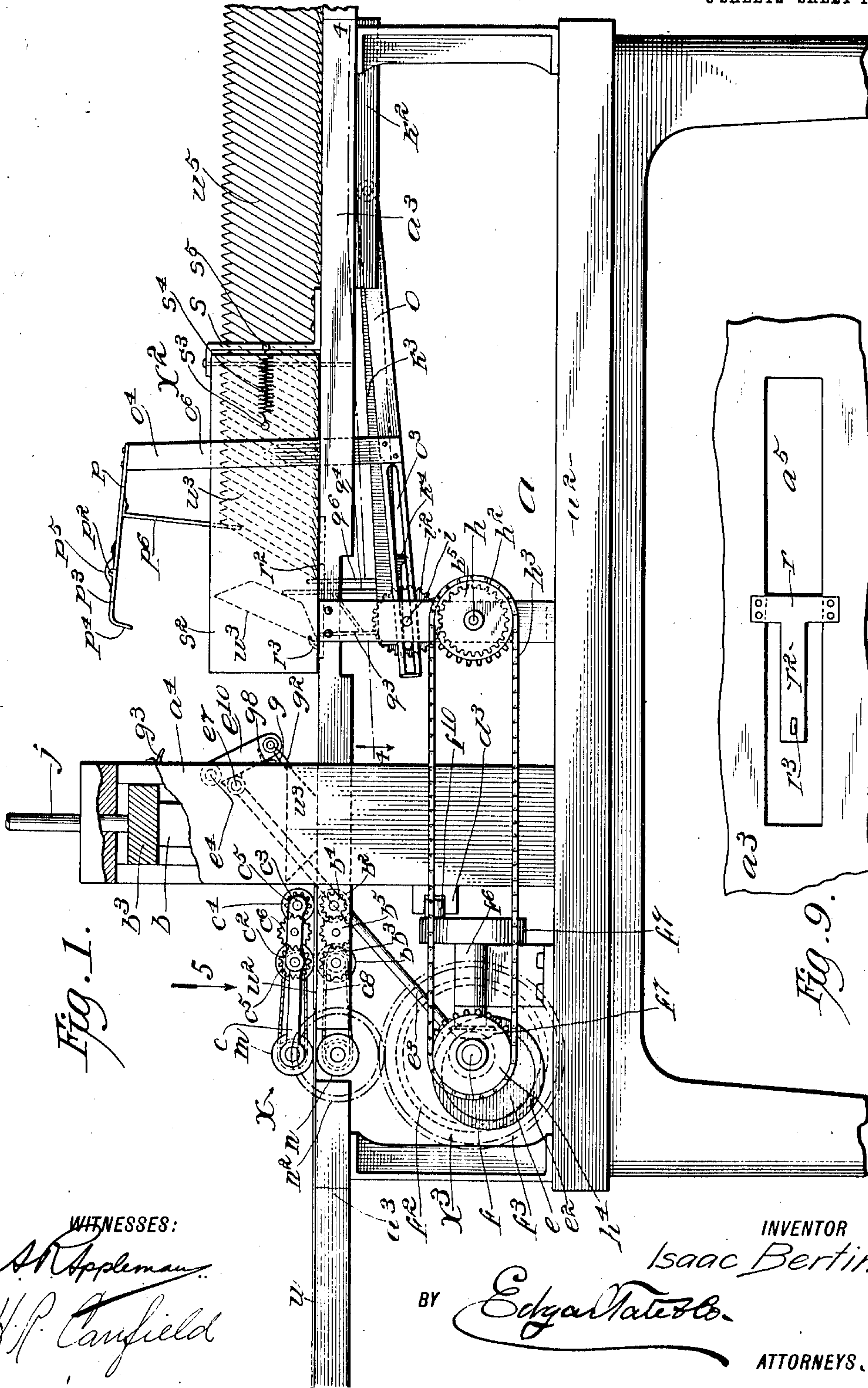


I. BERTIN.  
MACHINE FOR MAKING PAPER DISHES.  
APPLICATION FILED JUNE 15, 1909.

970,168.

Patented Sept. 13, 1910.

3 SHEETS—SHEET 1.



WITNESSES:  
*A. Appleman*  
*H. P. Canfield*

INVENTOR  
*Isaac Bertin*  
BY *Edgar Tate & Co.*  
ATTORNEYS.

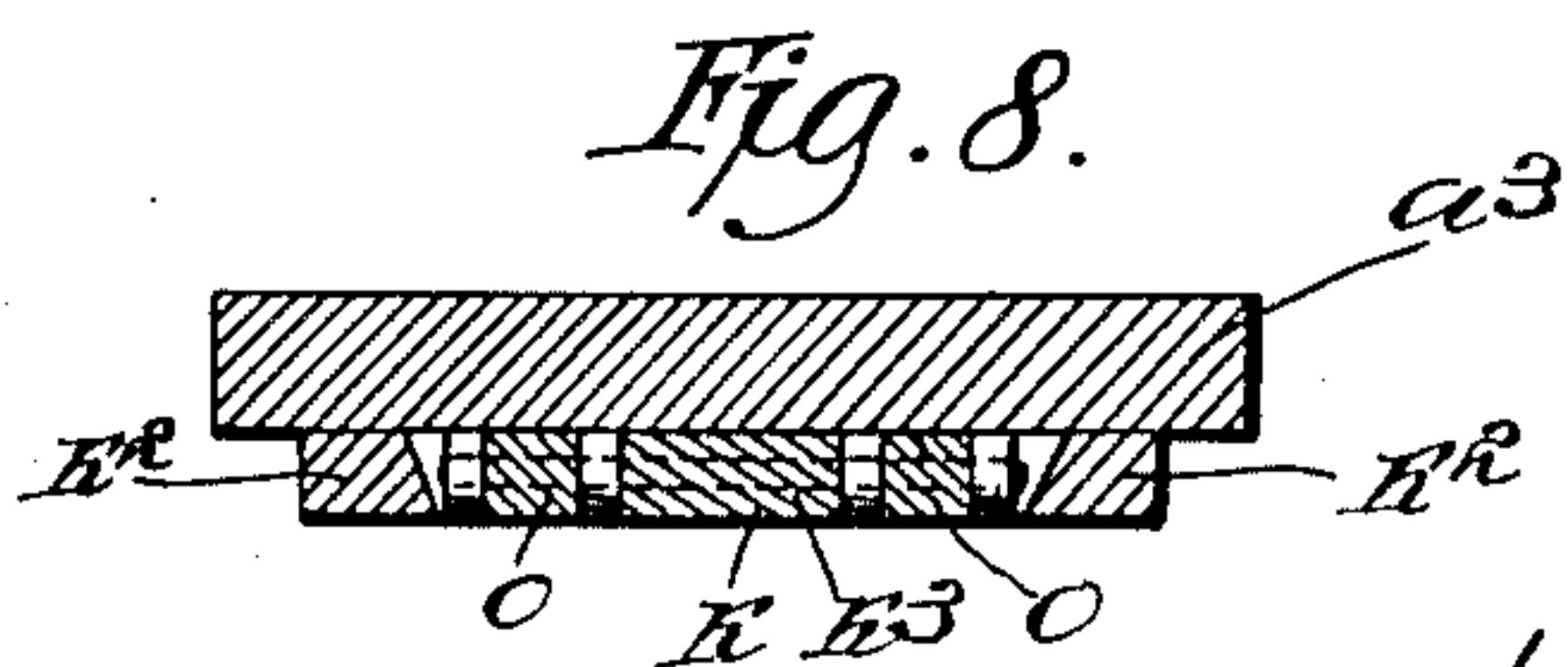
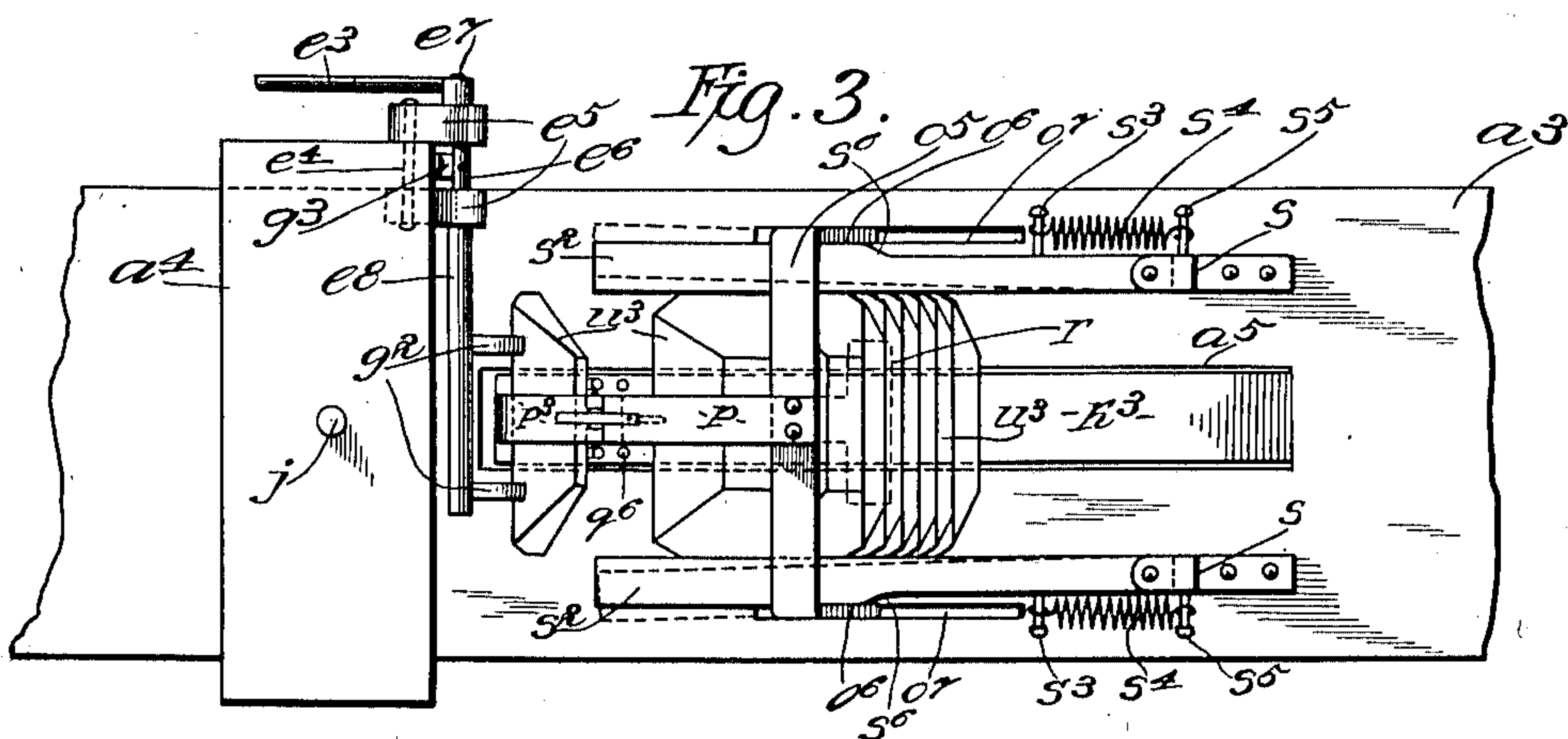
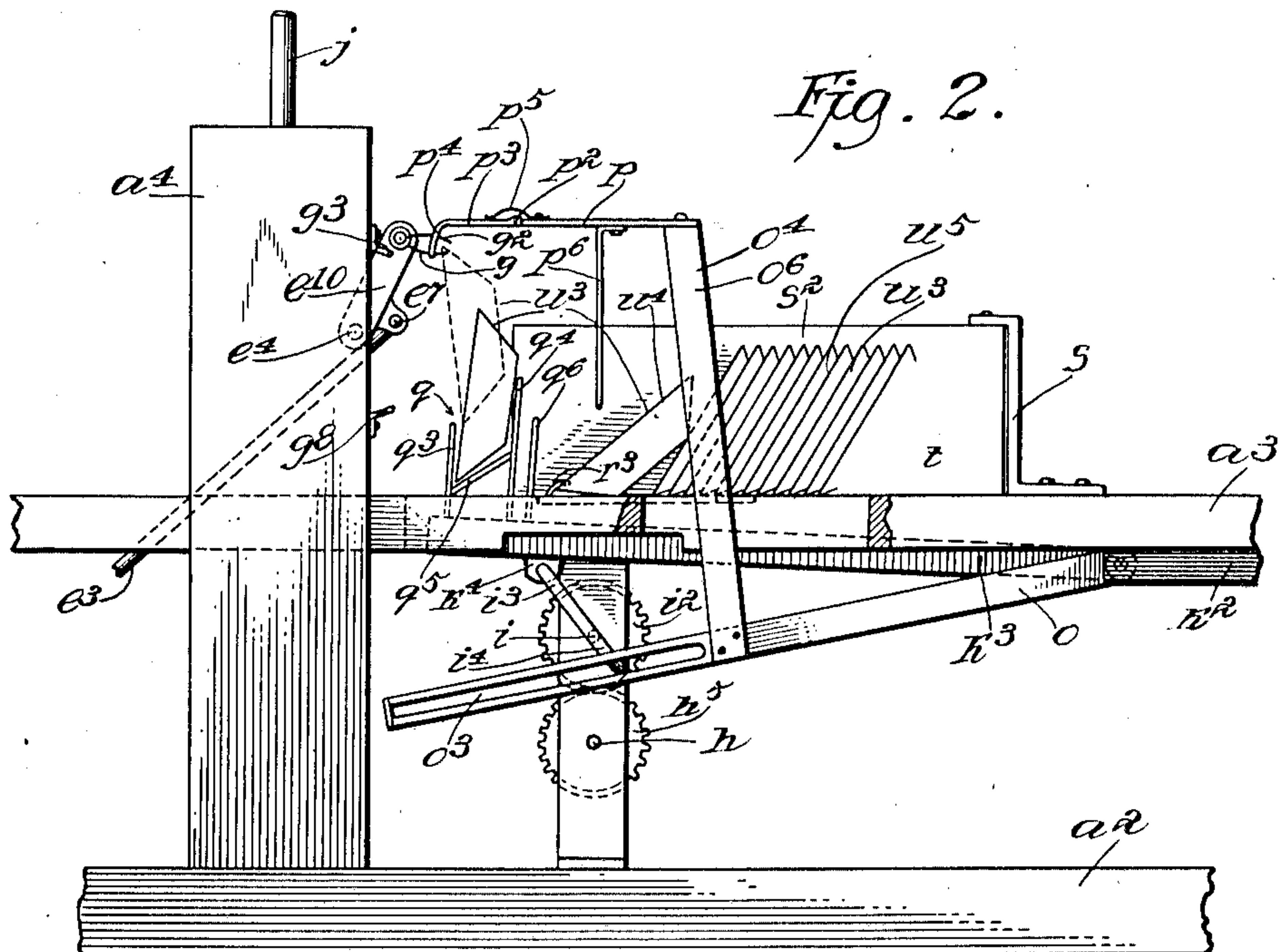
### MACHINE FOR MAKING PAPER DISHES.

APPLICATION FILED JUNE 15, 1909.

Patented Sept. 13, 1910.

3 SHEETS—SHEET 2.

**970,168.**



**WITNESSES:**

A. R. Appleman  
W. P. Canfield

**INVENTOR**

Isaac Bertin

**BY**

Edgar Tate Esq.

**ATTORNEYS.**







# UNITED STATES PATENT OFFICE.

ISAAC BERTIN, OF NEW YORK, N. Y.

MACHINE FOR MAKING PAPER DISHES.

970,168.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed June 15, 1909. Serial No. 502,199.

*To all whom it may concern:*

Be it known that I, ISAAC BERTIN, a subject of the Czar of Russia, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machines for Making Paper Dishes, of which the following is a specification such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to machines for making paper dishes such as are shown and described in U. S. Letters Patent No. 846,975, granted to me March 12, 1907; and particularly to machines of this class similar to that described and claimed in Letters Patent of the United States granted to me Nov. 9, 1909, No. 939,888, and the object of this invention is to improve the mechanism described and claimed in said application for feeding the paper into the machine and the mechanism for delivering the completed paper dishes from the machine; and with this object in view the invention consists in the construction, combination and arrangement of parts hereinafter described and claimed.

In the drawings forming part of this application I have shown only such parts of the machine described and claimed in my said prior patent as are necessary to illustrate the improvements which form the basis of this application, and the invention described and claimed herein is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which;—

Figure 1 is a partial side view of my improved machine, Fig. 2 a similar view of that part which shows the means for delivering the completed dishes from the machine and showing the parts in a different position, with part of the construction broken away or in section, Fig. 3 is a plan view of the construction shown in Fig. 2, Fig. 4 a partial horizontal section on the line 4—4 of Fig. 1 with parts omitted, Fig. 5 a plan view of that part of the construction by which the paper is fed into the machine and indicated by the arrow 5 of Fig. 1, Fig. 6 a view similar to Fig. 1 but showing on an

enlarged scale part of the delivery mechanism, Fig. 7 a view looking in the direction of the arrow 7 of Fig. 6, Fig. 8 a cross section on the line 8—8 of Fig. 4, Fig. 9 a view of the delivery table or top platform of the machine which forms a part of the delivery mechanism, and;—Fig. 10 a partial section on the line 10—10 of Fig. 7.

In the accompanying drawings as hereinbefore stated, I have shown only such parts of my old machine, or that described and claimed in the patent referred to as are necessary to illustrate the construction and operation of the improvements which constitute the subject matter of this application, and in the following description the same reference characters will be employed, in as far as possible, as are employed in the specification of said patent in order that a reference thereto may fully explain my present invention and the operation thereof.

In the practice of my invention, I provide a frame  $a$  having a base member or table  $a^2$  and a top bed plate or table  $a^3$ , the front end portion of which forms a table for feeding the paper into the machine and part of the mechanism for this purpose, and the rear end portion of which forms a delivery table and part of the mechanism for nesting and delivering the completed dishes from the machine, and said frame may be supported in any desired manner, and in Fig. 1 of the accompanying drawings is shown provided with legs.

The frame  $a$  is provided with an upright portion  $a^4$  in which, in practice, the mechanism for forming the dishes is placed as shown and described in the patent hereinbefore referred to, and this mechanism is placed in said frame partially above and partially below the table  $a^3$  which is provided with an opening through which a part of the dish forming mechanism operates, all as clearly shown and described in the patent referred to, but this dish forming mechanism forms no part of this invention and only a part thereof is shown herein.

The mechanism for feeding the paper into the machine and cutting said paper transversely into sheets from which the dishes are formed and for feeding said sheets into the dish forming mechanism is placed forwardly of the upright frame member  $a^4$  and is indicated at  $b$  in Fig. 1, and the mecha-



nism for nesting and delivering the completed dishes from the machine is placed rearwardly of said upright frame member and is indicated at  $x^2$ , while the mechanism for driving the machine or operating the parts thereof is also placed forwardly of the upright frame member  $a^4$  and below the table  $a^3$  and is indicated at  $x^3$ .

The mechanism for driving the machine or operating the parts thereof consists of a main transverse power shaft  $f$  provided with a belt wheel  $f^2$  and a large gear wheel  $f^3$  approximately one-half only of the perimeter of which is provided with teeth, and in practice the shaft  $f$  is geared in connection with a bottom plunger  $d^3$  which constitutes a part of the dish forming mechanism which is located in the frame member  $a^4$ , by means of a crank wheel  $f^9$  having a crank pin  $f^{10}$ , said crank wheel  $f^9$  being connected with a shaft  $f^8$  provided with a gear  $f^7$  which operates in connection with a corresponding gear on the shaft  $f$ .

The bottom plunger  $d^3$  forms a part of a supplemental vertically movable frame  $b$  mounted in the frame member  $a^4$ , and the top part  $b^3$  of which is provided with a stem  $j$  which passes out through the top of the frame member  $a^4$ , and the parts  $d^3$  and  $b^3$  are the only parts of the dish forming mechanism shown herein but all of said mechanism is clearly shown and described in the patent hereinbefore referred to.

The mechanism for feeding the paper into the machine and cutting said paper transversely into strips from which the dishes are formed is of the following construction. Mounted over the main power shaft  $f$  are two rollers  $m$  and  $n$ , the roller  $m$  being above the table  $a^3$ , and the roller  $n$  in said table or in the transverse opening therein, and the roller  $n$  is provided with a gear wheel  $n^2$  which meshes with the gear  $f^3$ . I have also shown at  $u$ , in Fig. 1, a sheet of paper from which the dishes are made, and in practice this paper is fed between the rollers  $m$  and  $n$ , and said rollers serve as feed rollers, and cut the paper transversely into sheets  $u^2$  and also crease said sheets so that they may be formed into dishes by the mechanism located in the part  $a^4$  of the frame, and the construction and operation of these rollers are clearly shown in the patent hereinbefore referred to.

In order to insure the proper feeding of the sheets  $u^2$  with the dish forming mechanism, I provide supplemental feeders which are of the following construction. Mounted between the roller  $n$  and the part  $a^4$  of the main frame are two rollers  $b$  and  $b^2$  provided with gears  $b^3$  and  $b^4$  between which is placed an idler gear  $b^5$ , and mounted on the trunnions or the ends of the shaft of the roller  $m$  are links  $c$  in which is

mounted a roller  $c^2$  adapted to rest on the table  $a^3$  or on the sheets  $u^2$  of paper, and mounted on the trunnions or the ends of the shaft of the roller  $c^2$  are links  $c^3$  in which is mounted another roller  $c^4$  also adapted to rest on the table  $a^3$  or on the sheet  $u^2$  of paper, and the rollers  $c^2$  and  $c^4$  are provided with gears  $c^5$  between which is placed another idler gear  $c^6$ , and the rollers  $m$  and  $c^2$  are geared in connection by a chain or similar device  $c^7$ , and the rollers  $n$  and  $b$  are geared in connection by a chain or similar device  $c^8$ , and in practice the sheets  $u^2$  as they are cut from the paper strip or sheet  $u$  are fed forwardly between the rollers  $c^2$  and  $c^4$  and the rollers  $b$  and  $b^2$ , and these rollers feed the sheets  $u^2$  backwardly and evenly into the box forming mechanism and hold said sheets in proper position.

In Fig. 1 of the accompanying drawings I have indicated in dotted lines at  $u^3$  in the upright frame member a complete dish in the position it occupies when formed by the dish forming mechanism in the part  $a^4$  of the main frame, and I will now proceed to describe the delivery mechanism by which the completed dishes are taken from the part  $a^4$  of the main frame, or from the mechanism by which the dishes are formed, and deposited or nested on the rear end portion of the table of the machine. Secured to the main drive shaft  $f$  is an eccentric  $e$  on which is mounted an eccentric band  $e^2$  with which is connected an arm  $e^3$  which ranges upwardly and backwardly across one side portion of the upright frame member  $a^4$ , and passing through one of the sides of the upright frame member  $a^4$  is a pin or bolt  $e^4$  on which are mounted two link members  $e^5$  through which is passed a rod  $e^6$  with the outer end of which the arm  $e^3$  is connected at  $e^7$ . Connected with the inner link  $e^5$  is a tube  $e^8$  through which the rod  $e^6$  passes, and the tube  $e^8$  is provided with curved fingers  $g$ , and the rod  $e^6$  with correspondingly curved fingers  $g^2$  movable in transverse slots  $e^9$  in the tube  $e^8$ , this construction being clearly shown in Figs. 3, 6, 7 and 10, and also partially shown in Figs. 1 and 2. The links  $e^5$ , the pin or bolt  $e^4$  and the rod  $e^6$  constitute a frame  $e^{10}$  which is adapted to rotate in a vertical plane on said pin or bolt and the tube  $e^8$ , and the rod  $e^6$  or that part of said rod that passes through said tube constitute an arm connected with said frame.

Secured to the frame member  $a^4$  adjacent to the top thereof is a bracket arm  $g^3$ , and passing through the rod  $e^6$  is a finger  $g^4$  to which is pivoted a supplemental finger  $g^6$ , and a spiral spring  $g^5$  is placed on the finger  $g^4$  between the rod  $e^6$  and the pivot point of the finger  $g^6$ . A V-shaped stop or catch  $g^7$  is also secured to the frame  $e^{10}$  between the side members thereof and in which the fin-



ger  $g^6$  normally rests. Another bracket arm  $g^8$  is secured to the frame member  $a^4$  at a predetermined distance below the bracket arm  $g^3$ , and the bracket arms  $g^3$  and  $g^8$  operate in connection with the fingers  $g^4$  and  $g^6$  to cause the fingers  $g$  and  $g^2$  to grasp and release the dish in the operation of the machine as hereinafter described. This construction is clearly shown in Fig. 6 and a part or parts thereof are shown in other figures of the drawings.

Mounted transversely of the main frame rearwardly of the upright portion  $a^4$  thereof is a shaft  $h$  provided with a gear wheel  $h^2$  and geared in connection with the main drive shaft  $f$  by a drive chain  $h^3$ , and a gear wheel  $h^4$  on said drive shaft. Above the shaft  $h$  and parallel therewith is a crank shaft  $i$ , the left end of which is provided with a gear wheel  $i^2$  which meshes with a corresponding wheel  $h^5$  on the shaft  $h$ , and the shaft  $i$  is provided with a central crank  $i^3$  and side cranks  $i^4$ , and the crank  $i^3$ , as will be seen, is longer than the cranks  $i^4$  and has a greater throw.

Mounted beneath the rear end portion of the table  $a^3$  is a slide plate  $k$  which is mounted between two parallel guides  $k^2$ , and pivoted to the front end of the slide plate  $k$  and adapted to swing in a vertical plane is an arm  $k^3$ , and the crank  $i^3$  passes through a keeper  $k^4$  secured to the bottom of the front end portion of the arm  $k^3$ . Other arms  $o$  are pivoted to the front end of the slide plate  $k$  on the opposite sides of the arm  $k^3$ , and the front end portions thereof are parallel and set out from the arm  $k^3$  as shown at  $o^2$ , and the cranks  $i^4$  pass through slots  $o^3$  in the front end portions of the arms  $o$ , this construction being clearly shown in Figs. 1, 2 and 4.

Connected with the arms  $o$  centrally thereof is a yoke-shaped frame  $o^4$  having a top cross head portion  $o^5$ , and the side arms  $o^6$  of which pass through longitudinal slots  $o^7$  in the rear end portion of the table  $a^3$ .

Connected with the top  $a^5$  of the yoke-shaped frame  $o^4$  is a forwardly directed spring arm  $p$  which is preferably jointed at  $p^2$ , the front end portion  $p^3$  thereof being provided with a downwardly directed finger  $p^4$  and being normally held in a horizontal position by a spring  $p^5$  secured to the rear end portion of said arm  $p$ , and the rear end portion of the arm  $p$  is provided with a downwardly directed finger  $p^6$ .

Secured to the front end portion of the arm  $k^3$  is a dish receiver  $q$  consisting of two side members  $q^2$  each of which consists of front and back upright pins  $q^3$  and  $q^4$  connected by a downwardly and forwardly inclined member  $q^5$  and rearwardly of the dish receiver  $q$ , the arm  $k^3$  is also provided with two upright pins  $q^6$ .

The rear end portion of the table  $a^3$  is provided with a longitudinal opening  $a^5$  in which the arm  $k^3$  is movable and across which is secured a transverse bar  $r$  having a forwardly directed arm  $r^2$  the front end portion of which is provided with an upwardly and backwardly curved pin or hook  $r^3$ , this construction being clearly shown in Fig. 9 and shown in dotted lines in Fig. 1.

Secured to the rear end portion of the table  $a^3$  and to the opposite sides thereof are upright brackets  $s$  in which are pivoted side plates  $s^2$  which range forwardly and within the side arms  $o^6$  of the yoke-shaped frame  $o^4$ , and connected with the outer sides of the side plates  $s^2$  at  $s^3$  are spiral springs  $s^4$  which are also secured to the upright brackets  $s$  at  $s^5$ , and these springs tend to pull the side plates  $s^2$  outwardly, and said side plates are provided at their outer sides with cam surfaces  $s^6$ , and in the operation of the machine as hereinafter described the said side plates  $s^2$  are given an outward and inward movement as indicated by dotted lines in Fig. 3.

In the operation of the machine the slide plate  $k$  is given a forward or backward movement, as are also the arms  $k^3$  and  $o$  and the front end portions of the arms  $k^3$  and  $o$  in addition to being given a forward and backward movement are also given circular movements in vertical planes by the crank shaft  $i$ , and as will be understood, the yoke-shaped frame  $o^4$  has a movement which corresponds with the movement of the arms  $o$ , and the dish receiver  $q$  also has a movement which corresponds with the movement of the front end portion of the arm  $k^3$ , as does also the vertically arranged pins  $q^6$  back of the dish receiver  $q$ .

The operation will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following statement thereof.

The shaft  $f$  may be driven by any suitable power, or by hand or otherwise; and at each complete revolution of said shaft a sufficient amount of the strip  $u$  of paper is fed between the rollers  $m$  and  $n$  to form a dish, and this amount of paper, is cut from the strip  $u$  by the rollers  $m$  and  $n$  and creased so as to be folded into a dish, all as shown and described in the patent hereinbefore referred to. The sheet  $u^2$  of paper thus severed from the strip  $u$  and creased or scored as described is carried into or fed into the dish forming mechanism in the frame member  $a^4$  by the separate pairs of rollers  $c^2-c^4$ , and  $b-b^2$ . The dish is then formed from said sheet by the dish forming mechanism in the frame member  $a^4$ , at the end of which operation the dish  $u^3$  occupies the position shown in the frame member  $a^4$  in dotted lines in Fig. 1. As the shaft  $f$  continues to revolve the link members  $e^5$ , or



the frame  $e^{10}$  of which said link members form a part is thrown downwardly by the rod  $e^3$  into the position shown in Fig. 1, the fingers  $g$  and  $g^2$  grasp the edge of the dish  $u^3$  as is also indicated in Fig. 1, and as the shaft  $f$  continues to turn the rod  $e^3$  is again raised and the frame  $e^{10}$  is thrown into the position shown in Fig. 2 and the dish  $u^3$  is dropped into the dish receiver  $q$  as shown in Fig. 2 and indicated in dotted lines in Fig. 1. At this time the slide plate  $k$ , the arms  $k^3$  and  $o$  and the crank shaft  $i$  are in the position shown in Fig. 2, and at the end of the above described operation the forward end of the arm  $k^3$  moves upwardly and backwardly and downwardly and the dish  $u^3$  is dropped as shown at  $u^4$  in Fig. 2 onto the table  $a^3$  across the slot or opening  $a^5$  therein and onto the forwardly directed arm  $r^2$  of the transverse member  $r$ , and the hook or pin  $r^3$  prevents said dish from sliding forwardly, and in the next backward movement of the slide plate  $k$  and the arms  $k^3$  and  $o$ , the pins  $q^6$  engage the bottom edge of the dish and move it backwardly and as this operation is repeated the dishes  $u^3$  are nested or packed as shown at  $u^5$  on the rear end portion of the table  $a^3$  and between the side plates  $s^2$ .

In the beginning of the above described operation, a suitably formed block  $t$  may be placed on the table  $a^3$  over the slot or opening  $a^5$  and over the transverse member  $r$  against which the first dish dropped by the fingers  $g$  and  $g^2$  will be supported, and as above described, in this operation, the dishes successively drop onto the table  $a^3$  and will be nested as shown at  $u^5$  and fed backwardly, and the block  $t$  will also be moved backwardly, and as this operation continues the nested dishes will be moved backwardly until the table is entirely full, and said dishes may drop from the table into any suitable receptacle or may be removed therefrom in any desired manner.

In the above described operation, the side plates  $s^2$  between which the dishes are nested, are agitated laterally or given a lateral movement by the U-shaped frame  $o^4$ , and this facilitates the proper placing and nesting of the dishes. The finger  $p^6$  of the arm  $p$  which is connected with the U-shaped frame  $o^4$  also aids the fingers  $g^6$  which are secured to the arm  $k^3$  in moving the dishes backwardly and properly nesting them, and the finger  $p^4$  at the end of the arm  $p$  is intended to aid in detaching the dishes from the fingers  $g$  and  $g^2$  if, for any reason, there should be any halt or stoppage in the operation of said fingers as hereinbefore described.

The operation of the machine independent of the operation of the feed rollers  $c^2-c^4$  and  $b-b^2$ , and the operation of the means for nesting and delivering the dishes as

hereinbefore described is exactly the same as in the patent hereinbefore referred to. In this operation it is necessary to give the rollers  $m$  and  $n$  an intermittent movement with respect to the drive shaft  $f$ , by reason of the fact that while the mechanism in the frame member  $a^4$  is forming the dish and delivering it, the rollers  $m$  and  $n$  must remain idle or stationary, and this is accomplished by the particular construction of the gears  $f^3$  and  $n^2$  as shown and described in the patent referred to, but as the construction of these gears form no part of this invention, the said construction is not shown and described in detail herein, but is fully shown and described in the said patent.

It will be understood that the rollers  $m$  and  $n$  constitute dies as well as feed rollers, and the style of the said rollers, the method of the operation thereof, and the scoring and creasing of the sheets  $u^2$  by said rollers so as to permit the folding of said sheets into a dish are all clearly shown and described in said patent.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a machine for forming dishes from paper or similar material, a main drive shaft, a frame member adapted to receive the dish forming mechanism, an eccentric connected with said main drive shaft, a nesting and delivery mechanism arranged rearwardly of said frame member, an arm connected with said eccentric and devices connected with said frame member and with which said arm is connected for removing the dishes from the dish forming mechanism and depositing said dishes in the nesting and delivery mechanism, said devices consisting of connected side parts, a slotted tube mounted in said side parts, a rod passing through said tube and provided with a projecting finger, a corresponding finger connected with said tube and means connected with said rod and with said frame member for rotating said rod when said devices are operated by said arm.

2. In a machine for forming dishes from strips of paper or similar material, a frame adapted to receive mechanism for forming the dishes, nesting and delivery devices arranged rearwardly of said mechanism, and means for removing the dishes from the dish forming mechanism and depositing the same in the nesting and delivery devices, said nesting and delivery devices consisting of a table having a longitudinal opening therein, a slide mounted beneath the rear portion of the table, an arm pivoted to said slide and extending forwardly and adapted to operate in said opening and provided at its front end with upwardly directed dish receivers movable in said opening, a crank shaft for



operating said arm, side plates mounted  
above said table, and means whereby as the  
crank shaft is operated the said dishes will  
be successively received in the dish receiver  
5 and deposited in a nest between said side  
plates, and the said nest gradually fed back-  
wardly as the dishes are deposited therein.

In testimony that I claim the foregoing

as my invention I have signed my name in  
presence of the subscribing witnesses this 10  
14th day of June 1909.

ISAAC BERTIN.

Witnesses:

H. R. CANFIELD,  
C. E. MULREANY.