Sheet 1 - 3 Sheets.

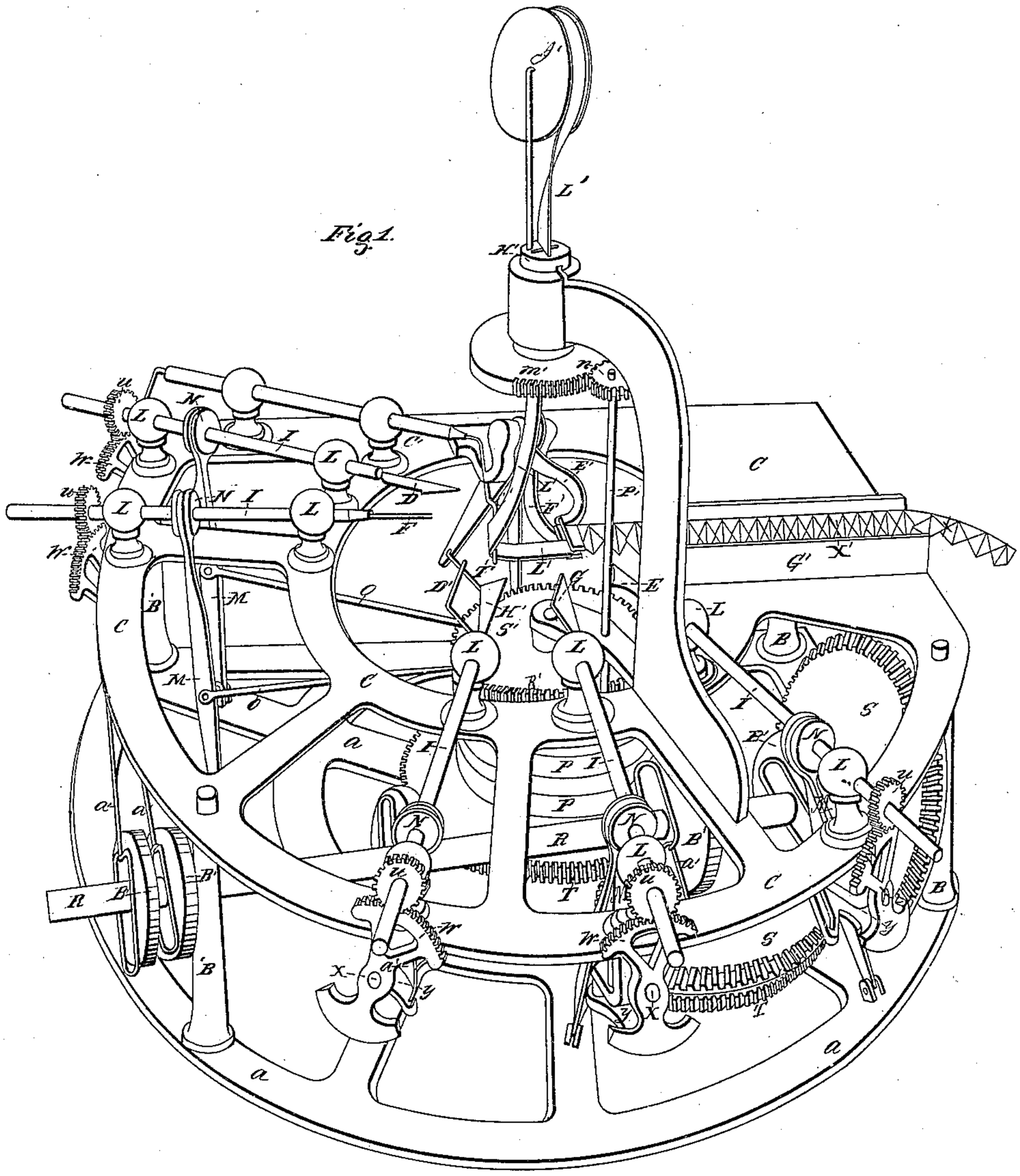
J. E. Earle.

(Miscellaneous) Wearing Tajze.

No. 1,659.
32,663.

Patented Jun. 25, 1861.

Fig. 1.



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H. F. Steele.

Inventor:

John. E. Earle.

Sheet 2 - 3 Sheets.

J. E. Earle.

(Miscellaneous) Weaving Tape.

No. 1,659.
32,663.

Patented Jun. 25, 1861.

Fig. 2.

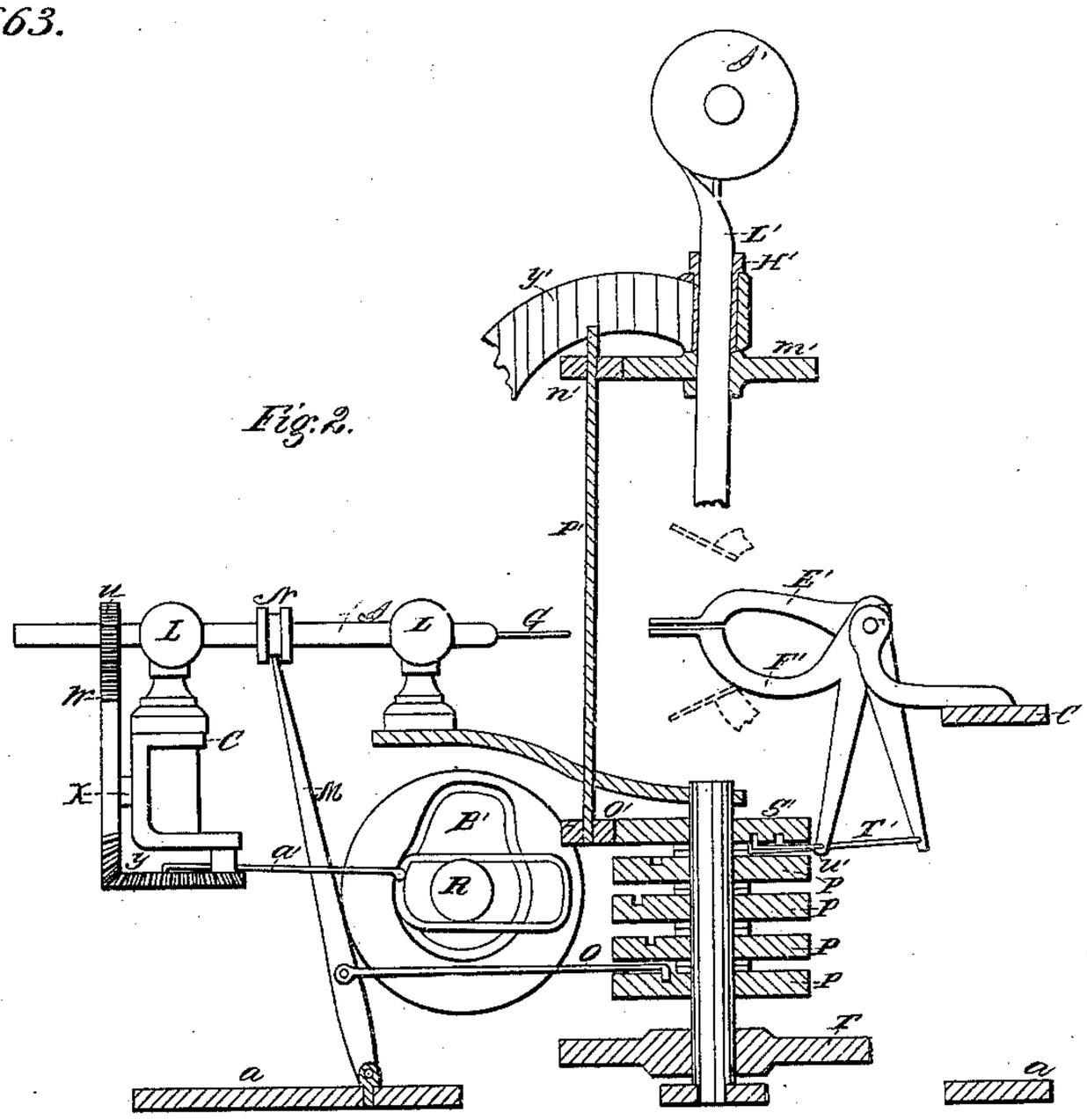


Fig. 5.

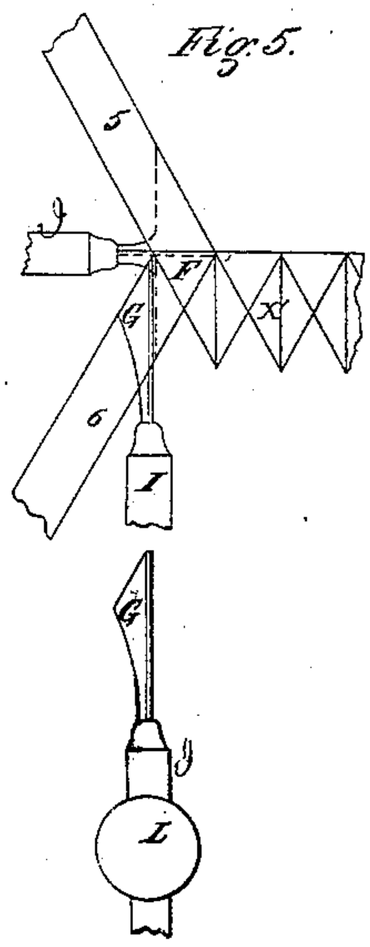


Fig. 4.

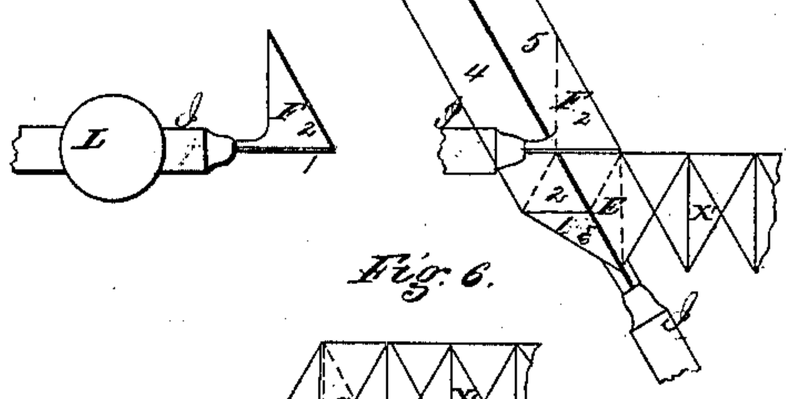


Fig. 6.

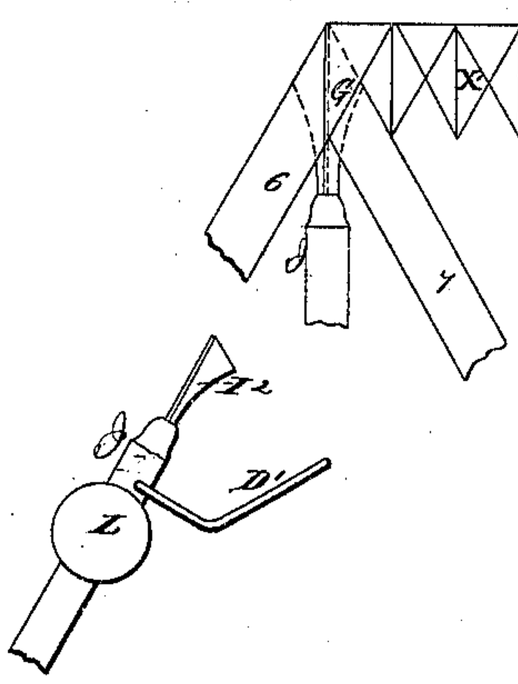


Fig. 3.

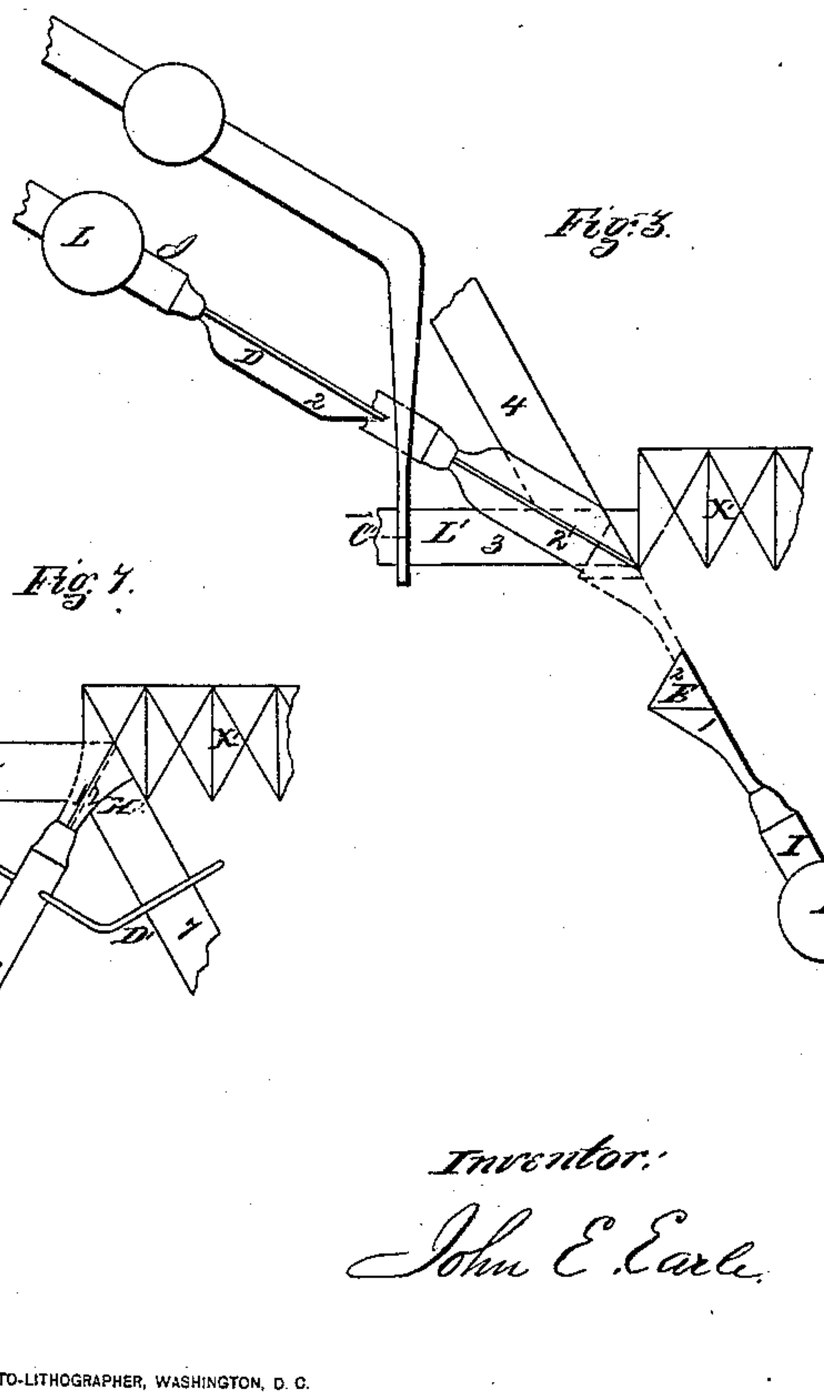
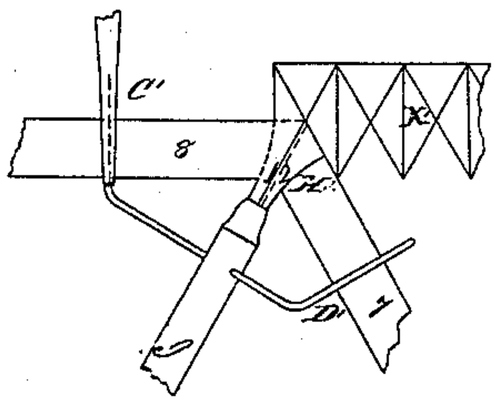
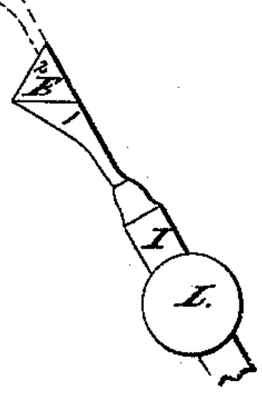


Fig. 7.





Witnesses:
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Sheet 3 - 3 Sheets.

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(Miscellaneous) Wearing Tape.

Patented Jun. 25, 1861.

No. 1,659.
32,663.

Fig. 8.

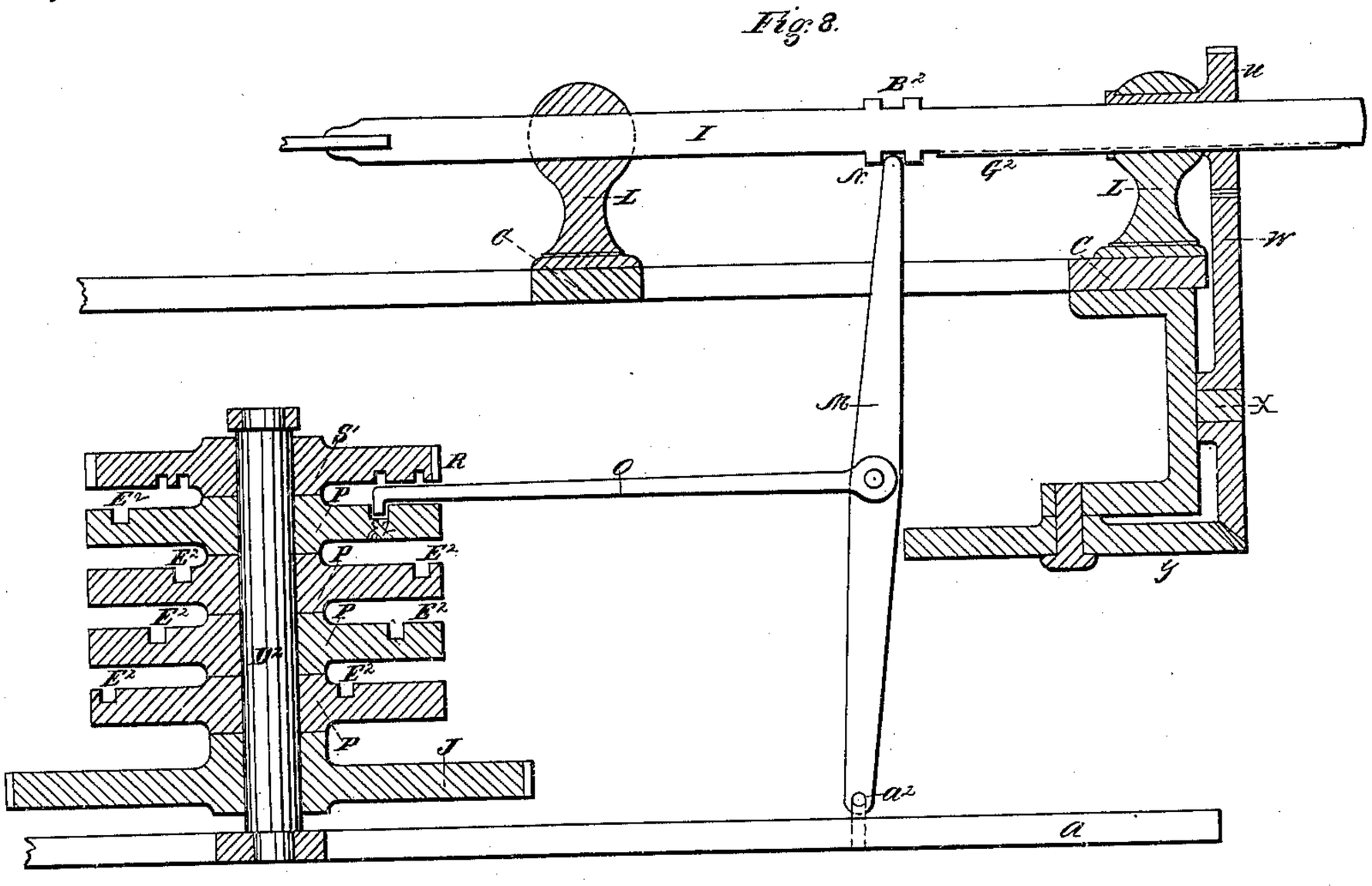
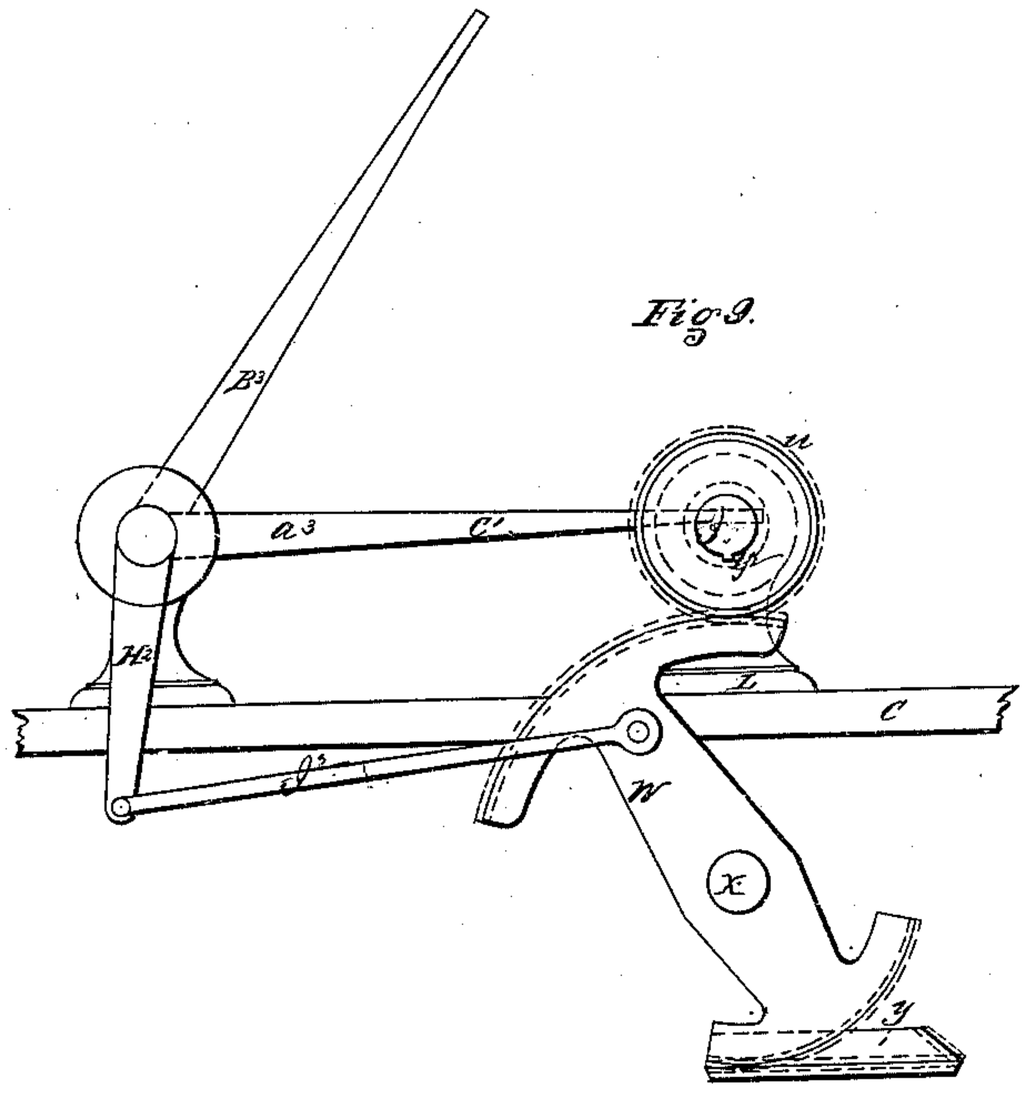


Fig. 9.



Witnesses:
Samuel Hertzaway
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Inventor:
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UNITED STATES PATENT OFFICE.

JOHN E. EARLE, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF AND SAM. HATHAWAY.

MACHINE FOR MAKING TAPE TRIMMING.

Specification of Letters Patent No. 32,663, dated June 25, 1861.

To all whom it may concern:

Be it known that I, JOHN E. EARLE, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Machine for Making Trimming from Tape or other Ribbon, and commonly called "Tape Trimming;" and I do hereby declare that the following is a full, clear, and exact description of the construction and operation thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a sectional view. Figs. 3, 4, 5, 6, 7, show the manner of laying the five folds required in making the particular kind of trimming for which this machine is adapted. Figs. 8, and 9, represent detached parts of the machine.

Same letters and characters refer to like parts.

The nature of my invention consists, first, in folding the tape or other ribbon by means of pincers or folders formed of plates or wires or both or their equivalents, so arranged as at the right moment to move in to, (the tape being in or near the center around which the folders are placed,) and clasp the tape, and by a whole or partial revolution of the folders to fold the tape to the required form or angle, then withdrawing, when a second pair of folders in like manner as the first enters and lays the second fold and withdraws, and the successive folders continuing so to do until all the required folds are laid and the web of the tape brought back to place of beginning; secondly, in a device for untwisting the tape (twist being caused by laying two folds in one direction and three folds in opposite direction making a twist in the tape of one half round,) by means of a continuous revolution given to the holder upon which the tape (from which the trimming is to be made) is placed turning it in the direction to accomplish the result required; thirdly, in a device for carrying the tape from the last folders into the position required to receive the first folders, and retaining the tape in said position until the first folders or pincers have entered and taken hold of the tape,

A, represents the bed plate; B, B, posts supporting the upper plate C; D, E, F, G, H, pincers or folders formed of two thin plates 1, 2, or their equivalents; I, I, spindles to which the pincers or folders D, E, F, G, H, are attached; L, L, studs or bearings supporting the spindles I, I; M, levers hung at the lower end A^2 Fig. 8 to the bed-plate A the upper end acting in the groove B^2 Fig. 8 of the collars N, (said collars N being fixed to and turning with the spindles I, the groove B^2 Fig. 8 in the collar N, admitting of the said collar N turning while the end of the lever remains in the groove;) P, P, disks secured concentrically to the shaft D^2 Fig. 8 and having each a cam groove E^2 Fig. 8 upon its face operating the levers M through the connecting rod O; R the driving shaft; S, S, and T, T, bevel and spur gears for imparting motion to the shaft D^2 Fig. 8; U pinions having their bearing in, and held in place by stud L Fig. 8, the spindles I, passing through the pinion U and by a spline G^2 Figs. 8 and 9 or similar contrivance which will admit the spindle I to move out and in as before described, and at the same time the spindle I will turn with the pinion U; W toothed levers hung at X and meshing into the pinions U at one extremity and into the toothed lever Y at the other extremity; B′ disks secured concentrically to shaft R and having each a cam groove upon its face operating said lever Y through the connecting rods A′; C′ a holder to receive the tape from the last folder and retain it in place to receive the first folders D; H^2 Fig. 9 a lever fixed to the holder C and connecting the same with the toothed lever W Fig. 9 by means of the rod I^2 Fig. 9; D′ carrier attached to the spindle I of folder H for carrying the tape from the last fold to the holder C′; E′, F′ pressers to press the folds when made or at any time required during the several operations; S′, Figs. 2 and 8, disk secured to shaft and having upon its under face two cam grooves for opening and closing the pressers E′ F′ through the connecting rods T′; G′ guide to carry the folded trimming to a sewing machine or other known device for fastening the folds formed by the machine; H′, spool or tape holder supported by, and

having its bearing in the bracket Y′ Fig. 2; I′ the spool; L′ the tape or other ribbon; M′ spur gear through which a revolving motion is given to the holder H′ by means of the gear R′ on the edge of the disk S′ through the pinion N′ and O′ on the shaft P′.

Operation: In Figs. 3, 4, 5, 6, 7 the folders are shown in black when at rest, red when they are in position to fold, and blue when they have folded. The tape is shown in black before the fold is made, and yellow after the fold is made. When the machine is in motion the folder D, Fig. 3, by means of the action of the cam P acting through the rod O and lever M is moved into the position denoted by the red lines, the wire 1 passing above and the plate 2 below the tape L′, (the holder C′ still retaining the tape in position 3); when arrived at this position the folder revolves by the action of the cam B′ through the agency of the rod A′ and levers W and U, at the same time the holder C′ through its connection H^2 and I^2, Fig. 9, with the said lever W operating the folder D is raised from its position A^3 to B^3 and allows the tape to clear from its point the folder D turning until it attains the position denoted by the blue lines and carrying the tape from position 3 to the position 4 shown by the yellow lines. During this operation the second pair of folders E enters in the same manner as the first pair D and when at or about the position denoted by the dotted lines in Fig. 3 the first pair D withdraws and returns to the position of rest denoted by the black lines, and the second pair of folders continues to enter until the position denoted by the red lines Fig. 4 is reached, the plate 1 being above and the plate 2 below the tape (this folder is composed of two plates so that they may hold the fold already made by the first operation) and in the same manner as the first turn to the position denoted by blue lines, carrying the tape from position 4 (in black lines) to position 5 in yellow lines, the folder E remaining in this position until the third folder F enters to the position denoted by the red lines (the wire 1 being above and the plate 2 being below the tape) when the second folder E withdraws to first position shown in black lines Fig. 3. The third folders F turning in like manner as the first and second before described to the position denoted by the blue lines Fig. 5, carrying the tape from position 5 (in black lines) to position 6 (in yellow lines) the folders F remain in this position until the fourth folders G enter to the position denoted by the red lines Fig. 5, when the third folder F withdraws to first position denoted by black lines Fig. 4. The fourth folder G turning in the manner of the first folder before described to the position denoted by the blue lines, Fig. 6 carries the tape from position 6 in black lines to position 7 in yellow lines. As in this position the fifth folder H cannot enter, the pressers E′ and F′ (being in position denoted by red lines Fig. 2) are by the action of cam S′ closed upon the tape and folders G and holding fast the tape, the folders G withdraw to first position denoted by black lines, then the fifth and last folders H enter to the position denoted by red lines Fig. 7 (the wire 1 being below and the plate 2 above the tape) and turns in like manner as the first before described, down and under to the position denoted by blue lines carrying the tape from position 7 to position 8 being the position first denoted at 3 in Fig. 3. The carrier D′ on the spindle I of folder H carries the tape down and around to the holder C′ then withdrawing leaves the tape in the first described position so as to receive the first folder D commencing another operation.

As in folding the tape there are three folds in one direction and two in the reverse, there is a consequent twisting of the tape, one half around when the five folds are completed, and the tape would so continue to twist at each full operation. To overcome this continuous twisting the spool holder H′ is made to revolve one half around (in the direction to obtain the required untwisting) during each full operation by means of the gears M′ and R′ and the pinions N′ and O′ thus leaving the tape untwisted at the close of each full operation.

As the trimming X′ is formed in the manner before described, it is carried through the trough or guide G′ to the sewing machine or other known device for fastening the folds so as to retain them in place for use.

Power may be applied to the driving shaft R.

I do not confine myself to this one particular description of trimming herein described as the several folders may be adjusted so as to fold in various forms. Neither do I confine myself to the precise construction herein described, reserving to myself the right to modify, so long as I do not depart from the general principles herein set forth.

Having thus fully described my invention what I claim therein as new, and useful, and desire to secure by Letters Patent is,

1. The folders D, E, F, G, and H, or their equivalents constructed and operating in the manner and for the purpose substantially as specified.

2. The combination described of folding instruments D, E, F, G, and H, the pressers E′ and F′ and the continuously rotating

spool-holder H′ all constructed and operating together in the manner and for the purpose herein set forth.

3. In combination with a folding instrument operating substantially as described, the carrier D′ rotating therewith for the purpose set forth.

4. In combination with a folding instrument D, and carrier D′, a holder C′ operating in the manner and for the purpose specified.

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Witnesses:
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JAMES HUFFINGTON.