

(No Model.)

2 Sheets—Sheet 1.

G. R. PEARE.
SEWING MACHINE.

No. 467,878.

Patented Jan. 26, 1892.

Fig. 1.

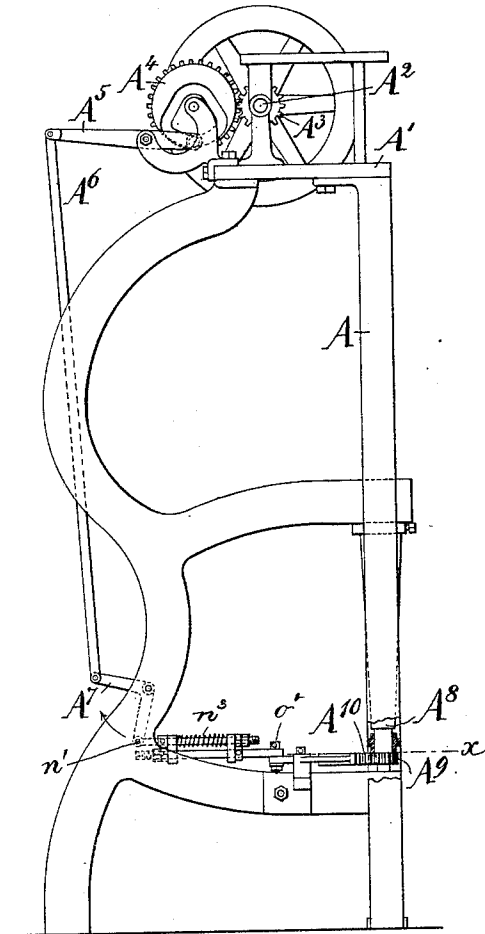


Fig. 2.

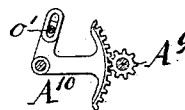
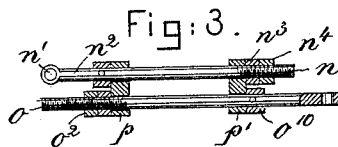


Fig. 3.



Witnesses.

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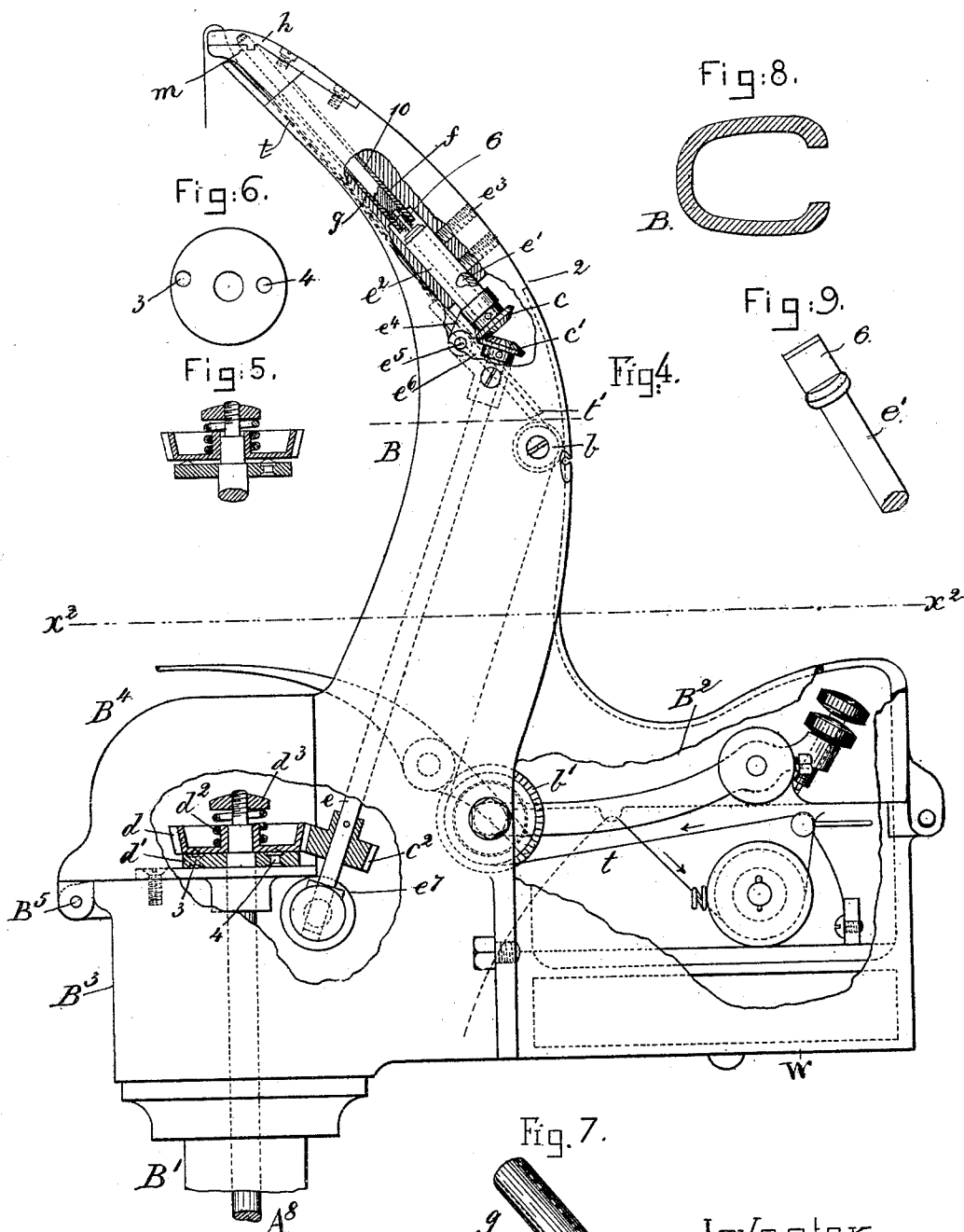
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2 Sheets—Sheet 2.

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Witnesses.

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Inventor.

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UNITED STATES PATENT OFFICE.

GEORGE R. PEARE, OF LYNN, ASSIGNOR OF ONE-HALF TO EDWIN L. SPRAGUE, OF BOSTON, MASSACHUSETTS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 467,878, dated January 26, 1892.

Application filed February 3, 1891. Serial No. 380,041. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. PEARE, of Lynn, in the county of Essex, State of Massachusetts, have invented an Improvement in Sole-Sewing Machines, of which the following description, in connection with the accompanying drawings, is a specification; like letters and figures on the drawings representing like parts.

10 This invention has for its object to improve the mechanism employed for rotating the whirl and the usual horn.

In accordance with my invention I have provided means to actuate the vertical spindle constructed as will be described, so that in case of undue obstruction to the whirl the same will stop. I have also arranged the whirl-driving pinion so that it may be readily adjusted to mesh properly with the teeth of the whirl or to compensate for wear.

Figure 1, in elevation, shows part of a sole-sewing machine embodying my invention; Fig. 2, a section below the dotted line x , Fig. 1; Fig. 3, an enlarged plan view of the 25 pound link; Fig. 4, a much enlarged view, partially broken out of the upper part of the horn; Figs. 5, 6, and 7, details to be referred to; Fig. 8, a section simply of the horn in the line x^2 ; Fig. 9, a detail chiefly to show the 30 upper end of the shaft e' .

The frame-work A of the machine, composed in part of a head A', the main shaft A², having the gear A³, which engages the toothed cam-plate A⁴, the lever A⁵, having a roller or 35 other stud to enter the groove in the said cam-gear, the connecting-rod A⁶, the elbow-lever A⁷, to which it is attached, the horn-spindle A⁸, having a gear A⁹ at its lower end, and the toothed segmental arm A¹⁰, are and may be 40 all as common in other sole-sewing machines.

The horn B herein represented has a hollow horn-spindle B' extended down and surrounding the vertical spindle A⁸ in usual manner, but herein the horn is somewhat differently constructed from any horn heretofore used, so far as I am aware, in that the 45 front or concave side of the horn presents a substantially unbroken surface, while the convex side of the horn from about the point 50 2 downward to the waxing-chamber B², is

open, to allow the operator to have ready access not only to the thread-roll $b b'$ and tension device over which the thread passes, but also to the gearing $c c' c^2$, to be described, and the bearings therefor, which gears form part 55 of the whirl-driving train. The horn-head B³ has a little cap B⁴ pivoted thereon at B⁵, which cap may be overturned about the said pivot to gain access to the clutch $d d'$, which co-operates with the vertical spindle A⁸. This 60 clutch consists, essentially, of a plate d' , fast to the vertical spindle A⁸, and provided with two conical pins or dogs 3 4, the one 4 being shown by full lines, while the other is shown by dotted lines. The other part of the 65 clutch d is a gear herein represented as cup-shaped, for lightness, it being mounted loosely upon the upper end of the vertical spindle, the part d of the clutch being normally pressed against the part d' thereof by a 70 suitable spiral or other spring d^2 , the effective pressure of which is controlled by a nut d^3 . In practice the lower side of the part d has two conical recesses or cavities to be engaged by the conical pins or dogs 3 4, the said pins 75 or dogs being represented as set out of line with a diametrical line across the vertical spindle, and being set at different distances from the center of the vertical spindle, as best represented in Fig. 6. Such position for the 80 pins and the holes referred to enables the part d , when released from driving contact with one of the pins or dogs, to partake of a full rotation before it is again stopped, rather than a half-rotation, thereby preserving its time while a 85 half-rotation would throw it out of time, which would be the result if the pins or projections were at the same distance from the center of the vertical spindle and in the same diametrical line. The part d of the clutch engages 90 the gear c^2 on the horn-shaft e , having at its upper end the pinion c' , which engages the pinion c of a short shaft e' , supported in a tubular bearing e^2 , held in the horn by suitable set-screws e^3 . The bearing e^2 has a pro- 95 jecting ear e^4 upon which is pivoted at e^5 the bearing e^6 for the upper end of the shaft e . The lower end of the shaft e enters a bearing e^7 , which is pivoted in any suitable manner to the horn proper, so that it may tip, as when 100

the shaft *e* is turned down toward the right from its position shown in Fig. 4 to withdraw the shaft *e'* and its bearing from the horn for any purpose. The upper end of the shaft *e'* has its end flattened to constitute a tongue 6, as shown best in Fig. 9, said tongue entering a diametrical slot in the lower end of the ordinary whirl-driving pinion *f*, and also slot 8 in the lower end of a sleeve *g*, it having a fine interior thread which is screwed upon the shank of the said pinion *f*. The upper end of the pinion *f*, (shown by dotted lines,) engages the beveled teeth of the usual McKay whirl, but as the latter is well known it is not illustrated in the drawings; for the cap *h* covers it.

The drawing, Fig. 4, shows the sleeve as screwed somewhat up upon the pinion *f*. The upper end of this sleeve abuts at 10 against the lower end of the shank of the horn tip of usual shape, rotation of the sleeve independently of the pinion *f* in one or the other direction enabling the teeth of the said pinion *f* to be engaged to a greater or less degree with the teeth of the whirl, as may be required, the width of the tongue being sufficient to stand in the slot of both the pinion *f* and the sleeve surrounding it.

Referring now to Figs. 1, 2, and 3, instead of the usual link connecting the elbow-lever *A*⁷ with the toothed segment *A*¹⁰, I have substituted a compound yielding connection represented as composed of two bars *n* *o*, the bar *n* being connected to the elbow-lever *A*⁷ at *n*¹, while the bar *o* is connected through a suitable pin *o'* with one end of the toothed sector. The bar *n* has fast upon it a collar *n*², and extended loosely through two blocks *p* *p'* and also through a spring *n*³, (see Fig. 1,) located between said blocks, the bar *n* thereafter having upon it suitable adjusting-nuts *n*⁴. The bar *o* has a fixed collar or nut *o*¹⁰, and the said bar is extended loosely through holes in the two blocks *p* *p'*, and thereafter it has screwed upon its threaded end suitable nuts *o*².

In operation when the lower end of the lever *A*⁷ is moved in the direction of arrow near it in Fig. 1 the bar *n* will be drawn in that direction, the nut *n*⁴ will act on the spring *n*³, and the latter, through its action on the blocks *p*¹ *p* and the nut *o*², will draw the bar *o* to the left, viewing Fig. 3, and actuate the segmental lever in a yielding manner, and when the lever *A*⁷ is moved in the opposite direction the collar *n*², acting upon the block *p*, will, through the spring *n*³ and the block *p'*, act on the collar *o*¹⁰ and move the bar *o* to the right, viewing Fig. 3, the motion also being a yielding motion. This compound yielding link gradually reduces the shocks put upon the driving parts in their rapid motion, and is especially desirable in a machine embodying a segmental toothed arm.

In this invention as described it will be seen that the compound link takes up the shocks produced both while stopping or starting the whirl-train and due to rapid motions, while

the clutch referred to, in case the rotation of the whirl is obstructed, slips one part upon the other for a rotation of the spindle *A*⁸ in case the whirl is dangerously obstructed. It will be noticed that the thread *t* taken from the wax-box *W* passes through the guide-roll or tension device *b'*, thence from the guide-roll or support *b*, as represented, and through a hole (represented at *t'*) made in one side wall of the horn up through a groove or hole extending from the end of the hole *t'* through the solid part of the horn to the throat near the horn-tip and through the eye of the whirl. This groove through the solid part of the horn insures the keeping of the conical side of the horn clean, so that the wax cannot get upon the interior of the shoe.

I have herein shown one form of clutch device used as an element in a combination with a horn-shaft *a*⁸ and a free carrying-whirl of a sewing-machine, the said elements being contained within the horn of a sewing-machine for a specific purpose appertaining to sewing, and I do not herein or anywhere claim any invention in a clutch as a mechanical movement.

Having described my invention, I claim—

1. In a sole-sewing machine, the following instrumentalities, viz: a horn-spindle, as *A*⁸, having a gear *A*⁹, a toothed segment, a compound connection composed of rods and a spring and blocks, and means to actuate one of the said rods positively, substantially as described, the other rod transmitting its power to the segment in a yielding manner, for the purposes set forth, substantially as described.

2. In a sole-sewing machine, a horn, a vertical horn-spindle *A*⁸, and the shaft *e* in the horn, the gear *c*² thereon, and the whirl-actuating pinion connected to said shaft, combined with a clutch interposed between and operatively connecting the said gear and the spindle *A*⁸ and adapted to yield one part with relation to the other upon undue obstruction of the rotation of the shaft *e* by stoppage of the whirl-actuating pinion, substantially as described.

3. The shaft *A*⁸, its attached plate *d'*, having dogs or projections 3 4, arranged out of line with the diameter of the said plate *d'* and at different distances from the center of the shaft *A*⁸, and a plate *d* and a spring to force it toward the plate *d'*, said plate having conical recesses to receive the said dogs or projections, combined with a horn and a shaft *e* therein, provided with a gear *c*², to operate substantially as described.

4. The combination, with a horn of a sole-sewing machine, of a whirl-actuating pinion therein having its shaft slotted at its lower end and threaded and a sleeve screwed thereon, as described, a rotating shaft *e'*, having a tongue to enter the slot of the said whirl-actuating pinion, and the said sleeve, to operate substantially as described.

5. A sole-sewing-machine horn and shafts *e* *e'* therein and beveled gears *c* *c'*, connecting

them, combined with a bearing e^3 , having an ear, and a bearing e^6 , pivoted at e^5 to the said ear, and with a tipping bearing e^7 for the lower end of the shaft e , substantially as described.

5 6. A sewing-machine horn having shafts e e' , gearing connecting the said shafts, and a thread-support b and tension device, the said horn being closed at its concave side and being open at its convex side from at or near a point opposite the said gears to a point below the tension device, as and for the purpose set forth, substantially as described.

7. A sewing-machine horn having its concave side from its tip to its base closed, a solid portion of the horn nearer its concave face being provided with a thread-hole, as and for the purpose set forth, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE R. PEARE.

Witnesses:

GEO. W. GREGORY,
A. S. WIEGAND.