J. PAVELKA.

APPLIANCE FOR TOOLS.

APPLICATION FILED NOV. 8, 1920.

1,406,071. Patented Feb. 7, 1922.

Fig. 2

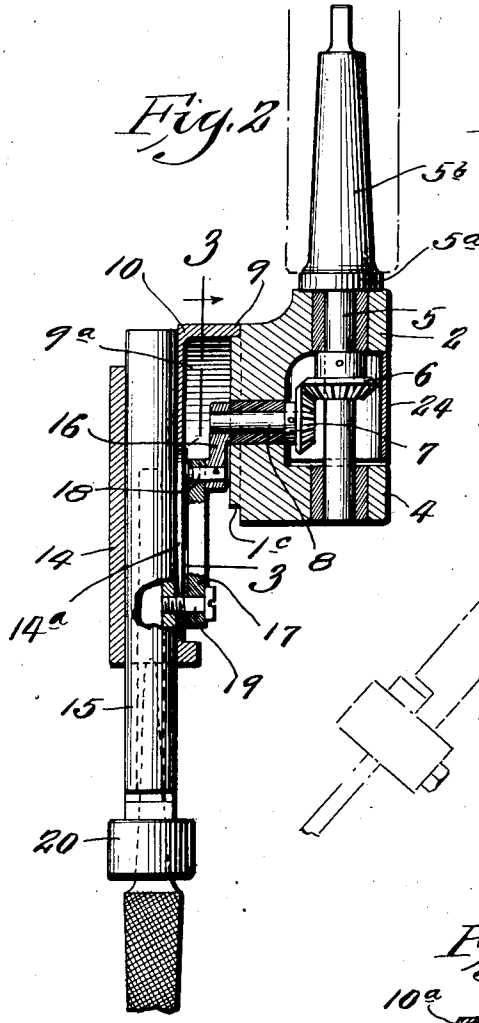


Fig. 1

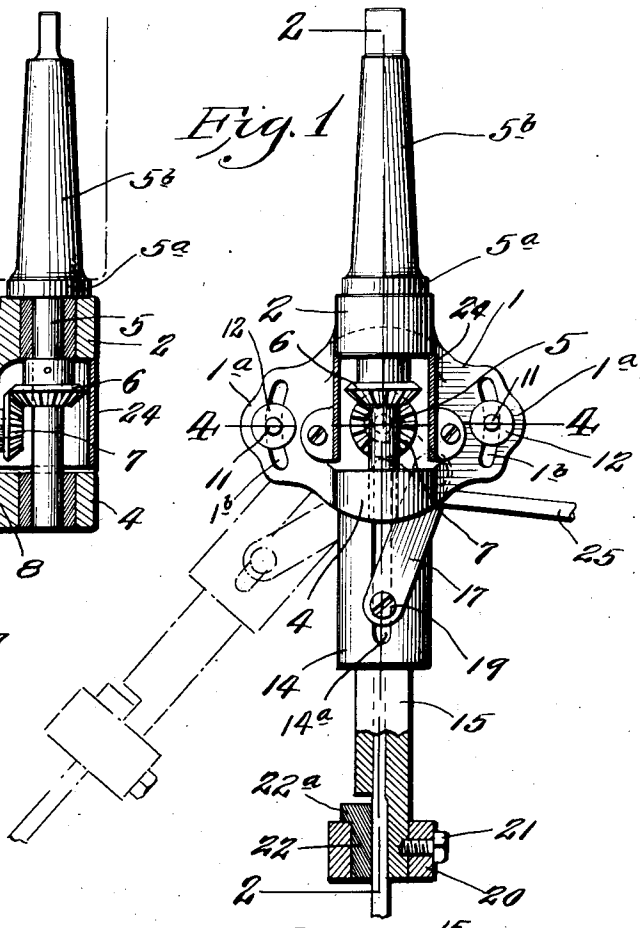


Fig. 3

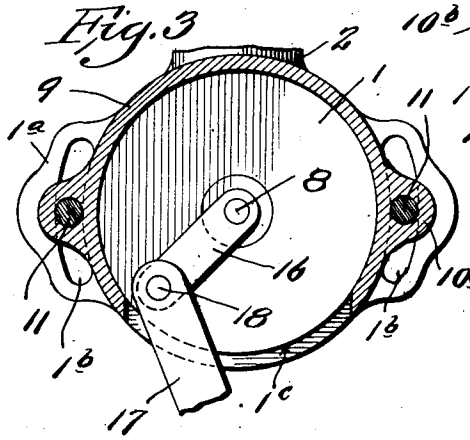
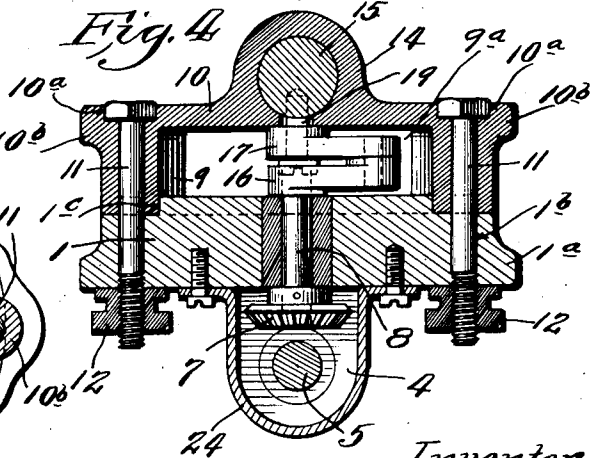


Fig. 4



Inventor

Joseph Pavelka

By F. R. Cornwall, Atty.

UNITED STATES PATENT OFFICE.

JOSEPH PAVELKA, OF ST. LOUIS, MISSOURI.

APPLIANCE FOR TOOLS.

1,406,071. Specification of Letters Patent. Patented Feb. 7, 1922.

Application filed November 8, 1920. Serial No. 422,503.

To all whom it may concern:

Be it known that I, JOSEPH PAVELKA, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Appliances for Tools, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to power operated appliances designed to receive tools for working metal and more particularly tools utilized for filing and broaching operations.

The objects of my invention are to provide a tool receiving appliance which will perform its intended functions automatically and efficiently with the least amount of time and labor on the part of the operator and which appliance is of strong and durable construction, simple in operation, and can be manufactured at low cost.

Another object of my invention is to provide a tool receiving appliance which can be readily attached to a metal working machine such as a drill press, and which can be easily adapted to be used as a portable appliance provided with its own driving means or driven by means of a flexible shaft from a stationary motor.

A further object is to provide a tool receiving member which is adjustable to different positions to suit the various requirements of the machine shops.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevational view showing the tool engaging member in dotted lines in one of its adjusted positions.

Figure 2 is a vertical cross section taken on the line 2—2 of Figure 1.

Figure 3 is a cross section taken on the line 3—3 of Figure 2.

Figure 4 is a horizontal cross section taken on the line 4—4 of Figure 1.

Referring by numerals to the accompanying drawings, 1 is a housing having forwardly projecting lugs or bearings 2 and 4, in which is journaled a vertical shaft 5. The upper end of shaft 5 is provided with a collar 5^a which rests on top of bearing 2 and extending upwardly from said collar and integral with shaft 5 is a shank 5^b. A beveled gear 6 is fixed to shaft 5 immediately below bearing 2. Meshing with beveled gear 6 is another beveled gear 7 which is fixed to the outer end of horizontal shaft 8 journaled in housing 1. Housing 1 has ears or extensions 1^a arranged on each side of vertical shaft 5 and which extensions are provided with arcuate slots 1^b which are concentric with the axis of the horizontal shaft 8. The rear or inner face of housing 1 is provided with an annular shoulder 1^c which is also concentric with the axis of horizontal shaft 8, and engaging said shoulder is an annular flange 9 projecting forwardly from housing 10. Housings 1 and 10 are clamped together by bolts 11, the non-circular heads of which are seated in recesses 10^a formed in extensions 10^b of housing 10 and the threaded ends of bolts 11 pass through arcuate slots 1^b and engage nuts 12.

A bearing 14 is formed on housing 10 and operating in said bearing is the upper end of reciprocating rod or shaft 15. The means for imparting reciprocating motion to shaft 15 consists of a crank arm 16 operating in chamber 9^a formed by annular flange 9 and which crank arm is fixed to the inner end of horizontal shaft 8 projecting into said chamber. The free end of crank arm 16 is provided with a pin 18 which forms pivotal connection for one end of link 17, the other end of which is connected to the reciprocating shaft 15 by a screw 19. A slot 14^a is formed in bearing 14 to accommodate screw 19, and the lower portion of flange 9 is cut away to accommodate link 17.

A collar 20 is held in position on the lower end of shaft 15 by a screw 21. The lower end of shaft 15 is notched and occupying said notch within collar 20 is a clamping member 22.

In order to fix a tool such as a file in position on shaft 15, screw 21 is turned in proper direction to release clamping member 22 so that the tang of the tool can be inserted between said clamping member and the notched end of shaft 15. Screw 21 is now tightened to bring clamping member 22 toward the notched end of shaft 15, thereby clamping the tool securely in position. Clamping member 22 is provided with an upwardly projecting lip 22^a which overlies

the upper end of collar 20 and prevents the displacement of said clamping member.

In using the appliance as a filing attachment for drill presses, the device is fixed in working position by inserting shank 5^b into the chuck of the drill press and securing it in the usual manner. As shaft 5 is held in position in housing 1 by collar 5^a located above and beveled gear 6 located below bearing 2, the whole appliance is consequently supported in position on the drill press. A housing 24 is removably secured to housing 1 to enclose gears 6 and 7.

In order to support the device and maintain housing 1 in stationary position, one end of tie rod 25 is secured to said housing while the other end of said rod is secured to a stationary portion of the drill press in any suitable manner.

After the appliance is in position on the drill press, the tool holder 15 can be properly adjusted with respect to the article which it is desired to work upon by loosening nuts 12 and partially rotating housing 10 in its seat in housing 1. By tightening nuts 12, housing 10 and shaft 15 will be retained in their adjusted positions. The rotation of the chuck of the drill press actuates the vertical shaft 5 which operates horizontal shaft 8 by beveled gears 6 and 7. One end of arm 16 being fixed to shaft 8, the rotation of shaft 8 will cause the free end of arm 16 to which pin 18 is fixed to travel in a vertical circle with the shaft 8 as a center, thereby imparting reciprocating motion to shaft 15 through the medium of link 17 and pivotal connection 19.

While I have illustrated and described the device as an attachment for a drill press, it can be utilized as a motor driven portable machine for performing filing, broaching and similar operations, by connecting shaft 5 either directly to the motor or by means of a flexible shaft.

A device of my improved construction can be readily attached in working position and can be easily and accurately adjusted to any desired position.

It will be readily understood that minor changes in the size, form and construction of the various parts of my improved device can be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim:

1. In a portable filing machine, a rotatable member adapted to be detachably secured to and supported on a rotating part of a machine, a housing forming a bearing for said rotatable member, a reciprocating tool holder, driving connections between the tool holder and said rotatable member, and a bearing for said tool holder, said bearing being rotatably supported on said housing, whereby the tool holder can be adjusted with respect to the axis of said rotatable member.

2. In a portable filing machine, a rotatable member adapted to be detachably connected to a rotating part of the machine, a housing forming a bearing for said rotatable member, a reciprocating tool holder, driving connections between said tool holder and said detachable member, a bearing for said tool holder adjustably supported on said housing, and means for locking the bearing in adjusted position.

3. In a machine of the class described, a housing, a shaft rotatably mounted in said housing and having one of its ends designed to form a detachable driving engagement with a rotating part of a machine, a crank shaft rotatively mounted in said housing and in operative engagement with the first mentioned shaft, a reciprocatory rod having one of its ends adapted to receive a tool, operative connections between said reciprocatory rod and said crank shaft, and a bearing for said reciprocatory rod, said bearing being rotatively supported on said housing, whereby said tool carrying rod can be adjusted relative to the axis of said crank shaft.

4. In a machine of the class described, a housing, a shaft rotatably mounted in said housing and having one of its ends designed to form a detachable driving engagement with a rotating part of a machine, a crank shaft rotatively mounted in said housing and in operative engagement with said first mentioned shaft, a reciprocatory rod having one of its ends adapted to receive a tool, operative connections between said reciprocatory rod and the crank shaft, a bearing for said reciprocatory rod, said bearing being rotatively supported on said housing, whereby said tool carrying rod can be adjusted relative to the axis of said crank shaft, and means for retaining said reciprocatory rod in an adjusted position.

5. In a device of the class described, a stationary housing, an adjustable housing, having an annular flange which is rotatively mounted on said stationary housing, a reciprocating tool holder in said adjustable housing, and means in said stationary housing adapted to actuate said reciprocating tool holder.

6. In a device of the class described, a housing comprising a stationary member having an annular seat and a movable member having an annular flange which has rotative bearing in the annular seat of said stationary member, a reciprocating tool holder arranged in said movable member, means for actuating said tool holder arranged in said stationary member, and means for adjusting said movable member with respect to said stationary member.

7. In a device of the class described, a

portable housing adapted to be detachably supported on a machine, a driving shaft journaled in said housing, a driven shaft journaled in said housing, means operatively connecting said shafts, a reciprocating tool holder supported on said housing and adjustable about the axis of said driven shaft, and means actuated by said driven shaft for imparting reciprocating motion to said tool holder.

8. In a device of the class described, a housing, a driven shaft journaled in said housing, means for actuating said shaft, a reciprocating tool holder, an adjustable bearing for said tool holder, said bearing being rotatively mounted on said housing, and means for supporting said bearing on said housing and adapted to lock said housing in adjusted position, and means actuated by said driven shaft to impart reciprocating motion to said tool holder.

In testimony whereof I hereunto affix my signature this 20th day of October, 1920.

JOSEPH PAVELKA.