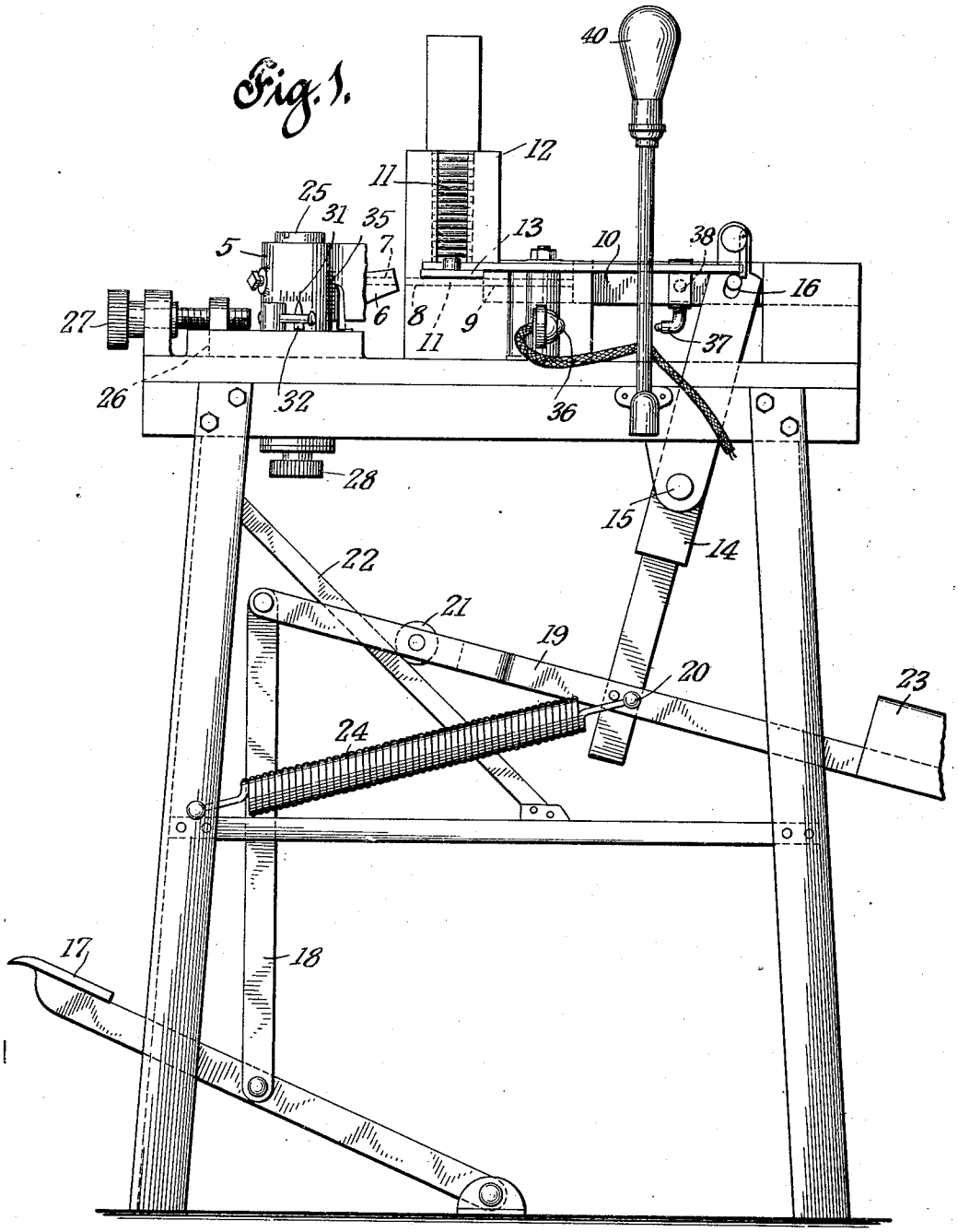
Dec. 22, 1931. A. C. HAUCK 1,837,547

DOWEL DRIVING MACHINE

Filed Dec. 26, 1929 2 Sheets-Sheet 1

Fig. 1.




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Fig. 2.

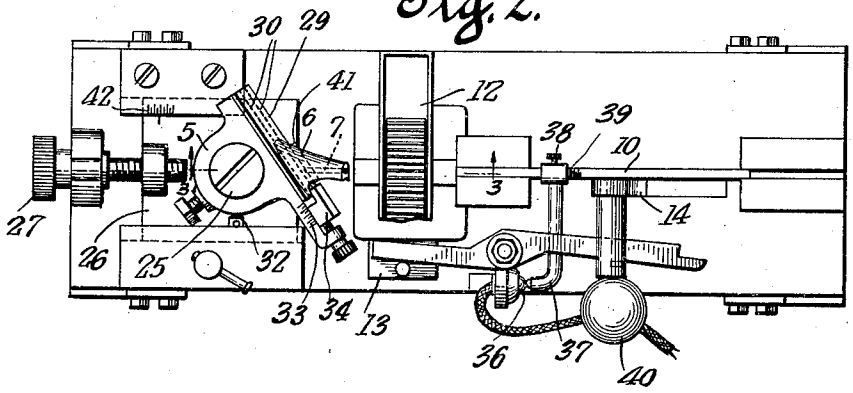



Fig. 3.

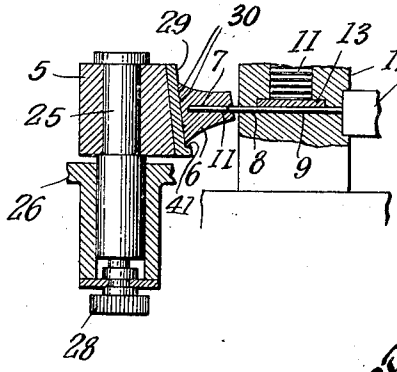
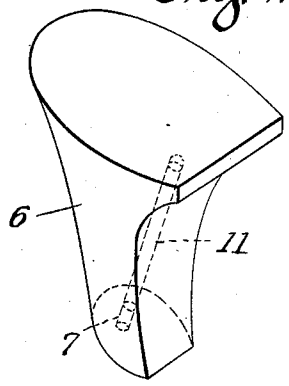



Fig. 4.




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Patented Dec. 22, 1931 1,837,547

# UNITED STATES PATENT OFFICE

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## DOWEL DRIVING MACHINE

Application filed December 26, 1929. Serial No. 416,327.

This invention relates to the driving of dowels in heels and is in the nature of an improvement on the machine of Patent 1,595,547 of Aug. 10, 1926.

The objects of this invention are to simplify and improve on the machine of said patent, rendering the same more positive in its action and at the same time less fatiguing on the operator; to adapt the machine to the driving of inclined dowels; to provide simple indicating or signal mechanism for notifying the operator when the dowel is properly seated in the heel and to improve the machine in other particulars, as will hereinafter appear.

The drawings accompanying and forming part of this specification illustrate one practical commercial embodiment of the invention, wherein the objects set forth are attained by the novel features of construction, combinations and relations of parts described, but it will be understood that such illustration is primarily by way of disclosure and that the physical structure may vary all within the broad scope of the claims.

Fig. 1 is a broken side elevation of one commercial embodiment of the machine; Fig. 2 is a broken top plan view of the same; Fig. 3 is a fragmentary part vertical sectional view as taken on substantially the plane of line 3—3 of Fig. 2; Fig. 4 is a perspective view illustrating the heel with the inclined dowel seated therein.

Referring particularly to Figs. 1 and 2, it will be seen that the machine comprises in general an anvil or rest 5 for supporting the heel 6 with the bore 7 therein in line with the guideway 8 in the bed of the machine and a drive plunger 9 carried by a slide 10 and operating to drive the dowel 11 out of said way into the bore in the heel.

The dowels preferably are supported in a suitable guide chute or hopper 12, so as to drop one by one into the guideway 9. An automatic cut-off slide 13 may be provided at the foot of the hopper as in the patent referred to to cut off and segregate the dowel in the guideway from the supply of dowels being fed down by the hopper.

The plunger slide is shown as operated by a lever 14 pivoted on the bed of the machine at 15 and having a pin and slot connection with the slide at 16. Lever 14 may be operated by suitable power, but in the present disclosure, it is shown operated from a foot pedal 17 having a power applying cam connection with the lever and consisting of a link 18 pivoted at its lower end to the foot pedal and at its upper end to a camming lever 19 pivoted at 20 to the lower end of the slide actuating lever and carrying a cam roll 21 riding over a downwardly inclined cam or track 22. The rearmost end of cam lever 19 is shown as counter-weighted at 23 to balance or partly balance the weight of the cam roll, link 18 and foot pedal and a spring 24 is shown connected between a forward portion of the frame or base and the pivot pin 20 on the lower end of the slide actuating lever.

With this combination leverage and cam system, it will be seen that a quick and powerful thrust is imparted to the dowel driving slide with a reasonably short movement of the foot pedal.

The heel support 5 is shown as constructed generally as in the machine of Patent 1,595,547, that is as pivoted for angular adjustment on axis 25 and as being mounted on carriage 26, which can be advanced longitudinally toward and away from the dowel driving slide by screw 27 and as having a vertical adjustment by means of screw 28, Fig. 3. This heel rest differs from the patent disclosure however, in that the supporting surface 29 against which the heel seat end of the heel is rested is inclined with respect to a vertical plane (Fig. 3) so as to locate the heel at the proper slant for the driving of the inclined dowels and in that spurs 30 are provided on the heel rest surface to hold the heels against slipping over this inclined surface, while the dowels are being driven.

Suitable gages or scales may be provided for aiding in the various adjustments. Thus as shown particularly in Fig. 1, a scale and cooperating pointer 31, 32 may be provided for the angular adjustment of the heel rest about the vertical axis of post 25; a scale 33 may be provided for the gage 34 to determine location of the heel transversely of the ma-

chine and a scale and cooperating pointer may be provided at 35, Fig. 1 for the vertical adjustment of the heel rest. These several scales may be made to correspond with similar scales or gages on the machine for drilling the inclined bores disclosed in companion application, Ser. No. 416,326, enabling the dowelling machine to be quickly set up to accommodate the heels prepared on the drilling machine.

To accurately limit the movement of the slide and hence the extent to which the dowel is driven in the heel, stop mechanism is preferably employed, such as the relatively stationary member 36 shown mounted on the bed of the machine for engagement by cooperating member 37 adjustably secured at 38 on the reciprocating slide. A suitable scale is shown at 39 for assisting in this stroke adjustment of the dowel driving plunger.

A special feature of the stop mechanism in the present disclosure is that the relatively stationary member 36 is in the form of an electric push button connected by suitable wiring with a signal lamp 40, so as to automatically provide notification to the operator of the machine each time a dowel is driven to its fully seated relation to a heel. This signal lamp may be mounted in elevated position on the machine, after the manner disclosed, so that the superintendent in a room of the machines may tell at a glance which machines are operating and gain desired data on production, etc.

To aid in the definite positioning of the heel in slanting relation on the heel rest, said heel rest is preferably provided with a side gage 41, which in conjunction with the end gage 34 enables the heel to be firmly held in its slanting relation on the support, the spurs or roughness 30 on the supporting face also assisting in the temporary securing of the heel, while the dowel is being driven.

To aid in the resetting of the machine for driving a scale such as indicated at 42 in Fig. 2 may be provided, said scale serving as a gage for adjustment of the heel rest carriage 26 toward and away from the downward driving plunger. This scale may be used in place of the stop scale 39 to aid in determining the countersinking of the dowel.

It will be evident to those skilled in the art that many changes and modifications in structure may be made in the form of the machine without departure from the true spirit and broad scope of the invention.

What is claimed is:

1. In a machine of the character disclosed, the combination with a dowel guide and a horizontally operating plunger for driving a dowel out of said guide, of a heel support positioned at the end of said dowel guide and having a heel supporting face inclined to both vertical and horizontal planes to thereby position a heel with an inclined bore therein in line to receive a dowel projected by the plunger from said guide.

2. In a machine of the character disclosed, the combination with a heel support, a dowel guide in line with said heel support, a plunger operating to drive a dowel in the guide into a heel on the heel support of an adjustable stop for limiting the extent of seating of the dowel in the heel and signal means for automatically indicating the complete seating of the dowel in the heel as predetermined by said adjustable stop.

3. In a dowel driving machine, the combination with a work rest, a dowel driving plunger in cooperative relation to said work rest, a lever engaged with said plunger, a stationary cam track, a lever engaged with the plunger lever and provided with a roll riding on said stationary cam track and actuating connections engaged with said cam roll lever.

4. A machine for driving dowels inclined both to the longitudinal and to the transverse axes of heels, comprising a dowel guide, a plunger for driving a dowel out of said guide and into a heel adjoining the guide and a heel support adjacent the end of the guide having a supporting face engageable by the heel seat end of a heel and provided with end and side gages for positioning a heel thereon in predetermined longitudinal and transverse alignment and said supporting face being inclined with respect to both the longitudinal and the transverse axes of a heel thus positioned thereon to thereby bring a longitudinally and transversely inclined bore in the heel into register with the dowel guide.

5. A machine for driving dowels inclined both to the longitudinal and to the transverse axes of heels, comprising a dowel guide, a plunger for driving a dowel out of said guide and into a heel adjoining the guide and a heel support adjacent the end of the guide having a supporting face engageable by the heel seat end of a heel and provided with end and side gages for positioning a heel thereon in predetermined longitudinal and transverse alignment, said supporting face being inclined with respect to both the longitudinal and the transverse axes of a heel thus positioned thereon to thereby bring a longitudinally and transversely inclined bore in the heel into register with the dowel guide and heel biting spurs on said doubly inclined supporting face whereby a heel held by hand on said supporting face will be secured against slipping under the impact of the dowel driving plunger.

In testimony whereof I affix my signature

ANDREW C. HAUCK.