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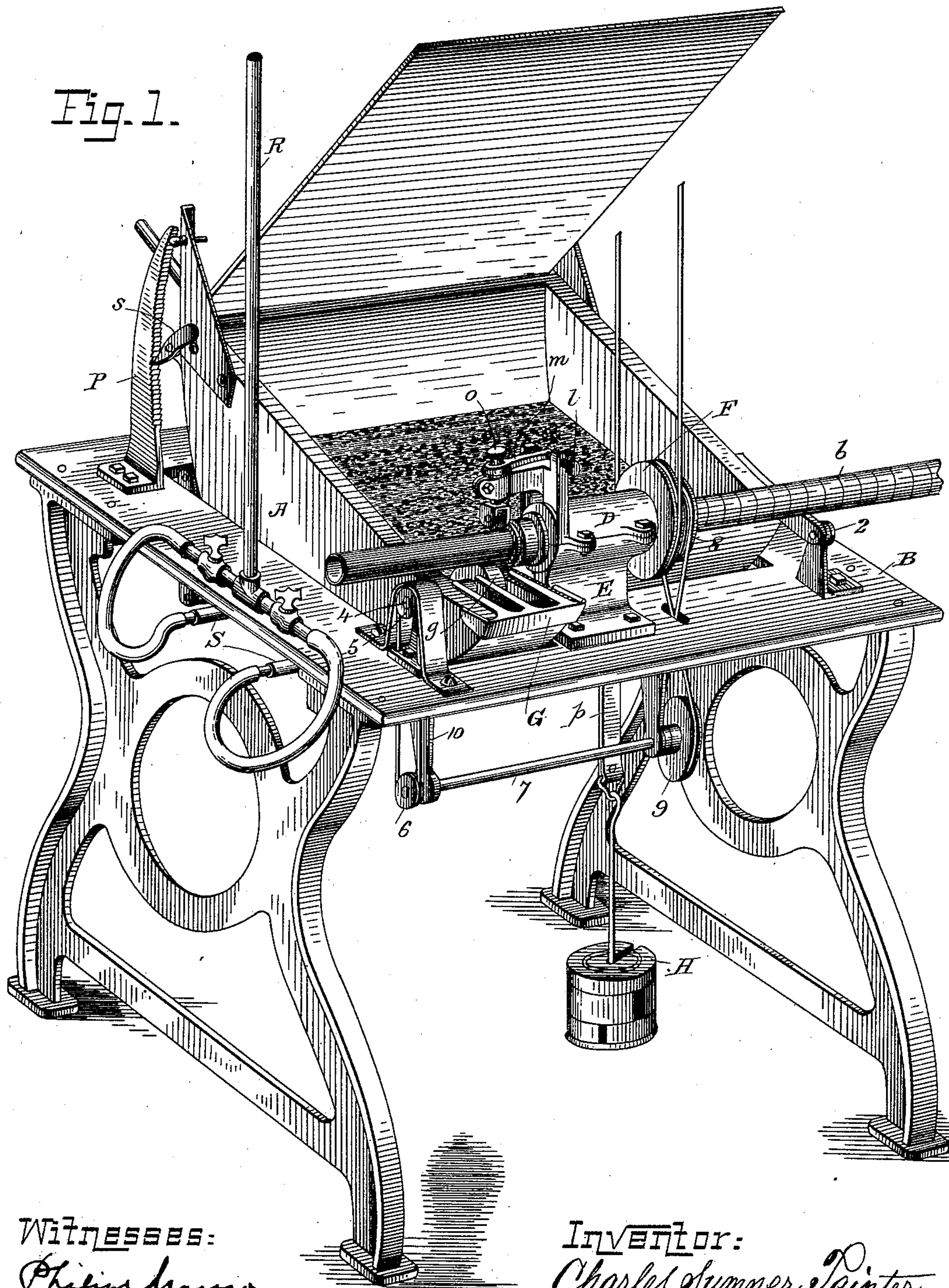
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C. S. TAITER.

MACHINE FOR THE MANUFACTURE OF WAX COATED TABLETS FOR
GRAPHOPHONES.

No. 428,646.

Patented May 27, 1890.



Witnesses:

Philip Hamer
Joe Hagmann

Inventor:

Charles Sumner Tainter
by A. Pollok His attorney.

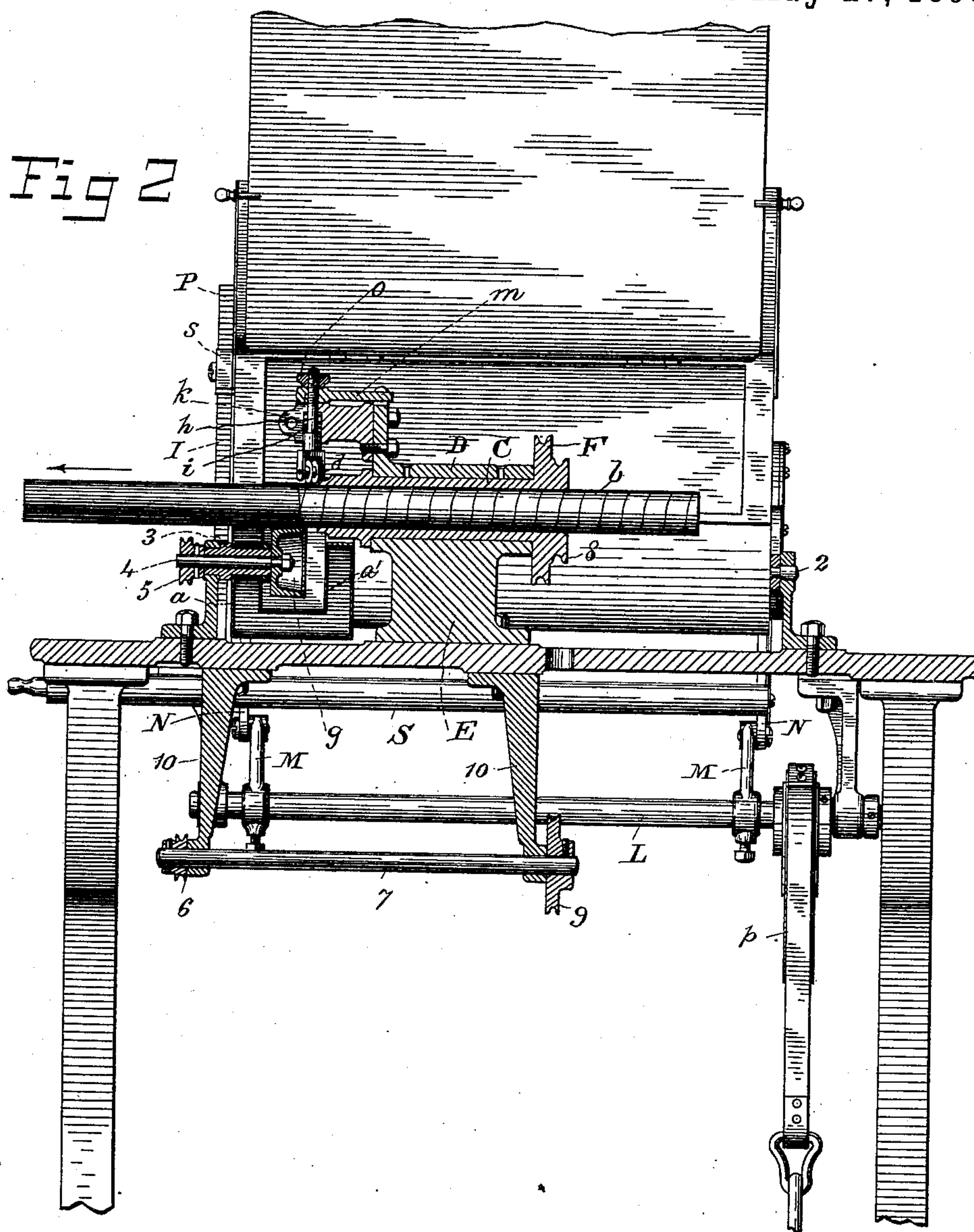
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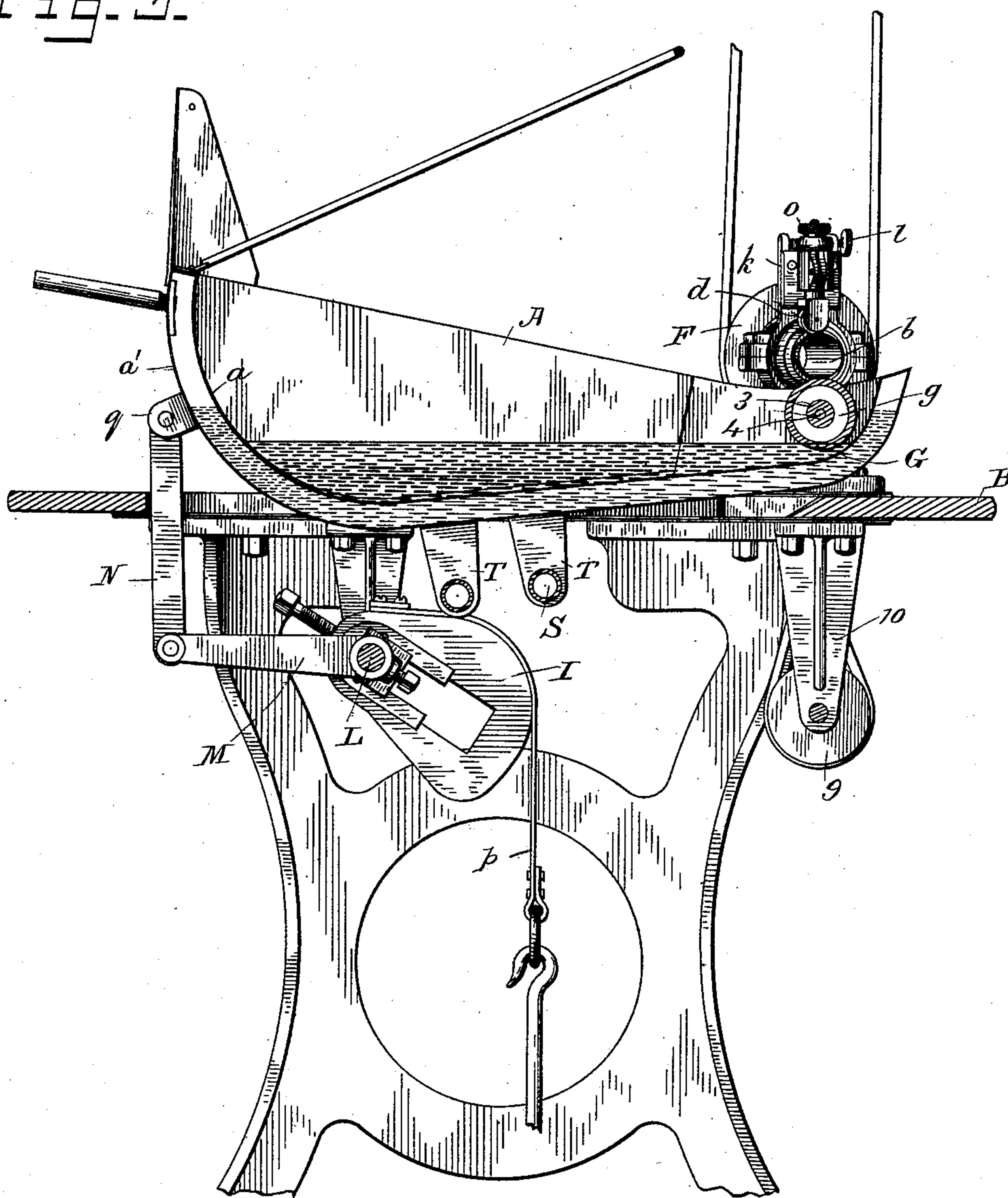
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Fig. 3.



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(No Model.)

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Fig. 4.

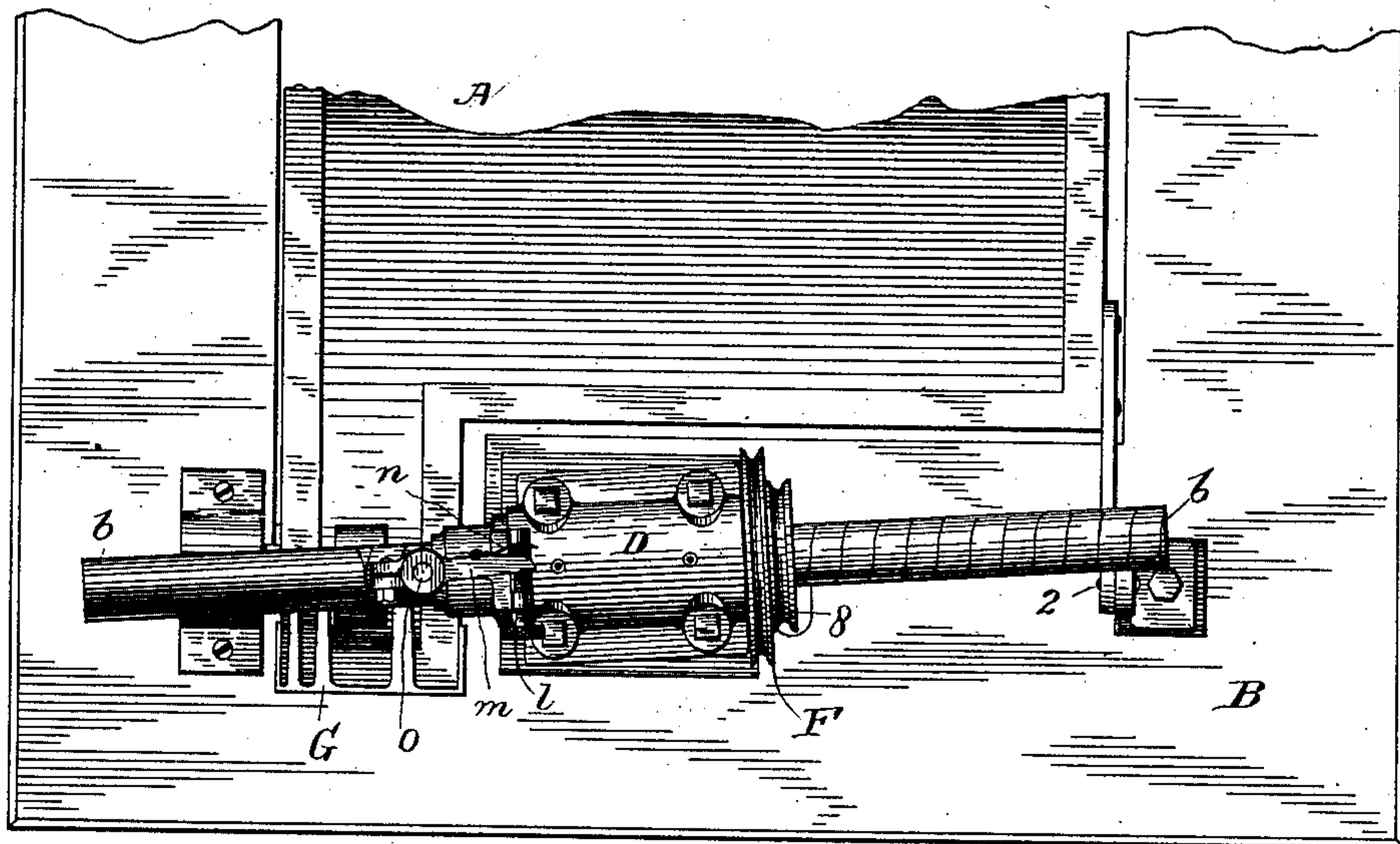
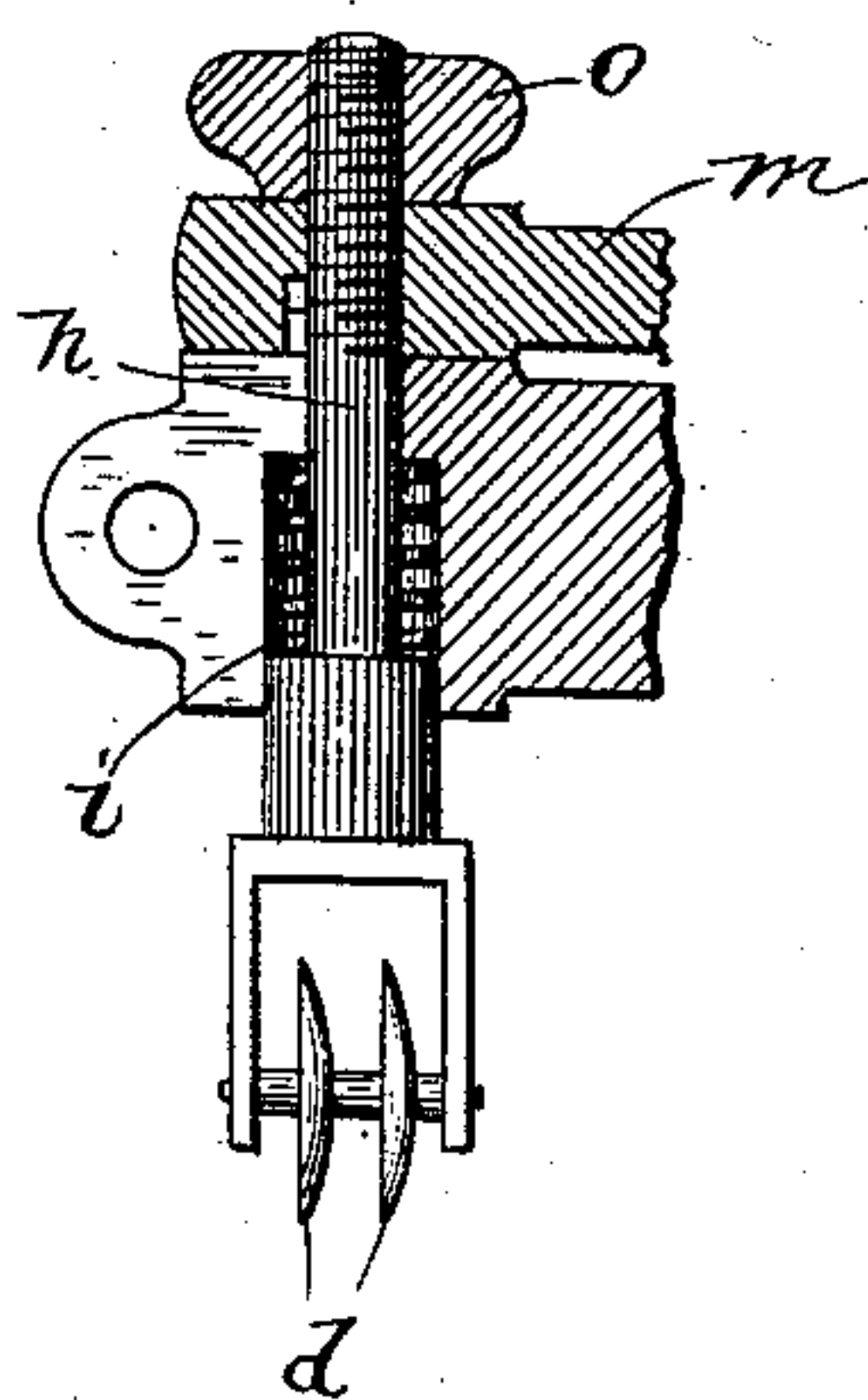


Fig. 5.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

CHARLES SUMNER TAINTER, OF WASHINGTON, DISTRICT OF COLUMBIA.

MACHINE FOR THE MANUFACTURE OF WAX-COATED TABLETS FOR GRAPHOPHONES.

SPECIFICATION forming part of Letters Patent No. 428,646, dated May 27, 1890.

Application filed June 27, 1889. Serial No. 315,776. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SUMNER TAINTER, of Washington, in the District of Columbia, have invented a new and useful
5 Improvement in Machines for the Manufacture of Wax-Coated Tablets for Graphophones, which improvement is fully set forth in the following specification.

10 This invention relates to machines for the manufacture of wax-coated tablets for use in graphophones or apparatus for recording and reproducing sounds, and more particularly to machinery for applying the wax coating to the foundation by which it is supported.

15 The object of the invention is to enable the manufacture of tablets to be carried on in an expeditious and economical manner and to secure good and uniform results without special care on the part of the operator and
20 without the employment of skilled labor. Prior to my invention this part of the manufacture of the wax-coated cylinders has been attended with difficulties and had to be conducted in a very careful manner and by processes comparatively slow, and therefore expensive. Inasmuch as the tablets are used
25 in great quantities, the importance of means for producing them rapidly and cheaply will be appreciated. According to the present invention, the tube or cylinder which is to be coated with wax is fed along longitudinally and at the same time given a rotating motion over a vessel or bath containing melted wax. While advancing and rotating, a coating device,
35 which may conveniently be a small roller rotating in the bath, applies a coating of wax to the tube. The tube is preferably formed in lengths. It may be of six feet or more, and after passing through the coating
40 device is cut into the standard sizes for graphophonic tablets.

The invention includes a vessel of special construction, having an extension at one end, in which the coating device or roller is placed,
45 the vessel being hinged, so that it can be tilted as the wax is used up, so as to maintain the same level in that portion which contains the coating device.

50 The invention further includes automatic mechanism for tilting the vessel as the wax is used up. This mechanism may be of any suitable description. As herein shown it

comprises a counter-weight hung on a cam carried by a suitable shaft, the curvature of the cam being such that the leverage of the
55 weight is shifted as the wax is consumed. The shaft referred to is connected by proper connections with the vessel, so that the latter is tilted on its hinges as the weight turns the shaft.

60 The invention further includes special means for imparting to the foundation tube or cylinder its forward and rotating motions, and also certain details of construction and combinations of parts, as hereinafter set forth.

The accompanying drawings represent an apparatus embodying the principle of the invention, Figure 1 being a perspective view; Fig. 2, a vertical section partly in front elevation; Fig. 3, a vertical section partly in
70 side elevation; Fig. 4, a partial plan view; and Fig. 5 is a detail view showing the feed-roller and its support on a larger scale.

A represents a metal vessel having double
75 walls $a a'$, the space between them being filled with water. Vessel A is supported on a stand B, to which it is hinged at the points 2 and 3, Fig. 2, so that it can be tilted forward more or less, as hereinafter explained. The vessel
80 A contains the wax or waxy composition to be applied to the tube or cylinder, and the water-jacket keeps the melted wax at a temperature practically uniform.

The hollow sleeve C, which constitutes the
85 holder for the foundation-tube b , is supported in a tubular bearing D, carried by standard E, which rests on the stand B. Sleeve C carries a driving-pulley F, by which it is rotated. The diameter of the hollow sleeve or holder
90 C is such that the tube or cylinder b , upon which the coating of wax is to be applied, will fit closely therein, so that it will be turned with the sleeve or holder C. It should not fit so tight, however, as to interfere with its forward motion. The bath or vessel A has a
95 forward extension G, constituting a small compartment, and as the foundation-tube b issues from the holder C it passes over this compartment, coming in contact with a small
100 roller g , which rotates therein, and by which a coating of wax is applied to said tube. As shown in Fig. 2, the roller g is slightly tapering in form, as this is found in practice to give

better results than a roller of uniform diameter. Roller *g* is carried by a spindle 4, turning in sleeve 3 and provided with a small pulley 5, which is driven from a pulley 6 on counter-shaft 7, the latter being driven from the rotating sleeve C through pulleys 8 and 9. Shaft 7 has bearings in brackets 10, depending from table B. The forward motion of tube *b* is produced by a small feed-roller *d*, or more properly a pair of rollers on the same spindle. (See Fig. 5.) These rollers are beveled off on one side, leaving edges sufficiently sharp to bite into the surface of the tube without cutting the same, the rollers being pressed in contact with the tube *b* by the spiral spring *i*, surrounding shank *h* and bearing at one end against the bracket *k*, by which the shank is supported. When tube *b* rotates, it turns rollers *d* by friction. The axis of rollers *d* is slightly oblique to that of the tube *b*. Consequently said tube is fed forward, the combined action of the rotating holder and oblique feed-rollers imparting to it the motion of a screw.

The inclination of the feed-rollers may be adjusted by means of the adjusting-screw *l*, acting on the arm *m*, attached to shank *h*. A flat spring *n* holds said arm against the end of screw *l*. The speed at which the tube *b* is advanced—in other words, the pitch of its spiral motion—is determined by the inclination of the rollers *d*. Preferably the angle of the feed-rollers is such that the tube *b* advances at each revolution a distance equal to or slightly less than the width of the coating-roller *g*. The action of the latter resembles the winding of a film or band of wax helically around tube *b*. Roller *g* should also be set obliquely with reference to the axis of tube *b*, its inclination corresponding to that of rollers *d*. It will thus assist and not impede the forward motion of tube *b*. The direction of motion of tube *b* is indicated by the arrow in Fig. 2. The upper end of shank *h*, carrying the feed-rollers, is screw-threaded, and on it is screwed a thumb-nut *o*, by means of which the pressure of the feed-rollers on the tube *b* may be regulated.

It is very desirable to keep the wax in compartment G at approximately the same level by gradually tilting bath A forward as the wax is consumed. Bath or vessel A is balanced by counter-weight II, hung by a strap *p* from a cam I, the strap passing over the surface of the cam. Shaft L, which carries cam I, has an arm M, pivoted to a link N, the latter being in turn pivoted to an ear or lug *q*, projecting from the rear of vessel A. The weight H is loaded sufficiently to hold vessel A in such position that the level of the wax in part G thereof is slightly higher than the lower edge of coating-roller *g*. As the wax is consumed, and the vessel A consequently lightened, the weight turns shaft L, which, through the connections M N *q*, tilts the vessel farther forward, causing the wax to flow into part G. The curvature of cam I is such that as

weight II descends it acts closer and closer to the axis of shaft L, and its leverage is proportionately diminished. This is necessary, owing to the constantly-diminishing weight of the contents of the rear part of vessel A, which the weight II is required to balance.

To prevent oscillation of the vessel A as it is shifted by the action of weight II, a rack P is placed on table P, which rack is engaged by a pawl *s*, pivoted on vessel A.

R represents a gas-supply pipe, with which are connected the two pipes S, running under vessel A and supported by brackets T. Pipes S have a series of perforations along their upper surfaces, constituting burners for keeping up the temperature of the water bath. Any other suitable heating means may, however, be substituted, and other modifications may be made in the details of construction, without departing from the spirit of the invention.

Where a feed-roller is referred to herein it will be understood that one or more such rollers is implied, as the number of rollers employed is immaterial.

Having now fully described my said invention, what I claim is—

1. The combination, with the vessel or bath, of the holder for supporting the foundation to be coated, the coating device in said vessel, and feed mechanism for rotating and at the same time advancing longitudinally the article to be coated, substantially as described.

2. The combination, with the vessel containing the melted wax or composition, of the rotary holder, the coating-roller rotating in said vessel, and the feed for advancing the tube to be coated while rotating with said holder, substantially as described.

3. In an apparatus for coating a tube or cylinder, the combination of a hollow rotary holder having an internal diameter adapted to fit closely around said tube or cylinder, means, as specified, for advancing said tube or cylinder longitudinally while rotating with said holder, a vessel, and a coating device or roller in said vessel, substantially as described.

4. The combination, with the vessel or bath, of the rotatory holder, the coating-roller arranged in said vessel, and the feed-roller adapted to bear upon the tube to be coated and arranged obliquely to the axis thereof, substantially as described.

5. The combination of the vessel hinged to a stand or table, the coating-roller arranged therein, devices for tilting the vessel and holding it at any desired angle, and the supporting and feeding devices for the tube to be coated by said roller, substantially as described.

6. The combination of the vessel having an extension, the coating-roller arranged in said extension, and the tube supporting and feeding devices, said vessel being hinged to its stand, so that it can be tilted to run the wax

toward said extension, substantially as described.

7. The combination, with the hinged vessel containing a coating device for applying the contents of said vessel to the surface of a foundation to be coated, said vessel being hinged to a suitable support, of means for automatically tilting said vessel as its contents are consumed, so as to maintain an approximately constant level at said coating device, substantially as described.

8. The combination, with the hinged vessel containing a coating device, of a counter-balance-weight connected with said vessel and means for automatically shifting the leverage of said weight as the contents of the vessel are consumed, substantially as described.

9. The combination, with the hinged vessel containing a coating device, of a counter-balance-weight hung on a cam carried by a suitable shaft and connections between said shaft and vessel whereby the descent of the weight acts to tilt said vessel, substantially as described.

10. The combination of the vessel or bath, the rotatory holder, the feed-roller for acting on the tube to be coated, and set obliquely to

the axis of said tube, and the coating-roller, also set obliquely to the axis of said tube, substantially as described.

11. The combination, with the vessel for the wax, the coating device, and the rotatory holder, of the feed-roller having a sharp edge to bear upon the tube to be coated, said roller being set obliquely to the axis of said tube, and means for adjusting the angle of said roller, substantially as described.

12. The combination of the vessel, the feed, the holder, and the tapering coating-roller in said vessel, substantially as described.

13. The combination of the vessel, the rotatory holder for the tube or cylinder to be coated, the feed-roller for advancing said tube and held by yielding pressure in contact therewith, and adjusting means for regulating the pressure of said roller, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES SUMNER TAINTER.

Witnesses:

HENRY B. DREW,

H. S. SHELTON.