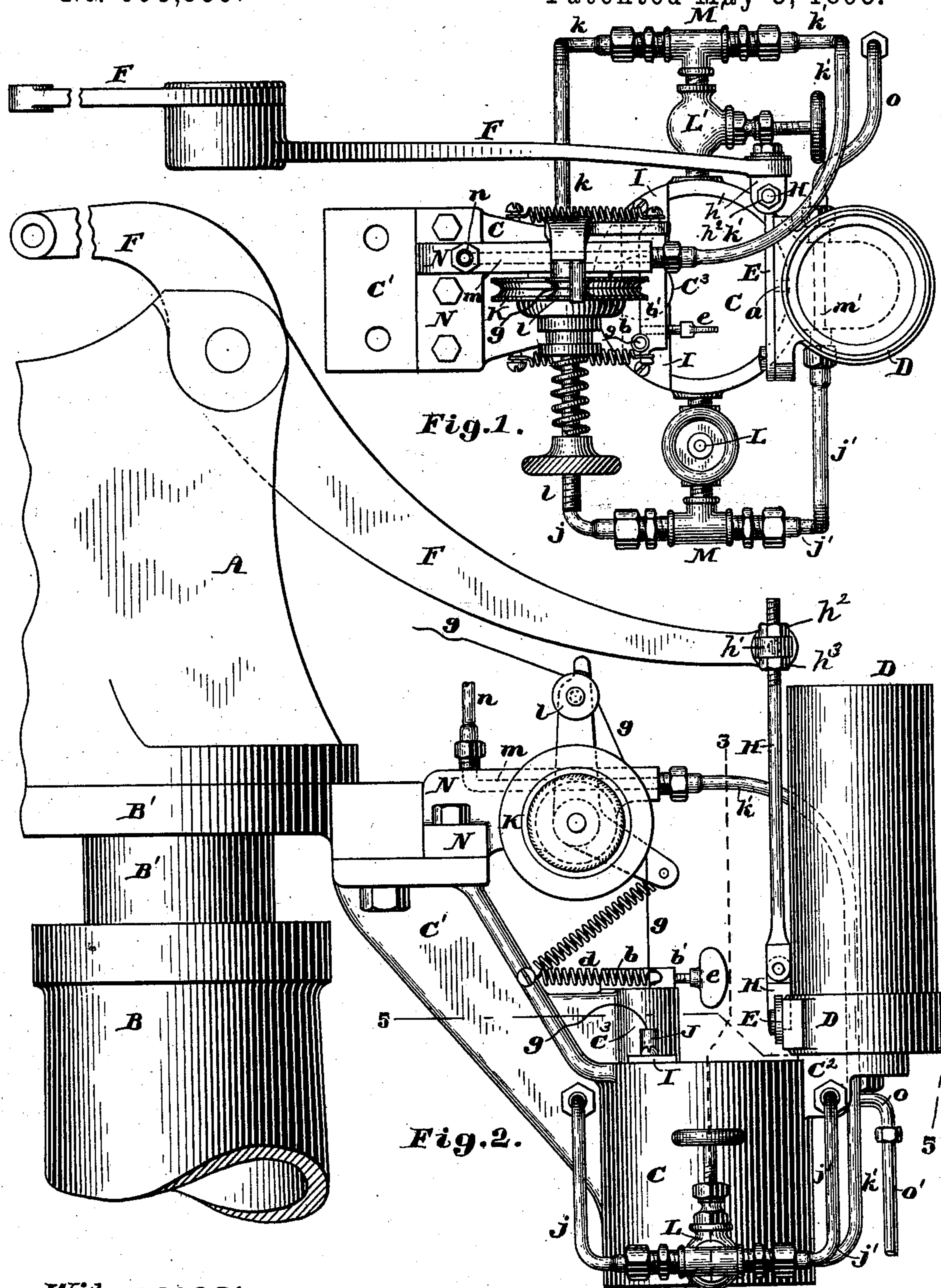


2 Sheets—Sheet 1.

THREAD WAXING DEVICE FOR SEWING MACHINES.

Patented May 3, 1898.



M³ Inventor:
Joseph Eli Bertrand,
by N. C. Lombard
Attorney.

(No Model.)

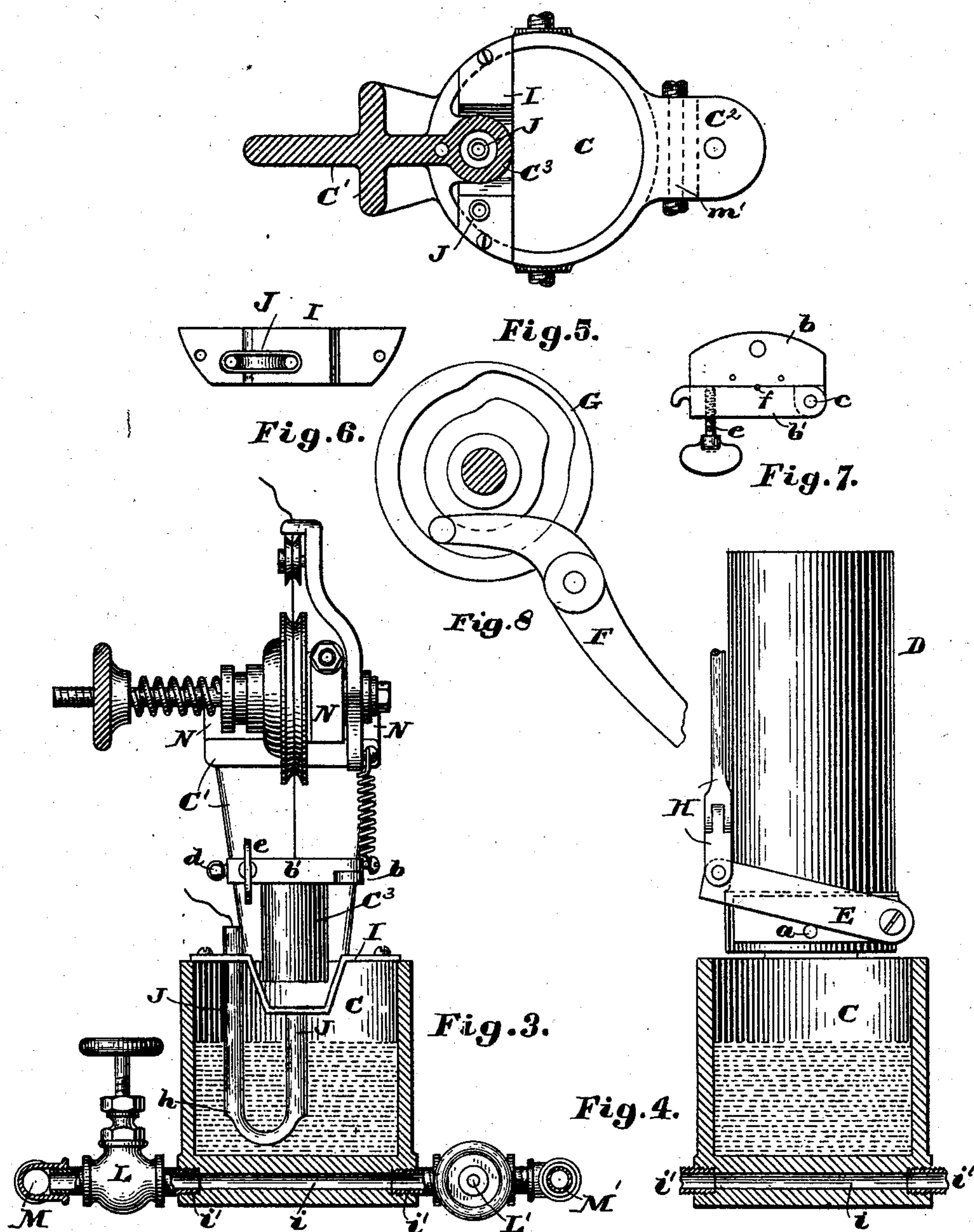
2 Sheets—Sheet 2.

J. E. BERTRAND.

THREAD WAXING DEVICE FOR SEWING MACHINES.

No. 603,359.

Patented May 3, 1898.



Witnesses:

Robert E. Gilman

Charles B. Choate

Inventor:
Joseph Eli Bertrand,
by N. C. Lombard
Attorney.

UNITED STATES PATENT OFFICE.

JOSEPH E. BERTRAND, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
BAY STATE SHOE MACHINERY COMPANY, OF PORTLAND, MAINE.

THREAD-WAXING DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 603,359, dated May 3, 1898.

Application filed August 23, 1897. Serial No. 649,171. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH ELI BERTRAND, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Thread-Waxing Devices for Sewing-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to thread-waxing devices for sewing-machines; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the accompanying drawings and to the claims hereto appended and in which my invention is clearly pointed out.

Figure 1 of the drawings is a plan of my improved waxing device. Fig. 2 is a side elevation of the same with a portion of the frame of a sewing-machine and of the supporting-column. Fig. 3 is a sectional elevation looking toward the left of Fig. 2, the cutting-plane being on line 3 3 on Fig. 2. Fig. 4 is a sectional elevation looking toward the right of Fig. 2, the cutting-plane being the same as in Fig. 3. Fig. 5 is a sectional plan, the cutting-plane being on line 5 5 on Fig. 2. Fig. 6 is an inverted plan of the U-shaped thread-guiding tube and its supporting-plate. Fig. 7 is a plan of the thread-stripping jaws detached from the machine; and Fig. 8 is an elevation of the cam and a portion of the lever for operating the pivoted gate, drawn to a reduced scale.

It has been found in practice that the wax in general use for waxing the thread used in sewing-machines for operating upon leather work becomes very much deteriorated by constant heating and reheating, and as a consequence frequent cleaning of the wax-pot becomes necessary in using the wax-pot in general use, thereby causing a material loss of wax that has become useless. It has also been found that all such wax contains more or less water, which when the wax is melted rises above and floats upon the top of the wax, and that if the thread be drawn through the water before reaching the wax it will be imperfectly waxed, to the material detriment of the work sewed with said thread.

The object of my invention is to obviate

these objections, and to that end I construct my waxing device as illustrated in the accompanying drawings, in which—

A is a portion of the frame of a sewing-machine head mounted upon a column made in two parts B and B', telescopically adjustable one within the other in a well-known manner.

C is a wax-pot having formed integral therewith the brackets C' and C², arranged upon opposite sides thereof, as shown in Fig. 2. The bracket C' is firmly bolted to the parts B' of the column, and to the bracket C² is bolted the wax-pot D, provided at its lower end and in the side thereof toward the pot C with the small discharge-orifice *a* for the passage of the wax melted in the pot D to the pot C.

The pot D has pivoted thereto the valve or gate E, constructed and arranged to alternately open and close said orifice *a*, said gate being moved about its pivot for such purpose by the lever F, fulcrumed upon the frame A and vibrated by a path-cam G, mounted upon the cam-shaft of the sewing-machine, as shown in Fig. 8, the long arm of said lever F being connected by the jointed rod H to the movable end of the gate E, as shown in Figs. 2 and 4. The pot C also has formed integral therewith and overhanging its chamber the tubular hub C³, upon the top of which are secured the stripping-jaws *b b'*, pivoted together at *c*, the jaw *b'* being held in contact with the jaw *b* by the spring *d* until forced away therefrom by the set-screw *e*. The inner or contiguous faces of the jaws *b b'* have formed therein semicircular vertical grooves, which when said jaws are in contact form together a circular orifice *f* of a diameter corresponding to the smallest thread to be used, by means of which the surplus wax taken up by the thread is stripped off therefrom, as the thread is drawn up through the same by the operation of the thread-pull-off mechanism of the sewing-machine. By operating the set-screw *e* to move the movable end of the jaw *b'* away from the fixed jaw *b* the orifice *f* or the grooves which form said orifice are adapted to strip a thread of a larger size.

To the top edge of the pot C is secured the plate I, which is bent so as to pass beneath the hub C³ and has set therein the two ends

of the U-shaped tube J, the loop of which is pendent therefrom and extends nearly to the bottom of said pot and has the under side of the tube at the bend of the loop cut away to permit the wax to come in contact with the thread *g*, which passes from the bobbin down the left-hand branch of the U-tube J, as seen in Fig. 3, around the semicircular bend of said tube, up the right-hand branch between the stripper-jaws, thence around the tension-wheel K, over the guide-sheave L, and thence to the pull-off mechanism. (Not shown.)

The wax in the pot C is not allowed to fall below the point *h* on the tube J, so that any water floating upon the top of the melted wax will not come in contact with the thread.

The wax-pot C has a thick bottom, in which is formed the steam-passage *i*, in each end of which is screwed a pipe *i'*, connecting it with the valves L and L', said valve-casings being respectively connected to the T's M and M'. The T M is connected at one end by the pipe *j* to a pipe set in the bracket C' and at its other end by the pipe *j'* to a passage through the bracket C², and the T M' is connected at one end by the pipe *k* to the pipe set in the bracket C' and at its other end by the pipe *k'* to the outer end of the bracket N, which is bolted upon the bracket C' and supports the spindle *l*, upon which the tension-wheel K is mounted. This bracket N has a steam-passage *m* (shown in dotted lines in Figs. 1 and 2) formed therein, with the inner end of which the steam-supply pipe *n* communicates, as shown in Figs. 1 and 2. The end of the passage *m'* through the bracket C² (indicated by dotted lines in Fig. 1) opposite to the pipe *j'* is connected by the pipe *o* to the exhaust-pipe *o'*, all as shown in Figs. 1 and 2.

The thread-tension device, in part illustrated in the drawings, forms the subject-matter of another application of mine for a patent for a sewing-machine, filed June 8, 1897, and serially numbered 639,825, and therefore need not be further described here.

By the use of the valves L and L' and the arrangement of steam-pipes herein described the wax in the pot C may be kept at the desired temperature with very little trouble.

The operation of my invention is as follows: The pot D is filled with wax, and a small quantity is placed in the pot C. The valves L and L' are both opened. Steam is admitted to the pipe *n*, whence it passes through the passage *m*, pipe *k'*, T M', valve L', passage *i*, valve L, T M, pipe *j'*, passage *m'*, and pipe *o* and is discharged through the pipe *o'*, the steam at the same time filling the pipes *k* and *j*. When the wax in the pot C is melted and heated to the desired temperature, the valves L and L' are closed, when the circulation of the steam will be from the pipe *k'* through the T M', the pipes *k* and *j*, the T M, the pipe *j'*, the passage *m'*, the pipe *o*, and is discharged, as before, through the pipe *o'*. The steam passing through the passage *m'* in the bracket C² is sufficient to melt only a

small portion of the wax in the pot D, while the heat from the steam in said passage and passing through the bracket C' is sufficient to maintain the wax in the pot C at the desired temperature when it has been brought to said temperature by the passage of the steam through the passage *i* in the bottom of the pot C, or if such outside circulation should at any time be found insufficient the valves L and L' may be opened to a greater or less extent, as may be required, to perfectly regulate the heat applied to the pot C. When the sewing-machine to which the waxing device is attached is in operation, the action of the cam G upon the short arm of the lever F causes the gate E to be lifted so as to uncover the orifice *a* at each revolution of the cam-shaft and keep said orifice uncovered a sufficient length of time to permit a given quantity of the melted wax in the bottom of the pot D to be discharged into the pot C, and then said orifice is closed by the downward movement of the gate E.

The bottom portion of the pot D is made of thick cast metal, but the main body of the barrel thereof is made of thin metal tubing, whereby the liability of sufficient heat being transmitted from the bracket C² to the upper portion of said pot to melt the wax is reduced to the minimum.

The upper end of the rod II has a screw-thread formed thereon and is connected to the swiveling ear *h'*, set in the end of the long arm of the lever F by means of the nuts *h*² and *h'*, in such a manner that the upward movement of the gate E may be varied so as to open or uncover the whole or only a part of the orifice *a* to regulate the flow of wax from the pot D.

The valve G is so set and timed that the orifice *a* will be closed whenever the machine is stopped for removing the work sewed and inserting other work to be sewed, thereby preventing wax being discharged from the pot D when no work is being done.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a thread-waxing device of two open-topped wax pots or receptacles arranged with their axes in different vertical planes, and with the bottom of one pot above the top of the other, the more elevated of said receptacles being provided near its bottom with a lateral discharge-orifice through which wax melted in said receptacle may be discharged into said lower receptacle; means for applying a limited amount of heat to said upper receptacle to melt the lower portion of the wax contained therein without melting the bulk thereof, means for applying sufficient heat to said lower wax-pot to maintain the wax contained therein at the desired working temperature and means for intermittently and automatically opening and closing said discharge-orifice.

2. The combination in a thread-waxing device of two wax pots or receptacles located at

different levels and with their axes in different vertical planes, the more elevated of said receptacles being provided with a lateral discharge-orifice near its bottom and on its side toward the lower receptacle through which wax may be discharged from the upper into the lower receptacle both of said receptacles having open upper ends; means for intermittently opening and closing said discharge-orifice automatically; means for conducting the thread to be waxed into and out of the wax in said lower receptacle through its open end; and means for applying steam heat to both of said receptacles, and regulating the same, whereby a greater degree of heat is applied to the lower receptacle than to the upper.

3. In a thread-waxing device the combination of two wax-pots located at different levels and with their axes in different vertical planes, the more elevated of said pots being provided with a lateral discharge-orifice near its bottom and on its side toward the lower pot; a pivoted and vertically-movable gate for opening and closing said orifice; a pivoted

lever; a cam for vibrating said lever; and a rod or link connecting said lever to the free or movable end of said gate.

4. In a thread-waxing device the combination of the wax-pot C provided with the steam-passage *i* through its bottom and having the brackets C' and C² formed integral therewith and each provided with steam-passages there-through; the pot D mounted upon the bracket C² and provided with the discharge-orifice *a*; the vertically-vibrating gate E; the steam-pipes *n*, *m*, *k'*, *k*, *j*, *j'*, *o*, and *o'* the T's M and M' and the valves L and L' all constructed, arranged, and operating substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 20th day of August, A. D. 1897.

JOSEPH E. BERTRAND.

Witnesses:

N. C. LOMBARD,
J. L. CHOATE.