

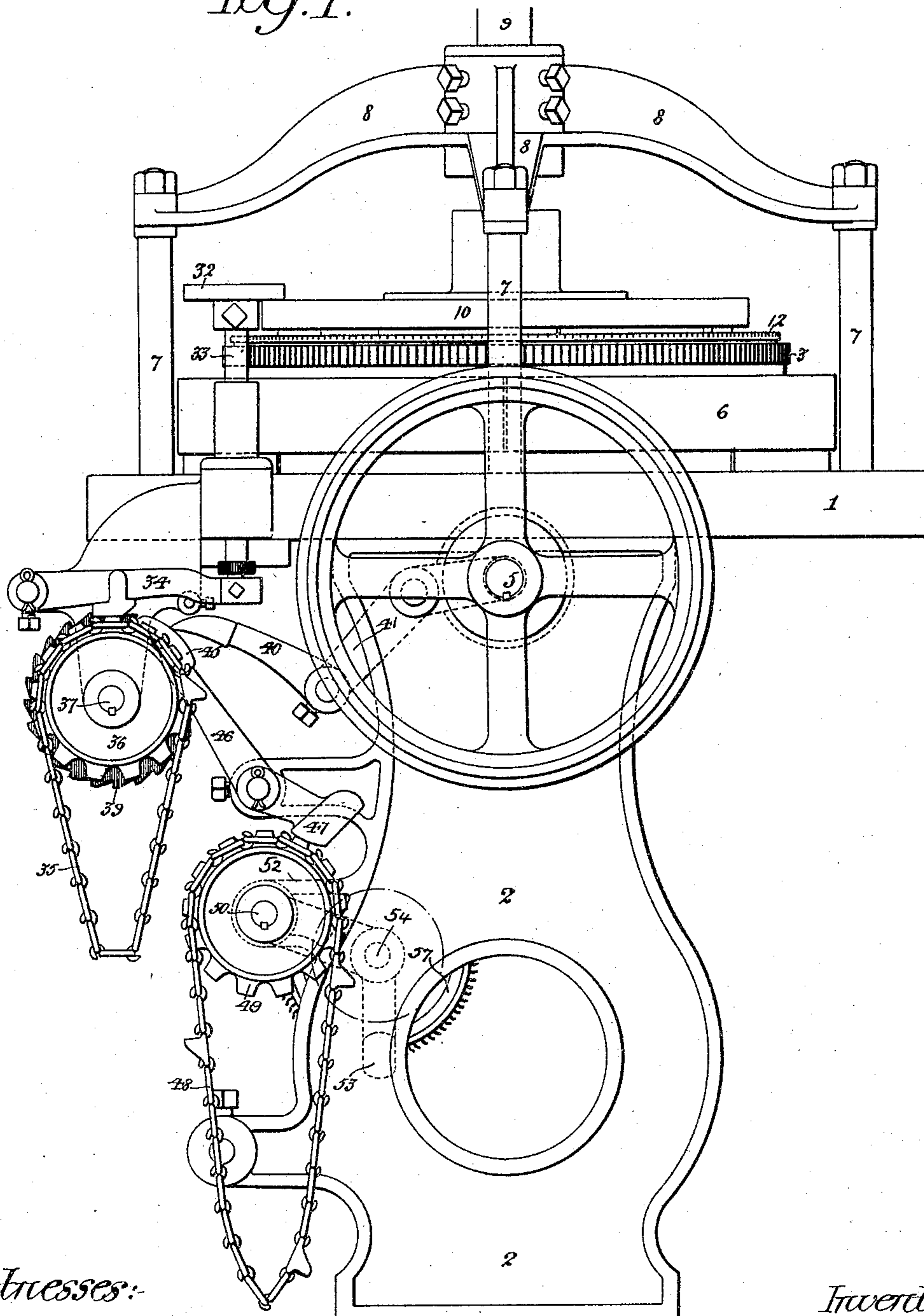
No. 783,155.

PATENTED FEB. 21, 1905.

H. SWINGLEHURST.
RIB KNITTING MACHINE.
APPLICATION FILED JULY 8, 1904.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

Augustus Blopper
Louis H. Buck.

Inventor:

Harry Swinglehurst
by his Attorneys

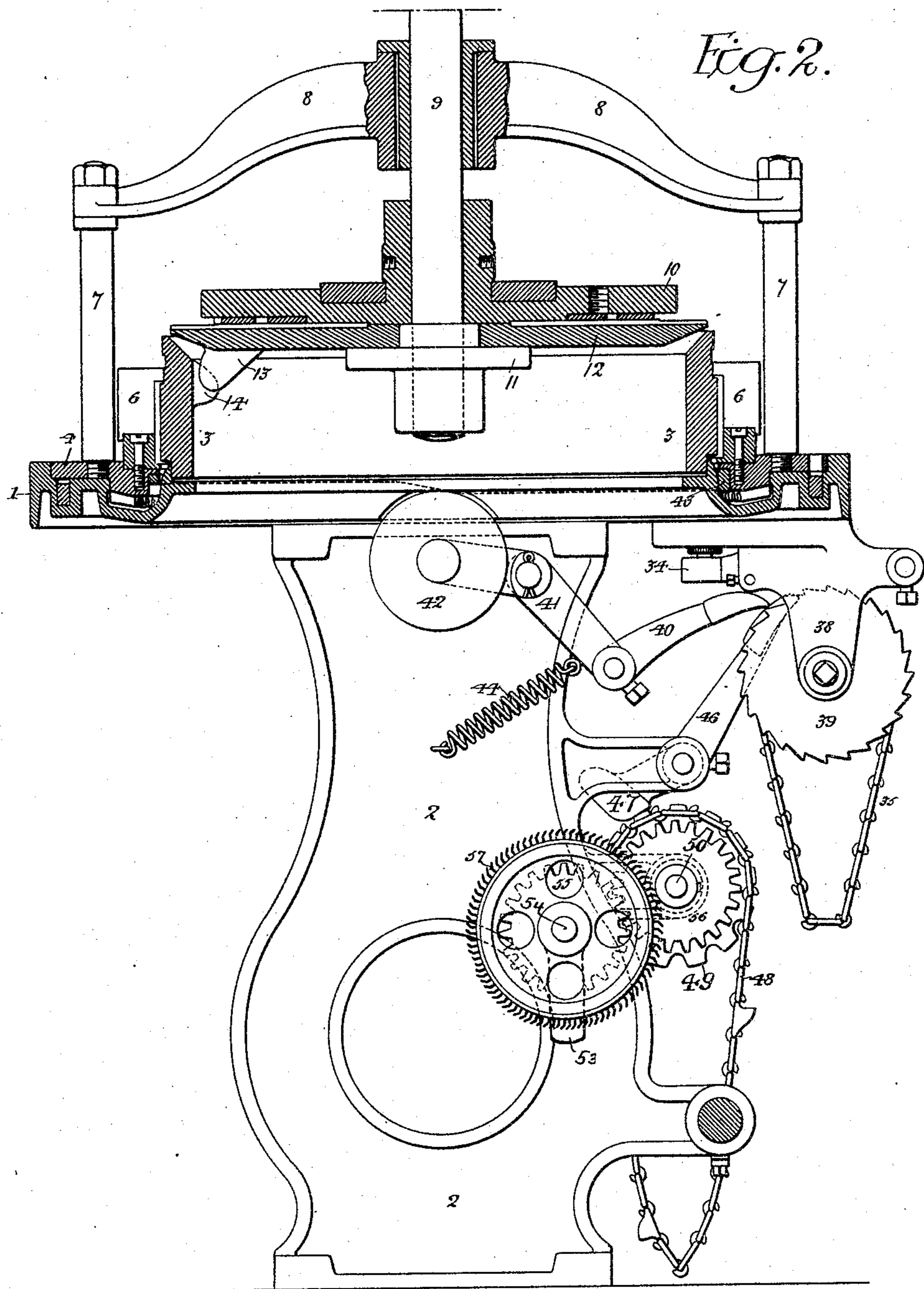
Howson & Howson

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3 SHEETS—SHEET 2.



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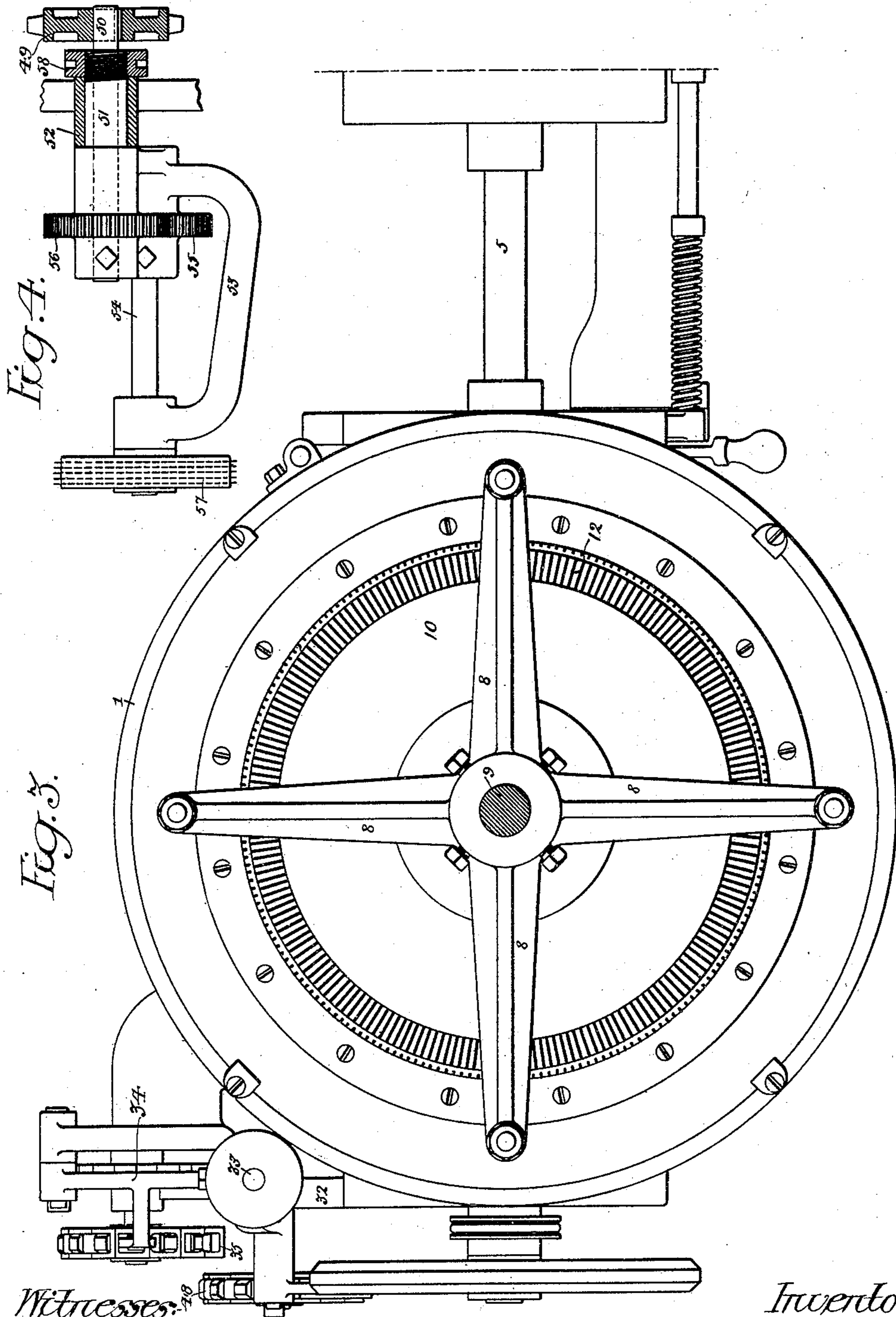
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

HARRY SWINGLEHURST, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
TO ROBERT W. SCOTT, OF PHILADELPHIA, PENNSYLVANIA, AND LOUIS
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RIB-KNITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 783,155, dated February 21, 1905.

Application filed July 8, 1904. Serial No. 215,793.

To all whom it may concern:

Be it known that I, HARRY SWINGLEHURST, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Rib-Knitting Machines, of which the following is a specification.

My invention relates to the measuring devices whereby the operation of the "slack-course," "welt-course," or tuck-stitch mechanism of a rib-knitting machine is governed
10 by the fabric as the latter passes from the machine, so that a certain cycle of operations is performed during the production of each of a number of successive portions of knitted web
15 each of a predetermined length.

In the accompanying drawings, Figure 1 is a side view of sufficient of a circular-rib-knitting machine to illustrate my present invention. Fig. 2 is a view, partly in vertical section and partly in elevation, looking in the
20 opposite direction from Fig. 1. Fig. 3 is a plan view; and Fig. 4 is a view partly in plan and partly in section, illustrating a special feature of my invention.

25 The fixed table or bed 1 of the machine is mounted upon standards 2, as usual, and has permanently secured to it the vertical needle-cylinder 3, said bed 1 also providing bearings for a rotatable ring 4, the latter being driven
30 by ordinary bevel-gearing from the driving-shaft 5 and carrying the vertical cam-cylinder 6, which is by preference of sectional form, so as to permit ready access to the cylinder needles and cams. The rotating ring 4 also
35 carries the posts 7, which support the transverse arch 8, and in the latter is mounted so as to be laterally adjustable the vertical stem or spindle 9, which carries the dial cam-plate 10, the lower end of said stem or spindle 9
40 being provided with a flanged collar 11, which supports the needle-dial 12, the latter being prevented from rotating by reason of the engagement of a lug 13 thereon with a lug 14 on the vertical needle-cylinder 3 in the ordinary
45 manner.

The cams of the needle cylinder and dial are adjusted to different positions by means of mechanism of any suitable character actuated

by contact with a disk 32 on a vertically-guided rod 33 at one side of the machine, and this rod
50 is raised and lowered, so as to effect proper adjustment of the disk 32 in respect to the cam-operating mechanism, by means of a lever 34, which is acted upon by a lug or lugs on a pattern-chain 35, the latter being adapted to a
55 sprocket-wheel 36, carried by a shaft 37, which is free to turn in bearings in a depending bracket 38, secured to the fixed table or bed 1 of the machine.

Secured to the shaft 37 is a ratchet-wheel
60 39, upon which acts at certain intervals a pawl 40, hung to one arm of a lever 41, which is mounted upon a suitable stud projecting from one of the standards 2 of the machine and carries upon its other arm an antifriction-roller
65 42, vibration of the lever on each rotation of the machine being effected by a cam-ring 43, which is secured to and rotates with the ring 4, as shown in Fig. 2, this cam-ring acting upon the antifriction-roller 42 and serving to
70 depress the same, and thereby move the lever 41 in one direction, movement of said lever in the opposite direction being effected by means of a spring 44.

The pattern-chain 35 only operates during
75 a limited period—that is to say, while it is necessary to effect the changes in the position of the cams in order to produce tuck-courses, slack-courses, welt-courses, or other changes in the knitting at certain points in the
80 length of the knitted tube. At all other times the pawl 40 is prevented from engaging with the teeth of the ratchet-wheel 39 by reason of a shield 45, which lifts the point of the pawl out of engagement with the teeth of the ratchet-
85 wheel, as shown in Fig. 2, the shield 45 being carried by a lever 46, which has a shoe 47, adapted to be acted upon by lugs upon a pattern-chain 48, this pattern-chain being mounted upon a sprocket-wheel 49, which is secured
90 to a shaft 50, the latter being free to turn in a tubular shaft or sleeve 51, which is carried by a bracket 52 on one of the standards 2 of the machine, as shown by dotted lines in Fig. 1 and also illustrated in Fig. 4.

The tubular shaft or sleeve 51 projects from

a yoke 53, in which are formed bearings for another shaft, 54, which is geared to the shaft 50 by means of spur-wheels 55 and 56, said shaft 50 passing through the head of the yoke 5 for this purpose.

The shaft 54 carries a wheel or disk 57 with projecting pins intended to engage with the web of knitted fabric as the latter passes downwardly from the cylinder of the machine to the take-up rolls. The rotating movement thus imparted to the wheel 57 is transmitted to the pattern-chain 48, so that the lugs upon the latter actuate the lever 46 and permit engagement of the pawl 40 with the ratchet-wheel 39 at intervals determined by the length of fabric which it is desired to have intervene between the successive tuck, slack, welt, or other courses to be formed in the fabric.

The tubular shaft or sleeve constituting the head of the yoke 53 is normally secured rigidly in position in the bracket 52 by means of a nut 58, Fig. 4, which is adapted to the threaded end of the sleeve 51, so that the bracket 52 can be securely clamped between said nut and the head of the yoke 53, and if the nut 58 is slightly slackened said yoke 53 can be swung upon its pivot-head so as to adjust the pin-wheel 57 nearer to or farther from the center of the machine, and thus adapt it to properly bear upon the web of knitted fabric descending from the cylinder and dial of the machine whatever the diameter of the latter, an increase in the diameter of the cylinder necessitating an outward swing of the yoke and a decrease in the diameter of the cylinder requiring an inward swing of the same, the nut 58 providing for the secure retention of the yoke in any position of adjustment of the same.

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

1. The combination, in a measuring device for circular-knitting machines, of a pattern-chain and operating mechanism therefor hav-

ing as elements a toothed wheel for engaging the knitted web, and means for adjusting said toothed wheel from and toward the vertical axis of the machine, substantially as specified.

2. The combination, in a measuring device for circular-knitting machines, of a sprocket-wheel shaft, a shaft having a pin-wheel for engaging the fabric, gearing connecting the pin-wheel and sprocket-wheel shafts, and a yoke mounted so as to swing around the axis of the sprocket-wheel shaft, said yoke carrying the pin-wheel shaft, substantially as specified.

3. The combination, in a measuring device for circular-knitting machines, of the frame, a sprocket-wheel shaft, a pin-wheel, a shaft therefor, gearing connecting the said pin-wheel shaft and sprocket-wheel shaft, and a yoke carrying said pin-wheel shaft and having a projecting tubular shaft or sleeve which receives the sprocket-wheel shaft and is adapted to a bearing on the fixed frame of the machine, substantially as specified.

4. The combination, in a measuring device for circular-knitting machines, of the fixed frame, a sprocket-wheel shaft, a pin-wheel, a shaft therefor, gearing connecting the said pin-wheel shaft and sprocket-wheel shaft, a yoke carrying said pin-wheel shaft and having a projecting tubular shaft or sleeve which receives the sprocket-wheel shaft and is adapted to a bearing in the fixed frame of the machine, and a nut applied to a threaded portion of said tubular shaft or sleeve and bearing upon the fixed frame so as to confine said tubular shaft or sleeve in position thereon, substantially as specified.

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

HARRY SWINGLEHURST.

Witnesses:

LORETTO A. COSTELLO,
MARGARET CRAIG.