

No. 689,200.

Patented Dec. 17, 1901.

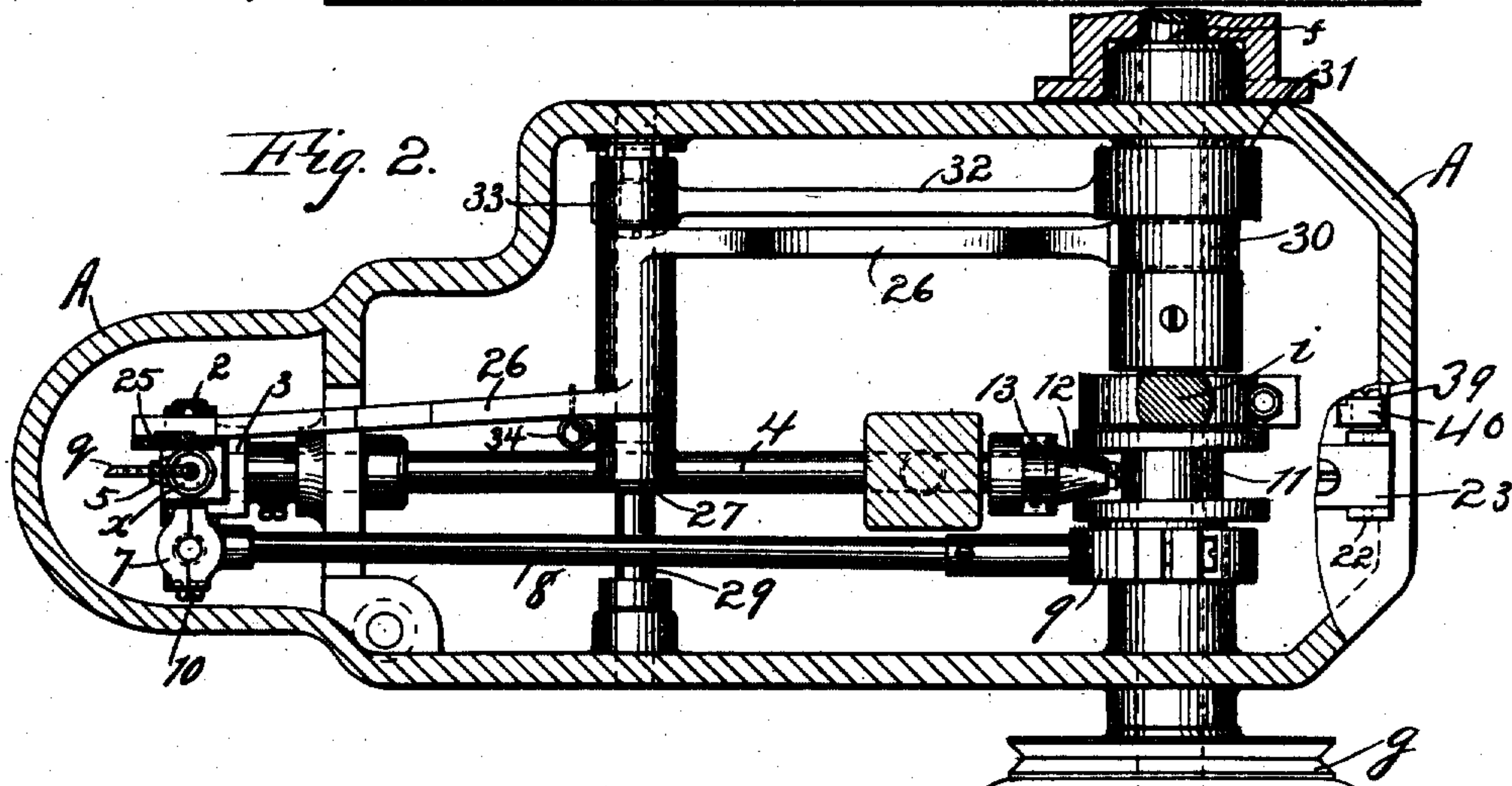
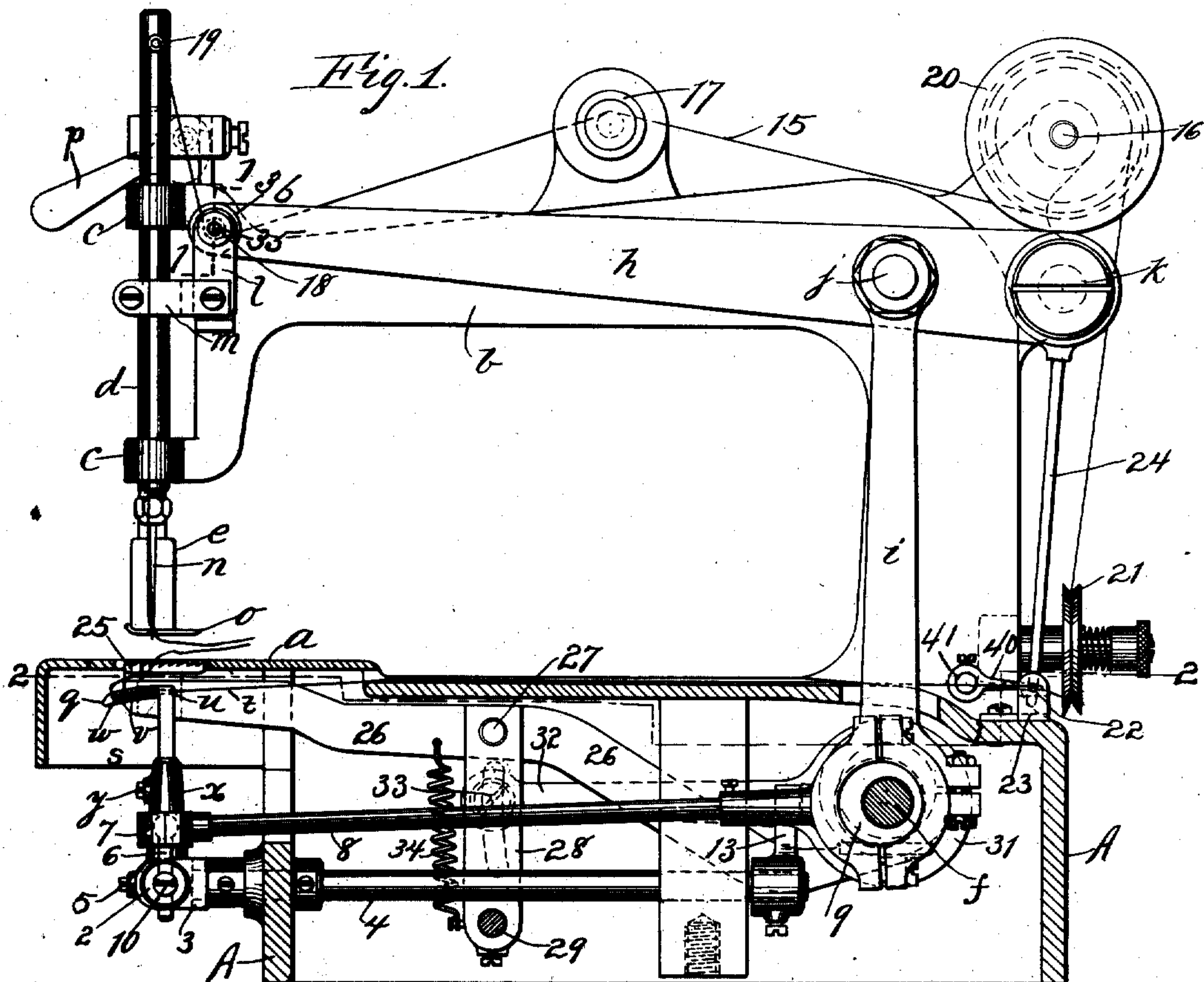
H. A. KLEMM.

THREAD CONTROLLING MECHANISM FOR SEWING MACHINES.

(Application filed Dec. 13, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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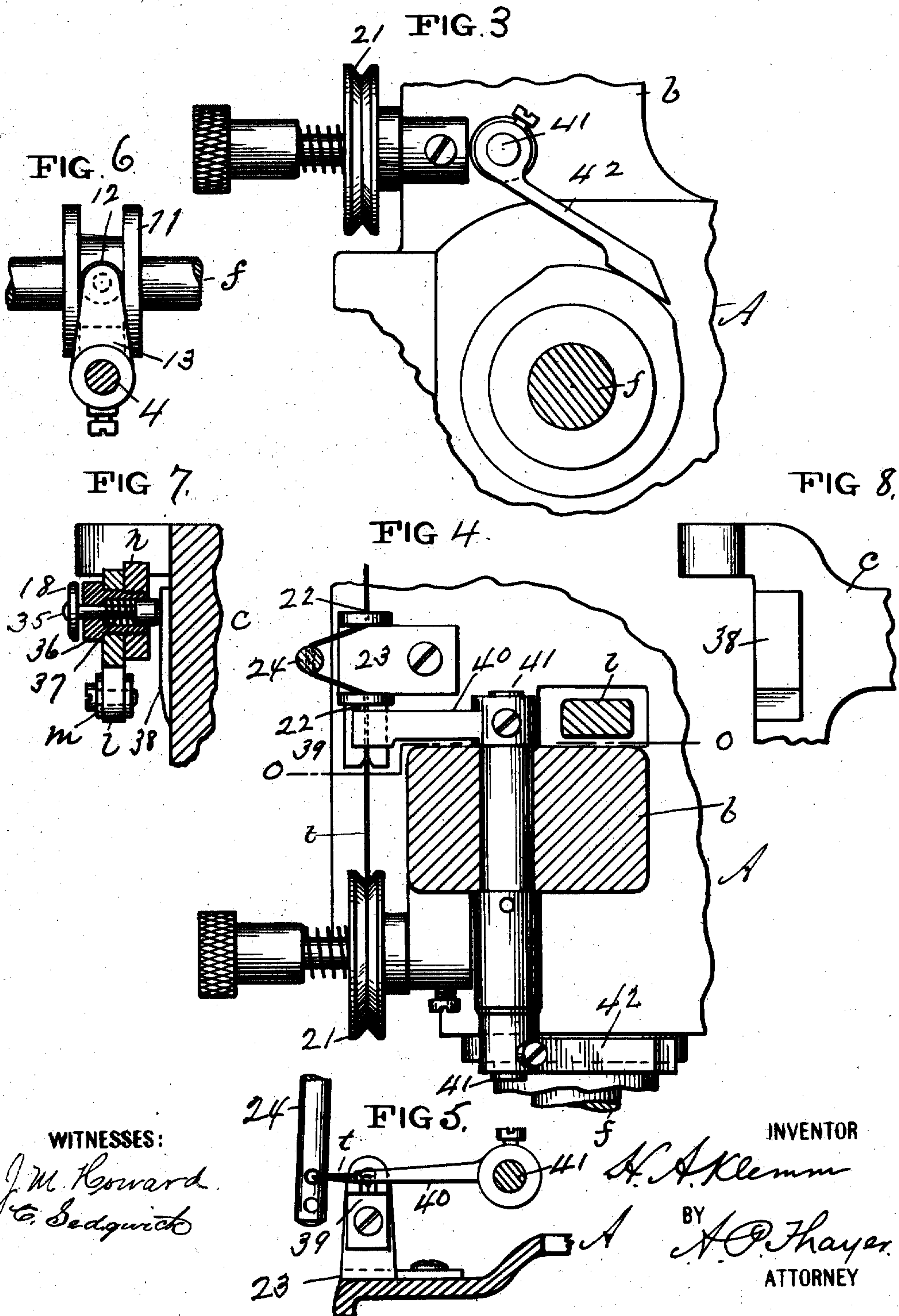
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THREAD-CONTROLLING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 689,200, dated December 17, 1901.

Application filed December 13, 1900. Serial No. 39,686. (No model.)

To all whom it may concern:

Be it known that I, HERMANN A. KLEMM, a citizen of the United States of America, and a resident of the borough of Manhattan, city and State of New York, have invented certain new and useful Improvements in Thread-Controlling Mechanism for Sewing-Machines, of which the following is a specification.

My invention consists of improvements in glove-sewing machines in which a vertically-operating needle is used, together with a loop-thread-carrying hook and a loop-spreading stud in forming chain-stitches under the work; and it consists of improvements of the hook-thread grips for holding the threads against the pull of the take-up devices when drawing up the loops of the hook-thread, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is partly a side elevation and partly a sectional elevation of my improved glove-sewing machine. Fig. 2 is a horizontal section on line 2 2 of Fig. 1. Fig. 3 is a detail of the machine in side elevation as seen from the rear side of Fig. 1 and a transverse section of the main shaft, showing the cam and lever for operating the hook-thread gripper. Fig. 4 is a horizontal section of the stationary supporting-arm at its base and a plan view of the gripping devices for holding the hook-thread while the take-up for said thread is in operation. Fig. 5 is a section of the hook-thread-gripper shaft and an elevation of the gripper, the section being taken on line o o, Fig. 4. Fig. 6 is a detail of the devices for effecting the loop-spreading movements of the hook. Fig. 7 is a section of the needle-thread grip on line 1 1, Fig. 1. Fig. 8 is a part of the head of the stationary arm in side elevation.

For a better understanding of the parts to be claimed I have represented the machine generally in the drawings, and herein briefly describe the same, to begin with, as follows:

A represents the base of the machine; a, the work-plate; b, the stationary supporting-arm for the needle and presser-bars and the needle-bar-operating lever c, and the head of said arm in which the needle-bar d and the presser-bar e are mounted.

f is the shaft for operating the various parts; g, the pulley for applying the power to said

shaft; h, the needle-bar-operating lever, and i the connecting-rod actuated by an eccentric on the shaft and pivoted to lever h at j for operating said lever, which is pivoted to the supporting-arm b at k for its fulcrum and is connected to the needle-bar by the link l and collar m.

n represents the needle, and o the presser-foot. The presser-bar has the usual cam-dog p for lifting and holding the presser-foot up, also the usual spring (not shown) for causing the pressure of the foot on the work.

The loop-thread-carrying hook is represented at q. It is a suitably-curved finger mounted on the upper end of a staff s, pivoted directly under the needle, so as to swing forward and backward along the needle below the work-plate and preferably in the plane of the feed movement, and it also has lateral movement for spreading the loops of its thread. The hook-thread t enters the eye at u in the heel of the hook and passes along the groove v in the side of the hook and through the eye w near the point. The staff s of the hook is mounted in a socket x, in which it is adjustable vertically relatively to the needle n, with a set-screw y to secure it in position.

The socket x is mounted on a rocking pivot 2, carried in the forked head 3 of a rock-shaft 4 for effecting the lateral movements of the hook relatively to the needle.

The socket x is adjustable around the rocking pivot 2 for gaging the hook relatively to the needle and is provided with a set-screw 5 for fixing it in position. The rocking pivot 2 has a lateral arm 6, which is coupled by a ball-and-socket joint 7 with a connecting-rod 8 of an eccentric 9 on the shaft f for swinging the hook to carry the hook-thread loops through the loops of the needle-thread. The arm 6 is adjustable in the rocking pivot 2 to vary the range of the movement of the hook and has a set-screw 10 for fixing it in position.

The rock-shaft 4, in the head of which the hook-staff is mounted for being laterally shifted, is operated by a grooved cam 11 on the shaft f, in which a stud 12 works, that is carried on an arm 13 of said shaft 4.

The needle-thread 15 is led off from a spool on the pin 16, (behind spool 20,) through the tension-disks 17 and the gripper 18 on the

extremity of lever *h*, and around the guide-stud 19 on the needle-bar near its upper end, so that the needle-bar draws up the slack of its thread when it rises.

5 The gripper 18 is a disk on the extremity of a sliding pin 35 in the bore of the screw 36, by which lever *h* and link *l* are connected, with which pin spring 37 is provided to cause the gripper to act when the needle is down
10 and hold the thread for a time while the take-up—that is, stud 19—on the needle-bar is drawing up the needle-thread, and thus prevent drawing the thread from the spool and insuring the proper take-up. 38 is a cam-
15 plate on the side of the stationary arm *c*, against which the inner end of pin 35 comes in contact when the needle-operating lever *h* rises to release the gripper when the thread is to be drawn from the spool; but I do not
20 claim herein the particular contrivance of the needle-thread gripper.

The hook-thread *t* is drawn from spool 20, also on pin 16, through tension-disks 21 and through the eyes 22 of the take-up yoke 23
25 to the hook *q*, and the lever *h* carries a take-up arm 24, which swings between the members of the yoke when the needle descends and the hook retires and takes up the slack of the hook-thread. A gripper is also pro-
30 vided to prevent drawing the hook-thread from the spool while taking up the loops of said thread. It consists of the anvil 39, located between the friction-disks 21 and the eyes 22, and a finger 40 coacting therewith, so
35 as to grip and hold the thread between them while arm 24 is taking up the thread. The finger is carried on one extremity of a shaft 41, having a bearing in the stationary arm *b* at its base, and on its other end having a le-
40 ver 42, with which a cam 43 on shaft *f* acts to effect the grip of the thread at the proper time—that is, while the loop is being taken up by arm 24.

The finger 40 and lever 42 are slightly flexible for effecting elastic grip.

The release of the grip may be effected by the gravitating action of lever 42 or a spring may be employed, if preferred.

The feed-plate 25 is carried on one extremity of a lever 26, pivoted at 27 on the up-
50 per end of a support 28, which is pivoted at 29. The other extremity of said lever 26 reaches under a cam 30 on the shaft *f*, which raises the feed-plate at the proper time for the be-
55 ginning of the feed movement, and the feed movement is effected by an eccentric 31 on said shaft, the rod of which, 32, is coupled at 33 (dotted in Fig. 1) with an arm of the le-
60 ver-support 28, so as to impart the reciprocating movements to the feed-plate. The spring 34 depresses the feed-plate preparatory to next operation; but the feed mechanism is not claimed in this application.

What I claim as my invention is—

The combination with the needle looping-
65 hook, and the take-up for the hook-thread, said take-up consisting of the pair of guide-eyes for the hook-thread located at the rear extremity of the frame of the machine, and the arm carried by the rear end of the needle-
70 bar-operating lever, of the hook-thread gripper consisting of the anvil located at the entrance for the thread into said guide-eyes, the gripping-finger adapted to coact with the anvil, rock-shaft carrying said finger, and
75 mounted in the base of the stationary supporting-arm parallel with the main shaft, cam on said main shaft, and a lever on said rock-shaft coacting with the cam for effecting the grip, and means for releasing the grip. 80

Signed at New York city this 1st day of December, 1900.

HERMANN A. KLEMM.

Witnesses:

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