

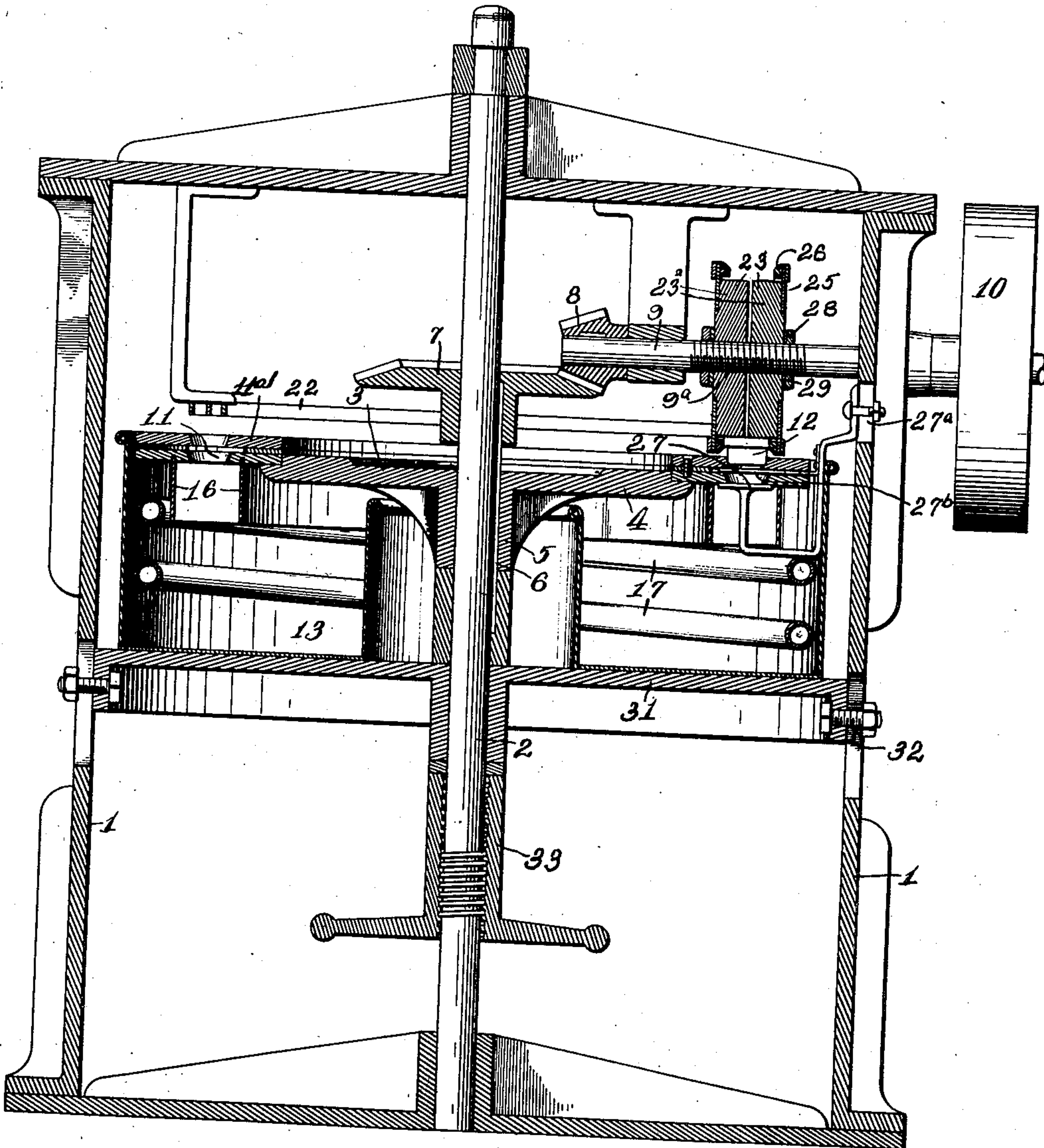
No. 861,333.

PATENTED JULY 30, 1907.

J. C. THOM.
COATING MACHINE.
APPLICATION FILED OCT. 13, 1906.

3 SHEETS—SHEET 1.

Fig 1



Witnesses
H. A. Robinson
J. M. Stucker

Inventor
James C. Thom
By Eugene Cushman & Co.
Attorneys

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3 SHEETS—SHEET 2.

Fig 7

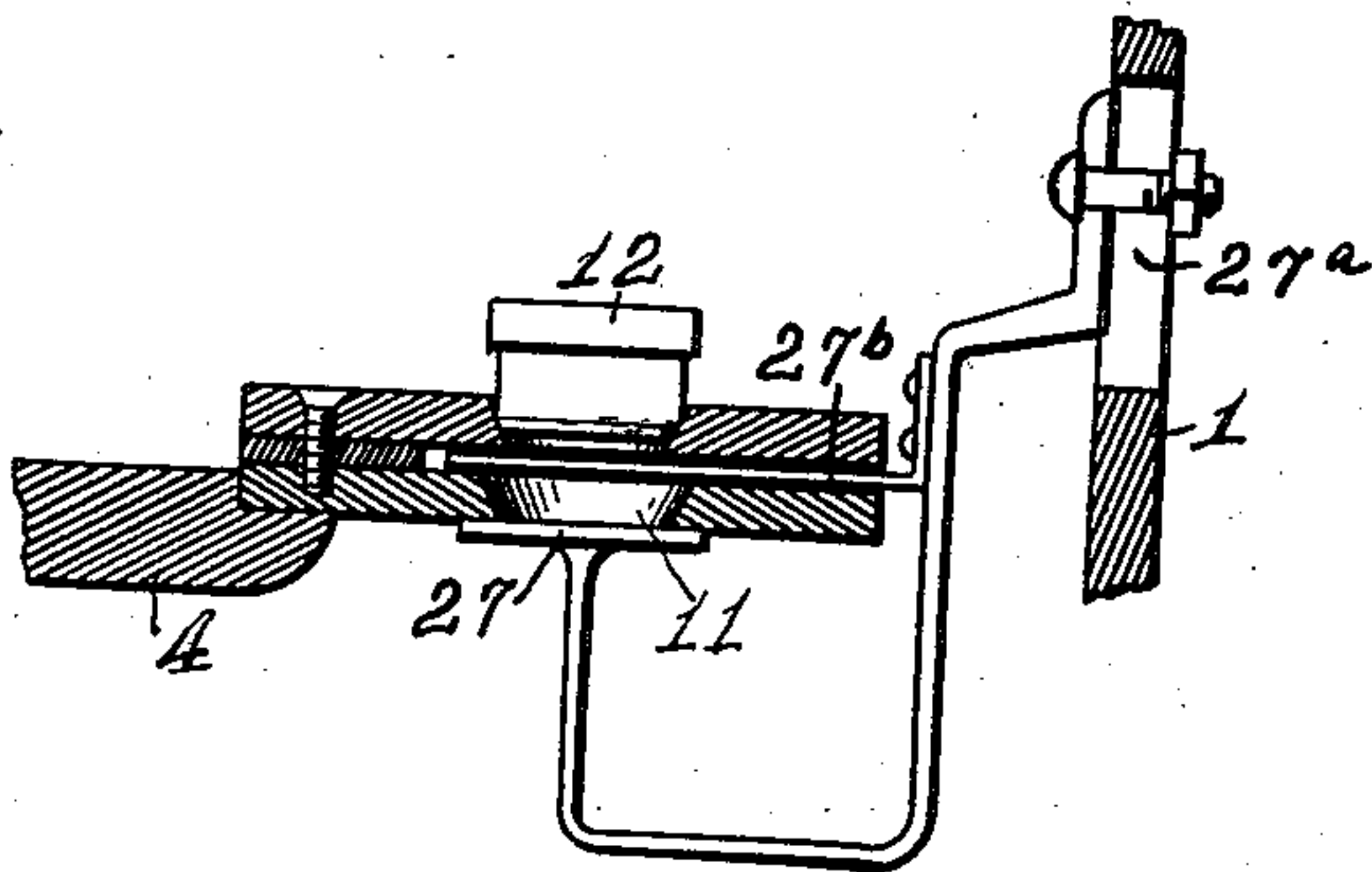
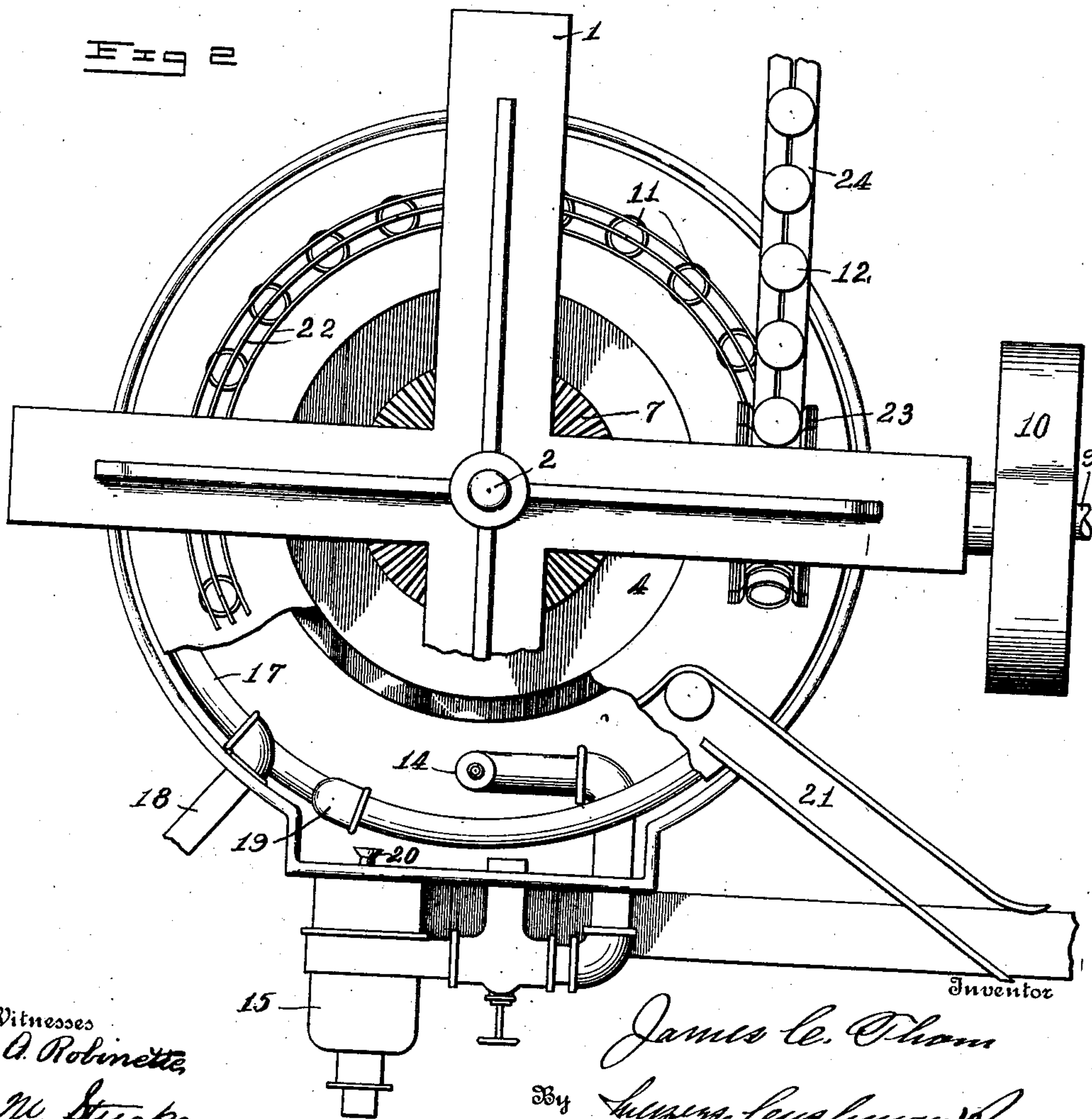


Fig 2



Witnesses
H. A. Robinette
G. W. Stucker.

Inventor
James C. Thom
By *Supers. Leachman & Co*
Attorneys

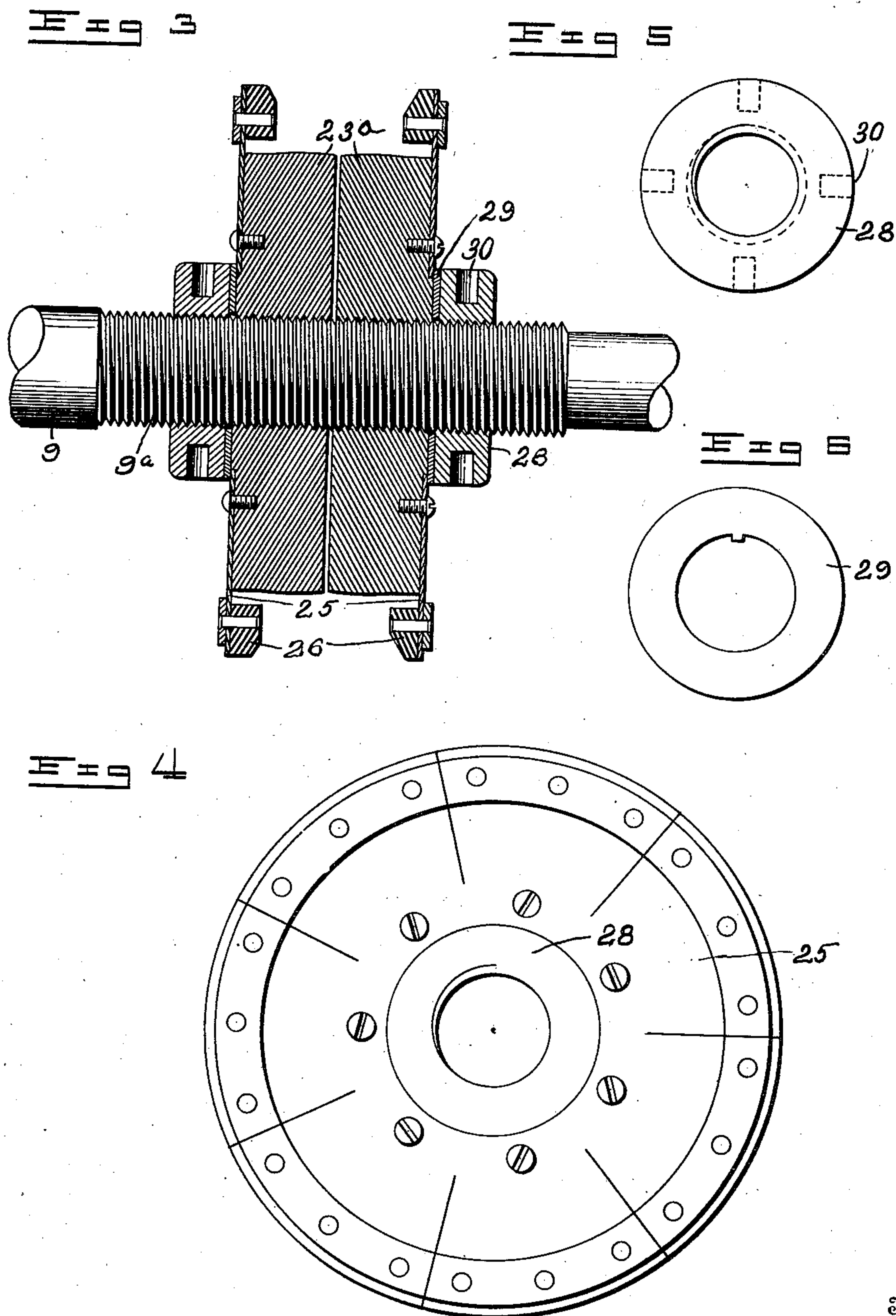
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3 SHEETS—SHEET 3.



Witnesses
H. A. Robinette

J. M. Stuckey

By

Inventor
James C. Thom

Sneyers, Lullman & Co.

Attorneys

UNITED STATES PATENT OFFICE.

JAMES CRAWFORD THOM, OF HELMETTA, NEW JERSEY, ASSIGNOR TO AMERICAN SNUFF COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

COATING-MACHINE.

No. 861,333.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed October 13, 1906. Serial No. 338,771.

To all whom it may concern:

Be it known that I, JAMES CRAWFORD THOM, a citizen of the United States, residing at Helmetta, in the county of Middlesex and State of New Jersey, have
5 invented new and useful Improvements in Coating-Machines, of which the following is a specification.

My invention relates to improvements in paraffining machines or mechanism, and as illustrated in the accompanying drawings, is designed more particularly
10 for paraffining the interior walls and bottom of receptacles, such as paper-board boxes.

In the industrial arts where goods are to be packed for storage or shipment and it is desired that same shall be kept perfectly dry or shall retain an intended degree of moisture and exclude accretion of moisture,
15 and at the same time have an economical container, as exemplified for instance in the commercial putting up of snuff, it is proposed to pack snuff in a paper-board box interiorly paraffined, the paraffin coating
20 serving to hold the normal moistened condition of the snuff and to exclude moisture accretion.

While I have stated the foregoing as an index to one practical utility and value of my hereinafter described invention, it will be understood, of course, that it is
25 merely indicative and that my invention is concerned with the new means and manner of applying a paraffin or other coating to articles of different description.

The invention has for its further object improved
30 mechanism or means whereby the articles to be coated are passed through the apparatus and automatically and in sequence removed therefrom.

Furthermore the invention has to do with capacities of adjustment for purposes which will be set forth.

35 With these objects in view the invention resides in a means, machine or mechanism involving the features hereinafter set forth.

That which is regarded as new will be set forth in the several claims appended to the description.

40 In the accompanying drawings illustrating, as the statute requires, that which I regard as the best known embodiment of my invention, Figure 1, is a vertical sectional view, Fig. 2, a plan, part being broken away to expose interior arrangement. Fig. 3, is a central
45 sectional view of the discharging element illustrating the adjustability thereof. Fig. 4, a side elevation of said discharging element. Fig. 5, an elevation of one of the lock nuts for confining the members of the discharging element in adjusted position. Fig. 6, a similar view of a washer interposed between the lock nut
50 and the discharging element. Fig. 7, is a detail showing main and supplemental carrier plates, and main and auxiliary shelves combined therewith.

In the said drawings the reference 1 designates a

suitable frame work or support and 2 a rotary spindle
centrally disposed therein. Arranged on said spindle
and keyed thereto to rotate therewith is an annular carrier 3, preferably, as shown, consisting of a web 4, having a sleeve 5 keyed by a feather 6 or in other suitable
manner to the spindle 2, the carrier 3 being suitably
60 attached to the web. The spindle 2 and the carrier 3 may be rotated in any suitable manner, one example of which is shown, consisting of a spur-gear 7 rigidly connected with the spindle 2, in mesh with a spur-pinion 8, connected with a shaft 9 having a driving-pulley
65 10 driven from any suitable source of power. In this or other suitable way the carrier, in the particular embodiment of invention shown, is caused to rotate continuously and in a constant plane.

The carrier 3 is provided with a series of openings 11
70 adapted to accommodate the article to be paraffined, in the example illustrated such article consisting of a box or like receptacle 12 which is to be interiorly coated with paraffin. Disposed beneath the carrier is a tank 13 common to the several openings 11 of the carrier 3, with which said openings are normally in communication, and which is intended to receive the surplus
75 paraffin discharged from a nozzle 14, which is disposed within said tank and discharges upwardly through the openings 11, projecting paraffin against the surface of
80 the article to be coated therewith, in the illustrated instance as before stated such article being a box or like receptacle.

The paraffin, in a practically fluid state, is forced
by a suitable pump or other means 15, to and through
85 the nozzle and into and through the perforations in the carrier against the article to be coated. The projection of the paraffin in the particular example of invention shown is continuous and as the several article-covered openings pass the nozzle a supply of
90 paraffin is projected there against. The surplus paraffin; that is to say, all that supply of paraffin in excess of that sufficient to coat the article as the perforations pass the nozzle, strikes against the imperforate portions of the carrier and drops back into the
95 tank. To perform this most effectively the carrier is provided with a channel consisting of two annular depending flanges 16 defining an annular chamber in communication with the tank and the walls of which, consisting of said depending flanges, confine the spurt
100 of the coating and direct the surplus back into the tank. The provision of a continuously rotating carrier, the series of article-openings of which are in communication with the tank enables the articles to be coated quickly, in succession, by continuously operating means for applying the coating, the surplus coating material draining back into the tank. The tank, in order that it may be adequately heated to

maintain in a liquid state the surplus thus delivered thereunto, is provided with a heating-coil, 17 preferably a steam heating-coil, arranged therein, and through which steam is delivered from a source of supply at 18 and discharged or exhausted at 19. The surplus paraffin is thus maintained in a sufficiently liquid state to be withdrawn from the tank through a suction-end 20 of the pump 15 from whence it may be conveyed to a source of paraffin supply or immediately repumped through the nozzle. This manner of supply of paraffin and taking care of the overplus thereof is regarded as a valuable attribute of the apparatus of my invention, but to which in its broader aspects said invention is not limited.

The mechanism shown in the drawing is particularly adapted to coat the interior of boxes or like receptacles and is shaped accordingly. When articles of other type are to be coated the parts will be made and arranged in proper manner to accommodate the same. The articles may be conveyed to the apparatus in any suitable manner, by hand or automatically, through a chute 21 which guides the same into the line of the traveling series of openings in the carrier 3. As the several openings pass beneath the successively-fed articles the latter drop thereinto and are carried thereby over and past the paraffin discharge nozzle which discharges the paraffin thereagainst, coating the same.

As the articles to be coated cover the paraffin openings they are held, by a common holder, in such position to travel with the carrier over and past the paraffin-discharge nozzle. In the particular example of invention the said paraffin openings are frusto-conical and particularly adapted to receive the mouth rim of boxes which are fed thereto in inverted position. This conical formation of the openings serves not only to support the articles, preventing the same from dropping through the perforations or openings, but also, in cooperation with the hereinafter-described presser-element, to shape and gage the exterior wall of the mouth of the box to bring it to a standard size and configuration to receive a standard form of cover. Preferably, and as more particularly designed in respect of a mechanism organized to coat the interior of boxes and the like, a presser-element is provided to hold the boxes down into or over the paraffin openings especially while being subjected to the upward projection of paraffin and while traveling to a point of discharge hereinafter referred to. This pressure-element is shown as consisting of a segmental rail 22, reaching from the point of reception to the point of discharge of the articles, and is so disposed and proportioned that it will hold the articles in proper position. When the articles to be paraffined are boxes the mouth walls of which are to be standardized, the receiving end of the pressure-element is flared so that the inverted box or receptacle passing thereunder is gradually pressed into and shaped by the conical opening. When the articles to be coated with paraffin are of other type the holding or pressing means may be modified accordingly within the skill of the mechanic.

After the paraffin has been injected or projected into or against the article the latter is transferred by the

carrier 3 beneath the pressure-element, (affording time for excess coating to drip back into the tank and at least to partially set) to a point of discharge, where, by a discharge element it is lifted out of or from or from over the paraffin-openings and delivered onto a receiving apparatus shown as a travel-belt 24. This discharge element consists, preferably, of a wheel 23 rotating in harmony with and in a plane at an angle to the plane of rotation of the carrier and is provided with a series of spring arms 25 which during the rotation of the discharge-element pass about and embrace the article to be delivered, the said arms being so disposed with relation to each other that they will hug the article closely, yielding to receive the same, yet taking a firm hold thereof to lift the article out of the paraffin-opening of the carrier. The free ends of the arms 25 comprised in the discharge-element may be provided with engaging-members of suitable, yielding, frictional material, 26 such as rubber, felt or the like, to avoid possible injury to the articles being removed. This discharge-element is mounted on shaft 9 and arranged coincident with the path of movement of the paraffin-openings and the articles associated therewith, so that as the articles come within the sphere of action of the discharge-element they are taken care of thereby, removed from the carrier, and delivered onto the conveyer 24, to be then delivered at any suitable point, either to a bin or receptacle or to a mechanism intended to subsequently deal therewith for any purpose.

Arranged beneath the carrier 3 in line with the discharge-element 23 is a shelf 27, which supports the articles from being pushed down through the openings 11 under the action of the discharge element when engaging the article to discharge it, as described. This shelf is adjustably connected to the machine-frame 1 in any suitable manner, as by a slot and screw connection 27^a, so that it may be adjusted to conform to the adjusted position of the carrier 3. When a supplemental carrier as 11^a is employed for the purpose to be stated, an auxiliary shelf 27^b is interposed beneath the same. The shelf 27^b may be connected to the shelf 27 in any suitable manner.

It is contemplated, within the scope of my invention, that the apparatus shall be flexible to accommodate articles of different proportions. In the design shown in the drawing the paraffin openings are circular to accommodate circular articles, obviously they may be of different configuration; and to accord with this adaptability the discharge-element is also adjustable to receive articles of different proportions. In the example shown the discharge-element or wheel is composed of two members adjustable toward and from each other on the shaft 9 and held by lock nuts 28 in the position to which they may be adjusted to take care of the articles being coated. A convenient manner of accomplishing this flexibility of capacity is illustrated, the carrier being provided with openings designed to accommodate articles of maximum proportion. Upon this primary carrier may be superimposed another or other carriers 11^a provided with series of perforations of a different proportion, such supplementary carriers being provided with suitable means for connecting with the primary carrier and the latter having complementary means to receive such connecting means.

Preferably the auxiliary or supplementary carriers are constructed in sections so that they may be readily fitted to the primary carrier.

The adjustability of the discharge-element, in the preferred type of construction illustrated in the drawing, is attained by constructing the same of two members 23^a in adjustable screw-threaded engagement with a screw threaded section 9^a of the shaft 9. By turning the members properly they may be adjusted to and from each other to just the degree required to properly engage and remove the articles from the carrier.

The sections are held in adjusted position by means of the lock nuts 28, washers 29 being interposed between said lock nuts and the sections of the discharge-element as shown, said washers being keyed to shaft 9 by means of a key or feather 29^a.

The lock nuts, for facilitating the manipulation thereof, may be provided with spanner sockets 30 to receive a spanner tool.

As boxes having different cross-sectional proportions ordinarily have, or at least may have, correspondingly different depth from base to mouth my invention is designed to compensate for different depths of articles reckoned from the point of contact with the pressure-element to the carrier or supplemental carrier. For this purpose, in the particular example of invention shown, the carrier and the paraffin tank are adjustable to and from the presser-guide-rail 22, being supported upon an elevator 31 loosely sleeved to the rotary spindle 2. The elevator is guided and steadied by a slot and pin connection 32 with the standard of the frame 1 and is lifted, as shown, by means of a jack 33 having screw-threaded engagement with the lower end of the spindle 2, by rotation of which jack the elevator and the elements supported thereby may be lifted until the carrier is positioned in any desired proximity to the presser-rail and the discharge wheel.

In the foregoing description I have, for purposes of explanation of my invention, referred chiefly to coating articles with paraffin. Obviously, however, other coating material may be utilized. In fact I claim the mechanism of my invention and the characteristic mode of operation thereof, for all the purposes for which the same is capable.

I believe a machine embodying my invention, in which the carrier and discharge element rotate continuously and the coating material is continuously discharged, realizes the best results because of rapidity; I wish it understood, however, that my invention in other aspects is not restricted to such continuous operation and that such mode of operation is not material to the several claims, except where the same is particularly mentioned therein, and then only for purposes of those particular claims.

Having thus described my invention, what I claim is:—

1. In a machine for applying coating to articles, the combination with a carrier provided with an opening to accommodate the article to be coated, of means for continuously rotating said carrier, and continuously operating means for projecting the coating material through said opening against said article.

2. In a machine for applying coating to articles, the combination with a carrier provided with an opening to accommodate the article to be coated, of means for continuously rotating said carrier, means for maintaining said article in position with relation to said opening, and

continuously operating means for projecting coating material through said opening against said article.

3. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate a number of articles, of means for continuously rotating said carrier, and continuously operating means for projecting coating material through said openings against said articles.

4. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of means for projecting the coating material through said openings against said articles, said carrier and means for projecting coating material having a continuous inter-relative movement.

5. In a machine for coating articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of continuously operating stationary means for projecting the coating material through said openings against said articles, and means for continuously moving said carrier to present the articles in succession to the coating projector.

6. In a machine for coating articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of continuously operating stationary means for projecting the coating material through said openings against said articles, means for continuously moving said carrier to present the articles in succession to the coating projector, and means for maintaining the articles in position with relation to said openings.

7. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of continuously operating means for projecting the coating material through said openings against said articles, said carrier and means for projecting coating material having a continuous inter-relative movement, and means for maintaining said articles in position with relation to said openings.

8. In a means for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of continuously operating means for projecting coating material through said openings against said articles, said carrier and coating projector having a continuous inter-relative movement, and continuously operating means for removing said articles when coated from said carrier.

9. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of continuously operating means for projecting coating material through said openings against said articles, said carrier and coating projector having a continuous inter-relative movement, and means for removing said articles from said carrier, said carrier and removing-means having a continuous inter-relative movement.

10. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of continuously operating means for projecting coating material through said openings against said articles, means for continuously moving said carrier to present the articles successively to the action of the coating projector, and means for removing said articles from said carrier in succession after they have been coated.

11. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of continuously operating means for projecting coating material through said openings against said articles, means for continuously moving said carrier to present the articles successively to the action of the coating projector, and rotary means for removing said articles from said carrier in succession after they have been coated.

12. In a machine for coating articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of means for projecting coating material through said openings, a tank to receive surplus coating material, and a means for maintaining the coating material in said tank in a liquid state.

13. In a machine for coating articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of means for projecting coating material through said openings, a tank to receive surplus coating material, and means for heating said material in said tank. 5
14. In a machine for applying coating material to articles, the combination with a continuously rotating carrier provided with a series of openings to accommodate the articles to be coated, of continuously operating means for projecting coating material through said openings against said articles, means for maintaining said articles in position with relation to said openings, a tank to receive surplus coating material, and means for removing the articles from said carrier after they have been coated. 10
15. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of continuously operating means for projecting coating material through said openings against said articles, means for maintaining said articles in position with relation to said openings, a tank to receive surplus coating material, means for rotating said carrier, and means for removing the articles from said carrier after they have been coated. 15
16. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of continuously operating means for projecting coating material through said openings against said articles, means for maintaining said articles in position with relation to said openings, a tank to receive surplus coating material, means for rotating said carrier, and rotary means for removing the articles from said carrier after they have been coated. 20
17. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of means for projecting coating material through said openings against said article, and a discharge element provided with yielding or spring-arms to remove said article from the carrier after the same has been coated. 25
18. In a machine for applying coating to articles, the combination with a rotary carrier provided with a series of openings to accommodate the article to be coated, of means for projecting coating material through said openings against said article, and a discharge element provided with yielding or spring-arms to remove said article from the carrier after the same has been coated. 30
19. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the article to be coated, of means for projecting coating material through said openings against said articles, a discharge element provided with yielding or spring-arms to remove said articles from the carrier after the same have been coated, and means for rotating said carrier to transfer the articles from the point of coating to the point of discharge. 35
20. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of means for projecting coating material through said openings against said articles, a discharge element provided with yielding or spring-arms to remove said articles from the carrier after the same have been coated, and means for rotating said carrier to transfer the articles from the point of coating to the point of discharge. 40
21. In a machine for applying coating to articles, the combination with a rotary support or carrier for the articles, means for continuously rotating said support or carrier, means for projecting coating material against said articles, and rotary means operating at an angle to the plane of rotation of the support or carrier for removing the articles from the carrier after they have been coated. 45
22. In a machine for applying coating to articles, the combination with a rotary support or carrier for the articles, of means for projecting coating material against said articles, and rotary means operating at an angle to the carrier for removing the articles from the carrier after they have been coated. 50
23. In a machine for applying coating to articles, the combination with a carrier mounted to rotate in a constant plane and provided with a series of openings to accommodate a number of articles, means for rotating said carrier, and means for projecting coating material through said openings against said articles. 55
24. In a machine for applying coating to articles, the combination with a carrier mounted to rotate in a constant plane and provided with a series of openings to accommodate a number of articles, means for rotating said carrier, and stationary means for projecting coating material through said openings. 60
25. In a machine for applying coating to articles, the combination with a carrier mounted to rotate in a constant plane and provided with a series of openings to accommodate a number of articles, means for rotating said carrier, and means for removing said articles when coated. 65
26. In a machine for applying coating to articles, the combination with a carrier mounted to rotate in a constant plane and provided with a series of openings to accommodate a number of articles, means for rotating said carrier, and rotary means for removing said articles. 70
27. In a machine for applying coating to articles, the combination with a rotary carrier provided with a series of openings to accommodate a number of articles to be coated, means for projecting coating material through said openings against said articles, and stationary means for holding said articles in proper relation to said openings while being coated. 75
28. In a machine for applying coating to articles, the combination with a rotary carrier provided with a series of openings to accommodate a number of articles to be coated, means for projecting coating material through said openings against said articles, and a rail for holding said articles in proper relation to the openings in the carrier when being coated. 80
29. In a machine for applying coating to articles, the combination with a rotary carrier provided with a series of openings to accommodate a number of articles to be coated, means for projecting coating material through said openings against said articles, a rail for holding said articles in proper relation to the openings in the carrier when being coated, and means for adjusting said carrier with relation to said rail. 85
30. In a machine for applying coating to articles, the combination with a rotary carrier provided with a series of openings to accommodate a number of articles to be coated, means for projecting coating material through said openings against said articles, and a rail for holding said articles in proper relation to the openings in the carrier when being coated, and means for adjusting the interrelation of said carrier and rail. 90
31. In a machine for applying coating to articles, the combination with a tank, means for applying coating material located in said tank, a carrier for the articles to be coated having a series of openings in communication with said tank, and means for causing a relative movement between said means for applying coating material and said carrier. 95
32. In a machine for applying coating to articles, the combination with a tank, means for applying coating material located in said tank, a carrier for the articles to be coated having a series of openings in communication with said tank, means for causing a relative movement between said means for applying coating material and said carrier, and stationary means for holding the articles in proper relation to the openings in the carrier when being coated. 100
33. In a machine for applying coating to articles, the combination with a tank, means for applying coating material arranged in said tank, a rotary carrier provided with a series of openings in communication with said tank, and means for rotating the said carrier to present the openings thereof in succession across the path of discharge of the coating material. 105
34. In a machine for applying coating to articles, the combination with a tank, means for applying coating material arranged in said tank, a rotary carrier provided with a series of openings in communication with said tank, means for rotating the carrier to present the openings thereof in succession across the path of discharge of the coating material, and means common to the articles to be 110

means for varying the dimensions of said openings, means for projecting coating material through said openings against said articles, adjustable means for removing said articles from said carrier, and means for adjusting the position of said carrier with relation to said removing-means. 85

46. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of means for varying the dimensions of said openings, means for projecting coating material through said openings against said articles, means for removing said articles from said carrier comprising members adjustable toward and from each other, and means for adjusting the position of said carrier with relation to said removing means.

47. In a machine for applying coating to articles, the combination with a series of openings to accommodate the articles to be coated, of means for varying the dimensions of said openings, means for projecting coating material through said openings against said articles, adjustable means for removing said articles from said carrier, means for adjusting the position of said carrier with relation to said removing means, means for maintaining the position of said articles with relation to said openings, and means for adjusting said carrier with relation to said article-holding and removing means.

48. In a machine for applying coating to articles, the combination with a series of openings to accommodate the articles to be coated, of means for varying the dimensions of said openings, means for projecting coating material through said openings against said articles, means for removing said articles from said carrier comprising members adjustable toward and from each other, means for adjusting the position of said carrier with relation to said removing means, means for maintaining the position of said articles with relation to said openings, and means for adjusting said carrier with relation to said article-holding and removing means.

49. In a machine for coating articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of means for projecting coating material through said openings against said articles, means for rotating said carrier, means for removing the articles from said carrier comprising opposed spring-arms, and means for operating the article-removing means.

50. In a machine for coating articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of means for projecting coating material through said openings and against said articles, means for rotating the carrier to present the articles in succession to the coating projector, means for removing the articles from the carrier after they have been coated, means for adjusting the dimensions of the openings in the carrier, means for adjusting the elements of the article-removing means, and means for adjusting the carrier with relation to the article-removing means.

51. In a machine for coating articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of means for projecting coating material through said openings and against said articles, means for rotating the carrier to present the articles in succession to the coating projector, means for removing the articles from the carrier after they have been coated comprising members adjustable to and from each other, means for adjusting the dimensions of the openings in the carrier, means for adjusting the elements of the article-removing means, and means for adjusting the carrier with relation to the article-removing means.

52. In a machine for coating articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of means for projecting coating material through said openings against said articles, means for rotating the carrier to present the articles in succession to the coating projector, means for removing the articles from the carrier after they have been coated, means for adjusting the dimensions of the openings in the carrier, means for adjusting the elements of the article-removing means, means for adjusting the carrier with relation to the article-removing means, and means for

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in the carrier, means for adjusting the elements of the article-removing means, means for adjusting the carrier with relation to the article-removing means, and means for 16

45. In a machine for applying coating to articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of

maintaining the articles in position with relation to said openings.

53. In a machine for coating articles, the combination with a carrier provided with a series of openings to accommodate the articles to be coated, of means for projecting coating material through said openings against said articles, means for rotating the carrier to present the articles in succession to the coating projector, means for removing the articles from the carrier after they have been coated comprising members adjustable to and from each other, means for adjusting the dimensions of the openings in the carrier, means for adjusting the elements of the article-removing means, means for adjusting the carrier with relation to the article-removing means, and means for maintaining the articles in position with relation to said openings.

54. In a machine for applying coating to articles, the combination with a carrier having a frusto-conical opening to accommodate the article to be coated, of means for pressing said article into said opening to standardize the shape and proportions thereof, and means for projecting coating material through said opening against said article.

55. In a machine for applying coating to articles, the combination with a rotary carrier provided with a series of frusto-conical openings, of means for projecting coating material through said openings against said articles, means for pressing said articles into said openings to standardize the shape and proportions thereof, and means for rotating said carrier with relation to the coating projector and pressure-means.

56. In a machine for applying coating to articles, the combination with a rotary carrier provided with a series of frusto-conical openings, of means for projecting coating material through said openings against said articles, means for pressing said articles into said openings to standardize the shape and proportions thereof, means for rotating said carrier with relation to the coating projector and pressure-means, and means for removing the articles from the carrier after they have been coated.

57. In a machine for applying coating to articles, the combination with a rotary carrier provided with a series of frusto-conical openings, of means for projecting coating material through said openings against said articles, means for pressing said articles into said openings to standardize the shape and proportions thereof, means for rotating said carrier with relation to the coating projector and pressure-means, and means for removing the articles from the carrier after they have been coated.

58. In a machine for applying coating to articles, the combination of a carrier for the articles, of means for projecting the coating material against said articles, means for removing the articles from the carrier after they have been coated, and means for preventing displacement of said articles while being engaged by said removing means.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES CRAWFORD THOM.

Witnesses:

P. HENRY CORBETT,
A. G. HOADLEY.