

No. 623,101.

Patented Apr. 11, 1899.

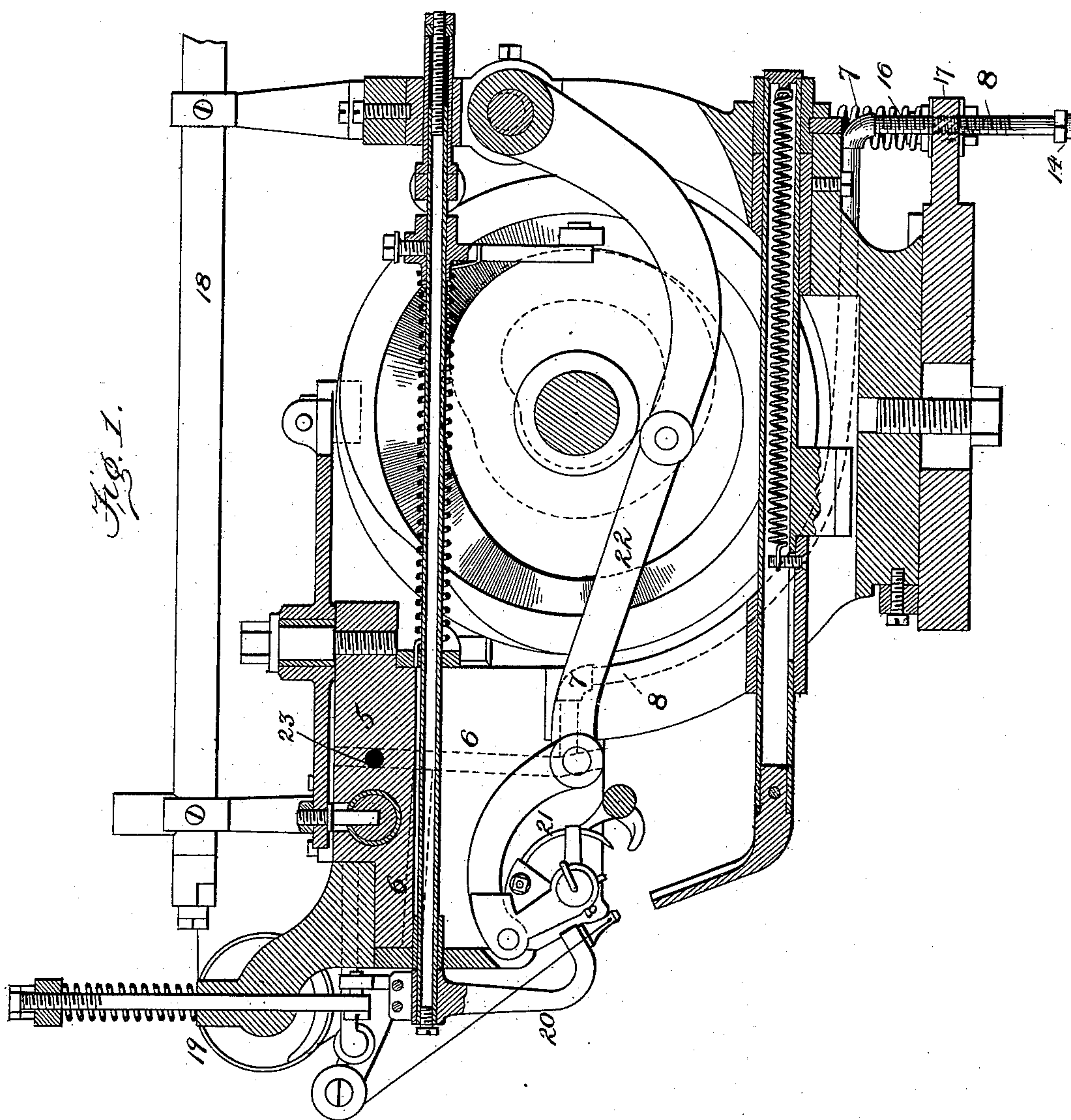
F. A. MILLS.

HEATING DEVICE FOR SEWING MACHINES.

(Application filed Sept. 9, 1896. Renewed Feb. 8, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

Edwin L. Bradford
M. D. Bloudez,

INVENTOR

Francis J. Mills

BY

BY *am* John A. Huser
ATTORNEYS

No. 623,101.

Patented Apr. 11, 1899.

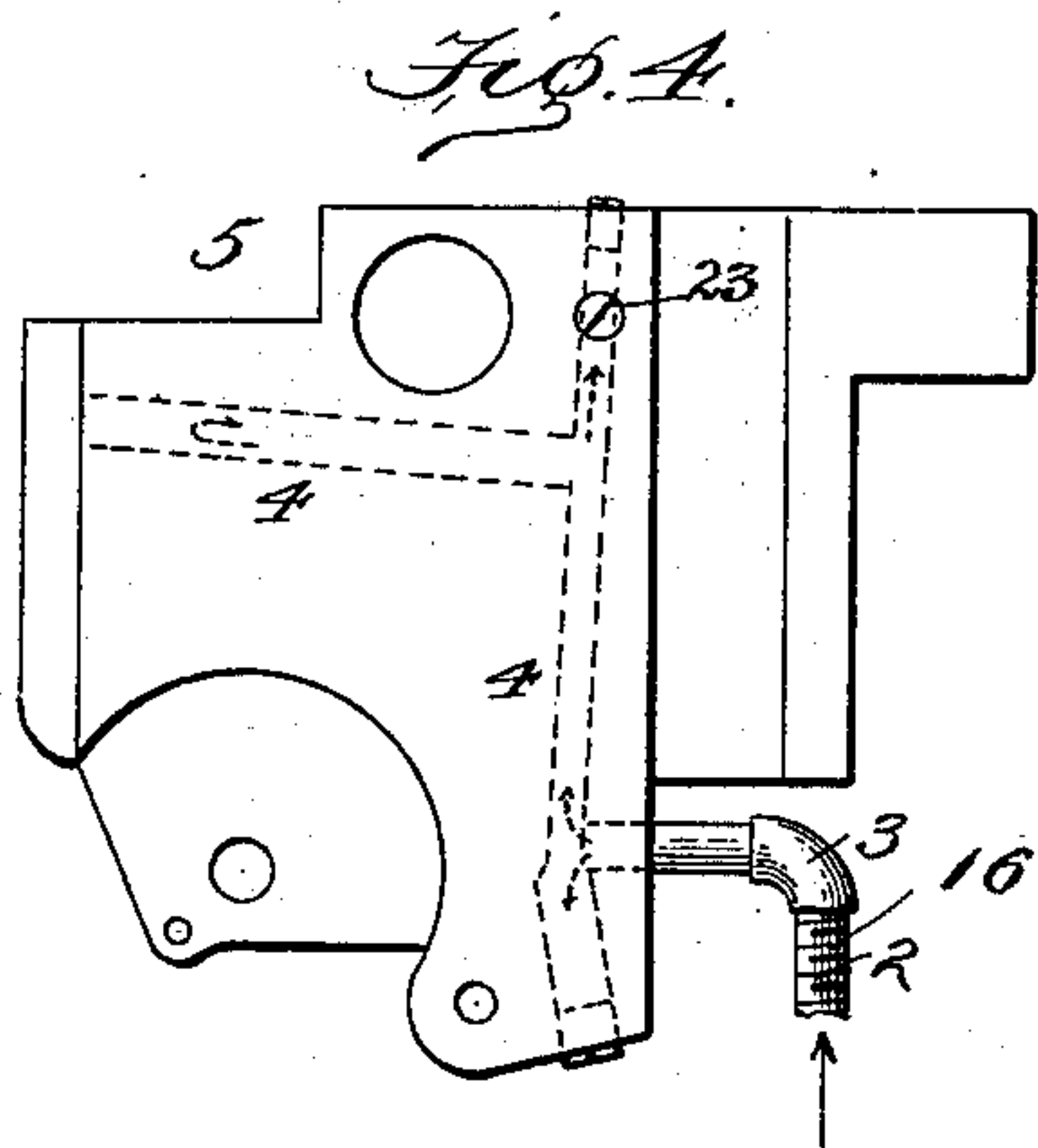
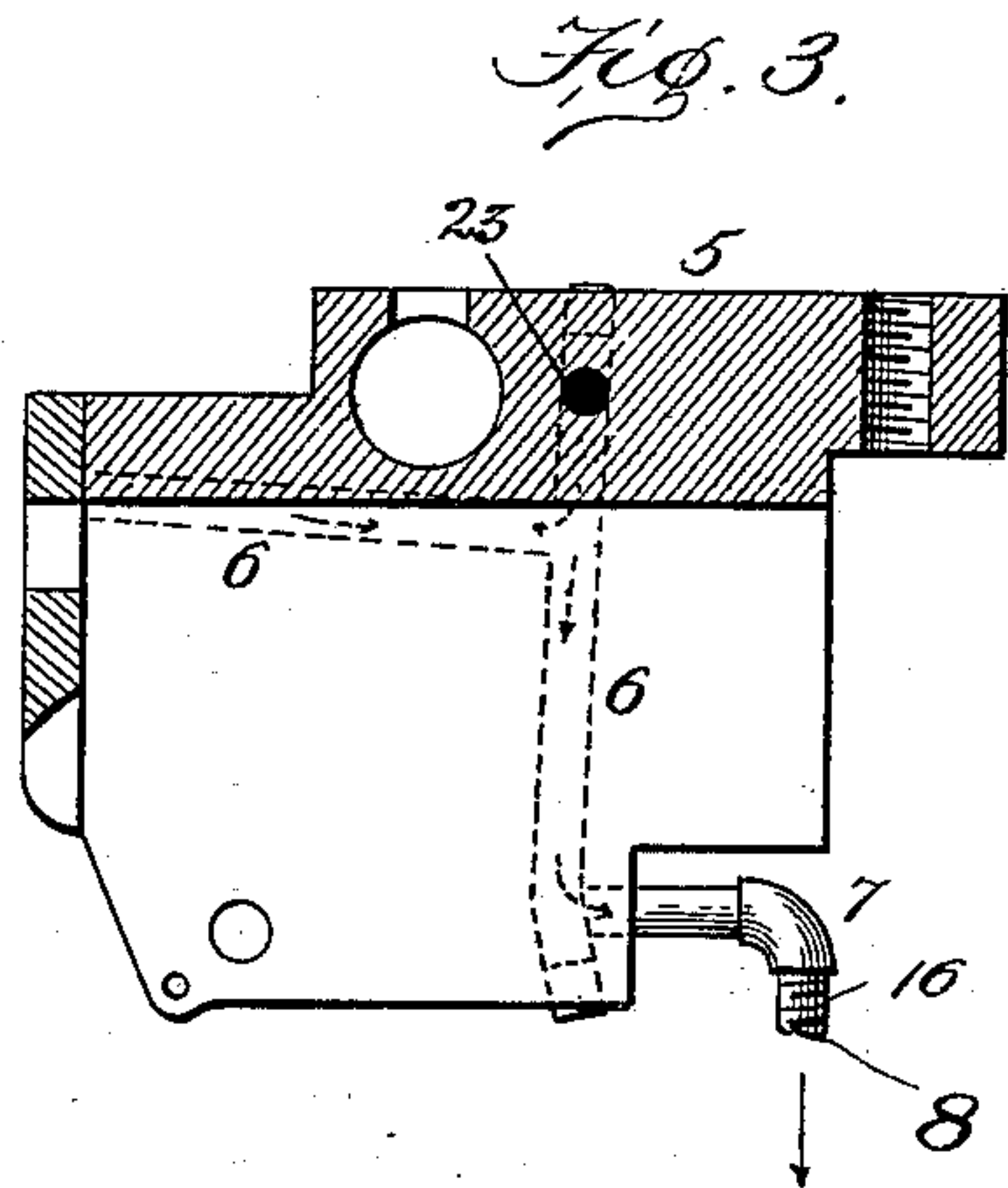
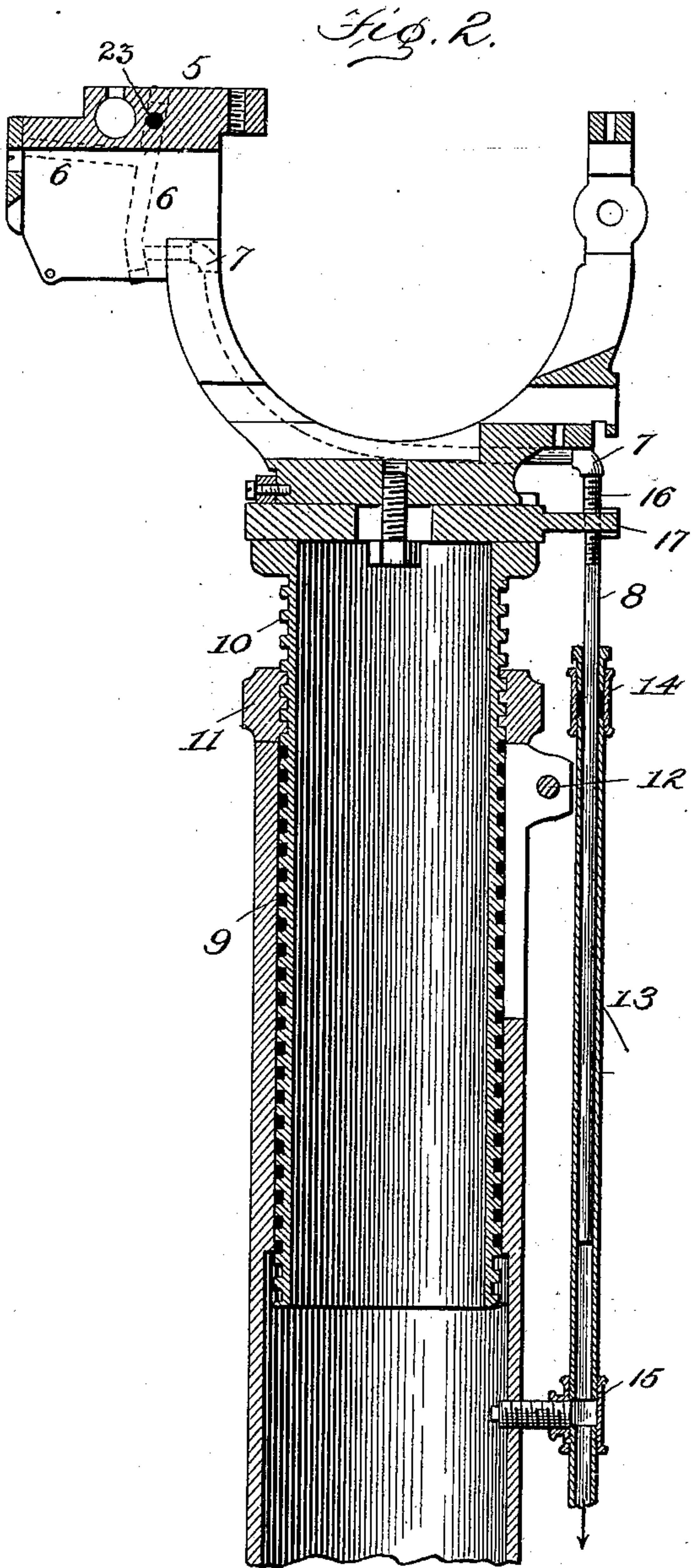
F. A. MILLS.

HEATING DEVICE FOR SEWING MACHINES.

(Application filed Sept. 9, 1898. Renewed Feb. 8, 1899.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

Edwin L. Bradford
M. S. Gloudey.

INVENTOR

Francis A. Mills
BY
John A. Johnson
ATTORNEYS

UNITED STATES PATENT OFFICE.

FRANCIS ARTHUR MILLS, OF METHUEN, MASSACHUSETTS, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO THE MILLS SEWING MACHINE COMPANY, OF
MAINE.

HEATING DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 623,101, dated April 11, 1899.

Application filed September 9, 1896. Renewed February 8, 1899. Serial No. 704,987. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS ARTHUR MILLS, a citizen of the United States, residing at Methuen, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Heating Devices for Wax-Thread Sewing-Machines, of which the following is a specification.

My improvement resides in means for heating that part of a sewing-machine which contains the sewing mechanism, whereby such part of the machine is made a heating-radiator and forms a heating-chamber to keep the operating parts warm and the wax-thread in a soft and pliable condition.

In the accompanying drawings, in Figure 1 I have shown a wax-thread shoe-sewing machine with means for steam circulation within the walls of the head which contains the stitch-forming mechanism, whereby it is made a radiator for heating the working parts. Fig. 2 is a vertical section of the radiator part, showing the steam-circulating pipes and wall-ducts and provision whereby the frame which contains the operating parts can be raised and lowered upon its standard without interrupting the steam circulation. Fig. 3 shows the steam-circulation ducts in the left side or wall of the sewing-head, and Fig. 4 shows the steam-circulation ducts in the right side or wall of the sewing-head.

A steam-inlet pipe 2, Fig. 4, extends from the rear of the frame along its lower part, and rising connects, by a suitable coupling 3, with ducts or passages 4, made in the solid side or wall of the sewing-head 5, and which ducts extend to the front thereof and, traversing and crossing the solid part of the head, extend to the opposite wall or side by a cross-duct 23 and by suitable ducts 6, Figs. 1, 2, and 3, connects, by suitable couplings 7, with an exhaust-pipe 8, which passes to the rear of the machine, thereby giving a steam circulation within the solid body of the sewing-head and making it a steam-heated radiator, while the space between the side plates forms a heating-chamber. From this head all the operating parts of the machine are heated and kept warm by radiation and

the heat from which keeps the sewing-thread in a soft and pliable condition. The sewing-head is mounted upon and within the front side of the frame which contains the cam-cylinders for operating the working parts of the machine, and this frame is mounted upon a standard 9 for vertical adjustment to suit the height of the operator. The base of the frame has a central screw-threaded stem 10, which snugly fits within the standard, which is hollow and unthreaded and within which it has a firm support by means of a screw-ring 11, fitted upon the screw-stem and resting upon the top of the standard, so as to form a support or seat for the working-head frame. This ring is turned when it is desired to raise or lower the machine. The upper end of the standard is split vertically, and a clamp-screw passing through the split parts serves to clamp the hollow standard upon the screw-stem, and thus hold it firm when set to the desired height. The screw-ring maintains its seat upon the standard in turning and adjusting the height of the working-head frame when the standard is unclamped.

In the vertical adjustment of the machine I provide for maintaining the continuity of the steam-circulating pipes by a telescoping connection 13, Fig. 2, and a stuffing-box 14 at such connection, whereby those parts of the pipes which are connected with the sewing-head frame will be raised and lowered with the frame within the telescoping pipe parts each of which is secured to the standard by the couplings 15.

The parts 2 and 8 of the inflow and exhaust pipes are screw-threaded at 16 and engage threaded holes in the base-plate 17 of the supporting head-frame, so that in raising and lowering the latter the said pipes, which connect the head-frame will be relieved from strain at their couplings 3 and 7. In this way the connection of the sewing-head pipes is maintained with the steam-boiler and the sewing-head kept at a temperature that will radiate a sufficient degree of heat to keep all the stitch-forming parts, their bearings, and connections in a heated condition.

The ducts in the solid walls of the sewing-head are preferably made by boring and the bores plugged at the outer ends.

I make the inflowing wall-ducts 4 smaller than the outflowing wall-ducts 6, as seen in Figs. 3 and 4, so that the steam will be prevented from too-rapid passage through the ducts of the head-plates.

The wax-thread is conducted from a suitable wax-pot through the conduits 18 to the tension device 19 and thence to the looper 20, which places the thread in the barb of the needle 21, the carrier whereof is actuated by the lever 22.

The side and top plates of the sewing-head form a walled space between them which is heated by radiation, and as the needle-carrier and its operating-lever connections work within this heated space and the looper works in front of it the needle, its carrier, and the looper will be kept heated and the thread in a soft and pliable condition. The wall-bores are advantageous in confining the heat within the solid metal and gives it out by radiation, and thereby maintains a more equable heat for all the working parts of the machine.

I claim—

1. In a wax-thread sewing-machine, the head-section which contains the sewing mechanism, having vertical and horizontal communicating bores within its side plates and a cross-bore within its top plate connecting the bores of the side plates, combined with heat-conducting pipes which connect the lower ends of the vertical bores and engage screw-

threaded holes in the base-plate of the head-supporting frame, whereby the head-section is made a heat-radiator for the working parts and the pipe-couplings relieved of strain.

2. In a wax-thread shoe-sewing machine, and in combination with means whereby the frame may be adjusted vertically upon a standard or support, steam-circulation pipes connecting passages or ducts within the solid walls of and traversing that part of the machine which contains the sewing mechanism, and telescoping and stuffing-box connections for said pipes between their connection with the head-supporting frame and the steam-supply, whereby the machine can be raised and lowered upon its support without interrupting its connection with the heating medium.

3. In a wax-thread sewing-machine, the sewing-head containing the stitch-forming mechanism having its side and top plates provided with heat-conducting bores, and the fixed standard-support provided with heat-conducting pipe-sections, combined with heat-conducting pipe-sections on the head-supporting frame, connecting the head-bores, having fixed connection with the head-supporting frame and telescoping with the fixed-standard pipe-sections, and suitable means whereby the head-supporting frame is made vertically adjustable upon the standard.

FRANCIS ARTHUR MILLS.

Witnesses:

PATRICK DEMPSEY,
JOHN GRADY.