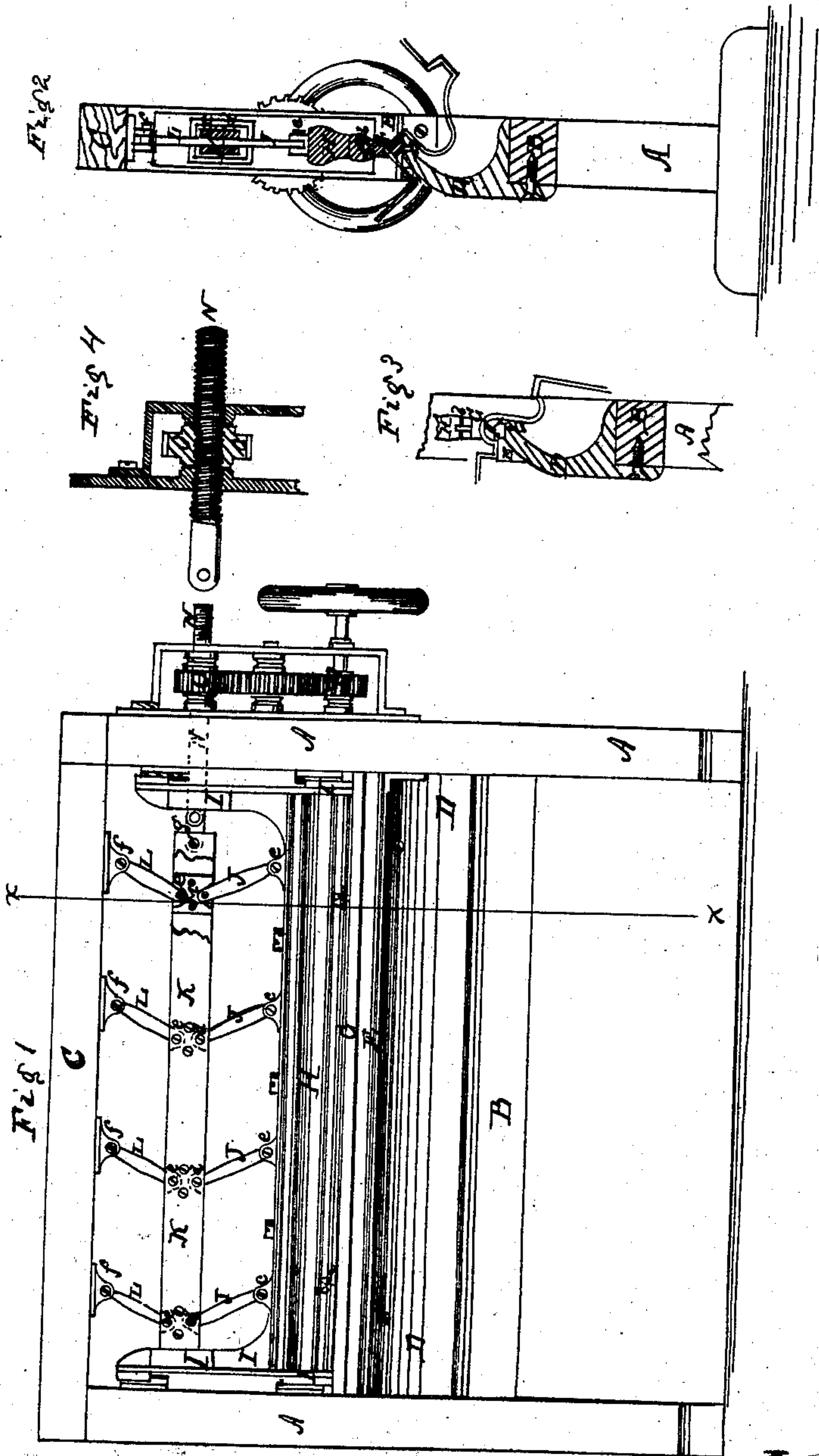


V. Fischer.
Forming Sheet-Metal Mouldings.
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VALENTINE FISCHER, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINE FOR FORMING SHEET-METAL MOLDINGS.

Specification forming part of Letters Patent No. 74,068, dated February 4, 1868.

To all whom it may concern:

Be it known that I, VALENTINE FISCHER, of the city, county, and State of New York, have invented a new and Improved Machine for Forming Sheet-Metal Moldings; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of my improved machine for forming moldings. Fig. 2 is a vertical transverse section of the same, the plane of section being indicated by the line *x x*, Fig. 1. Fig. 3 is a detail transverse sectional view of the dies. Fig. 4 is a detail longitudinal sectional view, showing the mode of applying pressure.

Similar letters of reference indicate corresponding parts.

This invention relates to a new machine for pressing moldings for cornices, &c., from galvanized or other sheet metal; and consists in so arranging the machine that but two kinds of dies for all kinds of smooth moldings that may have to be formed are needed—viz., rounded and square dies. Of the latter but one set is required for making all sorts of angles, while of the rounded dies as many sets must be provided as there are different-sized curves to be represented in the moldings.

The dies are easily removed and replaced. The male die is arranged stationary, while the female die is secured to a slide or other reciprocating device. The male or stationary die is underneath the female or movable die, for the purpose of preventing the latter from being clogged or made imperfect by dirt or other foreign matter. The standard of the male die is made concave on one side to allow the forming of three sides of a square by the apparatus.

The invention also consists in the construction and arrangement of the device for moving the upper die. This is done by means of a series of toggle-levers, which are secured to the die or its holder and to the main frame of the machine, their points being in a horizontal rod, which, when moved in one direction, spreads the toggles, and thereby depresses the punch,

while it will, when moved in the opposite direction, contract the ends of the toggles and raise the punch. One end of this rod is hinged to a screw, which passes through a pinion in which a thread fitting it is arranged. By turning this pinion, either directly or by means of transmitting-wheels, the screw will be drawn in or out, according to the direction in which the pinion is turned, and as the rod follows the motions of the screw the die is either raised or lowered.

A represents a frame, made of wood or other suitable material, of sufficient strength to sustain the weight of the dies and of the machinery by which the same are operated, and also the strain and shock occasioned by the motion of the machinery. This frame consists more particularly of two uprights, A A, which are far enough apart to allow the necessary length of sheet metal to be placed upon the dies between them, and of cross-bars B and C, the former for supporting the lower die, the latter for connecting the upper parts of the posts and for suspending the upper die.

D is a standard for the lower stationary die. It is, by means of screws or otherwise, firmly secured upon the bar B, and is made in the form of the letter C—that is, concave on one side, as shown in Fig. 2.

The lower die, E, which is a strip as long as the distance between the uprights A, is fitted upon the upper edge of the standard D, so as to firmly remain thereon. This die is conical in cross-section, forming a right angle at the apex, and may be formed on (not fastened upon) the standard D as part of the same, as it need never be removed. When rounded dies F are used they are laid upon this die E, as in Fig. 3, they being recessed at their under side for the purpose of fitting the die E.

The upper die, G, which is of the same length as the lower die, and which is provided with a concave under side that corresponds to the shape of the lower die, as in Figs. 2 and 3, is provided at its upper surface with two or more projecting pins, *a a*, which are perforated, and which serve as a means for fastening the die to a pendent bar, H, of nearly the same length as the die. Horizontal pins *b b*, fitted through holes in the bar H and through those

in the pins *a*, Figs. 2 and 3, secure the die in its place. The bar H has upright guide-bars I I at its ends, as seen, which are tenoned or grooved, and which slide on corresponding grooves or tenons that are arranged in the posts A, as shown.

On top of the bar H is formed a series of projecting lugs, *c c*, to each of which a bar, J, is pivoted. Four (more or less) such bars J may thus be arranged, their upper ends being, by means of pins *d d*, pivoted to a horizontal bar, K. By means of pins *e e* are similar bars L pivoted to the bar K, said pins *e* being always arranged vertically above the pins *d*. The upper ends of the bars L are pivoted in lugs *f f*, that are secured to the under side of the bar C vertically above the lugs *c* on H. These bars J and L, or rather each pair of them, form a toggle-lever, as shown in Fig. 1. Between the ends of the levers J and L are interposed on the bar K blocks M M, with hollowed upper and lower edges, which are to take the strain from the pins *d* and *e*.

One end of the bar K is connected, by a link, *g*, with a horizontal screw, N, which forms the axle of a pinion, O, in which a corresponding screw-thread is arranged. Thus, by turning the pinion O, which is done by turning a gear-wheel, P, either by machinery or by hand, the screw is moved either in or out, according to the direction in which the pinion is turned, and thus the bar K is moved in the same direction, and the bar H is moved down or up. The upper die is thereby pressed upon the lower die and raised from the same, as may be desired.

The most difficult moldings can be formed

by this machine, as is indicated by red lines in Figs. 2 and 3, the standard D being provided with a concave side to facilitate the forming of such difficult moldings, as is seen in Fig. 2. The dies can be made of steel or other suitable material and of suitable thickness.

I claim as new and desire to secure by Letters Patent—

1. The machine having the rounded and square dies arranged as described, whereby all kinds of smooth moldings can be formed, as herein shown and set forth.

2. The standard D, when provided with one concave side, as shown.

3. So arranging the dies E and F that the latter can be placed upon the former without any other fastening, as described.

4. Arranging the female die G above the male die E or F, for the purpose of keeping the female die clear, as set forth.

5. The device for operating the movable die, said device consisting of the toggle-levers J L, in combination with the pendent bar H and central bar K, so that by moving the latter horizontally the die will be moved up and down, as set forth.

6. The manner herein shown and described of operating the bar K by means of the screw N and the nut-pinion O, all made as set forth.

7. A machine for forming sheet-metal moldings when the same are made and operating substantially as herein shown and described.

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Witnesses:

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