips between the cavities and simultaneously forming on the faces cut tapering inclined grooves, substantially as and for the purpose set forth. 55

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

HANS SIEGWART.

Witnesses:

GG. WEINGÄRTNER,
GUIDO ADLER.