

E. POHL.
SILK THREAD FINISHING AND LUSTERING MACHINE.
APPLICATION FILED OCT. 27, 1908.

911,907.

Patented Feb. 9, 1909.

2 SHEETS—SHEET 1.

Fig. 1,

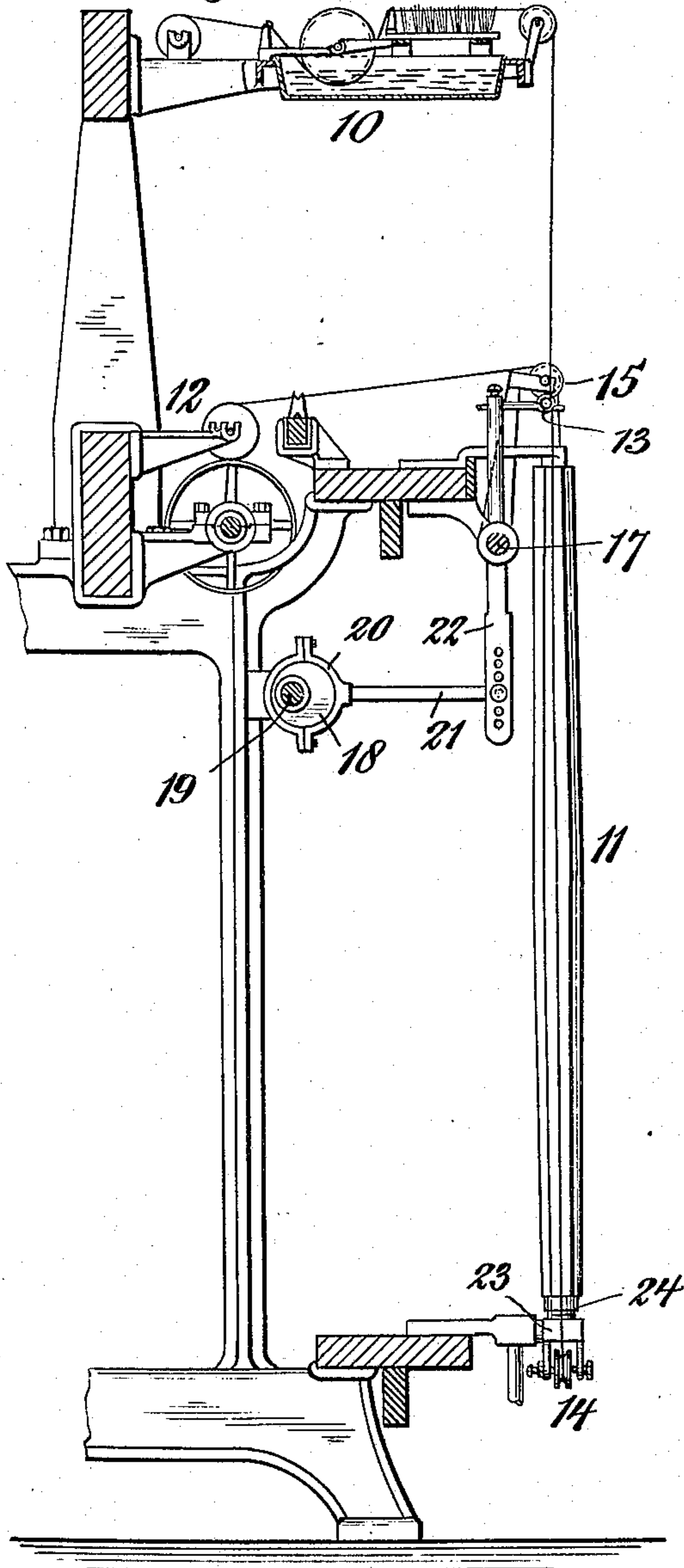
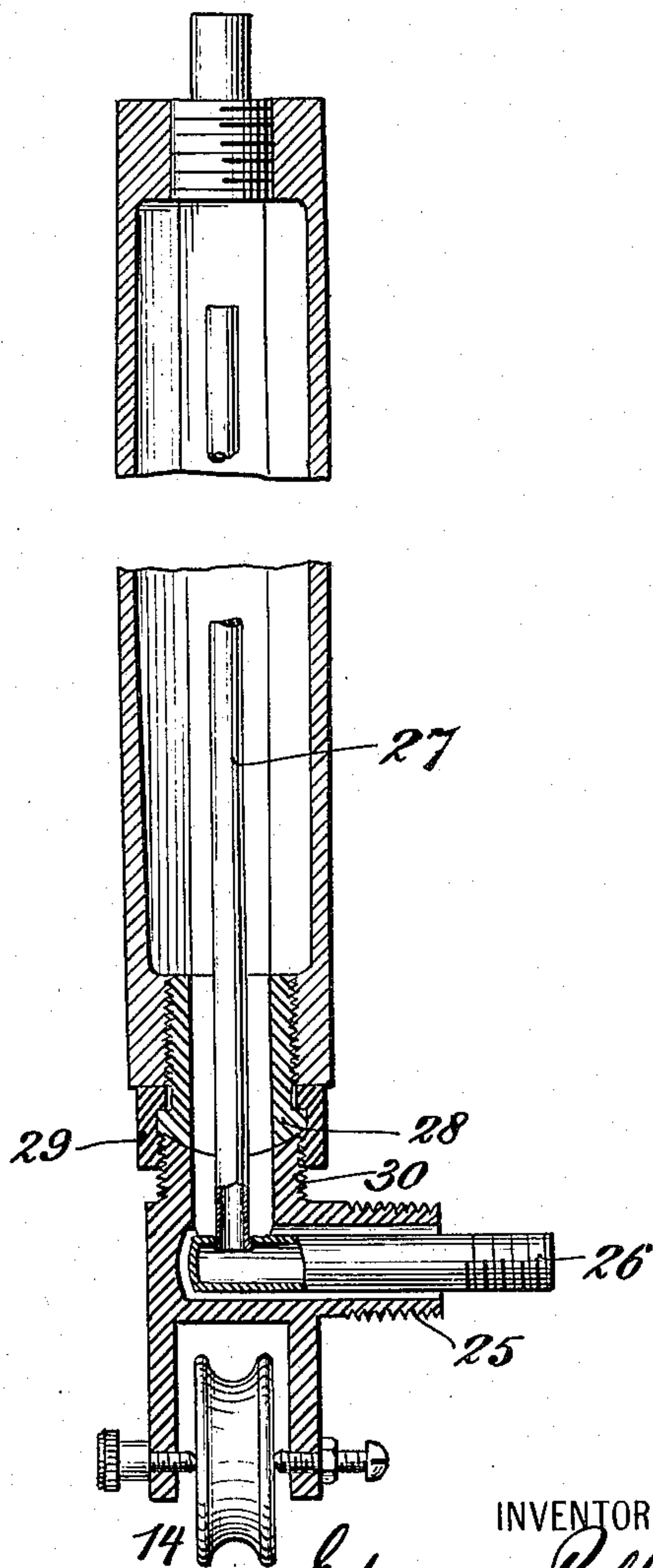


Fig. 2,



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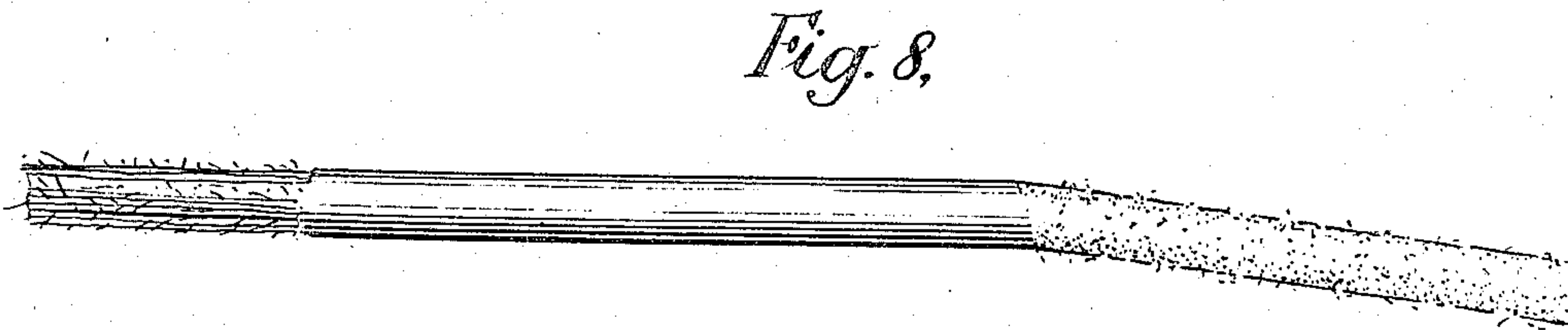
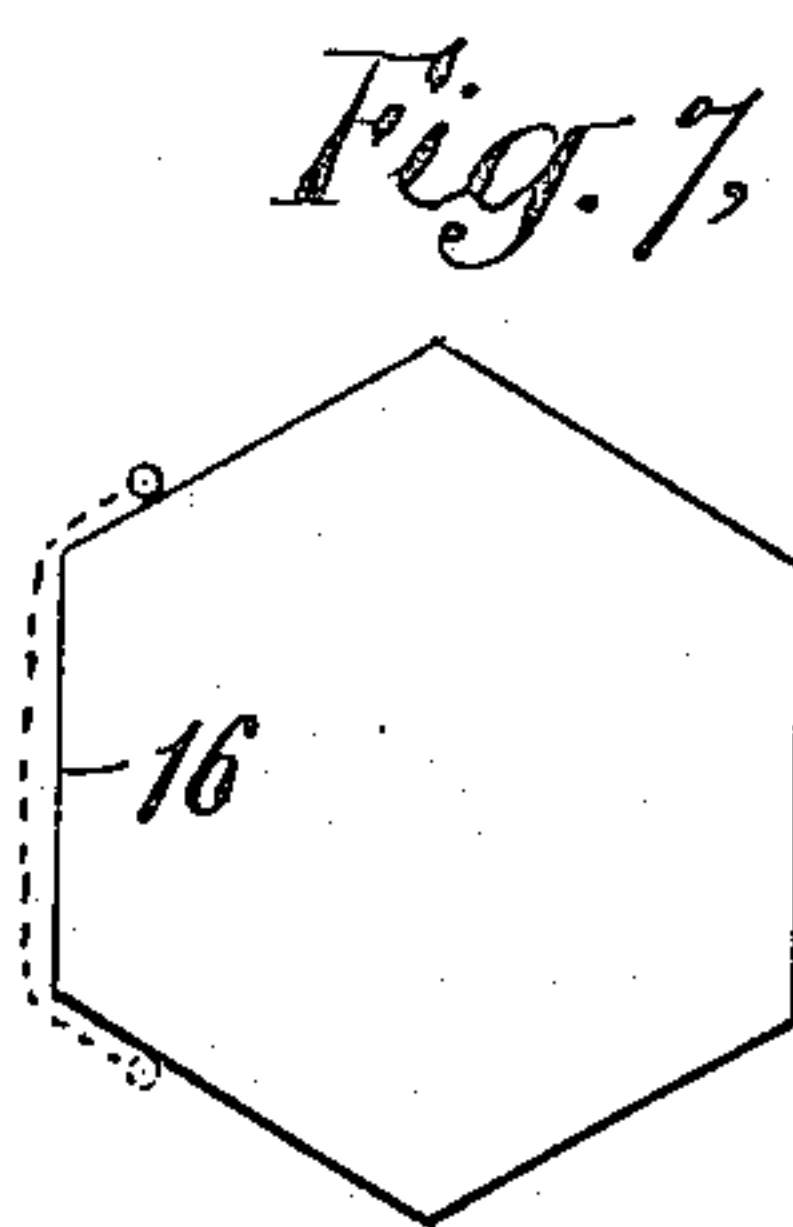
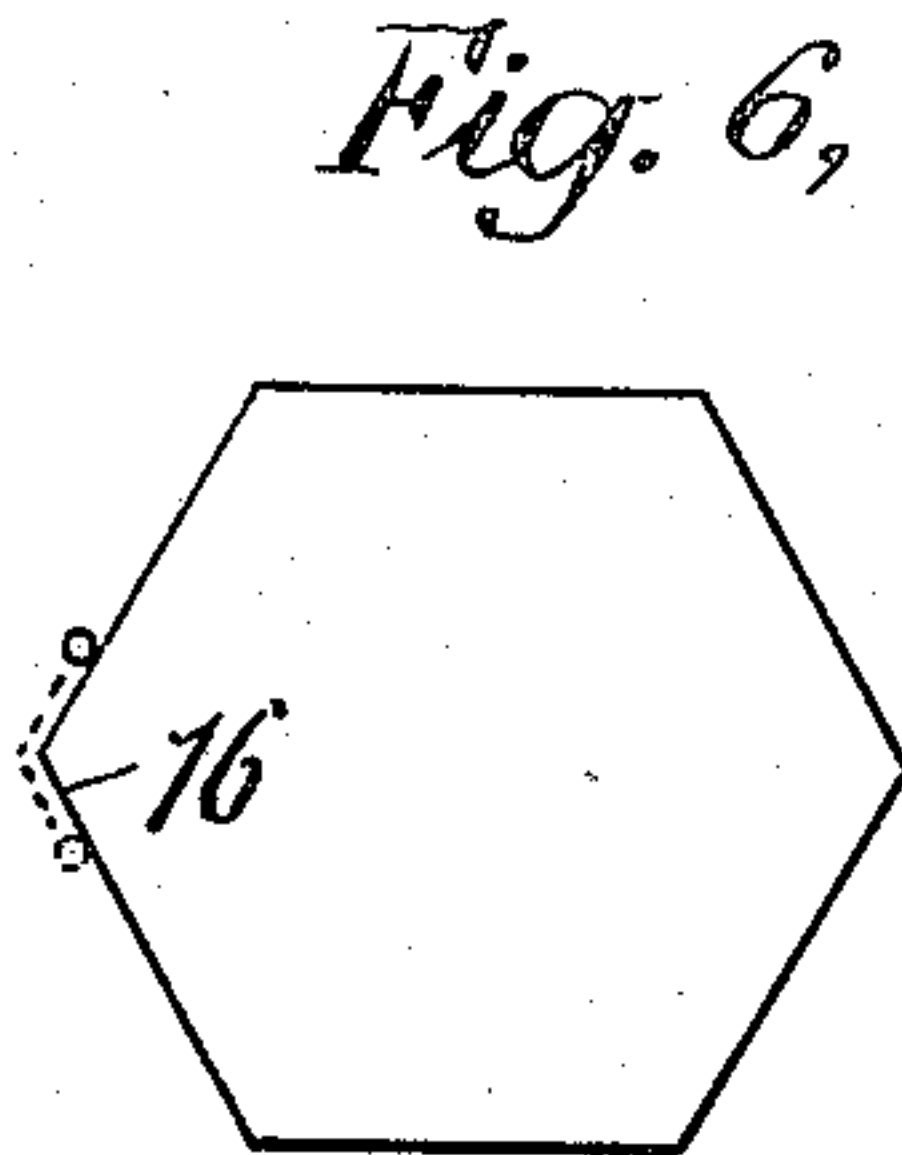
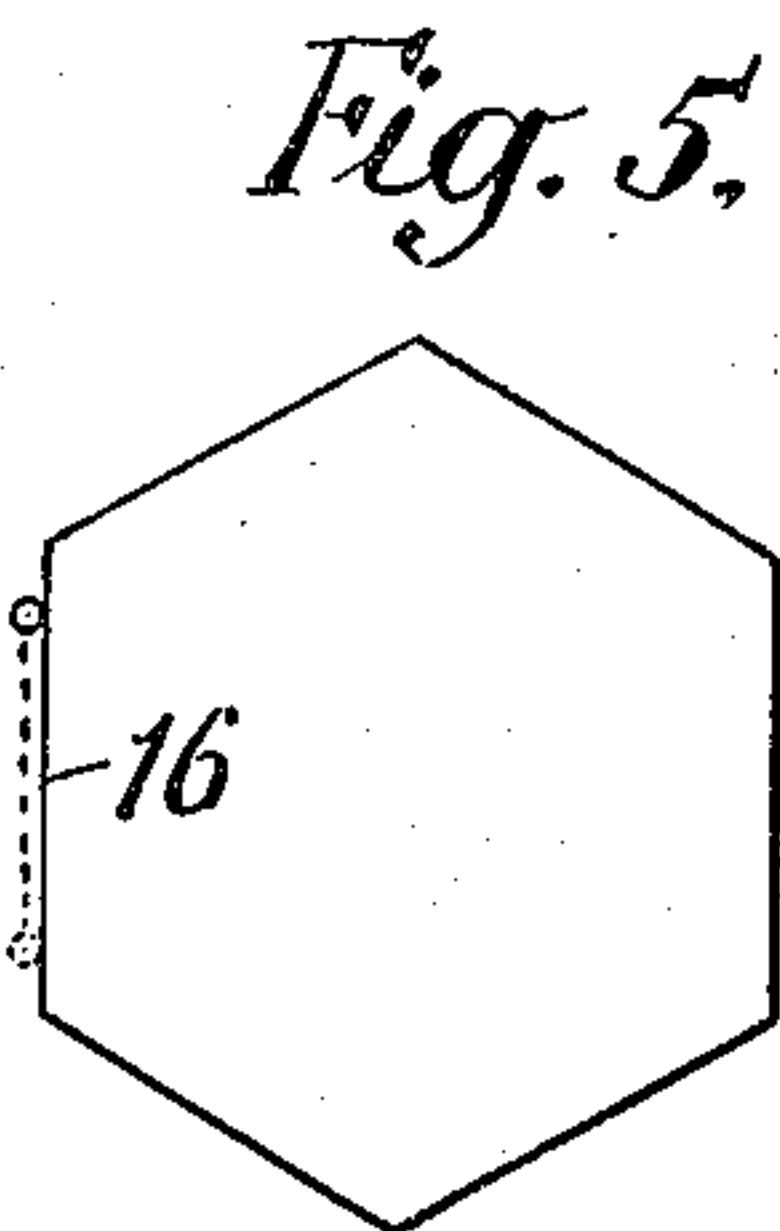
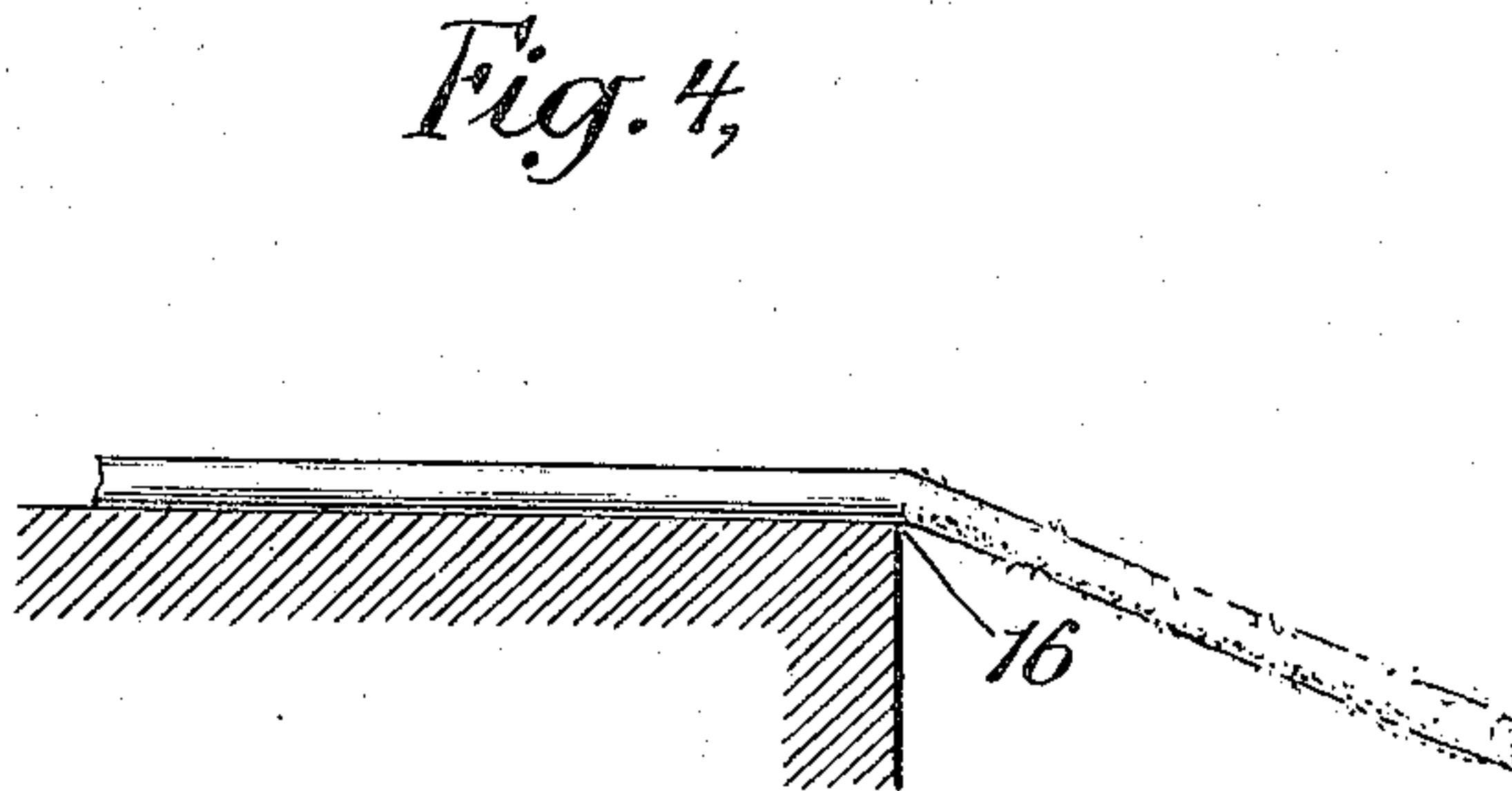
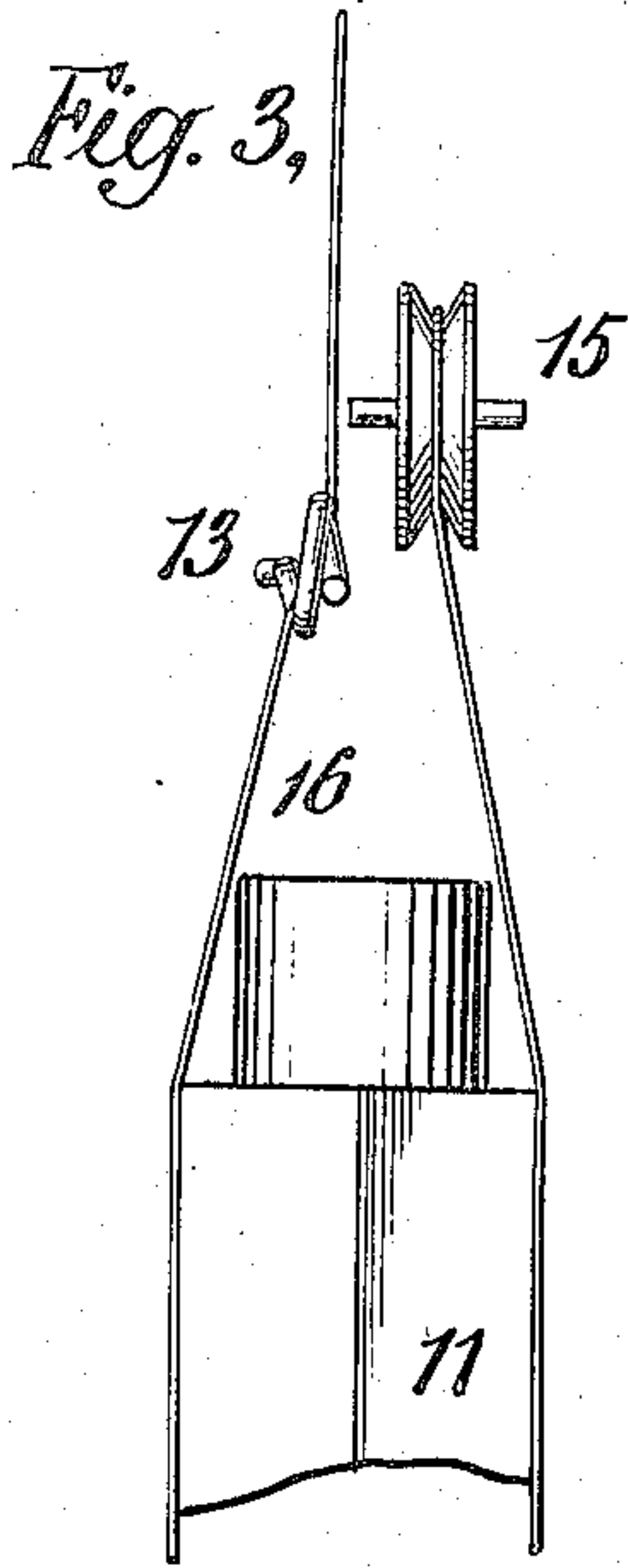
BY

Chapman Raymond
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WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWARD POHL, OF NEW YORK, N. Y.

SILK-THREAD FINISHING AND LUSTERING MACHINE.

No. 911,907.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed October 27, 1908. Serial No. 459,741.

To all whom it may concern:

Be it known that I, EDWARD POHL, a citizen of the United States of America, and a resident of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Silk-Thread Finishing and Lustering Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in silk thread finishing and lustering machines, and particularly to machines of the type in which a finishing and lustering solution is first applied to the threads and the threads thereafter drawn over a heated contact surface for the purpose of drying, polishing, and ironing them.

I have found that in the operation of this class of machine the silk fibers which ordinarily extend laterally from the threads are first laid down in the application of the finishing and lustering solution, and are finally imprisoned therein during the further operation of the machine, so that the thread, as finally delivered, is loaded and polished, and the surface thereof is perfectly smooth to the touch. The loading and polishing is highly desirable, but this smooth finish is not so desirable, because when the threads are finally used in the making up of goods the result is a material which does not have the "rustle" or "swish" which is generally associated with silk fabric. The goods made with such material are heavy and have a fine "body" and a good luster, but the absence of this "rustling" quality has been found to be objectionable in that the trade and public generally require it.

It is the object of my present invention to restore this quality to the silk fabric, and to this end I provide means for breaking out the imprisoned fibers of the threads, so that the threads as finally delivered, ready to be woven into fabric, will have fibers which extend laterally therefrom.

In the preferred form of my invention the fibers are released by rubbing the threads transversely across the edge of a contact member over which they are being simultaneously drawn longitudinally in the operation of the machine.

My invention also consists in certain improvements in the form and construction of the heated contact member over which the

threads are drawn in the polishing and ironing operation, and in the means by which a heating medium is conducted thereto for the purpose of heating the same, the object of this portion of my invention being to improve and simplify the heating means, and to provide for the ready turning of the heated contact members in order to bring fresh surfaces into use, without the necessary employment of stuffing boxes or analogous devices, such as are not only very expensive to build but are extremely difficult to keep in order.

In order that my invention may be fully understood, I will now proceed to describe an embodiment thereof, having reference to the accompanying drawings illustrating the same, and will then point out the novel features in claims.

In the drawings: Figure 1 is a view in side elevation of a portion of a finishing and lustering machine constructed in accordance with my invention. Fig. 2 is a detail sectional view showing particularly the steam fitting connections for the contact member. Fig. 3 is an enlarged front view of the upper end of the heated contact member and certain adjacent parts. Fig. 4 is an enlarged diagrammatic view showing the thread in the act of having its surface disrupted across the edge of the heated contact member. Figs. 5, 6, and 7 are diagrammatic views showing the path of the thread across the face of the heated contact member. Fig. 8 is an exaggerated view of the thread showing it during the process of finishing, lustering, and finally with the surface thereof disrupted and the imprisoned fibers released.

The machine illustrated comprises in general a means for applying a finishing and lustering solution to the threads consisting of a bath or reservoir 10 designed for containing the lustering material, and suitable guiding means for carrying the threads through the bath, or otherwise carrying the finishing solution from the bath to the threads, a heated contact member 11 constructed in the form of a substantially vertical tube of polygonal form in cross section, and a take-up means 12 comprising a bobbin and winding mechanism.

Threads to be treated are conducted from the bath 10 over a guide 13, down one face of the heated contact member 11, thence beneath and around a direction pulley 14,

thence up and along the opposite face of the heated contact member 11 and over a guide pulley 15 to the take-up mechanism 12. The finishing and lustering solution or "loading", as it is sometimes called, is applied to the thread in or from the bath 10, as has been explained above, while the thread is dried, ironed, and polished by its contact with the heated contact member 11.

The foregoing operation has the effect, however, of laying the fibers of the threads which would otherwise project transversely therefrom and imprisoning them beneath the surface of the finished thread. In order to disrupt the loading and so release the imprisoned fibers I roll the threads transversely across the edge or edges 16 of the heated contact member while they are being simultaneously drawn longitudinally over the said member. I accomplish this by mounting either or both of the guides 13 and 15 upon a rock shaft 17 located in proximity to the edges 16 of the heated contact member 11, and I oscillate the said shaft so as to impart a vibratory movement of the said guiding elements 13 and 15 preferably in a direction substantially parallel with the plane of the faces of the contact member 11 which are in use at the time. I set the guides 13 and 15 closer together upon the rock shaft 17 than the distance between the opposite faces of the contact member 11, so that the threads are bent over the edge of the said contact member as is clearly shown in Figs. 3 and 4. I preferably vibrate the guides quite rapidly, so that the threads are rapidly rubbed transversely across the edge or edges 16 while being simultaneously drawn longitudinally thereover, the effect being to disrupt the loading sufficiently to release the imprisoned fibers. For the purpose of imparting rocking movements to the shaft 17, I have shown an eccentric 18 mounted upon a rotary shaft 19, the said eccentric being provided with a strap 20, and rod 21 which is connected to one end of an arm 22 secured upon the shaft 17.

The path of movement of the guides in their vibration may be parallel to the faces of the heated contact member 12 in use at the time, and the extent of vibration may be such as to confine the threads to such faces; or if preferred, the path of movement of the thread guides may be at an angle to the faces of the heated contact member, as is shown in Fig. 6, this position being readily obtained by partially rotating the heated contact member upon its axis. In such case the threads may be carried by the guides from one face to another of the heated contact member across the sharp dividing edge between the two surfaces, all as is clearly shown diagrammatically in Fig. 6; or again the throw of the guides may be increased, with the heated contact member in the posi-

tion shown in Fig. 5, so as to carry the threads over three faces successively as is shown in the diagrammatic view Fig. 7. I have found in practice that threads treated in this way have their transverse fibers released so that the finished thread carries a number of laterally projecting fibers while still retaining its loading and the lustered effect, and I have found that when such threads are woven into fabric the fabric has the desired qualities not only of "body" and "luster", but will also give the desired "rustle" or "swish" when rubbing against another piece of similar goods.

The heated contact member 11 preferably comprises a hollow tube, closed at its upper end, and is supported at its lower end by means of a bracket piece 23. The said contact member is connected to this bracket piece by means of a union joint 24 which, while forming a steam tight joint, still permits the member 11 to be rotated. Specifically this union joint comprises a head 28 which is secured fast to the contact member 11, a collar 29 having a shouldered portion fitted to the said head and provided with internal screw threads, whereby it constitutes a nut, and an externally screw threaded projection 30 upon the said bracket, the said projection 30 and head 28 having coengaging faces which are ground together to form a steam tight joint. The said bracket piece is made hollow and constitutes a means by which water of condensation from the steam heating system may be discharged through a waste pipe 25, steam being admitted through the said bracket by means of a small steam pipe 26 which is located therein, the said steam pipe being connected to a vertical steam pipe 27 which preferably extends nearly to the top of the said tube 11. It will be noticed that the union joint will permit the member 11 to be readily turned by hand for the purpose of bringing up fresh surfaces to be used in lustering the threads, whereby surfaces formerly used and which have become fouled may be readily cleaned, such joint dispensing with the stuffing boxes which are ordinarily employed for making steam tight joints under such circumstances.

What I claim is:

1. In a silk thread finishing and lustering machine, the combination with means for ironing and polishing threads to which a finishing and lustering solution has been applied, of means for breaking the surface of the finished threads to release the imprisoned fibers.

2. In apparatus for finishing and lustering silk threads, the combination with means for applying a finishing solution to the threads, and for drying and ironing the threads after such finishing solution has been applied thereto, of means for breaking

the surface of the finished threads to release the imprisoned fibers, substantially as set forth.

3. In a machine for finishing and lustering silks threads, the combination with means for drying and ironing a thread to which a finishing and lustering solution has been applied, of means for rubbing the threads transversely against the edge of a contact surface over which they are simultaneously drawn longitudinally, in order to fracture the surface of the finishing material upon the threads for the purpose of releasing the imprisoned fibers.

4. In a silk thread finishing machine, the combination with a heated contact member, of a vibrating guide for the thread arranged to vibrate laterally in proximity to the edge of the heated contact surface, the said guide being located at a level beneath the level of the end edge of the heated contact surface, whereby the thread is caused to bend across the said edge of the heated contact surface.

5. In a silk thread finishing and lustering machine, the combination with a heated contact member having oppositely disposed contact surfaces, of a rock shaft disposed in proximity to the end thereof, a guide upon the rock shaft arranged to guide the thread at an angle from the contact member, whereby the said thread is caused to bend across the end edge of the said heated contact member, and means for vibrating the guide transversely with respect to the said heated contact member in order to rub the thread against the edge of the heated contact member while the thread is passing longitudinally thereover, and to thereby release imprisoned fibers.

6. In a silk thread finishing and lustering machine, the combination with a heated contact member over both sides of which a thread is adapted to be drawn, of a rock shaft disposed in proximity to the end of the said heated contact member, guides for guiding the thread to the heated contact member upon one side thereof and from the heated contact member upon the opposite side thereof, the said guides being placed closer together than the distance between the opposite faces of the approach and discharge

end of the heated contact member, whereby the threads are caused to bend over the said edge of the heated contact member, and means for oscillating the rock shaft, whereby to vibrate the said thread guides during the time the threads are being drawn over the heated contact member, substantially as set forth.

7. In a silk thread finishing and lustering machine, the combination with a hollow bracket, and a tube closed at its upper end fitted thereto, the said tube constituting a contact member for the threads, of a union joint connecting the said tube and bracket together, whereby the interior of the bracket and the interior of the tube are in normal communication, but the said tube is free to be rotated upon the said bracket, an inlet pipe contained within the bracket for admitting steam to the interior of the tube, and a vertical pipe connected thereto and extending upwardly within the said tube, substantially as set forth.

8. In a silk thread finishing and lustering machine, the combination with a hollow bracket provided with a screw-threaded neck, and a tubular member closed at its upper end and provided at its lower end with a head which is fitted to the aforesaid neck, the co-engaging surfaces of the said neck and head being circular at any point in cross section, whereby the tube may be revolved upon a neck, and a shouldered nut engaging the said head and screw-threaded upon the said neck for drawing the parts together, the said head, neck, and shouldered nut constituting a union joint, an inlet pipe contained within the bracket for admitting steam to the interior of the tube, a vertical pipe connected thereto and extending upwardly within the tube, the said tube and bracket having free communication between each other through the said union joint around the inlet pipe connection for discharging exhaust steam and waters of condensation.

EDWARD POHL.

Witnesses:

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