

**No. 661,715.**

**Patented Nov. 13, 1900.**

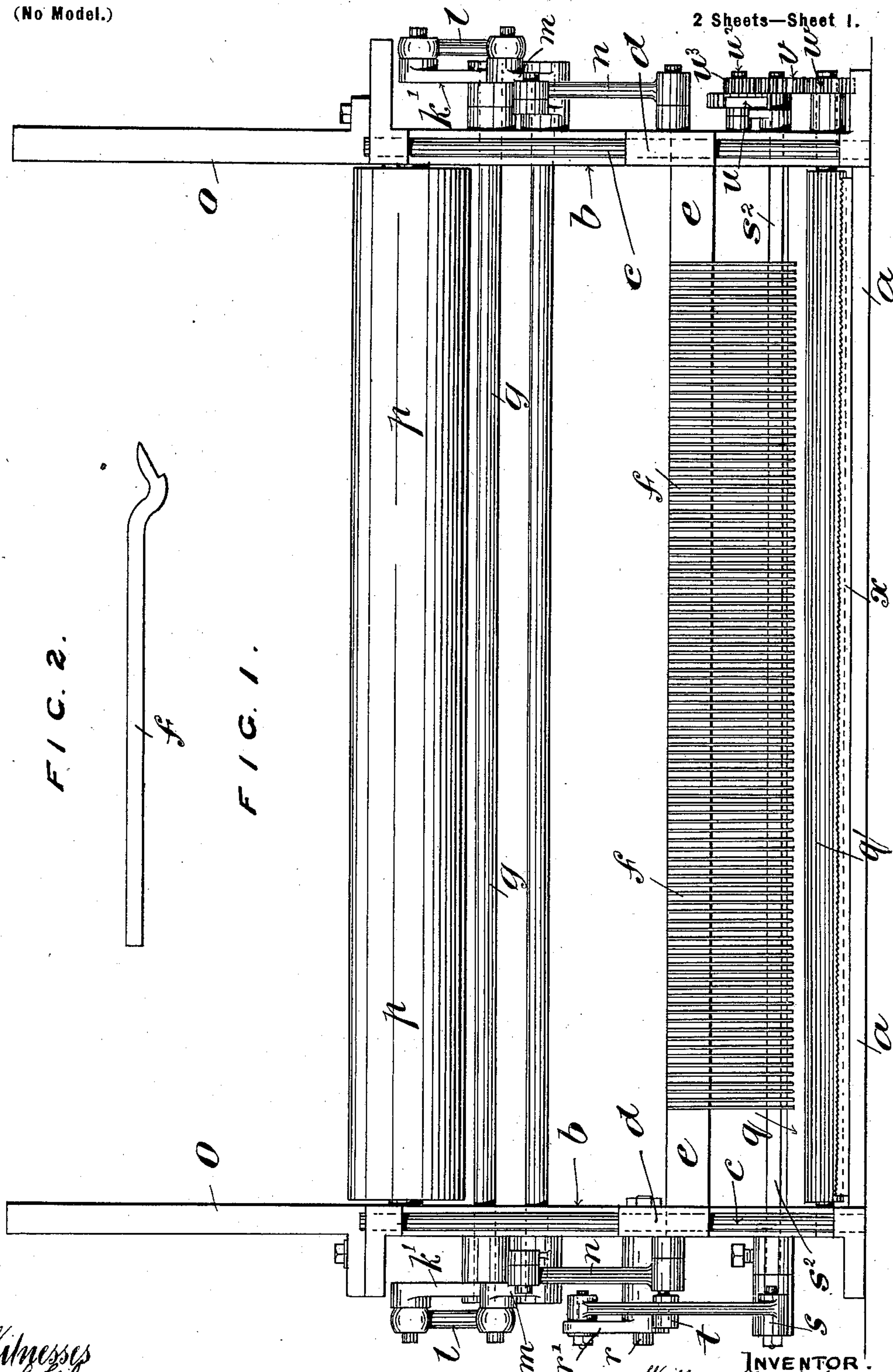
**W. GARLICK.**

**LOOM FOR WEAVING TEXTILE FABRICS.**

(Application filed June 12, 1900.)

(No Model.)

**2 Sheets—Sheet 1.**



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Witnesses  
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INVENTOR

By his atty. Richard R

By his atty.

Richard R

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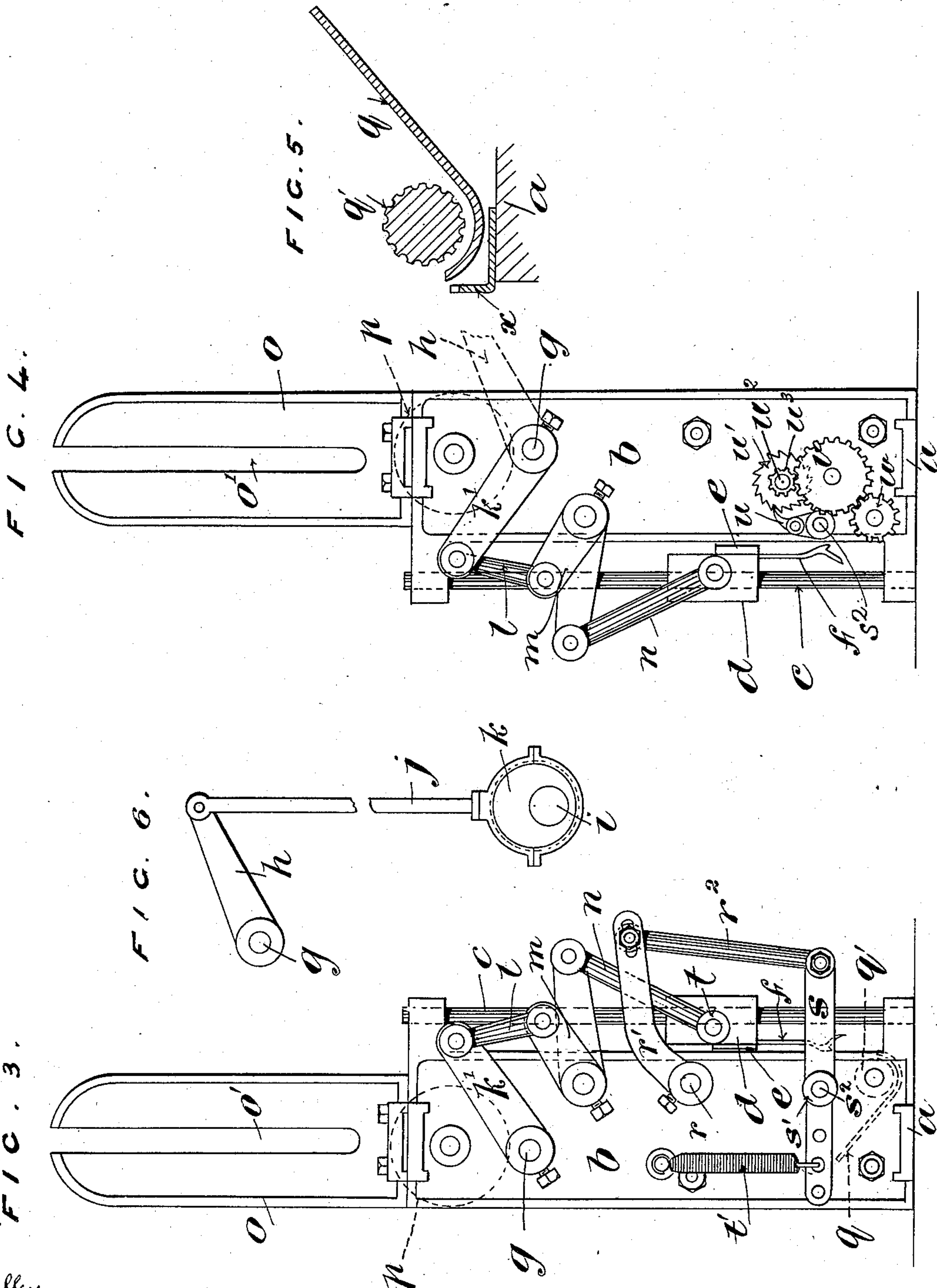
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# UNITED STATES PATENT OFFICE.

WILLIAM GARLICK, OF ASHTON-ON-MERSEY, ENGLAND.

## LOOM FOR WEAVING TEXTILE FABRICS.

SPECIFICATION forming part of Letters Patent No. 661,715, dated November 13, 1900.

Application filed June 12, 1900. Serial No. 19,987. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM GARLICK, gentleman, a subject of the Queen of Great Britain and Ireland, and residing at Heathfield, Ashton-on-Mersey, in the county of Chester, England, have invented certain new and useful Improvements in or Connected with Looms for Weaving Textile Fabrics, (for which I have made application in Great Britain, No. 22,575, dated November 13, 1899,) of which the following is a specification.

My said invention relates to the weaving of textile fabrics, and has for its object to obtain effects by a single operation hitherto unattainable or only attained after a series of operations.

My invention consists, essentially, in inserting within the warp and weft threads of a fabric and binding in position thereby a quantity of material—such as cotton, wool, or silk—which may be in a raw state or only partially manufactured. By these means I produce a fabric expeditiously and economically at one operation which previously has been either costly to attain or only been effected by a series of operations. For instance, prior to my invention the fabric woven for the purpose of being converted into flannellet has required to be woven with a weft of sufficient thickness and bulk of cotton to allow of its being raised on the surface by passing through a raising-machine, this process being not only expensive owing to the weft having to be completely spun into a thread, but also to some extent destroys the strength of the material by the action of raising, as is at present performed, so as to raise the weft into a fluffy surface.

Under my invention I insert a small quantity of raw or semimanufactured cotton within the warp and weft threads and by this means provide a substance of cotton in the fabric which may be raised into a flannellet without impairing the strength of the weft. The weft, moreover, for raising purposes at present requires to be softly spun and is consequently not so strong. Under my process an ordinary or harder spun weft may be used, thereby giving greater strength and durability to the material.

My invention is, however, applicable for the production of a variety of fabrics, as by va-

rying the amount of material so bound up by the warp and weft threads and the employment of either cotton, woolen, or silk a variety of fabrics can be produced, such as cloth, blankets, carpets, and the like.

The means whereby my object can be attained are shown in the accompanying drawings, but may vary in detail, the essential principle consisting in the employment of a series of hooks which are reciprocated, preferably, by a suitable motion operated by the slay of the loom, although the method of operating the hooks may vary.

In the accompanying drawings, Figure 1 shows a front elevation of the series of hooks together with the means of reciprocating them. Fig. 2 is a view of one of the hooks on a larger scale. Fig. 3 is an end view of the left side of Fig. 1. Fig. 4 is an end view of the right side of Fig. 1. Figs. 5 and 6 are detail views.

The apparatus is constructed so as to be readily attached to existing looms and is arranged with its base-plate *a* just above the slay of the loom. The side standards *b* are provided with rods *c*, upon which are mounted slides *d*, to which is secured the cross-piece *e*. To the cross-piece *e* are secured the separating fingers or hooks *f*, (shown in side view in Fig. 2,) which are reciprocated in a truly vertical path by means of the slides *d*. These slides *d* are reciprocated as follows: Upon a rock-shaft *g* I mount a lever *h*. (Shown in dotted lines in Fig. 4 and in the detail view, Fig. 6.) This lever *h* is connected to the tappet-shaft *i* of the loom by means of a connecting-rod *j* and eccentric *k*, so that as the tappet-shaft *i* revolves the shaft *g* is rocked. On each end of the shaft *g* are secured levers *k'*, connected by links *l* to double levers *m*, which in turn are connected to the slides *d* by means of links *n*. The oscillating motion of the shaft *g* is thus imparted to an increased extent to the double levers *m*, which thus reciprocate the hook-slides *d*.

The material to be inserted in the fabric may be carried in the form of a lap in the holder *o*, the ends of the lap-rods sliding in the slots *o' o'*, the lap resting upon the roller *p*. The end of the lap of cotton or other fibrous material is directed into the trough *q* and beneath a fluted roller *q'*. The fluted



roller  $q'$  is driven at a very slow speed to feed forward the cotton or other fiber by means of suitable reduced gearing, as is shown in Figs. 1, 3, and 4. Upon a stud  $r$  is mounted loosely a lever  $r'$ , connected by a link  $r^2$  to a lever  $s$ , secured at  $s'$  to a shaft  $s^2$ . A bowl  $t$ , carried by one of the slides  $d$ , raises the lever  $r'$  on its upward traverse, rocking the lever  $s$  and shaft  $s^2$  against the action of a spring  $t'$ , which returns the lever  $s$  to its normal position when the direction of the slide  $d$  is reversed. One end of the oscillating shaft  $s^2$  carries a detent or pawl  $u$ , engaging with a ratchet-wheel  $u'$ , carried loosely on a stud  $u^2$ . Secured to or forming part of the ratchet-wheel  $u'$  is a pinion  $u^3$ , gearing with an intermediate gear-wheel  $v$ , which in turn meshes with a spur-pinion  $w$ , mounted on the axis of the fluted roller  $q'$ , whereby the necessary slow driving of the roller  $q'$  is obtained. In front of the fluted roller is mounted a toothed comb  $x$ , which serves to hold or grip the fiber at the times the fingers or hooks  $f$  descend. This arrangement is shown more clearly in the sectional view, Fig. 5.

The operation is shortly as follows: When the "shed" is open, the fingers or hooks  $f$  are lowered and come into contact with the material fed forward, which is held by the tooth-comb  $x$ . The fingers or hooks  $f$ , which are curved downward, take off a portion of the material and pass through the raised warp-threads. On the hooks rising the frictional contact with the warp-threads suffices to detach the material from the fingers or hooks, and the weft thread or pick is inserted and beaten up, so as to bind firmly the material in the cloth. The amount of material—such as cotton, wool, silk, or the like—inserted within the fabric would vary in accordance with the feed and the size of the fingers or hooks. In making flannellet, for instance,

comparatively little raw or semimanufactured cotton need be inserted. In other cases, such as the manufacture of blankets, an increased amount of material would be required.

My invention is applicable in the weaving of a variety of fabrics. For instance, silk or wool in a raw or partially-manufactured state, undyed or dyed to any suitable color, can be utilized to form a surface and be held securely in position by the binding warp and weft threads of cotton, which threads are buried in the inserted material. The fabrics thus produced may be "gassed" or otherwise treated to produce a variety of surfaces, as will be understood.

I declare that what I claim is—

1. In combination with a loom, means for inserting fibrous material within the warp and weft threads, comprising a feed-roller located in proximity to the slay of the loom and adapted to feed the material to be inserted, a horizontally-arranged bar with means for moving it vertically, and separating-fingers depending from said bar, substantially as described.

2. In combination, the trough, a fluted roller thereon, a horizontally-arranged bar with means for moving the same vertically, and separating-fingers depending from said bar in proximity to the edge of said trough, substantially as described.

3. In combination, the trough  $g$ , the fluted roller  $q'$ , the comb  $x$  adjacent to the edge of said trough, the vertically-moving bar, and the separating-fingers depending from the edge of said bar, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

WILLIAM GARLICK.

Witnesses:

JOSHUA ENTWISLE,  
ALFRED YATES.