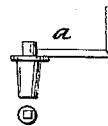
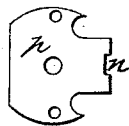
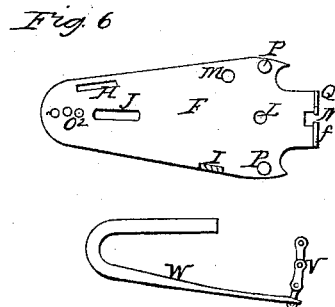
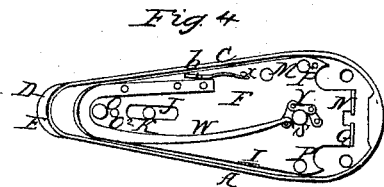
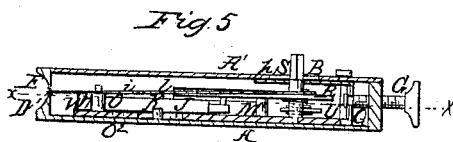
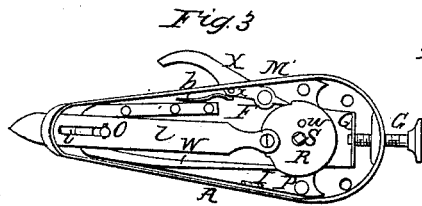
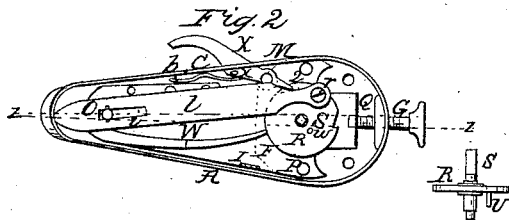
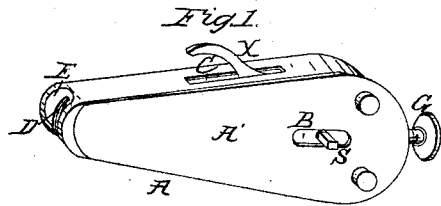


J. Ives,
Lancet.

N^o 6,240.

Patented May 27, 1849.



UNITED STATES PATENT OFFICE.

JOSEPH IVES, OF BRISTOL, CONNECTICUT.

SPRING-LANCET.

Specification of Letters Patent No. 6,240, dated March 27, 1849.

To all whom it may concern:

Be it known that I, JOSEPH IVES, of the town of Bristol, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in the Spring-Lancet, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is a perspective view of the instrument set for operation. Fig. 2, is a plan—the cover of the box being removed showing the connection of the parts within the box as set for operation: the bearing plate being also removed. Fig. 3, is also a plan showing the lancet extended from the box, the bearing plate and cover being removed. Fig. 4, is a section through the center of the instrument on the line *x x* of Fig. 5 showing the chain wound upon the axle when the instrument is set for operation. Fig. 5, is a vertical section on the line *z, z*, of Fig. 2. Fig. 6, represents several of the parts contained in the case detached therefrom—namely—the carriage—bearing plate—propelling wheel and axle—main spring and chain—axle and key for winding the chain.

Similar letters in the several figures refer to corresponding parts.

The nature of my invention and improvement consists in giving the spring lancet an incisory quality mechanically very similar to that which would be produced by the hand of a skillful surgeon when using the lancet by hand,—causing the spring lancet when thrown suddenly from the case by the action of the main spring to make the incision in an eccentric curve to any required length and depth by means of an oblong slit in the lancet in combination with a fixed stud in the adjustive carriage to which the lancet is affixed and on which it moves. The advantages of which will be apparent to all practitioners with the lancet, and other persons.

A is a case for containing the several operative parts and for keeping them in their proper places.

A' is the cover of the case made removable at pleasure for the purpose of having access to the interior.

B is an oblong slit in the cover to allow the axle to move in while setting the lancet.

C is an oblong slit in the rim of the case for the tail end of the dog to move in while

setting the instrument and while springing it.

D is a slit in the small end of the case for the lancet to pass through in making the incision.

E is a segmental depression in the end of the case to admit the vein so that the lancet will be certain in its operation. These are all the openings that are made in the case; except the one at its larger end to admit the set screw for setting the lancet to cut to a greater or less depth by moving the carriage to which it is attached.

F is a carriage to which the several operative parts of the instrument are attached and by which they are moved simultaneously and independently of the case when it is required to set the lancet to cut deep or shallow. This carriage is made of less width and length than the case in order that it may have sufficient room to move back and forth without touching the rim. It slides on the bottom of the case.

G is the screw for moving the carriage. This screw is connected to the carriage by a neck, head, and mortise so that the carriage can be detached from it when required to remove it with the operative parts attached. The screw G turns in a female screw in the end of the case.

H is an oblong opening to admit a projection from the main spring W riveted on the under side of the carriage by which the main spring is attached to it. I is a stop for the main spring to strike against. J is an opening to allow the carriage to move back and forth over a stud K riveted into the case—said stud serving to guide the carriage.

L is a round hole to admit the main axle—the other end turning in the bearing plate *p*.

M is an aperture to admit the post or stud M' on which the dog turns.

N is an opening to allow the head of the connecting and propelling screw G to pass through. O is a stud inserted into the carriage which passes through an oblong opening *i* in the lancet *l* for causing the lancet to have an oblique draw knife stroke while making an incision, the lancet moving back and forth over said stud during the operation of springing it out from and drawing it into the case.

P P are two studs to which the bearing plate *p* is affixed.

Q is the turned up end of the carriage serving as a stud for the support of the bearing plate and through which plate the propelling screw passes, the notch *n* admitting a tenon *f* on the turned up end of the carriage.

R is the notched wheel for propelling the lancet. S is the main axle passing through the center of the propelling wheel, one end of this axle is reduced in its diameter where it passes into the aperture in the carriage forming a shoulder that turns against the carriage, see Figs. 5 and 6. The portion of the axle that passes through the cap plate is made square to receive a key *a* Fig. 6 for setting the lancet.

T Fig. 6 is an aperture in the wheel near its periphery to admit a screw or rivet *r* that passes through an aperture in the rear end of the lancet and by which they are connected together. U is a pin inserted into the under side of the wheel R and near the main axle, to which the chain *v* leading to the main spring is connected for propelling the wheel when wound around the main axle, the head of which pin being seen at *u*.

W is the main spring for operating the lancet, attached to the carriage as described.

X is the dog that drops into notches in the periphery of the propelling wheel for holding it from turning when the lancet is set; this dog turns on a post or stud *M'* inserted into the carriage, the tail end of which extending through the slit *c* in the rim of the case and serving as a handle by which the dog is disengaged from the propelling wheel when the lancet is to be sprung for an operation.

The key *a* is made like the key of a time piece having a square socket to admit the square end of the main axle S. *b* is a small spring for throwing the dog into the notch of the wheel. This spring is attached to the carriage and bears against a pin *x* projecting down from the under side of the dog.

O² are holes in the carriage into which the stud *o* is shifted in order to increase or diminish the sweep of the lancet. To increase the sweep the stud must be inserted into the hole farthest from the small end of the carriage. And to diminish the sweep it must be inserted into the hole nearest the end of the carriage.

Operation: In order to operate with this instrument the key *a* must be applied to the main axle and turned to the right till the dog X falls into the first notch *i* which will bring the lancet on a line coincident with the center of the case and will hold it in that position as seen in Fig. 3. The set screw G must then be turned which will move the

carriage F and lancet *l* to the required position bringing the point of the lancet as far beyond the concave end E of the case in which the vein is to be received as the depth of the required incision, which will be the extent to which the lancet can cut when thus adjusted. Should a deeper incision be required the set screw G must be turned to the right to set the lancet farther out of the case. To reduce the depth of cut the screw must be turned to the left. The lancet being thus adjusted and an operation required to be performed the key must be turned to the right until the dog falls into the next notch 2. This operation will wind the chain on the main axle and contract the main spring and bring back the lancet into the case and into the position represented in Figs. 1 and 2 ready to be thrown out when the dog shall be disengaged from the propelling wheel. The concave end of the case must then be brought directly over, or against, the vein or place where the incision is to be made. The tail end of the dog must then be pressed inward toward the case which will disengage the dog from the wheel, causing the main spring to act and turn the main axle and propelling wheel which throws the end of the lancet connected to the wheel forward in the arc of a circle scribed from its center causing the point of the lancet to be thrown forward suddenly in an eccentric curve producing the oblique or draw knife cut to the depth required, the sweep of the point being in proportion to the distance the stud (on which the lancet moves) is placed from its point.

What I claim as my invention and desire to secure by Letters Patent is—

Causing the point of the lancet to sweep in an eccentric curve simultaneously with its longitudinal movement in the case, by the combined action of the fixed stud *o* in the carriage and the oblong aperture *i* in the lancet by which it is made to cut the vein with an oblique draw knife stroke, avoiding the tendency to rebound in cutting a tough vein, or elastic skin, when thrown forward in a straight line at right angles to the vein—the length of the incision being increased, or diminished by changing the position of the stud *o* and its depth by turning the graduating screw G of the carriage as aforesaid.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

JOSEPH IVES.

Witnesses:

WM. P. ELLIOT,
LUND WASHINGTON, Sr.