No. 744,891. PATENTED NOV. 24, 1903.

J. B. ALLEN.

PERFORATING AND ROUND CORNERING MACHINE.

APPLICATION FILED JUNE 6, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

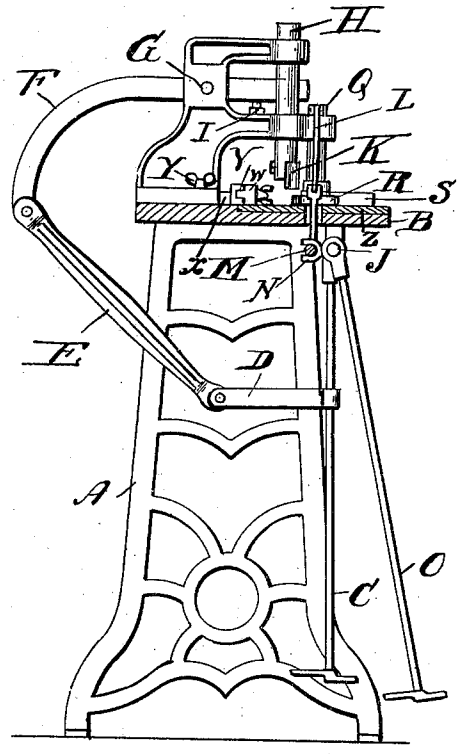
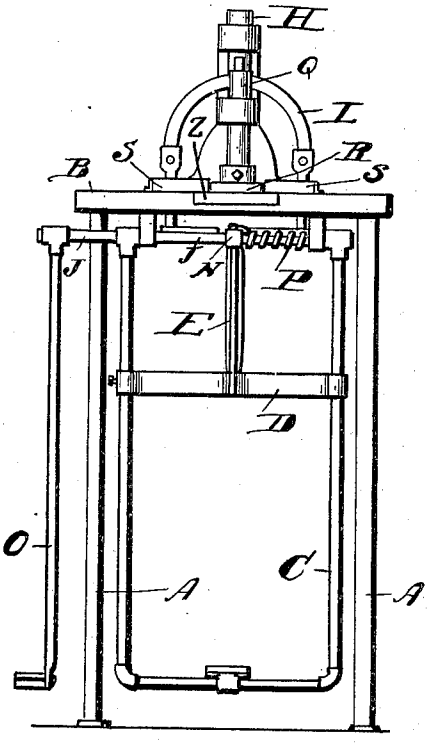


Fig. 2.



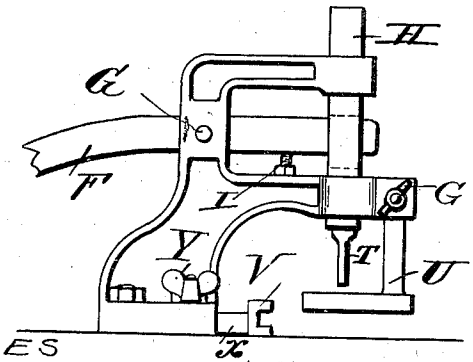


Fig. 4.

WITNESSES

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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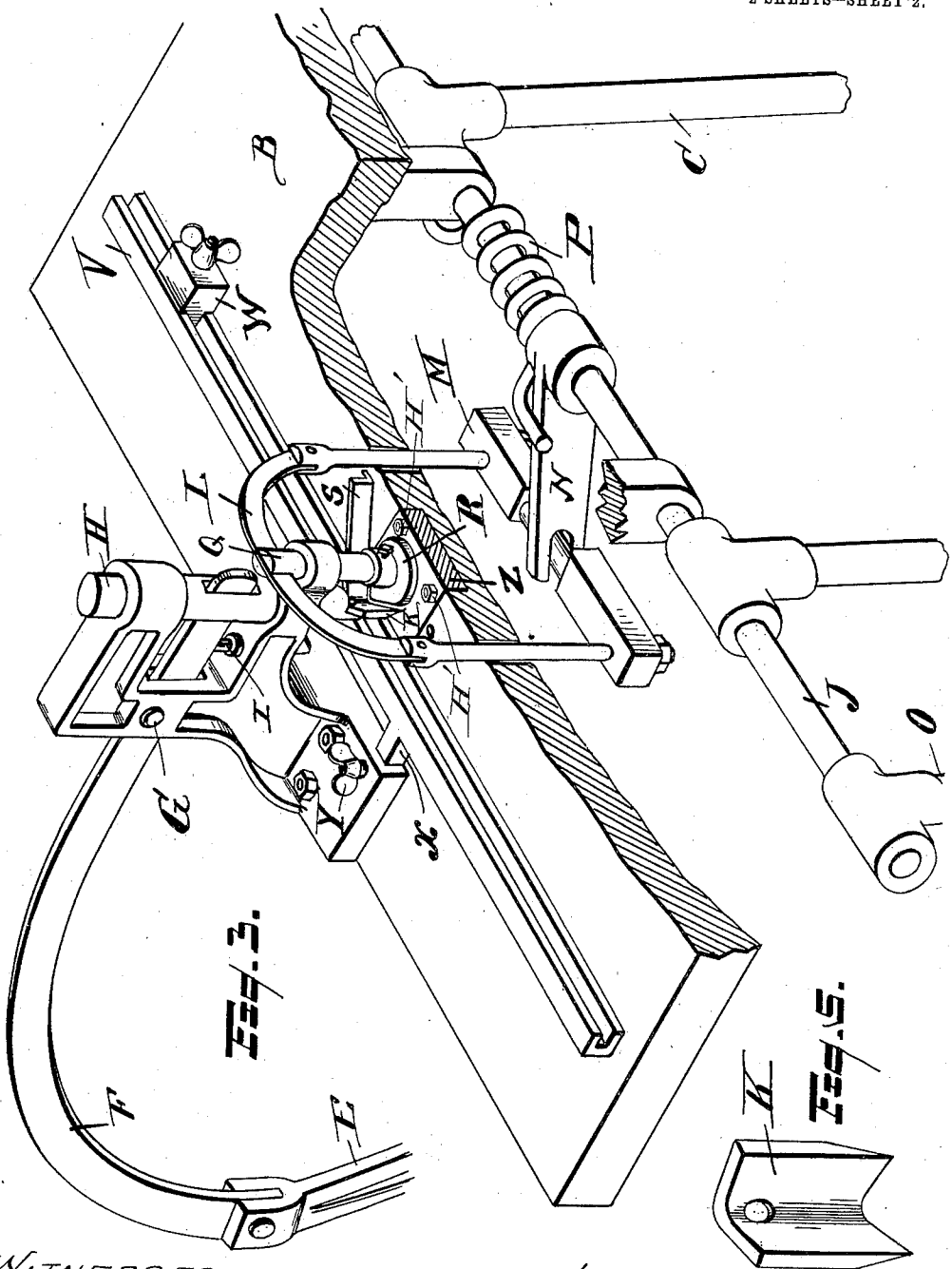


Fig. 3.

Fig. 5.

WITNESSES

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No. 744,891. Patented November 24, 1903.

UNITED STATES PATENT OFFICE.

JAMES B. ALLEN, OF DETROIT, MICHIGAN.

PERFORATING AND ROUND-CORNERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 744,891, dated November 24, 1903.

Application filed June 6, 1903. Serial No. 160,318. (No model.)

To all whom it may concern:

Be it known that I, JAMES BENJAMIN ALLEN, of the city of Detroit, in the State of Michigan, have invented certain new and useful Improvements in Perforating and Round-Cornering Machines; and I do declare the following to be a full, clear, and exact description of my said invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in perforating and round-cornering machines; and its object is to provide a foot-power machine the operating-levers of which are so arranged as to give a maximum amount of power with an expenditure of a minimum amount of force and to combine in one machine the advantages of round-cornering and perforating machines.

One object of this invention is to provide a machine in which the corners of paper can be cut at any angle or size by the changing merely of knives, so that by an easy and quick readjustment the round-cornering knives may be removed and punches and dies of different size and varied shapes inserted. The foot-levers are also so arranged that the paper may be compressed by one foot when round-cornering and the knife operated easily with a minimum expenditure of power by the other foot at the same time. The use of the kicking motion of the foot forward to operate the lever takes advantage of the strongest muscles of the leg being used at the moment when the greatest force is needed to make a quick and powerful incision without burring or crumpling the paper.

Figure I is a side view of the machine with a supporting-leg of the frame removed, showing the U-shaped compressor-bar and round-cornering knives affixed to the machine. Fig. II is a front view of the said machine. Fig. III is a detailed view of the main operating parts of the machine with part of the operating-table broken away to show the parts hidden thereby. Fig. IV is a side view of the machine, showing the punch and stripper ready for operation. Fig. V is a detailed view of one of the round-cornering knives.

In the drawings, A is one leg of the supporting-frame; B, the table thereon.

C is an inside lever with foot-treadle attached working upon the rock-shaft J and having attached thereto the vertically-adjustable bracket D.

E and F are the two levers which operate the sliding bar H, the said lever F being fulcrumed at the point G in the upper frame, the sliding bar H working in two engaging slots in the said upper frame.

I is an adjustable stop for preventing the forward end of the lever F driving the knife or punch too far into the die.

K is one of the round-cornering knives.

L shows the compressor-bar, working in slots in the table and being attached to the horizontal bar M, which is operated by the rock-arm N, which is itself attached to the rock-shaft J and is operated when round-cornering by the outside lever with foot-treadle attached at O. The helical spring P engages a projection upon the supporting-frame A and therefore tends to press the rock-arm downward.

Q is a vertical sliding bar attached to the U-shaped compressor-bar, to which is attached the compressor-foot R.

S S are two gages used with the round-cornering machine at right angles to one another attached to the table by set-screws and so arranged that their sides are an extension of the sides of the round-cornering knives.

T is a punch for perforating.

U is a stripper used for preventing the rising of the paper upon the return motion of the sliding bar H with the punch T.

Stripper U is adjusted by means of the set-screw G'.

V is a long gage used in punching. W is a small gage working in a slot in said long gage and at right angles thereto. The said long gage V is adapted by the gages X, working in slots in the upper frame, to be adjusted to any position desired by means of set-screws Y Y.

The compressor-foot R is so designed that it will come as close as possible to the round-cornering knife when in operation, so as to prevent the sliding of the paper during the passing of the knife through it and also to prevent burring of the edges of the paper.

Z is a slot in the table, in which are inserted different shapes of dies when perforating and a wooden blank for use with the round-cor-

nering knives. The said dies are secured in place by two set-screws H' H'.

In operation the round-cornering knives are affixed to the sliding bar H by a set-screw or other suitable means. The U-shaped compressor-bar is passed through slots in the table and attached to the horizontal bar M by means of the nuts on the lower side of said bar adapted therefor. The compressor-foot R is attached to that part of the compressor-bar which works in a slot in the frame, and the gages S S are set in position so that their lines are an extension of the sides of the round-cornering knives and the edges of the paper may rise against their sides. The left foot then presses the lever O, raising the compressor-bar during the insertion of the paper. The foot is then brought forward, forcing down the said compressor-foot and keeping the paper in place. The lever C is then rapidly pushed forward, operating the levers and the sliding bar H and bringing down the round-cornering knife K with great force and removing the corners of the paper. The helical spring P is also so adapted that there is no necessity to hold the treadle O forward to keep the compressor-foot and paper in place. As soon as it is adjusted the spring holds the compressor-bar during the operation of the treadle C.

In operating the machine as a punch the nuts on the lower side of the compressor-bar M are removed, and the U-shaped compressor-bar L and the compressor-foot R and the horizontal bar M are also removed, together with the gages S S. The stripper-foot U and the punch T are then adjusted in their positions and also the proper die in the slot Z, the dies being held in position by set-screws, and the machine becomes a perforating-machine by the operation of the treadle C.

The simplicity of the change from one machine to the other is apparent.

I claim—

1. In a combined perforating and round-cornering machine, the combination, with a supporting-frame and table thereon, of a rock-shaft working in bearings attached to said supporting-frame, a U-shaped lever pivoted upon said rock-shaft provided with a treadle at its lower end, a bracket attached to the upright arms of said U-shaped lever and adjusted vertically thereon, levers attached in series to said bracket operating a sliding bar working in suitable slots in the upper frame and a series of knives for round-cornering and punches adapted to engage in the lower end of said sliding bar.

2. In a combined perforating and round-cornering machine, the combination, with a supporting-frame and table thereon, of a rock-shaft working in bearings attached to said supporting-frame, a U-shaped lever pivoted upon said rock-shaft provided with a treadle at its lower end, a bracket attached to the upright arms of said U-shaped lever and adjusted vertically thereon, levers attached in series to said bracket operating a sliding bar working in suitable slots in said frame, a series of knives for round-cornering and punches adapted to engage in the lower end of said sliding bar, a stop adjustable in said frame, a stripper removably attached to said frame.

3. In a combined perforating and round-cornering machine, the combination, with a supporting-frame and table thereon, of a rock-shaft working in bearings attached to said supporting-frame, a U-shaped lever pivoted upon said rock-shaft provided with a treadle at its lower end, a bracket attached to the upright arms of said U-shaped lever and adjusted vertically thereon, levers attached in series to said bracket operating a sliding bar working in suitable slots in said frame, a series of knives for round-cornering, and punches adapted to engage in the lower end of said sliding bar, a stop adjustable in said frame, a stripper removably attached to said frame, a long gage having two guides engaging in slots in said frame and a small gage at right angles to said long gage and working in a slot in said long gage.

4. In a combined perforating and round-cornering machine, the combination, with a supporting-frame and table thereon, of a rock-shaft working in bearings attached to said supporting-frame, a U-shaped lever pivoted upon said rock-shaft provided with a treadle at its lower end, a lever affixed to the end of said rock-shaft and operating the same and provided with a treadle at its lower end.

5. In a combined perforating and round-cornering machine, the combination, with a supporting-frame and table thereon, of a rock-shaft working in bearings attached to said supporting-frame, a U-shaped lever pivoted upon said rock-shaft provided with a treadle at its lower end, a lever affixed to said rock-shaft and operating the same and provided with a treadle at its lower end, a rock-arm attached to said rock-shaft and operated thereby, a helical spring engaging said rock-arm and the supporting-frame and tending to press the said rock-arm downward, a horizontal bar attached to said rock-arm and operated thereby.

6. In a combined perforating and round-cornering machine, the combination, with a supporting-frame and table thereon, of a rock-shaft working in bearings attached to said supporting-frame, a U-shaped lever pivoted upon said rock-shaft provided with a treadle at its lower end, a lever affixed to the end of said rock-shaft and operating the same and provided with a treadle at its lower end, a rock-arm attached to said rock-shaft and operated thereby, a helical spring engaging said rock-arm and the supporting-frame and tending to press the said rock-arm downward, a horizontal bar attached to said rock-arm and operated thereby, an inverted-U-shaped bar engaging in slots in the table and attached to said horizontal bar and operated

thereby, having at its center a sliding bar working in a slot adapted to engage in the same slot as the said stripper.

7. In a combined perforating and round-cornering machine, the combination, with a supporting-frame and table thereon, of a rock-shaft working in bearings attached to said supporting-frame, a U-shaped lever pivoted upon said rock-shaft provided with a treadle at its lower end, a lever affixed to the end of said rock-shaft and operating the same and provided with a treadle at its lower end, a rock-arm attached to said rock-shaft and operated thereby, a helical spring engaging said rock-arm and the supporting-frame and tending to press the said rock-arm downward, a horizontal bar attached to said rock-arm and operated thereby, an inverted-U-shaped bar engaging in slots in the table and attached to said horizontal bar and operated thereby, having at its center a sliding bar working in a slot adapted to engage in the same slot as the said stripper, a detachable foot attached to said sliding bar and the said U-shaped bar adapted to engage and press the paper being operated upon.

8. In a combined perforating and round-cornering machine, the combination, with a supporting-frame and table thereon, of a rock-shaft working in bearings attached to said supporting-frame, a U-shaped lever pivoted upon said rock-shaft provided with a treadle at its lower end, a bracket attached to the upright arms of said U-shaped lever and adjusted vertically thereon, levers attached in series to said bracket operating a sliding bar working in suitable slots in said frame, and a series of knives for round-cornering and punches adapted to engage in the lower end of said sliding bar, a stop adjustable in said frame, a stripper removably attached to said frame, a long gage having two guides engaging in slots in said frame and a small gage at right angles to said long gage and working in a slot in said long gage, a lever affixed to the end of said rock-shaft and operating the same and provided with a treadle at its lower end, a rock-arm attached to said rock-shaft and operated thereby, a helical spring attached to said rock-arm and the supporting-frame and tending to press the said rock-arm downward, a horizontal bar attached to said rock-arm and operated thereby, an inverted-U-shaped bar engaging in slots in the table and attached to said horizontal bar and operated thereby, having at its center a sliding bar working in a slot adapted to engage in the same slot as the said stripper, a detachable foot attached to said sliding bar and the said U-shaped bar adapted to engage and press the paper being operated upon.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JAMES B. ALLEN.

Witnesses:
ERNEST B. LANE,
JNO. SALE.