

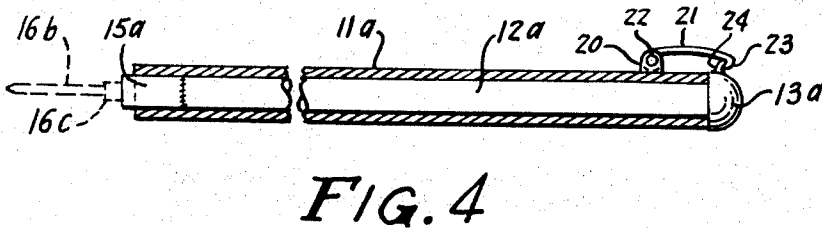
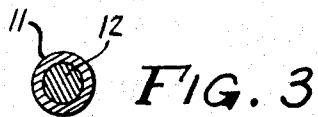
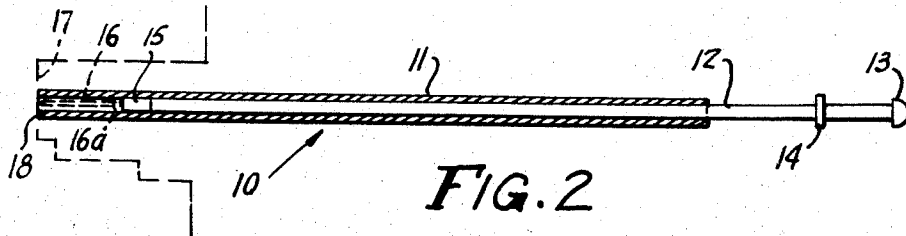
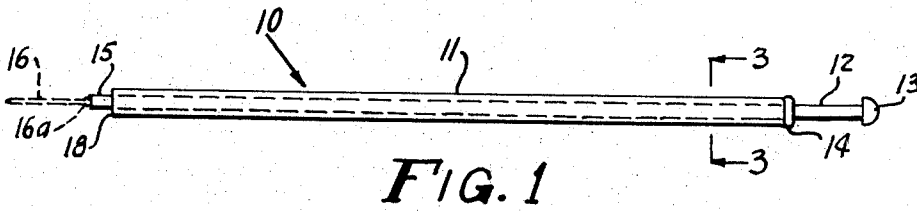
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NAILING DEVICE

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3,342,228

## NAILING DEVICE

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### ABSTRACT OF THE DISCLOSURE

Impaction apparatus to drive nails comprising an elongated tubular open-ended member having an impacting rod mounted for reciprocation therein, the rod having a permanent magnet secured to one end thereof for reciprocation therewith and internally of the tubular member, the magnet being adapted to releasably connect one end of a nail thereto during at least the initial cycle of the reciprocable rod in the performance of the function of the apparatus and latch means to preclude inadvertent reciprocation of said rod during transportation.

This invention relates to a nailing device, and has particular applicability in cases where nails are to be driven in locations which are difficult to reach or inaccessible to an ordinary hammer. A primary object of this invention is the provision of an elongated nail driving device of relatively small cross-sectional area which may be introduced into a limited opening, and the driving of the nail or the like effected by a straight line movement.

An additional object of the invention is the provision of a device of this character having magnetic means associated therewith whereby a nail may be held at the tip of the device and the same may be introduced into a limited opening at the same time that the driving device is introduced, thus obviating the necessity of holding or otherwise retaining the nail in position to be driven.

A further object of the invention is the provision of a device of this character having means to prevent the hand from being pinched between the driving element of the device and the stationary portion thereof.

Still another object of the invention is the provision of latch means in association with an outer normally stationary sleeve and an inner reciprocable rod so that the latter may be held against reciprocation during transportation, or when not in use.

Still another object of the invention is the provision of a device of this character which is sturdy and durable in construction, reliable and efficient in operation, and relatively simple and inexpensive to manufacture and utilize.

Still other objects reside in the combinations of elements, arrangements of parts, and features of construction, all as will be more fully pointed out hereinafter and disclosed in the accompanying drawing wherein there are shown preferred embodiments of this inventive concept.

In the drawing:

FIGURE 1 is a side elevational view of one form of the device embodying the instant inventive concept;

FIGURE 2 is a side view, partially in section and partially in elevation, showing the device of FIGURE 1 in a different position of adjustment, a restricted opening into which a nail is to be driven being schematically indicated by dotted lines;

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FIGURE 3 is an enlarged sectional view taken substantially along the line 3-3 of FIGURE 1 viewing in the direction indicated by the arrows; and

FIGURE 4 is a view partially in elevation, and partially in section, showing a modified form of construction.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Having reference now to the drawing in detail, and more particularly to the species disclosed in FIGURES 1 to 3, the nail driving device of the instant invention is generally indicated at 10, and includes an elongated tubular sleeve 11 preferably comprised of metal or the like. Longitudinally reciprocable within the sleeve 11 is a solid, relatively heavy, rod 12 which is provided in its outer end with a hand engaging knob 13. An annular flange or washer 14 is positioned about the rod between the tube and the knob, in order to prevent pinching or the hand of the user between the end of the tube and the knob.

At the other end of rod 12 there is affixed a suitable permanent magnet 15, preferably of cylindrical construction and of a dimension conforming to that of the rod, so that the magnet itself may slip into the sleeve of tube 11 when necessary. In the use and operation of the device, when it is desired to drive a nail 16 into a restricted area, such as indicated in dotted lines at 17, the head 16A of the nail is secured magnetically to the magnet 15, and the nail and rod 12 withdrawn into the tube. The end 18 of tube 11 is then positioned at the spot where it is desired to drive the nail, and the rod 12 reciprocated by means of the knob 13 relatively rapidly, its impact being effective to drive the nail. As the nail enters the material into which it is being driven and adheres thereto, obviously its adherence to the material will overcome the force of the magnet 15, so that successive blows of rod 12 will simply serve further to drive the nail into position.

FIGURE 4 discloses a slightly modified form of construction, wherein there is provided a sleeve 11A which is similar to the sleeve 11, and within which reciprocates a rod 12A having a knob 13A at one end, and a permanent magnet 15A at the other end, which is adapted to hold a nail head 16C of a nail 16B in a manner substantially identical to that previously described. However, in this modification, the knob 13A is made relatively large, and of a diameter in excess of that in sleeve 11A so that engagement of the flash between the end of the tube and the knob is more difficult. For this reason a flange or washer 14 is eliminated. In order to retain the device against accidental reciprocation or hammering during transportation or when not in use a pair of lugs 20 are positioned adjacent one end of sleeve 11A, and have a latch or detent lever 21 pivotally mounted therebetween on a pivot 22. The end 23 of detent lever 21 is adapted to engage a protuberance 24 which may take the form, if desired, of an annular rim extending about knob 13A so as to secure the knob 13A against the end of the sleeve or tube 11A adjacent thereto, thus preventing accidental movement of the rod and knob relative to the sleeve.

From the foregoing it will now be seen that there is herein provided an improved nail driving device which accomplishes all of the objects of this invention, and others, including many advantages of great practical utility.

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As many embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative and not in a limiting sense.

I claim:

In a nailing device, a hollow elongated tubular member, a solid relatively heavy rod reciprocable within said tubular member, knob means forming a handle on one end of said rod, magnetic nail-holding means on the other end of said rod, and latch means to prevent inadvertent reciprocation of said rod relative to said tubular member, said latch means comprising a lug projecting radially and outwardly from said tubular member and spaced inwardly from that end of said tubular member adjacent said knob means, an elongated detent lever, means pivotally connecting one end of said detent lever on said lug with the other end of said detent lever extending axially of said tubular member towards said knob

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means, a protuberance formed on said knob means, and means on said other end of said detent lever releasably engageable with said protuberance.

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