

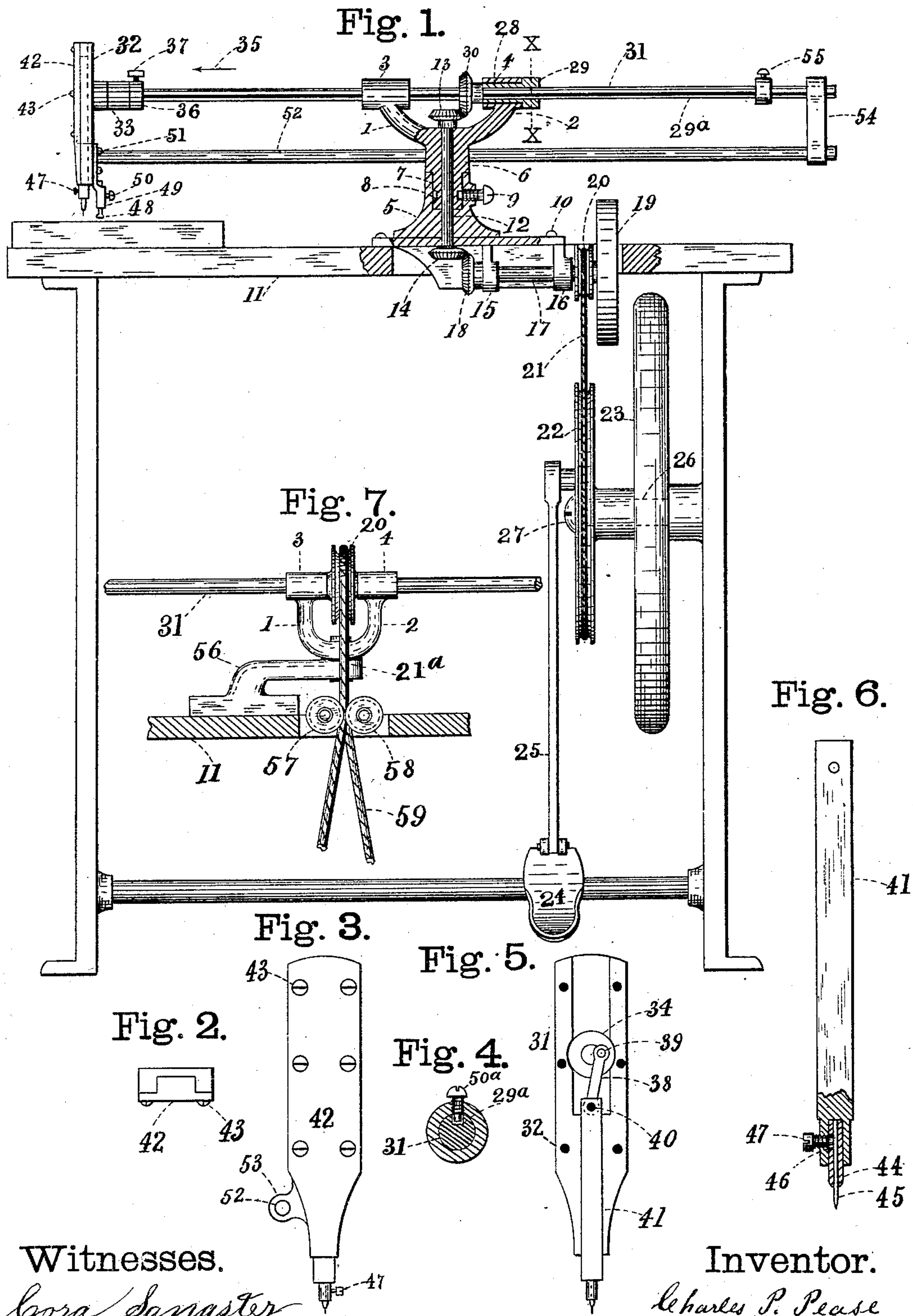
(No Model.)

C. P. PEASE.

MACHINE FOR PERFORATING PATTERNS.

No. 354,435.

Patented Dec. 14, 1886.



Witnesses.
Cora Sangster
Clara Humason

Inventor.
Charles P. Pease
By *James Sangster*
att'y.

UNITED STATES PATENT OFFICE.

CHARLES P. PEASE, OF LOCKPORT, NEW YORK.

MACHINE FOR PERFORATING PATTERNS.

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To all whom it may concern:

Be it known that I, CHARLES P. PEASE, a citizen of the United States, residing in Lockport, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Machines for Perforating Patterns or other Figures, of which the following is a specification.

The object of this invention is to provide a rapid and convenient means for perforating paper for patterns or other similar purposes; and it will be fully and clearly hereinafter described, shown, and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the machine complete, certain portions being broken away so as to show the construction of those portions more clearly. Fig. 2 is an enlarged top view of the perforating-needle-bar case, needle, and needle-bar. Fig. 3 is a front view of the same. Fig. 4 represents an enlarged cross-section on line X X, Fig. 1, cutting through the long grooved rod and through the tubular portions, through which it passes. Fig. 5 is a front elevation of the perforating-needle-bar case, showing the front plate taken off, so as to expose the perforating-needle bar and the mechanism for operating it. Fig. 6 represents an enlarged front view of the perforating-needle bar, a portion of the lower part being in section, so as to show how the perforating-needle is put in place and secured; and Fig. 7 is a modification of the mechanism for operating the grooved rod 31, that gives the required movements to the perforating-needle.

The supporting-frame is preferably constructed of cast-iron, with two arms, 1 and 2, having the perforated or tubular portions 3 and 4, and is divided into two portions, 5 and 6. The upper portion, 6, is provided with a turned shank, 7, having a circumferential groove, 8. This shank 7 is adapted to fit into a corresponding opening in the base or part 5, (see Fig. 1,) and the two parts are securely held together by a set-screw, 9, the end of which projects into the groove 8, thereby holding the parts together and permitting the upper portion, 7, to turn freely on its vertical axis 7. The base 5 is secured in any suitable way—by screens 10, for instance—to an ordinary sewing-machine table, 11, or any other

similar table suitable for the purpose. A vertical shaft, 12, is nicely fitted, so as to turn easily in the parts 5 and 6, and is provided with beveled gear-wheels 13 14. The under side of the base 5 is provided with bearings 15 16, in which is mounted a shaft, 17, having a bevel gear-wheel, 18, adapted to gear in with the wheel 14. It is provided with a fly-wheel, 19, and a grooved pulley, 20, adapted to be connected by a belt or cord, 21, to the grooved pulley 22. This pulley 22 is connected to a fly-wheel, 23, and with the usual treadle or foot-step, 24, by a connecting-rod, 25. The pulley and wheel 22 23 are mounted on a pin, 26, (shown by dotted lines in Fig. 1,) and are secured in place by a bolt, 27.

28 represents a sleeve adapted to pass through the part 4 and turn within it. One end is provided with an enlargement, 29, and fits snugly against the part 4. Its opposite end is provided with a bevel-wheel, 30, adapted to gear in with the wheel 13.

31 represents a long round bar or rod provided with a small groove, 29^a, running its entire length. It is adapted to pass through the tubular portion 3 and the sleeve 28, and also through the gear-wheel 30. (See Fig. 1.)

The perforated needle-bar case 32 is provided with a hub, 33, into which the rod 31 passes, so as to revolve easily, and is provided with a small disk, 34. (Shown in Fig. 5.) This disk is rigidly secured to the rod 31, so that the rod is held thereby to the case 32 and cannot be drawn out of it, and is prevented from moving forward in the direction of the arrow 35 by a collar, 36, and a set-screw, 37. The disk 34 is set in a small circular recess adapted to receive it, (see Fig. 5,) and is provided with a short connecting-rod, 38, connected by a pin, 39, to the disk, and by a pin, 40, to the perforating-needle bar 41. After these parts are all put together, a front plate, 42, is secured to the case 32 by screws 43.

The perforating-needle bar 41 is provided with a small perforation in the bottom, adapting it to receive the small sleeve 44. This sleeve is perforated through the center lengthwise with a perforation just large enough to receive the perforating-needle 45. (See Fig. 6.) One side, 46, of the sleeve 44 is cut away so that the point of the set-screw 47 will pass

through it and against the needle, and when screwed up closely will hold both rigidly in place.

48 is a foot-piece, secured in any well-known way to a vertically-adjustable piece, 49, by a set-screw, 50, for instance. The bottom of this foot-piece is made smooth, so as to pass easily over the material to be operated upon. Its object is to provide the means for keeping the needle-point at the proper distance above the material to be perforated. The piece 49 is made adjustable by means of the screws 51, (see Fig. 1,) which pass through slots in the piece 49 and screw into the case 32, so that by loosening the screws it may be shifted up or down and the screws then tightened.

The rod or bar 31 is prevented from turning in the sleeve 28 by means of a set screw, 50^a, which passes into the groove 29^a, so that while it has a free longitudinal movement back and forth it cannot turn within it, and is therefore compelled to turn with the sleeve when the device is in operation.

The equivalent to the round bar provided with a groove would be a square bar, or any other shape except a round form, so as to prevent it from turning in the sleeve and still allow it to have a free longitudinal movement. Of course the opening through the sleeve would have to be of a corresponding form; but in this case the part 3 would have to be provided with a sleeve, 29. Sometimes it may be necessary to keep the perforating bar and case at all times in a vertical position. In that case a second bar, 52, may be secured in any well-known way to the case 32—for instance, to the projecting piece 53, (shown in Fig. 3,) the bar 52 being arranged so as to be parallel with the bar 31, and made to pass through a perforation through the part 6, and the opposite ends of both bars being then secured by a yoke, 54. In case the bar 31 is used alone, the collar and set-screw 55 would be sufficient to keep it in place.

The operation of the invention is simple, and will be easily understood by reference to the drawings. Motion being given by the treadle to the wheel 22, it is transmitted from it to the small pulley 20 by the belt or cord 21, and then from the gear-wheel 18 to the wheel 14, and from thence to the vertical shaft 12 and gear-wheel 13, which in turn transmits its motion to the gear-wheel 30, and this wheel turns the sleeve 28, and with it the rod 31, and this rod, being connected to the disk 34 by means of the connecting-rod 38, gives a vertical reciprocating motion to the perforating-

needle. Now, it will be seen that if one or more thicknesses of paper be on the table under the needle-point it will be perforated by its action, and that the case 32, being held by the hand, may be moved horizontally in any direction within the limit of the length of the rod 31, and consequently any pattern or other figure drawn on the paper may be easily traced with a perforated line or lines.

In the modification shown in Fig. 7 I dispense with the bevel-gearing 13, 14, 18, and 30; also, their shafts and bearings. The parts 1, 2, 3, and 4 (shown in Fig. 7) are formed in one piece, and are pivoted to the base-piece 56 by a vertical pin, thereby forming the pivot 21^a, and the base is secured to the table 11 by screws in the usual way. The grooved pulley 20 is provided with a cord or belt, 59, which belt is secured to the large grooved pulley 22, the same as shown in Fig. 1. In this construction the belt should be crossed, and at the point where it is crossed are two grooved pulleys, 57 58. The grooved pulley 20 is provided with a feather or piece which projects into the groove in the rod 31, so that the rod 31 can move freely longitudinally through the pulley 20, but will be compelled to turn when the pulley turns. Of course it will be understood that the rod 31 is to be connected with the perforating mechanism, as in Fig. 1. It will now be seen that if the pulley 20 in Fig. 7 is made to turn or rotate the rod may be drawn longitudinally back and forth while it is turning, and that it may also be made to swing around about a quarter of a circle (more or less) on the vertical pivot 21—at least a quarter of a circle—without throwing off the belt. In this way the perforator-case may be taken in the hand and moved in any direction, within certain limits, while the rod 31 is turning and operating the perforating-needle.

I claim as my invention—

A perforating-machine consisting of the supporting-frame, the upper part pivoted in a socket in the base and having the parts 3, 4, and 28, and the longitudinally movable and rotating rod 31, in combination with a needle-bar case, connecting-rod 38, needle-bar and needle, and mechanism, substantially as specified, for giving the rod 31 a rotary motion and a vertical reciprocating motion to the perforating needle-bar, for the purposes described.

CHARLES P. PEASE.

Witnesses:

JENNIE M. CALDWELL,
CORA S. SANGSTER.