Sept. 13, 1949. A. B. DIXON 2,481,578

ATTACHMENT FOR ELECTRIC HAND DRILLS

Filed June 21, 1944 3 Sheets-Sheet 1

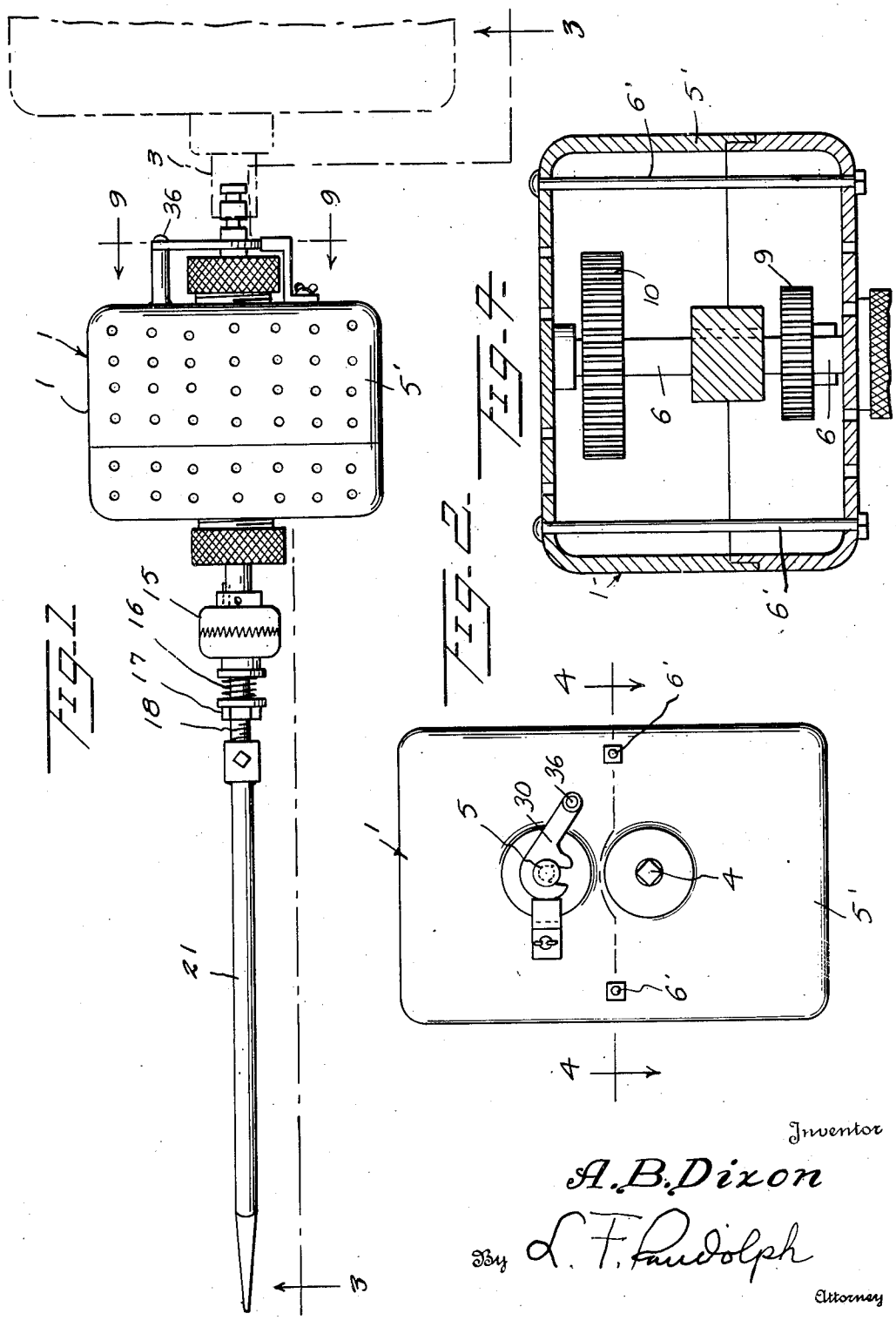


Fig. 1.

Fig. 2.

Fig. 4.

Inventor

A. B. Dixon

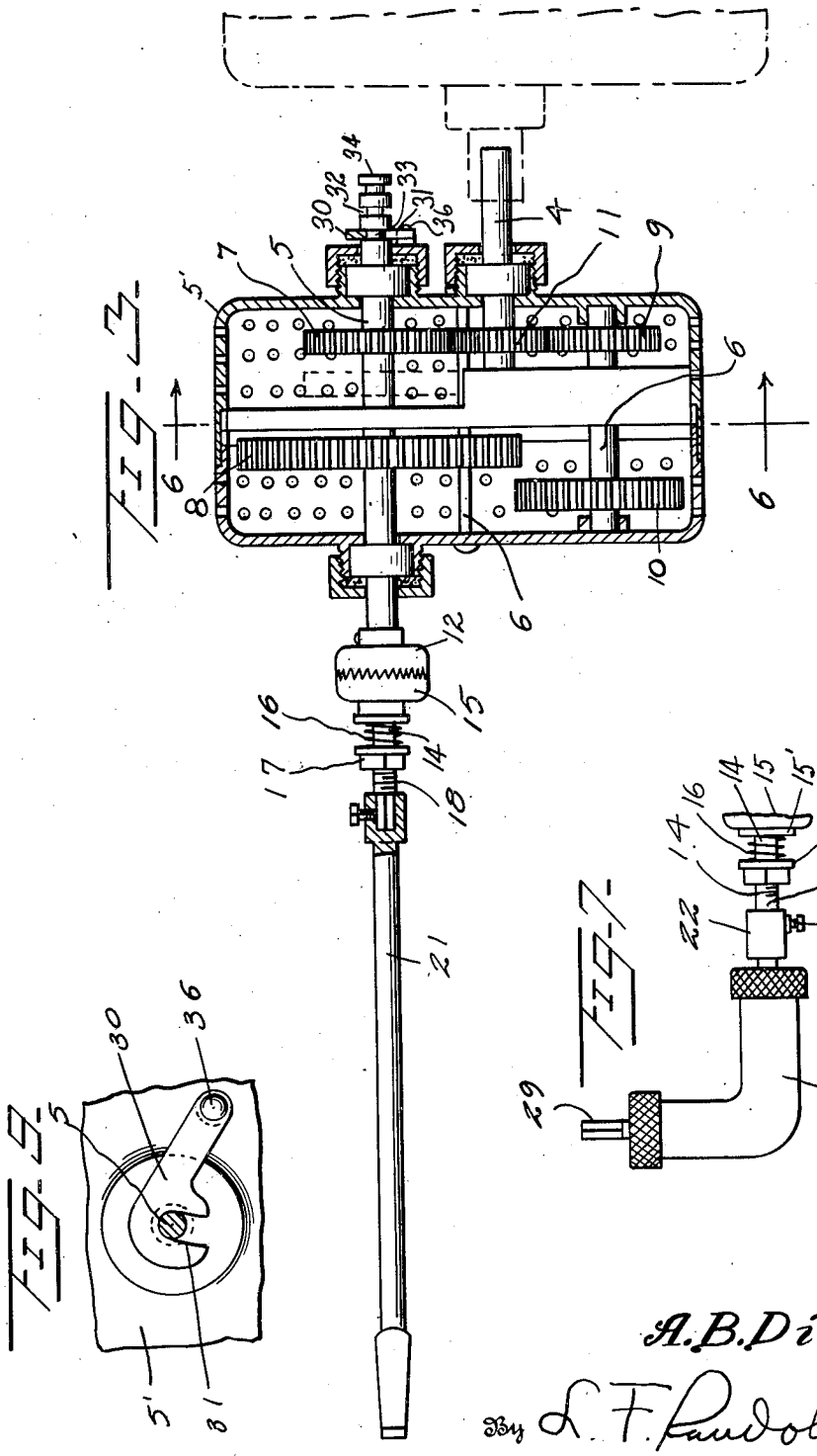
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ATTACHMENT FOR ELECTRIC HAND DRILLS

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ATTACHMENT FOR ELECTRIC HAND DRILLS

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Fig. 5.

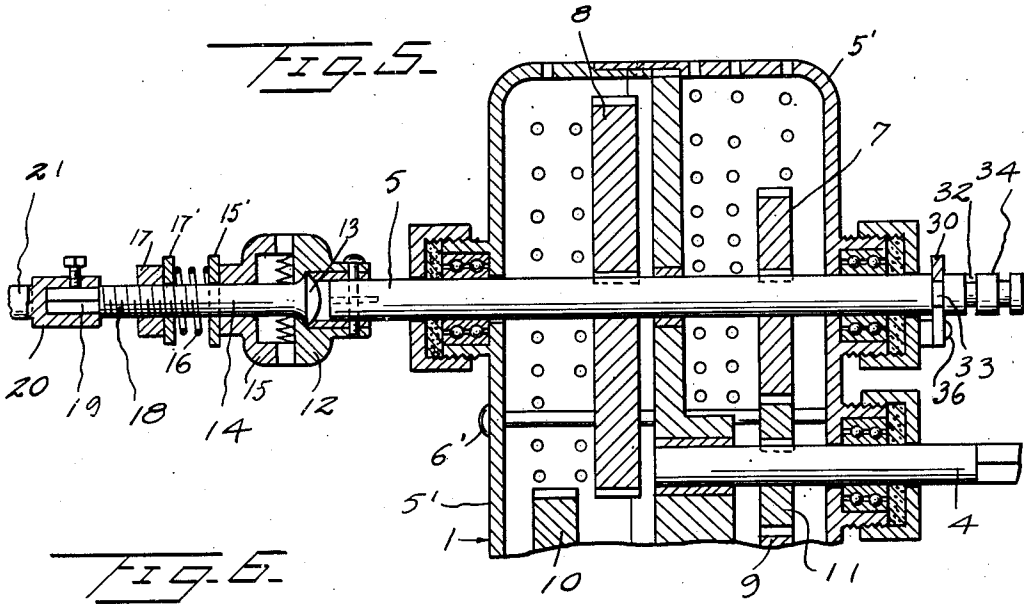


Fig. 6.

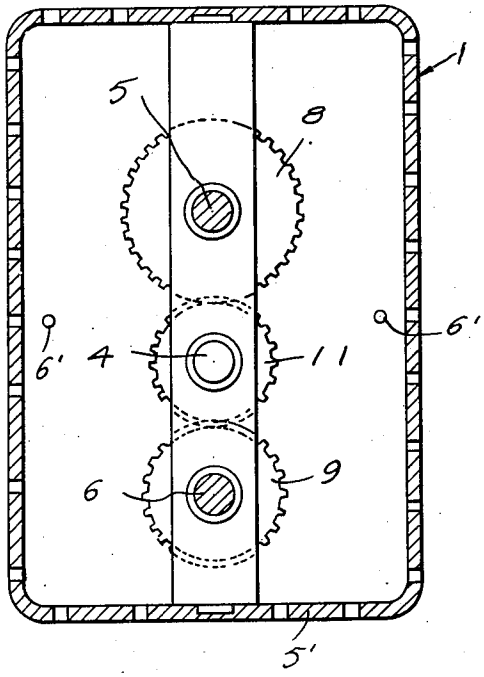
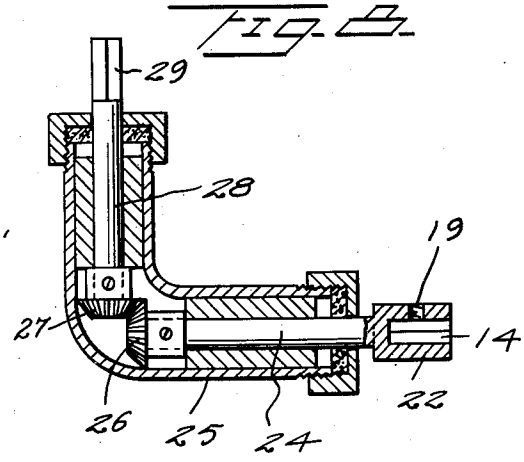


Fig. 4.



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Patented Sept. 13, 1949

2,481,578

UNITED STATES PATENT OFFICE

2,481,578

ATTACHMENT FOR ELECTRIC HAND DRILLS

Alfred B. Dixon, Wilcoe, W. Va.

Application June 21, 1944, Serial No. 541,412

4 Claims. (Cl. 192—3.5)

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This invention relates to electric drills and has for its object to provide an attachment for such drills whereby socket wrenches, screw drivers, etc. may be driven.

Another object of the invention is to provide an attachment for electric hand drills whereby the speed of the drill may be reduced to operate tools requiring a relatively low speed for operation.

A further object of the invention is to provide a slow speed attachment for electric hand drills having means whereby to operate tools in close quarters or in corners where the common drill cannot be used.

With the above and such other objects in view as may hereinafter more fully appear, I have invented the device shown in the accompanying drawings in which:

Figure 1 is an elevational view of my device;

Figure 2 is a top plan view thereof;

Figure 3 is a section on line 3—3 of Figure 1;

Figure 4 is a section on line 4—4 of Figure 2;

Figure 5 is an enlarged view of Figure 3;

Figure 6 is a section on line 6—6 of Figure 3;

Figure 7 is an elevational view of an attachment; and

Figure 8 is a sectional view thereof; and

Figure 9 is a detail sectional view taken on line 9—9 of Figure 1.

Like reference characters indicate like parts throughout the following specification, and in the several views in the drawings in which 1 indicates my attachment for an electric hand drill 2 (shown dotted) to the shaft 3 of which is rigidly attached a drive shaft 4 of my device.

My invention consists of a perforated case 5' formed in two sections, and held together by bolts 6'. Within the case and mounted rotatably upon suitable bearings, are additional shafts 5 and 6. On shaft 5 is fixed a main gear 7 and a reversing gear 8. On shaft 6 is fixed reversing gears 9 and 10. The shaft 4 has fixed thereon a gear 11. The shaft 5 projects entirely through the casing and has fixed to its left end a clutch member 12 within which is a ball and socket connection 13, between the shaft 5 and an extension shaft 14, upon which latter is slidably mounted, but fixed to rotate therewith, another clutch member 15, held normally into engagement with clutch member 12 by a spring 16 seated between washers 15', 17'. A tension nut 17 screw threaded upon the portion 18 of shaft 14, serves as a backing for the washer 17'.

The outer end 19 of the last shaft is squared to

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receive the socket end 20 of a tool 21, removably attached thereto.

Should an operator fail to switch off the electric current at the proper time, the clutch members 12 and 15 will automatically separate through compression of spring 16, thus preventing shearing off any elements of the device or parts of the work being operated upon.

In Figures 7 and 8 I show an attachment adapted to be secured to terminal 19 of shaft 14 by means of the socket 22 and set screw 23, said member 22 being an integral part of a shaft 24 mounted in the angular casing 25 which shaft has fixed on its inner end a bevel gear 26 meshed with a similar gear 27 on a shaft 28; the outer end 29 being rectangular to receive the socket end of a tool to be driven thereby.

The shaft 5 is slidable right and left in the case 5' and is held in fixed position by means of a key member 30 pivotally mounted on the top of the case, and has a slot 31 therein to fit the reduced portions 32 and 33 in the outer end 34 of shaft 5, whereby said shaft is locked in its desired position. When moved to the right the gear 7 on this shaft meshes with the driving gear 11 whereby the gears are driven clockwise, but when the shaft 5 is in its left position gear 8 meshes with the lower gear 10 on shaft 6 whereby the gear 8 and shaft 5 is driven counterclockwise to reverse the rotation of tool 21. A set screw 36 holds the key in set position.

I claim:

1. An attachment for drill presses comprising a case, a slidable shaft mounted through said case, a pair of gears secured to said slide shaft, a drive shaft projecting into one side of the case and provided with a gear at its inner end meshing with one of the first mentioned gears, a countershaft in the case, a pair of gears on the countershaft, one of said countershaft gears meshing with the drive shaft gear while the other countershaft gear is spaced a greater distance away from its companion gear than the gears on the slide shaft are spaced apart, said slide shaft being slidable to reverse the drive from the drive shaft to the slide shaft by disengaging one of the gears on the slide shaft from the drive shaft gear and meshing its remaining gear with said other gear on the countershaft and latch means for holding the slide shaft in one position or the other.

2. An attachment for drill presses comprising a case, a slidable shaft mounted through said case, a pair of gears secured to said slide shaft, a drive shaft projecting into one side of the case and provided with a gear at its inner end meshing with

one of the first mentioned gears, a countershaft in the case, a pair of gears on the counter shaft, one of said countershaft gears meshing with the drive shaft gear while the other countershaft gear is spaced a greater distance away from its companion gear than the gears on the slide shaft are spaced apart, said slide shaft being slidable to reverse the drive from the drive shaft to the slide shaft by disengaging one of the gears on the slide shaft from the drive shaft gear and meshing its remaining gear with said other gear on the countershaft and latch means for holding the slide shaft in one position or the other, said latch means consisting of a swingable hook-like member, said hook-like member being swingably mounted on one side of the case adjacent one end of the slide shaft, said one end of the slide shaft being formed with circumferential grooves for receiving the head portion of said hook-like member.

3. An attachment for drill presses comprising a case, a slidable shaft mounted through said case, a pair of gears secured to said slide shaft, a drive shaft projecting into one side of the case and provided with a gear at its inner end meshing with one of the first mentioned gears, a countershaft in the case, a pair of gears on the countershaft, one of said countershaft gears meshing with the drive shaft gear while the other countershaft gear is spaced a greater distance away from its companion gear than the gears on the slide shaft are spaced apart, said slide shaft being slidable to reverse the drive from the drive shaft to the slide shaft by disengaging one of the gears on the slide shaft from the drive shaft gear and meshing its remaining gear with said other gear on the countershaft and latch means for holding the slide shaft in one position or the other, said slide shaft at one end being provided with a clutch element, said clutch element having a socket therein, a shaft section having a ball head disposed in the socket, a slidable clutch element on the shaft section cooperative with the first mentioned clutch element, an adjustable element on the shaft section, and a compression spring on the shaft section interposed between the adjustable element and the adjacent clutch element whereby the latter is held engaged with the first mentioned clutch element.

4. An attachment for drill presses comprising a case, a slidable shaft mounted through said case, a pair of gears secured to said slide shaft, a drive

shaft projecting into one side of the case and provided with a gear at its inner end meshing with one of the first mentioned gears, a countershaft in the case, a pair of gears on the countershaft, one of said countershaft gears meshing with the drive shaft gear while the other countershaft gear is spaced a greater distance away from its companion gear than the gears on the slide shaft are spaced apart, said slide shaft being slidable to reverse the drive from the drive shaft to the slide shaft by disengaging one of the gears on the slide shaft from the drive shaft gear and meshing its remaining gear with said other gear on the countershaft and latch means for holding the slide shaft in one position or the other, said slide shaft at one end being provided with a clutch element, said clutch element having a socket therein, a shaft section having a ball head disposed in the socket, a slidable clutch element on the shaft section cooperative with the first mentioned clutch element, an adjustable element on the shaft section, and a compression spring on the shaft section interposed between the adjustable element and the adjacent clutch element whereby the latter is held engaged with the first mentioned clutch element, the free end of the shaft section being constructed for attachment to a tool.

ALFRED B. DIXON.

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