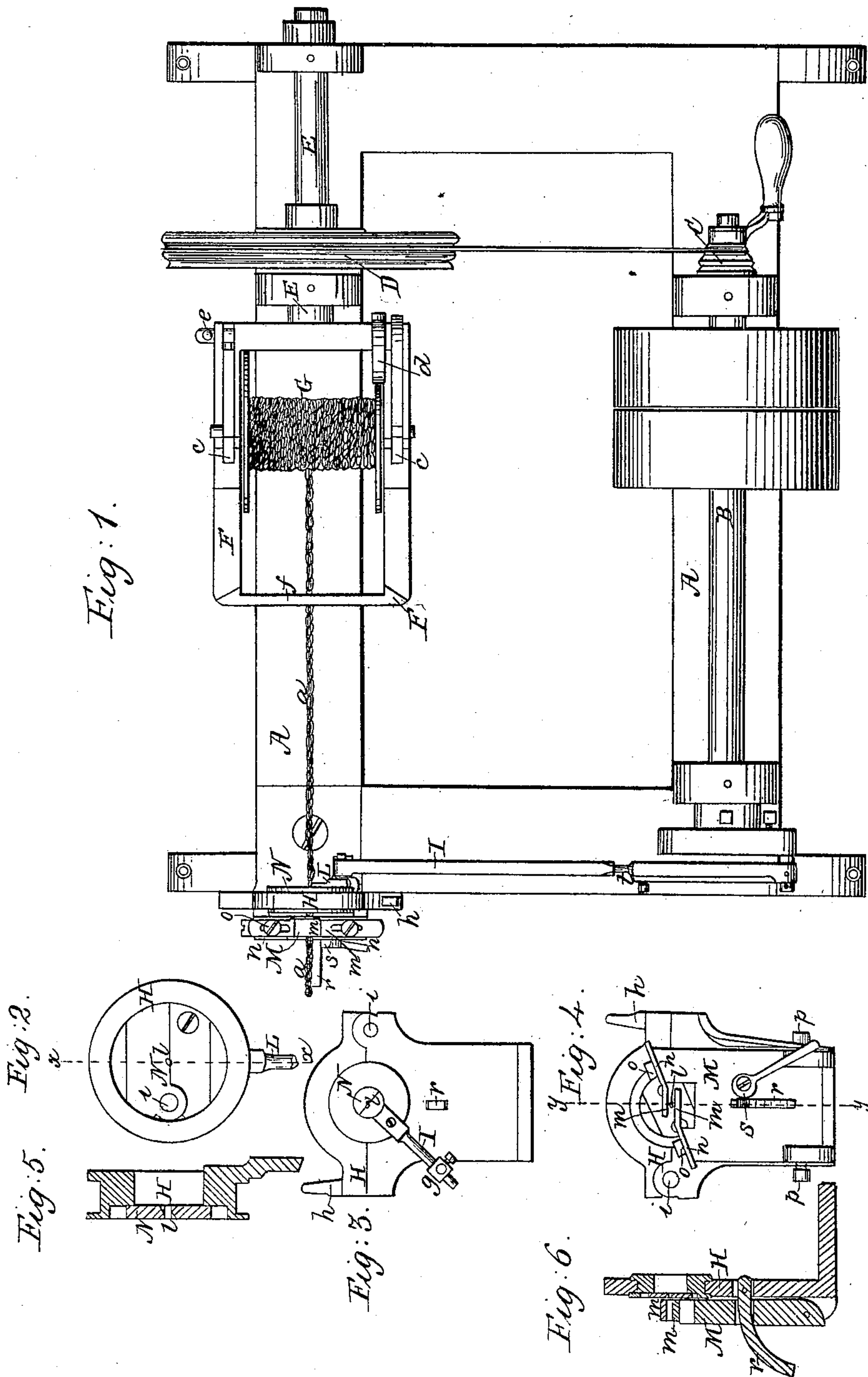


# L. TOWNE. Making Ornamental Chains.

No. 18,027.

Patented Aug. 18, 1857.





# UNITED STATES PATENT OFFICE.

LAURISTON TOWNE, OF PROVIDENCE, RHODE ISLAND.

## MACHINE FOR TWISTING CURB-CHAINS.

Specification of Letters Patent No. 18,027, dated August 18, 1857.

*To all whom it may concern:*

Be it known that I, LAURISTON TOWNE, of Providence, in the county of Providence and State of Rhode Island, have invented  
5 a new and useful Machine for Twisting the Links of Curb-Chains; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part  
10 of this specification, Figure 1, being a plan of the machine; Figs. 2, 3, and 4, side elevations of detached parts; Fig. 5, a vertical section, in the plane indicated by the line  $x, x$ , Fig. 2; Fig. 6, a vertical section, in  
15 the plane indicated by the line  $y, y$ , Fig. 4.

Like letters designate corresponding parts in all the figures.

Upon a suitable frame A, a driving shaft B, is mounted. From a pulley C, on this  
20 shaft, a band  $b$ , passes to a pulley D, which is situated on a shaft E. The pulleys are conical, in opposite directions, and provided with corresponding grooves, in the usual manner, for varying the velocity of the  
25 shaft E. To this latter shaft is secured a frame F, in which is mounted a spool, or reel, G, its axis being situated at right angles to the axis on which the frame turns. To enable the reel to be inserted or with-  
30 drawn readily, it may be held in its bearings by spring clips  $c, c$ , and forced out, when desired, by turning a handle  $e$ , which raises the clips, and, at the same time, causes a spring  $d$ , to bear against the reel, and push  
35 it from its bearings. Upon this reel the chain is wound, before commencing the operation of twisting. It passes therefrom, through an eye in the end  $f$ , of the frame E, to the device by which the twisting is  
40 accomplished.

The operation of twisting, consists in so shaping the links of the chain, (which, when first made, has its links loosely connected, and arranged in spiral order, some-  
45 what in the manner of the strands of a rope, as indicated at  $a$ , Fig. 1,) that they will lie closely together, and give a flattened shape to the chain, without the spiral arrangement of the links, as indicated at  $a$ , Fig. 1.  
50 This operation has heretofore been performed by hand with a simple flattening tool. The device by which this machine accomplishes the effect required, is constructed and arranged in the following  
55 manner:—In a standard H, a die N, is situated, and arranged so that it will turn or

vibrate around the line of its axis. This vibrating movement is communicated to the die by means of a radial arm L, or its equivalent, projecting from said die; and  
60 of a rod I, which connects it with a wrist and wheel, or crank, on the driving shaft B, substantially as represented in the drawings. In order to vary the extent of angu-  
65 lar vibration to be given to the die, the connecting rod may be jointed as at  $t$  (Fig. 1,) so as to vary the length thereof. Or the wrist  $g$ , whereby the connecting rod is joined to the arm I, may be adjusted to different positions thereon. Or the wrist  
70 which joins the connecting rod to the wheel or crank of the driving shaft, may be adjustable. Or all of these modes may be employed together. The standard H, may have a hinged cap, and a catch  $h$ , to confine  
75 the cap down in its place, in order that the die may be readily removed and replaced. The said die has, through its center, an aperture  $l$ , which is of proper size to admit the chain, and of a spiral form, so as to fit  
80 the spiral arrangement of the links in the chain, as at  $a$ , Fig. 1. This form of the aperture  $l$ , is indicated in Figs. 2, 3 and 5; and is such that the chain can not turn in it, nor be easily drawn through except as  
85 fast as the desired twisting of the links proceeds. Another standard M, is situated outside of the standard H, at the bottom, (as at  $p$ , Figs. 4, and 6,) so that it may be turned down away from the other standard,  
90 when desirable. In this case, it may be held up in its place by means of a curved arm  $r$ , projecting from the standard H, and concentric with the motion of the hinged stand-  
95 ard, through a slot in which it extends, and which turns on it, as indicated in the drawings. A cam  $s$ , on the standard M, being tightened against said arm (as shown in Fig. 4,) holds the standard in any position.  
100 Upon the top of the standard M, are secured two parallel die plates  $m m$ , arranged as most clearly shown in Fig. 4. They are seated upon inclined planes  $n, n$ , and provided with slots, so that they may be shifted in position lengthwise, and be secured in  
105 place by tightening bolts  $o, o$ . This arrangement enables them to be adjusted to any distance apart, and to bring the space between them centrally opposite to the spiral die-aperture  $l$ . The distance between  
110 them is just sufficient to admit the finished chain  $a$ , flatwise, so that it can not turn



therein. Into the dies thus arranged, the end of the chain is inserted, as represented in Fig. 1. The machine is then put in operation, and, at the same time, the chain is  
5 drawn through the dies as fast as the "twisting" proceeds. The vibratory motion given to the die N, causes the portion of chain situated between the spiral and stationary dies, to be twisted in the direction opposite to the spiral twist of the links, and at  
10 the same time flattens or twists the separate links. The effect is to bring these flattened edges of the links into a straight line, and to make a flat chain as indicated at *a*, Fig. 1. The flattened chain immediately passes  
15 between the die plates *m, m*, which hold it from turning, so that the vibrating die N, gets a new hold at each vibration. The exact extent of vibratory motion given to  
20 the die N, in order to exactly straighten the

chain, is kept adjusted by the adjustment of the connecting rod I, as above described. This turning of the chain tends continually to wind the unfinished portion *a*, thereof, and would consequently cause it to kink, 25 but for the counter motion of the reel G, upon its shaft E. This motion should be kept adjusted so as to correspond with the action of the vibratory die.

What I claim as my invention, is— 30

The combination of the vibrating spiral die N, and stationary holding die-plates *m, m*, or their equivalents, arranged and operating substantially in the manner and for the purpose specified.

LAURISTON TOWN

Witnesses:

ANDERSON C. BOSS,  
JAMES M. RIPLEY.