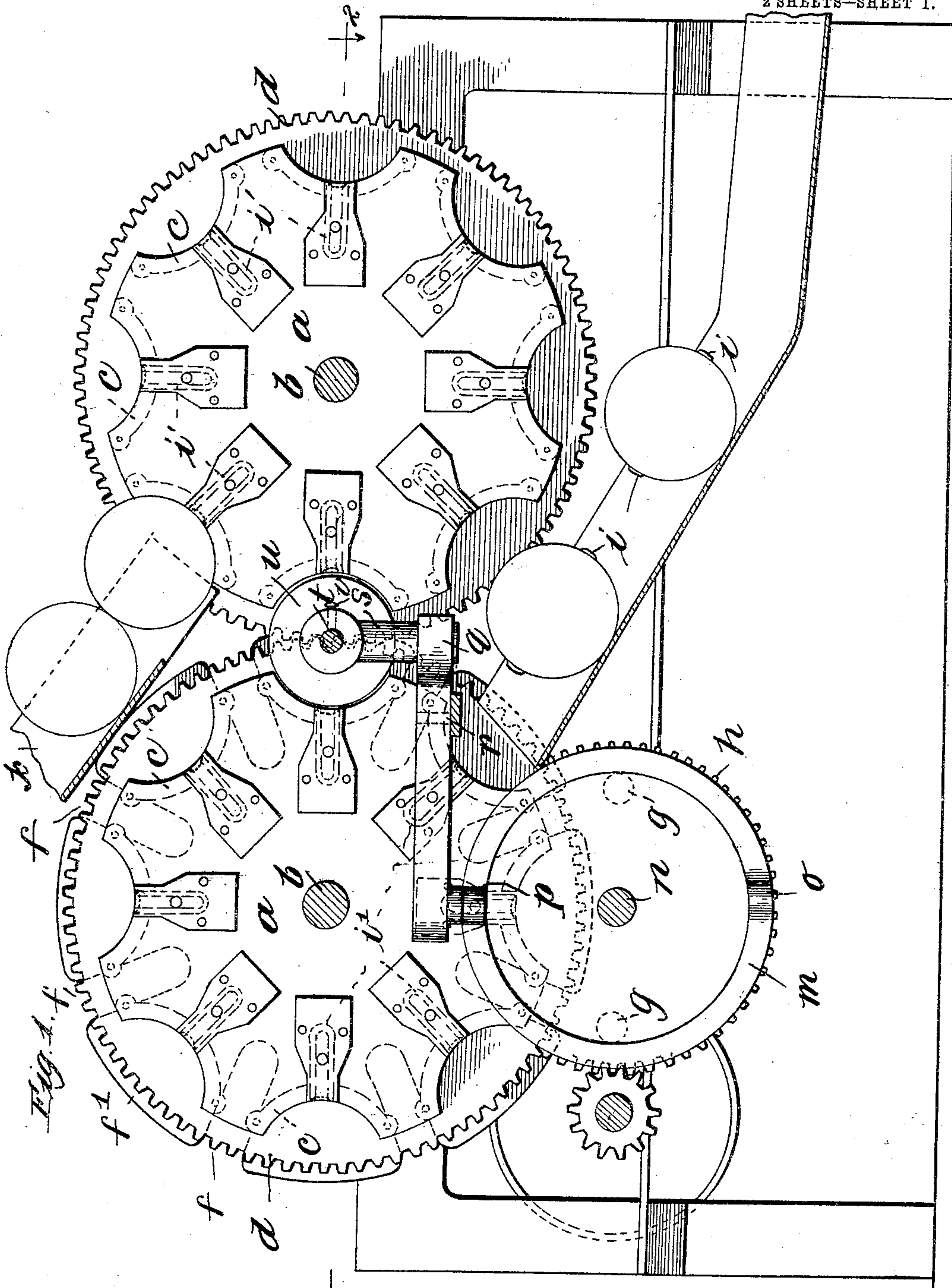


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MACHINE FOR APPLYING EARS TO PAILS.
APPLICATION FILED JAN. 11, 1909.

929,798.

Patented Aug. 3, 1909.

2 SHEETS—SHEET 1.



Witnesses:

O. A. Pauerschmitt
L. E. Stroh

Inventor

William Spain

By *H. L. Cragg* *Atty*

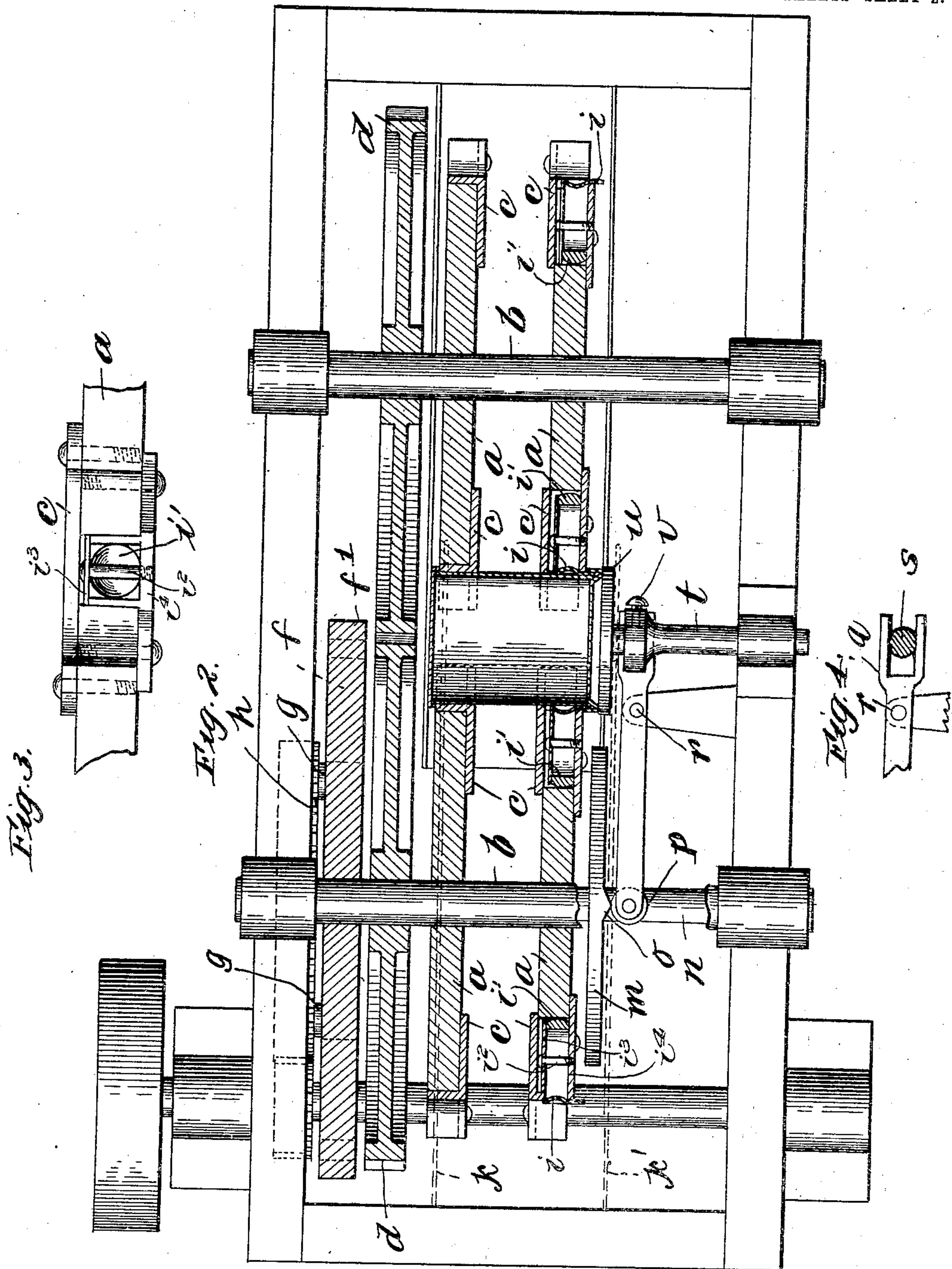
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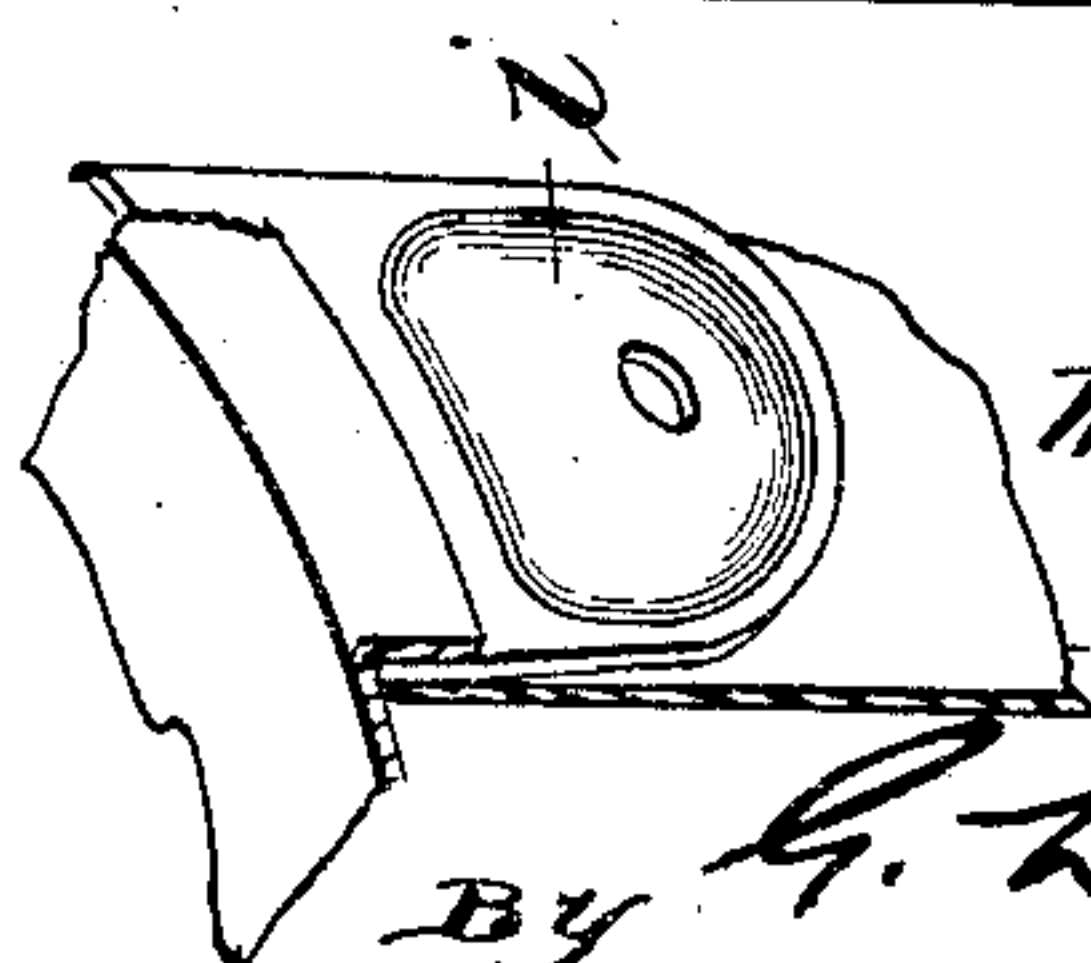
2 SHEETS—SHEET 2.



Witnesses.

O. A. Pauerschmitt
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Fig. 5.



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By G. H. Croff
Att'y

UNITED STATES PATENT OFFICE.

WILLIAM SPAIN, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO CORN PRODUCTS
REFINING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

MACHINE FOR APPLYING EARS TO PAILS.

No. 929,798.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed January 11, 1909. Serial No. 471,610.

To all whom it may concern:

Be it known that I, WILLIAM SPAIN, citizen of the United States, residing at St. Louis, State of Missouri, have invented a certain new and useful Improvement in Machines for Applying Ears to Pails, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to machines that take part in the formation of pails, and resides in a structure that is adapted to insert handle-receiving pail ears between the bodies of the pails and the covers previously placed upon said bodies.

A machine constructed in accordance with my invention, includes holding mechanism for the pail bodies, holding mechanism for the pail ears so related to the holding mechanism for the pail bodies as to occasion the insertion of the pail ears between the pail bodies and the covers thereon, when proper relative movement is occasioned between the pail bodies and pail ears.

In the preferred embodiment of the invention, I employ two drums having parallel axes, about which the drums are intermittently rotated in synchronism, said drums being provided with segmental pockets, constituting pail seats, the pockets upon each drum approaching the pockets upon the other drum, the pockets upon the drums being so arranged that each pocket upon one drum has a complemental pocket upon the other drum, which together form a substantially cylindrical pocket for holding the pail body, cylindrical pockets being successively formed and unformed as the drums rotate in opposite directions. Suitable means are provided for conveying the pail bodies, together with the covers that have been previously located thereupon, to the cylindrical pockets that are thus successively formed, the drums being momentarily held from rotation each time a cylindrical pocket is formed, in order that said pocket may hold the pail body to permit of the insertion of a pair of ears between the pail body and the cover, the holding mechanism for the ears being located in juxtaposition with the segmental pocket or seat portions provided upon the drums. After the ears have been inserted between the pail bodies and covers, the drums are rotated until a new cylindrical

pocket has been formed, whereupon the drums are again arrested from rotation, in order that the operations above generally described may be repeated with reference to a new pail body. As each cylindrical pocket is unformed, the pail, together with the ears tucked between the cover and body of the pail, is discharged from the machine and is transferred to a suitable machine, which need not be specifically described, where the pail cover, together with the ears, is soldered or otherwise secured to the pail body. Inasmuch as pails are generally formed of tinned sheet iron, I prefer to employ as a part of the holding mechanism for the ears, permanent magnets, on which the ears are placed, preferably by an attendant.

I will explain my invention more fully by reference to the accompanying drawings, showing the preferred embodiment thereof, in which—

Figure 1 is an elevation of a machine constructed in accordance with one embodiment of my invention. Fig. 2 is a sectional plan view on line 2 2 of Fig. 1. Fig. 3 is a top view showing a permanent magnet in end view and contiguous parts of a pocket or seat for a pail body. Fig. 4 is an enlarged view of a part of the structure illustrated in Fig. 2. Fig. 5 indicates a portion of a pail body and pail cover, with a pail ear interposed between the rim of the pail cover and pail body.

Like parts are indicated by similar characters of reference throughout the different figures.

Each drum is composed of two disks *a a* fixed upon a common shaft *b*, these disks having segmental recesses or seats in their peripheries which are adapted to contain blocks *c c* provided with segmental recesses having a curvature suited to the diameter of the body of the pail *d* that is to be held, these blocks *c* being desirably removably secured to the disks *a a* in order that other blocks having recesses suited to pails of other curvature or diameter may be substituted. The shafts *b* upon which the drums thus composed of the disks *a a* are mounted, are parallel with each other, the drums being adapted for rotation in the same general plane. There is fixed upon each shaft *b* a spur-gear *e*, said spur-gears being in mesh, so that the drums are rotated in opposite

directions and preferably with the tops of the drums moving toward each other. Power may be applied to one or the other of the spur-gears d , there being suitable means whereby the drums may be arrested from rotation each time a pair of blocks c upon one drum is brought into its closest relation with a companion pair of blocks c upon the other drum, whereby the composite pocket which is substantially cylindrical, is maintained a sufficient time to permit a pail body, together with its cover, to be held sufficiently long to permit of the insertion of the ears for the pail between the pail body and the cover, as will be explained. The intermittent rotation is desirably imparted to the drums by means of the well known Geneva movement, which I will only slightly describe. In the movement illustrated there are provided a number of somewhat deep pockets f in a disk f^1 fixed upon one of the shafts b , which pockets are adapted to receive rollers g provided upon a suitably driven spur-gear h . As the gear wheel h is rotated, a roller g finds entry into a pocket f , the roller passing out of engagement with said pocket when it has rotated the shaft b sufficiently to effect the formation of a cylindrical pocket for the holding of a pail body. The cylindrical pocket thus formed is maintained until the other roller g enters a new pocket f , whereupon the previously formed cylindrical pocket is unformed and a new cylindrical pocket is formed. The pails are fed to the cylindrical pockets, preferably by being first directed to a segmental pail body-holder in one of the drums and above the location of the cylindrical pocket, the pail thus held moving with the drum holding it, so that when the cylindrical pocket in a part of which the pail is held, is newly formed, said pail is in position therein. Suitable chucks are provided for the ears i that are to be tucked between the pail bodies and their covers, these chucks, in the embodiment of the invention illustrated, being provided in the bottoms of the segmental pocket portions that are nearest to the covers of the pail bodies, said chucks including in their formation, permanent horse shoe magnets i^1 , which serve to prevent the ears from falling off after they have been placed in position in the segmental pockets of both drums, as by an attendant. Each magnet is formed with a cavity in its poles conforming in shape to the curved portion of the ear, which portion is placed by the attendant in such cavity, the cavity, by conforming to the curvature of the ear, permitting close magnetic relation between the magnet and the ear. Each ear, when placed in the cavity in the magnet, completes an iron magnetic circuit for the magnet, whereby the ear is very firmly held in position. Each magnet is held in position by means of a screw i^2

whose head engages a clamping plate i^3 and whose threaded stem engages a plate i^4 secured to a disk a . By this arrangement the permanent magnets may readily be interchanged so that those magnets suited to the sizes of the pail ears i , may be used. Figs. 2 and 3 best show the construction thus described. I prefer the use of permanent magnets as a holding device for the ears, but I do not wish to be limited to their use.

The pails are preferably fed toward one of the drums upon an inclined chute k , one wall k^1 being so located that the covers upon the pails are initially considerably to one side of the ears that are held diametrically opposite each other with reference to the pail body. When the pail body is in position between a pair of ears, which is the case when the pail body is held within a formed cylindrical pocket, said pail body is given a movement longitudinal thereof in a direction to move the covered portion of the pail toward the ears, as a consequence of which the ears which are firmly held between the pail body and the ear holders, have their upper ends tucked between the pail cover and the body of the pail, as indicated in Fig. 5, the pail cover tightly gripping the ears so that after the pail with the applied ears has been discharged from the machine of my invention, it may be passed to suitable mechanism for more firmly securing the cover and ears in place upon the pail body, as, for example, by soldering.

While I prefer to move the pail body toward the ears and to hold the ears stationary while the pail body is being moved toward them, I do not wish to be limited to this method of effecting relative motion between the pail body and the ears that are to be applied thereto. In the embodiment of the invention illustrated, I employ a cam wheel m fixed upon the same shaft n which carries the spur-gear h , this cam wheel having cam projections o , preferably two, which are diametrically arranged and are adapted to engage with a cam roller p provided upon one end of an arm q which is pivoted between its ends at r , the other end of said arm q carrying a fork that straddles a pin s that is secured to a chuck t , which chuck is adapted to be moved in line with the axis of the pail upon the oscillation of the lever q . The chuck holds a plunger-head u by means of a fastening screw v , the plunger-head that is held within the chuck being preferably slightly larger than the diameter of the pail cover. The engagement of a cam projection o with a roller p is timed to occur just after a cylindrical pocket has been formed, so that the pail ears are tucked into place by the bodily movement of the pail body immediately after the pail body, together with its cover, has been located in alinement with the plunger u .

While I have herein shown and particularly described, the preferred embodiment of my invention, I do not wish to be limited to the precise details of construction shown, as changes may readily be made without departing from the spirit of the invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:—

10 1. A machine for applying pail ears including juxtaposed holders for pail ears and pail bodies which have covers thereon and which travel bodily together in their juxtaposed relation, said holders serving to
15 present pail ears to pail bodies, and means for effecting relative movement between the pail bodies and the ears presented thereto, to effect the insertion of said ears between the covers and bodies of pails.

20 2. A machine of the character described including drums rotating in opposite directions and provided with seats for holding pail bodies, a pail body seat upon one drum being complementary to a pail body seat
25 upon the other drum, said seats cooperating to hold a pail body therebetween, ear holders traveling with said seats, and mechanism for effecting relative movement between a pail body and the ears presented thereto, to effect
30 the insertion of said ears between the cover and body of a pail.

3. A machine of the character described including drums rotating in opposite directions and provided with seats for holding
35 pail bodies, a pail body seat upon one drum being complementary to a pail body seat upon the other drum, said seats cooperating to

hold a pail body therebetween, ear holders traveling with said seats, and mechanism for moving the top portion of the pail body toward the ears, thereby to effect the insertion of the ears between the pail body and the cover for the pail body.

4. A machine for applying pail ears including juxtaposed holders for pail ears and pail bodies which have covers thereon and which travel bodily together in their juxtaposed relation, said holders serving to present pail ears to pail bodies, and means for effecting relative movement between the pail bodies and the ears presented thereto, to effect the insertion of said ears between the covers and bodies of pails, the holders for the ears including magnets which hold the ears in place by attraction thereon.

5. A machine of the character described including drums rotating in opposite directions and provided with seats for holding pail bodies, a pail body seat upon one drum being complementary to a pail body seat upon the other drum, said seats cooperating to hold a pail body therebetween, ear holders for presenting pail ears to pail bodies, and mechanism for effecting relative movement between a pail body and the ears presented thereto, to effect the insertion of said ears between the cover and body of a pail.

In witness whereof, I hereunto subscribe my name this 30th day of Dec. A. D., 1908.

WILLIAM SPAIN.

Witnesses:

C. H. LORENZ,
C. L. McCLOSKEY.