

No. 887,508.

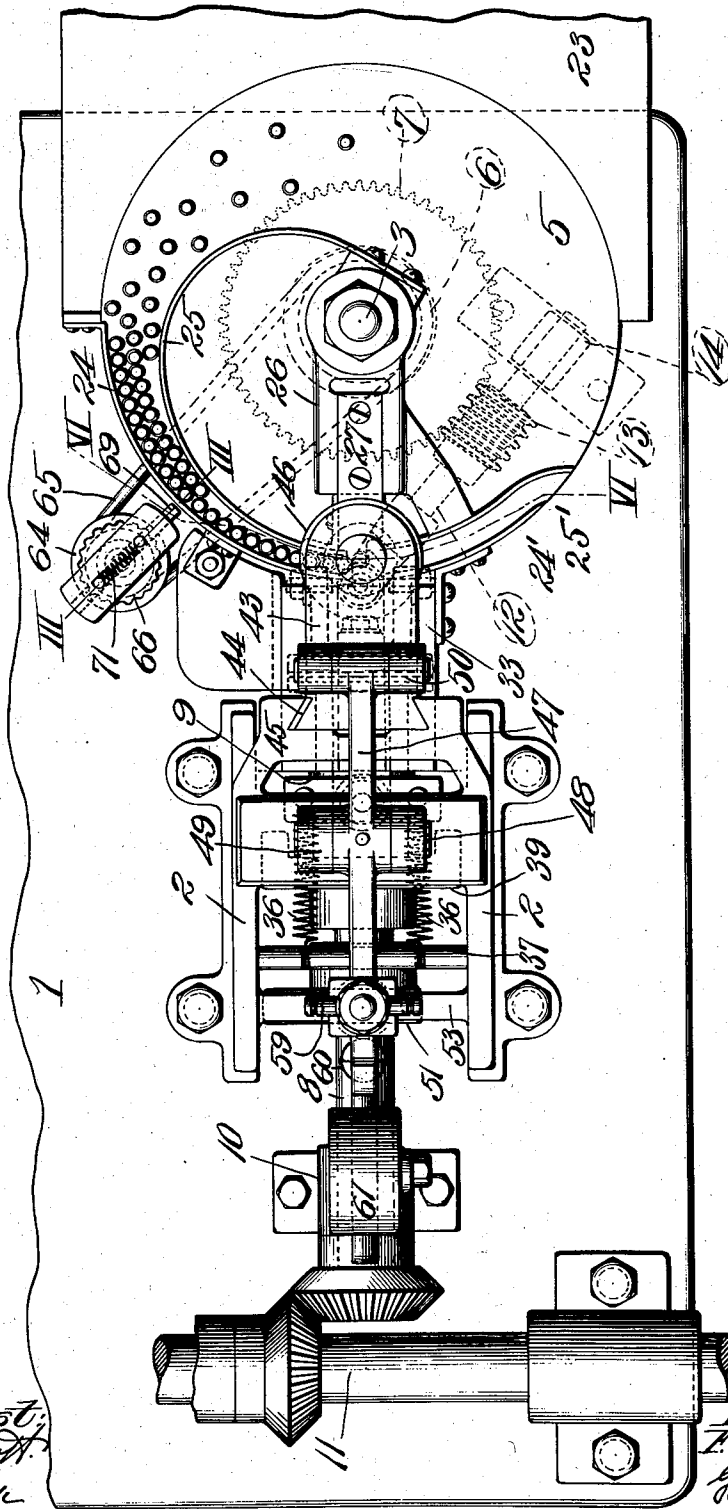
PATENTED MAY 12, 1908.

F. W. OLIN.
CARTRIDGE PRIMING MACHINE.

APPLICATION FILED FEB. 9, 1907.

3 SHEETS—SHEET 1.

Fig. I.



Attest:
Wm. H. Cook
H. G. Cook

Inventor:
F. W. Olin,
by
R. H. Knight
Attorney

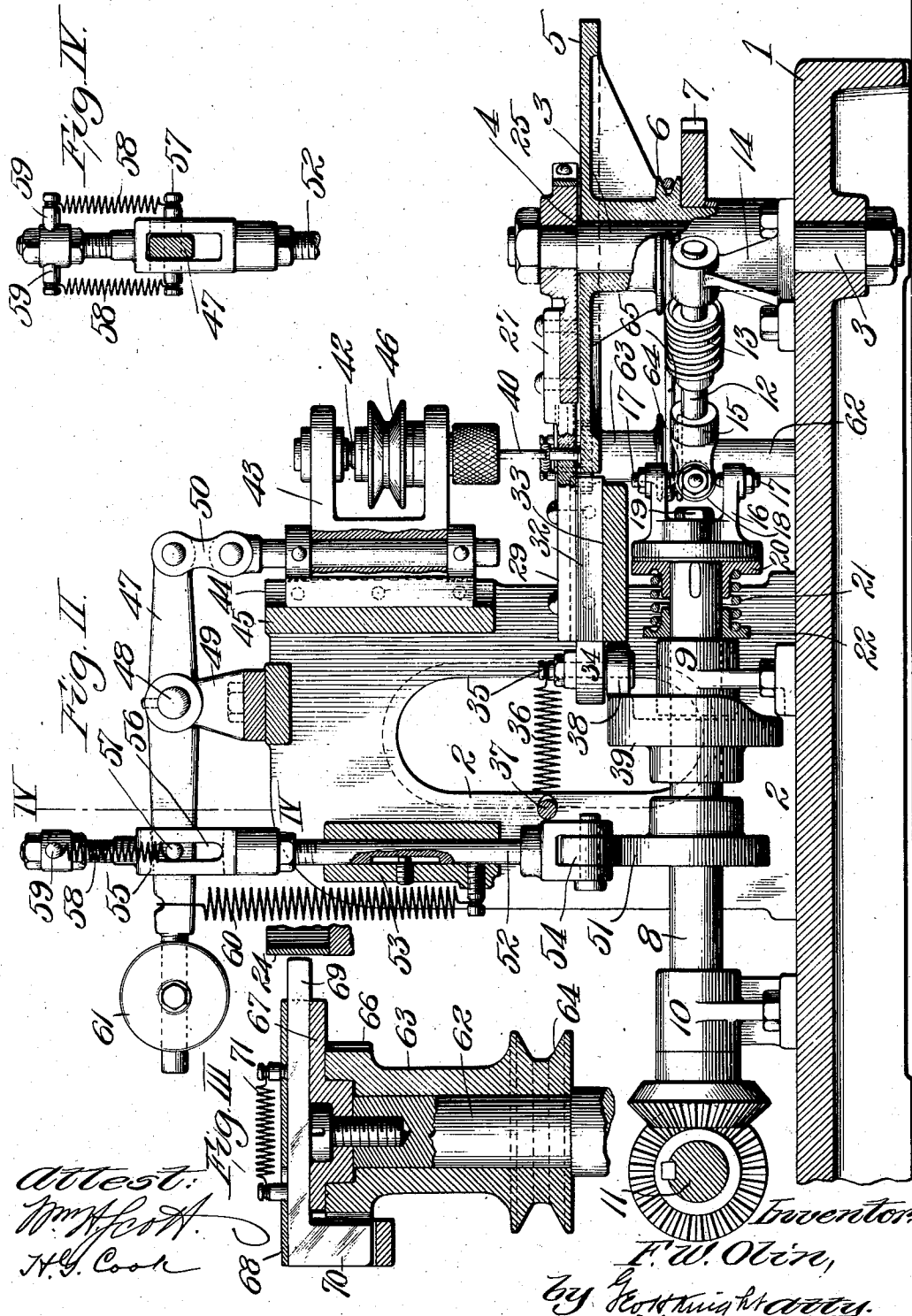
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3 SHEETS—SHEET 2.



Attest:
W. H. Cook
H. W. Olin

Inventor:
F. W. Olin,
by H. W. Olin

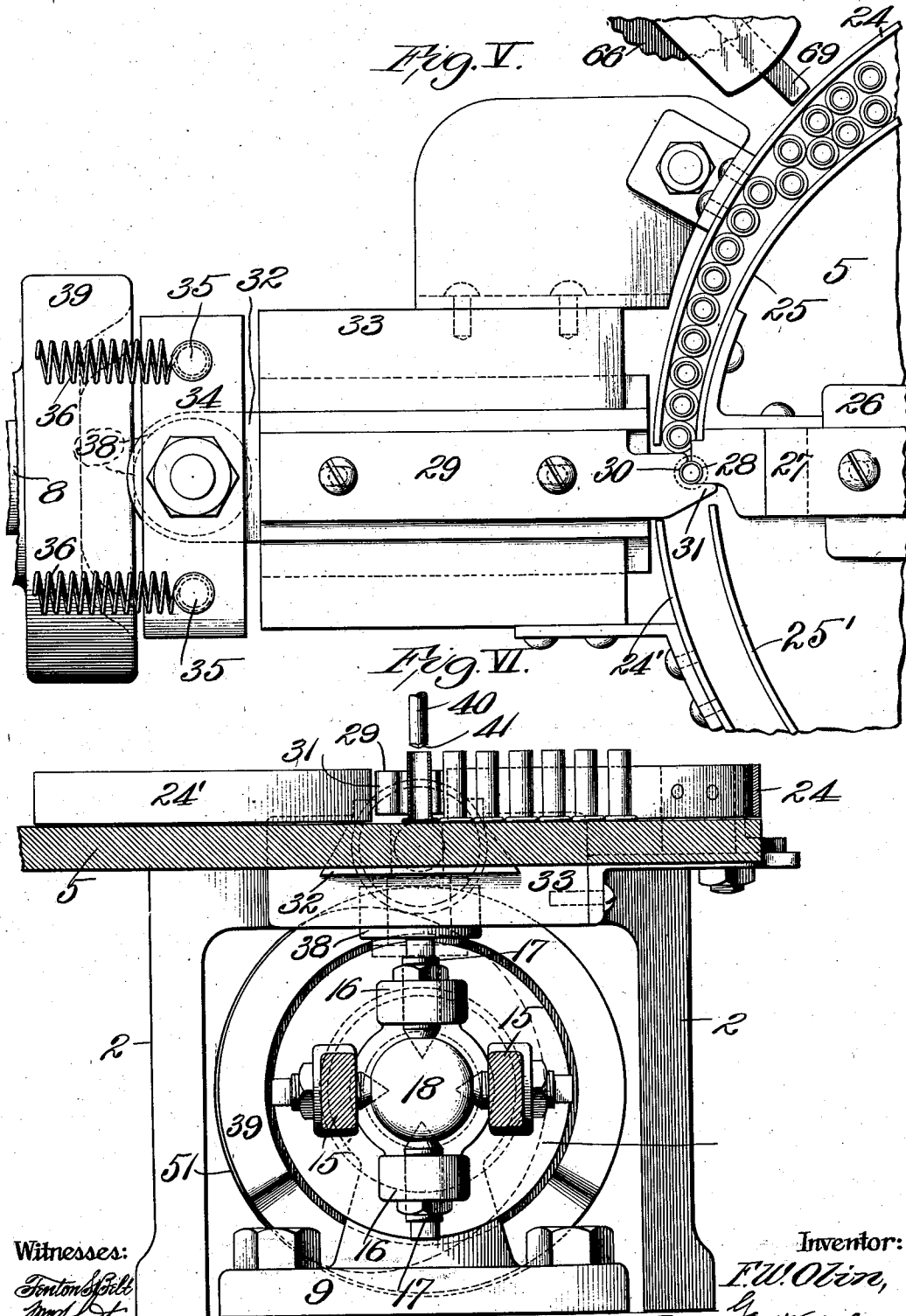
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3 SHEETS—SHEET 3.



Witnesses:

Samuel Bell
W. H. Kent

Inventor:

F. W. Olin,

By

Geo. W. Knight
Atty.

UNITED STATES PATENT OFFICE.

FRANKLIN W. OLIN, OF EAST ALTON, ILLINOIS.

CARTRIDGE-PRIMING MACHINE.

No. 887,508.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed February 9, 1907. Serial No. 356,570.

To all whom it may concern:

Be it known that I, FRANKLIN W. OLIN, a citizen of the United States of America, residing in East Alton, in the county of Madison and State of Illinois, have invented certain new and useful Improvements in Cartridge-Priming Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a machine for priming or in other words, introducing into the rims of rim fire cartridges the fulminate through the medium of which the explosive agent placed in the cartridge is exploded.

Figure I is a top or plan view of my machine. Fig. II is a vertical section taken through the machine. Fig. III is an enlarged vertical section taken on line III—III, Fig. I. Fig. IV is a view partly in elevation and partly in vertical cross section taken on line IV—IV, Fig. II and illustrating the lever mechanism by which the punch of the machine is raised and lowered. Fig. V is an enlarged top or plan view of a portion of the turn table, the shell gripping jaws and the mechanism for operating the movable jaw. Fig. VI is an enlarged vertical cross section taken on line VI—VI, Fig. I.

1 designates the base of my machine which is surmounted by a pair of standards 2, see Figs. I and II.

3 is a post seated upon the base and provided at its upper end with a shoulder 4.

5 is a turn table which has a smooth upper surface and is disposed horizontally and revolvably fitted to the post 3, the hub of said table being preferably seated upon the base 1 and being provided with a belt rim 6 that has utility as will hereinafter appear.

7 is a worm wheel fixed to the hub of the turn table and to which power is applied for driving said table.

8 designates a main drive shaft that is mounted in suitable journal boxes 9 and 10 seated on the base 1 and which is preferably driven by a power shaft 11 geared thereto.

12 is a supplemental drive shaft that is provided with a worm 13 which meshes with the worm wheel 7 on the hub of the turn table. This supplemental drive shaft is mounted at one end in a journal box 14 and the other end of the shaft is cooperatively connected to the main drive shaft by a flexible or universal coupling that has associated therewith a fric-

tion clutch. The universal coupling comprises a yoke 15 that is fixed to the supplemental shaft, a yoke 16, pivot screws 17 seated in the arms of said yokes and a ball or other suitable connection member 18, see Fig. VI, in which said pivot pins are seated. The coupling yoke 16 is loosely connected to the end of the main drive shaft 8 by a screw or pin 19. The base of the coupling yoke 16 constitutes one member of a friction clutch, the other member of which is in the form of a collar 20 that is splined to the main driven shaft and is held pressed against the rear face of the coupling yoke 16 by a spring 21 that is seated between said clutch collar and a collar 22 loosely mounted on the main drive shaft and resting against the journal box 9 in which said shaft is fitted. The friction clutch construction just described furnishes means whereby the main shaft is caused to drive the supplemental shaft 12 without there being any liability of breakage of any part of the mechanism of the machine, due to the turn table 5 being restrained from free rotation as intended inasmuch as the clutch collar 20 is caused to act upon the universal coupling yoke 16 with sufficient power to drive the supplemental shaft 12 under normal conditions, whereas, when there is abnormal resistance offered to the rotation of said supplemental shaft, the clutch collar 20 will merely operate idly against the universal coupling yoke.

23 designates a shelf (see Fig. I) the top of which is flush with the turn table 5 and from which the cartridge shells to be operated upon in my machine are delivered onto the smooth upper surface of said table while it is rotated.

24 and 24' are outside guards of curved shape which occupy positions above the perimeter of the turn table but which are spaced apart to permit the performances of certain parts of my machine between them as will hereinafter appear. These guards are suitably supported independent of the turn table in order that they will remain stationary while the table is being operated.

25 is a guide of curved form having its ends secured to a bracket 26 that is supported by the post 3 and rests upon the shoulder 4 of said post. This guide is so shaped as to cause it to extend from a point distant from the outside guard 24 to a point near said outside guard and then continue throughout the

extent of said outside guard 24 and 25' is a guide spaced therefrom throughout the extent of the outside guard 24' approximately parallel with said outside guard. By this arrangement I provide a channel above the turn table and between said outside guards and guides which has a tapering mouth for the ready entrance of the cartridge shells into the channel while carried by the turn table and for the formation of the shells into single file after they have reached the contracted portion of said channel.

27 designates a stationary gripper jaw that is supported by the bracket 26 and the rear end of which extends into the channel between the spaced ends of the outside guards and guides and is provided with a curved pocket 28, see Fig. V, in which each shell is adapted to seat after it has been conveyed to the position occupied by the rear end of the stationary jaw while in an upright position and with its open end uppermost.

29 designates a movable gripper jaw that is projected into the space between the adjacent ends of the outside guards and guides and located at the rear of the stationary jaw and preferably in alinement therewith. This movable jaw is provided with a curved pocket 30 that is adapted to receive each shell when it is resting in the pocket of the stationary jaw and the movable jaw is advanced thereto. The movable jaw terminates at its forward end in a stop finger 31 which is adapted to pass beyond the side of the stationary jaw that is farthest from the shells as they approach the gripper jaws to be engaged between them.

32 is a slide that carries the movable gripper jaw 29 and which is supported by a guide bracket 33 that is in turn supported by the standards 2 of the machine.

34 is a cross head fixed to the slide 32 at its rear end. This cross head has connected to it through the medium of pins 35 a pair of retracting springs 36 that are also attached to a cross rod 37 mounted in the standards 2.

38 is a roller carried by the slide 32. 39 is a cam fixed to the main drive shaft 8 and having its working face at its forward side. The working face of this cam bears against the roller 38 whereby, during the rotation of the main drive shaft, the slide 32 is intermittently moved in a forward direction by the action of the cam for the purpose of gripping a shell between the movable jaw 29 and the stationary jaw 27 after which, as the cam continues its movement, the slide and the movable gripper jaw are retracted by the springs 36. During the period that the cartridge shells are held between the gripper jaws the fulminate is compressed in the shells through the medium of mechanism that will now be described.

40 designates a punch which enters each cartridge shell while it is held between the

gripper jaws 27 and 29, this punch being preferably pointed at its working end and having flattened faces as seen at 41, Fig. VI, whereby angles are furnished at the end of the punch. The punch is carried by a spindle 42 that is rotatably mounted in a vertical position above the turn table 5 in the arms 43 of a slide 44. The slide 44 is loosely fitted in a guide 45 supported by the standards 2 in order that said slide may be raised and lowered to move the punch 40 vertically above the turn table in order that it may enter into each shell while it is held between the gripper jaws 27 and 29. The spindle 42 is equipped with a belt wheel 46 to which power may be applied in any suitable manner.

47 designates a lever which is pivotally mounted at 48 in a post 49 supported by the standards 2 and which is connected at its forward end to the slide 44 by a link 50.

51 designates a cam fixed to the main drive shaft 8 and having a peripheral working face.

52 is an operating rod reciprocally mounted in a vertical position in a guide 53 supported by the standards of the machine and in the lower end of which is journaled a roller 54 that rides against the working face of the cam 51. The operating rod 52 is provided at its upper end with a yoke 55 through which the lever 47 passes and in the sides of which are slots 56. The slots in the yoke receive studs 57 projecting from the lever 47 and having connected thereto springs 58 that are also connected to the upper end of the operating rod 52 by attachment to studs 59 projecting therefrom.

For the purpose of counterbalancing the slide 44 the spindle and the parts supported by said slide in order that said slide and supported members will be normally suspended in elevated positions and moved to such position after they have been lowered, I provide a retracting spring 60 that is connected to the rear arm of the lever 47 at one end and at its opposite end is attached to a fixed part of the machine, for instance, the guide 53, as seen in Fig. II, and also provide a counterweight 61 adjustably mounted on the rear arm of the lever which may be shifted for the purpose of securing an accurate retracting action upon the lever without sudden shock or jar, due to an abnormal retracting action.

In the practical use of my machine the cartridge shells are fed onto the turn table 5 in upright positions and with their open ends uppermost and as the turn table revolves it carries the shells through the channel between the outside guard 24 and the guide 25 with the result of causing the shells to be carried one by one into positions between the gripper jaws 27 and 29, due to the actuation of the last named or movable jaw. Each shell remains in position between the gripper jaws while the punch 40 is lowered thereinto and rotated for the purpose of pressing the

fulminate into the rim of the shell, an action that is facilitated due to the described contour of the working end of said punch. The lowering of the punch into the shell is accomplished through the medium of the leverage mechanism associated with the slide that carries the punch spindle and which is operated as follows:

As the cam 51 is rotated with the main drive shaft 8 it acts to impart vertical movement to the operating rod 52 with the result of causing said rod to exert an upward pull upon the springs 58 that unite said rod to the lever 47, and as a consequence, the slide and punch spindle are lowered to place the punch in operative position. The springs 58 serve in conjunction with the parts with which they are associated to yieldingly hold the punch depressed in order that it may give if an excess of resistance is offered to it. Immediately after the fulminate is pressed into a gripped shell the movable gripper jaw 29 is retracted by the retracting springs 36 connected thereto, the cam 39 having moved sufficiently at this time to permit such retraction. The movable jaw is retracted sufficiently each time to permit of the shell, which has been operated upon, being carried upon the turn table from its position at the rear end of the stationary gripper jaw and past the finger 31 at the forward end of the movable jaw. The movable jaw returns immediately to the stationary jaw after said shell has passed it and the next succeeding shell is carried into position between the gripper jaws and gripped thereby, the finger at the forward end of the movable jaw again passing into the course of travel of the shells with sufficient promptness to prevent the shell from being carried past it.

By the use of the turn table or revolubly mounted table 5 I provide for a very rapid feeding of the shells into positions to be operated upon for the forcing of the fulminate into the rims thereof and therefore the machine herein described is of a much greater efficiency than are machines commonly employed for performing the operation for which my machine is designed.

For the purpose of preventing the cartridge shells from becoming clogged while passing through the channel above the turn table that leads to the gripper jaws I provide an agitator that is located alongside of the outside guard 24. This agitator comprises the following parts: 62 is a post, see Fig. III, which is suitably supported at the point named and on which is mounted a sleeve 63 that is provided with a belt wheel 64 which receives a belt 65 that leads from the belt rim 6 of the turn table 5. The sleeve 63 is also provided with a fluted rim 66. 67 is a head mounted in a stationary position at the top of the post 62 and containing a guide-way 68. 69 is an agitator bar slidably fitted in the

guide-way 68 and one end of which projects into proximity with the channel outside guard 24. The agitator bar is provided at its other end with a leg 70 that occupies a position adjacent to the fluted rim 66 of the sleeve 63 and is held in contact therewith by a spring 71.

During the operation of the machine, the sleeve 63 is rotated and the fluted rim 66 turning in engagement with the agitator bar 69 causes said bar to be intermittently retracted against the action of the spring 71 and each time that the bar is moved forwardly by said spring it strikes against the outside guard 24 with the result of jarring said outside guard and any shells that may be resting thereagainst so that they will be separated from each other if they become choked in the channel through which they are passing.

Claims:

1. The combination of a rotatably mounted table, means for continuously rotating said table, guards and guides arranged above said table to form a channel, jaws extending across the channel for arresting and holding the shell in the channel between the adjacent ends of the guards and guides and means for giving relative movement to the jaws.
2. The combination of a rotatably mounted table, means for continuously rotating said table, guards and guides arranged above said table to form a channel, a fixed jaw extending into the channel and a movable jaw extending across the channel for arresting and holding the shell in the channel between the adjacent ends of the guards and guides.
3. In a cartridge shell priming machine, a revoluble table upon which the shells are carried, means for driving said table, a stationary gripper jaw located above said table, a movable gripper jaw adapted for movement towards said stationary jaw to hold a shell temporarily from movement with said table, and means for operating said movable jaw, substantially as set forth.
4. In a cartridge shell priming machine, a revoluble table upon which the shells are carried, means for driving said table continuously, a stationary gripper jaw located above said table, a movable gripper jaw adapted for movement towards said stationary jaw to hold a shell temporarily from movement with said table, and means for operating said movable jaw, said movable jaw being provided at its shell engaging end with a finger for restraining the shell temporarily from movement, substantially as set forth.
5. In a cartridge shell priming machine, a punch adapted to enter the shell, slidably means by which said punch is carried, and means for raising and lowering said punch carrying means comprising a lever connected at one end to the punch carrying means, an operating rod having spring connections

with the other end of said lever, and means for actuating said rod, substantially as set forth.

6. In a cartridge shell priming machine, a
5 punch adapted to enter the shell, slidable means by which said punch is carried, and means for raising and lowering said punch carrying means comprising a lever connected at one end to said punch carrying means, an

operating rod having spring connection with 10
the other end of said lever, and means for retracting said lever after it has been moved by said rod, substantially as set forth.

FRANKLIN W. OLIN.

In presence of—
BLANCHE HOGAN,
LILY POST.