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TRANSFERRING MECHANISM FOR KNIT WEBS.

No. 400,062. Patented Mar. 26, 1889.

Fig. 1.

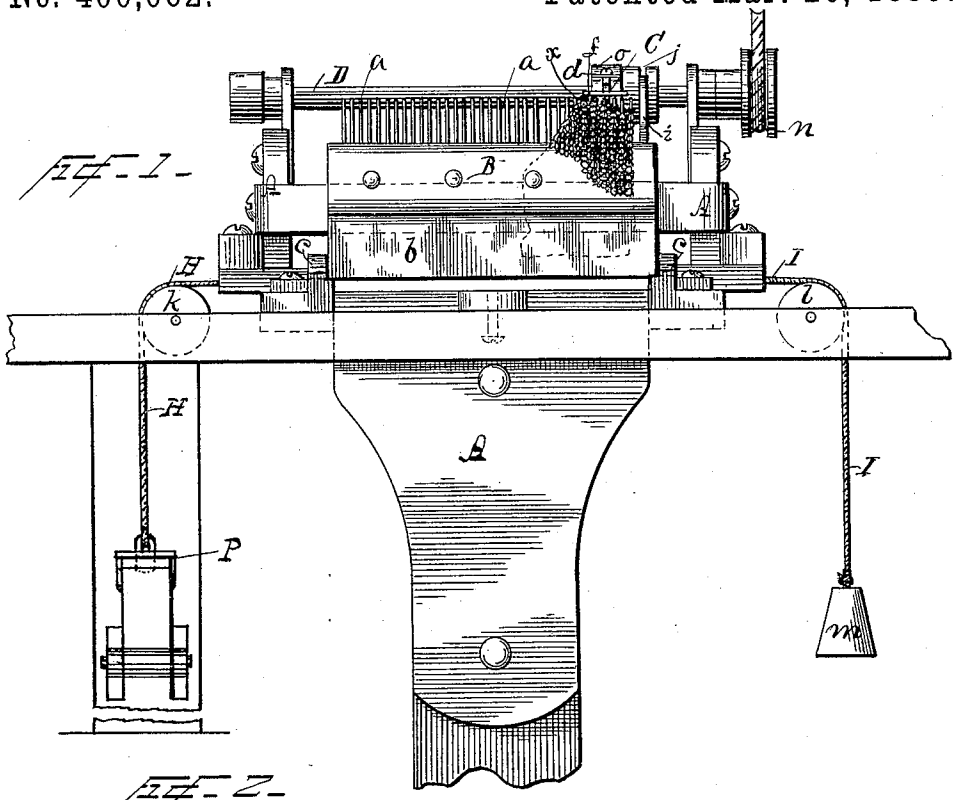
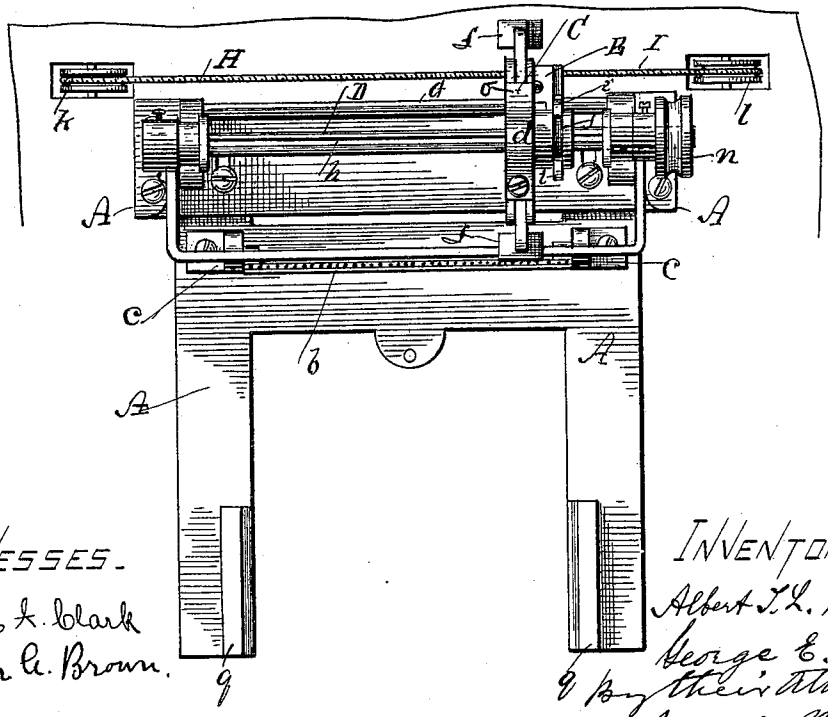


Fig. 2.



WITNESSES.
Morris A. Clark
Walter C. Brown.

INVENTORS.
Albert T. L. Davis,
George E. Stevens,
by their Attorney,
J. S. Brown.

N. PETERS, Photo-Lithographer, Washington, D. C.

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Fig. 7.

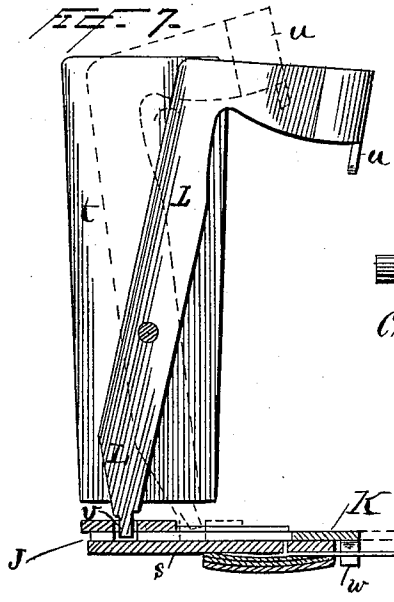


Fig. 3.

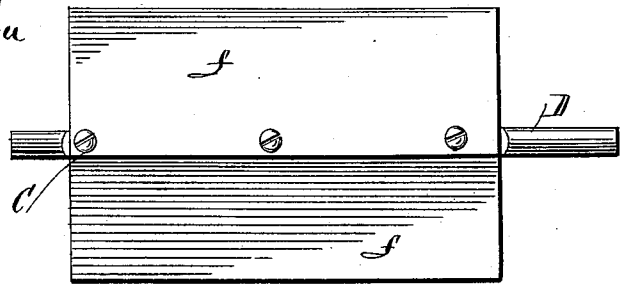


Fig. 4.

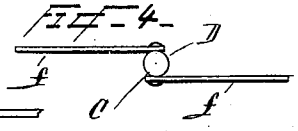


Fig. 8.

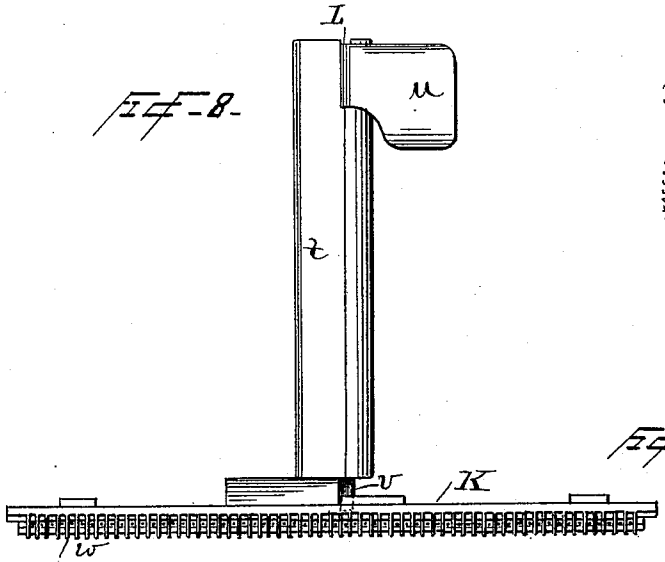


Fig. 9.

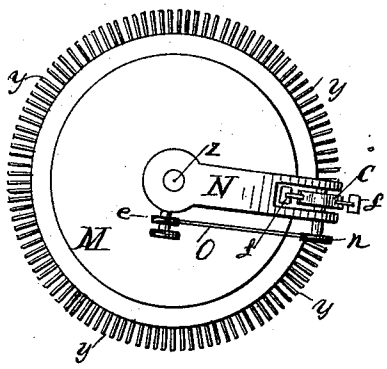
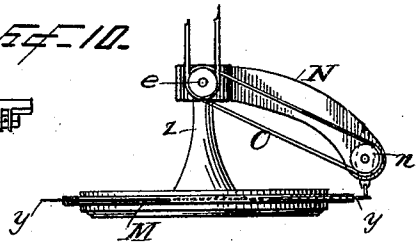


Fig. 10.



WITNESSES.

Louis L. Clark

Walter A. Brown.

INVENTORS,

Albert T. L. Davis

George E. Stevens

By their Attorney,

J. S. Brown.

N. PETERS, Photo-Lithographer, Washington, D. C.

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Fig. 6.

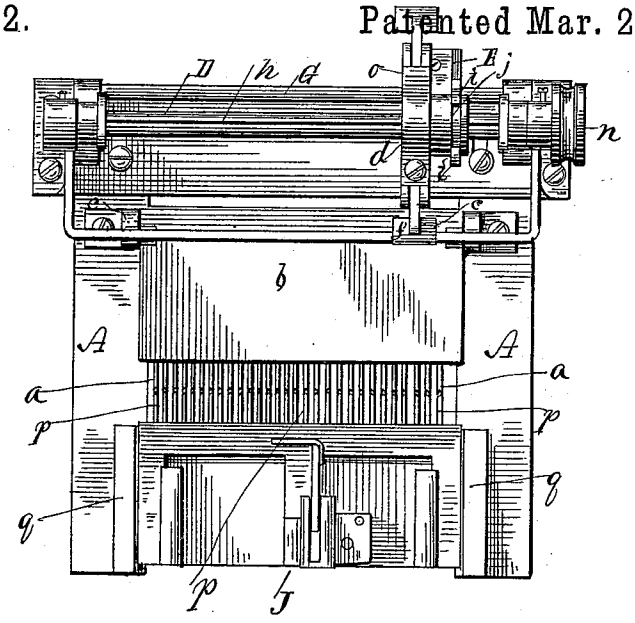


Fig. 5.

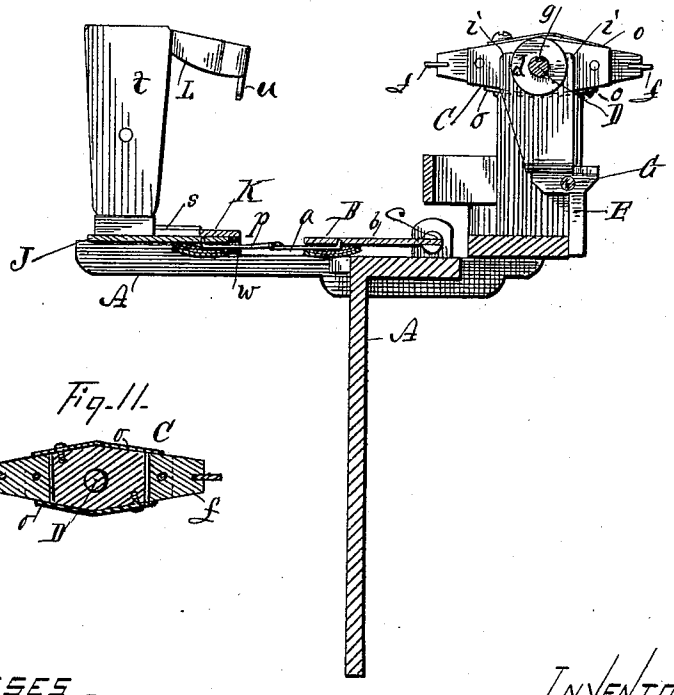


Fig. 11.

WITNESSES.
Louis A. Clark
Walter A. Brown.

INVENTORS.
Albert T. L. Davis,
George E. Stevens
By their attorney,
J. B. Brown.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ALBERT T. L. DAVIS, OF LAKE VILLAGE, AND GEORGE E. STEVENS, OF LACONIA, ASSIGNORS TO THE PITMAN MANUFACTURING COMPANY, OF LACONIA, NEW HAMPSHIRE.

TRANSFERRING MECHANISM FOR KNIT WEBS.

SPECIFICATION forming part of Letters Patent No. 400,062, dated March 26, 1889.

Application filed December 19, 1887. Serial No. 258,341. (No model.)

To all whom it may concern:

Be it known that we, ALBERT T. L. DAVIS, residing in Lake Village, and GEORGE E. STEVENS, residing in Laconia, in the county of Belknap and State of New Hampshire, both citizens of the United States, have invented certain new and useful Improvements in Transferring Mechanism for Knit Webs; and we do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification.

Our invention consists, first, in an improved device for knocking the stitches of a knit web onto the transferring-points; second, in improved means for tranferring the web-stitches from the transferring-points to a transfer-comb or transfer; and, third, in an improved transfer for transferring the stitches of the web upon the needles of a knitting-machine.

In the accompanying drawings, Figure 1 is a front view of a set of transferring-points mounted in a suitable frame and provided with our improved knocking-on device; Fig. 2, a top view of the same; Fig. 3, a side view of a modified construction of the knocking-on wheel, which forms the main feature of our knocking-on device; Fig. 4, an end view of the same; Fig. 5, a vertical section, cutting from front to rear, of the transferring points and frame and of the improved transfer, the two instruments being in position for passing the stitches of the web from one to the other; Fig. 6, a top view of the same; Fig. 7, a central vertical section, cutting from front to rear, of the transfer separate; Fig. 8, a front view of the same; Fig. 9, a top view of the knocking-on wheel applied to a circular comb or transfer; Fig. 10, a side view of the same, and Fig. 11 a central longitudinal vertical section of the knocking-on wheel.

Like letters designate corresponding parts in all of the figures.

In the accompanying drawings, A represents a suitable frame attached to a bench or other support for mounting a set, B, of transferring-points *a a* in, and also the knocking-on wheel C, which forms one of the features of our invention. The plate *b*, in which the points *a a* are set, is pivoted at *c c* to the frame, so that the whole set of points may be swung up into a nearly upright position for knocking the stitches of a knit web upon the points preparatory to transferring them to the needles of a knitting-machine, or turned down into a horizontal position, or thereabout, for shifting the stitches from the points to the teeth or points of the transferring-comb or transfer.

In Figs. 1 and 2 we have shown the set of points swung up into position for knocking the stitches onto the points and in proper position to employ the knocking-on wheel C for that purpose. This knocking-on wheel, as shown in Figs. 1, 2, and 5, consists of a hub or stock, *d*, mounted on a shaft, D, and provided with one, two, or more projecting wings or blades, *f f*, extending far enough to reach from the axis of the wheel to the ends of the points *a a* when the set are in position for knocking on the points, as indicated in Figs. 1 and 2, and being set flatwise or in a plane passing through or parallel with the axis of the shaft D. The width of each wing is sufficient to strike one, two, or more stitches at once, and the wheel is adapted to have a traveling movement along and parallel with the set of points, so that it may be made to knock on one stitch after another the whole length of the set of points. To effect this, preferably the wheel has a sliding movement lengthwise of the shaft. Thus, as shown in the drawings, a key or projection, *g*, in the eye of this wheel, travels in a horizontal groove, *h*, in the shaft, so that the wheel is coupled to the shaft, but can be moved along the same at will.

For moving the wheel along the shaft a clutch-block, E, is mounted on a rod or way, G, parallel with the shaft D and a little distance below or from the same, the fork *i* of the clutch embracing the hub of the wheel and fitting in a groove, *j*, of the same. A cord, H, or its equivalent, extends from the clutch-block E over a pulley, *k*, thence down to a suitable treadle, P, by which the attendant may, by pressing on the treadle, gradu-

ally move the knocking-on wheel along, as required. For retracting the wheel after the web stitches have been all knocked on to the points another cord, I, or its equivalent, may extend from the clutch-block in the opposite direction, pass over another pulley, *l*, and have a weight, *m*, on its lower end of sufficient weight to draw back the wheel automatically. The knocking-on wheel C is rotated by a belt passing from a driving-shaft around a pulley, *n*, on the shaft D, or equivalent means. The attendant begins at one end of the set of points and places the stitches successively on the points and brings the knocking-on wheel along opposite to the stitches as fast as put on the ends of the points and knocks them down upon the points with great facility and quickly.

We show at *x* in Fig. 1 an indication of the work as it is being put on the points. The wings *f f* are jointed to the stock of the wheel, and held extended by light springs *o o*, so that the wings may yield a little as they strike the points, and thus keep close thereto without stopping the wheel by the resistance of the points or doing damage to them.

A modification of the knocking-on wheel is shown in Figs. 3 and 4. Here the wings *f f* extend as long as the entire length of the set of points, so that they may strike all the stitches without traveling on the shaft, but the smaller lighter traveling wheel is preferred; and in these figures the wings are represented as thin, and consequently somewhat flexible and elastic, so that they need not be jointed, although spring-jointed wings are preferred.

Our improved means for passing the stitches from the points *a a* to the teeth or points of the transfer is shown in Figs. 5 and 6. The teeth or points *p p* of the transfer J, being hollowed in their under sides for the purpose, are to be placed accurately over the hooks of the points *a a*, and thus allow the stitches to be slipped, respectively, from each point *a* onto the corresponding tooth or point, *p*, of the transfer.

In order that the points of the two sets may be brought and steadily held in close and accurate position in relation to each other, we provide for swinging the set B of points down into a proper position, as the horizontal position shown in Figs. 5 and 6. There is also on the frame A or other fixed support a pair of ways or guides, *q q*, in which the ends of the transfer fit accurately just in the right position to hold the respective points *p p* on the corresponding points, *a a*, as shown. Then by holding down the transfer firmly in its ways or guides and drawing upon the web toward the transfer the stitches are all readily transferred from the points *a a* onto the points *p p*. It remains then only to transfer the stitches from the points *p p* of the transfer onto the needles of a knitting-machine to which the transfer is adapted, the position of the needles being indicated at *r* in Fig. 7.

Our improved transfer is constructed as follows: Upon the top of the plate *s*, which forms the body of the transfer, and to which the points *p p* are secured, is placed a movable plate, K, which is adapted to have a sliding movement forward and back on the main plate of the transfer. For giving this sliding movement to the plate K we show a lever, L, pivoted in an inclosing standard, *t*, projecting upward from the transfer and serving as a handle to the same, and the upper end of the lever terminates in a suitable finger-piece or plate, *u*. The lower end of the lever engages at *v* with the plate K. This plate has a series of fingers or short projections, *w w*, which project down between the points *p p*, as shown in Figs. 7 and 8. It is obvious that, with this construction, when the plate K is moved forward, by pressing on the finger-piece *u* of the lever L, into the position indicated by dotted lines in Fig. 7, all the stitches on the points *p p* will be transferred to the respective needles *r*. Thus the transfer is quickly and easily made.

We have thus far described our knocking-on wheel as applied to a straight set of points; but it is also applicable to a circular set. We show in Figs. 9 and 10 how it is applied to a circular comb or transfer, or one way of accomplishing the same. The drawings represent a circular set, M, of points of a looper, and the object is to place the stitches upon the points *y y* thereof. For this purpose an arm, N, is pivoted upon a stud or shaft, *z*, at the center of the circular comb. In the outer end of this arm, which is of the proper length for the purpose, is mounted one of our revolving knocking-on wheels C, which revolves and knocks the stitches upon the points *y y* as the arm N is swung around over them. To communicate a revolving motion to the wheel C, a driving-belt, O, passes from a pulley, *e*, at the central stud or shaft, *z*, and thence out to a pulley, *n*, on the wheel-shaft. In knocking on the stitches the arm N is ordinarily swung around the circle on the central stud, *z*, by hand, while the revolving knocking-on wheel C knocks the stitches upon the points of the looper M.

We claim as our invention—

1. A knocking-on wheel, in combination with a set of transferring-points, substantially as set forth.

2. In combination with a set of transferring-points, a knocking-on wheel adapted to have a traveling movement along the said transferring-points and means for imparting a traveling movement to the said knocking-on wheel, substantially as herein set forth.

3. A knocking-on wheel having elastically-yielding wings *e*, in combination with a set of transferring-points, substantially as herein set forth.

4. The combination of a supporting-frame, A, a set, B, of transfer-points *a a*, a transfer, J, having corresponding points, *p p*, and guides *q q*, for holding the transfer in proper

position in relation to the said points *a a*, substantially as and for the purpose herein specified.

5. A transfer, J, provided with a sliding plate, K, having a set of fingers, *w w*, extending down between the points *p p* of the transfer, substantially as and for the purpose herein set forth.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

ALBERT T. L. DAVIS.
GEORGE E. STEVENS.

Witnesses:
GEO. A. SANDERS,
W. H. PEPPER.