United States Patent [19]

Bomar

[11] **3,757,407**

[45] **Sept. 11, 1973**

[54] **MAGAZINE HOLDING A MULTIPLE NUMBER OF SCREWS TO BE USED WTH AN ELECTRIC DRILL**

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[22] Filed: **Mar. 2, 1972**

[21] Appl. No.: **231,222**

[52] **U.S. Cl.** ..... **29/212 R,** 29/240

[51] **Int. Cl.** **B23q 7/10,** B23p 19/04

[58] **Field of Search** ..... 29/212 R, 212 D, 29/240, 211 R, 200 R

[56] **References Cited**

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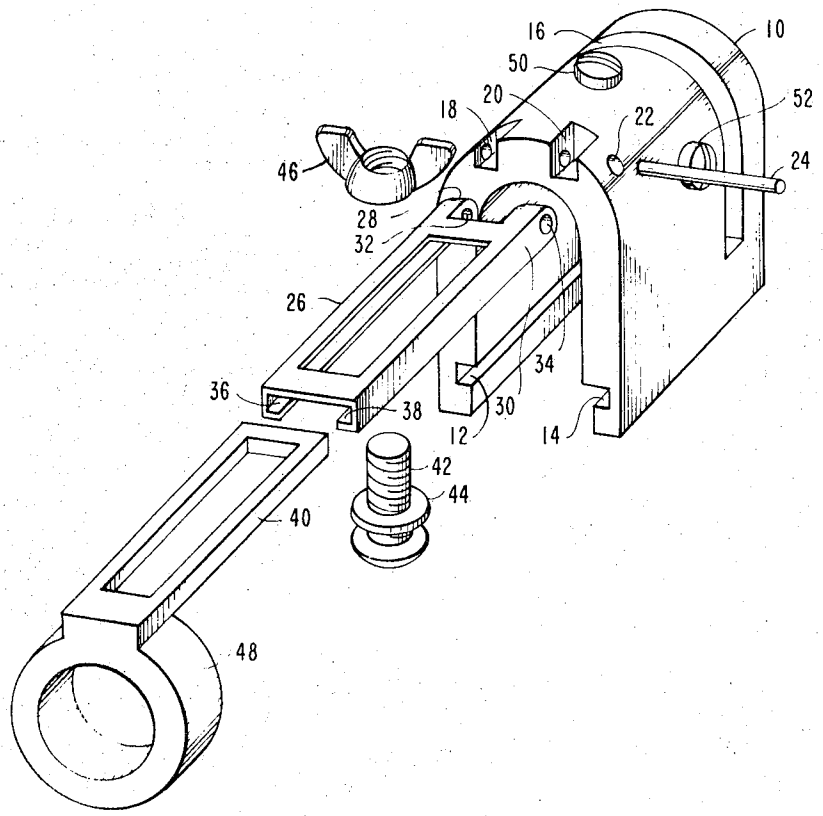
Primary Examiner—Thomas H. Eager

Attorney—Sanford Astor

[57] **ABSTRACT**

This invention relates to a cartridge or magazine holding a multiple number of screws to be used in connection with an electric drill having a screw driver type blade so that the operator may insert a multiple number of screws without having to place each screw individually into place prior to use of the drill.

8 Claims, 7 Drawing Figures



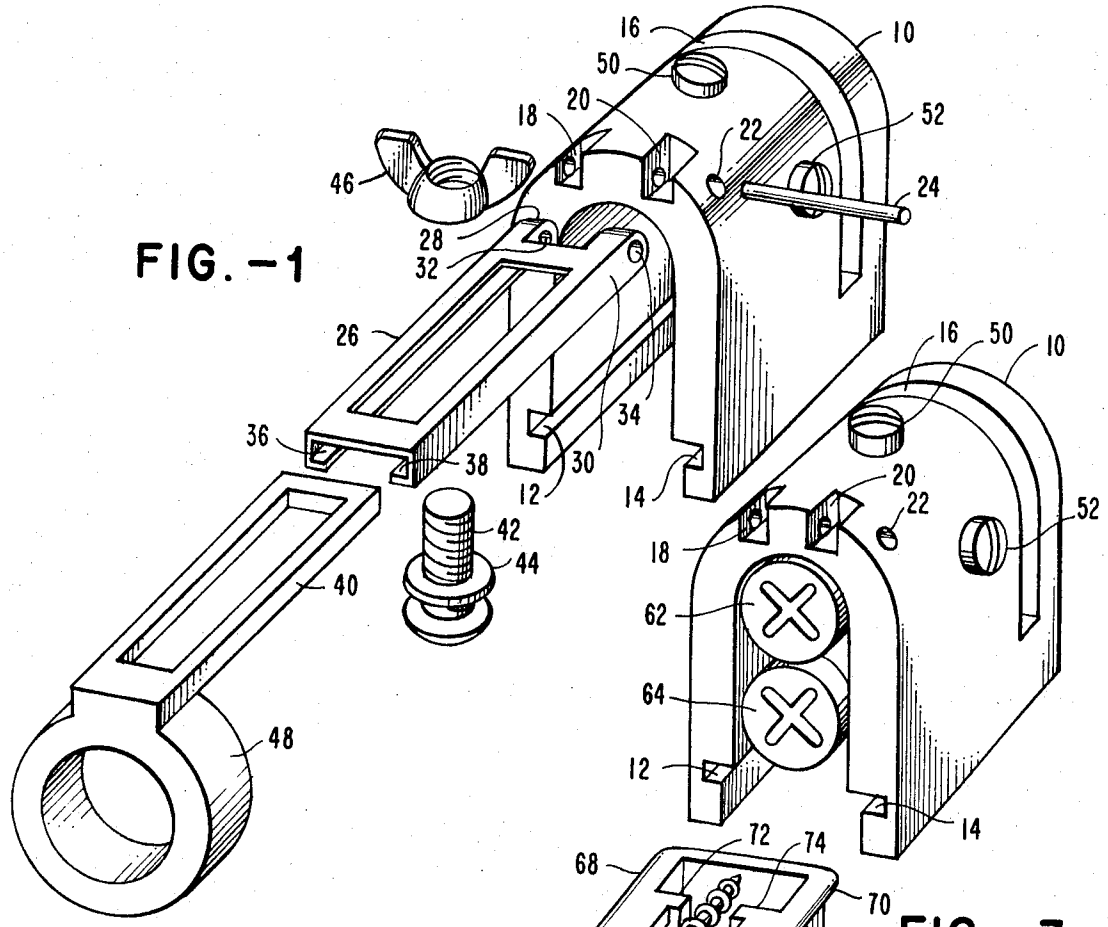


FIG.—1

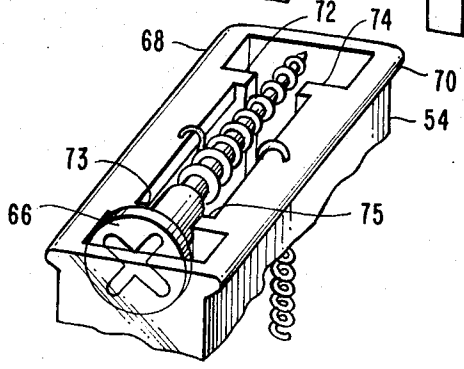


FIG.—3

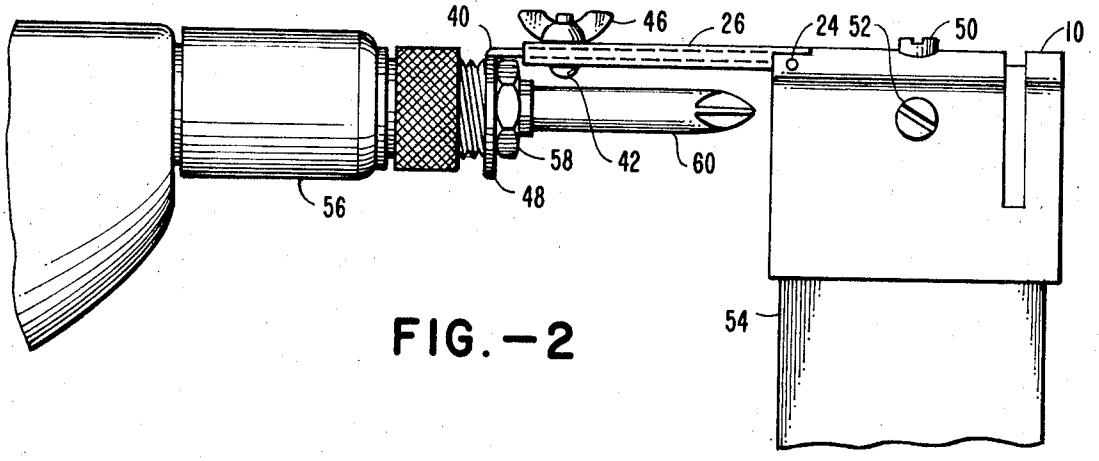


FIG.—2

FIG.—4

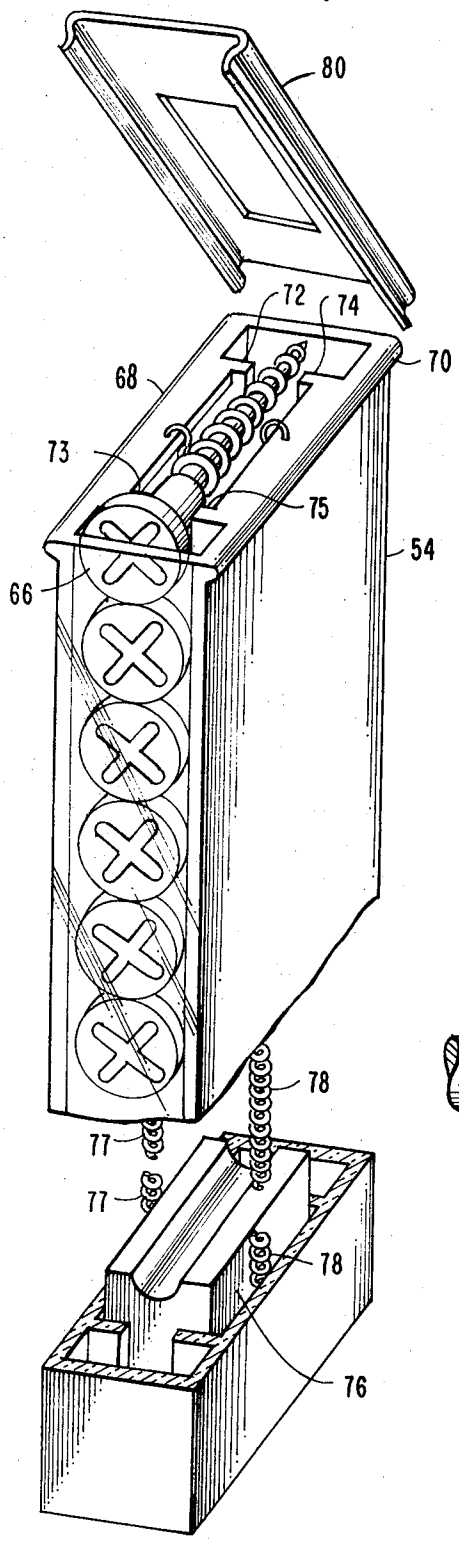
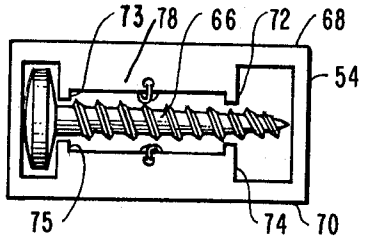


FIG.—5



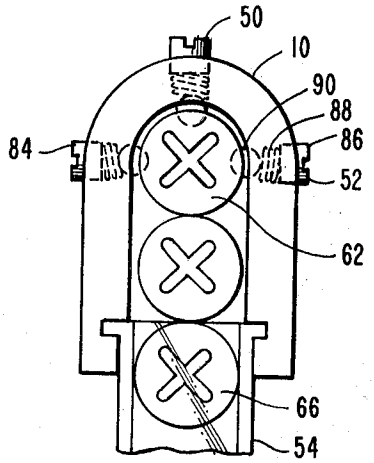


FIG.—6

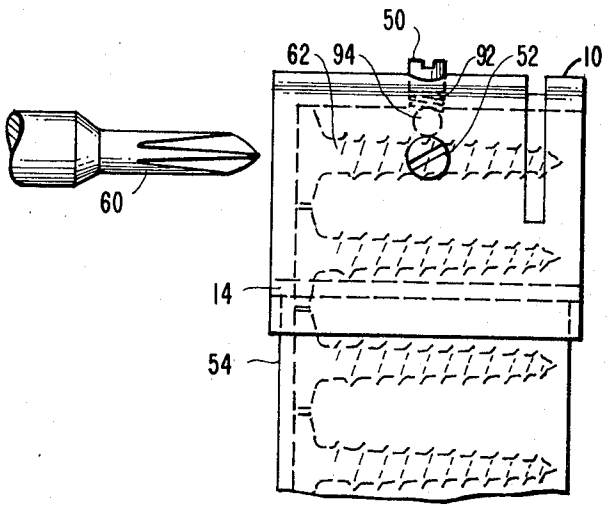


FIG.—7

MAGAZINE HOLDING A MULTIPLE NUMBER OF SCREWS TO BE USED WTH AN ELECTRIC DRILL

BACKGROUND OF THE INVENTION

In the process of building houses and buildings as well as other structures, carpenters must insert a very large number of screws into place in a repetitive manner. This has been done by the carpenter holding a handful of screws to be inserted, placing each one in place with his hand, inserting the blade of the screwdriver into the screw and screwing it into place. As each screw is inserted the carpenter must place the next screw into postion with his hand and follow the same procedure.

It is an object of the present invention to provide a magazine whereby multiple screws can be inserted one after the other without the carpenter having to place each one in place with his hand.

It is a further object of this invention to provide a magazine which is portable and may be attached to an electric drill used as a screwdriver to form one operational device for insertion of multiple screws.

Yet, a further object of this invention, is to provide a magazine whereby a carpenter can rapidly and without wasted motion install a multiple number of screws into a project.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in detail with reference to the accompanying drawings in which:

FIG. 1 is an exploded perspective view of the device of the present invention.

FIG. 2 is a side elevation of the upper portion of the device of the present invention.

FIG. 3 is an exploded perspective view partially broken away of the drill in relation to the device of the present invention.

FIG. 4 is an exploded perspective view partially broken away of the cartridge portion of the device of the present invention.

FIG. 5 is a plan view of the cartridge portion of the device of the present invention.

FIG. 6 is an end view of the device as shown in FIG. 5

FIG. 7 is a side elevation of the device shown in FIG. 5 and FIG. 6 with the screwdriver in juxtaposition.

Referring now to the drawings, there is shown in FIG. 1 a generally arch-shaped top or head **10** of the device of the present invention. Head **10** has slots **12** and **14** running parallel to the lower edge of head **10** on the inner surface thereof adapted to receive a shoulder or flange described later. In addition, head **10** contains a slot **16** running across the top of head **10** which is adaptable to receive a clamp or flange so that two identical heads such as head **10** may be clamped together in series.

In the upper front portion of head **10** are two slots **18** and **20** adaptable to receive a flange or shoulder. A hole **22** running across at the top front portion of head **20** and through slots **18** and **20** is adapted to receive pin **24**.

A slide mounting **26** having flanges **28** and **30** containing holes **32** and **34** fits into slots **18** and **20** in head **10** to be securely fastened by pin **24**. Thus slidable mounting **26** may rotate on pin **24**.

Slide mounting **26** contains two flanges **36** and **38** running lenthwise adapted to receive a slide mounting

40, which can slide into and is held by flanges **36** and **38**. A bolt **42**, washer **44** and nut **46** protrudes through slide mounting **40** and slide mounting **36** to prevent detachment from each other.

Slide mounting **40** has fixedly attached to it a circular collar **48** adapted to fit around the head of the drill as shown in FIG. **2**.

Head **10** contains positioners **50** and **52** which as shown later position the uppermost screw in a firm position for insertion by the drill.

Referring now to FIG. **2**, there is shown head **10** to which is attached cartridge **54** shown in more detail later and containing positioners **50** and **52**. Slide mounting **26** is held into head **10** by pin **24**. Inserted into slide mounting **26** is slide mounting **40** which is held from detachment by bolt **42** and nut **46**.

Collar **48** is fastened onto the head of drill **56** and held firmly in place by securing nut **58**. The drill bit **60**, shown in the drawings as a Phillips-head screwdriver, is then in position in relation to the screw to be inserted so that all the operator need do is press the head **10** and cartridge **54** against the board or object into which the screw is to be inserted and to push the drill forward and insert the drill bit into the screw and the screw into the wall.

A recoil spring, not shown, may be placed between the drill head **56** or the collar **48** and the head **10** which serves to bias the drill and head **10** apart so that after the drill is pushed forward by the operator, pulling back on the drill will separate the drill and head **10**. Otherwise, it must be done by hand.

There is shown in FIG. **3** the head **10** containing groove **16**, slots **18** and **20** and hole **22**. Shown in position are screws **62** and **64**. Cartridge **54** is in position to be inserted into slots **12** and **14** of head **10**. The top screw **66** of a multiple number of screws contained within the cartridge **54** is shown in the drawing. When cartridge **54** is slidably received in slots **12** and **14** and held in position by flanges **68** and **70** of cartridge **54**, screw **66** will be pressed against the bottom of screw **64** so that a series of screws running from the top of head **10** to the bottom of cartridge **54** is in position to be used by the operator.

Internal flanges **72**, **73**, **74** and **75** aid to position screw **66** and the remainder of the multiple screws contained in cartridge **54**.

Referring now to FIG. **4**, there is shown cartridge **54** in which have become inserted a multiple number of screws, the top screw being **66**. The top portion of cartridge **54** contains flanges **68** and **70** adapted to be slidingly received in slots **12** and **14** of head **10**. Internal flanges **72**, **73**, **74** and **75** aid in postioning screw **66** and the multiple screws contained in cartridge **54**. In the lower portion of cartridge **54**, the screws are not shown so that base plate **76** of cartridge **54** may be shown. The bottom screw of the multiple screws which are aligned in cartridge **54** rest against base plate **76**. Base plate **76** is biased in a upward direction forcing the screws in an upward direction so that they may lodge in the top position and be ready for use.

The base plate is biased in an upward direction by a pair of springs, **77** and **78**, which are attached to the sides or top of base plate **76** and to the top of cartridge **54**, thus pulling base plate **76** in an upward direction.

Biasing of base plate **76** may also be accomplished by the use of a spring placed below base plate **76** pushing base plate **76** in an upward direction.

This action forces a new screw into position in head 10 as each succeeding screw is used.

Flanges 72, 73, 74 and 75 extending from the top of cartridge 54 holds the base plate 76 in position in the lower part of cartridge 54.

A cap 80 adapted to snap-fit and lock onto the flanges 68 and 70 of cartridge 54 is snapped onto the top screws in the cartridge 54 until it is ready to be used by insertion into head 10. When the cartridge 54 is slidingly pushed into slots 12 and 14 of head 10 the cap 80 wll be slid off of the cartridge 54.

Cap 80 contains a cut out in the center so that the screws can be held down in the cartridge 54 by hand or a tool while cap 80 is being placed on.

Cap 80 may be in one piece as shown or may be in two separate pieces having a space between them.

Referring now to FIG. 5, there is shown the cartridge 54 of the present invention showing the top screw 66 located in cartridge 54 having flanges 68 and 70. Flanges 72 and 74 along with flanges 73 and 75 postion the screws so that they are held in a steady firm position. Springs 77 and 78 are hooked to the top of cartridge 54.

Referring now to FIG. 6 there is shown head 10 of the present invention showing the screws in position within the head including top screw 62 and the top screw 66 in cartridge 54. The positioners 50 and 52 along with a positioner 84 on the opposite side of head 10 consist of a fixing head screw 86, a spring 88 and a ball or ballbearing 90. This arrangement allows top screw 62 and each succeeding screw as it moves into the top and operational position, to slide easily into place and be held tightly so that the bit 60 of the screwdriver may be placed into position and the screw screwed into place. The ball bearing 90 is secured to the spring 88.

Referring now to FIG. 7, there is shown the device of the present invention, including head 10, positioners 50 and 52 with spring 92 and ball 94 holding screw 62 in position. The cartridge 54 is mounted into head 10 at slide mounting 14. Drill bit 60 is in position to fit into screw 62 to screw into the object to which it is to be placed.

As can be seen by the drawings shown, the device of the present invention works to that a multiple number of screws can be fed into position to be used by a carpenter or operator so that as each screw is screwed into position in the piece of work, the succeeding screw is raised into the operational position at the top of head 10. This device is applicable to any type of screw which is normally used in such operations and the drill bit 60 may be changed for any type screw that may be used. For exceptionally long screws two such heads 10 may be put into series relationship and held by a clamp, not shown, which fits across grooves 16 so that an exceptionally long screw can be held in position by two heads 10 in series.

While the invention has been described above in detail with respect to certain preferred embodiments of the invention and illustrated in the drawings, other modifications and design changes are contemplated, which are within the spirit and scope of the appended claims.

I claim:

1. A cartridge adapted to hold a multiple number of screws for use with a drill comprising an elongated cartridge chamber, spring means to force the screws to the top position, a head secured to the top of the cartridge, positioners in said head to hold the top screw in position.

2. The device of claim 1 wherein said positioners comprise a multiple number of ball bearings, springs forcing said ball bearings to hold the top screw in positon and screws securing said springs to said head.

3. The device of claim 1 wherein said head contains a groove adaptable to hold a clamp to secure two heads in series.

4. The device of claim 1 wherein said spring means comprises multiple springs secured to the bottom and top of said cartridge.

5. A cartridge adapted to hold a multiple number of screws for use with a drill comprising:

a. An elongated cartridge chamber.

b. A base for supporting said screws.

c. Springs attached to the top of said chamber and to said base to urge the screws to the top of said chamber.

d. Head attached to the top of said cartridge.

e. Positioners in said head to hold the top screw.

6. The device of claim 5 wherein said head is attached to said elongated cartridge chamber by shoulders slidingly received in slots in the head.

7. The device of claim 5 wherein said positioners comprise a multiple number of ball bearings, spring forcing said ball bearings to hold the top screw in position and screws securing said springs to said head.

8. The device of claim 5 wherein a collar is slidingly fastened to the head to connect said head to a drill.

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