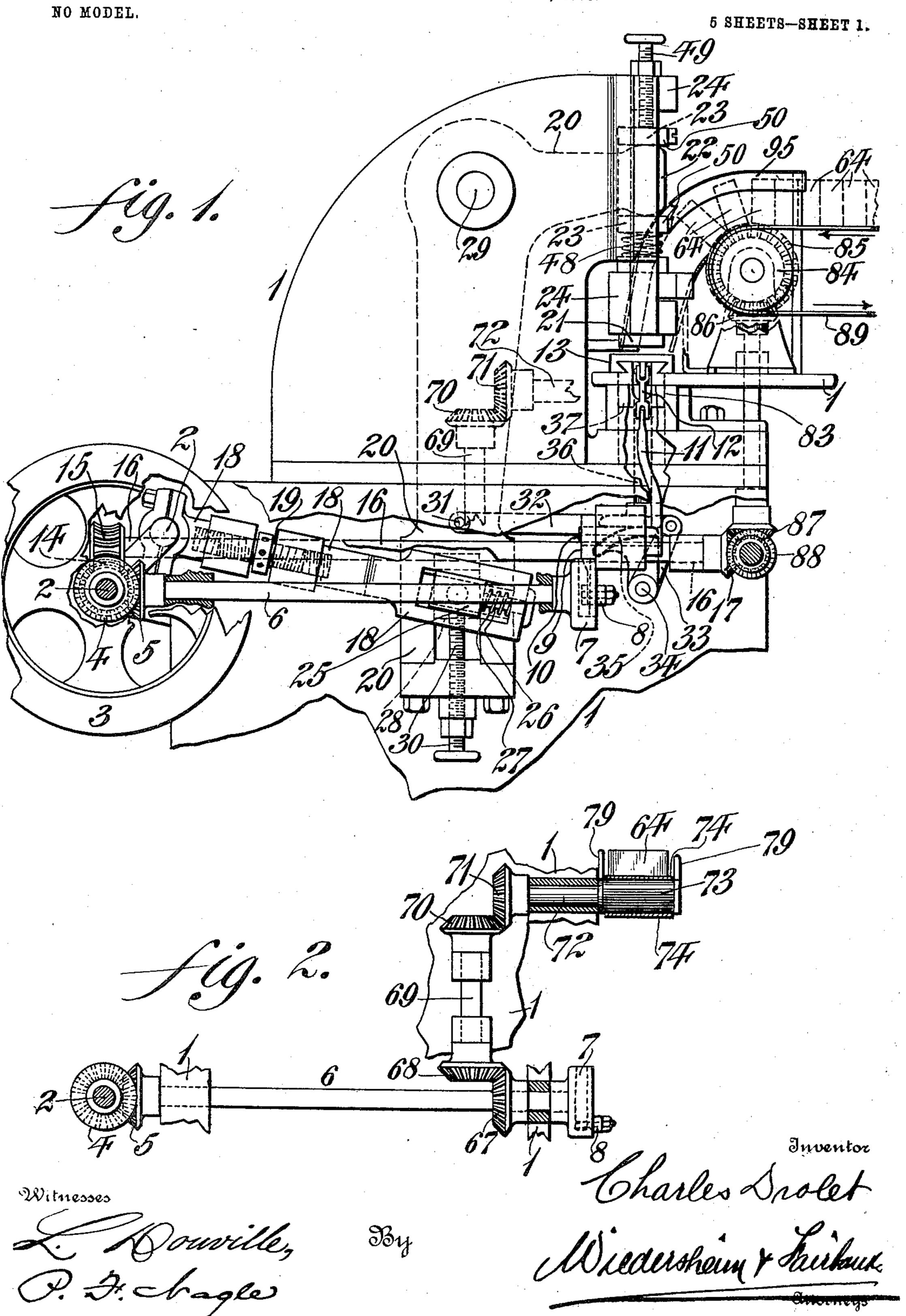
C. DROLET. SOAP PRESS.

APPLICATION FILED JAN. 5, 1903.

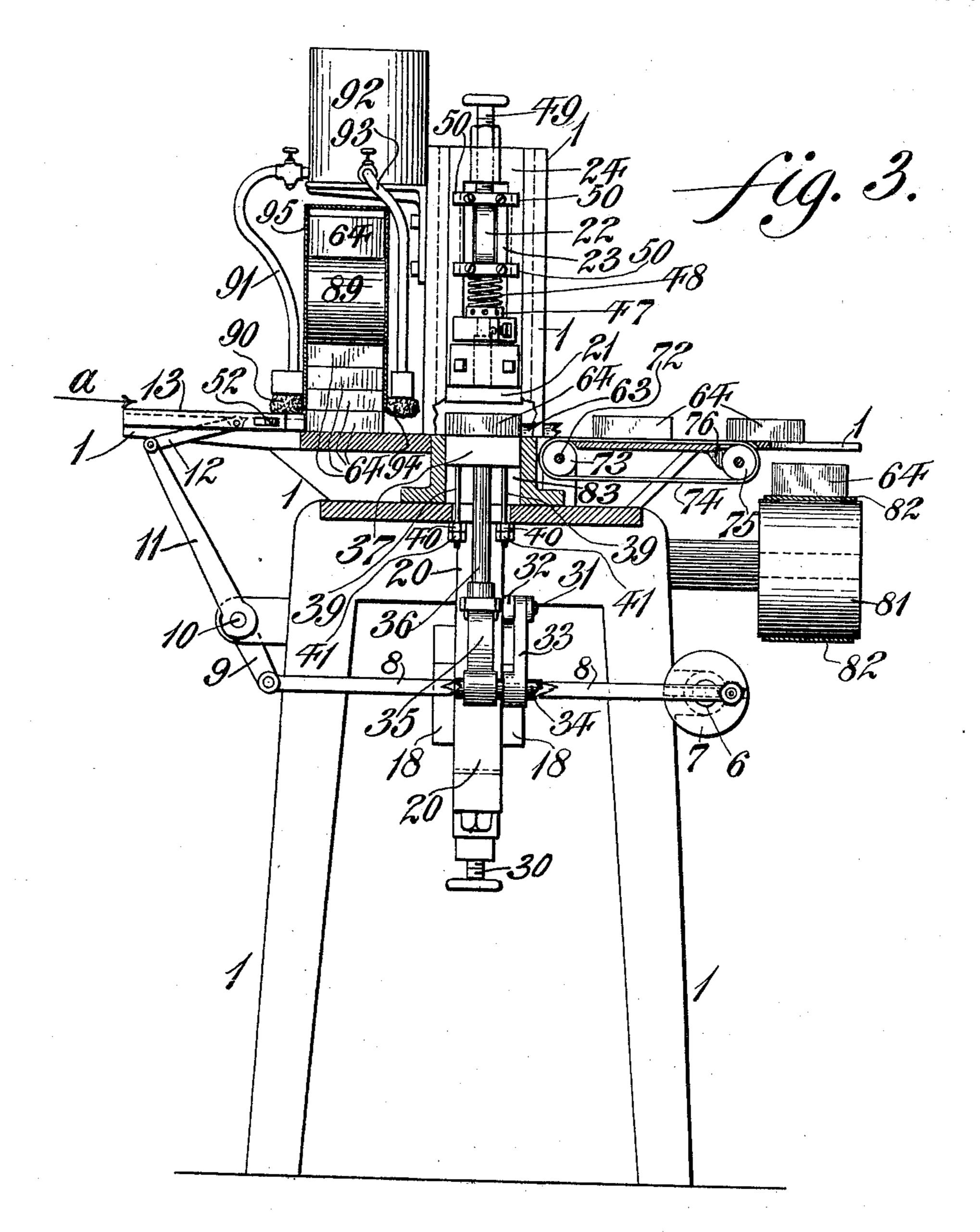


C. DROLET. SOAP PRESS.

APPLICATION FILED JAN. 5, 1903.

NO MODEL.

5 SHEETS-SHEET 2.



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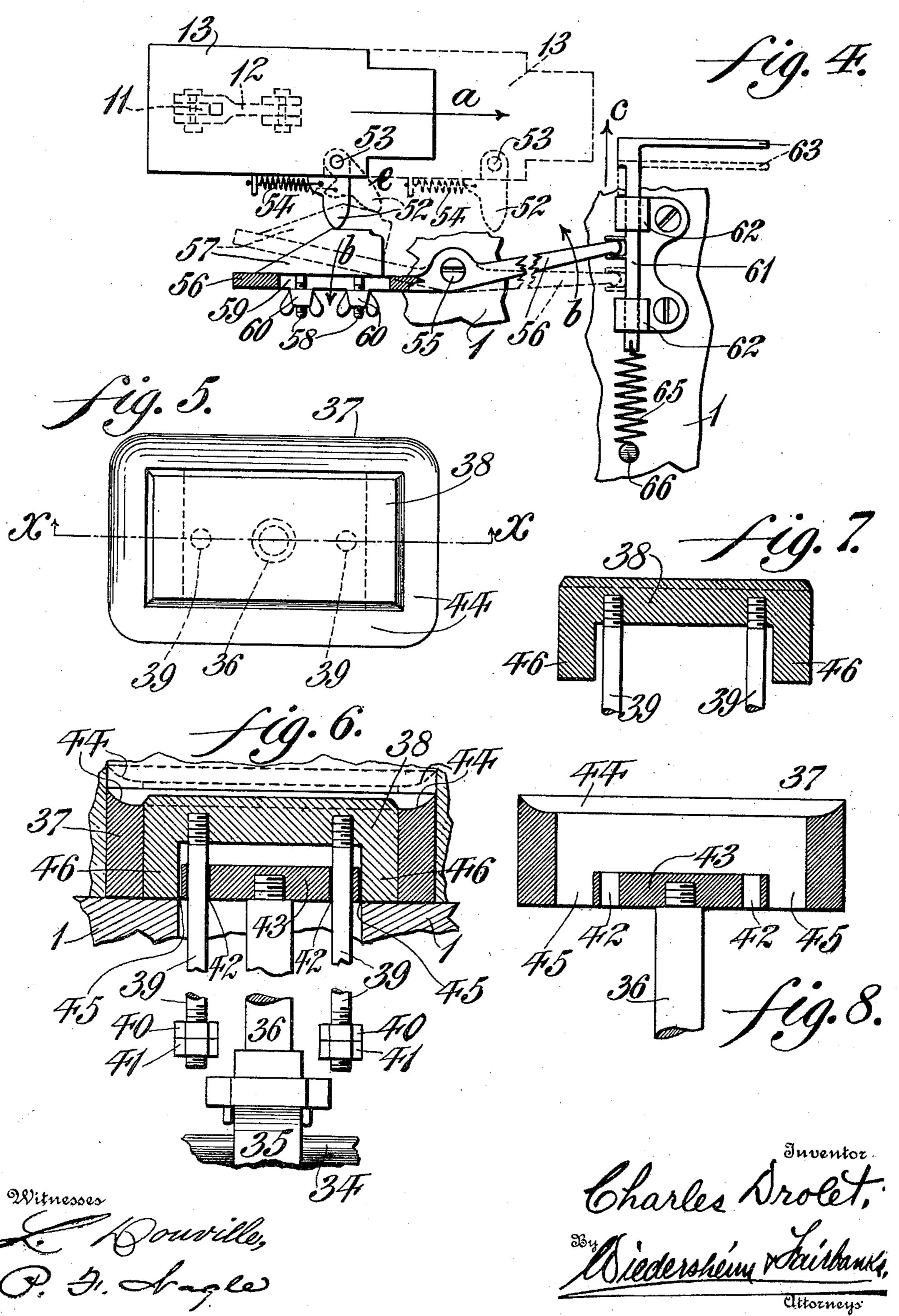
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NO MODEL.

5 SHEETS-SHEET 3.

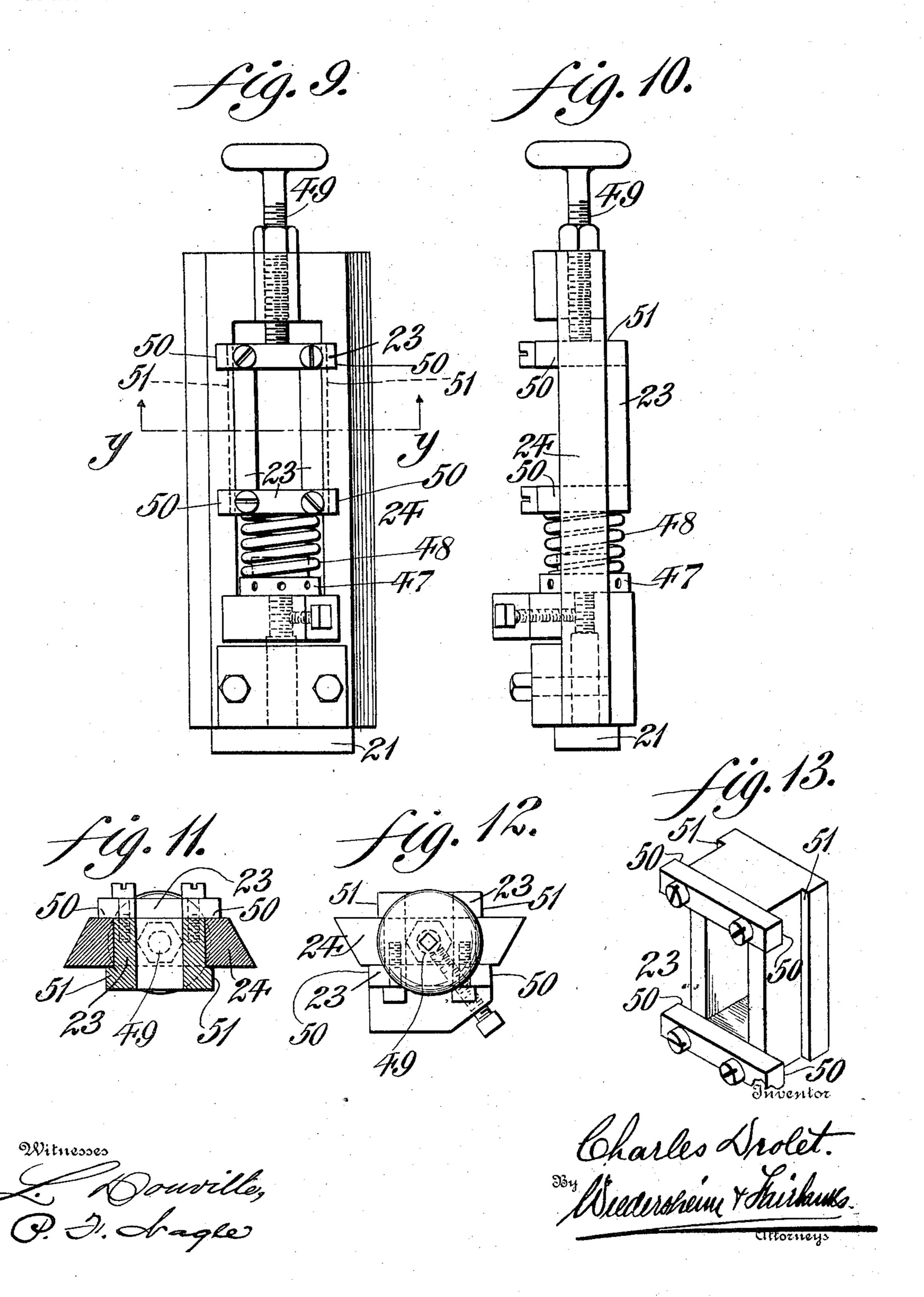


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APPLICATION FILED JAN. 5, 1903.

NO MODEL.

5 SHEETS—SHEET 4.

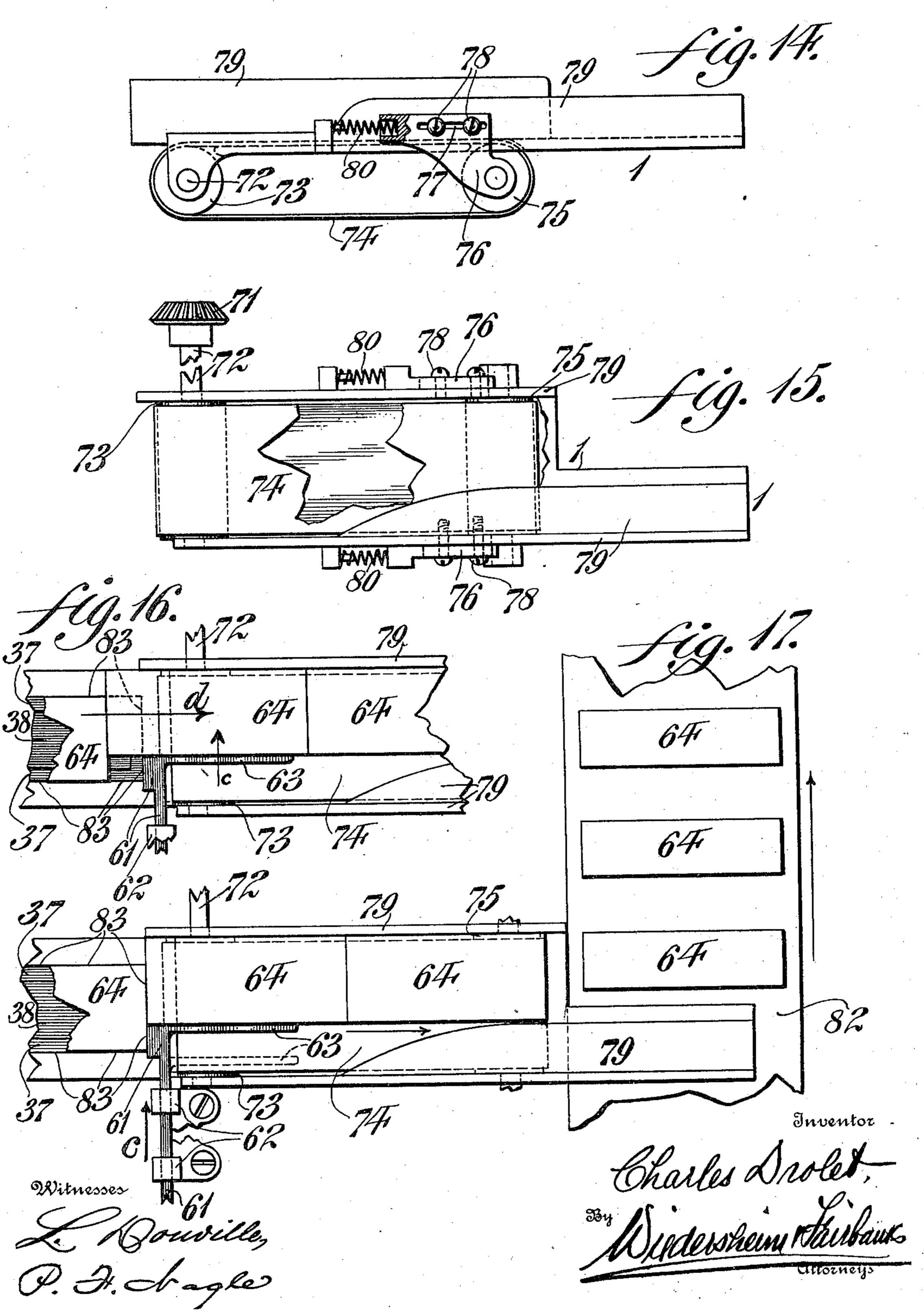


C. DROLET. SOAP PRESS.

APPLICATION FILED JAN. 5, 1903.

NO MODEL.

5 SHEETS—SHEET 5.



UNITED STATES PATENT OFFICE.

CHARLES DROLET, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO JOSEPH FELS AND SAMUEL FELS, TRADING AS FELS & CO., OF PHILA-DELPHIA, PENNSYLVANIA.

SOAP-PRESS

SPECIFICATION forming part of Letters Patent No. 736,706, dated August 18, 1903.

Application filed January 5, 1903. Serial No. 137,765. (No model.)

To all whom it may concern:

Be it known that I, CHARLES DROLET, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsyl-5 vania, have invented a new and useful Improvement in Soap-Pressers, of which the following is a specification.

My invention consists of means for conveying cakes of soap to a chute which directs 10 them to a pusher that feeds them to a pocket or mold in which they are compressed by dies or plungers adapted to form them into the desired shape and also imprint thereon any

desired inscription.

It also consists of means for adjusting the degree of pressure of the dies and also of means for conveying the cakes of soap from the pocket or mold to an endless apron, from which they are taken and placed in a box or

20 other suitable receptacle.

It also consists of means for accurately locating the cakes of soap relatively to the pocket or mold and, furthermore, of means for adjusting the degree of movement of the 25 pusher which conveys the cakes of soap to the pocket or mold, and also means for moistening the pusher and also the cakes of soap, so as to prevent the latter from sticking while acted upon by the press.

Figure 1 is an elevation of sufficient of a soap-press to illustrate my invention. Fig. 2 is a detail in elevation with parts in section. Fig. 3 is a vertical section from front to rear with parts in elevation. Fig. 4 shows a plan, 35 with portions broken away and parts in section, of the means for moving the cake laterally. Fig. 5 is a plan view of the lower die and its auxiliary die. Fig. 6 is a vertical section through the same on the line x x of Fig. 40 5. Fig. 7 is a substantially central longitudinal section through the auxiliary die removed. Fig. 8 is a similar section through the lower die with the auxiliary die removed. Fig. 9 is a side elevation of the plunger and 45 the upper die. Fig. 10 is a view of the same parts, taken at right angles to Fig. 9. Fig. 11 is a cross-section on the line y y of Fig. 9 looking in the direction of the arrow. Fig. 12 is a top plan of Fig. 9. Fig. 13 is a per-50 spective view of the movable member of the

plunger. Fig. 14 is an enlarged view, in side elevation, of the endless apron and its selfadjusting means. Fig. 15 is a top plan thereof with portions broken away. Fig. 16 is a plan showing the operation of the means for 55 moving the cake transversely. Fig. 17 is a view similar to Fig. 16, showing also a portion of the endless apron for finally removing the finished cakes.

Similar numerals of reference indicate cor- 60

responding parts in the figures.

Referring to the drawings, journaled in the frame 1 of the press is a crank-shaft 2, provided with a power or fly wheel 3, (see Fig. 1,) around which may be passed a belt to op- 65 erate the press. The crank-shaft 2 is provided with a miter gear-wheel 4, (see also Fig. 2,) which meshes with a miter gear-wheel 5, secured to the shaft 6, so as to rotate the same, it being noted that said shaft 6 carries a disk 70 7, which imparts motion to a link 8, as best seen in Fig. 3. The link 8 is connected to a lever 9, secured to a shaft 10, journaled in the frame 1, said shaft 10 having also secured thereto the lever 11, which operates 75 the link 12, connected to the pusher 13, so as to impart a reciprocating motion thereto for a purpose hereinafter described.

The crank-shaft 2 has secured thereon a worm 14, which meshes with a worm-wheel 80 15 on the shaft 16, so as to rotate the latter, and consequently the miter gear-wheel 17 thereon, for a purpose hereinafter described.

The crank-shaft 2 operates the link 18, which may be adjusted in length by the right 85 and left hand screw-threaded bolt 19, so as to secure the proper adjustment of the bellcrank lever 20 relatively to the degree of movement of the die 21, it being noted that the portion 22 of the bell-crank lever 20 en- 90 gages the member 23 of the plunger 24, as best seen in Figs. 1 and 3, and for a purpose hereinafter described. (See also Figs. 9 to 13 both inclusive.)

The link 18 is provided with a journal-box 95 25, provided with a stem 26, around which is a spring 27, which permits said box 25 to move in the link 18 when this becomes necessary, as hereinafter described.

The lower end of the bell-crank lever 20 is 100

provided with a journal-box 28, which may be brought nearer to or farther from the fulcrum 29 of said lever 20, so as to adjust the degree of movement of said lever when rocked 5 by the link 18, it being noted that the journal-box 28 may be either raised or lowered by the screw 30, so as to obtain the proper adjustment of said box 28.

The bell-crank lever 20 has pivoted there-10 to, as at 31, one end of a link 32, whose opposite end is pivoted to an arm 33, (see Figs. 1 and 3,) which is secured to a shaft 34, journaled in the frame 1, and imparts a rocking motion to said shaft 34 when the lever 20 is in 15 operation, and thus rocks the cam 35, secured to the shaft 34 and thus raises and lowers the rod 36, to which is secured the die 37, as best seen in Fig. 3. The die 37 has fitted within it the die 38, (see Figs. 5 to 8, both in-20 clusive,) which may be moved independently of the die 37 for a purpose hereinafter described. Depending from the die 38 are rods 39, provided with nuts 40 and 41, the latter of which serve as jam-nuts to retain the 25 nuts 40 in their adjusted positions on the rods 39 for a purpose hereinafter described. The rods 39 pass freely through openings 42 in the portion 43 of the die 37, it being noted that said die 37 is formed with con-30 cave portions 44 and openings 45, the latter being adapted to receive the portions 46 of

spection of Fig. 6. The plunger 24 is provided with a nut 47, 35 which supports a spring 48, upon which rests | the member 23 of the plunger 24, it being noted that said member 23 is held against | the spring 48 by a screw 49, as best seen in Figs. 9 and 10. When the member 23 of the 40 plunger 24 is placed in position within the latter, as best seen in Figs. 9 and 11, it is apparent that the projections 50 and 51 in said member 23 prevent the latter from leaving the plunger 24, while at the same time 45 permit said member 23 to move independ-

the die 38, as will be understood from an in-

ently of the plunger 24 when necessary, as hereinafter described.

The pusher 13 (see Figs. 3 and 4) is provided with a trigger 52, pivoted at 53 to said 50 pusher 13, and is held normally in the position seen in full lines in Fig. 4 by a spring 54.

Fulcrumed in the frame 1, as at 55, is a lever 56, which is provided with a block 57, that may be moved either toward the ful-55 crum 55 or away therefrom for a purpose hereinafter described, it being noted that said block 57 has projecting therefrom the screw-threaded stems 58, which pass through a slot 59 and have fitted thereon the nuts 60, 60 which latter firmly clamp the block 57 in its adjusted position on the lever 56, so that said block 57 and the lever 56 move as one when the trigger 52 is brought in contact therewith in order to impart motion to the bar 61,

65 fitted in guides 62, secured in the frame 1, it being noted that said bar 61 is provided with a member 63, which is brought at certain |

times in contact with a cake 64 of soap, as seen in Figs. 16 and 17, and for a purpose hereinafter described. The bar 61 has con- 70 nected therewith one extremity of a spring 65, whose opposite end is secured to some fixed point, as at 66 in Fig. 4.

The shaft 6 (see Figs. 1 and 2) has secured thereon a miter gear-wheel 67, which meshes 75 with a miter gear-wheel 68 on a shaft 69, journaled in the frame 1, it being noted that said shaft 69 has a miter gear-wheel 70 thereon, which meshes with a miter gear-wheel 71 on the shaft 72, which latter has a roller 73 80 thereon and around which is passed an endless apron 74, which is also passed around a roller 75, journaled in hangers 76, as best seen in Figs. 14 and 15. The hangers 76 are provided with slots 77, through which pass 85 screws 78, which are screwed into the walls 79 in the frame 1, so as to permit the roller 75 to move either toward the roller 73 or away therefrom, according to requirements, it being noted that the springs 80 keep the 90 apron 74 taut and at the same time permit the roller 75 to move toward the roller 73 when the apron 74 shrinks.

Journaled in the frame 1 is a roller 81, around which is passed an endless apron 82, 95 which is also passed around a roller similar to the roller 81, but which is not illustrated in the drawings, it being understood that said rollers may be driven in any well-known manner.

The frame 1 has located therein the pocket 83, (see Fig. 3,) in which reciprocates the die 37 for a purpose hereinafter described.

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Journaled in the frame 1 is a roller 84, driven by the bevel gear-wheels 85, 86, 87, 105 and 88, it being noted that the latter is driven by the miter gear-wheel 17, as best seen in Fig. 1, it being noted that a belt 89 is passed around the roller 84 and also around a roller similar to the roller 84, but not illus- 110 trated in the drawings.

The upper surface of the pusher 13 is moistened by a sponge 90, which is secured to a pipe 91, which is connected to a tank 92, supplied with water, said tank 92 having con- 115 nected therewith a pipe 93, which is provided with a sponge 94, which moistens the upper surface of the cakes 64 of soap, it being understood that the process of moistening the soap is to prevent it from sticking to the dies 120 and in the mold and is also for the purpose of causing the cakes 64 to slide easily while passing through the press.

The operation is as follows: Assuming that the crank-shaft 2 is rotating, it is apparent 125 that said shaft imparts motion to the link 18, which in turn rocks the bell-crank lever 20, thereby causing the latter to impart a recipcating motion to the plunger 24 and the die 21, carried thereby. The rocking motion of the 130 bell-crank lever 20 imparts a rocking motion to the cam 35 by reason of the link 32 and the arm 33, thereby causing the die 37 to move up and down in the pocket 83. The

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rotation of the shaft 2 imparts a reciprocating motion to the pusher 13 by reason of the bevel gear-wheels 4 and 5, the shaft 6, the disk 7, the link 8, the levers 9 and 11, and 5 link 12. The shaft 2 also imparts motion to the endless apron 89 by reason of the worm 14, the worm-wheel 15, the shaft 16, the bevel gear-wheels 17, 88, 87, 86, 85, and the roller 84. Cakes 64 of soap of the approximate to shape are placed upon the apron 89 and are fed by the same to the chute 95, as seen in Figs. 1 and 3, it being noted that the cakes 64 are so directed by the chute 95 that said cakes 64 rest one upon the other, as seen in Fig. 15 3, the lowermost one resting upon the frame 1 and in front of the pusher 13. When the pusher 13 is moving in the direction indicated by the arrows a in Figs. 3 and 4 and by the mechanism hereinafter described, the lower-20 most cake 64 is moved by the pusher 13 from its original position under the discharge end of the chute 95 to a position exactly in alinement with the dies 37 and 21, it being noted that when the pusher 13 has completed its 25 stroke in the direction indicated by the arrows a the cake 64 of soap is caused to rest upon the die 37. As it is essential that the cake 64, placed upon the die 37, shall be in an absolutely correct position relatively to the 30 dies 37 and 21 and the pocket 83, it becomes necessary to stop the momentum imparted to a cake 64 by the pusher 13 and cause said cake to stop at the proper place, and to accomplish this the following mechanism is 35 employed: When the pusher 13 has almost completed its stroke in the direction indicated by the arrows a, the trigger 52 (see Fig. 4) on the pusher 13 is brought in contact with the block 57 and moves the same from 40 its normal position, as indicated in dotted lines in said Fig. 4, to the position seen in full lines, whereupon the lever 56 is turned upon its fulcrum 55 and in the direction indicated by the arrows b, thereby causing the bar 61 to 45 move in the direction indicated by the arrows c in Figs. 4 and 17, whereupon a portion of said bar 61 is brought in the path of the cake 64, which is between it and the pusher 13, and a trifle before said pusher 13 50 has completed its stroke in the direction indicated by the arrows a in Figs. 3 and 4.

It will be noted on referring to Fig. 16 that the bar 61 is in its advanced position and that the cake 64 of soap to the left of said bar 61 55 has not as yet been moved to the full extent of the stroke of the pusher 13, which propels said cake 64 in the direction of the arrow d | tively to the plunger 24, and thereby permit in said Fig. 16. It is evident that when the cake 64 just referred to comes in contact with 60 the bar 61 it is brought to a standstill and the pusher 13 has completed its stroke, thereby causing the cake 64 to the left of the bar 61 in Fig. 17, and which corresponds to the cake 64 referred to in connection with Fig. 65 16, to occupy the position seen in said Fig. 17, whereupon it will be noted that the sides

the pocket 83. The pusher 13 is then moved by the mechanism hereinbefore described in a direction opposite to that indicated by the 7c arrow a in Fig. 4 and is brought into the position seen in Fig. 1, so as to cause a subsequent cake 64 to be brought between the dies 37 and 21, when the pusher 13 is again moved in the direction indicated by the arrows a, it 75 being understood that when the trigger 52 (seen in Fig. 4) is brought in contact with the block 57 when the pusher 13 is moving in a direction opposite to that indicated by the arrow a in Fig. 4 it is deflected, as at e, by the 80 block 57, which is then in its normal position, as indicated in dotted lines, and causes said trigger 52 to pass by the block 57 without turning the lever 56. When the trigger 52 has passed the block 57 in its movement toward 85 the pocket 83, the spring 65, which was previously expanded by the turning of the lever 56, now contracts and causes the lever 56 and the bar 61 to move from the positions seen in full lines in Fig. 4 to those seen in dotted 90 lines. It is apparent that the rod 61 may be caused to come in the path of a cake 64 sooner or later, as may be required, by properly adjusting the distance of the block 57 from the fulcrum 55 of the lever 56. When a cake 64 95 of soap has been placed upon the die 37, the latter descends by gravity due to the cam 35, which is moved from the position seen in dotted lines in Fig. 1 to that seen in full lines in Fig. 6 by the mechanism hereinbefore de- 100 scribed, it being understood that the cake 64, resting upon said die 37, descends therewith and into the pocket 83. When the die 37 is in its lowermost position, the plunger 24 is then lowered by the mechanism hereinbefore 105 described and causes the die 21 carried thereby to compress the soap within the pocket 83, so as to impart thereto the proper shape and also imprint thereon the desired characters.

It will be noted on referring to Fig. 9 that 110 the die 21 may be caused to enter the pocket 83 to a greater or lesser depth by reason of the screw 49 and nut 47, it being apparent that when the plunger 24 is in position on the portion 22 of the lever 20, as seen in Figs. 1 and 115 3, that turning the screw 49 in one direction causes the plunger 24, and consequently the die 21 thereon, to rise relatively to the member 23, and thereby reduce the depth that the die enters the pocket 83 in proportion to the extent 120 of the turning of the screw 49, and that when the screw 49 is turned in an opposite direction the member 23 is caused to lower relathe die 21 thereon to enter deeper into the 125 pocket 83, the depth that the die 21 enters into the pocket 83 increasing in proportion to the extent of the turning of the screw 49. The nut 47 and the spring 48 provide means for adjusting the pressure applied to the cake 130 64 of soap in the pocket 83, and the spring 48 furthermore yields and permits the member 23 to travel the full extent of the movement and ends of the cake 64 coincide with those of I imparted thereto by the lever 20, when the

plunger 24 is checked in its downward movement before the lever 20 has completed its full stroke. When the cam 35 is moving from the position seen in Fig. 6 to that seen 5 in Figs. 1 and 3, it causes the rod 36, and consequently the die 37 thereon, to rise and bring the concave portions 44 of said die into the position seen in dotted lines in Fig. 6 relatively to the die 38, thereby lifting the cake 10 of soap sufficiently above the die 38 to prevent it from sticking thereto when moved along by another cake of soap after the cake thus raised from the die 38 has been pressed into the proper shape, it being apparent that 15 were it not for this independent movement of the dies 37 and 38 the soap squeezed into the recesses formed by the concave portions 44 of the die 37 and that portion of the die 38 which projects above the same would stick 20 to the $\bar{d}ies$ 37 and 38 and prevent the easy removal of a cake of soap from said dies. When the portion 43 of the die 37 comes in contact with the die 38, due to the upward movement of the rod 36, said portion 43 bears against 25 the die 38 and causes the latter to rise therewith until the cake of soap on the die 37 is brought to a level with the endless apron 74, as seen in Fig. 3. It is to be understood that the movements of the plunger 24 and the die 30 37 are so timed relatively to each other that after the compression of the soap is accomplished the die 21 is raised at a sufficient speed to prevent the same from interfering with the easy removal of the cake 64 of soap 35 from the die 37. When the bar 61 is brought | into the positions seen in Figs. 16 and 17, the cake 64 in the path of the member 63 of said bar 61 is moved transversely or in the direction indicated by the arrows c in Fig. 16. The 40 cake 64 on the die 37 is pushed off the latter and is brought upon the endless apron 74 by the cake 64 immediately in front of the pusher 13, when the latter completes its full

50 (See Figs. 3 and 17.) Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

stroke in the direction indicated by the ar-

cakes 64 to a position where they drop from

the frame 1 and fall upon the endless apron

82, from which they are removed and placed

in a receptacle of any suitable description.

45 row a in Fig. 1, and the apron 74 conveys the

1. In a machine for pressing plastic mate-55 rial, dies therefor, die-operating means having a stationary fulcrum removed from the driving-shaft, a cushioned plunger for one of said dies, and means acting directly on the die for adjusting the position of said plunger 60 to vary the depth of entrance of the die into

the pocket and for adjusting the pressure applied to the cake of soap.

2. In a machine for pressing plastic material, a pair of dies therefor, means mounted 65 on a stationary fulcrum removed from the driving-shaft for operating said dies toward and away from each other, a cushioned plunger for one of said dies, means acting directly on one of said dies for adjusting said plunger for regulating the pressure applied to the cake 70 of soap, and means for operating one of said dies at a different speed from the other and independently of the other.

3. In a machine for pressing plastic material, dies therefor, means for operating said 75 dies toward and away from each other, said means being mounted on a stationary fulcrum removed from the driving-shaft, a cushioning device for the plunger of one of said dies acting directly on said die and situated between 80 the same and said operating means.

4. In a machine for pressing plastic material, dies therefor, means having a stationary fulcrum removed from the driving-shaft for operating said dies toward and away from 85 each other, means acting directly on one of said dies for regulating the depth of entrance of the die into the pocket, a cushioning device for one of said dies and means for guiding the material to be pressed between said dies. 90

5. In a machine for pressing plastic material, a pair of dies therefor, means for operating the same toward and away from each other and having a stationary fulcrum removed from the driving-shaft, means acting 95 directly on one of the plungers of said dies for regulating the depth of entrance of the die into the pocket, means for guiding the material between said dies and means for removing the material from between said dies after 100 the said material has been pressed.

6. In a machine for pressing plastic material, upper and lower dies therefor, means for actuating one of said dies independently of the other, a plunger for the other die, means 105 on a stationary fulcrum removed from the driving-shaft and engaging with said plunger for operating the same, a cushioning device situated between said operating means and its die, and means carried by said operating 110 means and acting directly on the die for adjusting the position of said plunger whereby the upper die is regulated.

7. In a machine for pressing plastic material, a pair of dies therefor, means on a sta- 115 tionary fulcrum removed from the drivingshaft for operating the same toward and away from each other, means for delivering the material to said dies, means acting directly on one of said dies for varying the depth of en- 120 trance of the same into the pocket, a stop for guiding the material properly to said dies, and means carried by said delivering means for actuating said stop.

8. In a machine for pressing plastic mate- 125 rial, a pair of dies therefor, means on a stationary fulcrum removed from the drivingshaft for operating the same toward and away from each other, means for delivering the material to said dies, means acting directly 13c on one of said dies for varying the depth of entrance of the same into the pocket, a stop for guiding the material properly to said dies, means movable with said stop for moving the

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pressed material to a suitable carrier and means connected with said delivering means, and said stop, whereby the movement of said

delivering means actuates said stop.

9. In a machine for pressing plastic material, a pair of dies therefor, means on a stationary fulcrum removed from the driving-shaft for operating said dies toward and away from each other, means acting directly on one of said dies for varying the depth of entrance of the same into the pocket, means for delivering the material to said dies, a device operated by the movement of said delivering means to move the pressed material and to prevent the delivered material from passing said dies.

10. In a machine for pressing plastic material, a pair of dies thereon, means on a stationary fulcrum removed from the driving-20 shaft for operating said dies toward and away from each other, means acting directly on one of said dies for varying the depth of entrance of the same into the pocket, means for delivering the material to said dies, means for re-25 moving the pressed material, means acting as a stop disposed at substantially right angles thereto, for preventing the delivered material from passing the dies, means operated by the movement of said delivering means, 30 for operating said removing and stopping means and a belt adapted to receive the pressed material and carrying the same to a desired point.

11. In a machine for pressing plastic material, a pair of dies therefor, means on the stationary fulcrum removed from the driving-shaft for operating the same toward and away from each other, one of said dies consisting of a plurality of parts movable independent of each other whereby the pressed material can be properly raised therefrom for removal, and means acting directly on one of said dies for varying the depth of its entrance into the

pocket.

rial, a pair of dies therefor, one of said dies consisting of a plurality of members one of which has concave marginal portions, means for operating said members independently of each other whereby the pressed material can be easily removed therefrom, and means acting directly upon one of said dies for varying the depth of its entrance into the pocket.

13. In a machine for pressing plastic material, a pair of dies therefor, means for operating the same, the lower die consisting of two parts, means for raising one of said parts before the other and for moving both parts together by contact one with the other after 60 said first-mentioned part had been raised, means acting directly on one of said dies for

relative adjustment of said dies, the inner portion of said die being connected with the

actuating means.

14. In a machine for pressing plastic mate- 65 rial, die-operating means having a stationary fulcrum removed from the driving-shaft, a die mounted on said means, a die-carrier movable with said means, a cushioned member mounted in said die-carrier, and means 70 mounted in said carrier for varying the depth of entrance of the die into the pocket and for adjusting the pressure applied to the cake of soap.

15. In a machine for pressing plastic mate-75 rial, die-operating means having a stationary fulcrum removed from the driving-shaft, a cushioned plunger, a die movable therewith, a member adjustable relatively to said plunger, and means for regulating the position of 80 said member with relation to the plunger and for adjusting the pressure to be applied to

the cake.

16. In a machine for pressing plastic material, die-operating means having a stationary 85 fulcrum removed from the driving-shaft, a cushioned plunger, a die movable therewith, a member adjustable relatively to said plunger, means for regulating the position of said member with relation to the plunger and for 90 adjusting the pressure to be applied to the cake, and means on said member for preventing the same from displacement relatively to the plunger.

17. In a machine for pressing plastic mate- 95 rial, a pusher and operating means therefor, a trigger pivotally mounted thereon, means for engagement with said trigger, means actuated by the engagement of the trigger and said means, and means movable at right angles to 100

the path of the pusher.

18. In a machine for pressing plastic material, a reciprocatory pusher, means movable at right angles thereto for moving a cake laterally, a trigger pivotally mounted on the 105 pusher and intermediate devices actuated by said trigger to actuate the laterally-movable means.

19. In a machine for pressing plastic material, a reciprocatory pusher, means movable 110 at right angles thereto for moving the cake laterally, a trigger pivotally mounted on the pusher, a spring acting on the trigger, a pivotally-mounted lever for actuating the laterally-movable means, and means carried by 115 said lever and disposed in the path of said trigger.

CHARLES DROLET.

Witnesses:

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