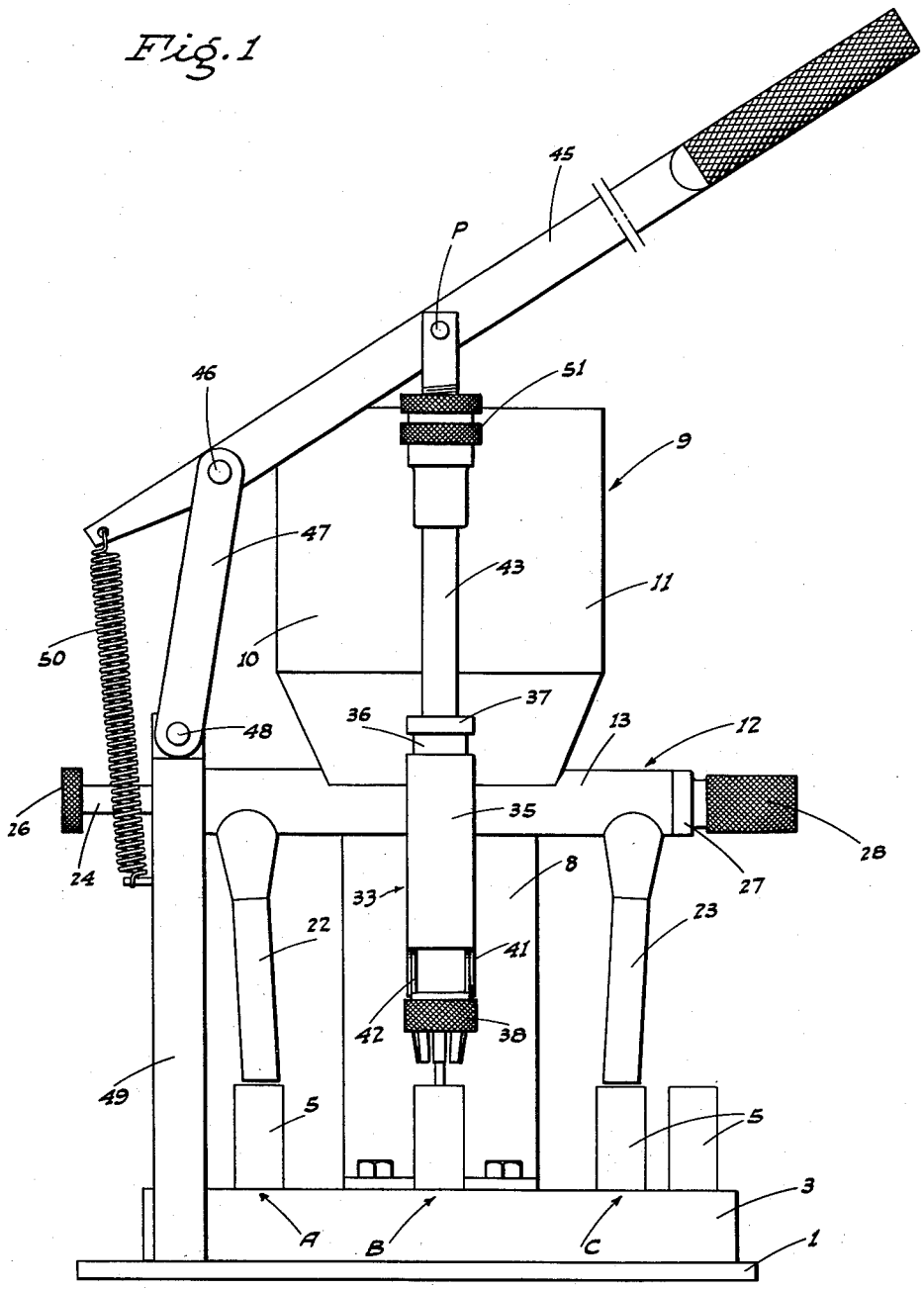
June 12, 1956 W. C. MILLER 2,749,790

LOADING AND WADDING DEVICE FOR SHOTGUN SHELLS

Filed May 18, 1953 3 Sheets-Sheet 1

Fig. 1



INVENTOR

Willis C. Miller

BY Webster & Webster

ATTORNEYS

June 12, 1956 W. C. MILLER 2,749,790

LOADING AND WADDING DEVICE FOR SHOTGUN SHELLS

Filed May 18, 1953 3 Sheets-Sheet 2

Fig. 2

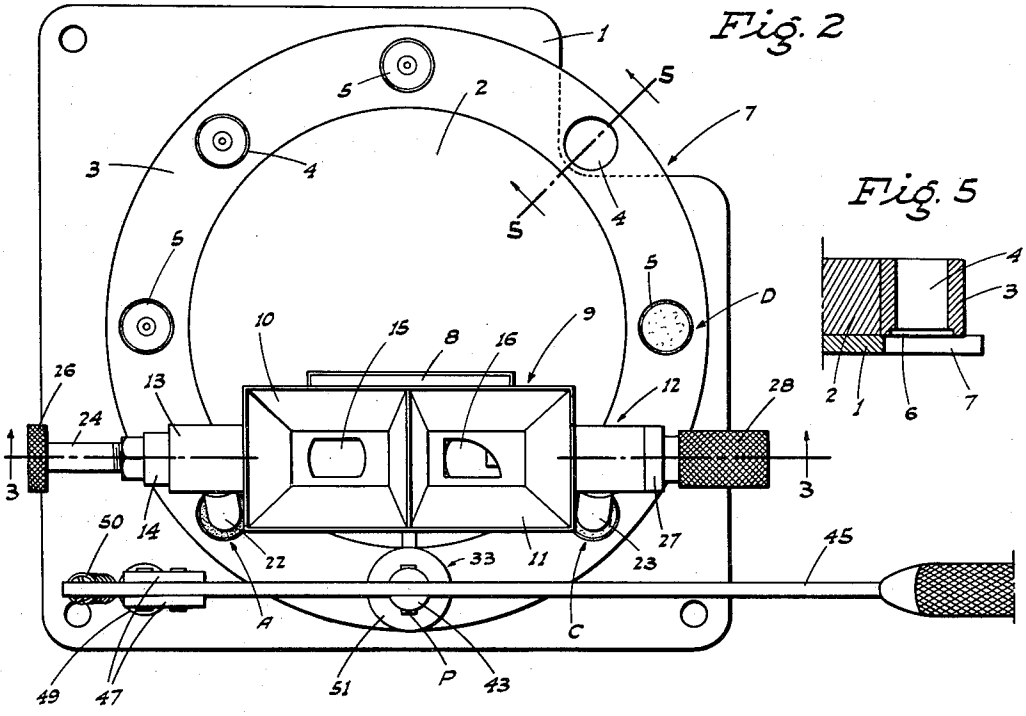


Fig. 5

Fig. 3

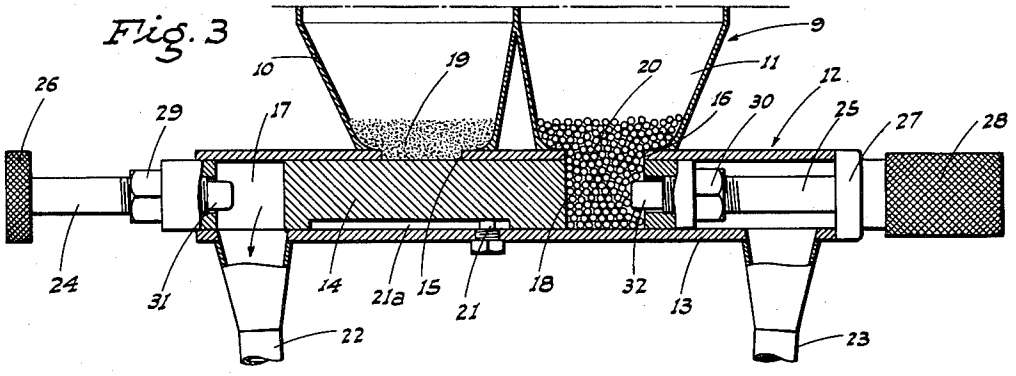
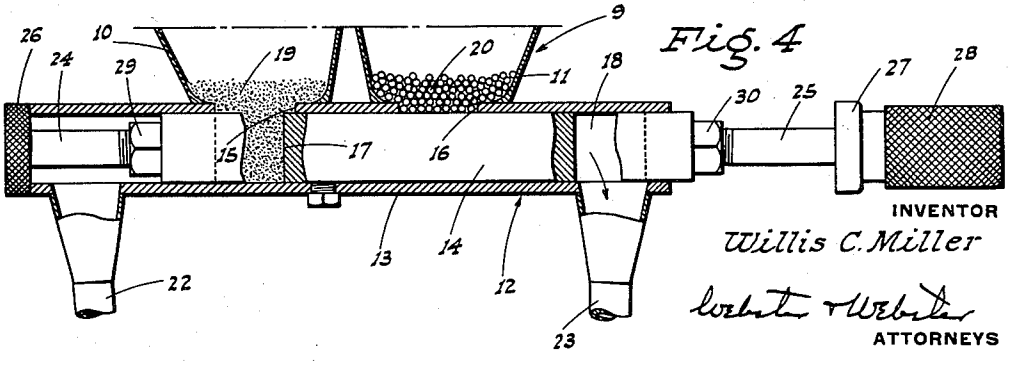


Fig. 4



INVENTOR

Willis C. Miller

Webster & Webster

ATTORNEYS

June 12, 1956 W. C. MILLER 2,749,790

LOADING AND WADDING DEVICE FOR SHOTGUN SHELLS

Filed May 18, 1953 3 Sheets-Sheet 3

Fig. 6

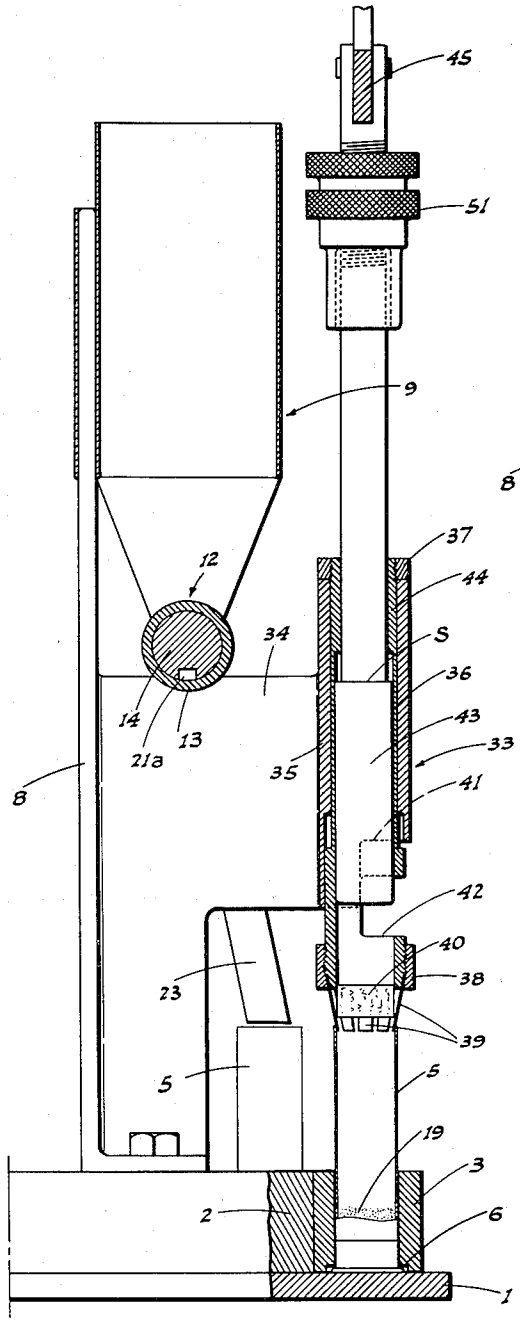
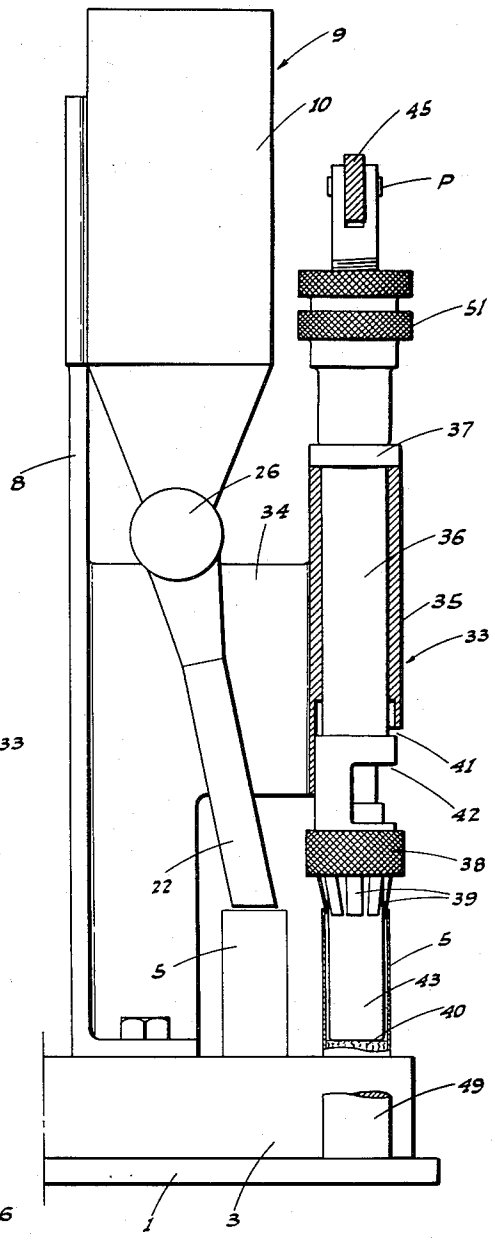


Fig. 7



INVENTOR
Willis C. Miller

BY Brooks & Wilkins
ATTORNEYS

United States Patent Office 2,749,790 Patented June 12, 1956

2,749,790

LOADING AND WADDING DEVICE FOR SHOTGUN SHELLS

Willis C. Miller, Sacramento, Calif.

Application May 18, 1953, Serial No. 355,779

3 Claims. (Cl. 86—29)

The present invention is directed to, and it is a major object to provide, a novel device for effectively and safely loading and wadding used but previously reprimed shotgun shells.

Another object of this invention is to provide a device, for the purpose described, which is operative—in successive steps, and without intervening manipulation of the shells other than movement of a shell carrying turntable ring—to load powder in each shell, place wadding therein, and then load the shot.

An additional object of the instant invention is to provide a novel hopper assembly and valve unit for feeding the powder and shot at the proper time, and in accurately measured quantity, into the shells.

A further object of the invention is to provide a novel wadding unit operative to place one or more wads into each shell readily and with proper pressure; such unit including means to assure of easy passage of each wad, without obstruction by the open end of the shell, into the latter from an initial position in the wadding unit at a point above said shell.

A still further object of the invention is to provide a shotgun shell loading device which, in its normal functioning, prevents the introduction of a double charge of powder in a shell or the missing of a charge.

It is also an object of the invention to provide a shotgun shell loading and wadding device designed for ease and economy of manufacture, simplicity and convenience of use, and high capacity.

Still another object of the invention is to provide a practical, reliable, and durable loading and wadding device for shotgun shells, and one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

Fig. 1 is a front elevation of the device.

Fig. 2 is a top plan view of the same.

Fig. 3 is an enlarged fragmentary sectional elevation, on line 3—3 of Fig. 2, of the hopper assembly and valve unit; the latter being shown in powder feeding and shot receiving position.

Fig. 4 is a similar view, but shows the valve unit reversed; i. e. in powder receiving and shot feeding position.

Fig. 5 is a fragmentary transverse section on line 5—5 of Fig. 2.

Fig. 6 is a fragmentary transverse elevation, mainly in section, taken through the hopper assembly, valve unit, and plunger unit; the latter being shown in its raised or starting position.

Fig. 7 is a fragmentary end elevation similar to Fig. 6 but showing the plunger unit in its lowered or wadding position; said plunger unit being mainly in section.

Referring now more particularly to the characters of reference on the drawings, the novel, shotgun shell loading and wadding device comprises a horizontal mounting

plate 1 fitted centrally thereof with a circular base 2 surrounded by a turntable ring 3; such ring having a plurality of vertical bores 4 therethrough in equally circumferentially spaced relation. The bores 4 are each adapted for the reception, from below, of an upwardly opening shotgun shell 5 which has previously been reprimed and is ready for loading and wadding. Each bore 4 is enlarged at its lower end, as at 6, for reception of the rim of the shell; placement of shells 5 in the bores 4, and the removal of said shells therefrom, being made possible by notching out one corner of the mounting plate 1, as at 7. Such notched-out portion 7 is of an extent to underlie the path of the bores 4, and when the plate 1 is secured to a work bench or the like it is disposed with said notched-out portion 7 clear of the bench, or in alinement with a suitable opening in the latter.

The shotgun shells 5, after being placed in the turntable ring 3, are carried through a full-circle of motion by the latter, but which motion is step by step; each step being a distance equal to the distance between the centers of adjacent bores 4. In such circular path of travel the shotgun shells 5 are disposed in succession at a powder loading station A, a wadding station B, and a shot loading station C; such stations being on the side of the device opposite the notch 7, and being in adjacent or immediately following relationship.

A standard 8 is secured on the base 2 laterally inwardly from station B, and at its upper end such standard supports a powder and shot magazine, indicated generally at 9; such magazine including a powder hopper 10 and a shot hopper 11. The powder hopper 10 is on the side of the magazine 9 adjacent station A, while the shot hopper 11 is on the side adjacent station C.

At its lower end the magazine 9 is fitted with a powder and shot feed valve unit, indicated generally at 12; such unit being horizontal and extending from side to side of the magazine.

The powder and shot feed valve unit 12 comprises a horizontal tube 13 open at opposite ends and having a reciprocable or shuttle type plunger 14 therein. The hoppers 10 and 11 are formed at the bottom with feed openings 15 and 16, respectively, which open downward through the tube 13, while the plunger 14 has a pair of vertical measuring chambers 17 and 18 opening therethrough; the spacing of the chambers 17 and 18 being greater than the spacing of the feed openings 15 and 16.

The chamber 17 is adapted to register with the feed opening 15, whereby to receive a measured quantity of powder 19 from hopper 10 when the plunger 14 is in one position (see Fig. 4), while the measuring chamber 18 is adapted to receive a measured quantity of shot 20 from the hopper 11 when the plunger 14 is in another position (see Fig. 3). A stop pin 21 on the tube 13 works in a longitudinal slot 21*a* in plunger 14 to limit the extent of reciprocation of said plunger 14.

At the end which corresponds to the powder hopper 10, the tube 13 is fitted with a depending powder delivery spout 22, while at the end which corresponds to the shot hopper 11 the tube 13 is fitted with a depending shot delivery spout 23. The spouts 22 and 23 are of a length and are disposed so that they terminate at their lower ends in alinement with and directly above the shells 5 standing in the ring 3 at the stations A and C, respectively.

The plunger 14 is fitted, at opposite ends, with threaded-in axial rods 24 and 25; such rods projecting in opposite directions from said plunger and being fitted, exteriorly of the tube 13, with heads 26 and 27. The head 27 includes, as an outward extension, a finger knob 28.

The rods 24 and 25 are adjustably secured in connection with the plunger 14 by lock nuts 29 and 30; the

inner ends of said rods projecting, as tips **31** and **32**, into the measuring chambers **17** and **18**, respectively.

The extent of projection of the tips **31** and **32** controls, within accurate limits, the capacity of said chambers **17** and **18**.

With the above described arrangement of the plunger **14**, and the particular spacing of the feed openings **15** and **16** in relation to the chambers **17** and **18**, respectively, a full stroke of the plunger in one direction as in Fig. 3, from the position as in Fig. 4, registers the chamber **17** with the spout **22**, so that a measured quantity of powder delivers down said spout into the alined shell **5** at station A. At the same time the measuring chamber **18** is filled with shot from the hopper **11**.

Upon a full stroke of the plunger **14** in the opposite direction the chamber **17** returns to a loading position below the powder hopper **10**, and the measuring chamber **18** registers with the spout **23**, delivering a measured quantity of shot down such spout into the adjacent and alined shell **5** at station C.

It will thus be recognized that by the simple stroking of the plunger **14** first in one direction and then in the opposite direction, alternate feed through spouts **22** and **23** of the powder and shot, respectively, is effected.

In front of the standard **8** and magazine **9** the device includes, in vertical alinement with station B, a shell wadding unit, indicated generally at **33**, and which is constructed as follows:

A web **34** projects forwardly from the standard **8** below the valve unit **12**, and at its outer end such web supports a guide sleeve **35** whose lower end terminates a substantial distance above but in alinement with a shell at station B. An inner sleeve **36** having a stop head **37** at its upper end, and a collar **38** at its lower end, is disposed in the guide sleeve **35** for limited vertical motion. When the guide sleeve **35** is in its lowermost position the collar **38** still remains above the open end of the shell at station B.

The collar **38** secures, on the lower end of the inner sleeve **36**, a circumferential row of downwardly projecting, inwardly inclined spring fingers **39**; the normal lower end diameter of such spring fingers being slightly lesser than that of a wad **40** manually deposited in the inner sleeve **36** through half-circle mouths **41** and **42** in the sleeves **35** and **36**, which mouths register when said inner sleeve **36** is in its raised starting position.

A plunger **43** extends into the inner sleeve **36** from above, running in relatively slidable but frictional engagement through a bushing **44** which is fitted in said sleeve **36**.

The frictional engagement is such as to cause the sleeve **36** to travel with the plunger **43** on its down-stroke and up-stroke to the extent of the limited travel permitted of said sleeve **36**.

Downward travel of the inner sleeve **36** through the limit of its motion is stopped by the head **37**, while upward travel of said sleeve is limited by a shoulder S which comes into abutment with the bushing **44**.

In its raised starting position the plunger **43** is disposed so that its lower end is above the then registering mouths **41** and **42** so as not to obstruct the manual placement of a wad **40** through such mouths, and which wad then drops into engagement with the spring fingers **9**.

At its upper end the plunger **43** is pivoted, as at P, to a vertically swingable hand lever **45** intermediate the ends of the latter. Adjacent but short of one end thereof such hand lever **45** is pivoted, as at **46**, to a swing link **47** pivoted, as at **48**, to the upper end of a post **49** secured to the mounting plate **1**. At the end beyond the link **47** the hand lever **45** is connected to a tension spring **50** which normally but yieldably maintains the hand lever **45** in raised position.

The upwardly projecting portion of the plunger **43** has a vertically adjustable stop nut **51** threaded thereon; such nut being adapted to abut the stop head **37** to limit the extent of downward travel of said plunger **43**.

The above described shotgun shell loading and wadding device is used in the following manner to successively load and wad the shells **5** as they progress step by step through the stations A, B, and C.

With a given shell **5** at station A plunger **14** of the valve unit **12** is shifted in a direction to deliver a measured quantity of powder **19** from the chamber **17** to the spout **22**, whence said powder feeds into the shell at station A.

The turntable ring **3** is then progressed one step, and a wad **40** is deposited in the inner sleeve **36** through the registering mouths **41** and **42**, as previously described.

Thereafter, the hand lever **45** is pulled downwardly, first causing the inner sleeve **36** to lower to the extent of its travel, which causes the circumferential row of spring fingers **39** to engage in the upper end of the shell **5** at station B. The plunger **43** then moves downward through said inner sleeve **36**, engaging the wad, pushing it through the circumferential row of spring fingers **39** and into the shell **5**. In the final portion of the down-stroke of plunger **43**, said wad **40** is seated firmly and with desired pressure on the powder charge previously fed into said shell.

When this has been accomplished, the hand lever **45** is released so that the plunger and the inner sleeve **36** raise to their starting position. If another wad, such as a cushion wad, is desired in the shell, such a cushion wad is engaged in said shell by a repetition of the described wadding operation.

The turntable ring **3** is then again advanced one step so that the shell, with the powder charge and wadding thereon, is progressed to station C. With the shell at said latter station the plunger **14** of the valve unit **12** is shifted in a direcion to cause the measuring chamber **18** to register with the spout **23**, whence a measured quantity of shot **20** delivers downwardly through said spout **23** into the shell at said station C.

Thus, by the progression of each shell step by step through stations A, B, and C, with powder feeding, wadding, and shot feeding operations, respectively, at said stations, shotgun shells can be loaded quickly, accurately, and effectively.

After completion of the loading of a shell at station C, and in the next step thereof, each shell moves to a further station, indicated at D. At station D the upper end of the shell is crimped by a crimping device mounted on the base **2** but not here shown; such crimping device being the subject of copending application, Serial No. 357,418, filed May 26, 1953.

In the next progressive step of each shell it returns to a position over the notched-out corner **7**, whereupon the shell is manually withdrawn from the turntable ring **3**.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention, as set forth herein.

While this specification sets forth the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as set forth herein.

Having thus described the invention, the following is claimed as new and useful, and upon which Letters Patent are desired:

1. A wadding unit for shotgun shells, comprising a mount, means on the mount adapted to support an upwardly opening shotgun shell at a predetermined station, a standard on the mount, a vertical guide sleeve secured to the standard in vertical alinement with but above a shell at said station, an inner sleeve slidable downward a limited distance in the guide sleeve from a raised starting position, a plunger slidable in the inner sleeve for a downstroke from a raised starting position with the lower end of the plunger above the corresponding end of the inner sleeve to a lowered position with said end of the plunger in the shell, there being sufficient frictional drag between the plunger and inner sleeve to slide the latter

to its down position and to its raised starting position on the down-stroke and up-stroke, respectively, of the plunger, openings in the sleeves in register at the start and through which openings a wad may be deposited in the inner sleeve, and a circumferential row of spring fingers depending at an inward incline from the lower end of the inner sleeve adapted to receive and downwardly releasably support a wad so deposited, the plunger on its down-stroke pushing the wad through said row of spring fingers into the shell.

2. A wadding unit, as in claim 1, in which said spring fingers are above the shell in the starting position of the inner sleeve but are of a length to project into the shell when said inner sleeve is in its down position.

3. A wadding unit for shotgun shells comprising a mount, a horizontally movable member on the mount to support an upwardly opening shotgun shell for horizontal movement to and from a predetermined station, a sleeve axially alined with and above a shell at said station having

wad engaging fingers to releasably support a wad, means mounting the sleeve on the mount for vertical reciprocating movement between an initially raised position with the fingers clear of the shell and a lowered position with the fingers projecting into the shell, and a plunger reciprocable within the sleeve to press the finger-engaged wad downwardly into the shell and clear of the fingers.

References Cited in the file of this patent

UNITED STATES PATENTS

347,268	Franklin	Aug. 10, 1886
481,127	Wagner	Aug. 16, 1892
528,097	Hisey	Oct. 23, 1894
659,630	Simmons	Oct. 9, 1900
713,032	Wetzig	Nov. 4, 1902
772,865	Breckenridge	Oct. 18, 1904
1,548,845	Dickerman	Aug. 11, 1925