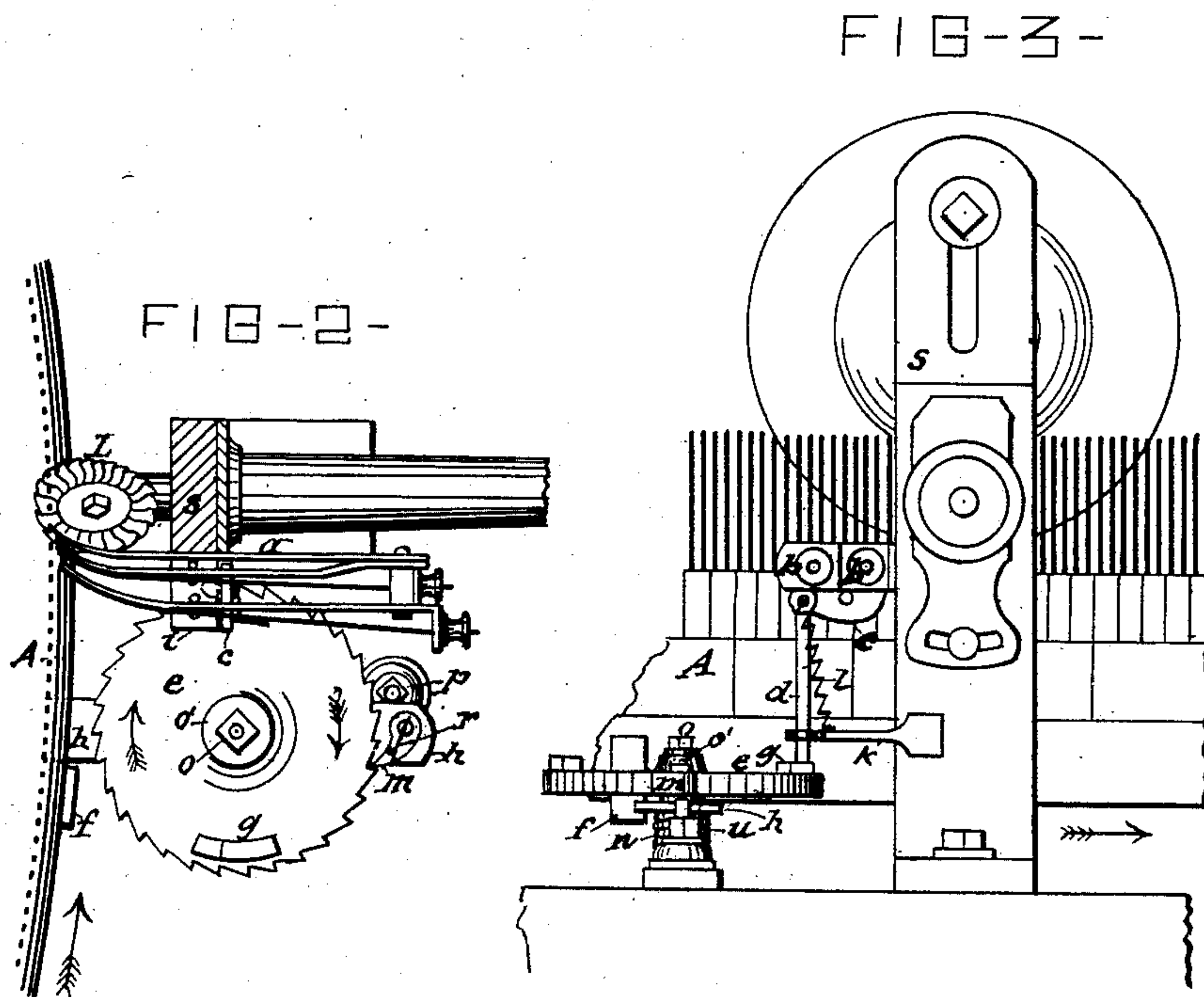
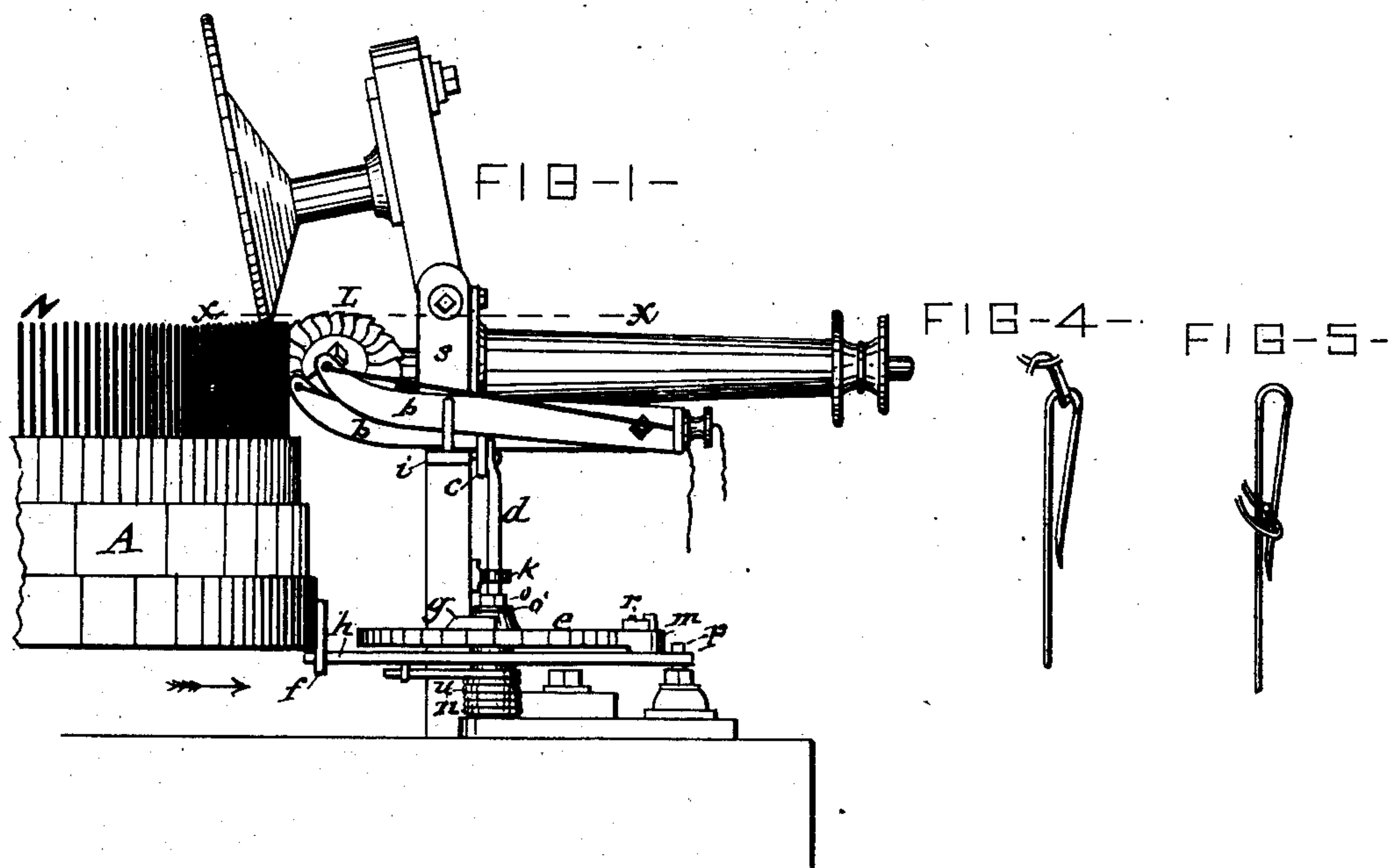


(No Model.)

S. CONDÉ.
KNITTING MACHINE.

No. 245,136.

Patented Aug. 2, 1881.



WITNESSES=

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UNITED STATES PATENT OFFICE.

SWITS CONDÉ, OF OSWEGO, NEW YORK.

KNITTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 245,136, dated August 2, 1881.

Application filed May 2, 1881. (No model.)

To all whom it may concern:

Be it known that I, SWITS CONDÉ, of Oswego, in the county of Oswego and State of New York, have invented new and useful Improvements in Knitting-Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The purpose of this invention is to knit on a circular-knitting machine horizontally-striped fabric without carrying on said fabric loose threads, or varying or impairing the texture thereof, all of which is accomplished by instrumentalities hereinafter fully described, and specifically set forth in the claim.

In the annexed drawings, Figure 1 is a side elevation of the means employed for producing horizontally-striped knitted fabric as aforesaid. Fig. 2 is a plan view of same below the line *x x*. Fig. 3 is a front view thereof, and Figs. 4 and 5 are enlarged detail views illustrating the effect of the invention.

Similar letters of reference indicate corresponding parts.

A represents the so-called "needle-cylinder" of a rotary-knitting machine, and N the bearded needles secured vertically on said cylinder.

L represents the loop-wheel or burr, arranged at the outside of the cylinder A, for the purpose of carrying into the needles the yarn or thread to be knitted.

a denotes the usual stationary thread-guide which feeds the yarn or thread to the loop-wheel. To the side of said stationary thread-guide I pivot two or more vibratory thread-guides, *b b*, which are made to alternately and intermittently rise and fall at intervals of one or more complete revolutions of the needle-cylinder by the medium of the following instrumentalities.

To an arm, *i*, projecting from the standard *s*, is pivoted a rock-arm, *e*, which, at points equidistant from the pivot, bears against the under side of the thread-guides *b b*. To one end of the rock-arm is connected a pendent pitman, *d*, the lower end of which passes through a guide, *k*, which sustains it laterally. Under the pitman is a ratchet-wheel, *e*, mounted horizontally on a post, *n*, in such relative

position as to bring the foot of the pitman to bear on the upper side of the ratchet-wheel, near the edge thereof, as best seen in Fig. 3 of the drawings.

g g denote cams in the form of blocks permanently secured or cast on the top of the ratchet-wheel in such relative position as to pass under the foot of the pitman when the ratchet-wheel is rotated, said blocks being beveled on the end to allow the pitman to slide upon them in their approach. The ratchet-wheel, being sustained in a horizontal position, causes the pitman to rise and fall as the cams *g* pass under it. A spring, *l*, connected at one end to the rock-arm and at the opposite end to the guide *k* or other stationary object, serves to draw the pitman down upon the face of the ratchet-wheel after the cam *g* has passed from under the pitman. This intermittent reciprocating motion of the pitman *d* imparts a corresponding intermittent oscillating motion to the rock-arm *e*, which, in turn, lifts the thread-guides *b b* alternately and intermittently.

The ratchet-wheel receives its motion by a lever, *h*, which is pivoted on the post *n*, and has one end arranged in the path of a cam, *f*, on the needle-cylinder A, and the opposite end provided with a pawl, *m*, which is held in contact with the teeth of the ratchet-wheel by a spring, *r*. The rotation of the needle-cylinder causes the cam *f* to swing the lever *h*, so that the pawl *m* will turn the ratchet-wheel the distance of one of its teeth. A spring, *u*, connected to the post *n* or other stationary point and exerting on the lever *h* a force in an opposite direction from the movement of the needle-cylinder, restores the said lever to its original position, the latter movement being determined by a suitable stop, *p*, arresting the said reverse movement of the lever.

To prevent the pawl *m* from drawing back with it the ratchet-wheel *e*, a jam-nut, *o*, is applied to a screw-threaded stud on the end of the post *n* and a friction-washer, *o'*, interposed between said nut and the hub of the ratchet-wheel. By tightening the jam-nut sufficient friction can be obtained on the ratchet-wheel to prevent its retrograde movement as aforesaid.

The described mechanisms can be regulated

to knit horizontal stripes of any desired width, either by attaching to the needle cylinder A a greater or less number of cams, *f*, so as to move the ratchet-wheel more or less frequently during each revolution of the needle-cylinder, or by simply applying to the ratchet-wheel a greater or less number of cams, *g*, and bringing said cams at shorter or longer intervals under the pitman *d*, which actuates the thread-guides in the manner aforesaid.

The operation of my invention is as follows: The vibratory thread-guides are to be supplied with differently-colored threads or yarns, which are passed simultaneously into the beards of the needles by the usual loop-wheel or burr L. The alternate and intermittent rising and falling of the thread-guides raises one thread above the other alternately, each thread being retained in its elevated position during a definite number of revolutions of the needle-cylinder by a proper adjustment of the actuating mechanism of the thread-guides in the manner before described. The elevation of the thread-guide increases the tension on its respective thread, and thus holds the same toward the front of the needle, while the other thread, carried slack beneath the taut thread, is allowed to be drawn back of the latter, and so retained by the previously-formed loop, which is drawn over the said threads and off

the needles in the usual manner, as illustrated in Figs. 4 and 5 of the drawings. The differently-colored threads being thus made to alternately appear at the surface of the fabric during a definite number of revolutions of the needle-cylinder produces the horizontally-striped fabric, and, since all the threads or yarns are invariably passed into the needles, no loose threads are carried on the fabric, and the fabric is rendered of a uniform texture.

What I claim as my invention is—

In combination with the vibratory thread-guides *b b*, rock-arm *c*, and pitman *d*, the guide *k*, spring *l*, ratchet-wheel *e*, provided with the cam *g*, post *n*, jam-nut *o*, friction-plate *o'*, spring *u*, and lever *h*, provided with the pawl *m*, the stop *p*, and the cylinder A, provided with the cam *f*, all combined and operating substantially in the manner described and shown.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Oswego, in the county of Oswego, in the State of New York, this 19th day of April, 1881.

SWITS CONDÉ. [L. S.]

Witnesses:

FRED L. CONDÉ,

EDW. MAXWELL.