

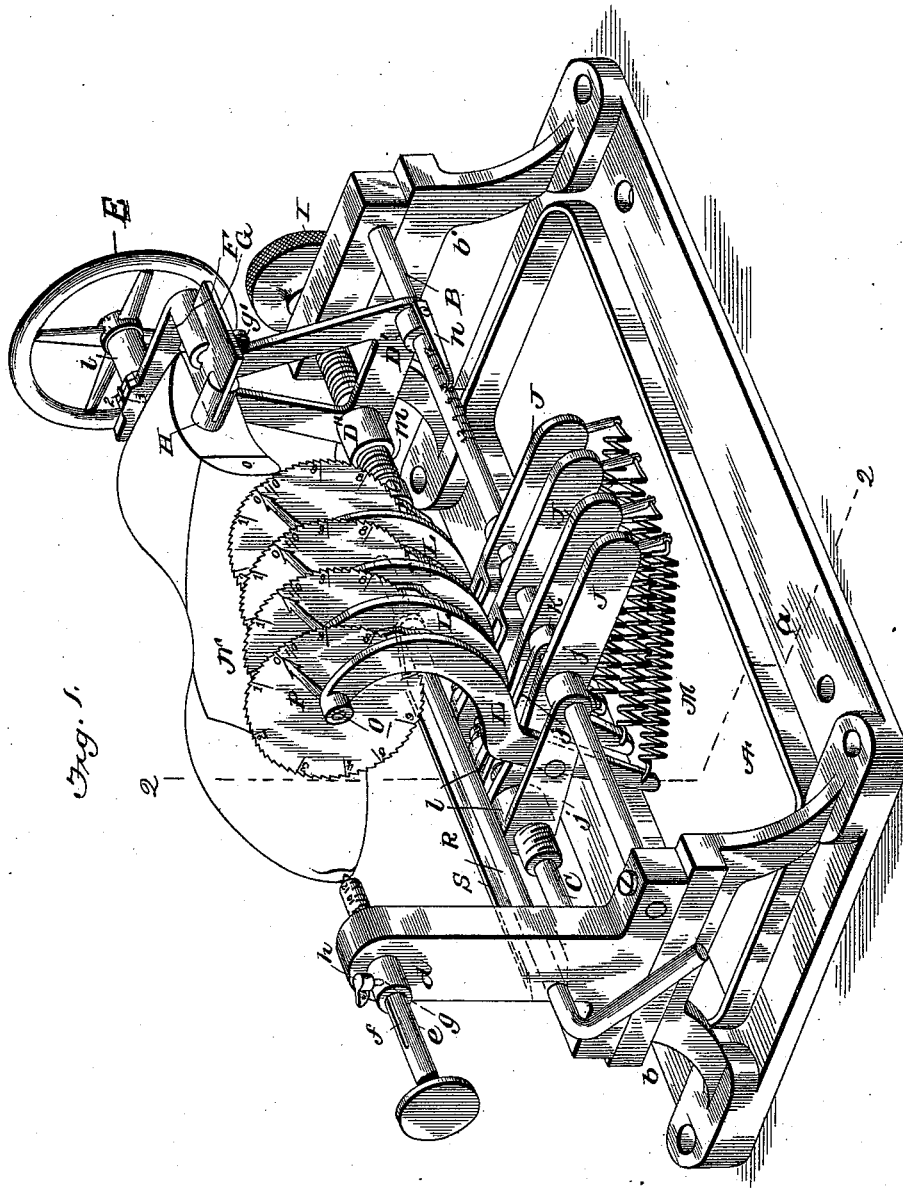
(No Model.)

3 Sheets—Sheet 1.

A. S. ADLER.
CONFORMATOR.

No. 526,849.

Patented Oct. 2, 1894.



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(No Model.)

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Fig. 2

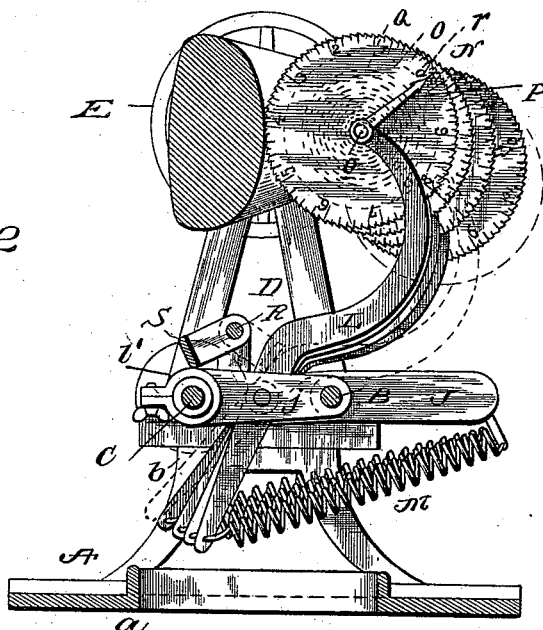
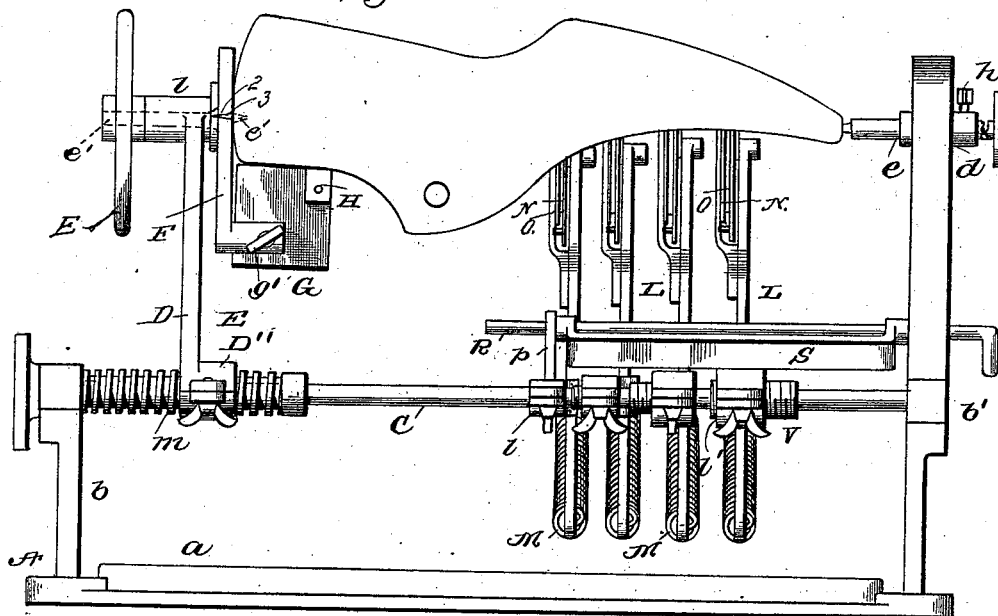


Fig. 3



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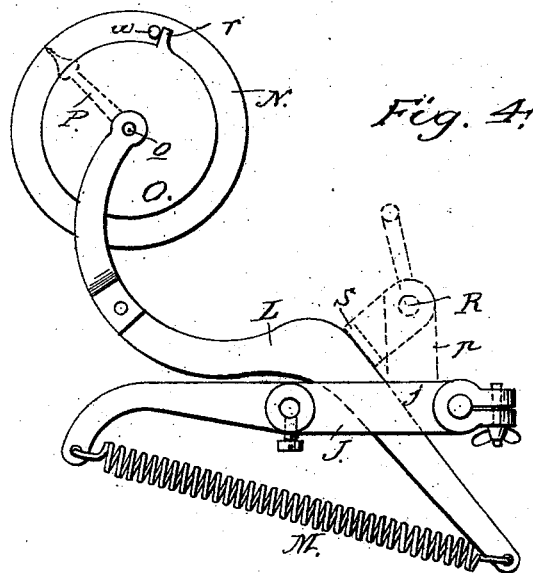
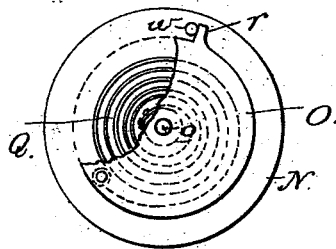


Fig. 5.



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UNITED STATES PATENT OFFICE.

ABRAHAM S. ADLER, OF BALTIMORE, MARYLAND.

CONFORMATOR.

SPECIFICATION forming part of Letters Patent No. 526,849, dated October 2, 1894.

Application filed November 2, 1893. Serial No. 489,866. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM S. ADLER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Conformators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Figure 1, represents a perspective view of a conformator embodying my invention. Fig. 2, is a transverse sectional view on the line 2—2 of Fig. 1. Fig. 3, is a side elevation showing the inserted last partially rotated. Fig. 4, is a detail showing one of the rotating disks with its pivoted carrying lever and supporting arm detached from the machine. Fig. 5, represents one of the disks with its face plate provided with a lug or stop and showing a portion of said plate broken away to disclose the spiral spring.

My present invention relates to certain new and useful conformators adapted especially for last-makers' use. It is an improvement on my former patent, No. 506,761, dated October 17, 1893, and issued to me jointly with another, and it consists of the constructions, arrangements and combinations of parts which I shall hereinafter fully describe and claim.

Referring now to the drawings for a more complete explanation of my invention, A represents a frame of suitable design and construction and comprising a base *a* and end standards *b* and *b'*.

The end standards *b* and *b'* of the machine are formed or provided with bearings for the end journals of parallel rods B and C, one of which B has a series of lines or marks representing different lengths of lasts, while the rod C is formed or provided with threads of varying sizes for a purpose I will hereinafter fully disclose.

The standard *b* at one end of the machine is provided near its upper end with a bearing *d* in which a horizontal pin or rod *e* is adjustably mounted. This pin or rod has a groove or key-way *f* engaged by a feather or pin *g* in the bearing, whereby the pin or rod

is held against turning in its bearing but permitted to freely slide in a horizontal plane and to be held in an adjusted position in and out by means of a set screw *h* engaging it as shown.

The inner end of the pin or rod is formed or provided with a point for suspending the toe-portion of a last when the latter is introduced in the machine as shown, and said inner end is also graduated with lines or marks to represent the toe measurement of a given last.

The rod *e* in connection with a pin or rod *e'* at the heel portion of the machine constitutes the suspending devices between which the last is hung; and said pin or rod *e'* is mounted to turn in a bearing *l* in the upper end of a standard D, or equivalent device secured to its outer end.

On the inner end of the rod *e'* just inside of the standard D is a plate F or lever extending at right angles and whose face is, preferably, formed or provided with the suspending point for the heel end of the last, or the rod *e'* may extend through the plate and be pointed for this purpose.

The outer end of the plate F is turned at right angles to its body or parallel with the axis or rod *e'*, and is forked or slotted, to receive a thin plate G, one end of which has an extension or projection H adapted to enter a hole or recess in the top of the last, whereby said last becomes attached to and is rotatable with the plate F when the hand wheel is turned. The plate G is adjustable in its slot by means of a set screw *g'* to suit different sizes of lasts.

The standard D, which carries the devices for suspending the heel portion of the last, and the means for rotating said last, has its lower end formed or provided with bearings or sleeves D' D'' through one of which D' the rod B passes, while the other sleeve D'' is internally threaded and is adapted to engage the coarse threads *m* of the other or screw rod C, the outer end of which carries a milled hand-wheel I which, when operated, rotates the screw rod and causes the heel standard D to be moved in or out to correspond with the size of the last to be inserted;

the said sleeve D' having a forwardly extending pointer *n* secured to it with its point or free end lying in the path of the lines or marks on the rod B indicating the size numbers of lasts.

On the rods B and C are mounted a series of arms J placed side by side and extending parallel with each other and transversely of the machine; one of said arms being fixedly secured to the fixed rod B, while the other arms are adjustable toward and from each other by reason of the variable screw threads upon the screw rod, as I shall presently disclose. Each arm J consists of two parallel members *j* connected by sleeves *k* and *l*, the former of which has a smooth interior which enables all of the arms except the fixed one before noted to slide freely along the rod B, while the other sleeves *l* are internally threaded and adapted to engage the threaded portions or sections of the screw rod C.

Fulcrumed between the members of the arms at points between the sleeves *k* and *l* are the levers L, the lower portions of which may be straight and the upper portions curved as shown, the said levers being each hung upon pins mounted in the members *j* of the arms, and one member of each of said arms being extended at one side and connected with one end of a spring M the opposite end of which is in turn connected with the lower free end of the lever carried by the arm. This arrangement constitutes a series of arms each of which is independently movable for a purpose hereinafter described.

The upper ends of the levers are forked or slotted and provided with pins *o* upon which the measuring wheels or disks N are mounted to freely turn, each wheel having its edge marked with inches and fractions thereof starting from a zero point, and also may have said edge serrated or roughened to increase the traction between the disks and the last which they are designed to engage, to cause a positive rotation of the disks when the last is turned in contact with their edges.

On each arm upon one side of each disk is a face plate O having a stop lug *r* and upon the opposite side is a pointer P adapted, in the normal position of the disk, to register with the zero point.

In order that each disk may be returned to its initial or normal position when rotated by contact with the last, I locate between each face plate and its companion disk a helical spring Q, one end of which is connected with the stationary face plate while the other end is connected with the rotatable disk or its hub, whereby when the disk is turned, as before stated, the spring is wound up, and when released the spring uncoils and returns each disk to its normal position, this return of the disk being limited by the stop lugs on the face plates.

In order that the entire series of levers with

their disks or wheels may be simultaneously thrown backward out of the path of the last to permit the latter being placed in and removed from the machine, I mount between the toe standard *b* and a standard *p* on the fixed arm J of the series, a shaft R which extends parallel with and above the rods B and C, and is provided with a portion or plate S which serves as a cam and is adapted to engage the levers whereby when the shaft is turned this cam portion or plate will contact with the levers and force them outward away from the last and hold them in this position by reason of the plate or cam portion engaging the straight portion of the levers as shown by dotted lines in Fig. 2. When this cam portion or plate is released from contact with the levers the springs M draw upon the lower ends of the levers and move the disks to their normal position.

Machines of the character described and shown are useful for last-makers and dealers in this commodity, and are designed especially to prove the correctness of the lasts, and to permit any last to be reduced or built up to a given size.

To determine if a last is of the proper size the same is placed in the machine upon the suspension points, and the heel portion secured to the rotatable devices at that point, the levers and disks being first thrown backward by the plate or cam previously described.

The last being of a given length the hand wheel I is rotated thereby adjusting the heel standard D until the pointer *n* registers with a like number on the graduated portion of the rod B; which movement also causes the adjustable arms J to be correspondingly moved toward or from each other by reason of their engagement with the variable screw rod. The toe pin or rod being now adjusted until its point engages the toe of the last and secured, said last may be turned in transverse planes upon rotating the hand wheel E. The last being thus secured the shaft R is turned to release the plate or cam S from its fixed contact with the levers, when the springs M draw the levers inward until the disks contact with the last. Now as each lever has a movement independent of the others, it is apparent that the disks will conform to the irregular outlines of the last at the points where they engage, which I may say represents the four measurements between the toe and instep, with the pointers marking the zero points on the disks. Upon turning the hand wheel E the last is rotated and the frictional contact between the last and disks is such that each disk is turned upon its axis until a complete revolution of the last is made. Owing to the irregular outline of the last each disk will be projected out of line with the others so that the relative positions of the pointers may be instantly observed, and the measurements indicated on the combined

disks will disclose to the operator whether or not the last is of standard size.

If one or more of the disks should disclose the fact that the last at such points is above or below the standard the deficiency is supplied by reducing the last by hand or building it up as the circumstances may require, until the desired measurement is obtained. When the levers are moved outward to throw the disks away from the last, the springs Q are coiled by the rotation of the disks and when released from the last, as previously described, these springs uncoil themselves and return the disks to normal position with zero point and pointer aligned, and with the pins *w* on the disks in contact with the stop lugs *r* on the face plates. The last being accurately measured it may be removed by releasing it from its heel and toe suspension devices, and a new last introduced.

On the upper part of the heel standard D is a mark or groove 2, and on the plate or lever carried by the rotatable heel pin is a corresponding mark or pin 3, these marks being brought into engagement when the last is to be rotated, and when they again coincide they indicate that the last has made a complete revolution.

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

1. In a last-maker's conformator, the combination with a suspended last and means for turning it in transverse planes, of a series of indicators supported side by side, means for holding the series of indicators in contact with the last whereby they conform to the outlines of the last and are independently rotated by contact therewith, and means for withdrawing the indicators from the last in series.

2. In a last-maker's conformator, the combination with a suspended last turnable about suspension points at its ends, of a series of rotatable indicators supported side by side and held by a yielding pressure against said last whereby they conform to the outlines of the last when brought into contact therewith, and when the latter is turned in transverse planes, and means for withdrawing the indicators from the last in series and holding them out of contact therewith.

3. In a last-maker's conformator, the combination with a support, and a last turnable therein, of a rotatable indicator to be held by yielding pressure in contact with the walls of the last and to be rotated by the last when the latter is turned, and a spring for returning the indicator to its normal position when contact with the last is broken.

4. In a last-maker's conformator, the combination with a support, and a last mounted to turn therein, a rotatable indicator adapted to engage and be rotated by contact with the last, a spring adapted to be compressed by the rotation of the disk and to expand and return

the disk to normal position, and a pointer fixed with relation to the rotatable indicator for indicating the length of its movement.

5. In a last-maker's conformator, the combination of a support, a last mounted to turn therein, a spring-actuated indicator rotated by contact with the last to measure its exterior area, and a fixed pointer for disclosing the amount of movement of the indicator.

6. In a last-maker's conformator, the combination of a support, a last mounted to turn therein, a series of spring-actuated indicators movable toward and from the last in series and adapted to engage its surface and to be rotated thereby, and pointers fixed with relation to the last and indicating the amount of their movement.

7. In a last-maker's conformator, the combination of a support, a last adapted to turn therein, the parallel rods one of which is turnable and provided with threads of varying sizes, arms mounted upon said rods and movable toward and from each other by means of the turnable rod, levers pivotally mounted upon said arms and carrying rotatable indicators and fixed pointers at their upper ends, and springs engaging said levers to move the indicators into contact with the last so that they may be turned by contact therewith.

8. In a last-maker's conformator, the combination of a support, a last turnable therein, the parallel rods one of which is turnable and provided with variable screw threads the transverse arms adjustably mounted on the rods side by side and having threaded portions engaging the threads of the turnable rod, levers pivotally secured to said arms having their upper ends slotted or forked and provided with fixed pointers, rotatable indicators mounted in said slotted ends, springs adapted to be wound by the rotation of the indicators and to return the latter to their normal positions, other springs engaging the levers to move the upper ends with the indicators forward into contact with the last, and means for retracting the levers and indicators in series.

9. In a last-maker's conformator, the combination with a support, a turnable last suspended therein, the parallel rods, and the series of arms with their spring-actuated levers and indicators, of a shaft having means for engaging the levers and operating them in unison and for holding them outward in a locked position.

10. In a last-maker's conformator, the combination with a supporting frame with its parallel rods one of which has a graduated scale and the other is turnable and threaded, of a heel standard having a threaded sleeve engaging said rod whereby the standard may be adjusted, a pointer on the standard playing over the scale of the other rod, and means for suspending a last within the frame.

11. In a last-maker's conformator, the com-

5 bination of a supporting frame, an adjustable heel standard having a rod mounted to turn in its upper end and provided with a plate or lever having a slotted right angled portion and a suspension point for the heel of a last, a slidable rod having a suspension point for the toe of a last, means for locking said slidable rod, and a plate removably seated in the heel suspending devices and having

an extension adapted to engage the last to unite it with the rotatable heel-suspending devices.

In testimony whereof I affix my signature in presence of two witnesses.

ABRAHAM S. ADLER.

Witnesses:

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SAMUEL S. BOGGS.