Sheet 1. 2 Sheets.

F. J. Seymour

Tagging Shoe Laces

No. 42798. Patented May 17. 1864.

Fig. 1.

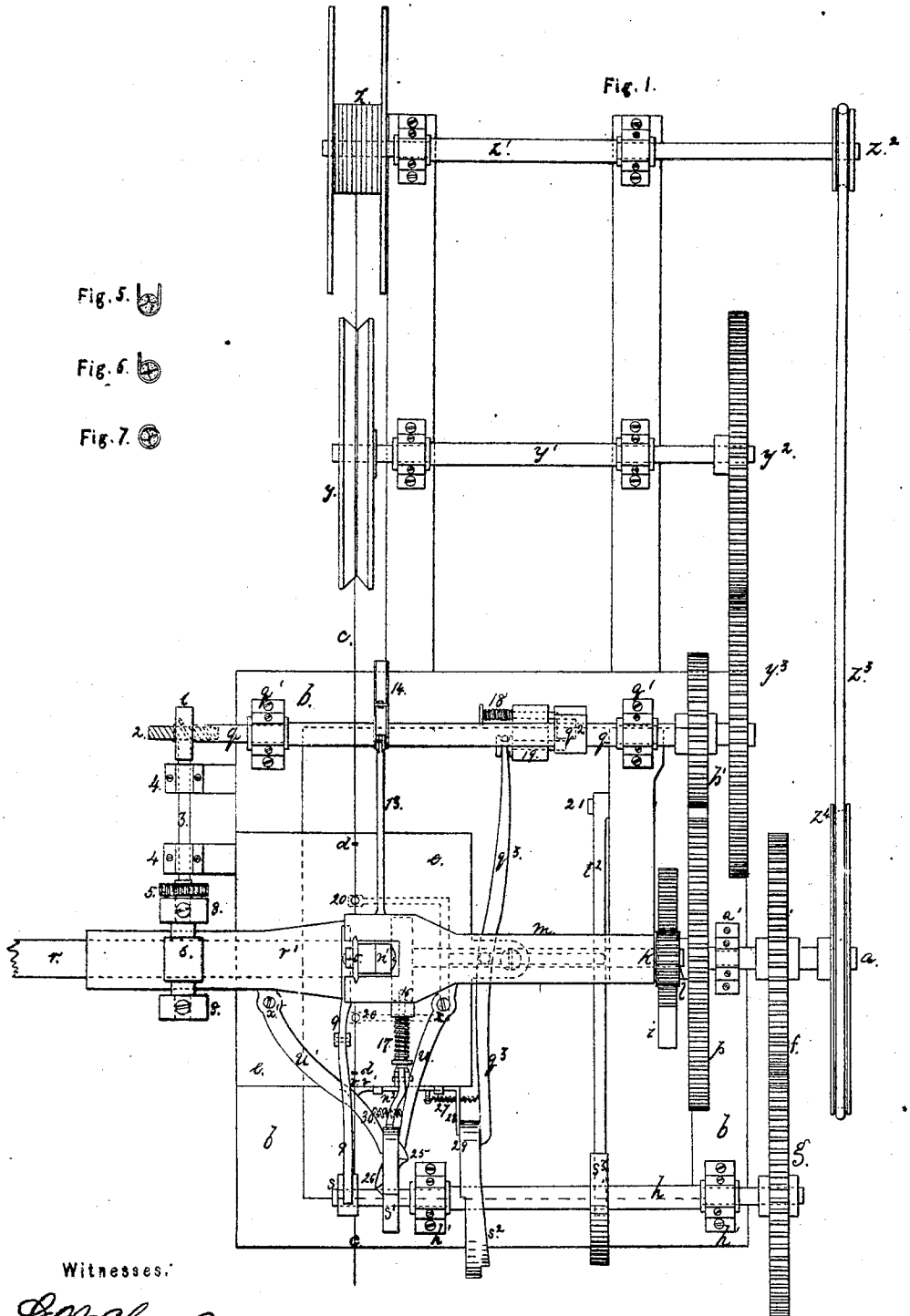

Fig. 5.

Fig. 6.

Fig. 7.

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Sheet 2. 2 Sheets.

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Tagging Shoe Laces.

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Fig. 2.

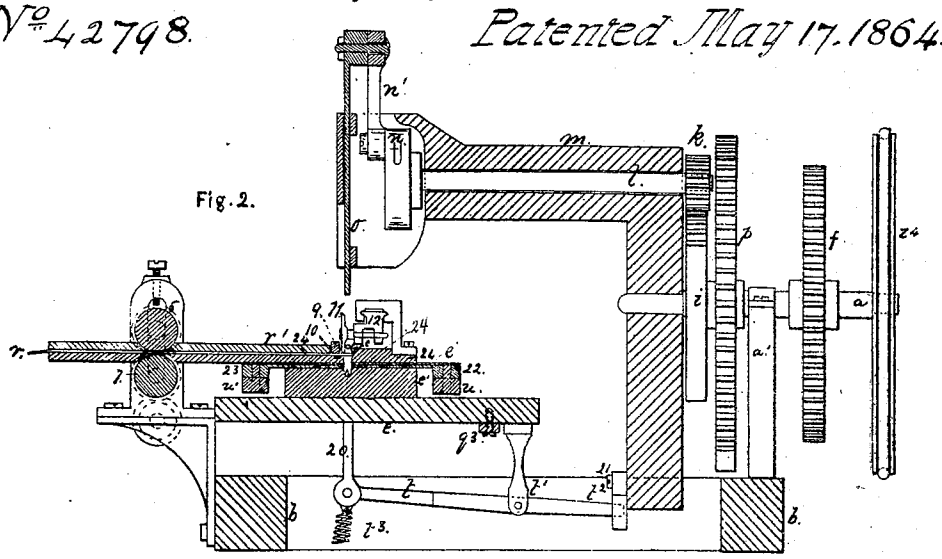


Fig. 3.

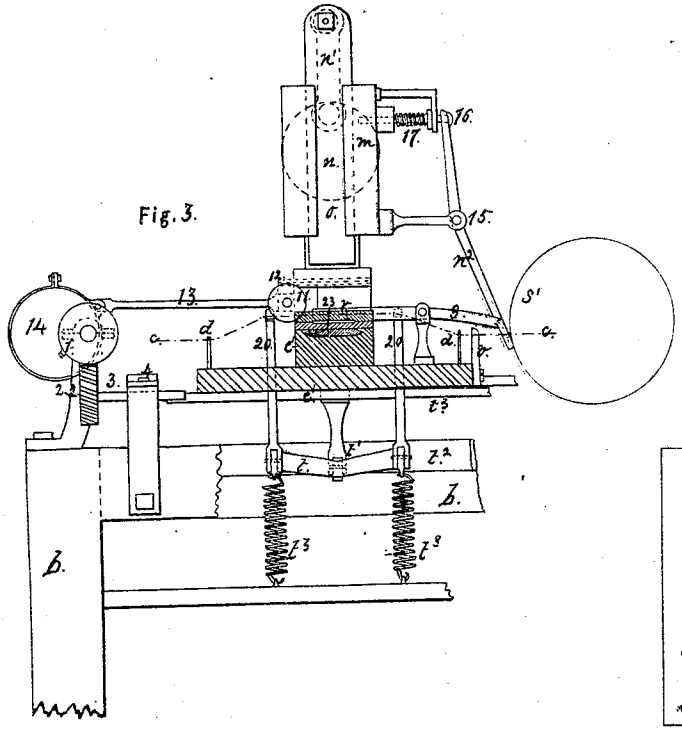
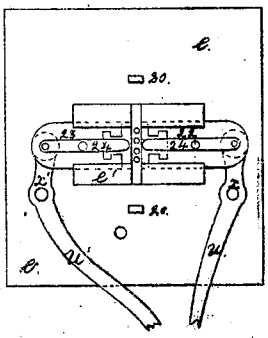


Fig. 4.



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UNITED STATES PATENT OFFICE.

FREDERICK J. SEYMOUR, OF WOLCOTTVILLE, CONNECTICUT.

IMPROVEMENT IN APPARATUS FOR TAGGING LACINGS.

Specification forming part of Letters Patent No. **42,798**, dated May 17, 1864.

To all whom it may concern:

Be it known that I, FREDERICK J. SEYMOUR, of Wolcottville, in the county of Litchfield and State of Connecticut, have invented, made, and applied to use a certain new and useful Machine for Tagging Laces for Shoes, &c.; and I do hereby declare the following to be a full, clear, and exact description of my said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a plan of my said machine. Fig. 2 is a vertical section of the same at the center of the machine. Fig. 3 is an elevation of part of the machine with a portion of the bed in section, and Fig. 4 is a plan representing the dies that compress the piece of sheet metal forming the tag.

The object of my machine is to take braided, woven, or other characters of laces for shoes, corsets, &c., and wrap around the same, at certain distances apart, pieces of thin sheet metal to form tags or double tags, to be afterward separated by any suitable cutter to form the laces.

The general operations performed in tagging the braid are as follows: The braid is drawn along a given distance. A piece of sheet metal is passed beneath the braid and cut off. A die comes down and forces the lace and piece of metal into a groove, bending the piece of sheet metal into a U shape with the braid within it. One of the sides of said strip is next turned over the braid and pressed thereto by said die, after which the other side is turned over and similarly pressed, as illustrated in large size in Figs. 5, 6, and 7. The tag or double tag now being complete, the braid is raised with the tag from the groove and drawn along the next length. The sheet metal is passed in, as before, and cut off, while the pressing-die remains stationary, and then the next tag is compressed and wrapped to its place, as before.

In the drawings, *a* is a shaft driven by competent power and sustained in the bearing *a'* on the frame *b*. The red line *c* represents the braid or lace to be tagged passing through guides *d d* on the secondary bed *e*.

f and *g* are gears communicating a continuous rotary motion to the cam-shaft *h* in bearings *h'* on *b*. The shaft *h* is to revolve at the same speed as the shaft *a*, and hence the cams carried by said shaft revolve once each complete movement of the machine.

o is a vertical slide pressing-die actuated by the pitman *n'*, connecting with a crank-pin on the disk *n* on the end of the shaft *l*, these parts being sustained by the arm *m* from the bed *b*.

At the end of the shaft *l* is a pinion, *k*, gearing with a wheel, *i*, on the shaft *a*. This wheel *i* is to be six times the diameter of the pinion *k*, and the teeth on one half of said wheel are removed, so that the pinion *k* is rotated three times while the wheel *i* is making a half-revolution, giving a corresponding number of reciprocations to the pressing-die *o*, and then said parts remain stationary while the said wheel *i* makes the other half-rotation.

In order to retain the disk *n* and parts attached in proper position, so that the teeth of *i* will correctly take the teeth of *k* as they come around, I employ the bolt 16, that is thrown by a spring, 17, into a hole in the periphery of the disk *n* at the moment the teeth of *i* pass clear of the pinion *k*, and this bolt 16 is withdrawn, just before the half-circle of teeth on *i* reach the pinion, by means of the lever n^2 on a fulcrum, 15, acted on by the cam *s'* on the shaft *h*.

p is a wheel on the shaft *a*, gearing to the wheel *p'* on the shaft *q* in boxes *q'* or *b*. The wheel *p* is twice the size of the wheel *p'*, but has teeth only half-way around its periphery; hence the shaft *q* will make a complete rotation during half the rotation of *a*, and remain quiescent during the other half-rotation of *a*.

In order to prevent the momentum of the shaft *q* and parts attached moving said parts after the gears *p p'* pass out of contact, I provide an arm, q^2, extending downward, as shown by dotted lines in Fig. 1, and this arm, as the gears separate, comes up against a stop, 19, having pressed back a spring-latch, 18, that springing over the other side of said arm retains it in place until the stop 19 is withdrawn by the lever q^3, fulcrumed on the bed *e*, and acted upon by the cam s^2, just before the gear *p* takes the wheel *p'*, as before. A spring, 27, moves the lever q^3 and stop 19 back to place as the cam s^2 clears the end of the lever.

At the end of the shaft *q* is a disk, 1, carrying in its periphery a pin that, when the

machine is at rest, is contiguous to the end of an inclined groove in the wheel 2 on the shaft 3, in bearings 4, which communicates by gear-wheels 5 with the feeding-rollers 7 and 6 in the standards 8, which rollers pass the thin strip of sheet metal along between the plates r', to be cut off and form the tag, as hereinafter described. It will be seen that as soon as the shaft q commences to turn, the pin in 1, passing across the wheel 2 in the diagonal groove thereof, gives the necessary movement to the rollers to feed in the strip of material, and if a wider strip of material is required for the tag the wheel 2 can be removed and another substituted having a less number of grooves and a greater angle to each; or a smaller feed can be obtained by a wheel, 2, with a larger number of grooves and each at a less angle.

The strip of sheet metal, when fed in, is held to a bed-shear, 10, by a clamping lever, 9, acted upon by a cam, s, on h, while a suitable cutter separates the piece of metal to form the tag. I have represented a circular rolling shear, 11, on a carriage, 12, that at the proper moment is rolled across the strip of metal and then drawn back by the action of the eccentric 14 and connecting-rod 13. These operations of feeding in the strip of sheet metal, clamping, cutting off the end for the tag, and drawing back the cutter 11, take place while the pressing-die o is elevated and stationary; then the gear i rotates the pinion k, and the die o carries the center of the strip of metal or tag-blank down into a groove in the block e' on the bed e, forming the same into a U shape with the lace or braid within the same, for the braid c had been raised above the tag-blank, as seen in Figs. 2 and 3, by the eyes 20 20, at the ends of the groove in e', actuated by the lever t, on the fulcrum t', receiving motion from the lever t^2 on the fulcrum 21, that is acted upon by the cam s^3. This cam s^3 clears the end of the lever t^2 as the die o first descends, and the spring t^3 draws down said eyes 20, causing the lace or braid to remain in the U-shaped tag-blank when pressed down by the die o. As the die o rises, a folding-slide, 22, in the block e', acted upon by the lever u on the fulcrum x, moved by the cam projection 25 on s', comes up and folds one side of the tag-blank over the braid, as in Fig. 6. The die o now descends the second time, presses that to its place, and as it rises the folding-slide 23 on the opposite side, acted on by the lever u' on the fulcrum x', moved by the cam projection 26 on s', comes up and folds the other side of the tag-blank over the first, as seen in Fig. 7, and the die o descends the third time, pressing the tag firmly together, thus making a perfect metallic tag or double tag around the braid. The eyes 20 20 are now raised by s^2, lifting the tag and braid out of the groove in e', the lace or braid is drawn along the required distance, by suitable mechanism, and the operations proceed as before.

The folding-slides are drawn back by a spring, 30, between the levers u and u', and I prefer to make the ends of the slides 23 and 22 themselves of separate pieces, notched into the slides, as shown, so as to move back and forth with said slides, but pressed down by the flat springs 24, so that the end of each slide may yield and slightly rise over the tag-blank in folding it down upon the braid, should that braid be thick, and the folding-slides hence do not become wedged immovably over the tag, but yield thereto, if necessary.

Small pins should project through the bottom of the groove in the block e', to perforate the metal forming the tag and make the same hold much firmer upon the braid. These points also prevent the blank from rolling in the groove in e' when the slides 23 or 22 act upon such blank to fold or close the sides around the braid.

The braid e is passed along from any suitable spool between the fixed jaw v and moving jaw v', and this jaw v' is acted upon by an arm, 28, to the cam 29 on the side of s^2, so as to hold the braid firmly and prevent its being drawn along while the tag is being put on, but release the same by the action of the spring 27 when each tag is completed, so that the next length of braid can be drawn along.

The means for drawing along and measuring off the braid to determine the distance between one tag and the next do not form any part of my invention. I have, however, shown such a device, consisting of the grooved wheel y, whose circumference is to correspond to length of each lace. This wheel y is on a shaft, y', with a gear, y^2, to a gear, y^3, on the shaft q, so that when this shaft q makes a revolution (the jaws v v' being open) the wheel y turns and draws the lace or braid along.

The tagged braid is wound upon a reel or spool, z, on a shaft, z', with a pulley, z^2, and belt z^3, to a pulley, z^4, on a. It will be understood that the belt z^3 slips on its pulleys when the lace or braid is being tagged and is stationary. The reel z might be loose upon its shaft and a friction disk or spring applied to its side to produce the rotation or to allow the reel to remain stationary while the shaft continues its revolution.

The wheel y may be changeable, so as to provide for different lengths of lace by varying the size of wheel employed.

What I claim, and desire to secure by Letters Patent, is—

1. Bending the tag-blank into a U form, and then folding over the edges successively, substantially as specified.

2. The compressing-die o, actuated substantially as and for the purposes specified.

3. The folding-slides 23 and 22, constructed and actuated substantially as and for the purposes specified.

4. Controlling the intermitted rotation of the shaft q by the stop 19, arm q^2, and lever q^3, substantially as specified.

5. Actuating the feeding-rollers 6 and 7 by the wheel 2, with inclined grooves taking the pin on the disk 1, substantially as specified.

6. The clamping-lever 9 and cutter, applied and operating substantially as specified, to cut off the tag-blank, as set forth.

7. The guide-eyes 20, actuated substantially as specified, to lift or depress the tag-braid, for the purposes set forth.

8. The holding-jaws *v v'*, actuated substantially as specified, to clamp the braid while the tag is being put on the same, as set forth.

Dated this 11th day of January, A. D. 1864.

FREDERICK I. SEYMOUR.

Witnesses:
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J. F. CALHOUN.