Jan. 24, 1967 G. E. CLUTE 3,300,089

SHOTGUN SHELL WAD DISPENSER ASSEMBLY

Filed June 7, 1965 2 Sheets-Sheet 1

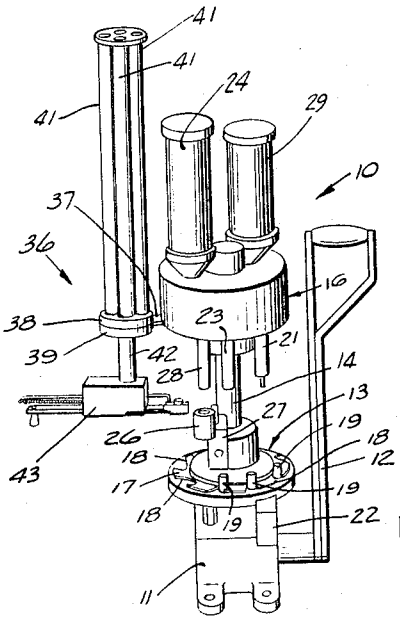


FIG. 1

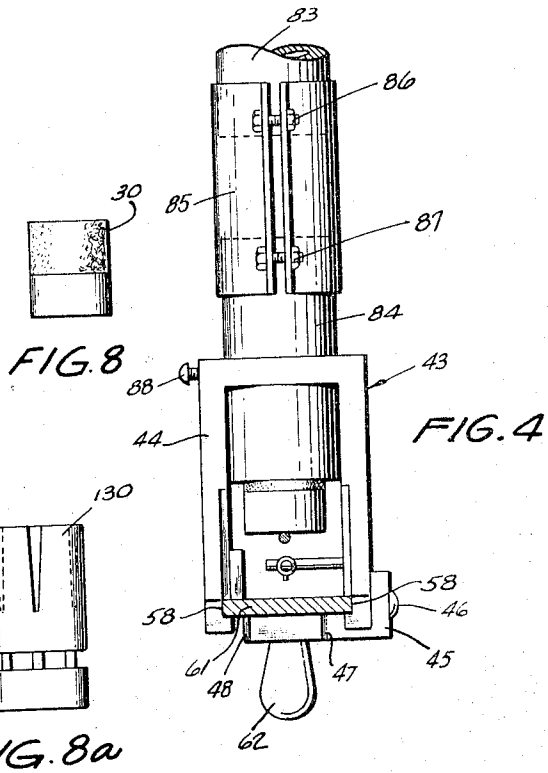


FIG. 4

FIG. 8

FIG. 8a

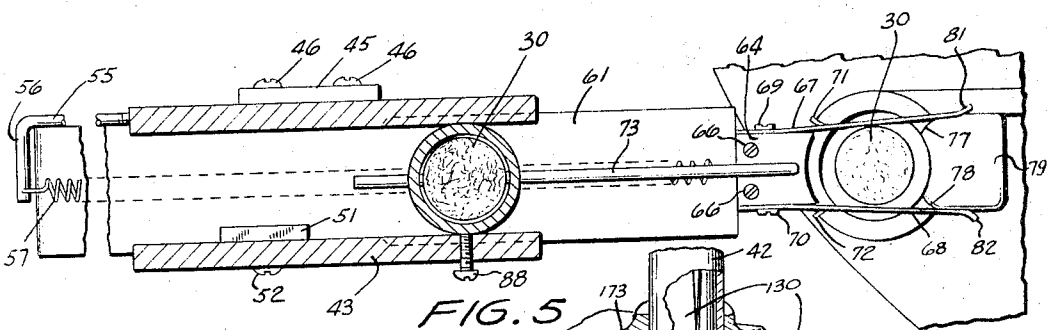


FIG. 5

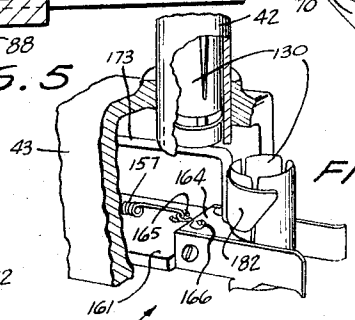


FIG. 7

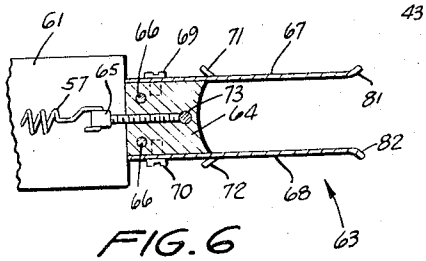


FIG. 6

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SHOTGUN SHELL WAD DISPENSER ASSEMBLY

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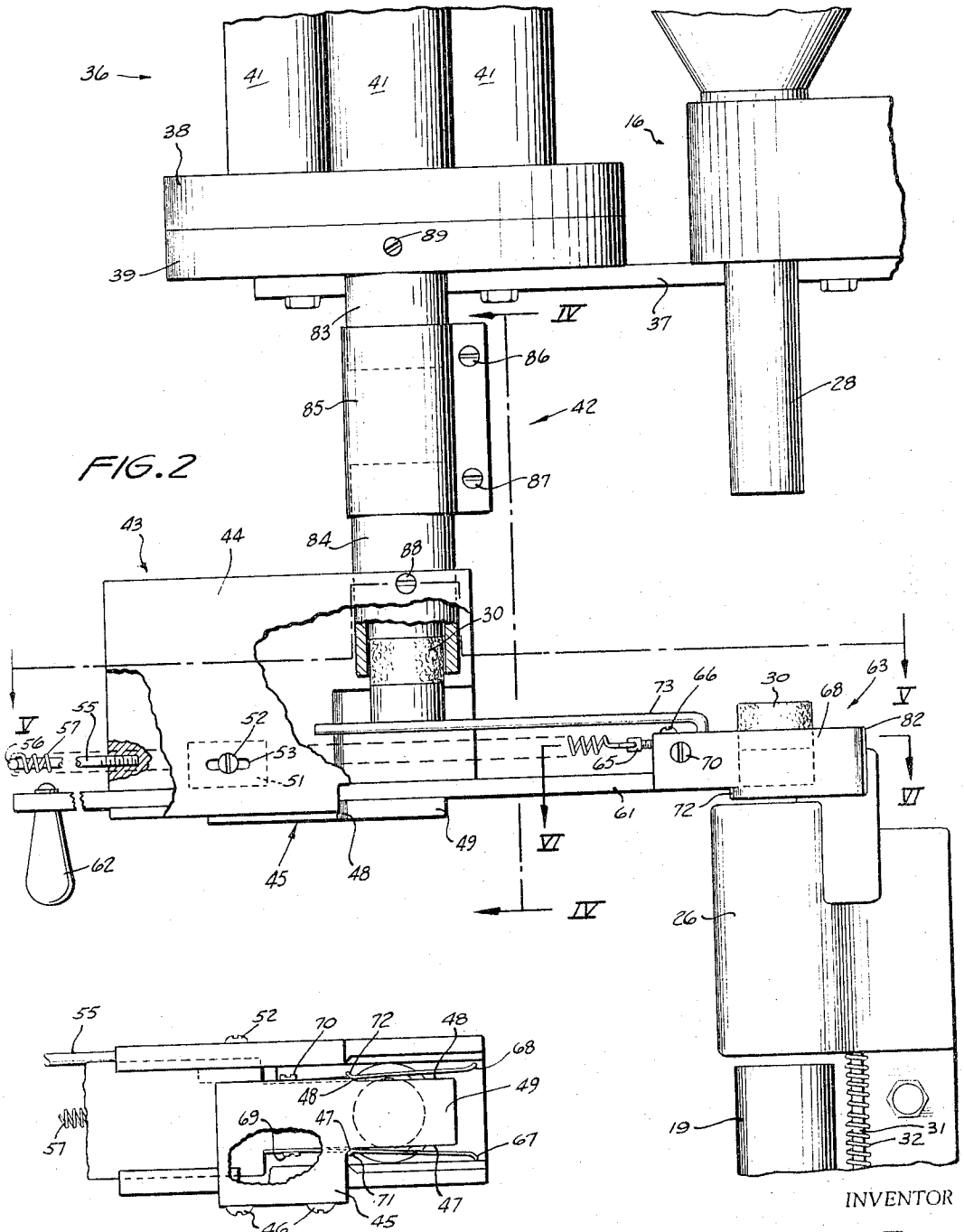


FIG. 2

FIG. 3

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SHOTGUN SHELL WAD DISPENSER ASSEMBLY

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Filed June 7, 1965, Ser. No. 461,696
16 Claims. (Cl. 221—220)

The present invention relates broadly to a dispensing mechanism and in its specific phases to a turret-type wad dispenser assembly for use with a shotgun shell reloader mechanism.

The sporting activity of skeet shooting and trap shooting has been a favorite of many sportsmen over the years. These sporting activities are becoming more active among a broader range of our society. It is a practice among the participants of these sports to either buy new shotgun shells or reload their own. Many of the people who reload their own shotgun shells enjoy this activity and find it to be a very relaxing and educational experience. Others who reload their shotgun shells find it is a necessary part of the sport because of the economic factors in purchasing new shotgun shells. These sportsmen do not really consider it one of the enjoyable aspects.

There are presently various shotgun shell reloading pieces of equipment on the market. Most of these require several manual operations to be performed during each step of their operation. One of the operations which prove most time consuming is the inserting of shotgun shell wads in position to have a wad loading tool insert the wad into a shotgun shell. The wad loading operation has proved to be very time consuming for two basic reasons. One is getting the wad in position for loading by the wad loading tool, and the other is providing proper storage space for the wads while they are waiting to be loaded into a shotgun shell. Because of the different characteristics of shotgun shell wads, shotgun shell wads have various shapes and constructions which give them considerably different physical features that cause trouble in putting them on somewhat of an automatic basis for loading. One parameter that stays constant is the diameter of the wads which equals the internal diameter of the shotgun shells.

Accordingly, among the objects of the present invention is the provision of a simple and inexpensive shotgun shell wad loading and dispensing mechanism which can receive a wad and transfer it to a loading position and release it automatically at that point.

Another object of the present invention is to provide a novel wad loading and dispensing mechanism which is adapted to have a transfer mechanism receive a desired number of wads from a storage container and transfer them to a loading station while supporting the wads in the storage container for loading into the transfer mechanism upon its return from the loading station.

A further object is to provide a wad loading system having a wad storage tube with which a wad loading mechanism can be adjusted to permit only a desired number of wads to be discharged from the storage container into the transfer mechanism at any one time.

A further object is to provide a wad loading mechanism capable of handling more than one size shotgun shell wad.

A further object is to provide a loading mechanism which can be easily adjusted to handle shotgun shell wads having ranges of height.

Still further objects and advantages of the present invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, consists of a special wad loading mechanism hereinafter fully described and particularly pointed out in the claims, the annexed drawings and

the following description setting forth in detail certain means for carrying out the invention, such disclosed means illustrating, however, but several of the various ways in which the principle of the invention may be used.

In the annexed drawings:

FIGURE 1 is a perspective view showing a wad loading mechanism of the present invention being attached to a shotgun shell reloading assembly mechanism.

FIGURE 2 is an enlarged partial sectional elevational view of a wad dispensing assembly showing the arrangement and position of various parts during one stage of its operation.

FIGURE 3 is a partial sectional plan view showing the bottom of the wad receiving chamber when it is in position to receive a wad from the wad receiving tube assembly.

FIGURE 4 is a partial sectional end view showing the wad receiving chamber of the wad dispensing assembly taken along line IV—IV of FIGURE 2.

FIGURE 5 is a partial sectional view showing the wad dispensing assembly as it drops a shotgun shell wad at the shell guide member taken along line V—V of FIGURE 2.

FIGURE 6 is a partial sectional view substantially taken along line VI—VI of FIGURE 2 when the wad receiving mechanism is in a neutral condition and is not holding a wad and is not in contact with any of the cam members.

FIGURE 7 is a perspective view of a shotgun shell wad dispensing assembly showing an alternate embodiment of the present invention illustrating the arrangement when a long shotgun shell wad member is being used.

FIGURE 8 is an elevational view of a standard shotgun shell wad member.

FIGURE 8*a* is an elevational view of a long shotgun shell wad member such as illustrated in FIGURE 7 showing an alternate embodiment of the present invention.

Referring to FIGURE 1, a shotgun shell reloading assembly is shown and generally referred to as **10**. The shotgun shell reloading assembly **10** has a base **11** and an actuator handle member **12**. When the actuator handle member **12** is operated, it actuates a shell securing assembly **13** by raising it up along a shaft **14** toward an operating head **16**. The tools mounted on the operating head **16** perform various functions on the shotgun shells bly **13** first moves to its upper position and then to its down position on shaft **14**, as viewed in FIGURE 1.

FIGURE 8*a* is an elevational view of a long shotgun An indexing spider **17** having mounting slots **18**, indexes the shotgun shells **19** from one station to the next station. As viewed in in FIGURE 1, the indexing spider **17** with mounting slots **18** moves the shotgun shells **19** to their next position when the shell securing assembly **13** returns to its down position so that the shotgun shell reloading assembly **10** can be operated again by actuator handle member **12**.

The first station to work on a shotgun shell **19** has a primer ejector tool **21** mounted on the operating head **16**. The ejector tool **21** punches out the primer of a spent shotgun shell **19**, depositing it in a primer ejector case **22**. The next station has a dual function: one function is to insert a new primer in the shotgun shell **19**, and the other function is to pass the shotgun shell **19** over the end of loader tube **23** to receive the gunpowder from a powder supply member **24**.

The next station on the shotgun shell reloading assembly **10** is the wad loading station where a wad **30** is positioned in a shell guide member **26** and pushed into the shotgun shell **19** by a wad loading tool **28**. The shell guide member **26** is spring loaded to a guide support **27** permitting it to be moved up and down a limited distance with respect to the shell securing assembly **13**. The wad

loading tool 28 will act on the wad 30 positioned in the shell guide member 26 and pushes it into a shotgun shell 19. After the wad 30 is inserted the shotgun shell 19 continues to rotate on the shell securing assembly 13 about the shaft 14 when the indexing spider 17 indexes.

The next two stations on the shotgun shell reloading assembly 10 are dwell stations and perform no work upon the shotgun shell 19. The station after the two dwell stations has a tool, not shown in the drawings, which sizes the shotgun shell 19, putting its body in condition for crimping. The next station is a shot loading station which loads shot into the shotgun shell 19 from shot supply member 29. The next station is another dwell station. The next to the last station has a pre-crimping tool, not shown in the drawings, which starts the crimping action on the shell edge, and the last station is the crimping station which completes the crimping action and the reloading operation of a shotgun shell. The shotgun shell 19 is then removed from the shotgun shell reloading assembly 10 and is ready for use.

Referring generally to FIGURE 2, a shotgun shell 19 is aligned under shell guide member 26, ready to receive the wad 30. The wad 30 is dropped into the shell guide member 26, as will be fully explained below. When the wad 30 is in position in the shell guide member 26 the actuator handle member 12 is operated causing the shell securing assembly 13 to be raised bringing the wad loading tool 28 into contact with the wad 30. The shell guide member 26 is then prohibited from continuing to move up freely and moves down over the shotgun shell 19 guiding it into position with respect to the wad 30 and the wad loading tool 28. The wad loading tool 28 pushes the wad 30 into the shotgun shell 19 with the shell guide member 26 moving down along guide shaft 31 against the force of a spring 32. The guide shaft 31 is surrounded by the spring 32 which continuously urges the shell guide member 26 to an up position so when the shell securing assembly 13 moves down and away from the wad loading tool 28 the spring 32 will push the shell guide member 26 to its up position and its maximum distance from the indexing spider 17, so that the shotgun shell 19 which just received the wad 30 and the next shotgun shell 19 can clear the shell guide member 26 when the indexing spider 17 indexes the shotgun shells 19 mounted on the shell securing assembly 13.

A wad dispensing assembly 36 is secured to the operating head 16 by a connecting member 37 in a usual manner well known in the art. The wad dispensing assembly 36 is positioned so as to permit the wad 30 to be dropped into the shell guide member 26 as will be explained below.

The wad dispensing assembly 36 has a rotatable disc support 38 and a stationary disc support 39. The rotatable disc support 38 is rotatably connected to the stationary disc support 39. A storage tube 41 on rotatable disc support 38 is positioned over a wad receiving tube assembly 42 permitting the wads 30 to pass from a wad storage tube 41 into the wad receiving tube assembly 42.

The wads 30 pass from the wad receiving tube assembly 42 into a wad receiving chamber 43. The wad receiving chamber 43 has a housing member 44 and a bottom member 45 which is secured to the housing member 44 by bolts 46. The bottom member 45 has cam surfaces 47 and 48 as the side edges of a wad support member 49 whose functions will be explained in more detail below. The housing member 44 has a stop block 51 mounted on its inside surface. The stop block 51 can be adjustably positioned along a slot 53 in the side of housing member 44, in a preferred embodiment. A support rod 55 has a securing arm 56 and is secured to and positioned on the backside of the housing member 44 as viewed in FIGURES 2 and 5. The securing arm 56 secures one end of a spring 57, a full description of the function of the spring will be given below.

The housing member 44 has guide tracks 58 on both sides of its inside surface area which receive an actuator member 61. The actuator member 61 has a handle 62 at one end and a wad transferring unit 63 at the other end. The wad transferring unit 63 has a support block 64 with a spring securing element 65 attached to its backside to secure the other end of spring 57. The wad transferring unit 63 is secured to the actuator member 61 by securing bolts 66. Leaf springs 67 and 68 are connected to the support block 64 by bolts 69 and 70, respectively. The leaf springs 67 and 68 are provided with cam dogs 71 and 72, respectively, as viewed in FIGURES 3 and 6, for example. The spring 57 continually urges the support block 64 toward the securing arm 56 of support rod 55. Stop block 51 acts on support block 64 determining the distance it can move toward securing element 56.

The stop block 51 is set up to stop support block 64 after it has passed to the left of wad receiving tube assembly 42 in the wad receiving chamber 43, as viewed in FIGURE 2, so that a wad 30 can drop in front of support block 64 onto wad support member 49. The cam surfaces 47 and 48 act with the cam dogs 71 and 72, respectively, moving leaf springs 67 and 68 away from each other so that the wad 30 can be dropped into position on wad support 49 between them. When the wad 30 has dropped into position, the handle 62 can be moved to the right, as viewed in FIGURE 2, toward the shaft 14 moving the actuator member 61 and the wad supporting unit 63 toward shell guide member 26. As the wad supporting unit 63 moves forward, the cam dogs 71 and 72 will move off the cam surfaces 47 and 48, respectively, permitting the leaf springs 67 and 68 to move together and grip the wad 30. As the leaf springs 67 and 68 act on the wad 30 it will be removed from underneath the wad receiving tube assembly 42. The wad above the removed wad 30 will be supported by a wad bar 73. The wad bar 73 prevents the stored wads from dropping out of the wad receiving tube assembly 42. As the wad transferring unit 63 arrives at the shell guide member 26, the leaf springs 67 and 68 will act on cam surfaces 77 and 78, respectively, of the cam member 79, with their cam following surfaces 81 and 82, respectively. This causes the leaf springs 67 and 68 to move apart releasing their grip on the wad 30 and permitting it to drop into the shell guide member 26. The operator can then either move the wad transferring unit 63 back to its start position by handle 62 or release handle 62, permitting the spring 57 to move the wad transferring unit 63 back to its start position and ready to transfer the next wad. When the wad transferring unit 63 moves back to its start position, the cycle will start over again with cam dogs 71 and 72 acting on cam surfaces 47 and 48, respectively, to move the leaf springs 67 and 68 apart so that the next wad 30 will be dropped into position on the wad support member 49. When the wads 30 have been emptied from the wad storage tube 41 aligned with the wad receiving tube assembly 42, the rotatable disc support 38 can be turned, positioning a filled wad storage tube 41 into alignment.

The wad receiving tube assembly 42, as shown in FIGURES 2 and 4, has an upper tube 83 and a lower tube 84 to connect it together by tube clamp 85. The tube clamp 85 is secured to the upper and lower tube 83 and 84 by bolts 86 and 87, respectively. The wad receiving chamber may be adjustable both radially and axially with respect to the wad receiving tube assembly by a holding bolt 88. Holding bolt 88 is positioned in a threaded hole in wad receiving chamber 43 and acts on lower tube 84 securing chamber 43 and tube 84 in a fixed relationship. By loosening holding bolt 88 the wad receiving chamber 43 may be positioned up or down axially and turned in any radial position on the lower tube 84. The radial adjusting feature permits the wad transferring unit 63 and the leaf springs 67 and 68 to be aligned properly with the shell guide member 26 and the cam member 79. The up-

per tube **83** is secured in the stationary disc support **39** by a locking bolt **89**.

The arrangement just explained discloses a wad receiving tube assembly **42** having extensive adjustability features permitting the wad dispensing assembly **36** to handle various size wads and to dispense the desired number of wads at any one time. An alternate arrangement would be to have the wad dispensing tube assembly **42** made up merely of different tubes. An example would be if an operator was loading shotgun shells having two different size wads, he would have one wad receiving tube assembly for one wad and another wad receiving tube assembly for the other wad. This would merely require the operator to loosen holding bolt **88** removing the wad receiving chamber **43** from the wad receiving tube assembly **42** and then loosen locking bolt **89** removing the wad receiving tube assembly **42** from the stationary disc support **39** and then put in the desired wad receiving tube assembly **42** and connect the wad receiving chamber **43** with it. This would be a system having a single wad receiving tube as the wad receiving tube assembly, as illustrated in FIGURE 1.

There are numerous requirements and specifications for shotgun shells and because of these differences various types of wad members are used. FIGURE 8 illustrates a popular type of wad referred to as **30** and which has been used in explaining the present invention as viewed in FIGURES 2 and 4, for example. FIGURE 8*a* shows a different size wad generally referred to as **130** which illustrates another popular type of wad member. FIGURE 7 illustrates the present invention in an alternate embodiment for use with wads illustrated in FIGURE 8*a*. Referring to FIGURE 7 we have a support block **164** which has a securing element **165** which acts on one end of spring **157**. The support block **164** is secured to one end of an actuator member **161** by securing bolts **166**. The support block **164** has leaf springs **167** and **168** which hold wad **130** in position between them to be dropped into a shell guide member **26** in a similar manner as described above in reference to the embodiment disclosed in FIGURES 2 and 5. The support block **164** has an upper guide **182** which surrounds the upper portion of wad **130**. The function of upper guide **182** is to support wad **130** so it remains in an upright position so that when leaf springs **167** and **168** act on cam member **79** the wad **130** will drop into shell guide member **26** for loading into a shotgun shell **19**. The support block **164** has a wad bar **173** which extends above the upper guide **182** and holds the stored wads **130** in the wad receiving tube assembly **42** when the actuator member **61** is carrying one wad to the shell guide member **26**.

In order to remove actuator member **161** the operator merely disengages spring **157** from the securing element **165** and loosens securing bolts **166** which permits the removal of support block **164** and then support block **64** may be replaced in a similar manner. The adjustment of the wad receiving chamber **43** with respect to the wad receiving tube assembly **42** will be made as explained above. A system as shown in FIGURE 7 may be used if two wads as illustrated in FIGURE 8 were to be loaded in a shotgun shell **19**.

While but a few forms of the invention have been shown and described, other forms within the spirit and scope of the invention will now be apparent to those skilled in the art. Therefore, the embodiments shown in the drawings are to be considered as merely being set forth for illustrative purposes, and are not intended to limit the scope of the invention herein described and shown.

Other modes of applying the principles of my invention may be employed instead of those explained, change being made as regards the details herein described, provided the means and features stated by any of the following claims or the equivalent of such stated means and features be employed.

I therefore particularly point out and distinctly claim as my invention:

1. A wad dispensing assembly for use with an assembling machine having a wad loading station comprising

(a) said dispensing assembly having a wad receiving tube assembly,

(b) means to put wads in one end of said wad receiving tube assembly,

(c) a wad receiving chamber connected to one end of said wad receiving tube assembly and having an actuator means,

(d) said actuator means having a wad transferring unit to receive wads from said wad receiving tube assembly at a wad receiving position,

(e) leaf springs as part of said wad transferring unit,

(f) said actuator means to move said wad transferring unit from said wad receiving position to said wad loading station,

(g) means to make said leaf springs grip said wad when said wad transferring unit moves from said wad receiving position,

(h) means to release said leaf springs from said wad when said wad transferring unit moves to said wad loading station,

(i) a support block is connected to said actuator means and holds said leaf springs,

(j) said leaf springs have cam dogs substantially adjacent to said support block,

(k) a bottom member is secured to said wad receiving chamber to receive a wad from said wad receiving tube assembly, and

(l) said bottom member has cam surfaces to act with said cam dogs separating said leaf springs to permit the bottom member to receive the wads.

2. A wad dispensing assembly as specified in claim **1**, and further characterized in that

(a) a shell guide member is positioned on said assembling machine at said wad loading station,

(b) cam following surfaces are formed substantially at the ends of said leaf springs,

(c) a cam member is mounted adjacent to said shell guide member and has cam surfaces to act with said cam following surfaces, and

(d) said wad drops on said shell guide member when said cam surfaces act on said cam following surfaces.

3. A wad dispensing assembly as specified in claim **2**, and further characterized in that

(a) said wad receiving chamber provides guide tracks to guide said actuator means,

(b) a securing arm is connected to said wad receiving chamber,

(c) a securing element is connected to said support block, and

(d) a spring member has one end connected to said securing arm and the other end connected to said securing element and continuously urges said support block toward the wad receiving position.

4. A wad dispensing assembly as specified in claim **3**, and further characterized in that

(a) a stop block is secured on wad receiving chamber between said securing arm and said support block, and

(b) said stop block acts on and stops said support block at said wad receiving position.

5. A wad dispensing assembly as specified in claim **4**, and further characterized in that

(a) an upper guide member is secured to said support block and acts on said wad's upper portion to hold it in substantially an upright position.

6. A wad dispensing assembly as specified in claim **5**, and further characterized in that

(a) a wad bar is connected with and extends along said actuator means, and

(b) said wad bar is positioned between said wad receiving tube assembly and said bottom member when said wad transferring unit is moved from said wad

receiving position and supports a wad in said wad receiving tube assembly.

7. A wad dispensing assembly as specified in claim 6, and further characterized in that

(a) a wad storage tube is removably positioned over said wad receiving tube assembly, and

(b) said wad storage tube passes wads into said wad receiving tube assembly as wads move out of the wad receiving tube assembly onto said bottom member.

8. A wad dispensing assembly as specified in claim 7, and further characterized in that

(a) said wad receiving tube assembly has upper and lower tube members which are adjustably secured together by a tube clamp.

9. A wad dispensing assembly for use with an assembling machine having a wad loading station comprising

(a) a connecting member positioning said dispensing assembly adjacent to said assembling machine,

(b) a stationary disc support secured to said connecting member,

(c) a disc support having one or more wad storage tubes and rotatably connected to the top side of said stationary disc support,

(d) a wad receiving tube assembly having its upper end connected to the bottom side of said stationary disc support,

(e) a wad receiving chamber connected to the bottom end of said wad receiving tube assembly and having an actuator member,

(f) a support block connected to said actuator member,

(g) a bottom member secured to said wad receiving chamber to receive a wad from said wad receiving tube assembly,

(h) two leaf springs connected to the side of said support block and extending towards said wad loading station,

(i) said leaf springs having cam dogs substantially adjacent to said support block,

(j) said support block having a wad receiving position below said wad receiving tube assembly and a wad discharge position at said wad loading station,

(k) said actuator member moving said support block from said wad receiving position to said wad discharge position,

(l) cam surfaces on said bottom member to act on said cam dogs to make said leaf springs grip said wad when said support block moves from said wad receiving position, and

(m) means to release said leaf springs from said wad when said support block arrives at said wad discharge position.

10. A wad dispensing assembly as specified in claim 9, and further characterized in that

(a) a shell guide member is positioned on said assembling machine at said wad loading station,

(b) cam following surfaces are formed substantially at the ends of said leaf springs,

(c) a cam member is mounted adjacent to said shell guide member and has cam surfaces to act with said cam following surfaces, and

(d) said wad drops on said shell guide member when said cam surfaces act on said cam following surfaces.

11. A wad dispensing assembly as specified in claim 10, and further characterized in that

(a) said wad receiving chamber provides guide tracks to guide said actuator means,

(b) a securing arm is connected to said wad receiving chamber,

(c) a securing element is connected to said support block, and

(d) a spring member has one end connected to said securing arm and the other end connected to said securing element and continuously urges said support block toward the wad receiving position.

12. A wad dispensing assembly as specified in claim 11, and further characterized in that

(a) a stop block is secured on wad receiving chamber between said securing arm and said support block, and

(b) said stop block acts on and stops said support block at said wad receiving position.

13. A wad dispensing assembly as specified in claim 12, and further characterized in that

(a) a wad bar is secured to said support block and extends toward said securing arm, and

(b) said wad bar is positioned between said wad receiving tube assembly and said bottom member when said wad transferring unit is moved from said wad receiving position and supports a wad in said wad receiving tube assembly.

14. A wad dispensing assembly as specified in claim 13 and further characterized in that

(a) an upper guide member is secured to said support block and acts on said wad's upper portion to hold it in substantially an upright position.

15. A wad dispensing assembly as specified in claim 14, and further characterized in that

(a) a wad storage tube is removably positioned over said wad receiving tube assembly, and

(b) said wad storage tube drops wads into said wad receiving tube assembly as wads are dropped from the wad receiving tube assembly onto said bottom member.

16. A wad dispensing assembly as specified in claim 15, and further characterized in that

(a) said wad receiving tube assembly has upper and lower tube members which are adjustably secured together by a tube clamp.

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