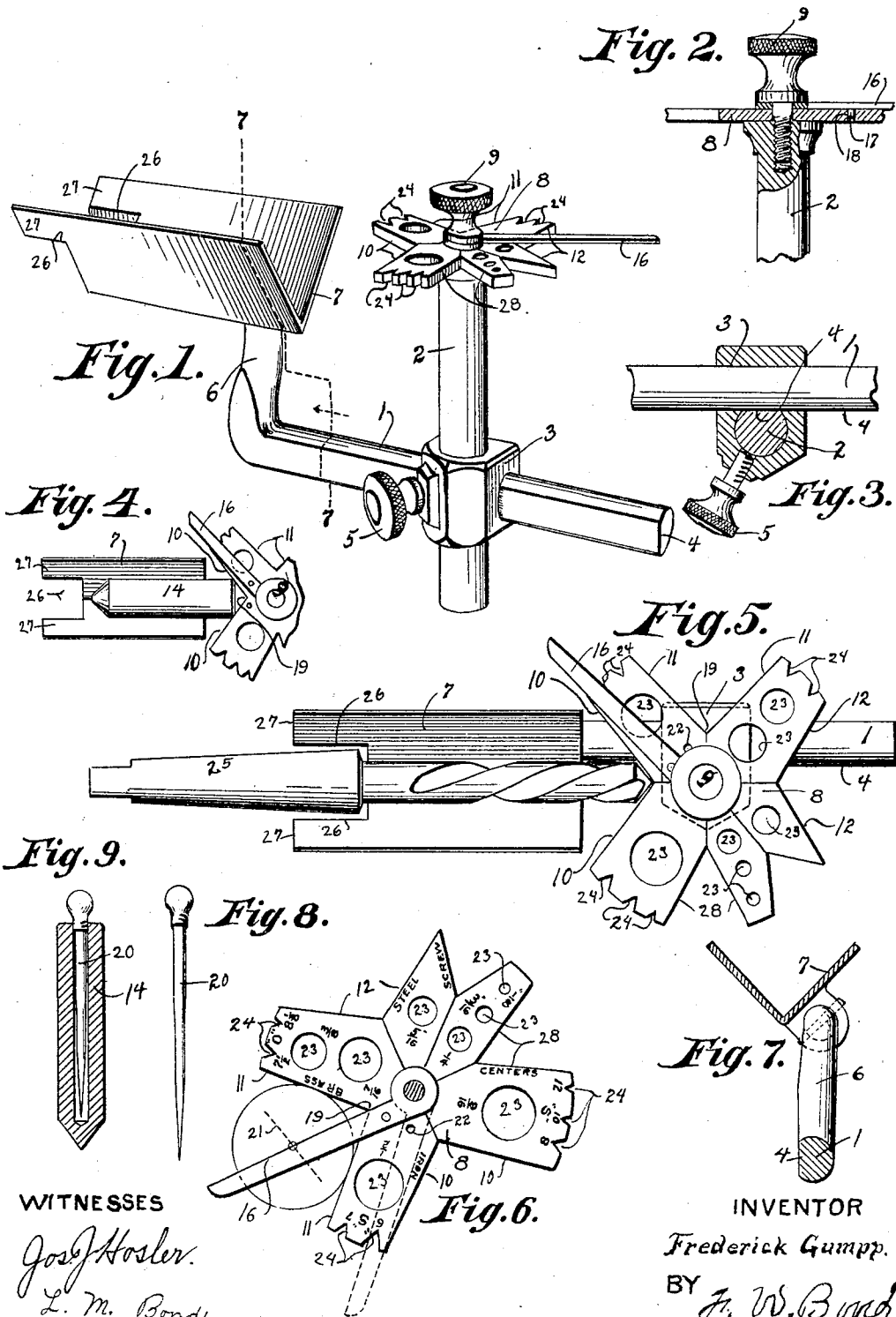


No. 809,562.

PATENTED JAN. 9, 1906.

F. GUMPP.
COMBINATION GAGE.
APPLICATION FILED AUG. 14, 1905.



WITNESSES

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FREDERICK GUMPP, OF MASSILLON, OHIO.

COMBINATION-GAGE.

No. 809,562.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK GUMPP, a citizen of the United States, residing at Massillon, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Combination-Gages; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon.

The object of the present invention is to provide a combination-gage for the accurate gaging of twist-drills when ground and at the same time get the proper pitch of drills for the different metals to be drilled.

It is well understood that the degree of pitch should be much sharper upon a drill designed for use upon soft metal than it is upon one designed for hard metal and that the degrees of pitch should be varied as between the softest metal designed to be acted upon and the hardest metal, and in order to determine or gage the various degrees to compensate for the various degrees of hardness of different kinds of metal I employ the devices hereinafter described.

A further object of the present invention is to provide means for finding the axial centers of shafts or other round or square objects; and another object is to provide means for determining the proper pitch when grinding tools for countersink screw-heads and finding the proper pitch of screw-thread and lathe-centers and also a gage for determining the proper diameter of a drill for a particular or given sized tap.

In the drawings, Figure 1 is a perspective view of the tool or combination-gage, showing the different parts properly assembled. Fig. 2 is a view showing the top or upper end of the vertical bar, showing the gage-disk located thereon. Fig. 3 is a view showing a portion of the horizontal bar, a transverse section of the vertical bar, and the binding-head. Fig. 4 is a view showing a portion of the gage-disks and a setting pin or bar brought into position to set the disk. Fig. 5 is a top view showing a drill placed in proper position to be gaged. Fig. 6 is a top view of the gage-disk, showing the centering-bar set for use. Fig. 7 is a sectional view on line 7 7, Fig. 1. Fig. 8 is a detached view of a common scratch-awl. Fig. 9 is a longitudinal section

of the centering-pin, showing a scratch-awl located therein.

In the accompanying drawings like numerals indicate like parts in all the figures.

In the accompanying drawings, 1 and 2 represent the connecting-bars, which are held at right angles to each other by means of the binding-head 3, through which head the bars 1 and 2 are passed and so located that they will come in contact with each other and for the purpose of preventing any auxiliary movement of the bars 1 and 2. Said bars are formed angular in cross-section, and, as shown, they are each provided with flat faces 4, and for the purpose of holding the bars 1 and 2 at the desired point of adjustment the thumb-nut 5 is provided, which thumb-nut is located substantially as shown in the drawings. The horizontal bar 1 is provided with the right-angled portion 6, to the upper end of which is attached or formed integral therewith the tool-holding trough 7, which trough is V-shaped in cross-section and the sides constituting said trough located at any desired angle to each other, but should be so located that they will properly hold any tool or bar that may be placed therein. To the top or upper end of the vertical bar 2 is rotatably attached the gage-disk 8, which gage-disk when brought into its proper adjustment for any purpose desired is held against rotation by means of the thumb-nut 9, which thumb-nut is of any desired construction, as its only object is to hold the gage-disk 8 against rotation when said thumb-nut is turned so as to clamp or bind the gage-disk.

The gage-disk is provided with a series of recesses, which recesses are bounded by edges of different angularities 10, 11, and 12, which angularities are of such a degree of divergence as it is desired to give to the pitch of the drill, the various angled edges being predetermined, so that when a drill is ground to fit the angled edges of the gage-disk the proper pitch will be given to the drill for the use to which the drill is to be applied. It will be understood that the vertices or the meeting-points of the various angled edges should be in a true or straight line from the vertex of the trough 7, and in order to bring the gage-disk into such a position the setting-pin 14 is provided, which setting-pin is placed in the trough 7 and entered into the desired recess or

notch of the gage-disk until the two diverging edges come in contact with the end of the setting-pin 14, this feature being illustrated in Fig. 4, and when the gage-disk has been properly set the thumb-nut 9 is turned so as to clamp the disk and prevent any accidental displacement thereof. This setting of the disk brings it into proper position to place a drill in the trough 7, as illustrated in Fig. 5, and by gaging the pitch of the drill from time to time during the time it is being ground or until the pitch of the drill is parallel with the angularity of the angled edges of the gage-disks, which are the angled edges for which the particular pitch of a drill has been set, by which arrangement little difficulty is brought about or experienced in finding the proper pitch for a drill regardless of the kind of use to which the drill is to be put. It will be understood that in gaging different-sized drills the gage-disk must be adjusted vertically, so that the gage-disk will come in a true horizontal line with the axillary center of the drill, and to provide for this the bar 2 can be adjusted from time to time by loosening the thumb-nut 5.

In use it is frequently desirable to adjust the trough 7 to or from the gage-disk 8, and in order to provide for this horizontal adjustment the bar 1 can be adjusted, together with the trough 7, by loosening the thumb-nut 5; but when the thumb-nut 5 is turned so as to clamp the bars 1 and 2 there can be no relative movement in a vertical or horizontal direction between the trough 7 and the gage-disk 8. When it is desired to find the proper pitch of countersink or drill for countersinking screw-holes, the gage-plate 8 is set by means of the setting-pin 7, of course the gage-plate being turned so as to bring the angled edges into proper position with reference to the trough 7.

Upon the stem of the thumb-nut 9 is pivotally located the centering-rule 16, which centering-rule is provided with the pin 17, which pin is adapted to be received into the aperture 18, which aperture is located so that when the pin is properly engaged the working edge of the centering-rule will be directly in line with the vertex 19 and the shaft designed to be centered is placed between the angled flanges 20, and by means of the scratch-awl 21 or its equivalent lines are drawn across the end of the shaft, which lines are crossed so as to find the true center of the shaft, this feature being illustrated to simply show various uses to which my invention can be applied. When it is desired to bring the centering-rule 16 out of the way, the thumb-nut 9 is loosened and the centering-rule turned so that the pin 17 will engage the aperture 22.

For the purpose of gaging drills for tapping, the gage-disk 8 is provided with a series of different-sized apertures 23, which aper-

tures correspond in size with the size of the drill-taps except the stock for threads. The gage-disk 8 is also provided with a series of notches 24, which notches are for the purpose of gaging the tool for use in cutting standard and odd size screw-threads.

It will be understood that small drills are provided with the socket-connecting shanks 25, and in order to allow for properly gaging short drills the trough 7 is provided with the cut-out portion 26 for the purpose of allowing the shank of the drill to enter and at the same time allow the drill proper to rest in the trough in true alinement with the gage-disk and trough. The object of providing the cut-out portion 26 and extending the arms 27 rearward is to provide proper supporting-space for larger and longer drills.

For the purpose of gaging lathe-centers the gage-disk 8 is provided with the angled diverging edges 28, which are located with reference to each other at the proper angle to produce the proper bearing upon shaft-centers.

It will be understood that the bars 1 and 2 may be formed of any desired angularity in cross-section, as the only object is to prevent any axillary movement of said bars after they have been brought into predetermined adjustment and clamped.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a combination-gage, the combination of bars located at right angles to each other and adjustable with reference to each other, one of said bars provided with a tool-holding trough, and the other bar provided with a gage-disk, and means for holding the gage-disk in fixed adjustment, and means for holding the adjustable bars in fixed adjustment, substantially as and for the purposes specified.

2. In a combination-gage, the combination of bars located at right angles to each other and adjustable with reference to each other, one of said bars provided with a trough, and the other bar provided with a gage-disk, said gage-disk provided with angled edges of different angularities, and means for holding the gage-disk in fixed adjustment, and means for holding the bars in fixed adjustment, substantially as and for the purpose specified.

3. In a combination-gage, the combination of bars located at an angle one to the other, one of said bars provided with a gage-disk and the other with a trough, said gage-disk provided with angled edges having different angularities, apertures formed in the gage-disk of different diameters, and said gage-disk provided with screw-pitch notches, and means for holding the adjustable bars in fixed adjustment, substantially as and for the purpose specified.

4. In a combination-gage, the combination of adjustable bars located at an angle one to

the other, one of said bars provided with a gage-disk, said gage-disk provided with varying reentrant angles, said gage-disk provided with screw-pitch notches and means
5 for holding the adjustable bars in fixed adjustment, and a trough carried by the other of the adjustable bars, substantially as and for the purpose specified.

10 5. In a combination-gage, the combination of adjustable bars, means for holding the adjustable bars in fixed adjustment, one of said bars provided with a gage-disk having edges of different angularities, a center-rule rotatable concentrically with the gage-disk, means
15 for holding said center-rule in fixed relation with the gage-disk, and means for holding the gage-disk, and center-rule against rota-

tion, and a trough carried by the other of the adjustable bars, substantially as and for the purpose specified. 20

6. In a combination-gage, the combination of adjustable bars, one of said bars provided with a gage-disk, said gage-disk rotatably mounted upon its bar, and a trough carried
25 by the other adjustable bar, said trough provided with a cut-out portion, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

FREDERICK GUMPP.

Witnesses:

J. A. JEFFERS,
F. W. BOND.