

(No Model.)

2 Sheets—Sheet 1.

J. G. LIDDELL.

ATTACHMENT FOR CARTRIDGE PRIMING MACHINES.

No. 479,819.

Patented Aug. 2, 1892.

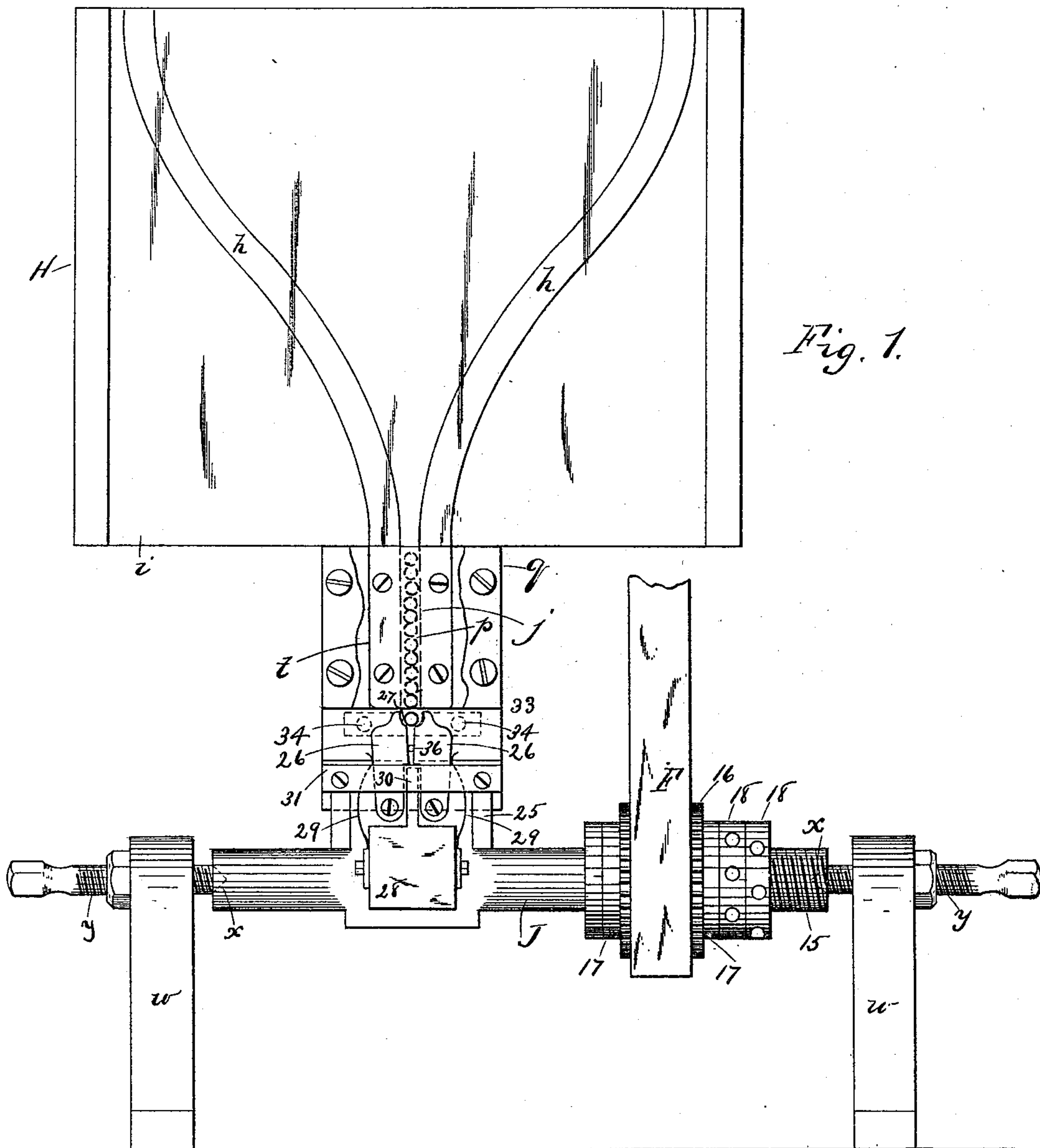


Fig. 1.

WITNESSES

Saml. Hildner
St. Dunfer

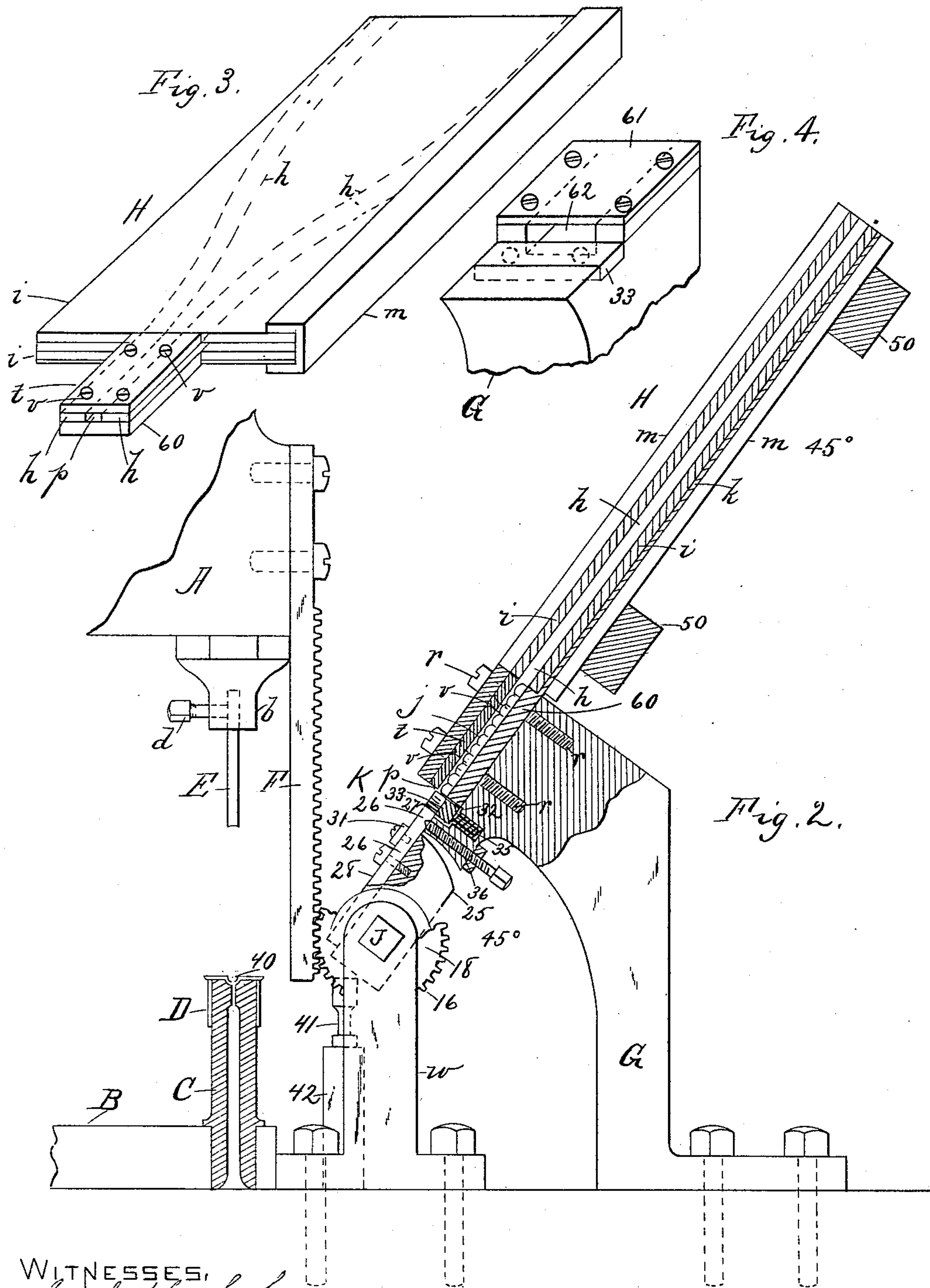
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2 Sheets—Sheet 2.

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Patented Aug. 2, 1892.



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ATTACHMENT FOR CARTRIDGE-PRIMING MACHINES.

SPECIFICATION forming part of Letters Patent No. 479,819, dated August 2, 1892.

Application filed March 24, 1892. Serial No. 426,231. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. LIDDELL, of New Haven, in the county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Attachments for Cartridge-Priming Machines, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of my attachment; Fig. 2, an end elevation of the same, showing parts of the plunger and cartridge-carrier; Fig. 3, a perspective view of the race detached; and Fig. 4, a like view of the top of the standard, showing race-holder.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates especially to an automatically-actuated attachment for delivering caps to the cartridges in a position to be struck by the plunger; and it consists in certain novel features hereinafter fully set forth and claimed, the object being to produce a simpler, cheaper, and more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the plunger-head, which carries the ordinary tool E, having a concave working face and secured in the tool-socket b by a set-screw d in the usual manner.

B represents the ordinary rotary disk, which is provided with spindles C, arranged in the usual way and upon which the shells D are disposed. These parts being all of the ordinary construction, it is not deemed essential to herein specifically illustrate or describe the same.

A standard G is disposed near the disk B, and at an angle of about forty-five degrees to the line of travel of the plunger a raceway H is mounted. This raceway comprises two curved strips of metal h, (best shown in Figs. 1 and 3,) on each side of which a rectangular

sheet of glass i is secured, the glass forming smooth walls for the passage of the caps j, as hereinafter described. The lower glass plate has a steel backing k, and the longitudinal edges of said plates are bound at m. The converging ends of the race-bars h project in parallelism beyond the lower ends of the rectangular plates, forming the race proper p. The steel back is elongated centrally under the race proper and thickened to engage the bars h and hold the lower glass plate i. A cap-plate t in the plane of the upper glass covers the race proper and is secured by screws v, passing through the bars h into the thickened portion 60 of the steel back. Between the standard G and the disk B a horizontal shaft J is mounted to rotate in standards w, said shaft being slightly out of the plane of the race. The shaft J is provided with conical sockets x in its ends to receive the cone-shaped ends of screws y, passing through the standards and forming bearings for said shaft. One end of the shaft is screw-threaded at 15. A pinion 16 is mounted loosely on said shaft between tight-fitting washers 17. Jam-nuts 18, turned on to said shaft, regulate the tension on the pinion. A vertical rack-bar F, secured to the plunger A, meshes with the pinion 16 and reciprocates the shaft J as the plunger moves. A cap-carrier K is mounted on the shaft and is constructed as follows: A block 25 is formed integral with or attached in any suitable manner to the shaft, the upper face of said block being so arranged that it may be thrown into alignment with the bottom of the cap-race p. Pivoted on the block to swing horizontally in relation thereto there are two clamping-fingers 26, the upper ends of which are grooved at 27, forming jaws to receive the caps j when discharged from the race, as hereinafter described. The block 25 has a projection 28 on the shaft, the surface of which is in the same plane as the upper face of the fingers 26 and which is disposed below their pivots. To each side of the projection 28 a flat spring 29 is secured, the free ends of said springs bearing, respectively, on the outer edges of the clamping-fingers and tending to force them inwardly toward each other. A stop-plate 30 is interposed between the fingers adjacent their pivots to prevent their free ends com-

ing into contact. A guide-plate 31 is bolted to the block 25 across said fingers.

On the top of the standard G there is a socket 62 to receive the race proper. This is formed by a plate 61, secured by bolts *r* to the standard. In a suitable chamber or slot 62 in the standard G, at the mouth of the socket 62, a cut-off bar 33 is fitted to slide. said bar is provided with inwardly-projecting arms 34, around which coiled springs 35 are disposed, said springs acting expansively between the bar and the chamber-bottom to throw the cut-off across the mouth of the race proper, which registers with the mouth of the socket when in position.

The races H are detachable from the standards and the weight of the body of the race is supported by brace-rods 50, mounted in any suitable position on the machine-frame. When a race is empty of caps, it can be withdrawn from socket 62 and substituted by one filled.

A spreading-screw 36, having a cone-shaped point, is mounted in the standard G adjacent the cut-off and in such position that it will be projected between the fingers 26 to spread the same for receiving the cap.

In the use of my improvement the ordinary priming mechanism being in motion and the plunger playing vertically as said plunger descends, the parts being presumed to be in the position shown in Fig. 2, a cap from the race *p* is between the jaws 27 of the clamping-fingers, and the rack-bar F, driven downward by the plunger, rotates the shaft J from right to left, as viewed in said figure. The tension of the spring 29 on the fingers as soon as said shaft starts and the fingers are out of contact with the spreader 36 causes them to grip the cap, which is carried in the direction indicated by the dotted lines and arrow in Fig. 2 and disposed directly over the cap-socket 40 in the shell D. The parts are so timed that the cap arrives over said socket slightly in advance of the working face of the tool E, which strikes said cap and drives it into the shell in the ordinary manner. A stop 41, comprising a screw vertically adjustable in a standard 42, is disposed in such position that the face of the projection 28 on the shaft will engage it when the cap-carrier has described its arc and disposed the cap in position to be struck by the plunger-tool, as specified. As the carrier is thus stopped, the pinion 16, still driven by the rack, slips on the shaft. Sufficient lost motion is thus afforded to enable the plunger to descend far enough to strike the cap. As soon as the fingers of the cap-carriers leave the mouth of the cap-race the springs 35 throw the cut-off bar 34 across the mouth of said race, preventing the caps from escaping therefrom. Upon the return of the plunger the shaft is rotated in the opposite direction until the fingers engage the standards G at the mouth of the race, depressing the cut-off. The screw 36 spreads the fingers 26 and admits a cap freed by the cut-off into the jaws 27. The

pinion 16 slips after the clamping-finger meets the standard during the completion of the upward movement of the plunger. The cap being driven into the shell while held between the fingers 26, said fingers contact with the tool E, and their jaws may be slightly beveled to enable them to slip readily over said tool on their return to the race. 75

Having thus explained my invention, what I claim is—

1. In a cartridge-priming machine, the priming-plunger, in combination with a raceway, a shaft rocked by the movement of said plunger, and spring-tensioned clamping-fingers on said shaft adapted to receive a cap from the raceway, substantially as described. 80

2. In a device of the character described, the combination of a cap-raceway arranged at an angle to the cartridge-holder and a rock-shaft actuated by the priming-plunger, with a cap-carrier mounted on said shaft and adapted to receive a cap from the race and deliver said cap over the shell in position to be struck by the plunger-tool, all in operative connection, substantially as described. 85 90

3. A cap-race for cartridge-priming machines, comprising two rigidly-supported parallel plates separated by curved bars, the lower ends of which converge into parallelism, forming a race proper, in combination with a cap-carrier for delivering caps from said race to the cartridge, substantially as described. 95

4. A cap-race for cartridge-priming machines, comprising two vertically-inclined glass plates separated by curved bars, the lower ends of which converge into parallelism and project beyond said plates, forming a race proper, in combination with a cap-carrier for receiving caps from said race and delivering them to the cartridge, substantially as described. 100 105

5. A cap-race for cartridge-priming machines, comprising two vertically-inclined parallel plates separated by curved bars, the lower ends of which converge into parallelism, forming a race proper, in combination with a spring-pushed block operating at right angles to said race at its mouth and forming a cut-off, and a cap-carrier adapted to move said block to release a cap from said race, substantially as described. 110 115

6. In a device of the character described, the raceway H, comprising vertically-inclined plates separated by converging bars *h*, forming the race proper *p*, in combination with the spring-pushed cut-off 33 and the cap-carrier K', arranged to operate substantially as described. 120 125

7. In a cartridge-priming machine, the rock-shaft J and actuating mechanism, in combination with the cap-carrier K, mounted on said shaft, and a cap-race for feeding caps to said carrier, substantially as described. 130

8. In a cartridge-priming machine, the plunger bearing a rack-bar, in combination with a rock-shaft bearing a cap-carrier and a friction-pinion on said shaft meshing with said

rack, whereby the shaft may be driven during a determined portion of the plunger movement.

5 9. In a cartridge-priming machine, the plunger and rack-bar, in combination with the rock-shaft, a cap-carrier thereon, the pinion 16, loose on the said shaft, and the tension mechanism for said pinion, all in operative connection, substantially as described.

10 10. The cap-race and cut-off, in combination with the rock-shaft and actuating mechanism, and the carrier K on said shaft provided with clamping-fingers 26, adapted to depress said cut-off and receive a cap from said race, 15 all in operative connection, substantially as described.

11. In a cartridge-priming machine, the shaft and actuating mechanism, in combination with the cap-carrier secured to said shaft, 20 a stop for limiting the movement of the carrier toward the delivery-point, a cap-race for feeding caps to said carrier, and a cut-off for said race adapted to be released by contact of said carrier, substantially as described.

25 12. The carrier K, comprising the block 25

and spring-pushed clamping-fingers pivoted thereon, in combination with the rock-shaft to which said block is fast and connecting mechanism for rocking said shaft from the movement of the plunger of a cartridge- 30 primer, substantially as described.

13. The rigidly-supported cap-race and an automatic cut-off therefor, in combination with the cap-carrier mounted on a rock-shaft and adapted to engage said cut-off and actuating mechanism for said shaft, substantially 35 as described.

14. The plunger and rack, in combination with the rock-shaft and frictionally-held pinion therein, the cap-carrier on said shaft, 40 stops limiting the movement of the carrier in either direction, a cap-race, and an automatic cut-off therefor opened by contact of the carrier, all in operative connection, substantially as described.

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Witnesses:

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