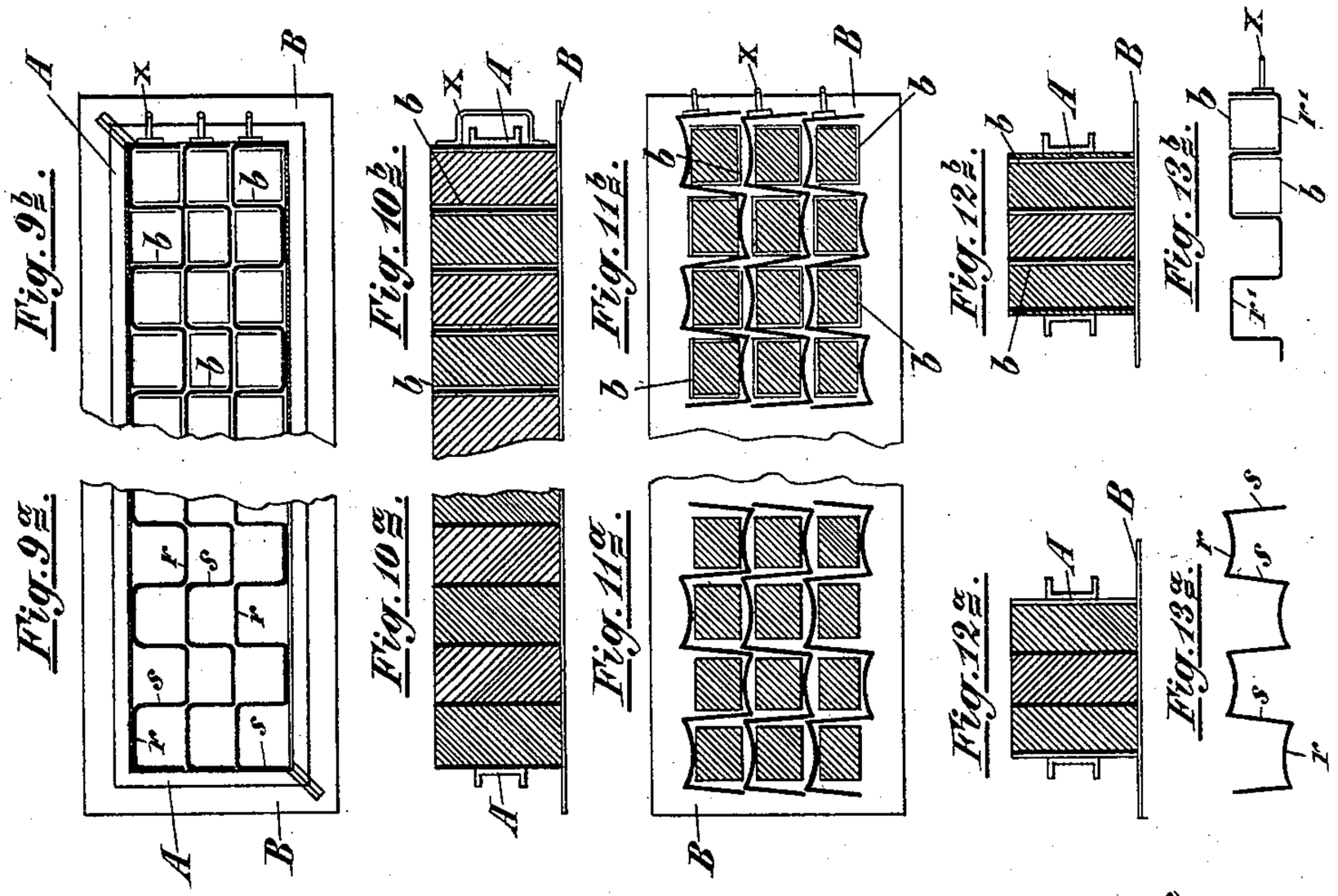
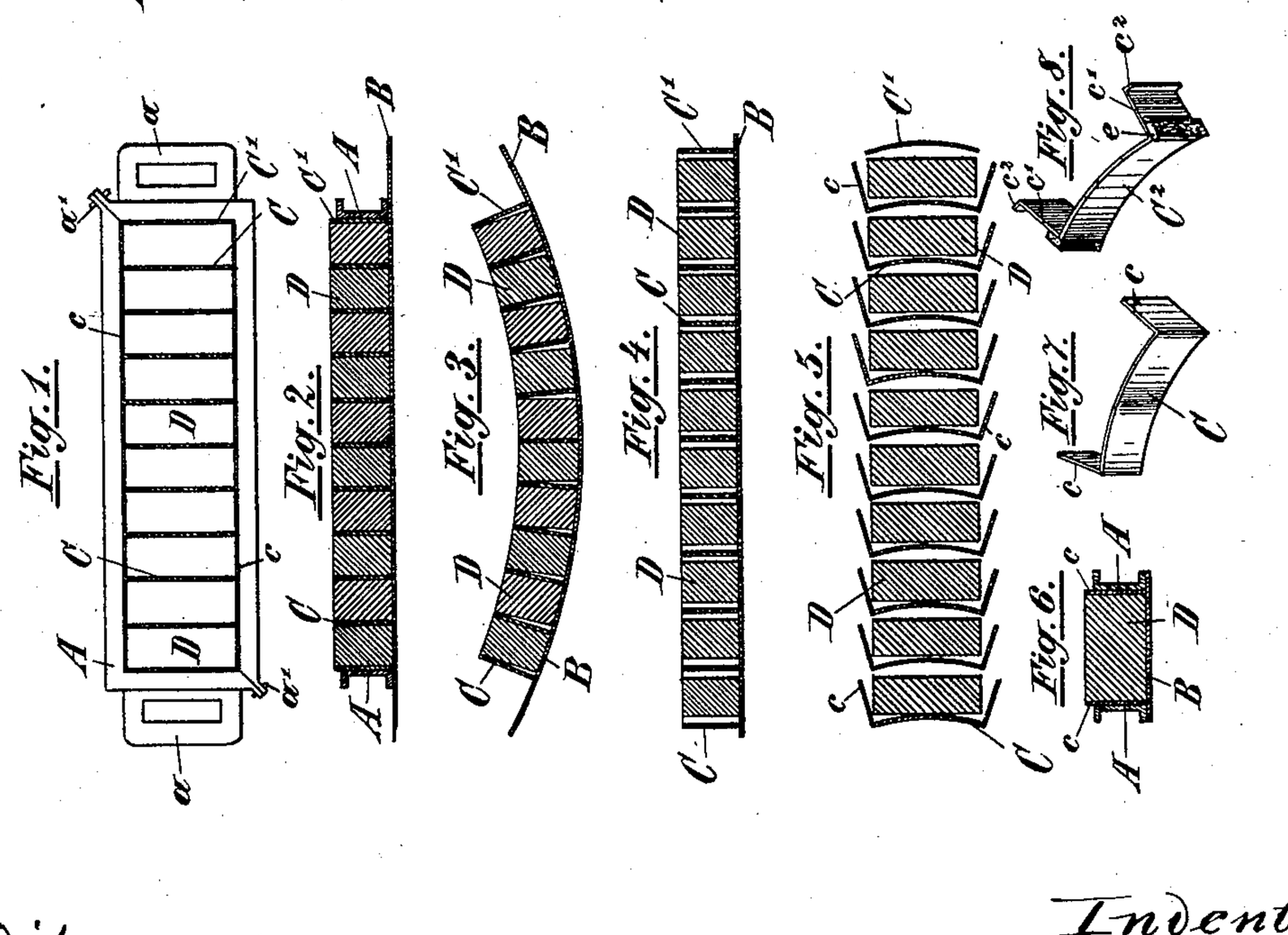
(No Model.)

A. KATZ.

APPARATUS FOR FORMING ARTIFICIAL STONE.

No. 599,786. Patented Mar. 1, 1898.





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UNITED STATES PATENT OFFICE.

ADOLF KATZ, OF STUTTGART, GERMANY.

APPARATUS FOR FORMING ARTIFICIAL STONE.

SPECIFICATION forming part of Letters Patent No. 599,786, dated March 1, 1898.

Application filed February 10, 1897. Serial No. 622,729. (No model.) Patented in Germany October 22, 1895, No. 86,157, and December 15, 1895, No. 87,289.

To all whom it may concern:

Be it known that I, ADOLF KATZ, residing at Reinsburgstrasse 35[A], Stuttgart, Germany have invented new and useful Improvements in Apparatus for Forming Artificial Stones, Plates, or the Like, (for which I have obtained patents in the German Empire, No. 86,157, dated October 22, 1895, and No. 87,289, dated December 15, 1895,) of which the following is a specification.

My present invention relates to an apparatus whereby artificial stones, slabs, tiles, or the like formed in separate molds are caused to be automatically forced out of the molds when cast or pressed from a quick-setting material, such as gypsum, cement, &c., or from which they are ejected by a small auxiliary device, even if formed of a slow-setting raw material.

Artificial stones, slabs, &c., from gypsum, cement, &c., were hitherto made by pressing or molding the prepared mass into separable molds formed in accordance with the desired form of the stones or slabs, allowing it to remain there until set and then freeing the stone by taking the mold apart. Hence for each stone it was necessary to assemble and then take the mold apart. This assembling and taking apart involved an amount of elaborate manipulation, which it is the object of the new apparatus to reduce to a minimum; and the invention consists in certain novel features hereinafter described and claimed.

In the annexed drawings, Figure 1 is a plan view of the primary form of my invention. Figs. 2, 3, and 4 are longitudinal sections of the same, illustrating its operation. Fig. 5 is an enlarged plan view showing the stones separated. Fig. 6 is a transverse section. Figs. 7 and 8 are detail perspective views of the mold detached. Fig. 9[a] is a plan view of a modified form. Fig. 10[a] is a longitudinal section, and Fig. 12[a] a transverse section, of the same. Fig. 11[a] is an enlarged plan view of the same, showing the manner of separating the molds. Fig. 13[a] is a detail view of the modified mold. Figs. 9[b], 10[b], 11[b], 12[b], and 13[b] are similar views of another modification.

The mold-case represented in the drawings in Figs. 1 to 8 is devised for the manufacture of building-stones from beton or gypsum, and is modified only in its dimensions or by omitting the parts of the case when making plates or tiles.

The mold-case consists, essentially, of sections C, of any desired number, of the flexible base B, and the rigid frame A. The sections or cells C are made of spring sheet metal in such a manner that the curved portion, Figs. 5 and 7, will automatically assume a straight position (lie in a plane) when the lateral wings *c c* are arranged parallel.

After the flexible base B has been first laid upon the work-table or the even floor the frame A is placed upon the same. The several sections C are then loosely arranged alongside of each other, as illustrated in Figs. 1, 2, and 6, in plan, longitudinal, and cross-section, and they are then closed by means of the closing-plate C′. The form may then be filled by pouring or tamping the material into place.

In order to prevent the overlapping of the tongues *c* by the adjacent mold-sections in assembling these sections, which are made of thin sheet-iron, instead of lying side by side the parts of the case may also be made in the form represented in Fig. 8. Under this arrangement the tongues *c′* of the sections C are provided with the right-angled flanges or lips c^2 and with the ledges *e* at the corners, which ledges are equal in thickness to the depth of the lips c^2. By this arrangement a broader bearing-surface of the sections against each other is attained.

When the mass has sufficiently set, the frame A is removed and the flexible base is raised somewhat at one or at both ends (see Fig. 3) and then again lowered. (See Figs. 4 and 5.) The several stones D are thereby shifted on the base B, whereby the resilient case-sections C obtain sufficient play to resume their original position and shape, with curved portions and divergent lateral wings *c c*, Fig. 5. The case portions C have thus been automatically freed from the sides of the stones D, and the latter are free and may, with the aid of the base B, be immediately brought to the drying-frames. In a similar manner the process is carried out for preparing stones from materials of other composition.

If it is desired to manufacture slabs, tiles,

and the like, the sections C are omitted, and in lieu of the flexible base B a curved sheet of spring metal is employed, which is only pressed into a flat condition by weighting the frame A.

In the arrangement hereinbefore described the automatic removal of molded stones is effected by separate spring mold-sections, which must be severally handled both in filling and in emptying the mold.

An improvement may be effected by uniting a greater or less number of the mold-sections, as indicated in Figs. 13^a and 13^b, where a number of mold-cells are formed by bending a strip of sheet metal into an undulating or corrugated form, half of said mold-cells lying at the right and half at the left of the strip. The bridges *s s* of corrugations are made straight throughout. They form right angles with the faces *r r*. These faces *r r* may be so curved that they become resilient when straightened, Fig. 13^a, or they may be straight, Fig. 13^b, so that they become resilient when bent. If in the first case, Fig. 13^a, the ends are compressed sufficiently to make the bridges *s s* parallel, the curved faces *r r* will have resumed a flat position. A number of such cell-strips may be assembled in a group in a frame of corresponding size, Fig. 9^a. The filling and emptying of the molds in the case of Fig. 13^a may be carried out in the same manner as indicated above. In the case of Fig. 13^b handles *x* are required to draw the corrugations apart in the manner of an accordion after removing the frame. The molded articles are thus not only separated from the bridges, but are also pushed aside from the faces of the mold-strip, the said faces having a tendency to readily curve in this operation.

Where it is desired to produce stones from slow-setting material the form represented in Fig. 13^a is used with advantage.

The cell-walls of the molds are fitted with sheet-metal linings *b*, having a slight outward resiliency, Figs. 9^b, 10^b, 11^b, 12^b, and 13^b, whose function is to prevent the collapse of the molded stones if they should not have completely set after the removal of the cell-strips. These sheet-metal linings are removed as soon as the stones have sufficiently hardened.

I claim—

1. The combination of a flexible base, a rigid frame resting loosely thereon, and resilient cells within said frame held by the same but independent thereof.

2. The combination of a flexible base, a rigid frame resting loosely thereon, and independent resilient cells within said frame held by the same but independent thereof.

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

ADOLF KATZ.

Witnesses:
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