C. H. WOOLSON.

OILER FOR DRILL PRESSES.

APPLICATION FILED JUNE 4, 1919.

1,337,682. Patented Apr. 20, 1920.

FIG. 1.

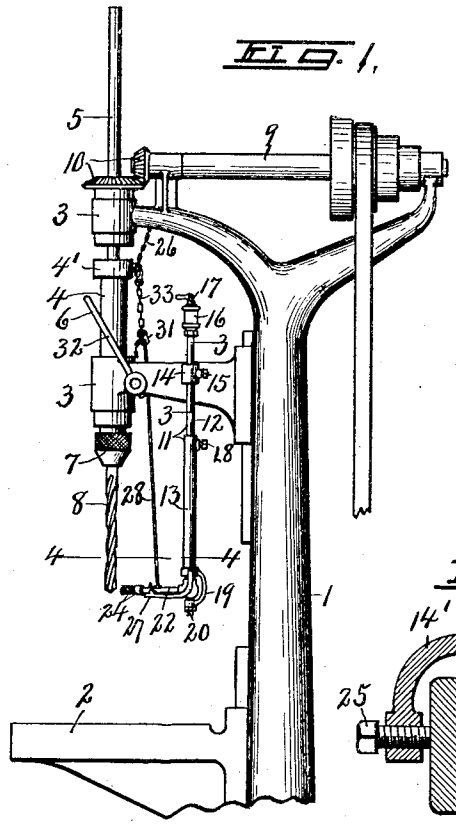


FIG. 2.

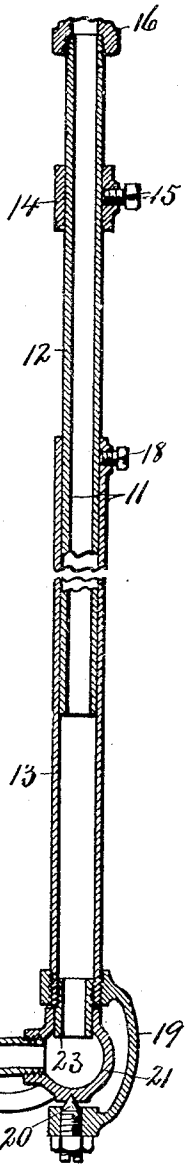


FIG. 3.

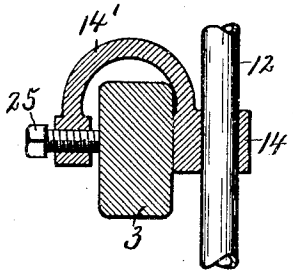
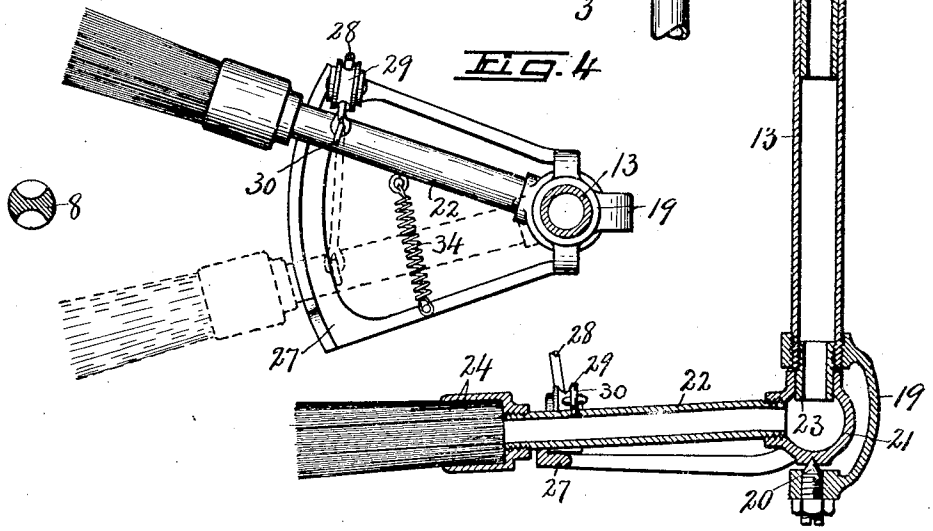


FIG. 4.



INVENTOR
Charles H. Woolson

BY Howard P. Denison
ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES H. WOOLSON, OF SYRACUSE, NEW YORK.

OILER FOR DRILL-PRESSES.

1,337,682. Specification of Letters Patent. Patented Apr. 20, 1920.

Application filed June 4, 1919. Serial No. 301,714.

To all whom it may concern:

Be it known that I, CHARLES H. WOOLSON, a citizen of the United States of America, and resident of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Oilers for Drill-Presses, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to an improved oiling device for drills, reamers and the like as used in drill presses and other milling machines.

The main object is to provide simple and efficient means for automatically applying oil to said tool as it is moved axially in opposite directions and involves the use of a brush or analogous absorbent of oil movable intermittently across and in contact with the cutting edges of the tool and to which oil is automatically supplied in limited quantities controlled at will.

Another object is to enable said device to be adjusted axially of the tool to conform to different lengths of tool.

Other objects and uses will be brought out in the following description:

In the drawings,—

Figure 1 is an elevation of a portion of a drill press showing my improved oiling attachment mounted thereon ready for use.

Fig. 2 is an enlarged vertical sectional view of the main portions of the attachment, the oil cup and part of the operating mechanism for operating the oiler being broken away.

Fig. 3 is an enlarged vertical sectional view taken on line 3—3 Fig. 1.

Fig. 4 is an enlarged horizontal sectional view taken on line 4—4 Fig. 1.

In order that my invention may be clearly understood, I have shown a portion of a drill press having the usual upright standard —1—, work support —2— and brackets —3— in which latter is mounted the usual sleeve —4— and drill spindle —5—.

The sleeve —4— is reciprocated vertically by any well known means having a handle —6— for that purpose while the spindle —5— is rotated in said sleeve and is provided with the usual chuck —7— carrying a drill —8— or other cutting tool, the spindle being driven by a countershaft —9— through the medium of intermeshing gears —10—.

The oiling attachment preferably comprises an upright support —11— consisting of in this instance telescoping device or oil conduits —12— and —13—, the upper tube or section —12— being adjustably secured in a suitable bearing —14— on the lower bracket —3— of the frame of the machine and is held in place by a set screw —15—.

The upper end of the tube —12— is provided with an oil cup —16— having a valve —17— for controlling the amount of oil which may be fed through the tubes —12— and —13—.

The tube —13— is adjustable lengthwise of and upon the tube —12— to vary the length of the support —11— to correspond to drills or other tools of different lengths and is held in its adjusted position by a set screw —18—.

A yoke —19— is secured to the lower end of the tubular section —13— and is provided with an adjustable step or bearing —20— for supporting the lower end of a hollow elbow —21— having a laterally extending tubular branch —22—, said elbow having its upper end journaled on the periphery of a tubular bearing —23— which is secured in the lower end of the tubular section —13— thereby establishing communication between the tubular section —13— and branch —22— through the elbow —21— and at the same time serving to hold the branch in a more or less horizontal position and permitting it to swing horizontally about the axis of the bearings —20— and —23—.

A brush or equivalent absorbent wiper —24— is secured to the outer end of the branch tube —22— so that the oil flowing through the tubes —12—, —13— and —22— may saturate the absorbent part of the brush —24—.

The support —11— extends vertically parallel with the axis of the tool —8— and its supporting spindle —5— a distance from said axis less than the distance between the axis of the tubes —12— and —13— and the outer end of the brush —24— so as to permit the free end of said brush to wipe across the periphery or cutting edges of the tool —8— as the brush is oscillated later-

ally or horizontally in a manner presently described.

The bearing —14— for the tubular section —12— is preferably formed integral with a clamp —14'— which is secured to the adjacent bracket —3— by a set screw —25—.

The sleeve —4— and its drill spindle —5— are automatically raised by means of the usual counterweight (not shown) but which is connected by a cable —26— to the head as —4'— of the sleeve.

The lug —19— is provided with a lateral extension in the form of a circular segment or frame underlying the outer edge of the branch pipe —22— so as to partially support said pipe in its oscillatory movement, and also serves to support certain parts of the means by which the brush is oscillated back and forth across the drill or tool —8— and may be adjusted horizontally about the axis of the tubes —12— and —13— by simply loosening the screw —18— and then retightening it to hold the segment —27— in a fixed position which is preferably in a direct line between the axis of the tube —13— and the axis of the drill —8—.

The means for oscillating the brush comprises, in addition to the vertical movement of the drill spindle and its sleeve —4—, a cable —28— having one end passed around a sheave —29— on the segment —27— at one side of its longitudinal center and attached to an eye —30— on the branch pipe —22—, the other end of the cable being adjustably attached at —31— to a relatively short cable —33— which in turn is attached to the head —4'— of the sleeve —4—.

When the sleeve is raised the cable or chain —28— will be similarly raised thereby effecting a corresponding movement of the brush to the position shown by full lines in Fig. 4 against the action of a retracting spring —34—, the latter serving to return the brush to the position shown by dotted lines Fig. 4 when the drill and its spindle is lowered by the handle —6—.

The brush and its support are adjusted in such manner as to cause the brush to move substantially equal distances across and to opposite sides of a direct line between the axes of the tube —13— and drill —8—, the cable —28— being also adjusted to cause the brush to wipe across the cutting point and adjacent portions of the drill at the beginning of its downward movement, and at the end of its return movement thereby causing the oil to be applied where most needed.

This means of oiling or lubricating the drill is particularly efficient, automatic and economical in that it relieves the operator from the responsibility of oiling, assures a uniform application of oil which may be controlled by the valve —17— and avoids excessive waste of oil all of which contributes to reduce the breakage of drills and also assures a more efficient and perfect operation of the tool in the work.

What I claim is:

1. In combination with a reciprocatory tool holder, a wiper movable across the path of movement of the tool, means actuated by the reciprocation of the holder for operating the wiper, and means for supplying oil to said wiper.

2. In combination with a drill press having a rotary cutting tool, means for moving said cutting tool axially, a wiper movable across the path of movement of the tool into and out of engagement therewith, means actuated by the first-named means when moved in one direction for moving the wiper in one direction, and means for returning the wiper when the first-named means is moved in an opposite direction.

3. In combination with a drill press having a rotary axially movable drill spindle, means for moving the spindle axially in reverse directions, a wiper movable transversely of the plane of the axis of and into and out of contact with the tool, means actuated by the first-named means when moved in one direction for moving the wiper across said axis into contact with the tool, means for restoring the wiper to its starting position, and means for supplying oil to the wiper.

4. In combination with a rotary cutting tool, a holder therefor, means for reciprocating the holder axially, a wiper, and a tubular holder therefor movable transversely of the axis of the tool, a feed pipe communicating with the tubular holder, an oil reservoir discharging into the pipe, means actuated by the movement of the first-named means in one direction for moving the wiper and its holder in one direction, and additional means for returning the wiper and its holder.

5. In combination with a rotary cutting tool, a holder therefor, means for reciprocating the holder axially, a wiper, and a tubular holder therefor movable transversely of the axis of the tool, a feed pipe communicating with the tubular holder, an oil reservoir discharging into the pipe, means actuated by the movement of the first-named means in one direction for moving the wiper and its holder in one direction, and additional means for returning the wiper and its holder, said pipe being composed of sections telescoping one within the other, and means for clamping them in their adjusted positions.

In witness whereof I have hereunto set my hand this 24th day of May, 1919.

CHARLES H. WOOLSON.

Witnesses:

H. E. CHASE,

A. G. JORDAN.