C. H. OSLUND.

COLLAPSIBLE DRILL.

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1,040,395.

Patented Oct. 8, 1912.

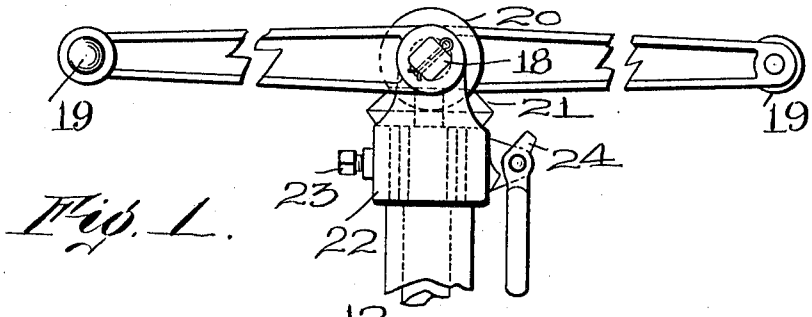


Fig. 1.

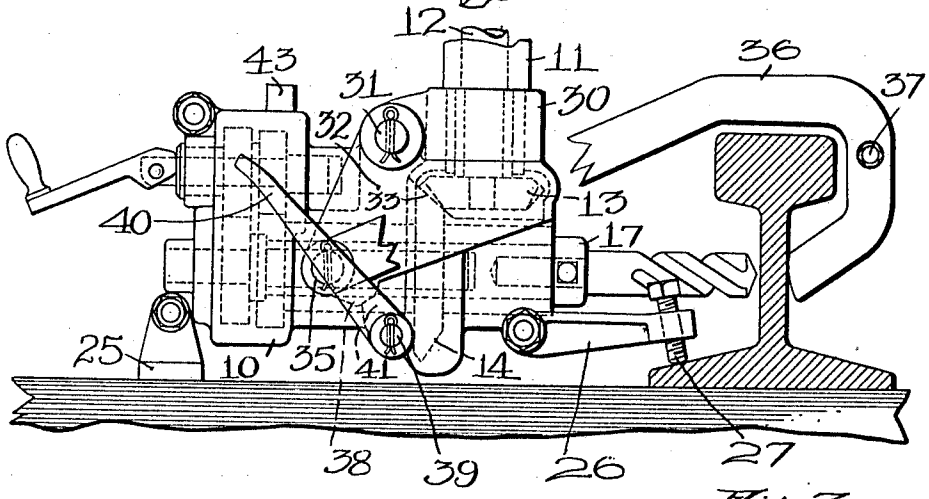


Fig. 2.

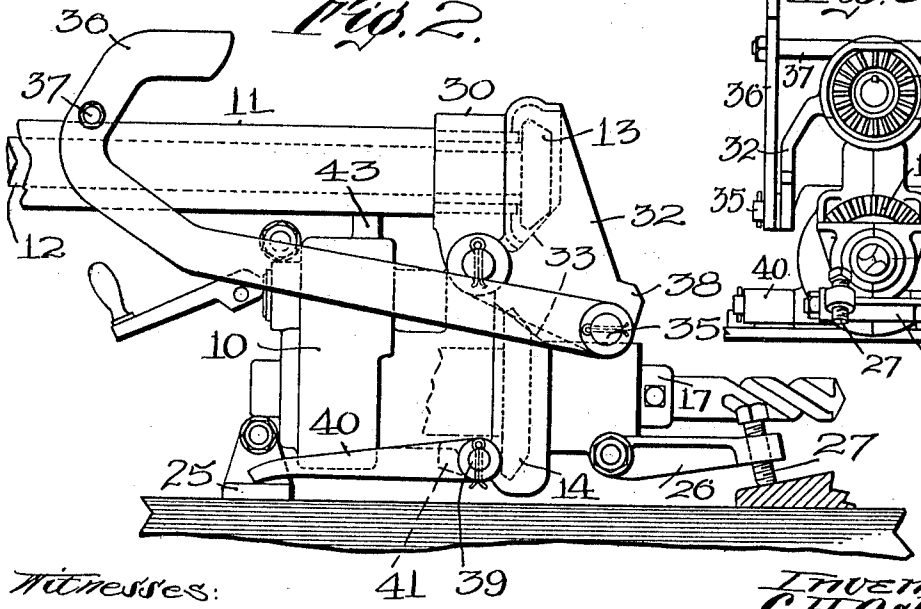
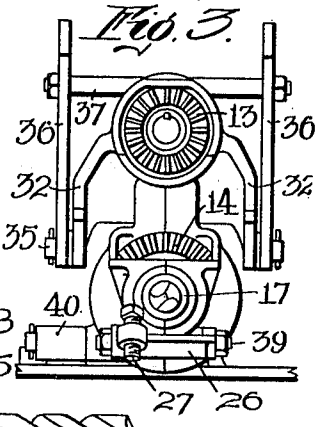


Fig. 3.



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COLLAPSIBLE DRILL.

1,040,395. Specification of Letters Patent. Patented Oct. 8, 1912.

Application filed December 24, 1910. Serial No. 599,196.

To all whom it may concern:

Be it known that I, CHARLES H. OSLUND, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Collapsible Drill, of which the following is a specification.

This invention relates to a collapsible drill capable of a wide range of use, but designed particularly as a rail drill.

The principal objects of the invention are to provide a simple and inexpensive construction of drill, or more particularly a drill casing, of such a character that the parts can be collapsed or swung into such relative positions that they will occupy very little space when the device is to be transported, and to provide simple and convenient means by which the casing can be connected firmly with the rail to be drilled.

The invention also involves improvements in details of construction as will hereinafter appear.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a side view of a drill embodying the principles of this invention in position for drilling a rail; Fig. 2 is a similar view with the parts removed showing the same drill collapsed and ready for transportation; and Fig. 3 is an end elevation of the same.

Although the invention is capable of application to many types of drills, it is shown herein in connection with a form of drill disclosed in my Patent No. 963,317, granted July 5, 1910. As in that patent a casing 10 is provided with a sleeve 11 for receiving the driving shaft 12. On this driving shaft is a bevel gear 13 which meshes with a gear 14 located in the casing. This gear 14, through connections not particularly described herein in detail, drives a drill spindle or holder 17 so as to give it a simultaneous rotary and longitudinal motion. In the present case the driving shaft is shown as operated by a transverse shaft 18 at the top provided with handles 19 for operating it, this shaft being connected with the driving shaft by a pair of bevel gears 20 and 21. The shaft is mounted in bearings on a small casing 22 which is fixed to the sleeve 12 by a set screw 23 and hand operated cam 24. Any other way of driving the shaft may be employed however.

The casing 10 is shown as provided with two rear supports 25 by which it can rest on the ground or a sleeper and has two forward arms 26 provided with adjusting screws 27, adapted to engage the base of the rail to be drilled. These arms are shown in position to engage the forward edge of the casing 10 which acts as a stop. By this means the casing can be adjusted to the proper height.

The more important features of the invention reside in the means by which the drill may be collapsed for transportation. For this purpose the sleeve 11 is mounted on a block 30 which is pivoted on a horizontal shaft or rod 31 on the frame. This block has two ears 32, one on each side mounted on this rod. It will be seen that the bevel gear 13 mounted on the driving shaft is readily supported by the block 30 and will swing therefore on the pivot 31. The main casing is cut away on a line 33 and the block has surfaces engaging this part of the frame when the parts are together in the position shown in Fig. 1. In this position the two ears 32 extend back of the pivot 31 and downwardly therefrom and each is provided with a pivot pin 35 near the end. To these pivot pins clamp arms 36 adapted to extend over the top of the rail and engage the web thereof on opposite sides of the point where the drill will come through. The two arms are connected by bolt or the like 37. On the ears 32 are projections 38 below, and in front of the pivots 35. A shaft 39 extends through the frame near the bottom and is provided with an arm 40 for operating it. This arm has a flat surface and is located on one side of the casing in suitable position to be operated by the foot of the operator to turn the shaft 39 and disengage the two cams 41 thereon from contact with the projections 38. When the device has to be set up this arm being down to the position shown in Fig. 2, the block 30 is swung over to the position shown in Fig. 1 and the arms 36 also swung over to that position. Then the arm 40 is raised to lock the parts firmly and apply a certain amount of pressure to the projections 38 so as to clamp the ends of the arms 36 firmly against the rail When the drilling operation is completed, the parts are thrown back to the position shown in Fig. 2 in which the sleeve 11 rests on a lug 43 on the frame and the bolt or rod 37 rests on the top of the sleeve 11. The

parts can be transported very readily in this form without taking up much space.

While I have illustrated and described a preferred form of the invention, I am aware that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to all the details of construction herein shown and described, but

What I do claim is:—

1. In a device of the character described, the combination of a power transmitting mechanism comprising a bevel gear, a casing for inclosing the power transmitting mechanism having a corner thereof cut away at an angle to the axis of the power transmitting mechanism adjacent to one edge of said bevel gear, a block pivoted on said casing and comprising walls which when closed in about the pivot substantially complete the casing, said block having supporting bearings therein, a driving shaft in said bearings having a bevel gear thereon adapted to mesh with the bevel gear in the casing when said block is closed in about its pivot, said block having projections extending down at the sides of the casing back of the pivot, and pivoted cams upon said casing for engaging said projections and locking the block in such position that the bevel gears engage.

2. In a device of the character described, the combination of a power transmitting mechanism comprising a bevel gear, a casing for inclosing the power transmitting mechanism having a corner thereof cut away at an angle to the axis of the power transmitting mechanism adjacent to one edge of said bevel gear, a block pivoted on said casing and comprising walls which when closed in about the pivot substantially complete the casing, said block having supporting bearings therein, a driving shaft in said bearings having a bevel gear thereon adapted to mesh with the bevel gear in the casing when said block is closed in about its pivot, said block having projections extending down at the sides of the casing back of the pivot, and pivoted cams upon said casing for engaging said projections and locking the block in such position that the bevel gears engage, said block being adapted to swing about its pivot into a position in which the driving shaft carried thereby shall rest along the top of the casing substantially parallel with the axes of the driving mechanism, and rail holding hooks pivoted on said projections at the rear of said pivot and adapted to swing over into position in which they are supported by the block when the driving shaft is in horizontal position along the top of the casing.

3. In a device of the character described, the combination of a casing, a block pivoted near the top thereof and extending downwardly from the pivot, a driving shaft supported by the block and extending through the same into the casing, a drill spindle, means in the casing for transmitting power from the driving shaft when the block is in one position to the drill spindle, and means for locking the block in position on the casing, said locking means consisting of a lever mounted to turn on a pivot below said block, and a locking cam fixedly secured with respect to the lever in position to engage the downwardly extending portion of the block.

4. In a device of the character described, the combination of a drill casing, a drill spindle therein, said casing being constructed and adapted to be arranged at the side of a rail, whereby a drill carried by said spindle can be caused to drill a hole in the web of the rail, a block pivoted on said drill casing on a horizontal axis and provided with a portion extending from the pivot downwardly and in a direction away from the rail when the casing is in position for drilling, a clamping arm pivoted near the end of said downwardly extending portion and extending upwardly over the top of the rail to engage the web thereof on the opposite side, and means for exerting an upward and backward pressure on said downwardly extending portion of the block to fix said clamp to the rail.

5. In a device of the character described, the combination of a drill casing, a drill spindle therein, said casing being constructed and adapted to be arranged at the side of a rail, whereby a drill carried by said spindle can be caused to drill a hole in the web of the rail, a block pivoted on said drill casing on a horizontal axis and provided with a portion extending from the pivot downwardly and in a direction away from the rail when the casing is in position for drilling, a clamping arm pivoted near the end of said downwardly extending portion and extending upwardly over the top of the rail to engage the web thereof on the opposite side, means for exerting an upward and backward pressure on said downwardly extending portion of the block to fix said clamp to the rail, and a driving shaft for the drill spindle carried by said block and extending upwardly when the block is in operative position, whereby when the block is swung upwardly and rearwardly through an angle of about 90 degrees said shaft will be located parallel with the casing, and said clamp will be disengaged from the rail and can be swung back against the casing.

6. In a device of the character described, the combination of a drilling machine having a casing, a support for one end of the casing, arms projecting from the other end, a screw on each arm adapted to engage the

base of a rail to regulate the height of the casing, a drill spindle extending from the casing, a block pivoted on the casing, a driving shaft for the drill spindle mounted on said block, and a rail clamp pivoted on said block at a point below and behind the pivot of the block when the block is in operative position, said clamp being adapted to extend over a rail on which the screws are set, and to engage the web of the rail at points at substantially the height of the drill spindle.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

CHARLES H. OSLUND.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."