No. 615,585. Patented Dec. 6, 1898.

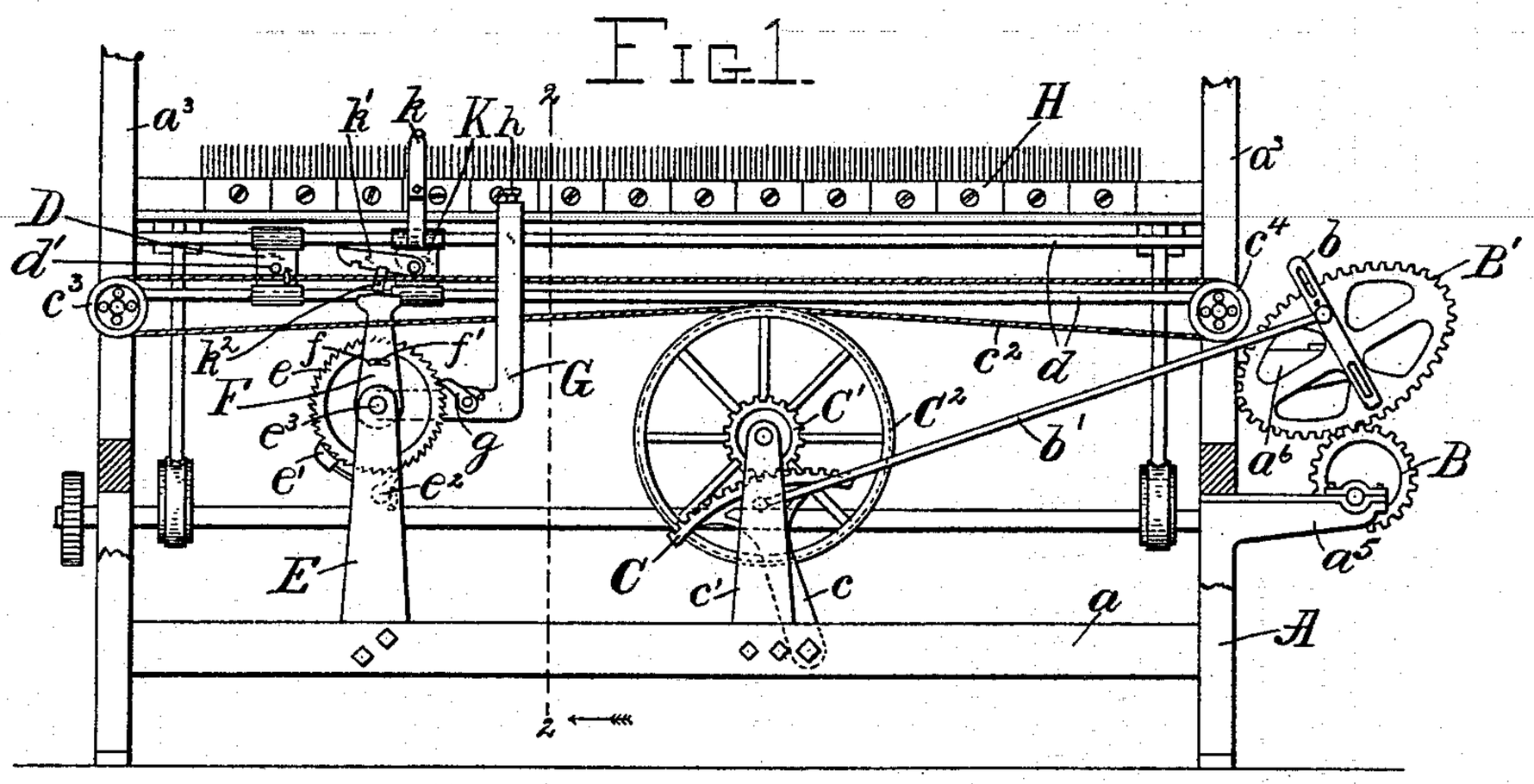
F. W. SUMNER.

ATTACHMENT FOR KNITTING MACHINES.

(Application filed May 14, 1898.)

(No Model.)

Fig. 1.



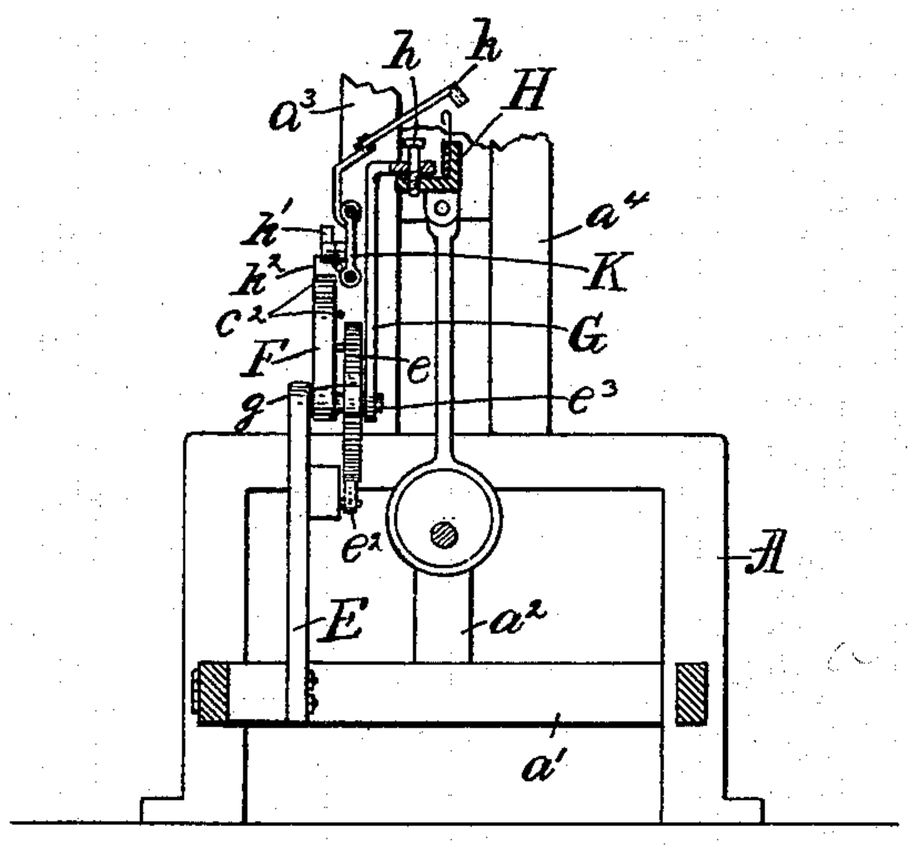


Fig. 2.

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FREDERICK W. SUMNER, OF CANTON, MASSACHUSETTS.

ATTACHMENT FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 615,585, dated December 6, 1898.

Application filed May 14, 1898. Serial No. 680,734. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. SUMNER, a citizen of the United States, residing at Canton, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Attachments for Knitting-Machines; 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.

My invention relates to attachments for knitting-machines, more especially such looms as are adapted to make knitted paddings and shown in the patent to M. Townsend, No. 229,487, dated June 29, 1880; and the objects of my invention are to provide new and improved means for operating the trumpet or carrier for the filling or roving and a new and improved trumpet engaging and releasing mechanism.

With these objects in view my invention consists of the construction and combinations of parts, as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front view, partly in section, of a portion of a loom, showing my improved attachment applied thereto; and Fig. 2 is a vertical cross-section of the same, taken on the line 2 2 of Fig. 1 and looking in the direction of the arrow.

A represents the frame of a loom with horizontal braces a and a' and uprights a^2, a^3, and a^4.

On a bracket a^5, attached to the frame, is eccentrically mounted a circular gear-wheel B, and on another extension a^6 is mounted an elliptical gear-wheel B′, which meshes with the gear-wheel B. A crank-arm b is adjustably fastened to the shaft of the gear-wheel B′ by means of a slot therein, to which crank is adjustably pivoted a connecting-rod b', the other end of said rod being pivoted to a segmental gear-wheel C, which is supported by the arm c, pivoted to the brace a. This segmental gear-wheel meshes with a small circular gear-wheel C′, mounted on the arm c', which is fastened to the brace a. On the same shaft with the gear-wheel is mounted the circumferentially-grooved pulley C^2, around which the endless cord c^2 passes and to which it may be fastened, if desired. This cord passes around the pulleys c^3 and c^4, which are fastened to the frame, and to it are fastened a plurality of sliding frames D, (only one being shown on the drawings,) which actuate the trumpet-carriers by means which will hereinafter be described. These sliding frames are loosely supported on the rods d, attached to the uprights a^3, and each is provided with a pin d', which engages with the trumpet-operating device. Each trumpet is adapted to be moved back and forth only a fraction of the distance across the loom.

On the brace a is mounted a standard E, although it might, if desired, be supported by the floor of the factory. Mounted on a stud e^3 in this standard is a toothed wheel e. A friction-block e' is used to hold this wheel and prevent its forward motion, and a spring-pawl e^2 prevents its backward motion. Mounted on the stud e^3 is a radial arm F, which extends some distance beyond the edge of the wheel and is provided with a roughened surface at its outer end, or it may be provided with a leather covering at the same place to increase the friction. This arm is provided with a slot f, and a pin f' is fastened to the wheel e and projects through the slot f. The wheel e is operated by the spring-pawl g, which is carried by the bent arm G, the upper end of which is mounted on the needle-bar H. This needle-bar is right-angled and is moved up and down in the usual manner. The upper end of the bar G is slotted, and through the slot passes the screw h into the needle-bar H. The parts are so arranged that the motion of the needle-bar moves the wheel e forward the space of one tooth.

Mounted on the rods d is the trumpet-frame K, carrying the trumpet k, which is of the usual shape and construction. A latch k' is pivoted near the center of the trumpet-frame and is provided with a beveled end and a notch on its under side near the beveled end. A pin (not shown) may be used to prevent the latch from falling so far that it will not engage the pin d' on the frame D. To a point near the center of the latch k' is fastened the downwardly-projecting pin k^2, which engages at certain times with the arm F. At such times the latch k' is thrown out of engagement with the pin d' and the trumpet-frame re-

mains at rest, although the loom keeps on running. Thus it will happen that the knitting operation is constant, while the filing operation is intermittent. As a result the fabric has thin places at regular intervals (determined by the number of teeth on the wheel *e*) at which places it is cut apart.

The use of the pin *f'* and slot *f* is to permit the arm F to fall a slight distance by its own weight when it has passed the vertical line. This obviates any danger of its being dragged back when the latch *k'* engages the pin *d'*.

The operation of the machine is, it is thought, clear without further explanation.

It is obvious that many changes might be made without departing from the spirit of my invention, and I wish to be expressly understood that I do not limit myself to the exact construction shown and described.

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

1. In an attachment for looms, the combination of a trumpet and operating means therefor consisting of an eccentrically-mounted gear-wheel, an elliptical gear-wheel, a segmental gear-wheel, a rod connecting the elliptical gear-wheel with the segmental gear-wheel, a shaft provided with a gear-wheel, a grooved pulley, and a cord passing around said grooved pulley and around guides, said trumpet being attached to said cord, substantially as described.

2. In an attachment for looms, the combination of the loom-frame, guide-rods secured to said frame, a trumpet-frame adapted to slide on said rods, a trumpet attached to said trumpet-frame and operating means therefor, consisting of an eccentrically-mounted gear, an elliptical gear, a crank adjustably secured to said elliptical gear, a rod adjustably secured to said crank, a segmental gear connected to said rod, a shaft provided with a gear-wheel and a grooved pulley and a cord attached to said pulley and the said trumpet-frame and passing around guide-pulleys, substantially as described.

3. In an attachment for looms, the combination of a toothed wheel, a projecting arm movably secured to said wheel and trumpet-operating means adapted to be engaged at intervals by said arm, a lever, a spring-pawl attached to said lever and means for raising and lowering said lever, substantially as described.

4. In an attachment for looms, the combination of a toothed wheel, a projecting arm movably carried by said wheel and trumpet-operating means adapted to be engaged at intervals by said arm, a bent lever provided with a spring-pawl for actuating said wheel, a needle-bar to which said arm is adjustably secured and means for operating the needle-bar, substantially as described.

5. In an attachment for looms, the combination of a toothed wheel, a projecting arm movably secured to said wheel and trumpet-operating means adapted to be engaged at intervals by said arm, a bent lever provided with a spring-pawl, a needle-bar, means for actuating said needle-bar, means for preventing the backward rotation of the wheel and a friction device, substantially as described.

6. In an attachment for looms, the combination with guide-rods, a frame constantly reciprocating on said guide-rods and means for reciprocating said frame, of a trumpet-frame sliding on said guide-rods, a trumpet carried thereby, means carried by said trumpet-frame for intermittently engaging with the reciprocating frame and means operated by the needle-bar for holding the two frames out of engagement with each other at predetermined times, substantially as described.

7. In an attachment for looms, the combination with guide-rods, a constantly-reciprocating frame provided with a projecting pin mounted on said guide-rods, a trumpet-frame also mounted on said guide-rods, a trumpet carried by said trumpet-frame, a projecting pin provided with a latch for engaging the pin upon the reciprocating frame and means for holding said latch out of engagement with the pin upon the constantly-reciprocating frame at predetermined intervals, substantially as described.

8. In an attachment for looms, the combination with guide-rods, a frame provided with a projecting pin adapted to constantly reciprocate upon said rods, a trumpet-frame carrying a trumpet also mounted on said rods and provided with a pin, a notched latch pivoted on said pin and provided with a downwardly-projecting pin, a wheel provided with a projecting arm which latter is arranged to contact at intervals with said latch-pin, and means for rotating said arm whereby at predetermined intervals the latch will be moved out of engagement with the pin upon the constantly-reciprocating frame, substantially as described.

9. In an attachment for looms, the combination of supporting-rods, a reciprocating frame provided with a projecting pin mounted on said rods, a trumpet-frame provided with a trumpet also mounted on said rods, a notched latch provided with a downwardly-projecting pin pivoted to said trumpet-frame, a toothed wheel, a projecting arm carried by said wheel adapted to engage said downwardly-projecting pin at intervals, and means for rotating said wheel by the regular operation of the loom, substantially as described.

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

FRED. W. SUMNER.

Witnesses:
J. D. DUNBAR,
JOHN EVERETT.