

(No Model.)

2 Sheets—Sheet 1.

S. HENSHALL, Dec'd.

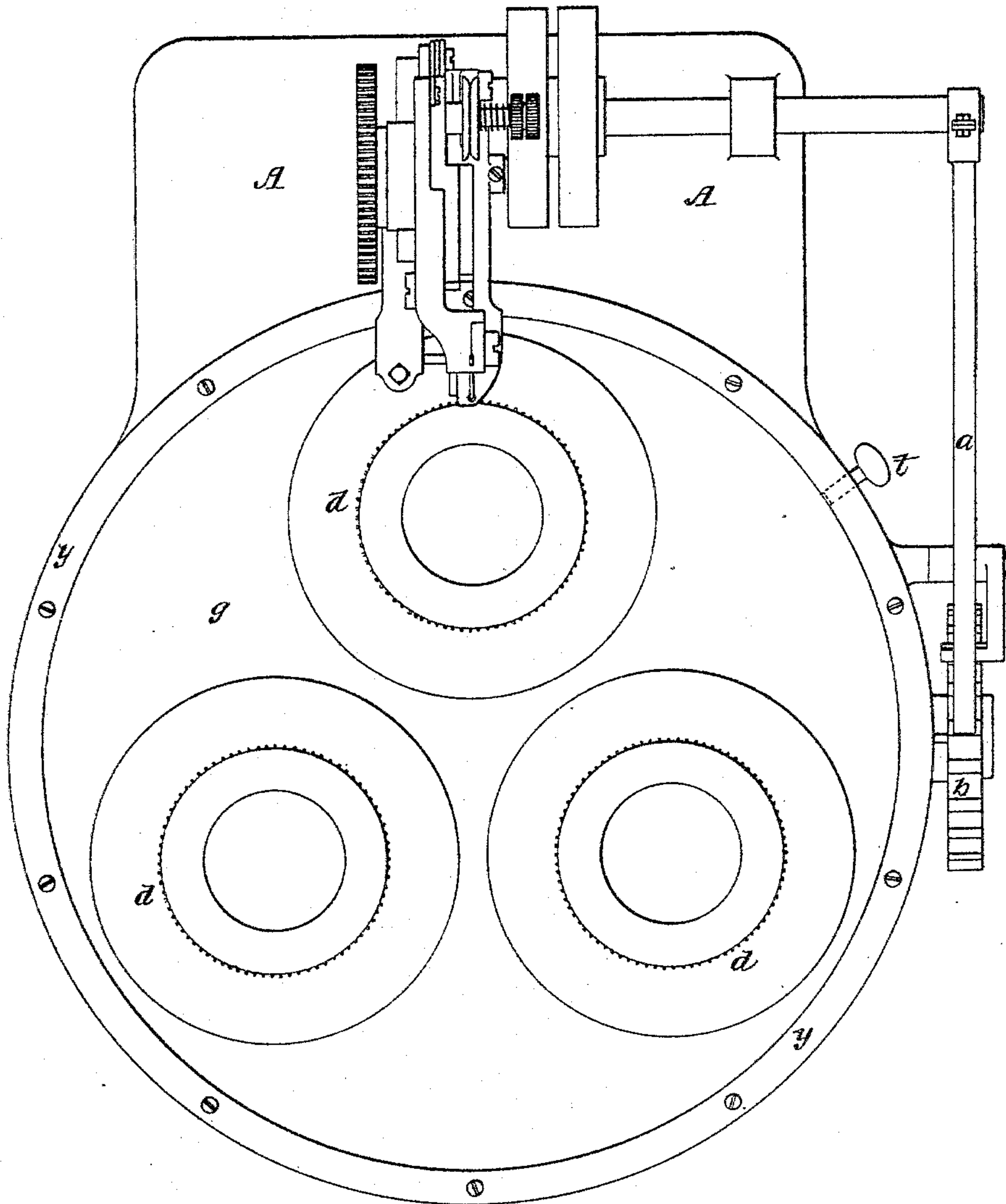
A. K. HENSHALL, Executrix.

MACHINE FOR UNITING LOOPED FABRICS.

No. 584,224.

Patented June 8, 1897.

FIG. 1.



Witnesses:

R. Schlicher.

Frauk Bechtold

Inventor

Samuel Henshall

By his Attorneys

Howson & Howson

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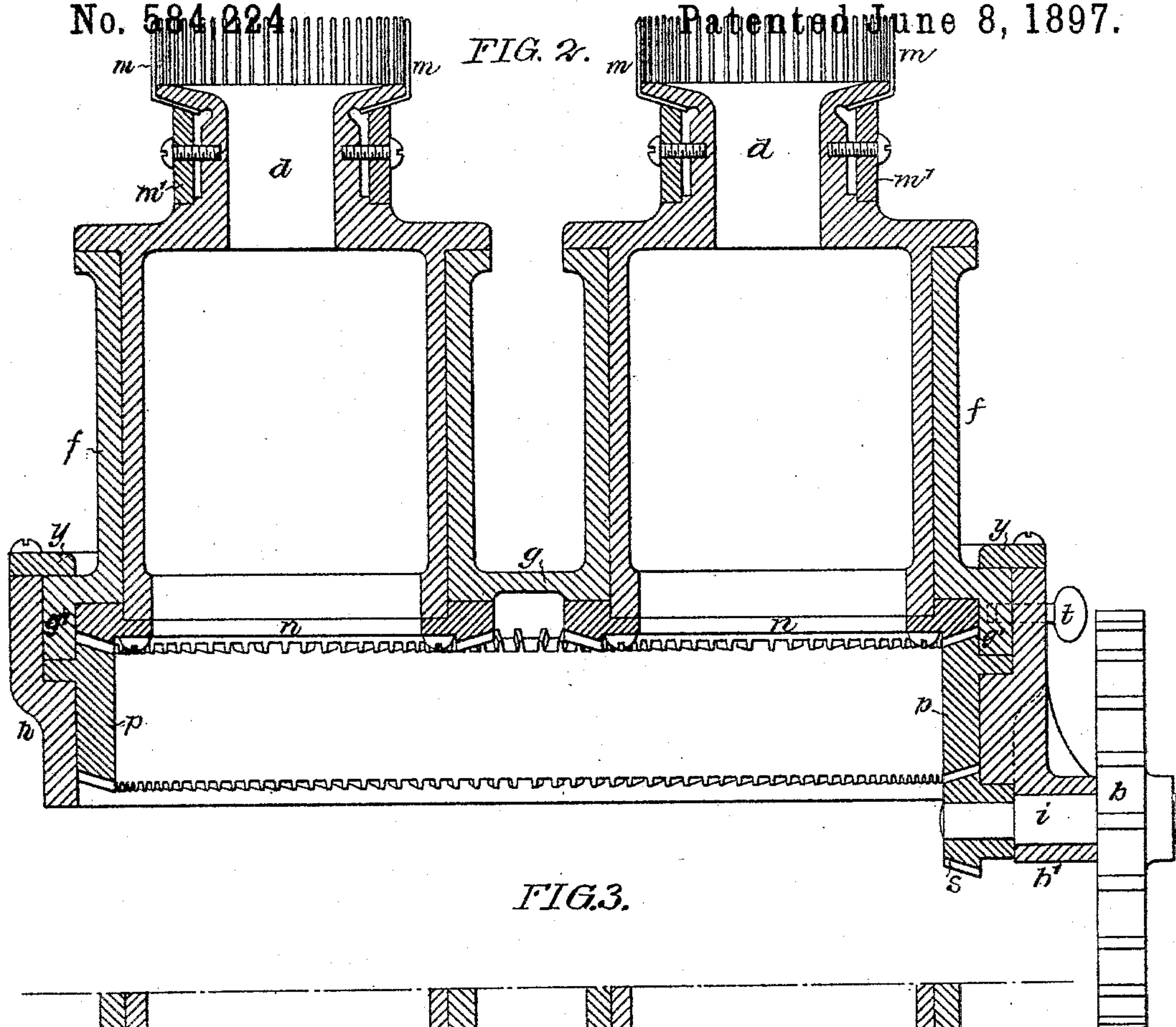
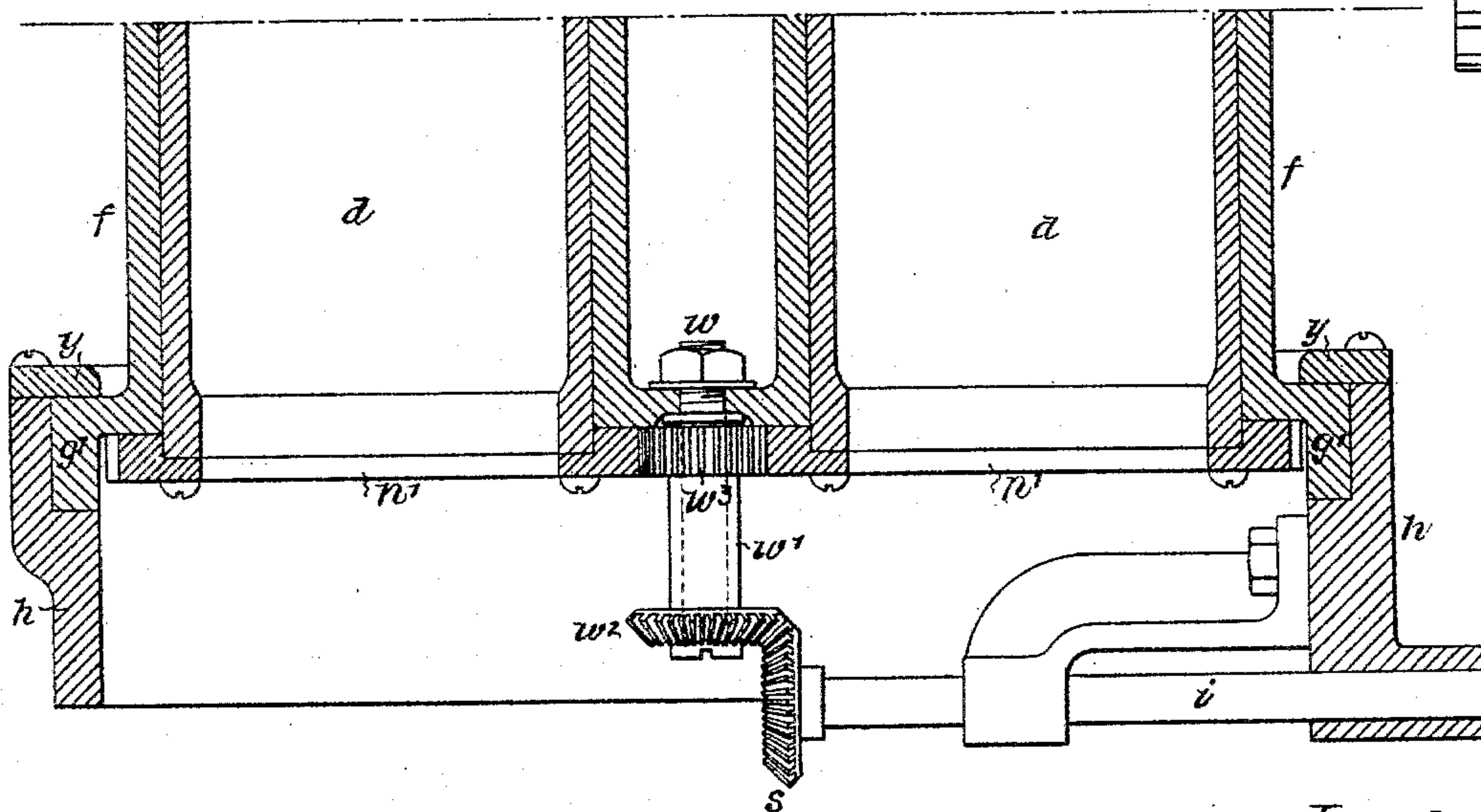


FIG. 3.



Witnesses:

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# UNITED STATES PATENT OFFICE.

SAMUEL HENSHALL, OF PHILADELPHIA, PENNSYLVANIA; ANNA K. HENSHALL EXECUTRIX OF SAID SAMUEL HENSHALL, DECEASED.

## MACHINE FOR UNITING LOOPED FABRICS.

SPECIFICATION forming part of Letters Patent No. 584,224, dated June 8, 1897.

Application filed September 22, 1894. Renewed March 29, 1897. Serial No. 631,315. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL HENSHALL, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Machines for Uniting Looped Fabrics, of which the following is a specification.

My invention relates to a machine of the same class as that forming the subject of my application filed March 27, 1894, Serial No. 505,311—that is to say, a machine in which one set of sewing mechanism is combined with a series of work-carrying heads movable in respect to said sewing mechanism, so that they may be successively brought into operative relation thereto, the objects of my present invention being to provide for the desired adjustment of the work-carrying heads in respect to the sewing mechanism without the necessity of throwing into and out of action on each adjustment the mechanism whereby the intermittent movements are imparted to each of said work-carrying heads and to render unnecessary the duplication of the feeding devices, as in the former machine. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a machine constructed in accordance with my invention. Fig. 2 is a transverse section, on an enlarged scale, of that part of the machine to which my present invention relates; and Fig. 3 is a transverse section illustrating a modification of the invention.

In Fig. 1, A represents a bed-plate upon which is mounted any ordinary form of sewing mechanism such as is employed in machines for uniting looped fabrics, said sewing mechanism usually comprising a vibrating needle and a looper acting in conjunction therewith to form a chain-stitch. As the sewing mechanism forms no essential part of my invention, however, detailed description of the same will be unnecessary except so far as to say that it comprises also mechanism for reciprocating a pawl *a*, which engages with a ratchet-wheel *b*, whereby the work-carrying heads are rotated by a succession of intermittent movements.

In Fig. 1 I have shown the machine as pro-

vided with a series of three work-carrying cylinders *d*, and my present invention comprises the mechanism for effecting the rotation of these cylinders in such manner that they can be successively brought into operative relation to the sewing mechanism without necessitating any duplicating or throwing out of action of the devices for effecting such rotation.

Each of the cylindrical heads *d* is mounted in a tubular boss *f*, formed upon a plate *g*, which is mounted so as to be free to turn in a tube *h*, secured to or forming part of the bed-plate A of the machine, said tube also having formed thereon, by preference, a bearing *h'* for the shaft *i*, which carries a ratchet-wheel *b* of the rotating device.

Each work-carrier *d* has at the upper end the usual vertically-projecting stitch-receiving points *m*, which are secured in place upon the cylinder by an outer sectional ring *m'*, and to the lower end of each of the cylindrical work-carriers is secured a toothed ring *n*, the teeth of which engage with those formed upon the top of the duplex annular rack *p*, which is also mounted in the tube *h*, so as to be free to turn therein.

The teeth formed upon the bottom of the duplex annular rack *p* mesh with those of the bevel-wheel *s* upon the shaft *i*, so that when said shaft is rotated rotating movement will be imparted to the duplex rack *p* and thence to each of the cylindrical work-carriers *d*.

The intermittent movement of those work-carriers which are not in operative relation to the sewing mechanism is not so rapid as to interfere with the ready application of the new work thereto by the attendant. In fact, the automatic rotation of these inoperative heads is rather an aid to the application of the work thereto.

During the looping operation the plate *g* is locked to the tube *h* by means of a pin *t*, engaging with openings in said tube and in the downwardly-projecting flange *g'* of the plate; but when the looping operation has been completed in connection with the knitted tubes carried by one of the cylinders *d* the pin *t* is withdrawn and the plate *g* is turned by hand so as to bring another of the said cylinders into operative relation to the sewing mechan-



ism, the pin being then reinserted so as to again lock the plate *g*.

The movement of the plate *g* is preferably such as to carry the cylinders *d* past the sewing mechanism from left to right, so that the rack *p* will travel with the plate and cause forward movement to be imparted to the bevel-wheel *s*, thereby causing the teeth of the ratchet-wheel *b* to travel forward under the pawl *a*, although this is not absolutely essential, the objection to moving the plate in the opposite direction being that the rack *p* cannot in this case move with it. Hence the work-carriers will be rotated in the plate as it is moved, whereas when the plate is moved in the direction first referred to the work-carriers do not turn around their own axes during the movement of the plate *g*.

Although I prefer the use of the duplex rack *p* as a means of transmitting the movement of the shaft *i* to the work-holders, other means within the scope of the main feature of my invention may be adopted. For instance, in Fig 3 I have shown a construction in which a central vertical bolt *w*, carried by the plate *g*, constitutes a bearing for a sleeve *w'*, which is geared by a bevel-wheel *w<sup>2</sup>* to the bevel-wheel *s* of the shaft *i*, the upper portion of said sleeve *w'* having a spur-pinion *w<sup>3</sup>*, which meshes with spur-wheels *n'* on the cylinders *d*.

The plate *g* is vertically confined to the tube *h* by means of a ring *y* detachably secured to the top of said tube, the removal of this ring permitting the release of the plate *g* from the tube.

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

1. The combination in a machine for uniting looped fabrics, of the sewing mechanism, the plate carrying a series of work-holding cylinders and movable so as to bring said cylinders successively into operative relation to the sewing mechanism, means for holding the plate stationary, a shaft occupying a fixed relation to said sewing mechanism, means for transmitting the movement of said shaft to the cylinders on the movable plate, and means for rotating the shaft by a succession of intermittent movements, substantially as specified.

2. The combination in a machine for uniting looped fabrics, of the sewing mechanism, the plate carrying a series of work-holding cylinders, and movable so as to bring said cylinders successively into operative relation to the sewing mechanism, means for holding the plate stationary, a shaft occupying a fixed relation to the sewing mechanism, means for rotating said shaft by a succession of intermittent movements, and gearing having as one of its elements a duplex annular rack whereby the movement of said shaft is transmitted to the work-holding cylinders, substantially as specified.

3. The combination in a machine for uniting looped fabrics, of the sewing mechanism, a plate carrying a series of work-holding cylinders, and movable so as to bring said cylinders successively into operative relation to said sewing mechanism, a fixed frame, a cylinder-operating shaft adapted to bearings thereon, means for locking the movable plate to and releasing it from said fixed frame, means for imparting rotary movement to the cylinder-operating shaft by a succession of intermittent movements, and gearing whereby the motion of said shaft is transmitted to the work-holders, substantially as specified.

4. The combination, in a machine for uniting looped fabrics, of the sewing mechanism, a fixed tubular frame, a plate carrying a series of work-holding cylinders and rotatable in said tubular frame so as to bring said cylinders successively into operative relation to the sewing mechanism, means for locking the said plate to and releasing it from the fixed frame, a cylinder-operating shaft adapted to a bearing on the fixed frame, means for imparting rotary motion to said shaft by a succession of intermittent movements, gear-wheels upon the shaft and cylinders, and a duplex rack rotatable in the fixed tubular frame, and serving to transmit the movement of the shaft to the cylinders, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL HENSHALL.

Witnesses:

WILL. A. BARR,  
JOSEPH H. KLEIN.