No. 696,359. Patented Mar. 25, 1902.

T. BAILEY.

SHEET METAL CORRUGATING MACHINE.

(Application filed June 22, 1901.)

(No Model.)

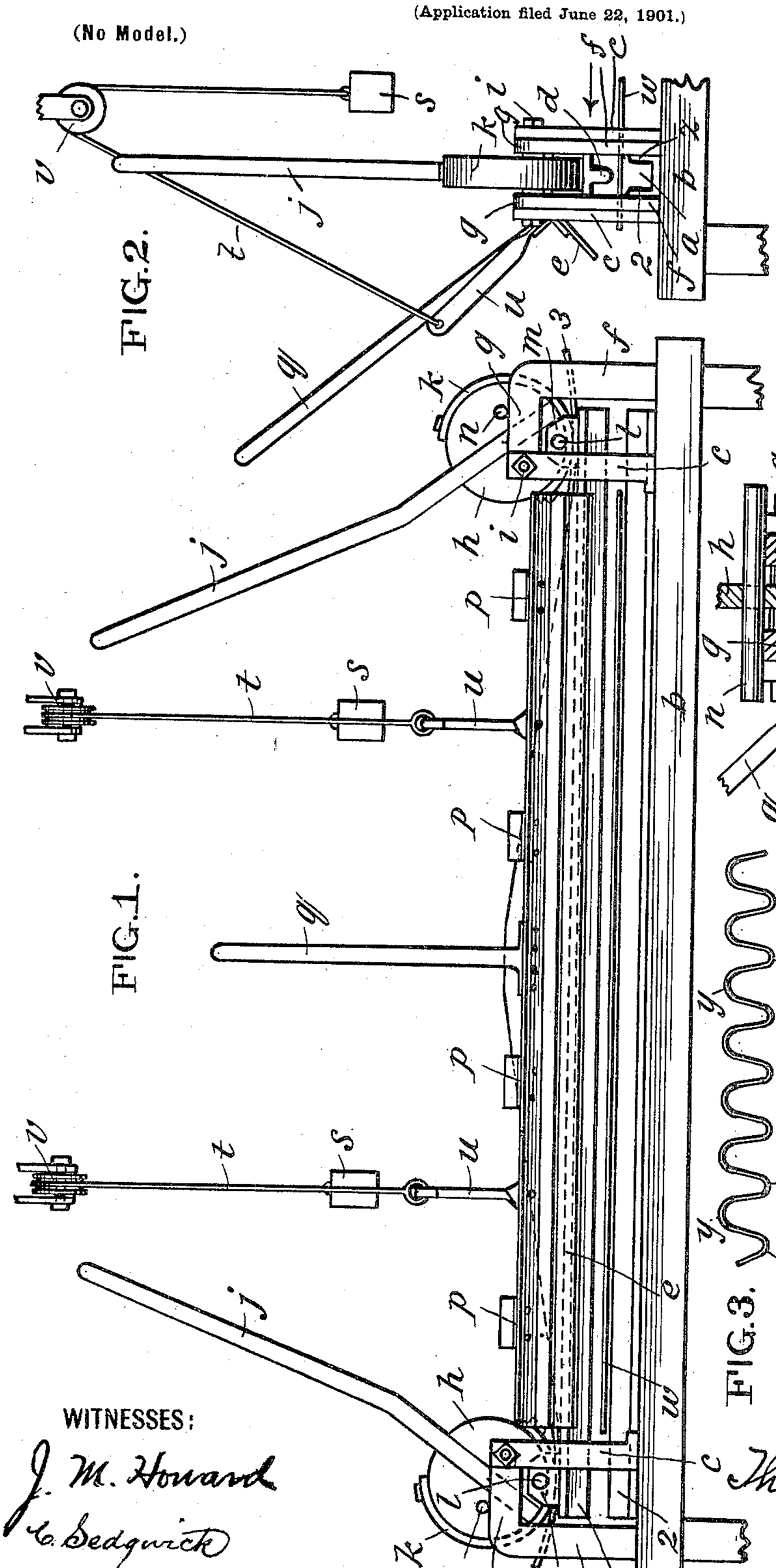

FIG. 1.

FIG. 2.

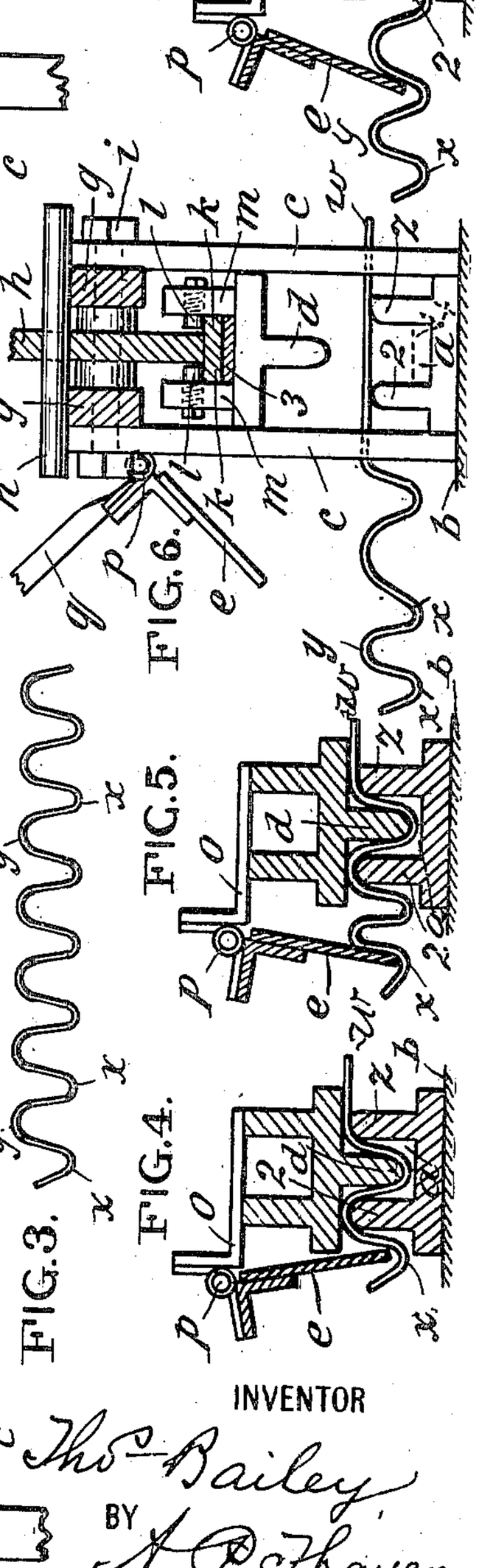

FIG. 3.

FIG. 7.

FIG. 8.

FIG. 4.

FIG. 5.

FIG. 6.

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SHEET-METAL-CORRUGATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 696,359, dated March 25, 1902.

Application filed June 22, 1901. Serial No. 65,542. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BAILEY, a citizen of the United States of America, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Sheet-Metal-Corrugating Machines, of which the following is a specification.

My invention consists of improved apparatus designed for corrugating or crimping sheet metal more economically and expeditiously and also more effectively than as heretofore accomplished, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved corrugating-machine. Fig. 2 is an end elevation. Fig. 3 is an end view of a corrugated sheet. Figs. 4, 5, and 7 are vertical transverse sections of the machine, showing different stages in the progress of the work. Fig. 6 is partly an end elevation and partly a transverse section and showing another stage of the work. Fig. 8 is an end view of a block, such as may be placed in the channel of the bed-die to limit the descent of the other die for making crimps of less than the maximum depth.

The machine comprises, essentially, a channel-bar bed-die *a*, having a suitable base and seated on a suitable foundation *b*, between two posts *c* near each end, also a T-shaped movable die *d*, placed over the bed-die and between said posts, so that the stem of the T can work up and down in the channel of die *a*, suitable means for operating the upper die, and a crimp-furnishing bender *e* and suitable means of operating it, said dies and bender being of suitable length to crimp or corrugate the sheets lengthwise. These instrumentalities comprise apparatus whereby the process of making the corrugations includes two essential steps: first, the common method of bending the sheets in crimping-dies, and, second, the employment in addition therewith of the herein-described method of successively bending the crimps laterally. At the ends of the dies two other posts *f* are placed for guides to the ends of the movable die, preventing it from shifting lengthwise. Said posts have each a lateral arm *g*, reaching to and connecting with the tops of the posts *c*, respectively, for more stable fixture of both and for another purpose that will appear farther on.

The die may be operated by hand or by power apparatus, and the means of operating it may be contrived in various ways. I prefer to operate it by hand, and have in this example of my invention provided a hand-power eccentric *h* at each end, located above the head of the die and pivoted at *i* in the overlapping ends of posts *c* and arms *g* of posts *f*, so as to bear on the head of the die and force it down when the eccentrics are turned by hand-power applied to the levers *j*, respectively connected to said eccentrics.

For raising the die by reverse movement of the levers the eccentrics are flanged laterally on both sides at the rim, as shown at *k*, and stud-pins *l*, fitted in lugs *m* of the head of the die, project over and engage the inner peripheries of the flanges, so as to lift the die by the eccentric action of the flanges.

When the die is raised, it is supported in the elevated position by pins *n*, inserted through the eccentrics, which are suitably perforated therefor over the arms *g* of posts *f*, which lock the eccentrics and hold up the die preparatory to the next operation, this being the other purpose of said arms, before referred to.

The crimp-finishing bender consists of a strong plate of even length as the distance between the posts *c*, or thereabout, hinged at *p* to brackets *o*, carried on the top of the die *d*, with its lower edge pendent therefrom and reaching about as low as the lower edge of die *a*, to which plate a hand-lever *q* is attached for operating it, and counterbalancing-weights *s* are connected to it by cords *t* and short levers *u*, said cords working over pulleys *v* to normally hold up said bender, as represented in Figs. 1, 2, and 6.

The operation is as follows: A sheet *w* to be corrugated is inserted between the dies, as shown in Fig. 2, from the direction indicated by the arrow. Two men, one at each end of the machine, force down the die *d* by the levers *j* and the eccentrics *h*, producing the first crimp *x*. Then the sheet is fed along by hand a suitable distance for another crimp *x*, which

is produced in the same way and between which and the first crimp x a reverse crimp y is formed, this being the result of the two operations of die d in first bending the sheet over the right-hand rib z of die d and next bending it over the left-hand rib 2 of said die. In the first operation of the die d the crimp-finishing bender has no function; but in the next operation and thereafter it takes effect, as shown in Figs. 4 to 7, inclusive, which will be best understood by looking at Fig. 6, wherein it will be seen that the crimps, especially crimps y, are not as close as is desirable on leaving the dies a d and are bent closer by the action of bender e, which enters crimps x when die a descends, and being operated while die d remains at rest closes up the crimps, and thus coöperating with the dies a and d produces more satisfactory crimps, besides dividing the labor, so that it is feasible to produce such crimps by the limited power of a few inexpensive hands, and avoids the necessity for expensive power apparatus otherwise demanded for such work. The weights s raise the bender e when released by the operator and hold it up clear of the work until ready for the next operation.

The depth of the crimps may be varied at will by temporarily placing blocks, as 4, Fig. 8, in the die a, one at each end, to limit the descent of die d according to the depth of crimps desired. (See the dotted line in Fig. 6.)

Wearing-pieces 3 may be applied loosely or detachably in any way between the eccentrics and the upper side of die d for sustaining the wear and being readily removable from time to time.

What I claim as my invention is—

1. The combination of the channel bed-die having at one side of the channel a rib 2 over which crimps may be formed, a vertically-movable T-die, guide-posts controlling the movable die, and lever-actuated and flanged eccentrics, one at each end of the die for operating the movable die.

2. The combination of the channel bed-die having at one side of the channel a rib 2 over which crimps may be formed, a vertically-movable die, and lever-actuated and flanged eccentrics, one at each end for operating the movable die, and guide-posts controlling the movable die, said eccentrics pivoted in the guide-posts, posts guiding the movable die endwise and connected by arms of the upper ends with the side guide-posts, and locking-pins for the eccentrics supported on said arms.

3. The combination with the channel bed-die having at one side of the channel a rib 2 over which crimps may be formed, the vertically-movable T-die, and means for operating said die, of the crimp-bender hinged to the movable die in the described relation to the said rib of the bed-die for successively bending the sheets laterally in the crimps.

Signed at New York city this 15th day of June, 1901.

THOMAS BAILEY.

Witnesses:
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A. P. THAYER.