(No Model.) 2 Sheets—Sheet 1.

G. W. FERNALD.

DOWEL DRIVER AND SETTER.

No. 452,519. Patented May 19, 1891.

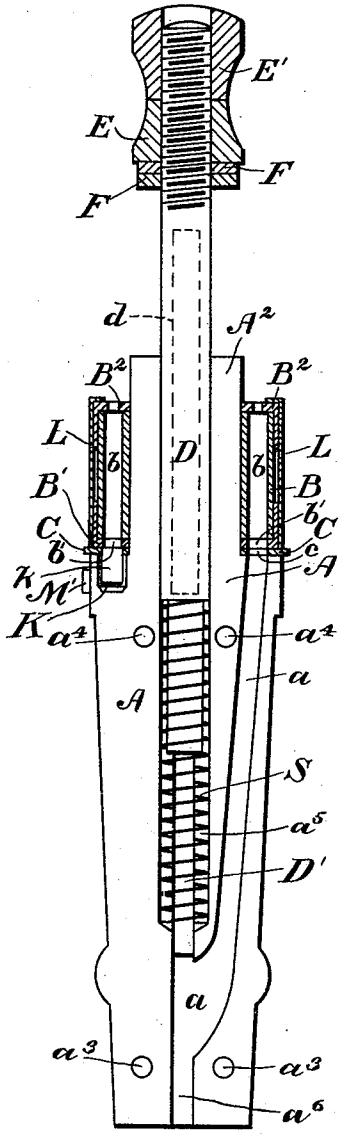


Fig. 1.

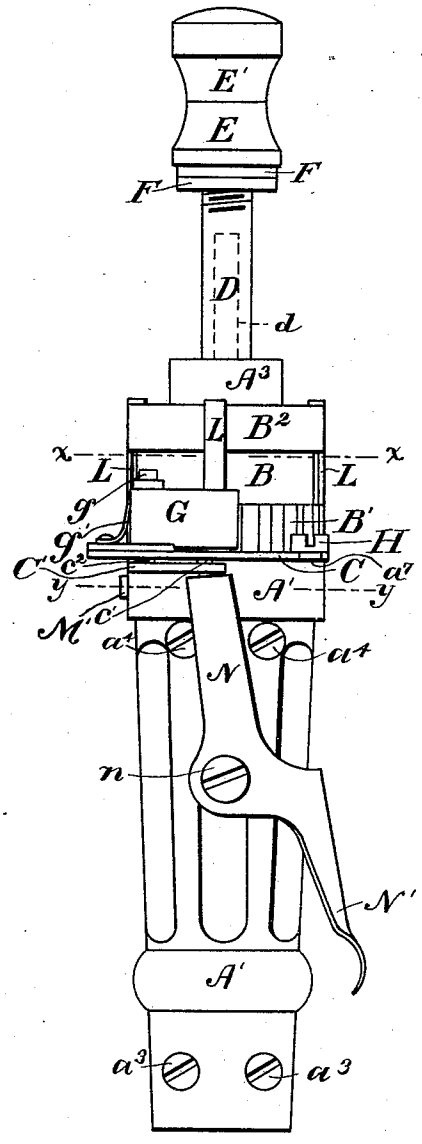


Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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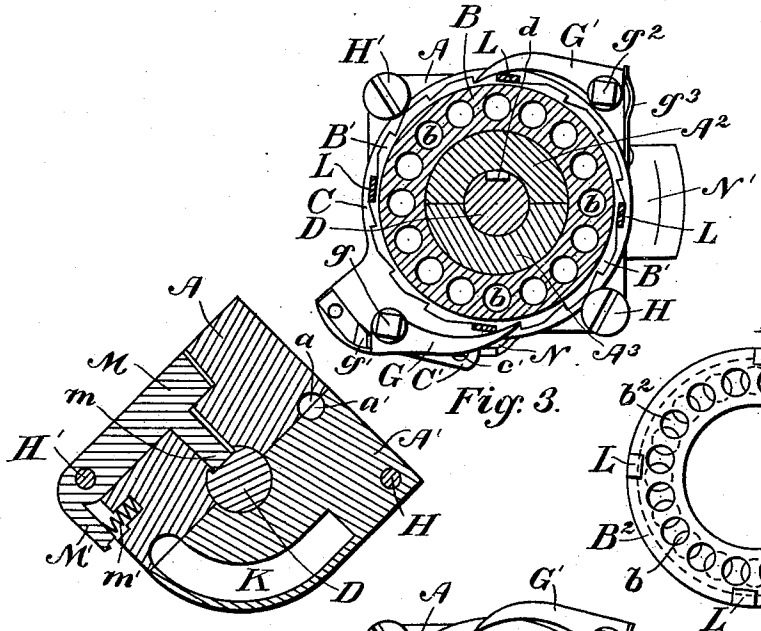


Fig. 3.

Fig. 4.

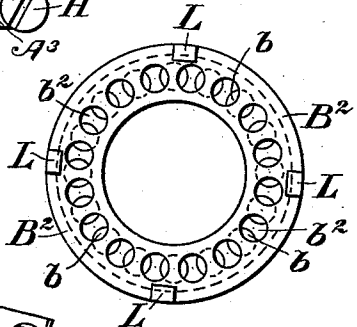


Fig. 5.

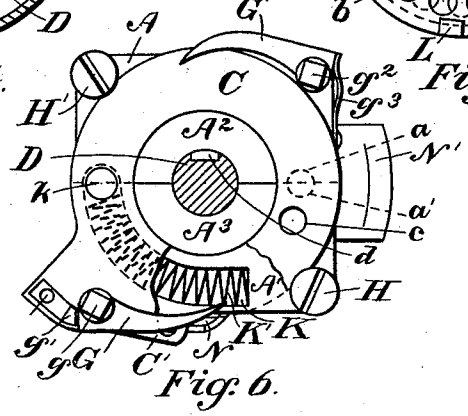


Fig. 6.

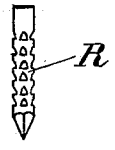


Fig. 7.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE W. FERNALD, OF NEEDHAM, ASSIGNOR TO AUSTIN & EDDY, OF BOSTON, MASSACHUSETTS.

DOWEL DRIVER AND SETTER.

SPECIFICATION forming part of Letters Patent No. 452,519, dated May 19, 1891.

Application filed October 29, 1890. Serial No. 369,662. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. FERNALD, a citizen of the United States, residing at Needham, in the county of Norfolk and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Dowel Drivers and Setters, of which the following is a full specification.

My invention consists of an improved hand implement for driving and setting dowels, being especially adapted for use in fastening by dowel-pins the corners of window-frames and like articles. To this end the implement, which is to be held upright in the hand while using, is provided with a stationary barrel having a chute passing down through the interior thereof of a size sufficient to allow the dowel to drop down through it to the bottom, a revolving barrel having a number of chambers in which the dowels are contained, mechanism adapted to turn the revolving barrel by hand, so as to bring the chambers successively into line with the chute, and a spring-seated plunger communicating with the chute in such a manner as to drive in and set the dowel by a blow on the head of the plunger.

In the drawings accompanying this specification and forming a part thereof, Figure 1 is a view, partly in section, looking into the interior of the driver, half of the stationary barrel being removed. Fig. 2 is a side elevation of the implement. Fig. 3 is a transverse section taken in the plane of x x, Fig. 2. Fig. 4 is a transverse section in the plane of y y, Fig. 2. Fig. 5 is a plan view of the revolving barrel detached. Fig. 6 is a plan view of the plate on which the barrel rests and parts adjacent thereto, and Fig. 7 shows the dowel-pin employed.

The stationary barrel of the driver is made in two pieces or sections A A′, held together by screws a^3 a^4, and is of a shape suitable to be conveniently grasped in the hand. This barrel is bored out centrally, as at a^5, to contain the plunger-rod D D′, half of the bore being preferably in each section of the barrel. The portion of the plunger-rod within the bore of the barrel has different diameters, being preferably arranged, as shown in Fig. 1, in such a manner that a spring S, bearing between the bottom of the large portion of the bore a^5 of the barrel and the shoulder at the bottom of the portion D of the plunger-rod, tends to constantly press said plunger-rod upward. The part D of the plunger-rod is provided with a groove d, (see Figs. 3, 4, and 6,) in which the tongue or stop m engages as the plunger moves up and down. This stop m projects inward from the lever M, pivoted at H′ to one section A of the barrel. The other end M′ of the lever serves as a press-button for the thumb, being constantly pressed outward by means of the spring m.

When it is desired to remove the plunger-rod from the barrel, the arm M′ of the lever is pressed inward, which moves the stop m out of the groove d and allows the rod to be lifted out. The stop m, resting against the bottom of the groove d, limits the upward movement of the plunger-rod D under the influence of the spring S. The upper portion of the stationary barrel A A′ is reduced in diameter, as at A^2 A^3, forming a shoulder a^7, and serving as a bearing for the revolving barrel and the plate on which the revolving barrel rests. The top of the plunger-rod is screw-threaded and provided with the head or cap E E′, which is adapted to receive the blow of the hammer which drives the plunger downward. The force of the blow is cushioned to some extent by means of the soft washers F, which are screwed onto the rod and rest against the under surface of the nut E of the head. When the blow is struck, the washers F hit upon the top A^2 A^3 of the stationary barrel and the throw of the plunger may be regulated, as will be plainly seen, by varying the position of the head and washers on the rod.

A chute a a', lying partly in the section A and partly in the section A′ of the stationary barrel, passes down from the shoulder a^7 of the barrel to the bottom. This chute passes downward for some distance on a slant or curve and terminates at the bottom in the straight vertical portion a^6, which is in direct line with the plunger-rod, and is adapted to receive the lower end D′ of said rod when the plunger is driven down. The chute a a' is so arranged as to allow a dowel-pin of a

shape similar to that shown in Fig. 7, when introduced into the top thereof, to drop down into the portion a^6.

C is a movable plate, which rests directly on the shoulder a^7 and turns about the reduced portion A^2 A^3 of the stationary barrel as an axle. The top of the shouldered portion of the stationary barrel A A′ is provided with a groove K, in which the pin k, projecting downward from the plate C, is adapted to move as the plate turns.

K′ is a spring lying in the groove and bearing against the pin k, thus tending to keep the plate C constantly pressed in one direction. The plate is prevented from rising by means of the screws H H′ screwed into the shouldered top c^7, the heads of which project over the plate C.

C′ is an arm pivoted at c^2 to the plate C and connected loosely at its forward end to the top c' of the lever N. The lever N, pivoted at n to the part A′ of the stationary barrel, passes part way around the barrel, as shown in Figs. 2 and 3, and terminates in the handle N′. When the implement is grasped in the hand, by pressing in the handle N′ toward the stationary barrel the plate C is moved around sufficiently to bring a hole c, with which the plate C is provided, into line with the chute a a'. When the handle N′ is released, the said plate moves back under the influence of the spring K′.

The revolving barrel containing the dowel-pins rests directly upon the movable plate C and derives its motion from said plate in the manner presently to be described. This revolving barrel is made in three pieces, consisting of the sleeve B, the bottom piece B′, having a flange projecting upward embracing the part B, and the top piece B^2, having a flange projecting downward and also embracing said parts B. The sleeve B is provided with a number of chambers b at equal distances apart, passing completely through it from top to bottom. In the implement shown in the drawings there are sixteen of these chambers. The flanged top and bottom pieces B′ and B^2 are also provided with a corresponding number of holes b' b^2, respectively, at corresponding distances apart and of the same diameter as the chambers b. The flange top and bottom pieces B′ B^2 are held on the sleeve B in any desired manner, as by means of a number of spring-pieces L, secured to the piece B′ and bent at right angles at the top to cover the top piece B^2, being let into recesses made in said piece B^2, so that the two pieces B′ and B^2 may be turned together on the sleeve B. The top and bottom pieces are so arranged in position with respect to each other that when the holes b' in the bottom piece B′ are in line with the chambers b in the sleeve B the holes b^2 in the top piece B^2 will be out of line with the said chambers b, the holes b^2 being directly over the material of the sleeve B between said chambers, and, vice versa, when the top and bottom pieces are so moved on the sleeve B that the holes b^2 in the top piece are in line with the chambers b, the material between the holes b' in the bottom piece B′ will act to obstruct the bottom of the chamber-passages b through the sleeve B, which will be clearly understood by reference to Figs. 1 and 5. The revolving barrel thus made rests directly on the plate C.

The bottom piece B′ has its flange provided with ratchet-teeth, as shown in Fig. 3, with which the pawl G, pivoted at g to the plate C, engages. This pawl is pressed inward against said ratchet-teeth by means of the spring g'.

G′ is a detent pivoted at g^2 to the shouldered top of the stationary barrel and pressed inward against the ratchet-teeth by the spring g^3. The construction and arrangement of parts are such that when the plate C is moved as far as it will go by pressing in the handle N′ the pawl G will push the revolving barrel around a distance equal to the space between the chambers b, leaving the said revolving barrel with one of its chambers b directly over the chute a a'. When the handle N′ is released and under the influence of the spring K′ the plate C moves backward, the revolving barrel is prevented from turning with it by means of the detent G′. Thus each time the handle N′ is pressed in the revolving barrel is moved forward one chamber and the hole c in the plate C serves to connect the chamber with the chute a a'.

In loading the revolving barrel it may be removed from the implement or loaded in place, as desired, the operation in both cases being identical. The sleeve B, containing the chambers b, is moved within the top and bottom pieces B^2 B′ in such a position that the chambers b are in line with the holes b^2 of the top piece B^2 and out of line with the holes b' of the bottom piece B′. The chambers b are then filled with dowels R by dropping in said dowels with their points down. They cannot drop through at the bottom by reason of the fact that they are temporarily prevented by the material between the holes b' being directly under the holes b. The revolving barrel being in place and loaded, the sleeve B is first turned within the top and bottom pieces B^2 B′, so as to bring the holes b' in the bottom piece B′ in line with the chambers b and throw the holes b^2 in the top piece B^2 out of line therewith. The dowels contained in the chambers b will then drop down, with their points resting upon the plate C. They cannot drop out at the top of the revolving barrel, even if the tool were reversed, by reason of the fact that the holes b are now closed at the top by the top piece B^2.

When it is desired to drive and set a dowel, the implement is grasped in one hand and held upright with the bottom of the stationary barrel resting on the work and the portion a^6 of the chute directly over the spot where the

dowel is to be driven. The hand is then closed together over the handle N′, which is thus pressed inward toward the stationary barrel, thus bringing into line, in the manner already described, one of the loaded chambers *b*, the connecting-hole *c*, and the chute *a a′*. A dowel-pin then drops out of the chamber and falls down the chute to the portion a^6, resting directly upon the work. By means of a hammer held in the other hand a blow is struck on the head of the plunger-rod, which thus moves quickly down, driving and setting the dowel in the frame or piece. The spring S immediately raises the plunger again, and the same operation may be repeated continuously, moving the implement wherever it is desired to set the dowels until the supply in the chambers is exhausted.

I claim—

1. A dowel driver and setter consisting of the combination, with a stationary barrel provided with a chute, of a spring-seated plunger, a revolving barrel having dowel-receiving chambers, and handle-operated mechanism independent of said plunger, whereby the chambers are successively brought into communication with said chute, arranged and operating substantially as described.

2. A dowel driver and setter consisting of the combination, with a stationary handle-forming barrel provided with a chute contained within said stationary barrel, of a spring-seated plunger, a revolving barrel having dowel-receiving chambers and provided with ratchet-teeth, a handle-lever pivoted to said stationary barrel and operated by the hand of the operator independently of the plunger, a plate connected with said handle-bar bearing a pawl engaging with said ratchet-teeth, and a detent, all arranged and operating in a manner whereby the chambers are successively brought into communication with said chute, substantially as described.

3. In a dowel driver and setter, the combination, with a stationary barrel provided with a chute *a a′*, of a revolving barrel B, having chambers *b*, and provided with ratchet-teeth, a plate C, having the hole *c* and having a pawl G engaging with said ratchet-teeth, a detent G′, mounted on the stationary barrel, a handle-lever N, pivoted to said stationary barrel, and an arm C′, connecting said plate and lever, all arranged and operating substantially as and for the purposes described.

4. In a dowel driver and setter, a revolving barrel consisting of the combination, with a flanged bottom piece B′, having holes *b′* at equal intervals, of a sleeve B, adapted to turn in said bottom piece and provided with chambers *b* of corresponding diameter and position to said holes *b′*, substantially as and for the purposes described.

5. In a dowel driver and setter, a revolving barrel consisting of the combination of a sleeve provided with vertical dowel-receiving chambers at equal intervals around it, a flanged bottom piece having holes *b′*, and a flanged top piece rigidly connected to said bottom piece and having holes b^2, said holes *b′* and b^2 corresponding in diameter and position to the chambers *b*, but so arranged that when the holes *b′* are in line with the chambers *b* the holes b^2 are out of line therewith, and vice versa, substantially as and for the purposes described.

In witness whereof I have hereunto set my hand.

GEORGE W. FERNALD.

Witnesses:
WM. B. H. DOWSE,
LYMAN K. EDDY.