

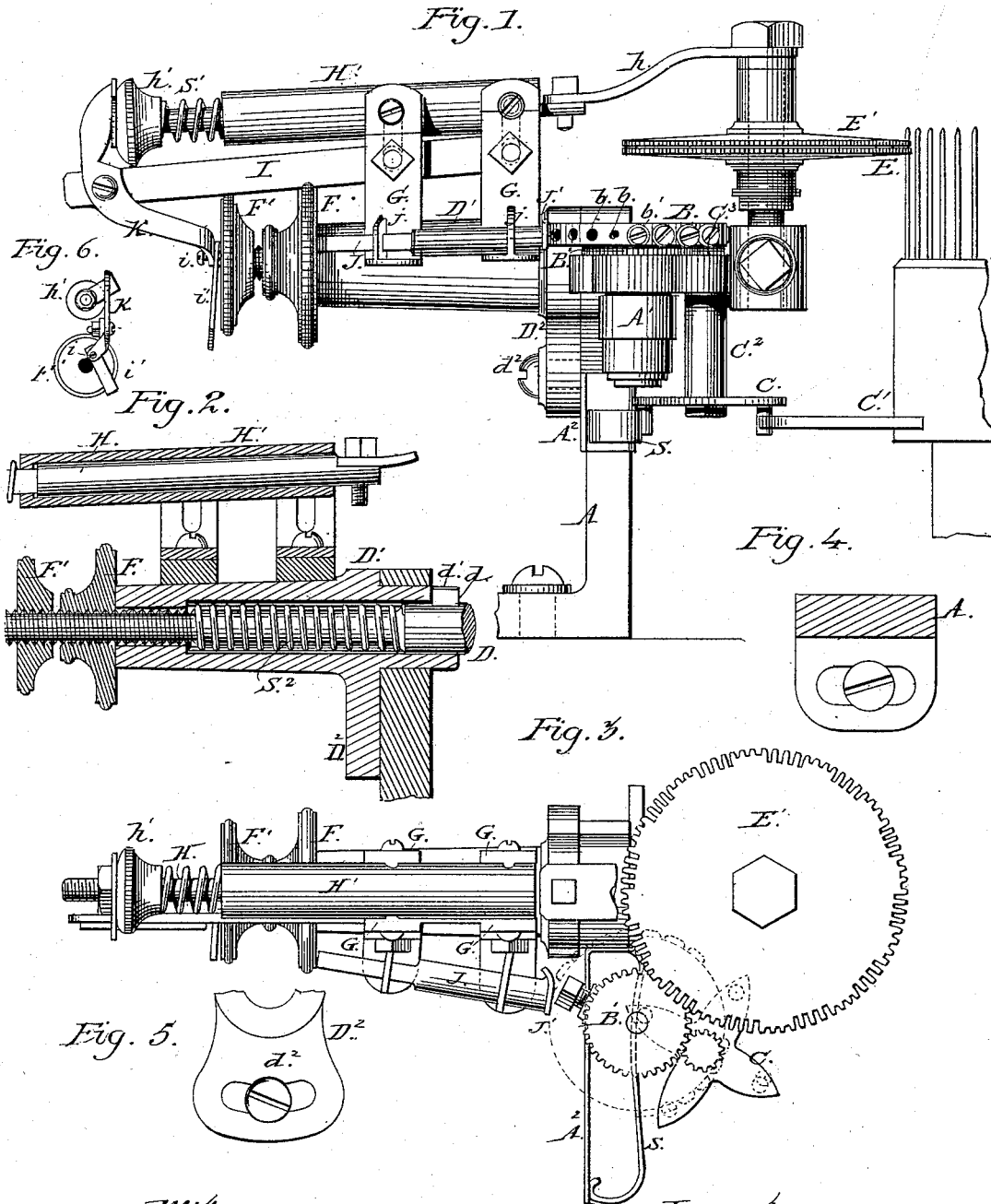
(Model.)

C. E. BEAN.

PRESSER ATTACHMENT FOR KNITTING MACHINES.

No. 264,059.

Patented Sept. 12, 1882.



Witnesses:
Wallace Johnson
Moses Norwick

Inventor:
Charles E. Bean
per E. M. Down & Co.
Attys.

UNITED STATES PATENT OFFICE.

CHARLES E. BEAN, OF FALL RIVER, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO SETH HOLDEN WETHERBEE AND MATHEW C. YARWOOD, BOTH OF SAME PLACE.

PRESSER ATTACHMENT FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 264,059, dated September 12, 1882.

Application filed May 28, 1881. (Model.)

To all whom it may concern:

Be it known that I, CHARLES E. BEAN, of Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Presser Attachments for Knitting-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The invention relates to an improved double presser for knitting-machines, whereby various patterns may be produced, and to the mechanism for shifting the pressers.

The invention will be understood as set forth in the following specification and claims.

The accompanying drawings form a part of this specification and illustrate what I consider the best embodiment of the invention.

Figure 1 is an elevation of the device, showing a portion of the knitting-head and the cam upon it. Fig. 2 is a section of a portion, showing the upper and lower sleeves. Fig. 3 is a plan view of the device. Figs. 4 and 5 are details. Fig. 6 is an end view of the shafts, showing the lever and adjusting-screw. This figure is on a reduced scale.

Similar letters of reference indicate corresponding parts in all the figures.

A is the supporting-stud, having a slot in its foot, rendering it capable of lateral adjustment. To it is bolted an arm, A', having a bearing in one end, supporting the shaft on which turns the circular cam or pattern plate B. Another arm, A², bears a spring, S, which presses against the star C. The star C has four points, with a rigid depending stud attached to each, against each of which studs the cam or projection C' on the knitting-cylinder head engages successively and turns the star a quarter of a revolution at each revolution of the knitting-head, when by the relative location of the parts the engagement will cease until the next revolution of the knitting-head brings the projection C' around to where it meets the next succeeding stud on the star C

and turns the star another quarter of a revolution. This operation is repeated at each revolution of the knitting-head. The movement of the star a quarter of a revolution each time is insured by the pressure of the spring S against the depending studs on the points of the star. This spring stops the star when two of the studs are against it, and just at this moment the engagement between the projection C' and a stud is discontinued, so that the star will be turned an exact quarter of a revolution at each engagement between the projection C' and any one of the four studs on the star C. The star C is rigidly attached to a shaft, C², sustained by a projecting bearing on the arm A'. At the top of the shaft C² is a pinion, C³, which engages with a cog-wheel, B', attached to the under side of the circular cam or pattern plate B. The plate B around its rim is provided with holes b, into some or any of which heavy-headed pattern-screws b' are placed to form the required cams which operate upon mechanism about to be described, and thereby affect the respective engagement and disengagement of the presser-wheels with the needles.

In the top of the supporting-stud A is a hole through which passes the shaft D, encompassed by the sleeve D'. The shaft D supports the lower presser-wheel, E, on a short upright stud. This shaft D has a feather or lug, d, engaging with the slot d' in the sleeve D' to prevent its being turned except in conjunction with said sleeve, while it is allowed to slide backward and forward therein. The shaft D is screw-threaded at the rear end and provided with the double set-nuts F F', the individual nuts of which may be manipulated separately or together to arbitrarily set or adjust shaft and presser-wheel. By turning the nut F without turning the nut F' the shaft is drawn backward, and the abutment for one end of a lever, hereinafter described, afforded by the outer face of the nut F', is forced backward also, the nut F' being moved backward and forward with the shaft D without being turned upon it, while if both of the nuts F and F' are turned together the effect upon the shaft D is the same—it is drawn backward, while the abutment for the lever is unchanged,

since the nut F' is not moved relatively to the sleeve or other stationary parts, but only the shaft D is drawn back. The sleeve D has a slotted arm, D², extending downward and engaged with a screw-stud, d², on the upright supporting-stud A.

To the top of the sleeve D' are fastened the bifurcated supports G, which bear an upper sleeve, H', through which passes the shaft H, to which is connected by a short upright stud the upper presser, E'. Each limb of the supports G is slotted, so that the sleeve H' may be adjusted in order to bring the presser-wheels properly together. The shaft H is preferably connected with upper presser-wheel, E', by means of the curved link h, supporting the stud upon which the wheel revolves; but this is not essential. The outer end of the shaft H is screw-threaded and provided with a nut, h'. A coiled spring, s', surrounds the shaft, bearing against the end of the sleeve and the inner face of the nut at either end. The nut h' is capable of adjustment for the purpose of increasing or diminishing the tension of the spring in order to force the shaft outward and draw the upper presser-wheel away from the needles more or less. A bar, I, is rigidly attached to the supports G and extends out between the upper and lower sleeves. It bears a pivoted lever, K, on its outer end, one end of which bears upon a projection on the nut h', and the other end, through the medium of an adjusting-screw, i, engaging with the lever i', rests upon the outer face of the set-nut F'. The lever i' acts as a tightening-nut, and by turning it up against the lower arm of the lever K it prevents the turning of the screw i. The supports G also afford attachment for rings j, which have perforations through which a loose bar, J, is passed. This bar J has a beveled head, J', which comes in contact with the circular cam or pattern plate B. At the opposite end it bears against the inner face of the set-nut F.

The force of the spring S' is such as to draw the upper wheel, E', away from the needles, and at the same time it presses the arm of the lever K which bears upon the nut h' backward and the arm which bears upon the nut F' forward. This latter being attached to the shaft D, which supports the lower presser-wheel, E, this wheel E is thereby forced into contact with the needles. This action may be aided by the introduction of another coiled spring, S², inside the sleeve D', around the shaft D, having suitable abutments to enable it to exert its force upon the proper part to keep the lower presser in engagement with the needles.

When the nuts F F' are set so as to bring the pressers into exact conformity with each other—that is, when their peripheries are coincident—and neither projects beyond the other when the device is normal—that is, when the cam on the pattern-plate B is not against the bar J—the force of the spring S' will keep

them thus, and return them to this position after they have been changed and one of them protruded by the action of the pattern-plate and the cam has passed the bar J; but in practice it is usual to have one of the pressers normally projecting, so that both of the pressers will not come into contact with the needles at the same time.

The action of the parts above described is that induced by the force of the spring S' when there is no action of the cams which are placed on the plate B; but when the cam C' on the knitting-head turns the star C until the cams formed by the screws b' come in contact with the loose bar J, which presses against the set-nut F, the force of the spring S' is overcome, the lower shaft, D, and presser E are forced away from the needles, and the upper shaft, H, and presser E' forced toward them. When by the action of the cam on the knitting-head upon the star and the connecting-gears the pattern-plate B is revolved until the cams b' quit their contact with the bar J the force of the spring S' instantly withdraws the presser E', and the lower presser, E, is thrown into engagement with the needles. This is the operation of the parts when the double set-nuts F F' are so adjusted as to cause the lower presser, E, to project beyond upper presser, E', normally, in which position the pressers are usually set in practice. The change from the pressure of the upper to the lower presser, or vice versa, is effected instantaneously in either case, and there will not be a perceptible moment in which both pressers are against the needles. They will not press against the needles both together long enough to affect the operation of a single needle. When, however, the nuts F F' are set so as to bring the pressers to rest upon each other, so that neither projects beyond the other, then both pressers will bear upon the needles when the cam on the pattern-wheel B is not against the bar J, and the effect upon the work of the machine will be varied. If the pressers are so set as to bring the shallow cuts of one over the shallow cuts of the other, the variations will not be so greatly increased; but when the three shallow cuts of one come over the four deep cuts of the other the effect will be different again, and any arrangement of the one presser upon the other may be made to produce any change.

The pressers have serrated edges, the cuts between the teeth being of varying depths. I have shown them with three shallow cuts, alternating with four deeper ones, around the periphery of each wheel. This may be varied. It will be understood that these pressers engage with the needles of the knitting-head, the needles entering the cuts or serrations. The presser-wheels turn easily on their separate studs and move easily over each other. The pressers coming into engagement with the barbs of the needles close a portion of them. The barbs which fall in the shallow cuts of the pressers are closed and the yarn

slips over them without being engaged, and a stitch is not formed. The barbs which fall in the deep cuts are not closed, and a stitch is made by these barbs. It will be seen that strips of alternately close and long stitches will be made which can be infinitely varied in width, according to the serrations on the pressers, and also according to the way in which they are operated.

10 The position and placement of the screws *b'* in the holes around the rim of the cam-plate may be adjusted and varied according to the number of changes it is desired to effect in the engagement of the upper and lower presser
15 with the needles.

Ordinarily the pressers will be held in a horizontal position; but they may be made to assume an oblique one by moving the depending slotted stud of the sleeve *D* one way or the other.

20 Having thus described my invention, I desire to claim—

1. The combination of the pressers *E E'*, mounted upon independent studs, with means, substantially as described, for alternately and
25 automatically forcing the said pressers—first

one and then the other—against the needles, as set forth.

2. The combination of the shafts *D H* and pressers *E E'* with the sleeves *D' H'*, spring *S'*, and lever *K*, substantially as set forth. 30

3. The combination of the circular cam or pattern plate *B* and pattern-screws *b'* with the bar *J*, the upper and lower shafts, *H D*, springs *S' S²*, pivoted lever *K*, and pressers *E E'*, moved to and from the needles thereby, substantially
35 as set forth.

4. The combination, with the shafts *D H*, springs *S' S²*, pressers *E E'*, independent studs, fixed bar *I*, and pivoted lever *K*, and mechanism for operating said working parts, of
40 the set-nuts *F F'*, working on the screw-threaded end of the shaft *D*, and adapted to be turned together or independently, as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two
45 witnesses.

CHARLES E. BEAN.

Witnesses:

WM. S. GREENE,
S. H. WETHERBEE.