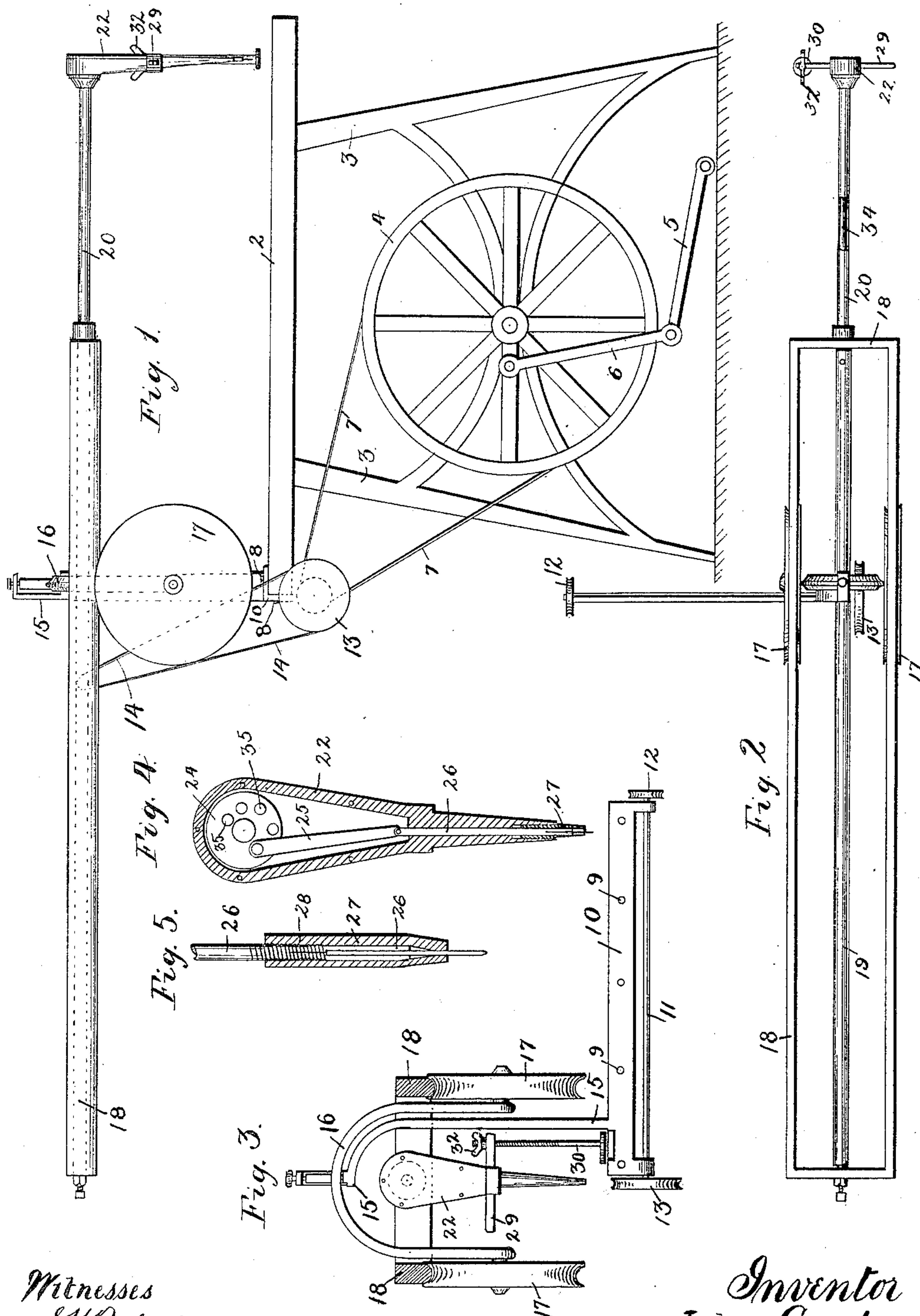


(No Model.)

J. CASTER.  
PERFORATING MACHINE.

No. 424,759.

Patented Apr. 1, 1890.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOHN CASTER, OF MINNEAPOLIS, MINNESOTA.

## PERFORATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 424,759, dated April 1, 1890.

Application filed January 13, 1890. Serial No. 336,756. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN CASTER, of Minneapolis, Hennepin county, Minnesota, have invented certain Improvements in Perforating-Machines, of which the following is a specification.

My invention relates to improvements in machines for the perforating of paper in ornamental designs, figures, or patterns, thus forming a stencil or pattern for stamping the outline of the desired figure by the use of powder or paint passed through the perforations and upon the surface beneath; and it consists in improved means for supporting, guiding, and driving the perforator upon the surface operated upon.

My invention consists, further, in the construction and combination hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of my improved device shown secured upon a sewing-machine table. Fig. 2 is a plan view, and Fig. 3 an end elevation, of the same. Fig. 4 is a detail vertical cross-section of the perforator head or case, showing the mechanism for operating the same; and Fig. 5 is a detail of the chuck for holding the perforating-needle.

In the drawings, 2 represents a suitable table or other firm support, upon which my device may be secured having the standards or legs 3.

4 is the driving-wheel, by means of which the device is operated suitably journaled underneath the table.

5 is the treadle, and 6 the pitman connecting the same to said drive-wheel in the ordinary manner, by means of which it may be operated by foot-power, a suitable belt 7 upon the wheel 4 transmitting its motion to the device.

I prefer to secure my device upon its support by means of screws 8, passing through holes 9 in the angle-iron base 10. Journaled upon the base 10 is the transverse shaft 11, having at one end the belt wheel or drum 12, carrying the drive-belt 7, and at the other end a similar belt-wheel 13, fitted with an elastic belt 14 for transmitting the motion of the shaft to the machine. By the use of this transverse or lateral shaft the machine is brought

directly in front of the operator, while the drive-wheel is at one side, as in a sewing-machine. Rigidly secured to the base 10 is the upright standard 15 to the offset or laterally bent top of which is pivotally secured or suspended the yoke 16, carrying upon its depending arms the grooved wheels 17. Supported upon these wheels 17 is the rectangular frame or carriage 18, adapted to be moved freely from end to end along said wheels. Journaled in said frame or carriage longitudinally thereof is the shaft 19, adapted to be turned on its bearings by means of the elastic belt 14, passing over the same as actuated by the shaft 11. The belt passes over the shaft itself, and as the position of the frame is shifted the belt adheres slightly to it and is stretched until it works back along the shaft to a position above the wheel 13. The supporting-standard 15, standing at one side of the shaft, allows the belt to be stretched through between the arms of the yoke in the movement of the frame.

Rigidly secured to the frame is the tube 20, fitted at its outer end with the head or case 22, in which is arranged the perforating-needle and its driving mechanism. A smaller shaft 24, rigidly secured to the shaft 19, extends from it through the tube as a bearing and is fitted with the crank-wheel 24, to which is pivoted the pitman 25, connected to the perforating-needle plunger 26, which is held in vertical bearings in the case 22. The needle 23 is secured to the plunger 26 in any suitable manner, as by inserting it in the slotted chuck 27, upon which is screw-threaded a collar 28, by means of which the sections of the chuck are compressed together to clamp the needle. Rigidly secured to the case 22 is the transverse bar 29, in which is adjustably supported the foot or rest 30, having the stem or standard 31 passing through the cross-bar 29 and adjustably secured therein by means of the set-screw 32. This foot or rest 30 is adapted to bear upon the material to be perforated while the machine is in operation, and is adjusted to support the perforator in the desired position in reference to the work, the foot being moved about upon the surface of the material in the progress of the operation of perforating.

The frame is preferably cast solid, so that the machine may be as steady as possible in



operating, and the shaft 19 I prefer to make of steel and solid, so that it can be driven at a high speed without irregular movement or quivering, as is the case when a hollow shaft is used or one made of less rigid metal. I also prefer to provide the crank-pin holes 35 at different distances from its center, whereby any desired throw or movement of the needle may be secured.

10 The mode of operation is as follows: The base 10 being properly secured to the sewing-machine table and the drive-belts of the machine arranged in place, the paper or other material to be perforated is placed upon the table. The 15 foot or rest 30 is then adjusted from its supporting cross-bar 29 in such position as to permit the perforating-needle in its downward movement to just penetrate the mass of paper. Upon power being applied to the treadle 5 20 the shaft 11 is driven at a high speed and its motion transmitted to the shaft 19, which in its rotation drives the crank 24 and reciprocates the needle 23. The position of the needle with reference to the material operated upon is determined and shifted by the 25 hand of the operator placed upon the bar 29, whereby the machine can be guided quickly and accurately over the lines of the design or pattern, and the high speed at which the perforating-needle is driven serves to delineate 30 the lines by a close series of perforations. The needle can be moved in any direction laterally over the table, the carriage 18 traveling freely to and fro upon its supporting-wheels 17 and the supporting-yoke turning 35 upon its pivot as directed by the hand of the operator. The belt 14, being made of rubber or other elastic material, clings to the shaft 19, so as to continuously drive the same, 40 notwithstanding its movement to and fro or about the pivotal support of the yoke.

I claim—

1. In a device of the class described, the combination, with a suitable base or support, of an upright standard secured thereon, a 45 yoke pivoted upon said standard at an offset-point and having a grooved wheel or sheave pivoted upon each of its depending arms, a frame or carriage supported upon said sheaves and adapted to be moved to and fro upon 50 them, a shaft journaled longitudinally in said frame, having suitable crank-connection with the perforating-needle and adapted to be driven from any suitable source of power, substantially as and for the purposes set forth. 55

2. In a perforating-machine, the combination, with its frame or carriage, of a pivoted yoke having upon its depending arms wheels adapted to support said carriage, and a stand- 60 ard supporting said yoke arranged within the yoke and having the point of pivot-suspension of said yoke offset, as and for the purposes set forth.

3. In a device of the class described, adapted to be driven by foot-power, the combination, with its treadle and drive-wheel, of a 65 lateral shaft interposed between said drive-wheel and the driving-shaft of the machine, an elastic belt connecting said lateral shaft with the driving-shaft of the perforator, a 70 frame carrying said driving-shaft in suitable bearings, a yoke supporting said frame, a standard within said yoke supporting the same upon a pivot offset from the vertical portion of said standard, and an adjustable 75 crank driven by said shaft and linked to the perforating-needle, substantially as and for the purposes set forth.

In testimony whereof I hereunto set my hand this 8th day of January, 1890.

JOHN CASTER.

Witnesses:

T. D. MERWIN,  
A. MAE WELCH.