No. 674,908. Patented May 28, 1901.

H. C. DREISVOGT.

CORNICE BRAKE MACHINE.

(Application filed Nov. 7, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

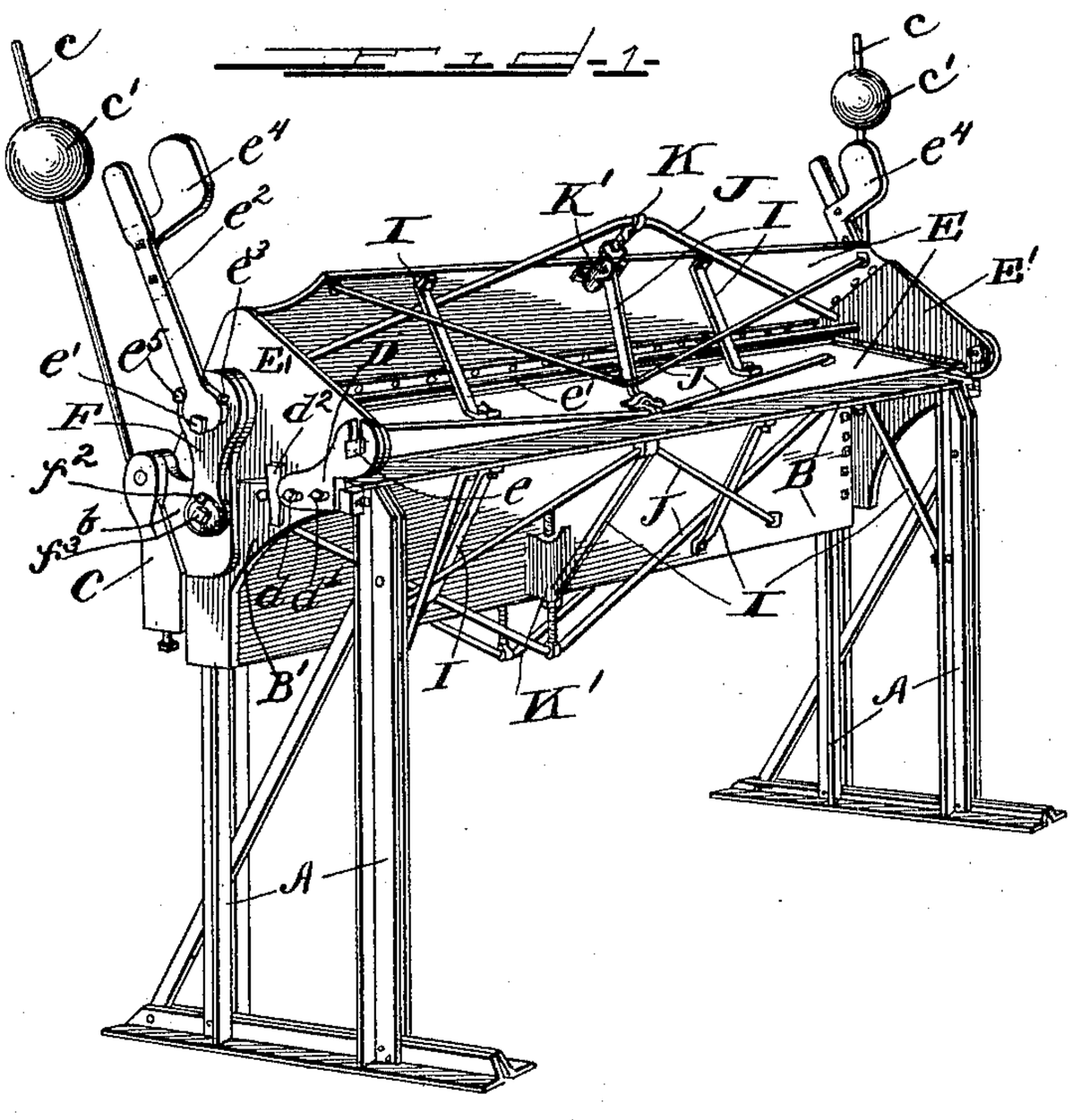
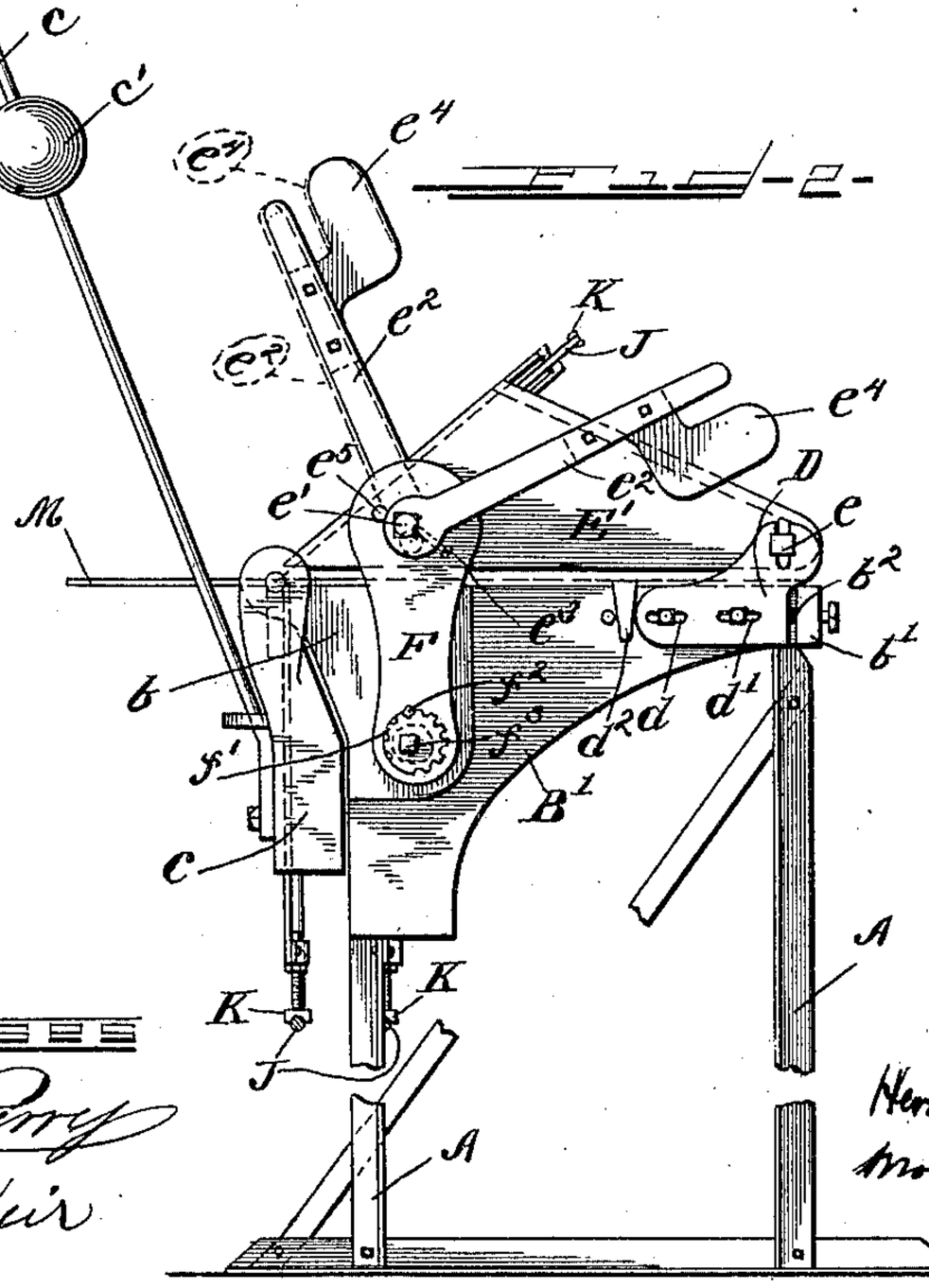


Fig. 2.



Witnesses
Ira D. Perry
J. B. Weir

Inventor
Herman C. Dreisvogt.
by Morgan & Dickinson
Attys

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H. C. DREISVOGT.

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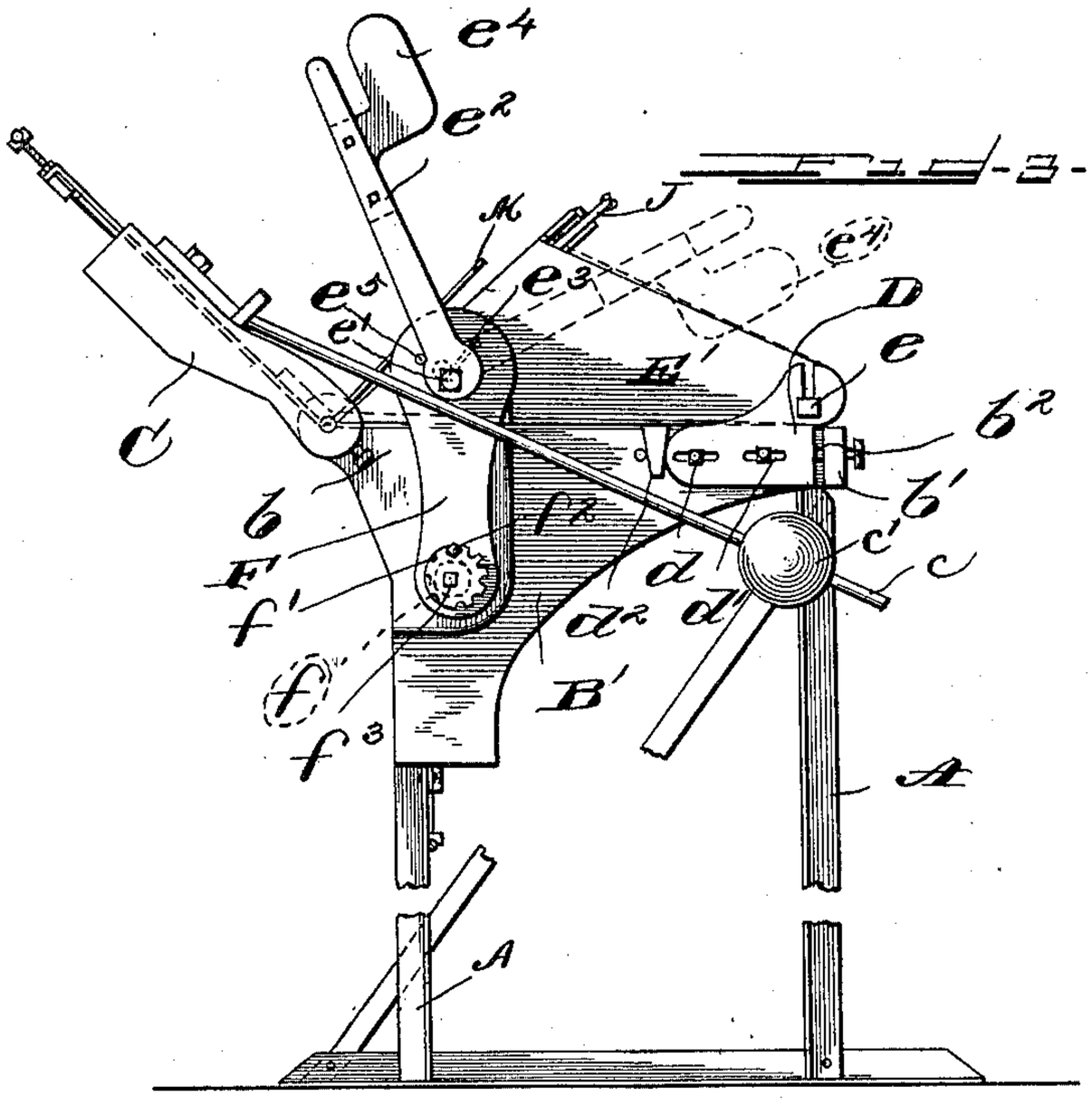

Fig. 3.

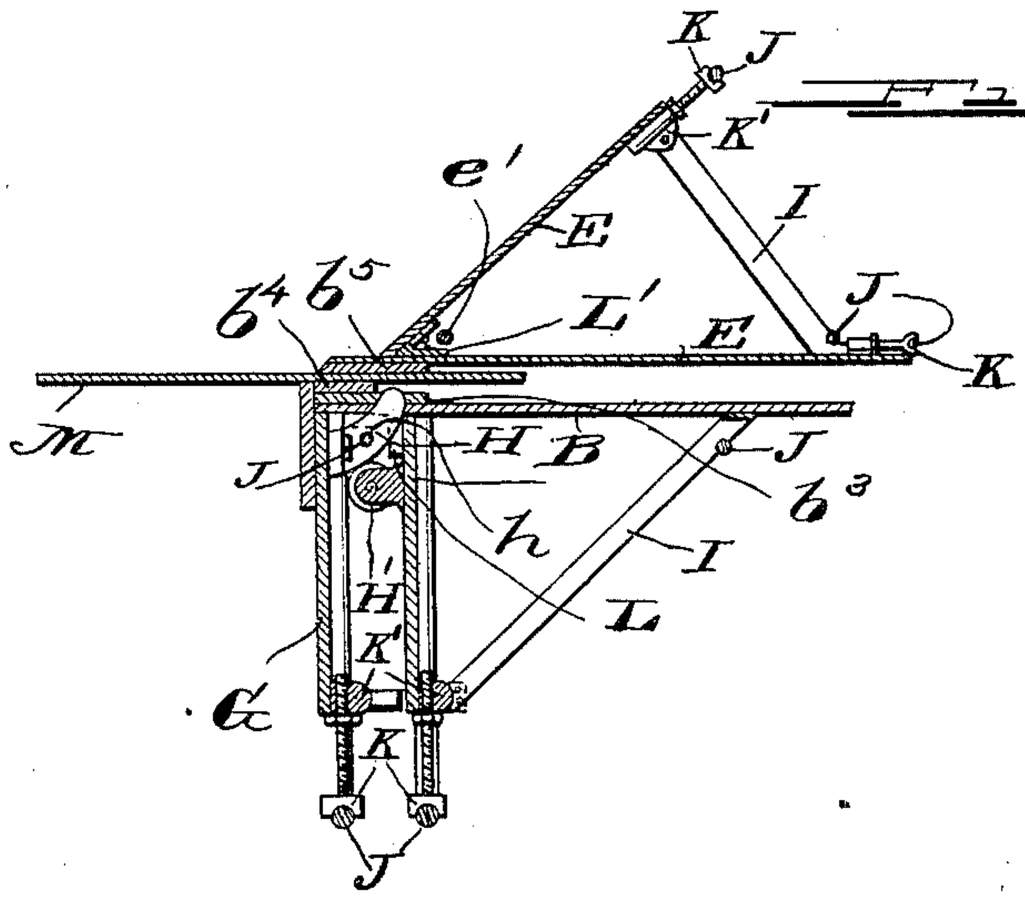

Fig. 4.

Witnesses
Ira D. Perry
J. B. Weir

Inventor
Herman C. Dreisvogt.
by Morgan & Brownstein
Attys

UNITED STATES PATENT OFFICE.

HERMAN C. DREISVOGT, OF CHICAGO, ILLINOIS.

CORNICE-BRAKE MACHINE.

SPECIFICATION forming part of Letters Patent No. 674,908, dated May 28, 1901.

Application filed November 7, 1900. Serial No. 35,742. (No model.)

To all whom it may concern:

Be it known that I, HERMAN C. DREISVOGT, a citizen of the United States, residing at Chicago, in the county of Cook, in the State of Illinois, have invented certain new and useful Improvements in Cornice-Brake Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in that class of machines which are used for bending and curving sheet metal, chiefly for cornice purposes.

The objects of my improvement are to reduce the weight of such machines in order to facilitate their transport from place to place for use on the buildings where cornice and other work is to be put in place, to increase the strength of these machines, to obtain better results in bending maximum lengths and thickness of metal, to enable one man to more easily and surely adjust and bend the metal in the machine, and to materially reduce the initial cost of such machines and the expense of their operation. These objects I attain by the use of steel as the chief material in the construction of the machine and by the methods adopted to secure the requisite strength, reduction in weight, and certainty and ease of operation, as herein set forth and described, reference being had by letters to the drawings, which are part of this specification, in which—

Figure 1 is a perspective end and rear elevation of my improved machine. Figs. 2 and 3 are end views. Fig. 4 is a transverse sectional elevation through the line 1 1 in Fig. 1.

Similar reference-letters refer to similar parts in each of the views.

Both ends of the machine are symmetrically the same.

A is an arrangement of steel angle-bars bolted and braced as shown, forming the legs and feet of the machine.

B is the table, and B′ represents end pieces of the table. These ends are extended at *b* to form parts of a hinge and are also extended at *b′* and turned to form lugs to receive the set-screws b^2.

C represents parts of the hinge by which the apron, hereinafter described, is attached to the end of the table B at *b*. To these parts of the hinge the operating and balance levers *c* and weights *c′* are attached.

D represents pivot-arms, attached to the table ends B′ by the tap-screws *d*. The elongated holes *d′* in D, through which these screws pass, allow the lateral adjustment of these arms by the set-screws b^2 and the wedges d^2. The slotted ends of the arms D carry the pivots of the platen of the machine, hereinafter described.

E is the platen.

E′ represents pieces forming the ends of the platen. These ends bear pivotal studs *e*, which pivot and slide in the slotted ends of the arms D. The shaft *e′* passes through these ends E′ and forms pivotal connections between the platen and the operating-levers e^2. On each of these levers where they fit on the shaft *e′* there is an eccentric boss which fits into the links hereinafter described. The set-screws e^3 or their mechanical equivalent are used whenever it is desirable to move the levers and shaft together. The release of the set-screw in either lever makes the shaft a pivot for the released lever for the purpose hereinafter described.

e^4 represents balance-weights.

F represents links connecting the table B and platen E. In the lower end of each link is a bushing *f*, (shown by the dotted line in Figs. 2 and 3,) having an outside flange *f′*, in which there are a series of notches arranged to engage a lock-pin f^2. These bushings are pierced eccentrically to fit on the studs f^3. The revolving movements of these bushings adjust the length of these links and they are locked in the position desired by the lock-pin f^2.

G in Fig. 4 is an apron hinged to the table ends B′ by the hinge C.

H in Fig. 4 is a quadrantal bracket affixed to the apron and supported by the roller H′.

I represents steel braces.

J represents steel truss-rods.

K represents extension truss-rod bolts. K′ represents bosses holding said bolts.

L is a steel angle-bar joining the steel plates of the table B.

L′ is a steel angle-bar joining the steel plates of the platen E.

M is a piece of sheet metal in position in the machine for bending in Fig. 4 and bent in Fig. 3.

The manner in which I construct my improved machine is as follows: The legs A of the machine are constructed of steel angle-bars, bolted and braced together and to the table, as shown in Fig. 1. The table B is formed of two steel plates placed together, as shown in Fig. 4, and riveted together at their outer angle by an angle-bar L, placed longitudinally and shown in section in Fig. 4. These two plates are held at right angles by the three steel braces I, as shown in Figs. 1 and 4. The plates are further supported and stiffened by the two truss-rods, also shown in Figs. 1 and 4. The ends B′ are affixed to the plates by suitable bolts or rivets. The table is strengthened by a narrow steel plate,(shown at b^3, Fig. 4,) on which is placed a steel jaw b^4, attached by dowel-pins or other suitable means and made in one or a number of lengths. The table and plate b^3 are pierced to allow the point of the quadrantal bracket H to pass through, as shown in Fig. 4. The roller-bearing H′ is affixed to the vertical front of the table B for the support of the quadrantal bracket H. The platen E is also constructed of two plates of steel, set at an acute angle and joined by a steel angle-bar L′, riveted on the inside angle of the two plates and braced and trussed, as shown in Figs. 1 and 4. The extension of the horizontal plate (shown in section at b^5, Fig. 4) is strengthened to form the upper jaw by a narrow steel plate. The ends E′ of the platen E are riveted or bolted to the two steel plates and are pierced for the bearings for the shaft e', as shown in Fig. 1, and are provided with pivotal studs e to engage in the arms D on the table ends B′. In the bracing and trussing of both the table and platen the central braces are set edgewise. Each one is recessed near one end to hold the truss-rods, as shown in Fig. 1. These truss-rods, which are not shown to be adjusted by tension-bolts, are held by suitable holdfasts and adjustable nuts on the ends of the rods. The apron G is constructed of two steel plates riveted together, as shown in Fig. 4. The hinges C are riveted or bolted to these two plates. The apron is trussed with two truss-rods, as shown in Fig. 4, the bracket H forming the center support of one of these truss-rods, as shown at h, Fig. 4. The quadrantal bracket H, arranged to bear and move on the roller H′, is a further support for the apron and prevents sagging in the center when heavy metal is being bent. The links F are pierced with holes to receive the bushings f and the boss on the end of the platen-levers e^2. The lower end of the links is held in connection with the table B by the bushings f, which pivot eccentrically on the studs f^3. The upper ends of the links are held on the bosses of the levers e^2, which are held on the shaft e', the bosses forming eccentrics on said shaft.

The several parts thus constructed and connected are adjusted and operated as follows: The front line of the jaw b^5 in Fig. 4, affixed to the platen E, is moved forward or backward, according to the thickness of the metal to be bent, and is set in parallel line with the top edge of the apron by moving the pivot-arms D by means of the set-screws b^2 and the wedges d^2. The bushings f are turned to raise or lower the minimum height of the upper jaw b^5 above the lower jaw b^4 to suit the thickness of metal and the pressure needed to hold it while being bent. The bushings are then locked by the lock-pin f^2 and flange f'. The alinement and height of the jaw of the platen being thus adjusted, the levers e^2, being first firmly affixed to the shaft e' by the set-screws e^3, are thrown backward. By this movement the shaft e' is raised, carrying with it the front of the platen E, as shown by the dotted line in Fig. 3, the rear of the platen being held by the pivot-studs e, which during this movement rest at the bottom of the slots in the arms D and act as fixed pivots. The metal to be bent being inserted between the jaws b^4 and b^5, the levers e^2 are drawn forward to the position shown in Figs. 1 and 3, the forward movement of the levers being stopped by the stop-pins e^5, Figs. 1, 2, and 3. This movement brings the jaw of the platen down on the metal, as shown in Fig. 4. The eccentric movements of the lever-bosses in the links F lock the jaw in its position till the levers are pushed backward. The metal being thus secured between the jaws, the operating-levers c on the apron-hinges C are drawn over to the position shown in Fig. 3 or to some intermediate point between the positions shown in Figs. 2 and 3, according to the curve desired in the metal operated on.

The movements here described explain the operation of the machine when the metal operated on is heavy and requires great pressure to bend it or when two or more persons are operating the machine. For different metal and purposes the machine can be operated entirely by one person from one or both ends of the machine, as follows: The set-screw e^3 in either of the levers e^2 is released from contact with the shaft e', the lever released being free to turn on the shaft. One of the levers e^2 is then drawn forward to the position in which the platen is forced down, and while the jaws are closed and locked at that end the other lever may be then thrown back, with the levers in the positions here described and shown in Fig. 2. The end of the machine in view is open, while the other end (not shown) is closed and locked, as indicated by the lever which is in the forward position, as shown in Figs. 1, 2, and 3. When the parts are thus adjusted and one end of the platen is closed and locked, the movement of the platen at its free end is vertical, the pivoted stud rising and lowering in the slotted pivot-arm D as the lever e^2 at the same end of the machine is moved from left to right and right

to left, as shown by the dotted lines in Fig. 2. During these movements the locked end of the machine acts as the joint of a hinge, the transverse face of the platen remaining parallel with the face of the table. By inserting a strip of metal (the same thickness as that which is to be bent) between the jaws close to the end which is to be closed and locked the jaws are brought parallel by the closing movement of the operated lever at the free end of the machine. This construction and adjustment enables one man to operate the machine at one end or alternately at both ends. Also the longest sheets of metal may be adjusted and clamped securely at one end, and thus be held in position while the other end is being adjusted and clamped.

In adjusting the machine for bending long heavy sheets of metal the tension on the truss-rods may be so increased as to give the table and platen, together with the jaws of the machine, a slightly-convex form, so that at the point of greatest pressure the spring of the jaws will not be carried past a straight line, which it is so essential to have in this class of work in long bends.

Having thus described and illustrated my improved cornice-brake machine, so that any one skilled in the art may understand and construct it, I hereby reserve the right to such variations in construction as are equivalent to the mechanism and methods I have herein described and set forth and for which

I claim Letters Patent as follows:

1. The combination in a cornice-brake machine of a table constructed of two main plates, said plates being joined longitudinally and at right angles to each other, and braced transversely, a central transverse brace having a recess near its connection with the horizontal plate of said table, a rod attached at its ends to the lower corners of the vertical plate of said table, the center of said rod being held in the recess of the said central brace, with means for adjusting the pressure of said rod, and producing an adjustable elastic convex form of the top of said table; and a platen constructed of two main plates joined longitudinally and at an acute angle to each other, and braced transversely; a central transverse brace having a recess near its connection with the horizontal plate of said platen; a rod attached at its ends to the upper corners of the vertically-inclined plate of said platen, with means for adjusting the pressure of said rod and producing an adjustable elastic convex form of the under side of the horizontal plate of said platen; means for connecting the said table and platen and for adjusting and operating the said platen; and an apron constructed and attached to said table, and means for operating the same, substantially as set forth, described, and for the purposes specified.

2. The combination in a cornice-brake machine of a table and platen constructed as set forth, with the links F having eccentric bushings f for adjusting the length of said links and being pivotally attached to the table by the studs f^3 and to the platen by the eccentric-levers e^2 on the shaft e' by which means the platen is connected to the table and operated as described and for the purposes specified.

3. The combination in a cornice-brake machine of a table and platen constructed as described, with the arms D attached to said table by the tap-nuts d passing through the holes d', said arms being adjusted laterally and locked in position by the wedges d^2 and set-screws e^3, the pivotal studs e in said platen resting in said arms, by which means the platen is adjusted and held, as described and for the purposes specified.

4. The combination in a cornice-brake machine, of a table having a bracket and a roller H′ pivoted therein, with a bending-apron having a quadrantal bracket arranged to operate on said roller and constructed as specified and shown, and for the purposes set forth.

HERMAN C. DREISVOGT.

Witnesses:

JOSEPH STAAB,

JULIUS RUBINSTEIN.