(No Model.) 2 Sheets—Sheet 1.

B. J. BALDWIN, Jr.

MACHINE FOR BENDING AND EMBOSSING SHEET METAL.

No. 422,109. Patented Feb. 25, 1890.

Fig. 1

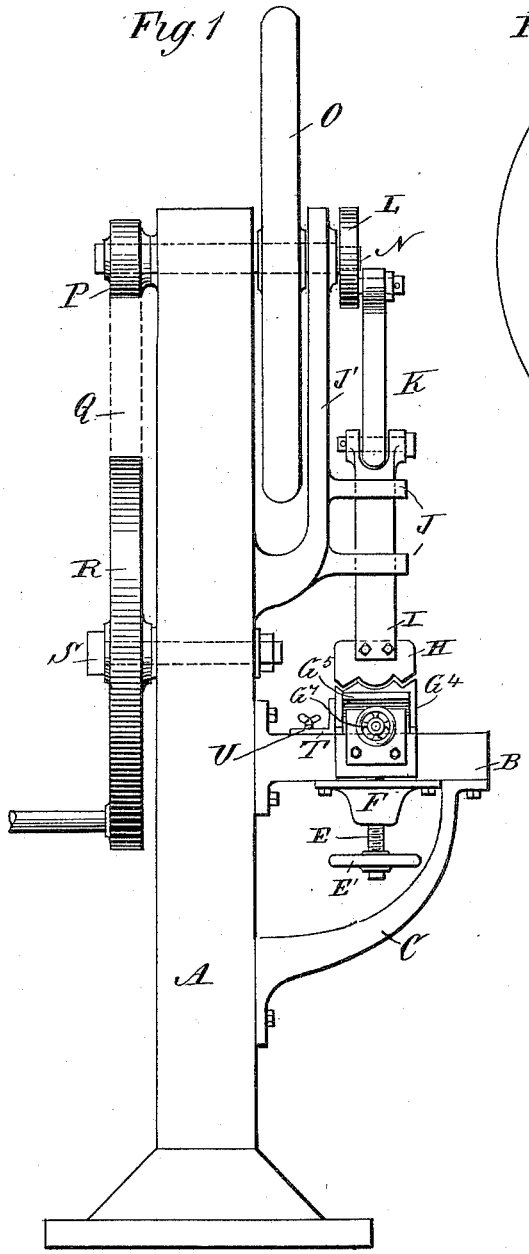
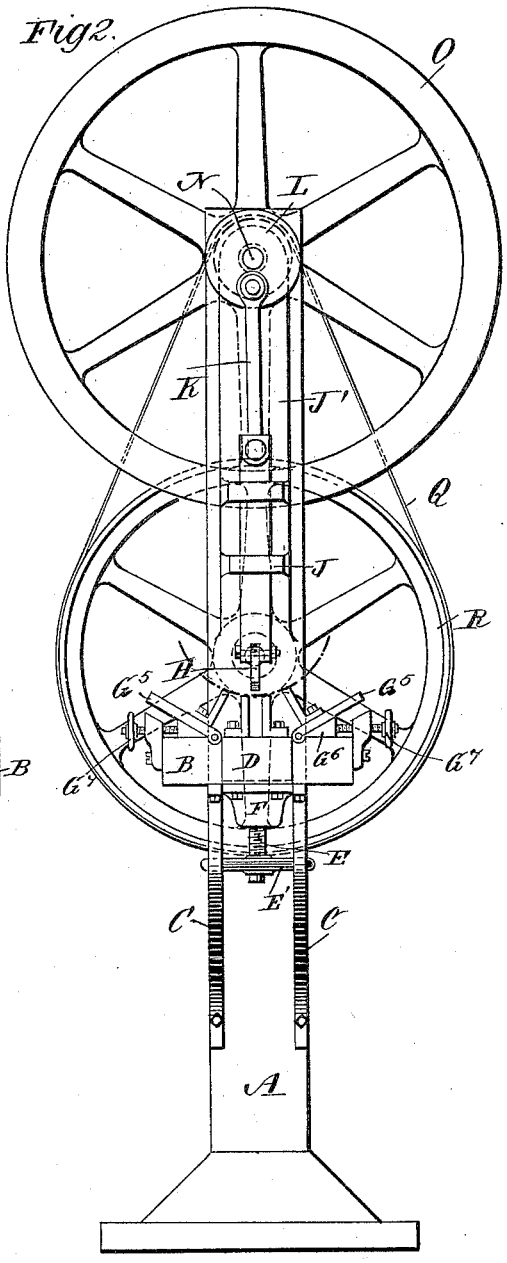


Fig 2.



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(No Model.) 2 Sheets—Sheet 2.

B. J. BALDWIN, Jr.

MACHINE FOR BENDING AND EMBOSSING SHEET METAL.

No. 422,109. Patented Feb. 25, 1890.

Fig. 3.

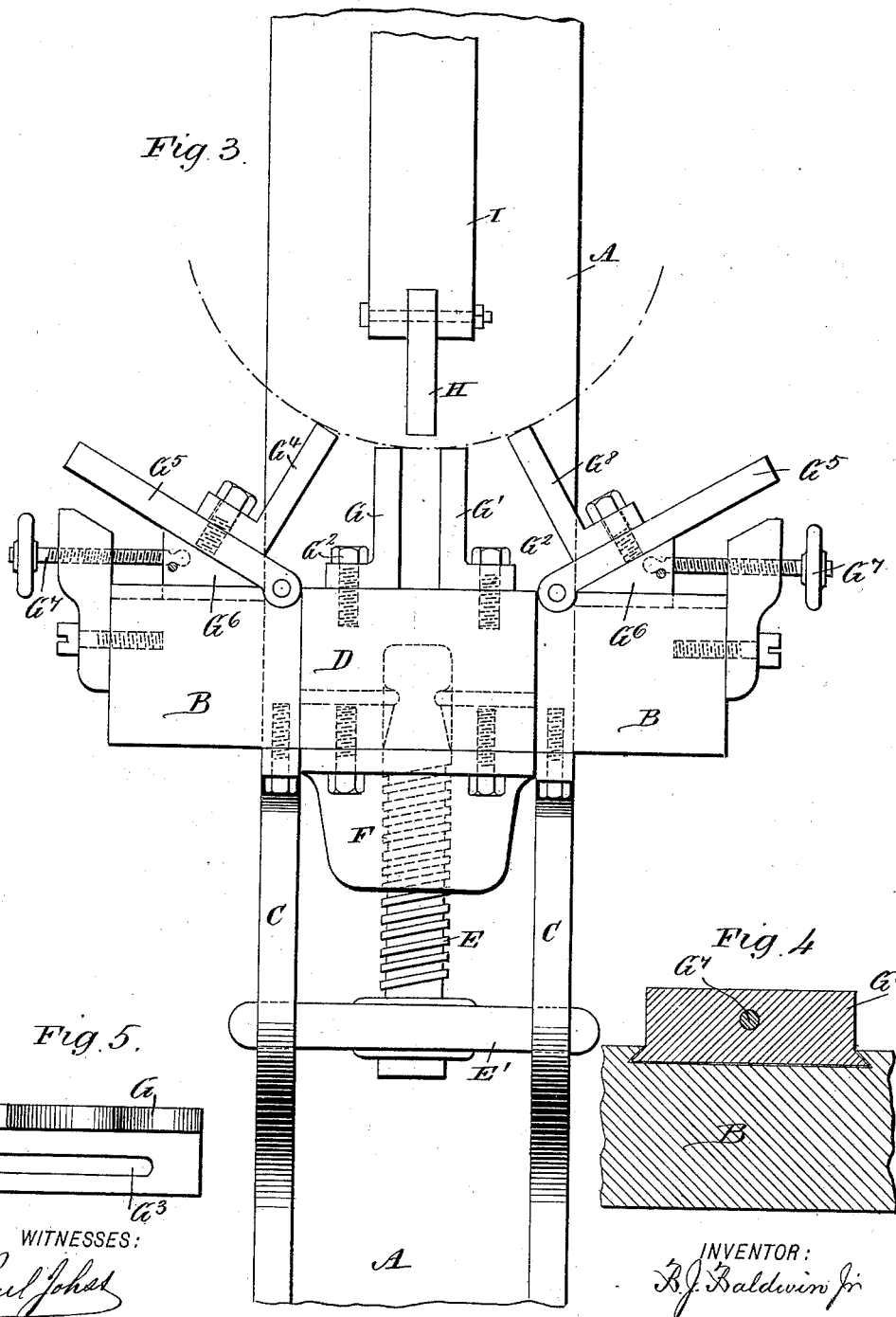

Fig. 4.

Fig. 5.

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BENJAMIN J. BALDWIN, JR., OF PARIS, TEXAS.

MACHINE FOR BENDING AND EMBOSSING SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 422,109, dated February 25, 1890.

Application filed November 18, 1889. Serial No. 330,647. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN J. BALDWIN, Jr., of Paris, in the county of Lamar and State of Texas, have invented a new and Improved Machine for Circle-Molding and Embossing Sheet Metal, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved machine which is simple and durable in construction, very effective in operation, and especially designed for simultaneously curving and embossing sheet-metal plates for use as cornices, metal shingles, &c.

The invention consists of fixed die-plates, of which the outer ones are inclined toward the inner ones, and a reciprocating die operating between the middle or inner fixed die-plates.

The invention also consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement. Fig. 2 is a front view of the same. Fig. 3 is an enlarged front view of part of the improvement. Fig. 4 is a transverse section of the adjusting-wedge and its guideway, and Fig. 5 is an enlarged plan view of one of the fixed dies.

The improved bending and embossing machine is provided with a suitably-constructed frame A, on the front of which is bolted a table B, supported on its outer end by curved brackets C, fastened to the frame A. In the table B is formed an aperture, in which is held vertically adjustable a block D by means of a screw E, screwing in a nut-plate F, fastened to the under side of the table B. On the screw E is secured a hand-wheel E′ for conveniently turning the said screw to raise and lower the block D. The latter supports two transversely-extending flanged and spaced die-plates G and G′, adapted to be moved transversely and secured in place by bolts G^2, passing through slots G^3, formed in the flanges of the said plates. (See Fig. 5.)

On the outer side of the die-plate G is arranged a similar die-plate G^4, inclined toward the plate G by being adjustably secured to a bottom G^5, pivoted to the table B, and resting on a wedge G^6, mounted to slide longitudinally in suitable guideways formed on top of the table B. A screw-rod G^7, screwing a bracket on the table B, serves to move the wedge G^6 longitudinally, so as to raise or lower the bottom G^5 to increase or diminish the inclination of the die-plate G^4 to the die-plate G. On the right-hand side of the die-plate G′ is arranged a die-plate G^8, similar to the die-plate G^4, and mounted in the same manner.

The tops of the die-plates G, G′, G^4, and G^8 are formed into shapes according to the configuration desired to be embossed or pressed on the sheet metal. (See Fig. 1.) The plates G^4 and G^8 are inclined more or less toward the fixed die-plates G and G^8, according to the radius to which the sheet metal is to be bent. When the wedges G^6 are moved outward from the point shown in Fig. 3, the radius to which the sheet metal is bent will increase, and the radius will decrease when the said wedges are moved inward.

Above and between the die-plates G and G′ is adapted to slide a reciprocating die H, having its under side formed to the shape of the upper ends of the plates G and G′. The die H is secured on the slide I, mounted to slide in suitable bearings J, secured on a bracket J′, fastened or formed on the front of the frame A. The upper end of the slide I is pivotally connected by a pitman K with the crank-disk L, secured on the outer end of a transversely-extending shaft N, mounted to turn in suitable bearings formed in the upper end of the frame A and in the bracket J′, previously mentioned. A fly-wheel O is secured on the shaft N between the bracket J, and the frame A, and on the rear end of the said shaft is secured a pulley P, connected by an endless belt Q with the driving-wheel R, mounted to turn on a suitable stud S, held in the frame A. The driving-wheel R may be set in motion by hand or other power. In the rear of the die D is held an adjustable gage-plate T, secured in place on the table B by a set-screw U. The gage-plate T serves as a stop, against which the edge of the sheet

metal being operated upon rests, thereby permitting any given number of pieces of sheet metal being uniformly bent and embossed.

The operation is as follows: When the reciprocating die H is in its lowermost position, it stands a short distance above the upper edges of the die-plates G and G′, the distance between the die H and the projections G and G′ depending on the thickness of the metal to be operated on. When the driving-wheel R is set in motion, it imparts by means of the belt Q and the pulley P a rotary motion to the shaft N, which by its crank-disk L and the pitman K imparts a reciprocating motion to the slide I and the die H. When the latter is moved upward, the operator places the sheet metal to be embossed and bent on the die-plates G^4 and G^8, the rear edge of the sheet metal resting against the guide T. Now when the die H moves downward it presses on the sheet metal and bends the latter downward until the sheet metal passes onto the upper edges of the die-plates G and G′, and thus the metal is bent to the segment of a circle the radius of which can be determined as previously described. At the same time that the metal is bent it is embossed to the configuration of the upper edges of the die-plates G, G′, G^4, and G^8 and the lower edge of the reciprocating die H. Thus it will be seen that the machine accomplishes simultaneously two objects—that is, the curving of the sheet metal and the embossing of the same. As the die-plates G, G′, G^4, and G^8 and the die H are made narrow, as shown in Figs. 2 and 3, no damage is done to the metal during the process of bending and embossing the same. By the employment of two lower dies and an upper die working between the said lower dies the metal is given the desired form without injuring it, as it does not receive a positive anvil blow, there being no solid body below it.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a machine for bending and embossing sheet metal, the combination of two spaced dies, two inclined dies on the outer sides of the spaced dies, and a movable die arranged above and operating between the spaced dies, substantially as described.

2. In a machine for bending and embossing sheet metal, the combination of a movable die, two dies arranged below the movable die and a distance apart a little greater than the thickness of the movable die, and two inclined and adjustable dies, one on the outer side of each of the spaced dies, substantially as herein shown and described.

3. In a machine for bending and embossing sheet metal, the combination, with a reciprocating die made of a thin plate, the lower edge of which is shaped to the design to be embossed, of die-plates having their upper edges formed to the design to be embossed, said upper edges being arranged in the segment of a circle, the said fixed die-plates comprising two middle parallel plates, between which operates the said reciprocating die, and outer plates inclined toward the inner or middle plates, substantially as shown and described.

4. In a machine for bending and embossing sheet metal, the combination, with a reciprocating die made of a thin plate, the lower edge of which is shaped to the design to be embossed, of die-plates having their upper edges formed to the design to be embossed, said upper edges being arranged in the segment of a circle, the said fixed die-plates comprising two middle parallel plates, between which operates the said reciprocating die, outer plates inclined toward the inner or middle plates, and a vertically-adjustable block carrying the said middle die-plates, substantially as shown and described.

5. In a machine for bending and embossing sheet metal, the combination, with a reciprocating die made of a thin plate, the lower edge of which is shaped to the design to be embossed, of die-plates having their upper edges formed to the design to be embossed, said upper edges being arranged in the segment of a circle, the said fixed die-plates comprising two middle parallel plates, between which operates said reciprocating die, outer plates inclined toward the inner or middle plates, and means, substantially as described, for adjusting the said outer die-plates, as set forth.

6. In a machine for bending and embossing sheet metal, the combination, with a frame and a vertically-adjustable block carried thereby, of the spaced die plates G G′, the inclined die-plates G^4 G^8, the die G^4 being on the outer side of the die G and the die G^8 on the outer side of die G′, the movable die H above the dies G G′, and the adjustable gage-plate T, secured to the table in rear of the block D, substantially as herein shown and described.

BENJAMIN J. BALDWIN, JR.

Witnesses:
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D. H. SCOTT.