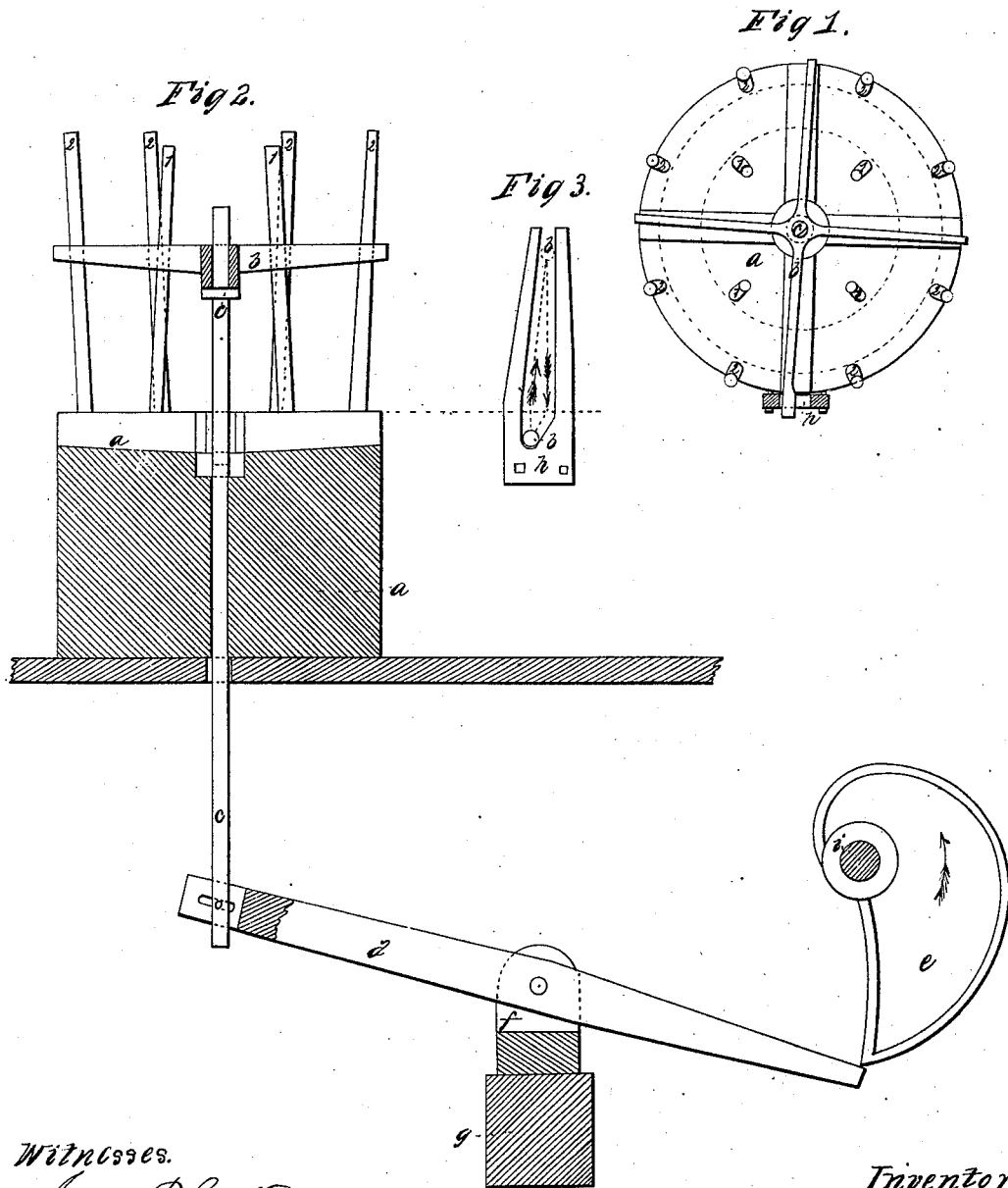


J. J. Howe,
Polishing Wire.

No. 4,324.

Patented Dec. 26, 1845.



Witnesses.

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MACHINERY FOR BEATING AND CLEANING WIRE.

Specification of Letters Patent No. 4,324, dated December 26, 1845.

To all whom it may concern:

Be it known that I, JOHN J. HOWE, of Derby, in the county of New Haven and State of Connecticut, have invented a new and useful Machine for Beating Wire; and I do hereby declare the following is a full and exact description of the construction, operation, and manner of using the same, reference being had to the annexed drawings, which make part of this specification.

It is usual in connection with the process of wire-drawing to beat the wire on a block or stone for the purpose of cleaning it, and this has commonly been done by manual labor; the operator takes a convenient quantity of wire in his hands, and beats it on the block or stone, occasionally shifting it around, till the whole is cleaned.

The operation of the machine herein described consists in successively lifting the wire and dropping it or letting it fall through a sufficient space, upon a suitable block, so that the momentum acquired by the wire in falling serves in place of the blow given by the operator when the work is done by hand; and also shifting the wire around a little at each successive stroke, in order to equalize the action on the different parts of it.

The drawings, consisting of three figures, are made on a scale of about one eighth the actual size of the machine.

Figure 1 is a plan of part of the machine, showing the "block" and "lifter" in combination; Fig. 2, a vertical section of the entire machine; Fig. 3, a front elevation of the "guide," and showing its combination with the "lifter."

The block, *a*, Figs. 1 and 2, is made of hard wood, and is fitted to stand on the floor as shown in Fig. 2. A portion is excavated from the upper surface of the block, *a*, as shown in Figs. 1 and 2, to form a suitable cavity to receive the arms and hub of the lifter, *b*, and to allow said lifter to fall some distance below the upper surface of said block. There is a hole through the center of the block, *a*, in a vertical position, through which the shaft *c*, passes, and which serves as a guide and support for said shaft, as shown in Fig. 2. There are two sets of pins, 1 and 2, connected with the block, *a*, as shown in Figs. 1 and 2, which form a curb to keep the wire from sliding out of place. The interior set of pins, 1, are inclined from the perpendicular a little in-

ward toward the center, and the exterior set of pins, 2, are inclined a little outward from the center, as shown in the drawings, in order to let the wire rise and fall without rubbing against them. The space to be occupied by the wire is indicated by the dotted circles, Fig. 1.

The "lifter," *b*, consists of four horizontal arms, connected together by a hub at the center, and having a vertical hole in the center of the hub, by which said "lifter" is connected with the shaft, *c*, as shown in Figs. 1 and 2. The extremity of one of the arms of the lifter, *b*, moves up and down in a guide, *h*,—a horizontal section of which guide is shown in Fig. 1, and a front elevation of the same in combination with the lifter, *b*, is shown in Fig. 3. The dotted lines in Fig. 3, indicate the track in which the end of the arm of the lifter, *b*, will move, in traversing up and down in the guide, *h*, and the arrows indicate the direction of the motion of the same.

In operation, the "lifter" when carrying the wire up, will turn, around its center, on the shaft *c*, from left to right, through a small space, carrying the wire around with it; but when said "lifter" falls, it will fall, together with the wire, perpendicularly, and without any horizontal motion, until the wire strikes the block,—and then the "lifter," in descending after the wire has struck the block will return from right to left, to the same extent that it turns from left to right in ascending; and by means of this last described movement of the "lifter," *b*, the wire will be shifted around from left to right, a short distance at each successive stroke. The shaft *c* has a collar near its upper end to support the lifter, *b*, the portion of said shaft above said collar being fitted to the hole in the hub of the lifter, *b*, so as to carry the lifter steadily, but, at the same time, to allow the lifter to turn freely in a horizontal direction, on its bearing on the shaft *c*, as shown in Fig. 2. Near its lower end the shaft *c*, is connected with the lever *d*, by a pin in the manner shown in Fig. 2.

The lever *d* is connected with the stand, *f*, by a center pin near the middle of said lever, and has one of its ends connected with the shaft *c*, as before described, and its other end placed so as to receive the action of the cam, *e*, as is shown in Fig. 2. The stand *f*, is properly secured to a suitable frame or

foundation timber, *g* Fig. 2. The cam, *e*, Fig. 2, is fastened upon a rotary axis, *i*, Fig. 2, to which axis the motive power is applied so as to communicate to said cam a rotary
 5 motion in the direction indicated by the arrow. Each revolution of the cam, *e*, depresses the arm of the lever, *d*, on which it acts, and elevates the "lifter" *b*, in connection with the other arm of said lever; and
 10 when the cam, *e*, in passing around, leaves the lever *d*, the lifter *b*, falls by its own weight, together with any wire which it may have elevated in rising.

In operating with the machine, the wire
 15 (having been properly prepared for beating, or cleaning in any manner ordinarily practised by wire-drawers) is laid upon the machine so as to encircle the inner set of pins 1, and to be surrounded by the outer
 20 set of pins, 2; and it may be so placed either when the machine is at rest or in operation. A sufficient quantity of wire (for example 150 lbs.) having been so prepared and placed on the machine, the operation is performed
 25 in the manner herein before described. The speed of the machine may be 30 or more strokes per minute.

The principle by which the machine herein described may be distinguished from other
 30 inventions, consists in its producing the proper action on the wire by alternately lifting it and dropping it or letting fall upon a suitable block or platform; and I consider the combination of a lifter to raise the wire,
 35 a "curb" (represented by the two sets of pins 1 and 2) to retain the wire in its place on the lifter, and a block or platform on which to let the wire fall as constituting
 40 a combination of parts essential to any machine for beating wire, constructed to oper-

ate according to said principle. But I do not consider the shifting of the wire around in the manner herein described as being indispensable, though it is a useful part of
 45 the operation; therefore the modifications of the machine, as herein before described, which are specially designed for shifting the wire around, may be dispensed with, without destroying the usefulness of the machine.
 50 If it be preferred to dispense with said operation of shifting the wire around, the lifter may be formed and adapted to fall directly on the top of the block and may so fall with the wire resting or falling on
 55 it—so that the lifter shall be always interposed between the wire and the block—and the block may present a plain flat surface for the lifter to strike upon, instead of being excavated on its upper surface as herein
 60 before described; the curb may be attached to the lifter, or may form part of the same, instead of being attached to the block as herein before described—and the guide *h* may be dispensed with.

I claim as my invention and wish to secure
 65 by Letters Patent—

1. The combination herein described of parts which are designated herein and marked in the drawings respectively as follows, viz., the "block or platform", *a*, the
 70 "lifter," *b*, and the "curb" or "pins" 1 and 2.

2. And I claim said combination of the "block," "lifter" and "curb" whether in
 75 combination with, or without the "guide," *h*.

JNO. J. HOWE.

Witnesses:

HENRY WHITNEY,
 TRUMAN PIPER.