

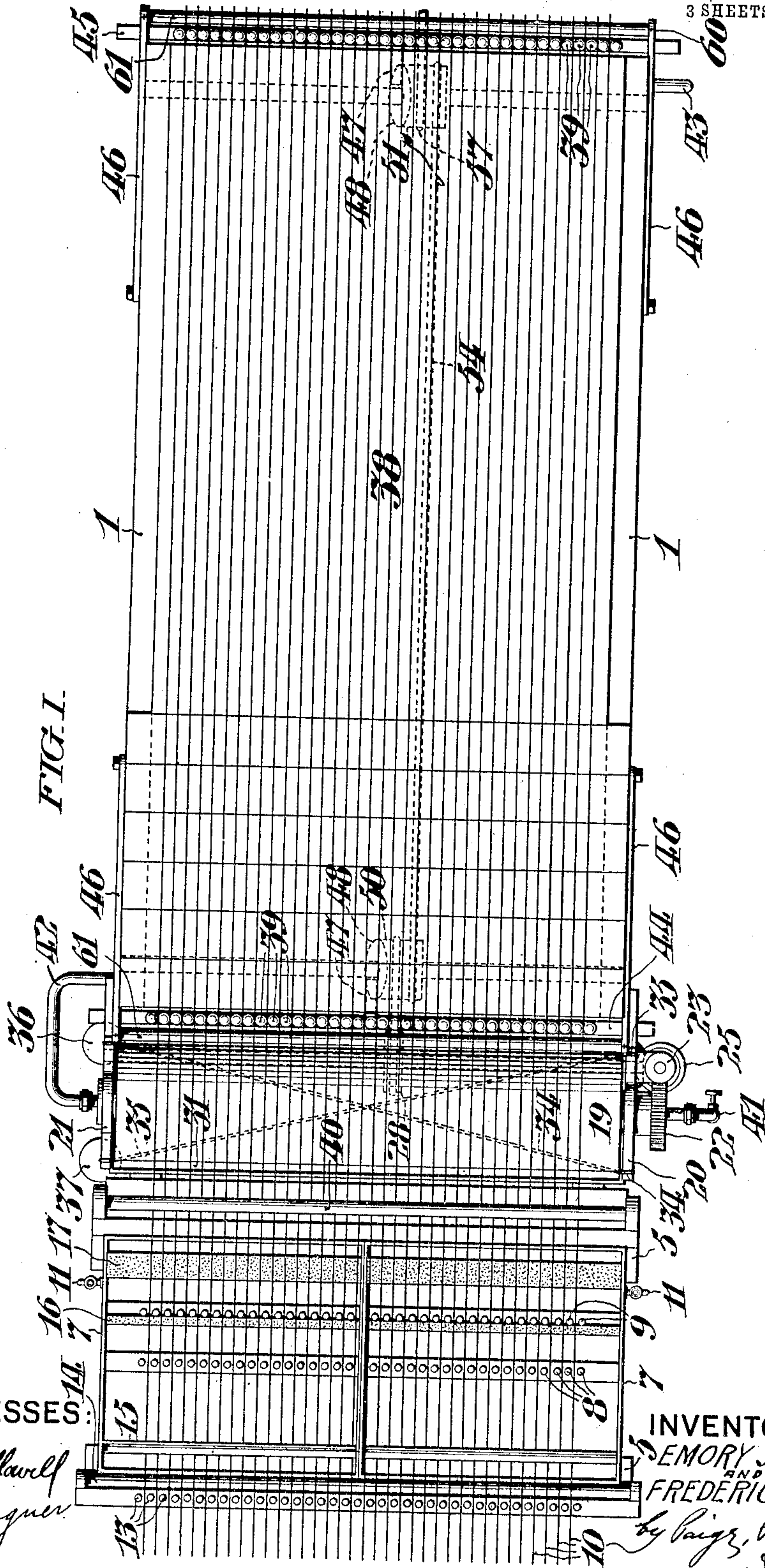
No. 871,999.

PATENTED NOV. 26, 1907.

E. J. LIPPS & F. OTT.
THREAD FINISHING MACHINE.

APPLICATION FILED JAN. 10, 1906.

3 SHEETS—SHEET 1.



WITNESSES:

Clifton C. Halliwell
John C. Berger

INVENTORS

EMORY J. LIPPS
AND
FREDERICK OTT,

by *Paige, Paine & Tracy*
Attys.

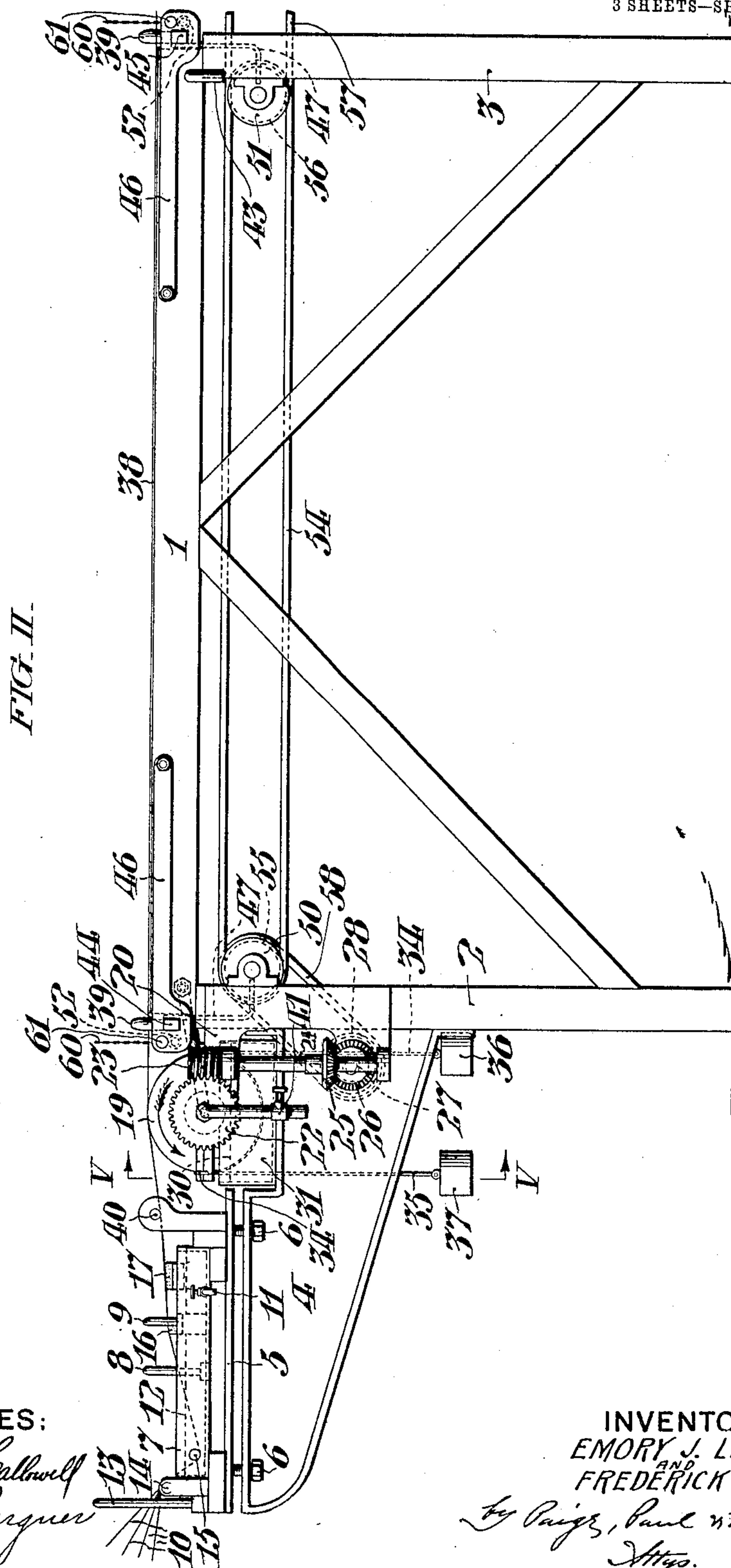
No. 871,999.

PATENTED NOV. 26, 1907.

E. J. LIPPS & F. OTT.
THREAD FINISHING MACHINE.

APPLICATION FILED JAN. 10, 1906.

3 SHEETS—SHEET 2.



WITNESSES:

Clifton C. Halliwell
John C. Berger

INVENTORS
EMORY J. LIPPS
AND
FREDERICK OTT,

by Paige, Paul & Harry
Atty.

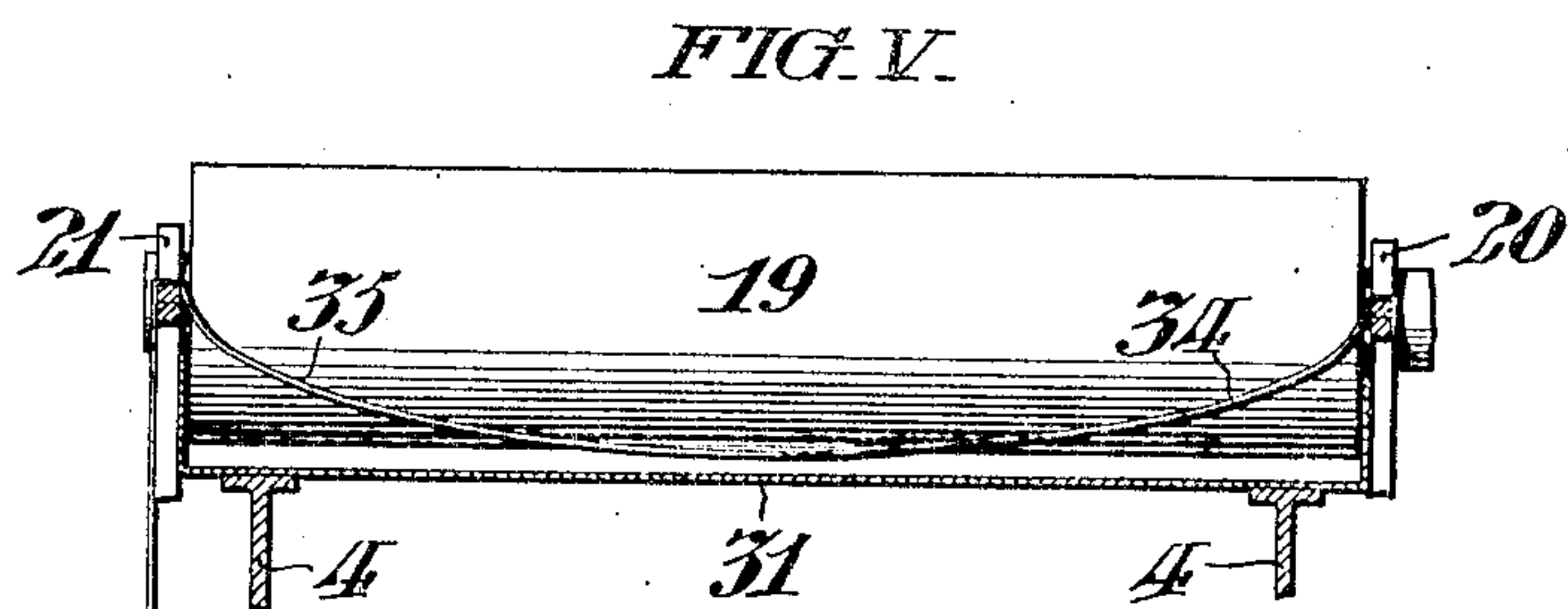
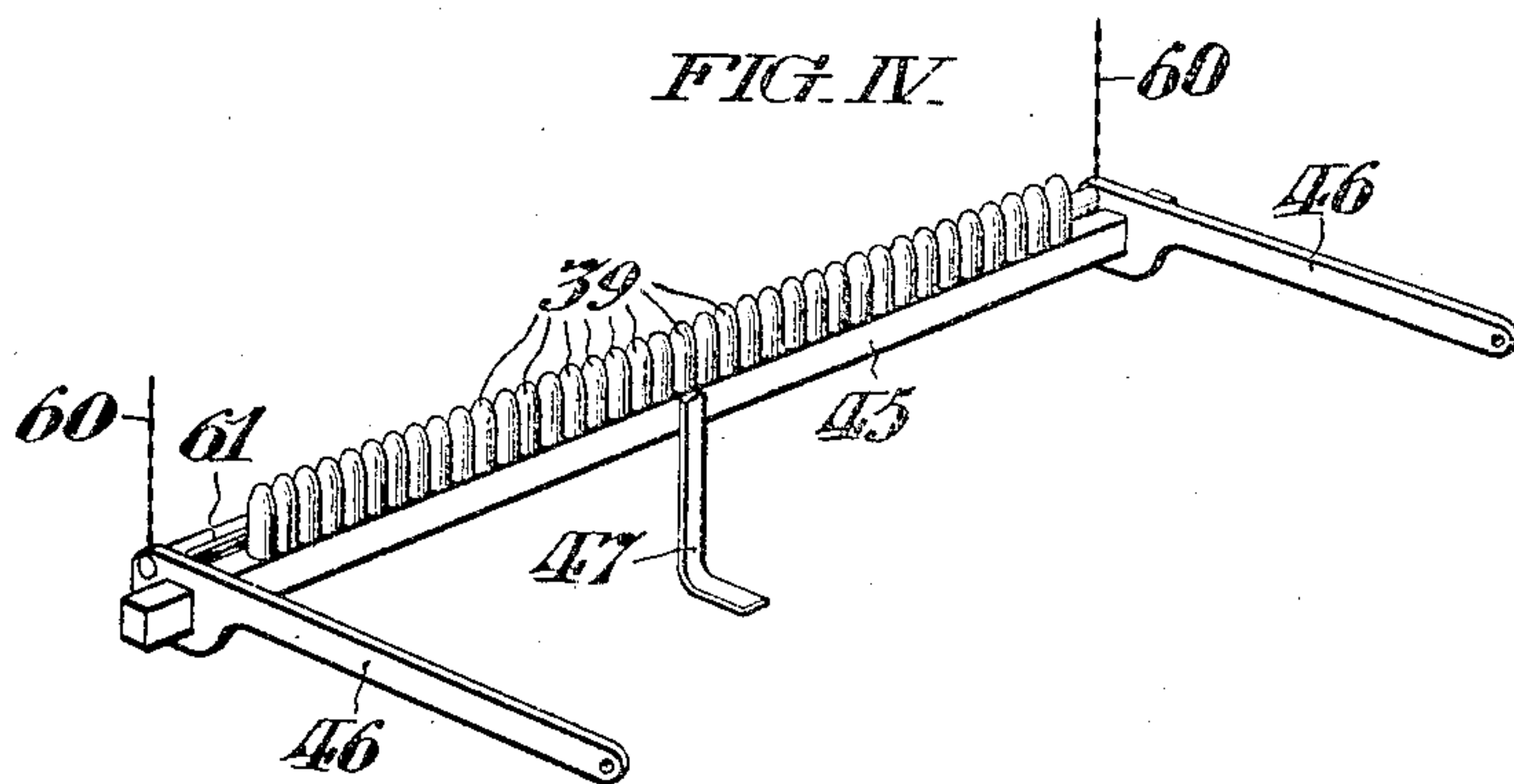
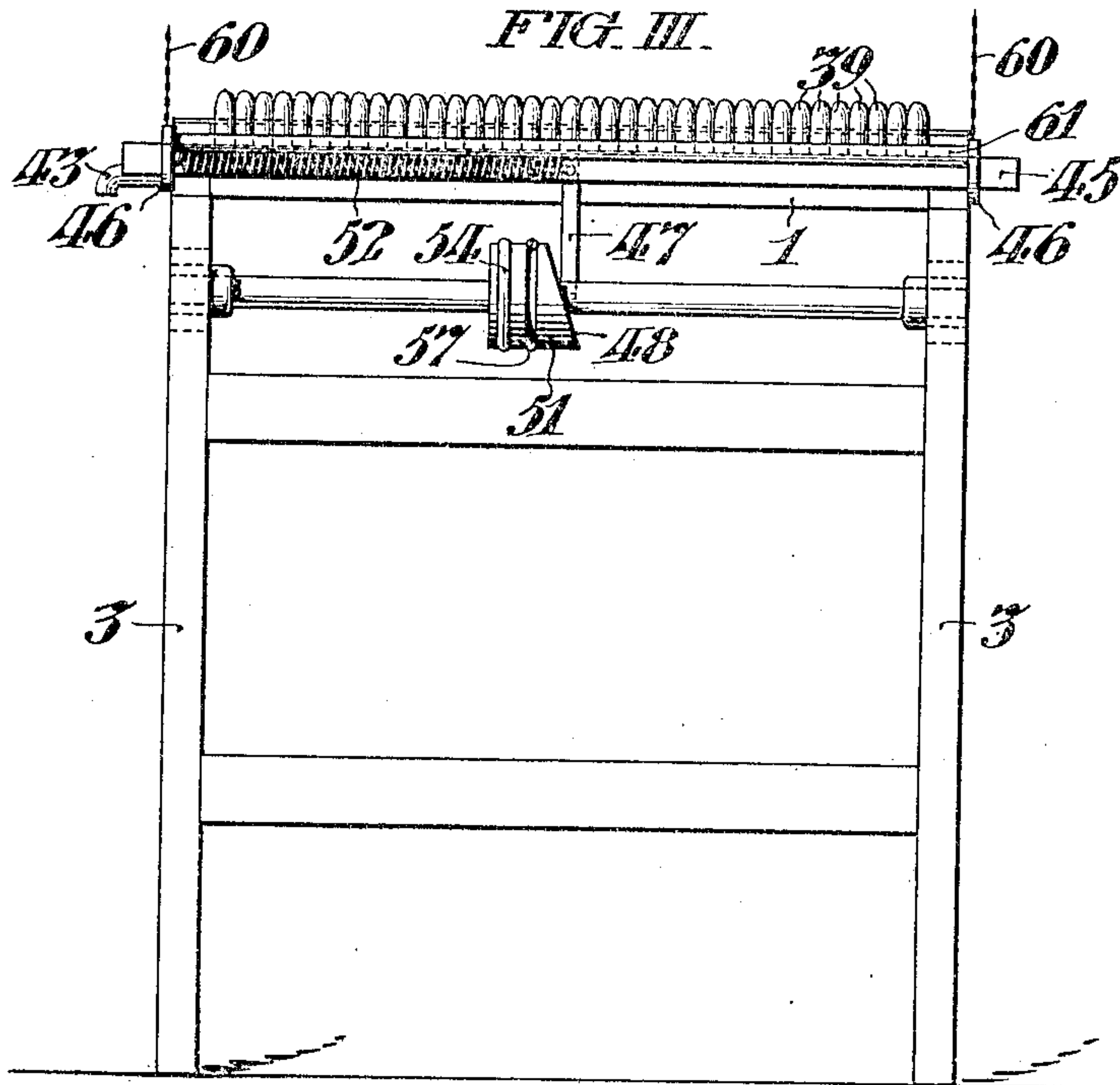
No. 871,999.

PATENTED NOV. 26, 1907.

E. J. LIPPS & F. OTT.
THREAD FINISHING MACHINE.

APPLICATION FILED JAN. 10, 1906.

3 SHEETS—SHEET 3.



WITNESSES:

Clifton Hallowell
John C. Bergner

INVENTORS
EMORY J. LIPPS
FREDERICK OTT,

by Paige, Paul & Haley
Attys.

UNITED STATES PATENT OFFICE.

EMORY J. LIPPS AND FREDERICK OTT, OF SOUTH BETHLEHEM, PENNSYLVANIA.

THREAD-FINISHING MACHINE.

No. 871,999.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed January 10, 1906. Serial No. 295,339.

To all whom it may concern:

Be it known that we, EMORY J. LIPPS and FREDERICK OTT, both of South Bethlehem, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Thread-Finishing Machines, whereof the following is a specification, reference being had to the accompanying drawings.

Our improvements relate to machines which comprise a reservoir arranged to contain a suitable liquid through which the thread is passed, and a heater arranged to dry said thread.

It is the object of our invention to provide such a machine with means arranged to twist and roll the thread transversely with respect to its length, in a dampened state, in contact with a suitable heated surface so as to cause its normally projecting fibers to coalesce with the body of the thread and thereby produce a thread which is stronger, smoother, and more lustrous than the unfinished thread.

The form of our invention herein shown and described, comprises a reservoir arranged to contain a suitable liquid through which the threads are directed, between posts which separate them, and thence across felt wipers, and over a rotary heated drum to a heated table provided with reciprocatory bars having thread guides arranged to engage and shift the threads transversely in contact with the surfaces of the drum and table as they are drawn over them in the direction of their length.

Our invention includes the various novel features of construction and arrangement hereinafter more definitely specified and claimed.

In the accompanying drawings, Figure I, is a plan view of a machine conveniently embodying our improvements. Fig. II, is a side elevational view of said machine. Fig. III, is an end elevational view as seen from the right hand end of the machine with respect to Figs. I, and II. Fig. IV, is a perspective view of the reciprocatory bar and its supports. Fig. V, is a transverse vertical sectional view taken on the line V, V, in Fig. II.

In said figures;—the frames 1, are supported on the legs of standards 2, and 3, and from the latter extend the brackets 4, arranged to adjustably support the frame 5, which rests upon the adjusting screws 6, and

carries the reservoir 7, having the separating posts 8, and 9, between which the threads 10, pass as they are drawn from their respective spools on the spool rack (not shown). Said reservoir 7, is divided into two sections, as best shown in Fig. I, each comprising an outlet spigot 11, whereby the liquid 12, may be drawn off. Said threads are conveniently directed through the liquid 12, by passing between the posts 13, over the guide bar 14, beneath the guide bar 15, which is submerged in the liquid, between the separating posts 8, and 9, and across the felt wipers 16, and 17, which are arranged to drain the surplus liquid absorbed by the threads, back into the reservoir, and thereby partially dry said threads before passing to the drum and table to be smoothed or ironed.

The rotary heated drum 19, which is journaled in the bearing frames 20, and 21, and provided with a worm gear 22, is arranged to be slowly rotated in the direction of the arrow indicated in Fig. II, by the worm 23, on whose shaft 24, is secured the bevel gear 25, in toothed engagement with the beveled gear 26, on the shaft 27, which carries the driving pulley 28.

As best shown in Figs. II, and V, the drum 19, is arranged to be continuously washed by being partly submerged in the water 30, contained in the reservoir 31, which is supported on the frames 4; and to further insure that the surface of said drum may be prevented from collecting a deposit from the threads 10, a scraper is provided which comprises a pair of wires 34, and 35, which are secured to the frame 20, at points coincident with the diametrically opposite sides of the periphery of the drum, and which extend in contact with the surface of said drum, crossed as best shown in Fig. I, to points oppositely disposed on the frame 21, where they overhang said frame and are provided with weights 36, and 37, arranged to provide requisite tension to insure a substantial frictional contact with the drum surface.

The table comprises a steam chest 38, having a flat surface arranged to be heated to a suitable temperature to iron the threads, which are drawn in the direction of their length over said drum and table between the guide posts 39, which are in the form of cylinders having rounded ends, and made of porcelain or such other material as will not rust or corrode. Said threads being maintained in contact with the surfaces of the

drum and table(which lie in a common plane) by passing beneath the cross rod 40.

As best shown in Fig. I, steam is admitted through the inlet pipe controlled by the valve 5 41, to the drum 19, which is connected by the pipe 42, to the steam chest 38, having the steam outlet pipe 43.

The guide posts 39 are carried by the reciprocatory bars 44, and 45, which are conveniently supported by the levers 46, pivoted 10 on the frame 1. The reciprocation of said bars tends to twist the thread which extends toward the right from the rod 40, with respect to Figs. I, and II, and rolls the thread which is coextensive with the table, in contact with the surface of the steam chest 38.

Each of the reciprocatory bars 44, and 45, are provided with the depending arm 47, arranged to engage cams 48, formed on the sides 20 of the respective pulleys 50, and 51. Said arms being maintained in contact with their respective cams by the spiral springs 52, which are secured at one end to the reciprocatory bars, and at the other end, to the levers 46, and which normally shift said bars 25 44, and 45, to the left with respect to Fig. III.

The pulleys 50, and 51, are connected to be synchronously rotated by the belt 54, running in the grooves 55, and 56, on the respective pulley; the pulley 51, being connected by the belt 57, to any suitable driving mechanism, and the pulley 50, being connected by the belt 58, with the pulley 28, to drive the heated drum 19.

As it is desirable to raise the threads from the machine when it is not in operation, and thereby prevent them from being scorched or rusted, the levers 46, are connected by cords or chains 60, whereby the free ends of 40 said levers may be uplifted to raise the threads by engagement with the cross rods 61, from the table surface.

It may be observed that the rotary drum 19, not only partially dries the thread but 45 strips off the surplus liquid so as to prevent the thread from carrying an excess of liquid onto the steam table 38, thereby preventing a deposit of liquid tainted with dyeing chemicals on said table and thus insuring a perfectly clean and uniform colored thread. 50 Moreover, owing to the constant rotation of said drum, no deposit of liquid can become baked or dried on the surface of the drum, as the latter is cleaned by its passage through the water in the reservoir 31, in which said drum turns, and, is automatically cleaned by the wires 34, and 35, which, as aforesaid are tightly stretched across the surface of said drum.

It may be noted that the reciprocatory motion of the thread as herein described is advantageous in that the thread is twisted and rolled transversely while being longitudinally progressed, thereby closely twisting the 65 fibrous ends into the body of the thread, and

further, that said reciprocation prevents the thread from wearing grooves in the table surface as has been found difficult to prevent in machines of the prior art.

We do not desire to limit ourselves to the 70 precise details of construction and arrangement herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of our invention. 75

We claim:—

1. In a thread finishing machine, the combination with means arranged to direct the thread through a liquid; of a rotary drum; means arranged to roll said thread in contact 80 with the periphery of said drum; a reservoir arranged to contain water in which said drum is partly submerged; and crossed wires in frictional contact with the surface of said drum respectively extending from diamet- 85 rically opposite sides of one end of the drum, to diametrically opposite sides of the other end of said drum, substantially as set forth.

2. In a thread finishing machine, the combination with a table comprising a heated 90 surface arranged to support the threads during their progression; of reciprocatory bars arranged to engage and shift said threads laterally; and, means arranged to uplift said threads from said table, at the will of the op- 95 erator, substantially as set forth.

3. In a thread finishing machine, the combination with a table comprising a heated surface arranged to support the threads during their progression; of reciprocatory bars 100 arranged to engage and shift said threads laterally; pivoted levers arranged to support said bars; and, means arranged to uplift the free ends of said levers and thereby raise the threads from the table, substantially as set 105 forth.

4. In a thread finishing machine, the combination with a table comprising a heated surface arranged to support the threads during their progression; of reciprocatory bars 110 arranged to engage and shift said threads laterally; pivoted levers arranged to support said bars; and, connections attached to the free ends of said levers whereby the bars may be raised to lift the threads from the table, 115 substantially as set forth.

5. In a thread finishing machine, the combination with means to coat threads with a liquid; of a heated table; means to direct the coated threads over said table in contact 120 with its surface; means comprising a rotary drum between said coating means and said table, arranged to remove the surplus liquid from said threads; and means arranged to uplift said threads from said table at the will 125 of the operator; substantially as set forth.

6. In a thread finishing machine, the combination with means arranged to direct the thread through a liquid; of a rotary drum; means arranged to roll said thread in con- 130

tact with the periphery of said drum, transversely to the direction of the length of the thread; and a pair of wires arranged to continuously scrape and wash said drum while
5 in operation, substantially as set forth.

7. In a thread finishing machine, the combination with means arranged to direct the thread through a liquid; of a rotary drum; a pair of wires arranged to scrape said drum;
10 means arranged to roll said thread in contact with the periphery of said drum; and a reservoir arranged to contain water in which said drum is partly submerged, substantially
as set forth.

15 8. In a thread finishing machine, the combination with a reservoir arranged to contain a liquid; of means arranged to direct threads through said liquid; posts in said reservoir arranged to separate said threads; wipers, in
20 contact with which the respective threads pass, arranged to direct the surplus liquid pack into the reservoir; a rotary drum arranged to partially dry said threads; a pair of wires for cleaning said drum; a table; and,
25 means arranged to roll the threads transversely to the direction of their length in contact with said table, substantially as set forth.

9. In a thread finishing machine, the combination with means arranged to direct the thread through a liquid; of a heated surface;
30 means arranged to twist said thread, and then roll it in contact with said heated surface; and means arranged to uplift said threads from said heated surface, at the will
35 of the operator, substantially as set forth.

10. In a thread finishing machine, the combination with means arranged to direct the thread through a liquid; of a steam chest
40 comprising a heated surface; means arranged to twist said thread and then roll it in contact with said surface; and means arranged to uplift said threads from said surface, at the will of the operator, substantially as set
45 forth.

11. In a thread finishing machine, the combination with means arranged to direct the thread through a liquid; of means arranged to partially dry said thread; a heated
50 surface; means arranged to twist said thread, and then roll it in contact with said surface; and means arranged to uplift said threads from said table, at the will of the operator, substantially as set forth.

12. In a thread finishing machine, the combination with means arranged to direct the thread through a liquid; of a heated table;
55 means arranged to reciprocate said thread laterally in contact with said table; a rotary heated drum arranged to remove the surplus liquid from said thread by contact
60 therewith; and a pair of wires for cleaning said drum, substantially as set forth.

In testimony whereof, we have hereunto signed our names, at Fountain Hill in the
65 State of Pennsylvania this eighth day of January 1906.

EMORY J. LIPPS.
FREDERICK OTT.

Witnesses:

H. M. UEBERROTH,
MARY D. HOLLERAN.