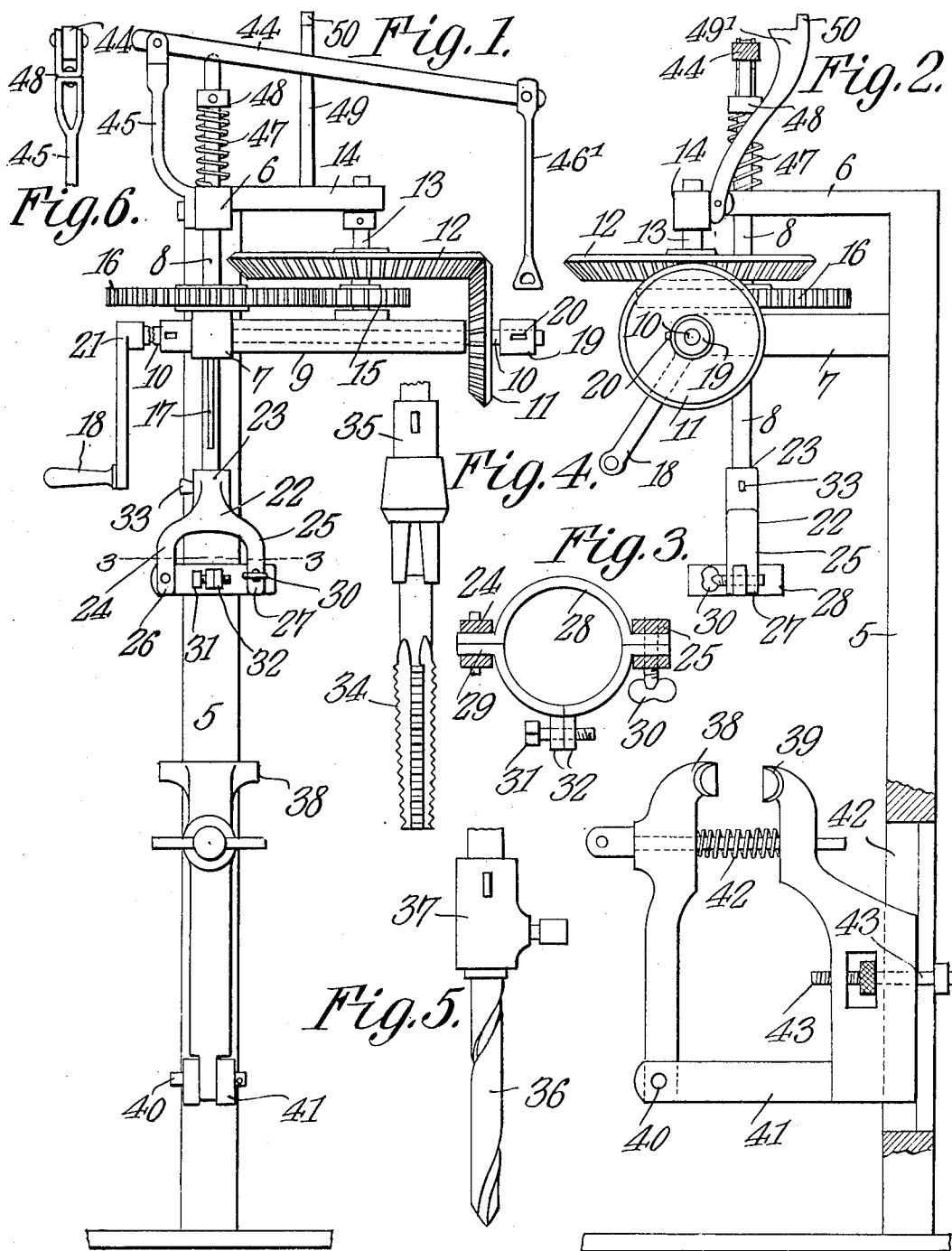


No. 892,459.

PATENTED JULY 7, 1908.

M. E. SPEARS.
DRILLING MACHINE.
APPLICATION FILED FEB. 23, 1907.



WITNESSES:
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UNITED STATES PATENT OFFICE.

MATHEW ELI SPEARS, OF MERRYVILLE, LOUISIANA.

DRILLING-MACHINE.

No. 892,459.

Specification of Letters Patent.

Patented July 7, 1908.

Application filed February 23, 1907. Serial No. 358,840.

To all whom it may concern:

Be it known that I, MATHEW ELI SPEARS, a citizen of the United States, residing at Merryville, in the parish of Calcasieu and State of Louisiana, have invented a new and useful Drilling-Machine, of which the following is a specification.

This invention relates to metal working machines and has for its object to provide a strong, durable machine of this character for threading and tapping metal bolts, pins and the like and which may also be used as a nutting machine and drill press.

A further object of the invention is to provide a drilling machine having an adjustable vise for centering the work with respect to the drill or other operating tool, and further to provide means for feeding the drill or operating tool longitudinally of the machine during the drilling or tapping operation.

A still further object of the invention is to generally improve this class of machines so as to increase their utility, durability and efficiency.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, and illustrated in the accompanying drawings, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a front elevation of a combined machine constructed in accordance with my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1. Fig. 4 is a side elevation of a tapping tool or wrench used in connection with the machine. Fig. 5 is a similar view of the drill bit. Fig. 6 is a rear elevation of the operating handle and its support.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved machine includes a standard or support 5 having one end thereof provided with spaced laterally extending arms 6 and 7 and in which is journaled an operating shaft 8.

Secured to the lower arm 7 and preferably arranged at right angles to the support 5 is a transverse bar 9 which forms a bearing for a

shaft 10, the latter being extended through a longitudinal bore in the bar 9 and provided at one end thereof with a beveled gear 11 which meshes with a correspondingly beveled gear 12 secured to and mounted for rotation with a vertically disposed stub shaft 13.

One end of the stub shaft 13 is journaled in the bar 9 while the opposite end thereof is journaled in a relatively short bar 14 extending laterally from the arm 6 and preferably disposed in parallel relation to the lower bar 9, as shown. Keyed or otherwise rigidly secured to the stub shaft 13 is a pinion 15 which meshes with a master gear 16 carried by and mounted for rotation with the operating shaft 8. The operating shaft 8 is provided with a vertically disposed key seat or spline 17 so as to permit the shaft 8 to be adjusted vertically of and through the gear wheel 16 for the purpose hereinafter referred to.

One end of the shaft 10 is provided with a terminal operating crank or handle 18 while the opposite end thereof is provided with a sleeve or collar 19 having a transverse opening formed therein for the reception of a locking key or wedge 20, the latter being extended through a correspondingly shaped opening in the shaft 10 thereby to prevent accidental displacement of the beveled gear 11. A similar sleeve 21 is preferably secured to the shaft 10 at a point adjacent the operating handle or crank 18 to prevent longitudinal movement of the shaft in the direction of the operating handle.

Several different styles of tools may be used in connection with the machine and in Fig. 1 of the drawings there is shown a die stock 22.

The die stock 22 consists of a body portion having its upper end provided with a recess or socket 23 for the reception of the free end of the shaft 8 while its lower end is bifurcated to form spaced arms 24 and 25 each of which is correspondingly bifurcated to form spaced parallel fingers 26 and 27.

The die stock proper consists of a split ring 28 adapted to receive an adjacent die and provided with oppositely disposed ears or lugs 29 one of which is pivotally mounted between the spaced fingers 26 while the opposite lug is seated between the fingers 27 and is clamped in position between said fingers by means of a set screw or similar clamping device 30.

The adjustable die (not shown) is clamped within the split member by means of a threaded pin 31 which engages threaded projections 32 extending laterally from the adjacent ends of the split ring, as shown.

The die stock is detachably secured to the operating shaft 8 by means of a locking key or wedge 33 which extends through the walls of the socket 23 for engagement with a correspondingly shaped opening in the shaft 8.

Associated with the machine is a tapping tool or wrench 34 having a socket 35 for attachment to the operating shaft 8 when the die stock is removed, said socket being provided with an opening for the reception of the locking key 33.

When drilling or boring sheet metal plates and the like there is provided a drill-bit 36 which is detachably secured to a socket 37 similar in construction to the socket 35 and designed to be positioned on and locked in engagement with the operating shaft 8 by means of a key 33 in the manner before stated.

Disposed below and arranged in vertical alinement with the operating shaft 8 is an adjustable vise including a pair of co-acting jaws or clamping members 38 and 39 one of which is pivotally mounted at 40 on an arm 41 extending laterally from the stationary jaw 39, there being a coiled spring 42 interposed between the jaws for yieldably supporting the same in spaced relation.

The relatively stationary jaw 39 is seated in a socket or recess 42' formed in the support 5 and is adjustably secured thereto by means of a clamping bolt 43 whereby the vise may be adjusted longitudinally of the support and securely fastened in adjusted position.

As a means for feeding the drill 36 in engagement with the work there is provided an operating handle 44 one end of which is pivotally connected to an arm or support 45 carried by the upper arm 6 while the opposite end thereof bears against the upper end of the shaft 8 and is provided with a depending hand lever 46 so that by exerting a down-

ward pull on the lever 46 the shaft 8 may be adjusted longitudinally of the same thereby to force the drill through the work, there being a coiled spring 47 interposed between the arm 6 and the collar 48 carried by the shaft for automatically returning the shaft 8 to vertical position when the operating handle 46 is released.

When the machine is used for nutting or tapping the lever 44 is swung laterally beyond the shaft 8 and supported on an arm 49 secured to the short bar 14, said arm being preferably provided with a terminal projection 50 for limiting the lateral movement of the lever 44 when the same is moved to inoperative position.

From the foregoing description it is thought that the construction and operation of the device will be readily understood by those skilled in the art and further description thereof is deemed unnecessary.

Having thus described the invention what is claimed is:

A metal working machine including a support, a vertically adjustable operating shaft carried by the support and adapted to receive a tool, gearing operatively connected with the operating shaft for rotating the latter, a spring for normally supporting the shaft in elevated position, a standard secured to the support, and a vertically and laterally swinging lever swiveled on the standard and adapted to engage the upper end of the shaft for feeding the tool in the direction of the work, and an arm secured to the support and having its free end curved laterally and provided with a terminal recess defining a vertical stop lug adapted to engage and limit the lateral movement of the pivoted lever.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

MATHEW ELI SPEARS.

Witnesses:

J. C. PARKER,
C. E. MEADOWS.