

(No Model.)

2 Sheets—Sheet 1.

C. C. McNUTT, Jr.
PRESS FOR SHEET METAL.

No. 585,923.

Patented July 6, 1897.

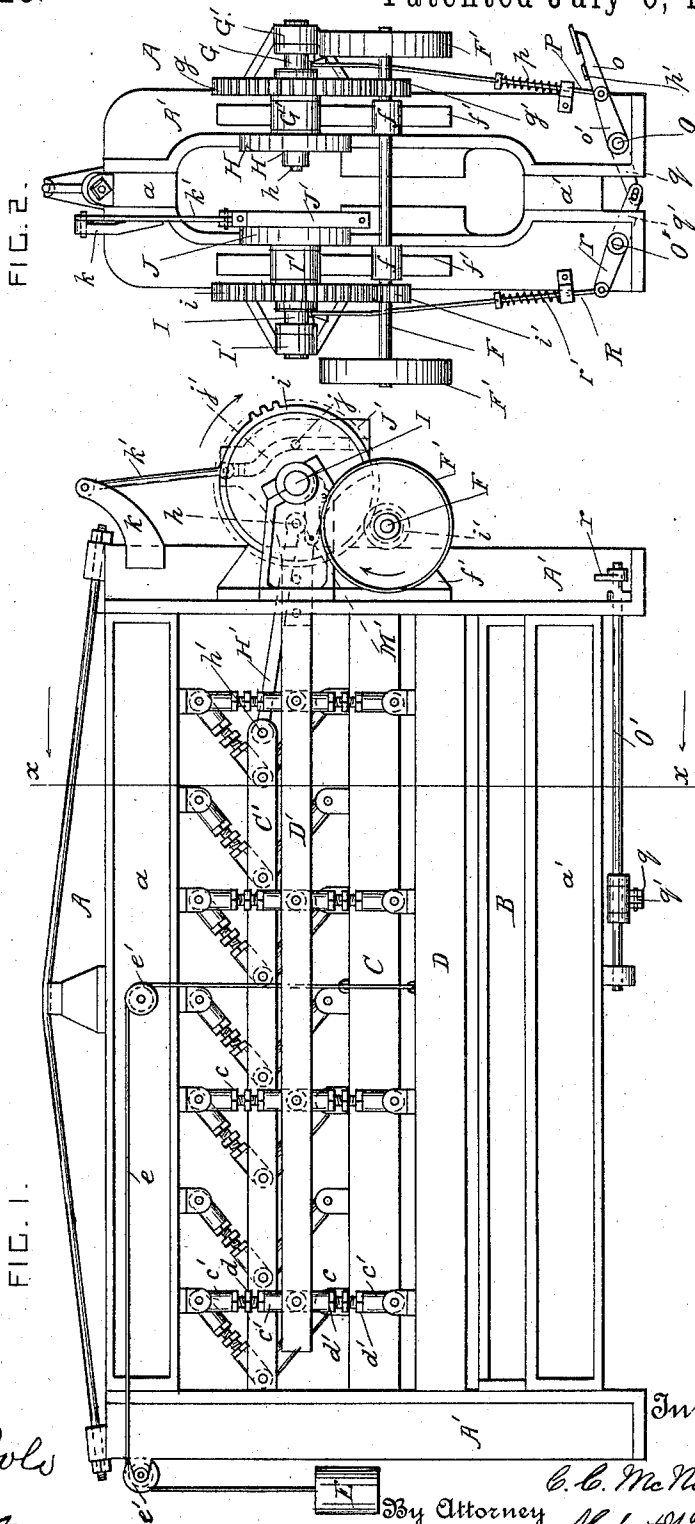
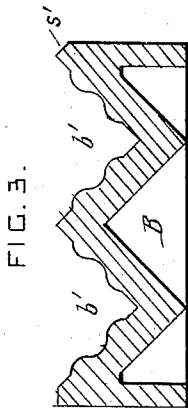


FIG. 2.

FIG. 1.

Witnesses
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Inventor.

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By Attorney *Robert M. Jenner.*

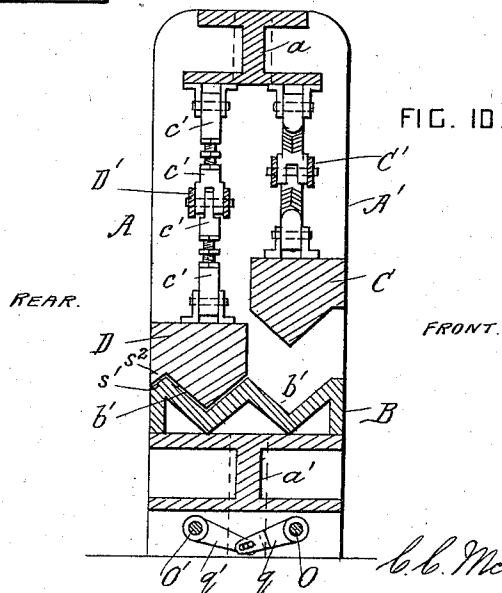
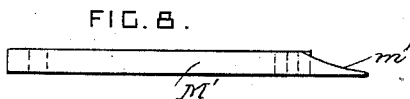
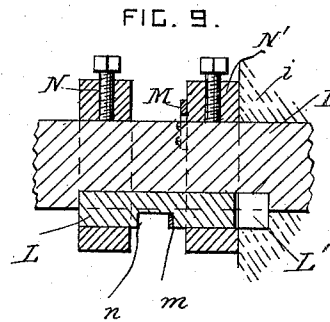
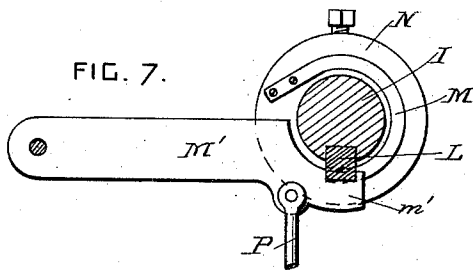
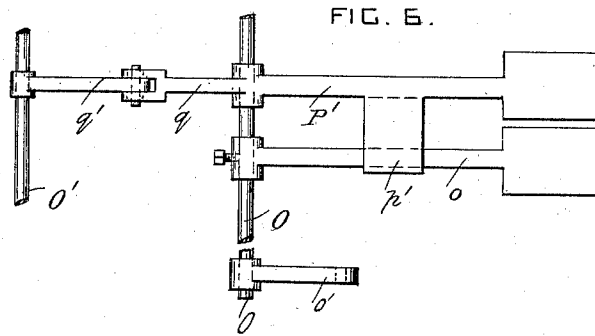
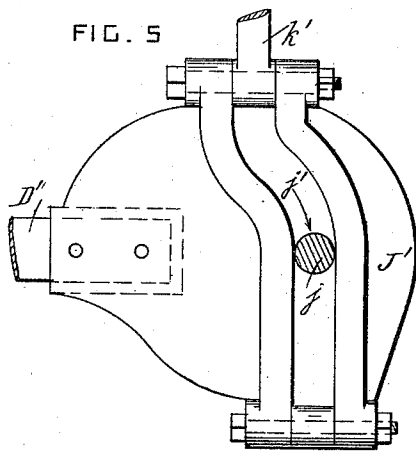
(No Model.)

2 Sheets—Sheet 2.

C. C. McNUTT, Jr.
PRESS FOR SHEET METAL.

No. 585,923.

Patented July 6, 1897.



Witnesses

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By Attorney

Robert W. Jenner.

UNITED STATES PATENT OFFICE.

CORNELIUS C. McNUTT, JR., OF WARREN, OHIO, ASSIGNOR TO THE YOUNGSTOWN IRON AND STEEL ROOFING COMPANY, OF YOUNGSTOWN, OHIO.

PRESS FOR SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 585,923, dated July 6, 1897.

Application filed January 11, 1897. Serial No. 618,760. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS C. McNUTT, Jr., a citizen of the United States, residing at Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Presses for Sheet Metal; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to presses for sheet metal; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a rear view of the press, showing the rear plunger depressed and the front plunger raised. Fig. 2 is an end view of the press. Fig. 3 is a cross-section through the die. Fig. 4 is a cross-section of a sheet-metal floor-plate such as made in the press. Fig. 5 is a detail view of the cam which operates the rear plunger. Fig. 6 is a detail plan view of the treadles. Fig. 7 is a detail side view of one of the trip-levers. Fig. 8 is a plan view of the same. Fig. 9 is a detail sectional view showing the feather-key operated by the trip-lever and the parts connected with it. Fig. 10 is a cross-section taken on the line *x x* in Fig. 1.

A is the frame of the machine, comprising uprights A', a top cross-piece *a*, and a bottom cross-piece *a'*.

B is the die, which rests on the bottom cross-piece.

B' is a floor-plate such as made by the machine. This floor-plate has two or more similar channels *b*, and the sides of the channels are corrugated. The die B has two similar channels *b'*, corresponding with the under side of the floor-plate.

C is the front plunger, and D is the rear plunger. These plungers are arranged over the respective channels of the die. The plungers are shaped so that they may press the floor-plate to the desired form. The plungers slide between the uprights and are guided vertically by them.

C' is a horizontal bar for operating the front plunger, and D' is a horizontal bar for operating the rear plunger. Similar toggle levers

or links *c* are pivoted to the bars C' and D' and to the top cross-piece *a* and the respective plungers in series, as shown in the drawings. These toggle-links are preferably adjustable in length, each link consisting of two end pieces *c'*, coupled together by a right and left hand screw *d*. The jam-nuts *d'* are provided to prevent the screws *d* from revolving after the lengths of the links have been adjusted.

E is a counterweight for balancing the weight of the rear plunger D and the parts connected to it, and the front plunger can be balanced in a similar manner, if desired. The counterweight E is connected to the plunger D by a flexible connection *e*, passing over pulleys *e'*, journaled on pins projecting from the frame.

The plungers are depressed by moving the bars C' and D' longitudinally to the right in Fig. 1.

F is the driving-shaft of the press, provided with one or more driving-pulleys F'. This shaft is journaled in bearings *f*, formed on brackets *f'*, which are secured to one end of the frame. The driving-shaft F is revolved continuously in the direction of the arrow in Fig. 1.

G is a shaft journaled in bearings G', carried by the frame, and *g* is a toothed wheel which is journaled on the shaft G and which gears into a toothed pinion *g'*, secured on the shaft F.

H is a crank-plate which is secured on the shaft G and is provided with a crank-pin *h*.

H' is a connecting-rod pivotally connecting the crank-pin *h* with a pin *h'* at the end portion of the bar C', which operates the front plunger.

The toothed wheel *g* is connected to the shaft G by clutch mechanism which will be more fully described hereinafter.

I is a shaft journaled in bearings I', carried by the frame, and *i* is a toothed wheel which is journaled on the shaft I and which gears into a toothed pinion *i'*, secured on the shaft F.

J is a crank-plate secured on the shaft I and provided with a crank-pin *j*.

J' is a cam provided with a groove, one portion *j'* of which is concentric with the

shaft I when the cam is moved to its farthest extent away from the press.

The cam J' is secured to the end portion of the bar D', which operates the rear plunger. The cam J' is suspended from a bracket *k* on the upper part of the frame by a rod *k'*. The crank-pin *j* engages with the cam-groove and moves the said cam and bar back and forth.

The toothed wheel *i* is connected to the shaft I by clutch mechanism which is similar to that used for connecting the toothed wheel *g* to the shaft G. Any approved clutch mechanism may be used, but slidable feather-keys are preferably used.

L is a slidable feather-key engaging with a groove in the shaft I and adapted to be slid into and out of engagement with a notch L' in the hub of the wheel *i*. The shaft G is provided with a similar feather-key for engaging with the wheel *g*, and both feather-keys have similar means for operating them.

M is a spring secured to the hub of the wheel and bearing against a shoulder *m* on the key L. This spring normally holds the key in engagement with the notch L'.

M' is a trip-lever pivoted at one end to the frame and provided with a wedge-shaped portion *m'* at its other end for bearing against a shoulder *n* on the feather-key. The shoulders *m* and *n* are the opposite sides of a notch cut in the feather-key.

N and N' are collars secured to the shaft by set-screws and provided with guide-grooves for the feather-key to slide in.

O is a treadle-shaft journaled in the lower part of the frame at the front of the press, and O' is a similar shaft journaled in the frame at the rear of the press. A treadle *o* is secured upon the shaft O, and an arm *o'* is secured to the end portion of the shaft O outside the frame.

P is a trip-rod pivoted to the arm *o'* and to the trip-lever M', pertaining to the wheel *g*. A spring *p* is provided for holding the rod and trip-lever in their raised positions.

A second treadle P' is journaled on the shaft O and is provided with a lug *p'*, which projects over the treadle *o*. An arm *q* projects from the treadle P' and is pivotally connected with an arm *q'*, which is secured on the shaft O'. An arm *r* is secured to the projecting portion of the shaft O' outside the frame, and R is a trip-rod pivoted to the arm *r* and to the trip-lever M, which pertains to the wheel *i*. A spring *r'* is provided for raising the rod R.

The front plunger is operated by depressing the treadle *o*, and both plungers are operated by depressing the treadle P'.

When the trip-levers are depressed, the feather-keys are moved into engagement with the notches in the wheel-hubs by the springs M, the notches being beveled on one side to permit the feather-keys to enter them easily.

When the front plunger is pressed down on a sheet of metal, it indents it and forms the

first channel *b*. The front plunger does not form the joint-flange *s*, because in order to form the angle *t* between the two channels *b* it is essential that the two plungers work close together, and there is no room on the rear side of the front plunger for the projection *s*² necessary to form the flange *s*. The rear plunger is raised and stationary while the front plunger is making its downstroke and being raised again. Both plungers are then depressed simultaneously by depressing the treadle P'. The rear plunger reaches the bottom of its stroke in advance of the front plunger, forms the joint-flange *s* upon the beveled rear edge *s'* of the die, and clamps the plate while the front plunger is forming the second channel in the plate. The rear plunger prevents the distortion of the plate while the front plunger is forming the second channel. A third channel can be formed in a similar manner to the second, if desired.

What I claim is—

1. In a sheet-metal press, the combination, with two plungers arranged side by side, of a crank and intermediate connections for operating one plunger, a cam and intermediate connections for operating the other plunger said cam having a portion of its groove concentric with its axis, driving devices, and separate clutch mechanisms operatively connecting the said crank and cam with the said driving devices and permitting them to be actuated simultaneously or separately, substantially as set forth.

2. In a sheet-metal press, the combination, with a frame, a plunger slidable therein, a horizontal bar, and toggle links or levers pivotally connecting the said bar with the said plunger and frame; of a cam secured to one end of the said bar, a link pivotally supporting the said cam from the upper part of the said frame, and a crank-plate provided with a crank-pin for operating the said cam, substantially as set forth.

3. In a sheet-metal press, the combination, with two plungers arranged side by side, and separate driving mechanisms for operating the said plungers; of a single driving-shaft, toothed wheels for connecting each said driving mechanism with the said driving-shaft, clutch mechanisms for connecting the respective driving mechanisms with the respective toothed wheels pertaining to them, and lever mechanism operating to move the said clutch mechanisms separately or simultaneously, substantially as set forth.

4. In a sheet-metal press, the combination, with two plungers arranged side by side, and driving devices provided with separate clutch mechanisms whereby the plungers may be operated simultaneously or one at a time; of two treadle-shafts, connections arranged between the said shafts and clutch mechanisms respectively, a treadle secured on one of the said shafts, a second treadle journaled on the same shaft and provided with a projecting arm and a lug overlapping the other said

treadle, and an arm secured on the other said shaft and pivotally connected with the aforesaid arm, substantially as set forth.

5 5. In a sheet-metal press, the combination, with a single frame, and a front and a rear plunger slidable in the said frame, of separate driving mechanisms operating to actuate the said plungers separately or simultane-
10 ously, and a die provided with a channel under each plunger, and having an angle be-

tween the said channels, and a beveled portion on its rear edge for forming a joint-flange when the rear plunger is depressed, substantially as set forth.

In testimony whereof I affix my signature 15
in presence of two witnesses.

CORNELIUS C. McNUTT, JR.

Witnesses:

JOHN O. PEW,
J. MASON EVANS.