

(No Model.)

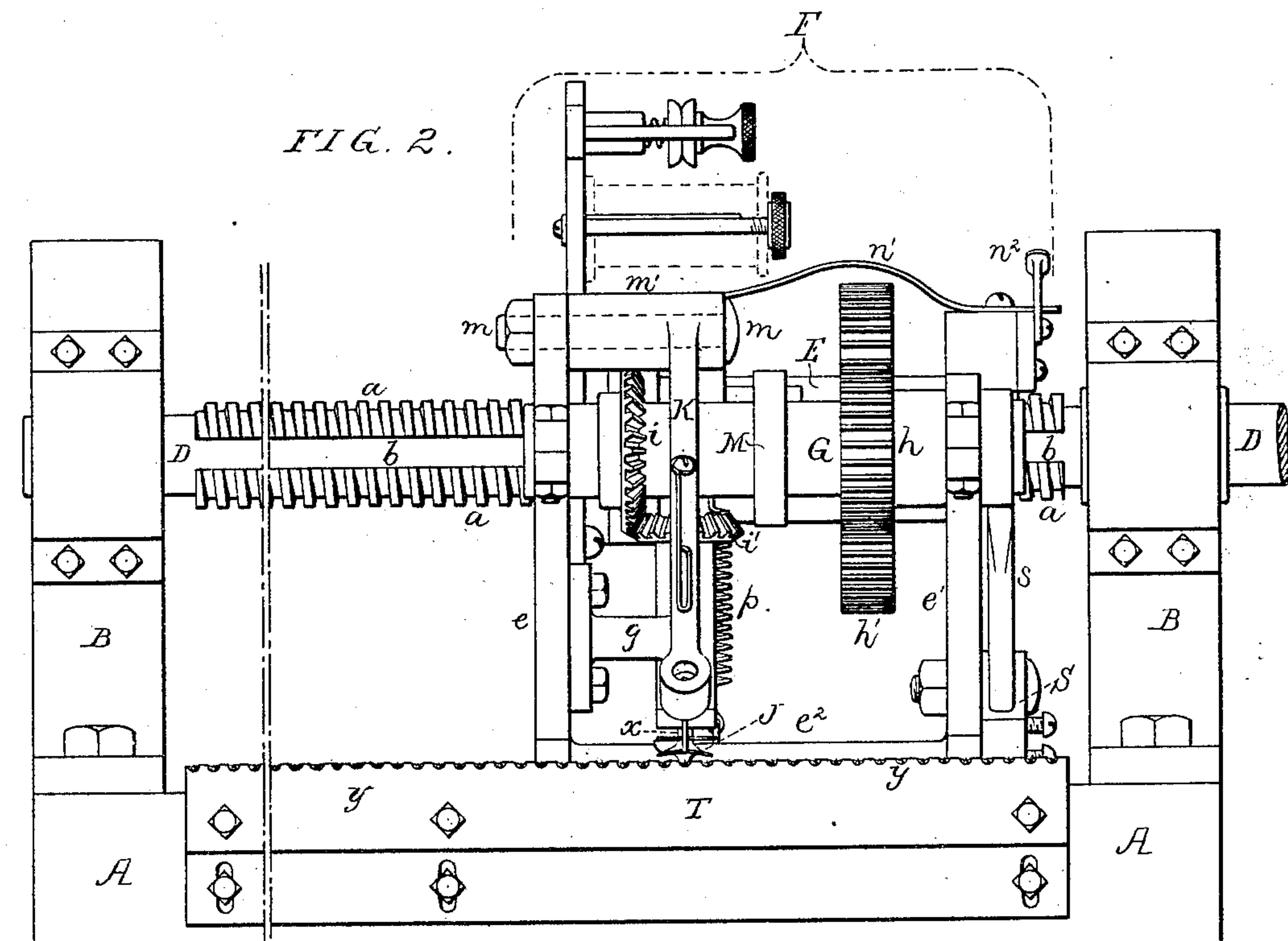
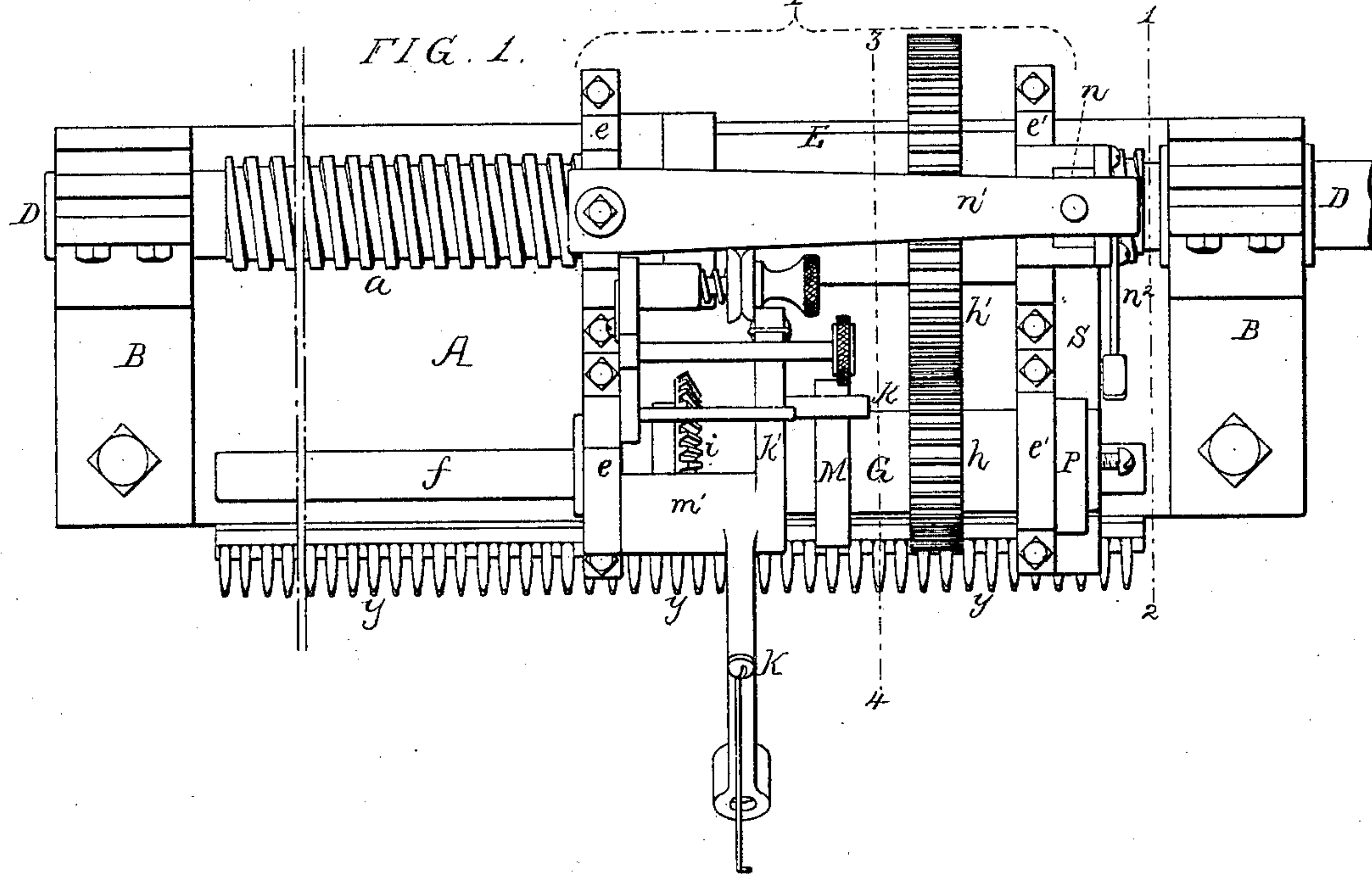
2 Sheets—Sheet 1.

R. W. SCOTT.

MACHINE FOR SEAMING KNIT FABRICS.

No. 245,877.

Patented Aug. 16, 1881.



WITNESSES

James F. John.
Henry Howson Jr.

INVENTOR

Robert W. Scott
by his Attorneys
Howson and Son

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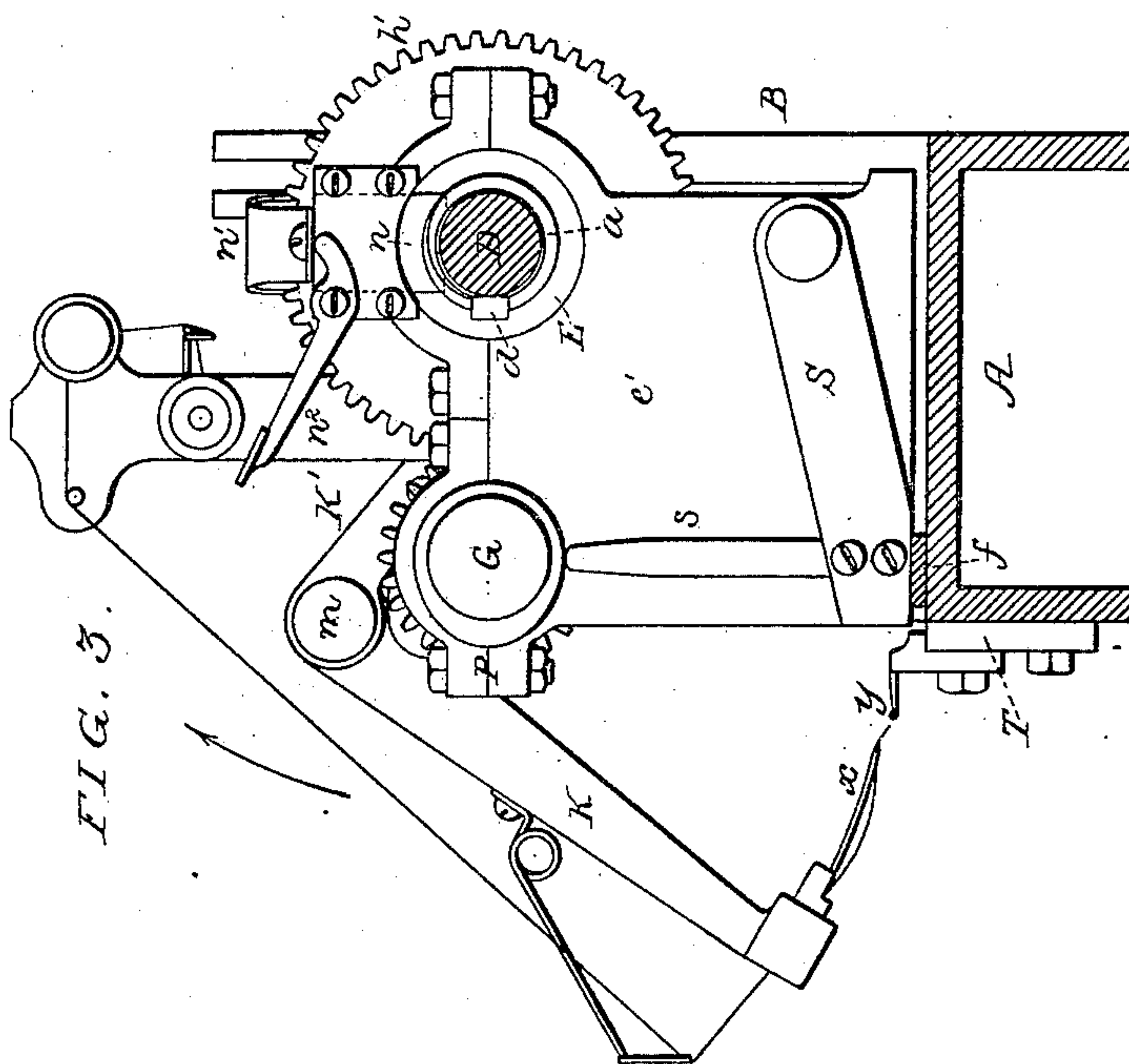
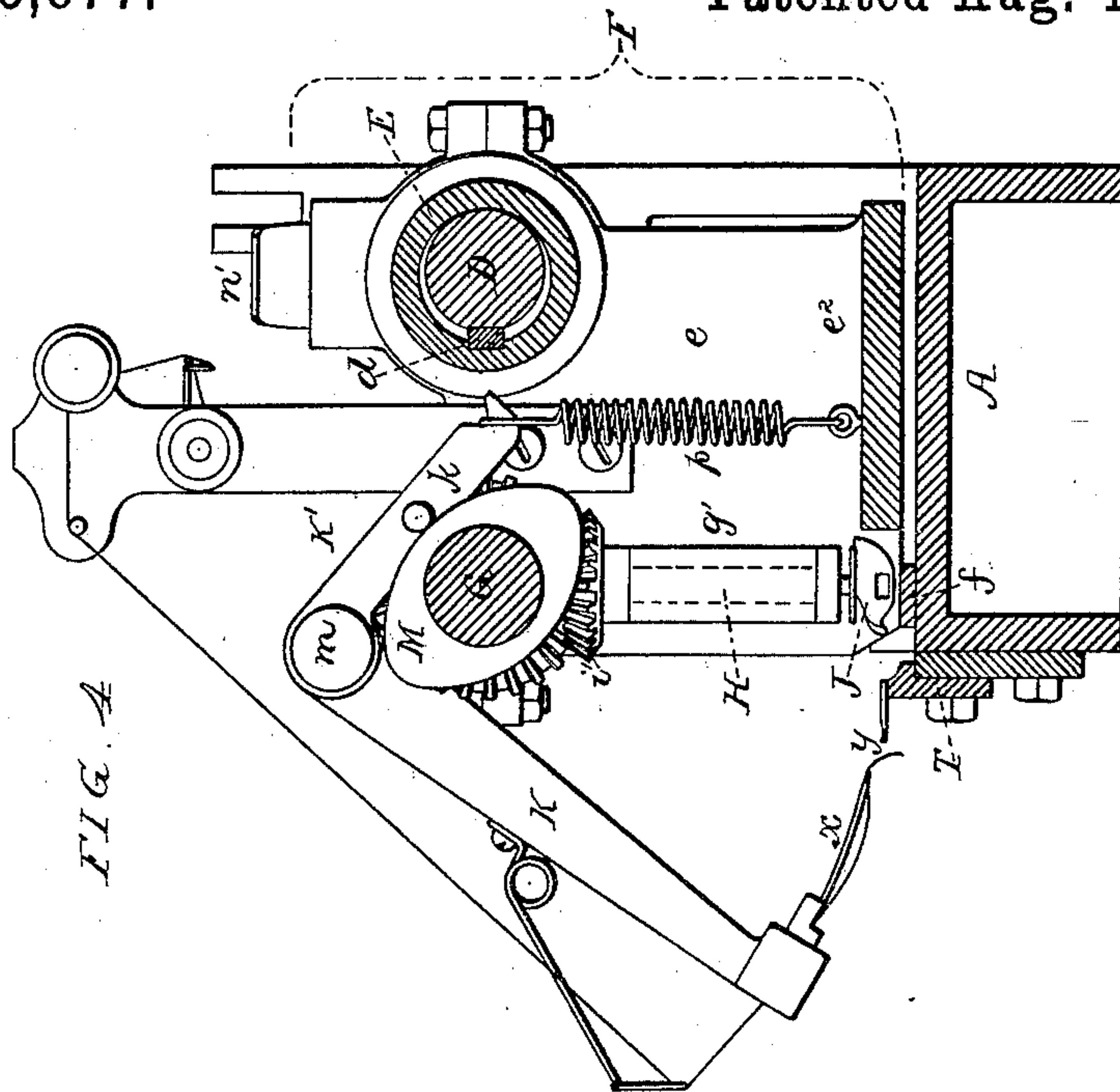
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UNITED STATES PATENT OFFICE.

ROBERT W. SCOTT, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR SEAMING KNIT FABRICS.

SPECIFICATION forming part of Letters Patent No. 245,877, dated August 16, 1881.

Application filed September 15, 1880. (No model.)

To all whom it may concern:

Be it known that I, ROBERT WALTER SCOTT, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Machines for Seaming Knitted Fabrics, of which the following is a specification.

My invention relates to certain improvements in that class of machines which are used
10 for sewing together the edges of knitted fabrics, and which are commonly termed "seaming-machines," the objects of my improvements being to simplify and cheapen the construction of the machine, to enable the same to be
15 run at a higher rate of speed than usual, and to permit the ready adaptation of the machine to different gages of work.

In the accompanying drawings, Figure 1, Sheet 1, is a plan view of my improved seaming-machine; Fig. 2, a front view of the same;
20 Fig. 3, Sheet 2, a transverse section on the line 1 2, Fig. 1; and Fig. 4, a transverse section on the line 3 4, Fig. 1.

A is the foundation or bed of the machine,
25 which is of any suitable length, and is provided at its opposite ends with upright standards B B, in which are formed bearings for the driving-shaft D, the latter having a screw-thread, *a*, extending from end to end of the
30 machine. In the threaded portion of the shaft D is cut a longitudinal key-seat, *b*, to which is adapted a feather, *d*, carried by a sleeve, E, Fig. 4, the bore of this sleeve being slightly greater than the diameter of the outside of the
35 screw-thread *a*, so that while the sleeve E is compelled to rotate with the shaft D it is free from the traversing influence of the screw-thread. The sleeve E is adapted to bearings in the opposite end frames, *e e'*, of a carriage,
40 F, said end frames being connected at the bottom by a base-plate, *e²*, and being supported at the front ends by a longitudinal rail, *f*, of steel, on the bed A. The end frames, *e e'*, of the carriage F are also provided with bearings
45 for a shaft, G, carrying a pinion, *h*, which gears into a spur-wheel, *h'*, on the sleeve E.

Secured to or forming part of a bracket, *g*, which projects from the end frame, *e*, of the carriage F, is a bearing, *g'*, for a vertical shaft,
50 H, driven by means of a bevel-wheel, *i*, and pinion *i'* from the shaft G, and provided at the lower end with a rotating hook or looper, J,

similar to that of the well-known Willcox & Gibbs sewing-machine.

Projecting from the frame *e* above the shaft G is a pin, *m*, to which is hung a sleeve, *m'*,
55 having two arms, K and K', the former carrying at the lower end an eyed needle, *x*, while the arm K' has a pin, *k*, which is acted upon by a cam, M, on the shaft G, the effect of the
60 rotation of said shaft G being to impart a vibrating movement to the arm K and a rotating movement to the shaft H and its hook J. A spring, *p*, acts upon the arm K', and serves to maintain the pin *k* constantly in contact
65 with the cam M.

The longitudinal traversing of the carriage F is effected by the engagement of the screw-thread *a* of the shaft D with a nut, *n*, which is adapted to guides in a projection on the end
70 frame, *e'*, of the carriage, and is free to reciprocate vertically therein, a spring, *n'*, serving to maintain the nut in gear with the screw-thread, except when said nut is elevated by means of a lever, *n²*, hung to a plate on said
75 frame, (see Fig. 4,) the carriage being then free from the control of the screw.

One end of the shaft G projects beyond the end frame, *e'*, and is provided with a cam, P, Fig. 3, which acts on a pin or projection, *s*, on
80 an arm, S, hung to said frame *e'*, and resting upon the rail *f* on the bed A, so that as the shaft G is rotated the front end of the carriage and the parts carried thereby are alternately elevated and depressed. The pin *s* is adjustable
85 in order to compensate for wear upon the end of the arm S.

The work is carried by the usual row of grooved points or fingers, *y*, projecting from a plate, T, secured to the bed A, and the thread
90 for the needle *x* is drawn from a spool (shown by dotted lines in Fig. 2) and passes through the usual tension devices and guiding-eyes to the eye of the needle.

Power being applied to the shaft D and the
95 nut *n* being in gear with the screw *a*, the sleeve E and shaft G will be rotated, the carriage F will be traversed longitudinally and will have a slight vertical movement or reciprocation at the front end, the arm K will be vibrated, and
100 the shaft H and its hook J will be rotated.

The operation of seaming or sewing together the edges of the fabric applied to the points *y* is the same as in an ordinary seaming-machine,

with the exception that instead of the usual reciprocating looper and the complicated cams for working the same I employ a simple rotating hook on a vertical shaft, H, driven from the shaft G by bevel-gearing, so that the structure of this portion of the machine is materially simplified and cheapened and the operation of the machine facilitated, as the rotating hook can be run at a much higher rate of speed than the reciprocating looper.

The machine shown in the drawings is intended for the production of a double or over-seam stitch—that is to say, each stitch formed in the work alternates with a stitch formed above and out of the work, owing to the alternate elevation and depression of the front end of the carriage F, and to the fact that the arm K, by the use of the gearing shown, is caused to make two vibrations and the hook J two rotations for each traverse of the carriage F to the extent of the distance between the centers of adjacent points *y*. When a single stitch only is to be produced—that is, but one stitch for each point *y*—the pin *s* of the arm S is removed or the cam P otherwise thrown out of gear, so that there will be no vertical vibration of the carriage F, and at the same time a single cam is substituted for the double cam M, and the proportion of the bevel-gears *i i'* is changed, so that the speed of the rotary hook J and needle-arm K will be properly diminished.

It will be observed that the shaft D has no longitudinal movement in its bearings, and that the carriage F has a continuous and uniform movement imparted to it by the feed-screw *a*, so that when there is a change in the gage of the points *y* all that is necessary is to regulate the relative speeds of the shafts D and G to accord therewith by properly proportioning the spur-wheel *h'* and pinion *h*, whereas in an ordinary seaming-machine there is an intermittent movement of the carriage due to the use of cam-collars, which impart a longitudinal movement to the screw-shaft, whereby a change in the gage of the points *y* necessitates the introduction of a new feed-screw of a pitch proportionate to the changed gage of the points. The shaft D serves as a pivot for the carriage F, so that the latter can be thrown back in the direction of the arrow, Fig. 3, when it is desired to gain access to the points *y*, rotating hook J, or needle *x*.

In an ordinary seaming-machine the shaft G is the driving-shaft, and extends from end to end of the machine, being adapted to bearings in the standards B B of the bed A, so that there can be no elevation of the carriage

F. The long shaft G, moreover, unnecessarily complicates and increases the cost of the machine—objections which I overcome by making the screw-shaft D the driving-shaft and employing in place of the long fixed shaft of the ordinary machine a short shaft, G, adapted to bearings on the carriage F and moving longitudinally with the latter.

Although I have shown my invention as applied to a straight machine, some of the features of my invention may be embodied in machines in which the work-holding points *y* are arranged in a circle and are caused to rotate, the frame carrying the seaming mechanism being stationary.

I claim as my invention—

1. The combination, in a seaming-machine, of the work-holding points *y*, adapted for the reception of the loops of the fabric, the frame or carriage F, the vertical shaft H, having a rotary looping-hook, J, the needle-arm K, hung so as to be free to vibrate, the horizontal shaft G, having a cam, M, adapted to actuate the needle-arm, and bevel-gearing *i i'*, whereby motion is communicated from the shaft G to the shaft H, as set forth.

2. The combination of the frame or bed A, having standards B and points *y*, the driving-shaft D, having a screw-thread, *a*, with key-seat *b*, and the carriage F, having a short shaft, G, for operating the seaming devices, and a sleeve, E, geared to the shaft G, and having a feather, *d*, adapted to the key-seat *b*, all substantially as specified.

3. The combination of the bed A, having work-holding points *y*, adapted for the reception of the loops of the fabric, the carriage F, provided with the seaming devices, the operating-shaft G for said seaming devices, and the feed-screw *a*, which is geared to said shaft G, engages a nut on the carriage, and is adapted at each end to fixed bearings, in which it has no longitudinal movement when in operation, all substantially as specified.

4. The combination of the bed A, the carriage F, the driving-shaft D, with screw *a*, the shaft G, having cam P, and the arm S, pivoted to the carriage F and having a projection for being acted upon by the cam P, as set forth.

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

ROBT. W. SCOTT.

Witnesses:

JAMES F. TOBIN,
HARRY SMITH.