

No. 719,728.

PATENTED FEB. 3, 1903.

H. F. & C. C. BOCKMEYER & J. PALMER.
STOP MOTION FOR KNITTING MACHINES.

APPLICATION FILED NOV. 15, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 1.

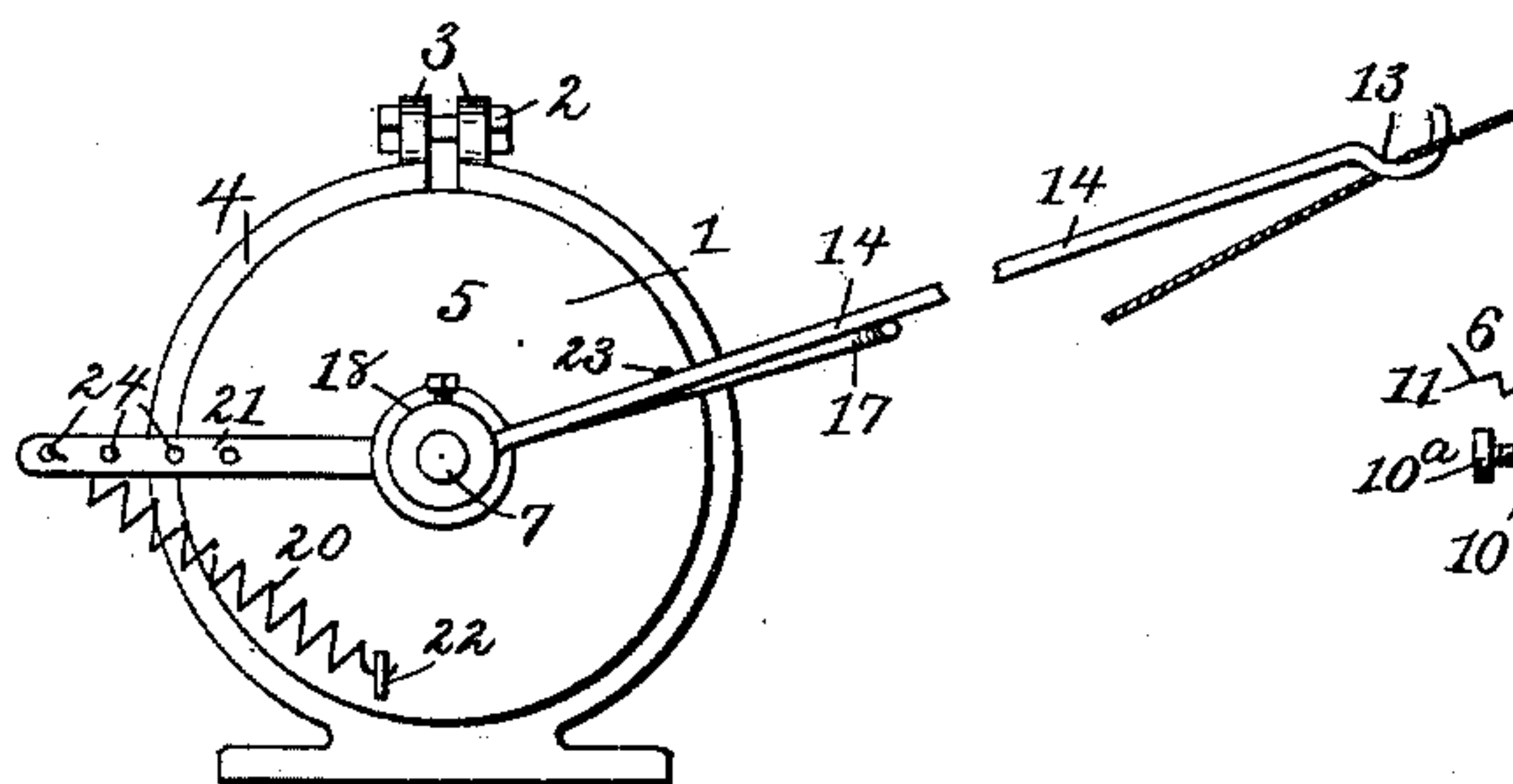


FIG. 3.

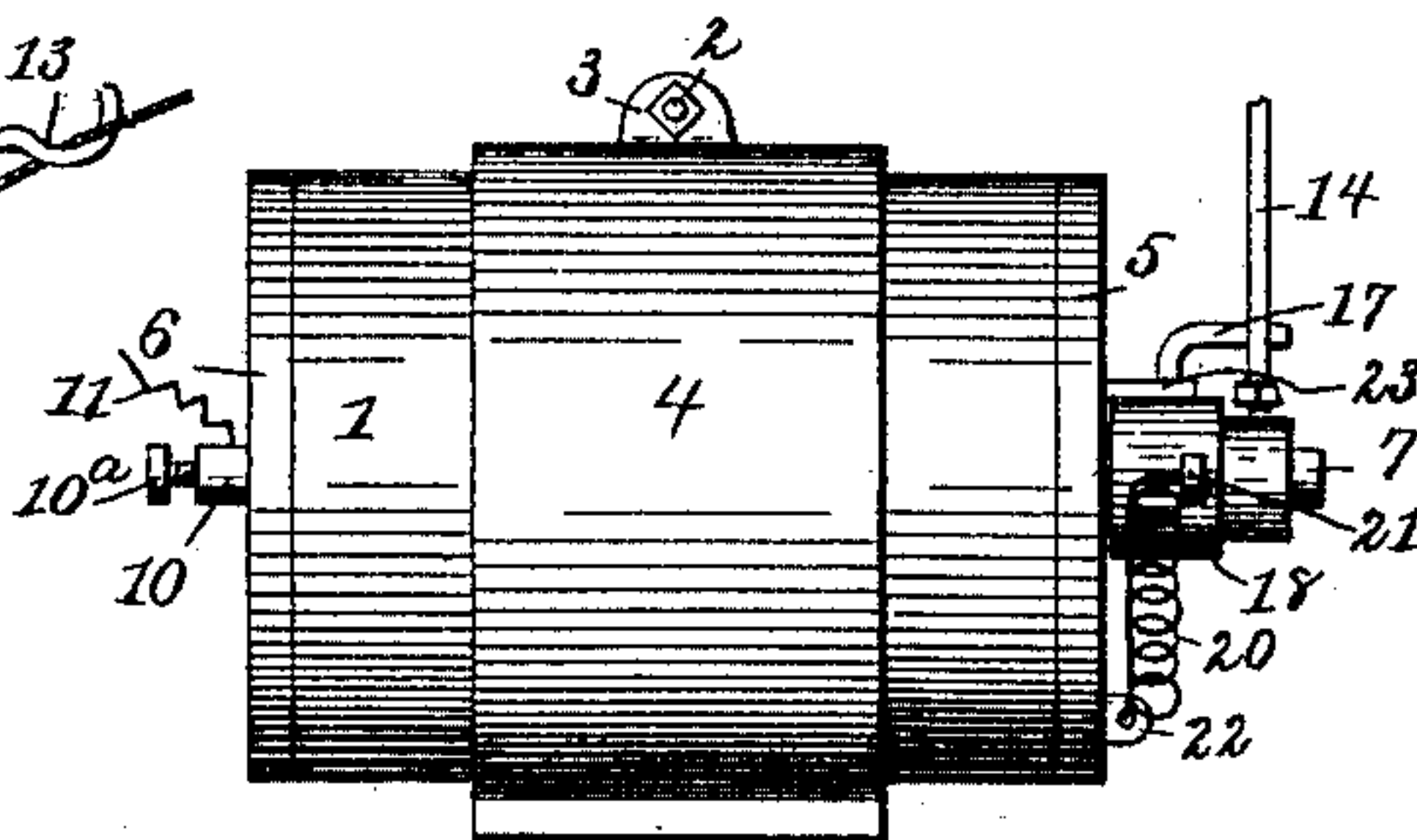


FIG. 2.

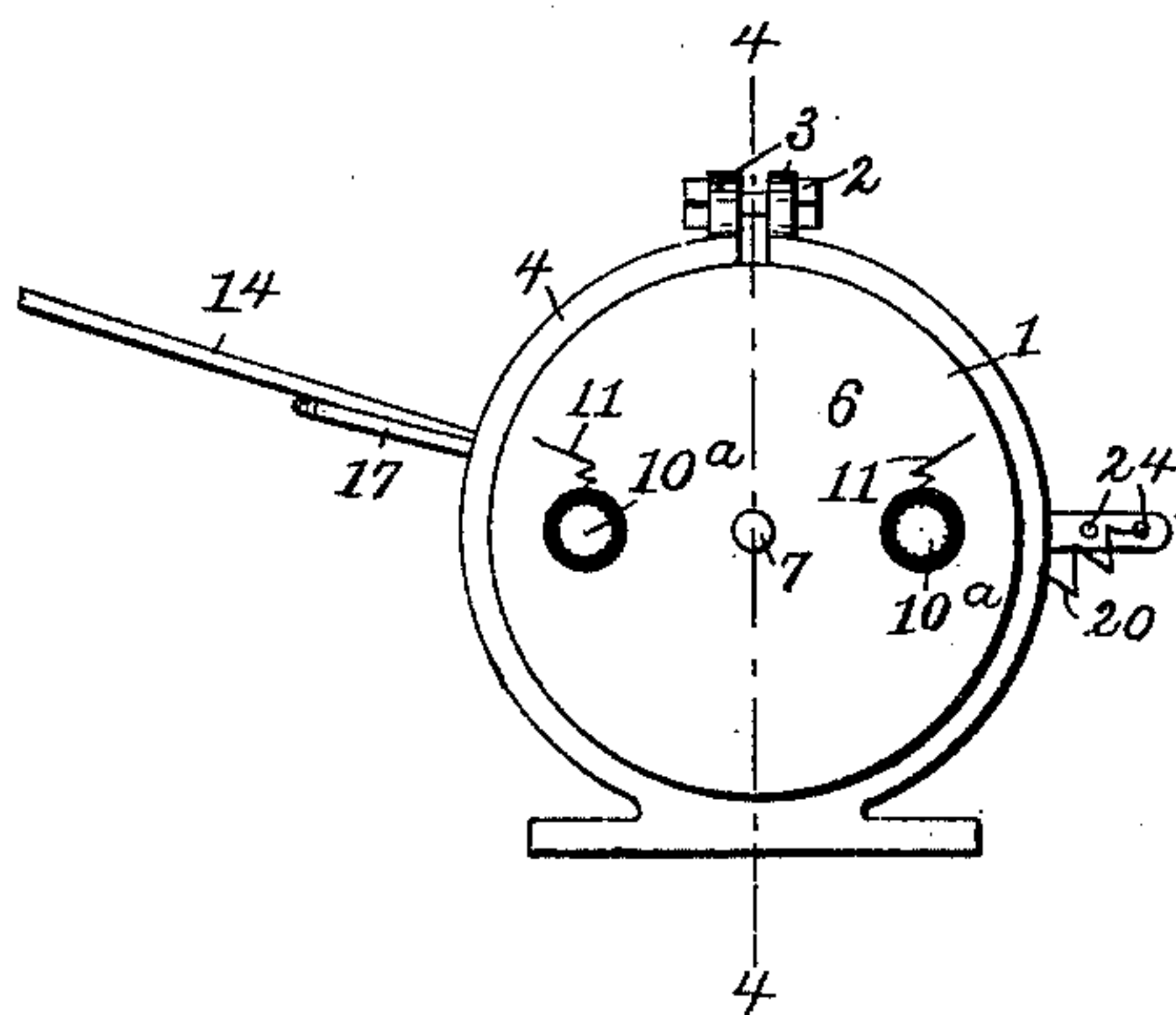
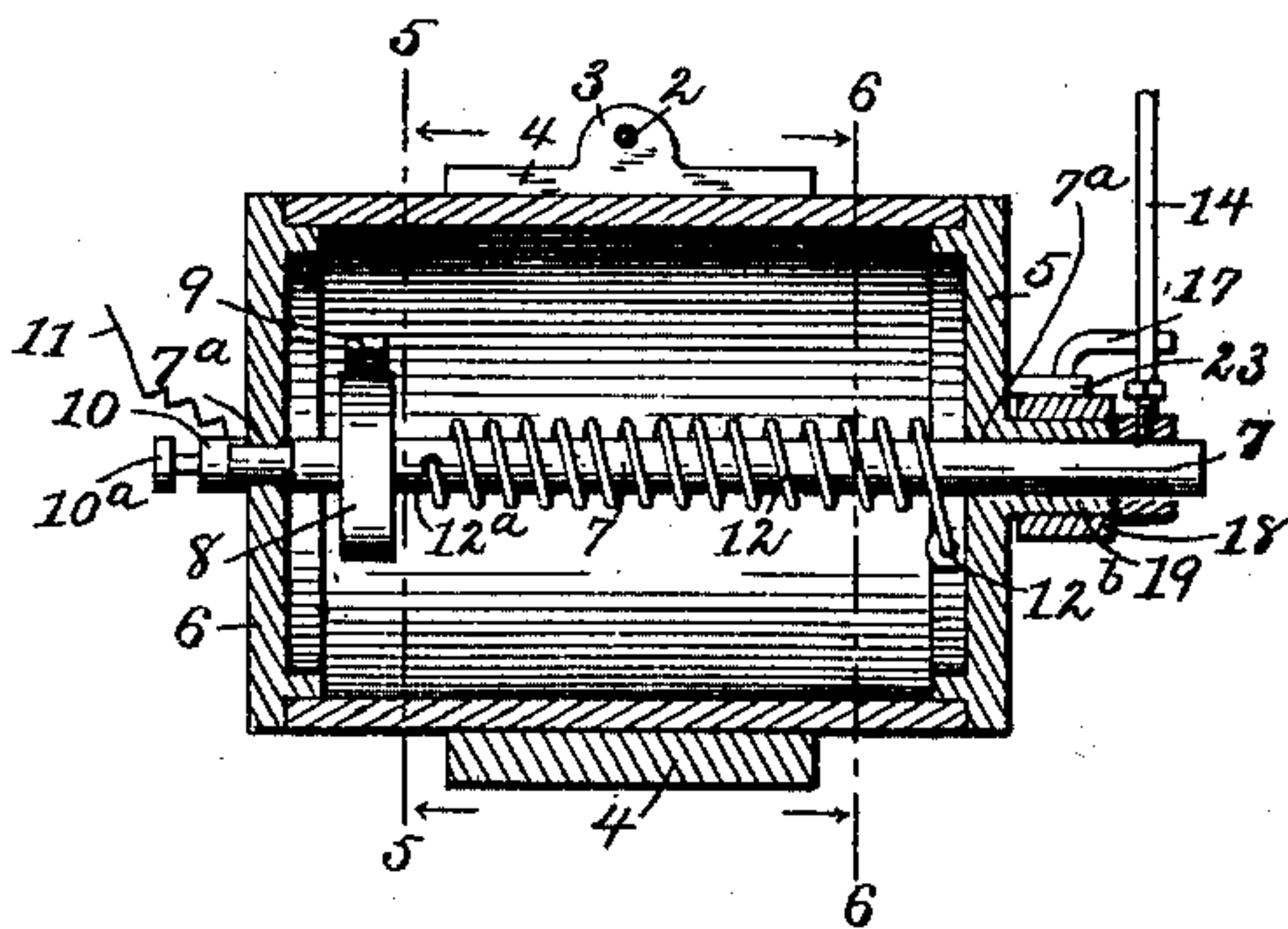


FIG. 4.



Witnesses:

F. L. Curand

Frank G. Radelfinger.

Inventors:

Henry F. Bockmeyer

Charles C. Bockmeyer

John Palmer

By *Lucas P. Rogers* & Co., Attorneys.

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2 SHEETS—SHEET 2.

FIG. 5.

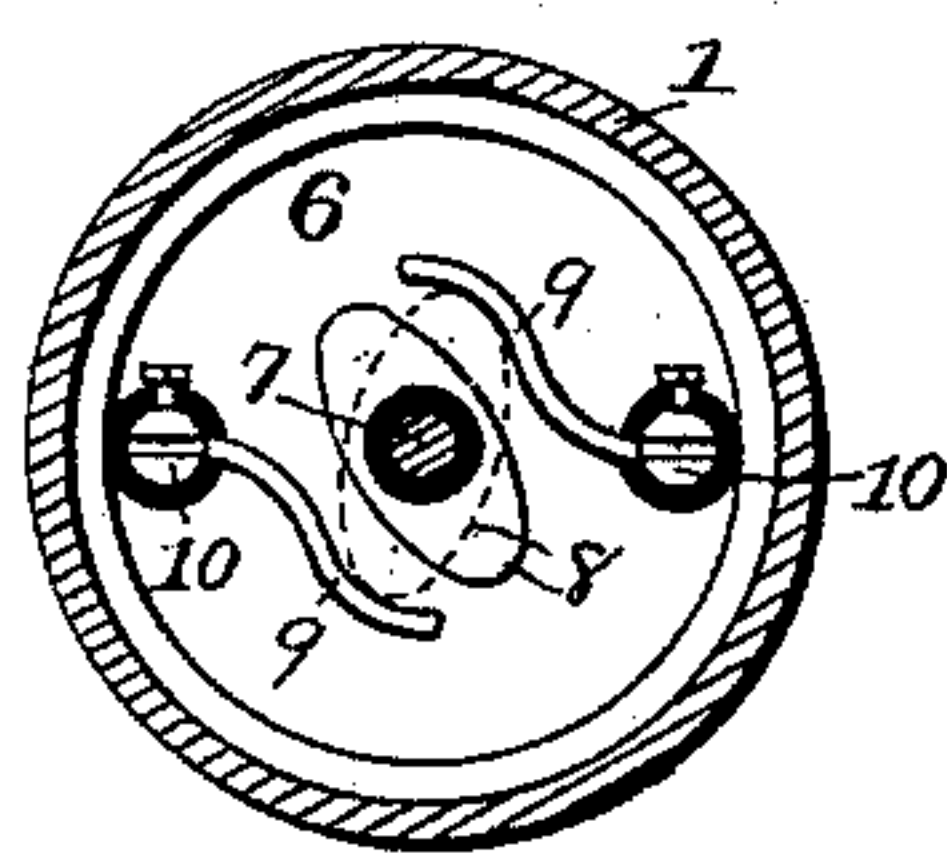


FIG. 6.

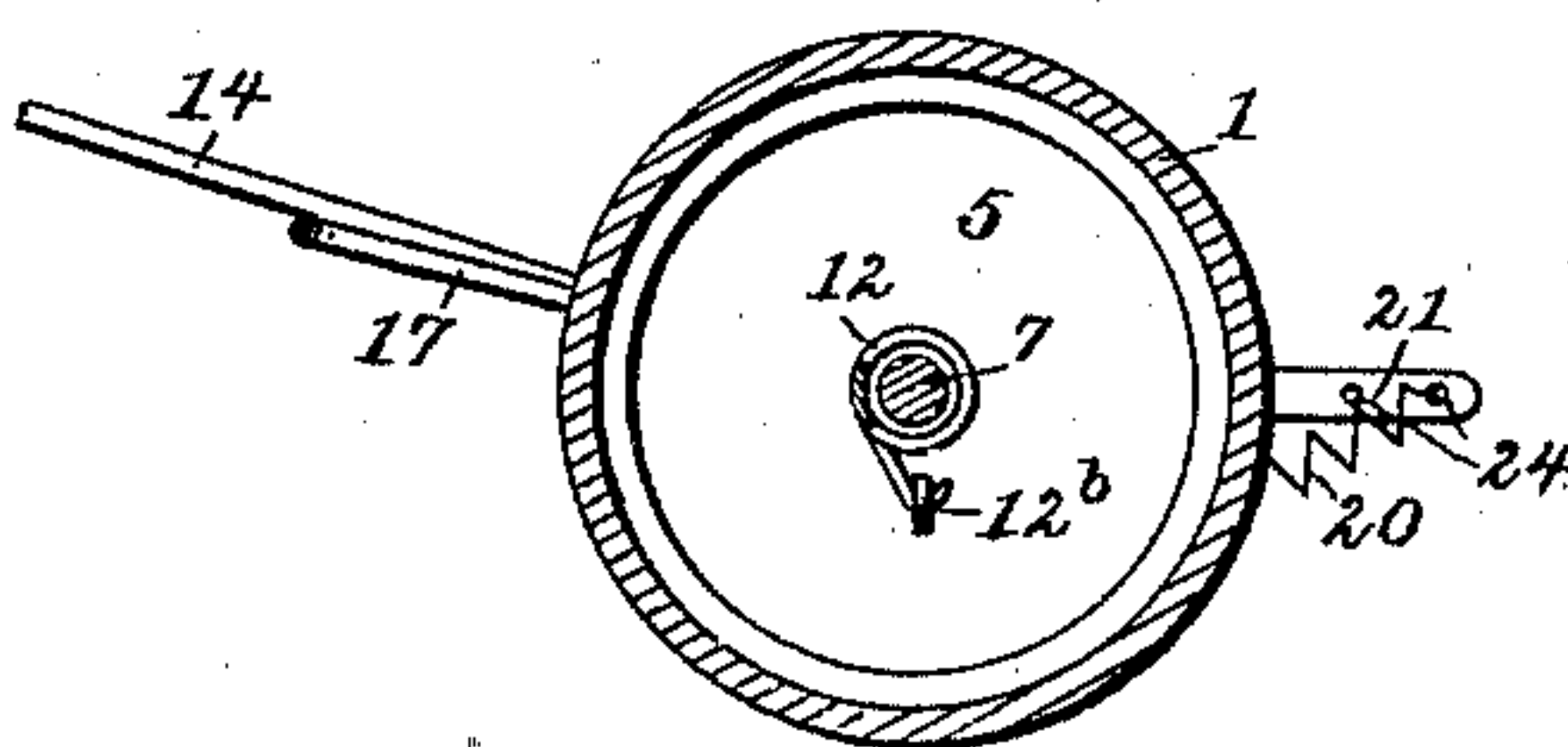
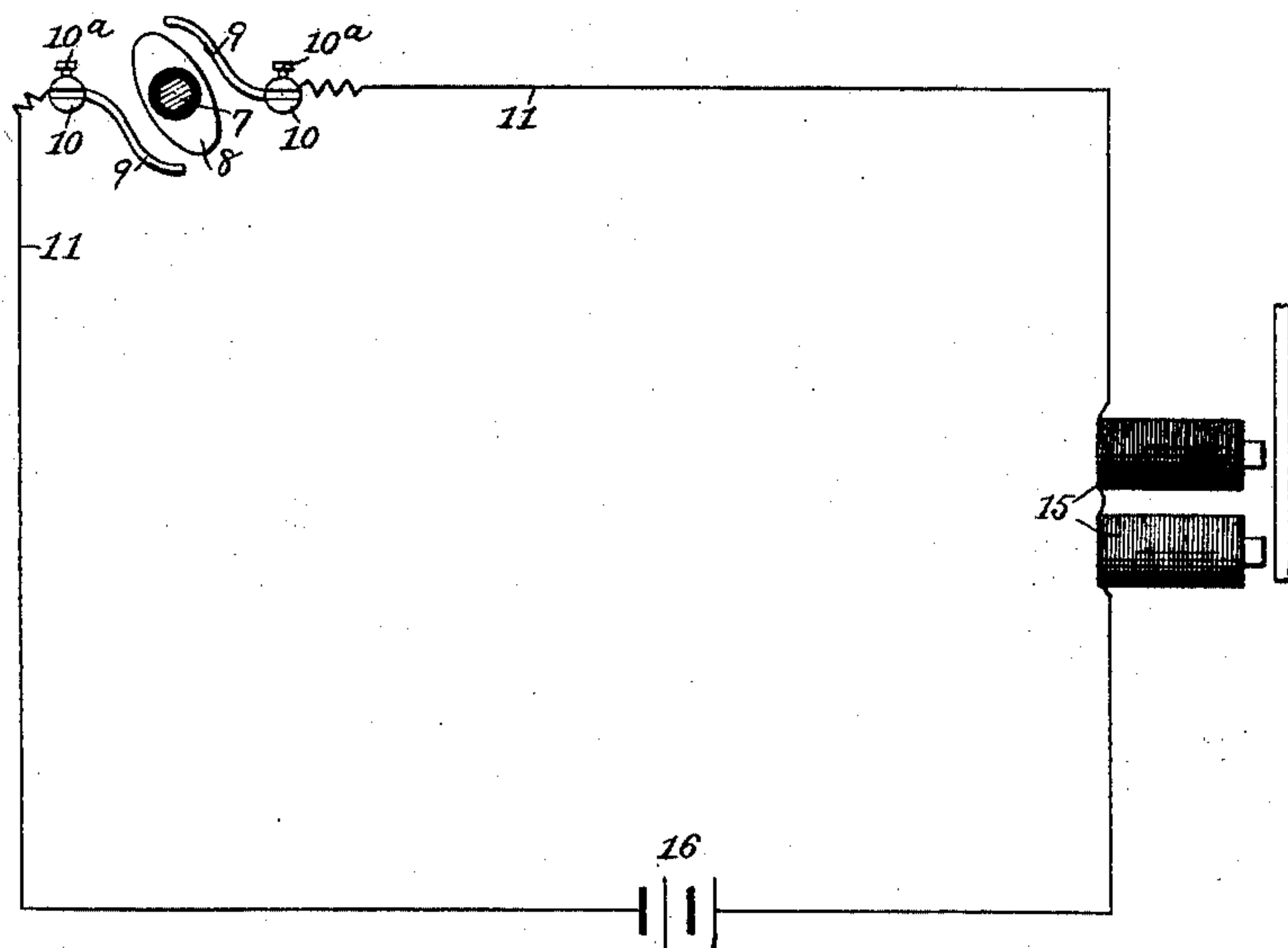


FIG. 7.



Witnesses:

F. L. Omand

Frank G. Radelfinger

Inventors:

Henry F. Bockmeyer
Charles C. Bockmeyer

John Palmer,

By Louis Raggen *Attorney*

UNITED STATES PATENT OFFICE.

HENRY F. BOCKMEYER, CHARLES C. BOCKMEYER, AND JOHN PALMER, OF
PHILADELPHIA, PENNSYLVANIA.

STOP-MOTION FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 719,728, dated February 3, 1903.

Application filed November 15, 1901. Serial No. 82,415. (No model.)

To all whom it may concern:

Be it known that we, HENRY F. BOCKMEYER, CHARLES C. BOCKMEYER, and JOHN PALMER, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Stop-Motions for Knitting-Machines, of which the following is a specification.

10 Our invention relates to a stop-motion for knitting-machines, and has for its object to provide a device which will automatically close a circuit arranged to operate means for throwing off a belt and stopping the machine
15 in the event of the breaking of a thread or yarn or the supply becoming exhausted.

Our invention further embraces means arranged to automatically cast off the yarn when knots obstruct the proper delivery of it,
20 and also means for adjusting the device on the machine.

The novel construction used by us in carrying out our invention is fully described in this specification and claimed, and illustrated
25 in the accompanying drawings, forming a part thereof, in which—

Figure 1 is an end elevation of our device. Fig. 2 is an end elevation of the opposite end of the same. Fig. 3 is a side elevation of the
30 same. Fig. 4 is a vertical longitudinal section of the same. Fig. 5 is a section on the line 5 5, Fig. 3. Fig. 6 is a section on the line 6 6, Fig. 3. Fig. 7 is a diagrammatic view showing the circuit and magnet coils.

35 Like numerals of reference designate like parts in the different views of the drawings.

The numeral 1 designates a cylinder which supports the various working parts of our device. This cylinder 1 is adjustably attached to the frame of a knitting-machine by means of a bolt 2, passing through perforated ears 3 on a split ring 4, embracing the body of the cylinder. Heads 5 and 6 are mounted in the cylinder and are centrally apertured
45 at 7^a to accommodate a shaft 7, bearing an elliptical conducting-cam 8, keyed thereon and insulated from the shaft 7. The cam 8 is designed to serve as a circuit maker and breaker and is located in position to engage two spring-brushes 9, fitted in transverse apertures in
50 binding-posts 10, seated in apertures in the

head 6 of the cylinder and insulated therefrom. The brushes 9 are set substantially parallel and in position to come in contact with the apsides of the elliptical cam 8 when
55 it is revolved, thereby completing a circuit, but to be normally out of contact with the same. Conductors 11 are clamped in the binding-posts 10 by screws 10^a.

A spiral spring 12 surrounds the shaft 7
60 and has one end attached to the shaft at 12^a and the other attached to the head 6 at 12^b, so as to always tend to rotate the shaft counter-clockwise, as seen in Fig. 1. Opposite to this action of the spring is the pull on
65 the yarn or thread, which is engaged by a hook 13, formed on an arm 14, rigidly keyed on the outer end of the shaft 6. If the arm 14 is released by the thread, it would turn until the cam 8 was engaged by the brushes
70 9 and held.

The coils 15 of an electromagnet are connected to the conductors 11, and a battery 16 is also in circuit. The electromagnet is located to operate means for throwing off a belt
75 to stop the machine, as is well known in the art and for which no claim is made.

When the hook 13 is engaged by the thread or yarn, the arm 14 normally engages the outer end of a curved arm 17, which is supported
80 by a hub 18, mounted to rotate on a boss 19, formed centrally on the head 5 of the cylinder 1. A spring 20 is attached at one end to an arm 21, carried by the hub 18, and at the other end to a lug 22, formed on the head
85 5. The spring 20 normally holds the arm 17 in contact with a lug 23, which serves as a stop to limit the movement of this arm. A series of perforations 24 in the arm 21 enables the leverage to be adjusted. The arm
90 17 forms a yielding stop for the arm 14. While the arm 17 normally engages the lug 23, the pull of the spring 20 is so adjusted that when a knot or tangle in the yarn or thread catches the hook 13 this arm will over-
95 come the tension of both the springs 12 and 20 and will lower the arm 14 down until the yarn slips off of the hook 13, thereby releasing the arm and permitting the cam 8 to rotate and close a circuit through the magnet-coils
100 15 and stop the machine, as above set forth.

In case of the breaking of the thread the

arm 14 would be immediately released, the circuit closed, and the machine stopped in the same manner as before.

5 It should be remarked that the cylinder is dust-proof. The inclosing of the circuit maker and breaker in a dust-proof cylinder is very important, since the lint and dust from the machine would otherwise soon render it inoperative.

10 We do not wish to be limited as to details of construction, as these may be modified in many particulars without departing from the spirit of our invention.

15 Having described our invention, what we claim as new, and wish to secure by Letters Patent, is—

20 1. In a device of the class described, the combination with a support, of a shaft bearing a circuit-maker, brushes located to be engaged by said circuit-maker, an electric circuit including said brushes and a source of energy, stopping means controlled by said circuit, a spring mounted to rotate said shaft, a hooked arm carried by said shaft and adapt-

ed to engage the yarn, and a yielding stop engaging said hooked arm, said stop being arranged to act in opposition to the pull of the yarn on said arm, substantially as described. 25

2. In a device of the class described, the combination with a hooked arm constructed to engage the thread, of cooperating means constructed to hold said arm against the normal pull of the thread, of a circuit-maker arranged to be operated by said arm when released, a hub bearing an arm located to engage said hooked arm, a spring connected to rotate said hub in opposition to the action of said hooked arm, substantially as described. 30 35

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses. 40

HENRY F. BOCKMEYER.
CHARLES C. BOCKMEYER.
JOHN PALMER.

Witnesses:

EDWARD B. CONNOR,
GEORGE EILBER.