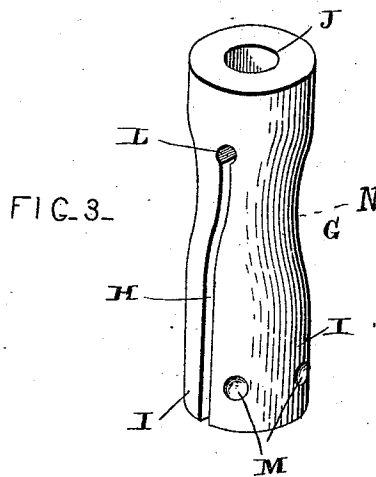
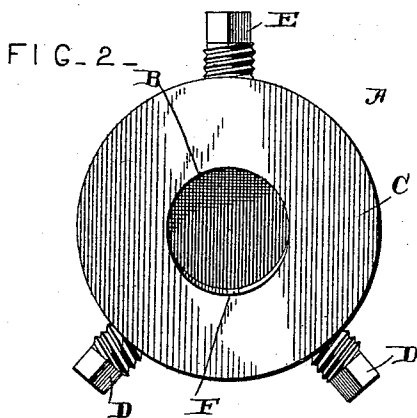
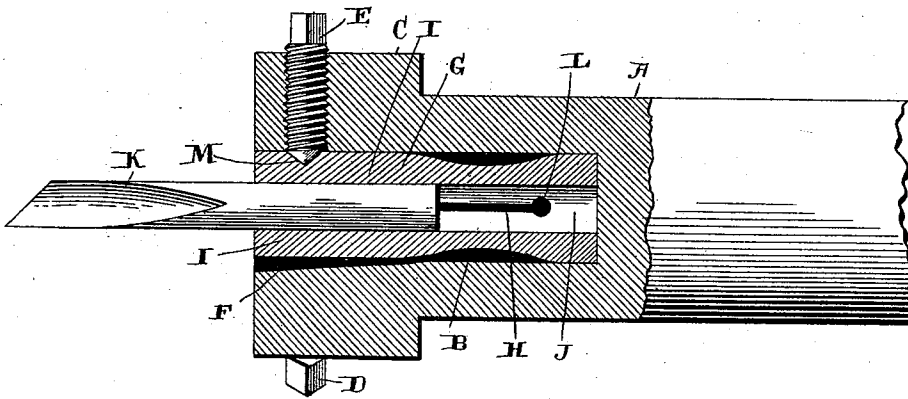


(No Model.)

E. D. DE FREHN.
MANDREL AND ADJUSTABLE BIT SOCKET FOR MORTISING MACHINES.
No. 469,025. Patented Feb. 16, 1892.

FIG. 1.



WITNESSES.

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EDWARD DANIEL DE FREHN, OF MOUNT UNION, PENNSYLVANIA.

MANDREL AND ADJUSTABLE BIT-SOCKET FOR MORTISING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 469,025, dated February 16, 1892.

Application filed August 13, 1891. Serial No. 402,528. (No model.)

To all whom it may concern:

Be it known that I, EDWARD DANIEL DE FREHN, of Mount Union, in the county of Huntington and State of Pennsylvania, have invented certain new and useful Improvements in Mandrels and Adjustable Bit-Sockets for Mortising-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in mandrels and adjustable bit-sockets for mortising-machines; and it consists in the construction and arrangement of parts, which will be fully described hereinafter, and particularly referred to in the claims.

The object of my invention is to provide a mandrel and an adjustable bit-socket for mortising, boring, and drilling machines, which is so constructed that the bit-socket can be adjusted to throw the end of the bit out of true, thus making a mortise of any desired size, and which enables both the depth and width of the mortise to be regulated by the same adjustment.

In the drawings, Figure 1 is a longitudinal vertical section of my invention complete. Fig. 2 is an end view of the mandrel with the socket and bit removed. Fig. 3 is a detached perspective view of the socket.

A indicates a mandrel, which is made of any desired shape, size, and construction externally that may be preferred and which is provided with a longitudinal opening B of any suitable diameter and length. The outer end of this mandrel is provided with the enlargement C, through which the two screws D are passed, which extend inwardly at an angle and which are here shown at the lower side of the opening B. Passing through this portion C, at the upper side thereof, is a single screw E. This opening B is cut out at the point F where the two screws D pass through it, which enlarges the outer end of the opening at that point. That portion of the opening through which the single screw E passes is made straight with the wall of the opening and concentric therewith.

Placed within the opening B is a socket G,

which is provided with a split H, which forms the two spring-jaws I, and with a longitudinal opening J to receive the bit K. By means of this construction the bit can be moved back and forth in the said longitudinal opening, which will vary the depth of the mortise being made, as will be readily understood. Made transversely through this socket, at the inner end of the split H, is an opening L, which prevents the socket from splitting or cracking beyond this point when being tempered. Made in the outer ends of these jaws are the three cavities M for the reception of the clamping-screws, so that the socket will be held firmly within the mandrel when the mandrel is being used in a vertical position for boring, drilling, or mortising. The socket is preferably concaved between its ends, as shown at N, so that when it is being adjusted laterally within the opening B only the rear end of the socket will be in contact with the walls of the said opening.

Owing to the above construction, the socket by means of the clamping-screws can be moved so as to throw the end of the bit out of true for the purpose of causing the bit to make a mortise of any desired width. At the same time the bit can be moved in or out to regulate the depth of the mortise being made and the bit and the socket clamped by the screws when they are tightened up.

Ordinarily the bit is clamped within the socket by having the clamping-screws come directly in contact with the bit itself; but this is very objectionable, for the reason that the bit becomes bent and out of true and is broken. This socket avoids the necessity of having a large number of bits and occasionally being compelled to bend or hammer the bits smaller or larger to suit the different-sized mortises you desire to make.

A great advantage of the above construction is that when the bit is adjusted the extreme point of the bit is thrown just where it belongs and also gives a direct clearance of the bit, so that there is no friction back of the point thereof. If it is desired to make mortises small, coming close to the size of the bit, it is only necessary to loosen the screws and adjust it nearer the center of the mandrel. If it is desired to make it the exact size of the bit, the single set-screw E is moved up, and then the

socket is clamped against the opposite side of the opening in the socket by means of the two set-screws D, as will be readily understood.

Having thus described my invention, I claim—

1. A mandrel having a longitudinal opening which is enlarged at one side of its outer end, set-screws which pass through the said mandrel into the said opening, and a socket 10 which is placed within the said opening and having an opening to receive a bit, the parts combined substantially as set forth.

2. A mandrel having a longitudinal opening which is enlarged at one side of its outer 15 end, a socket placed within the said opening having a longitudinal opening to receive a bit and its exterior concaved between its ends, and a means for adjustably securing the

socket within the said mandrel-opening, the parts combined substantially as described. 20

3. A mandrel having a longitudinal opening which is enlarged at one side of its outer end, a socket placed within the said opening having a longitudinal opening for the reception of a bit and recesses or cavities in its outer 25 end, and set-screws which pass through the said mandrel into the opening and engage the said cavities, the parts combined substantially as specified.

In testimony whereof I affix my signature in 30 presence of two witnesses.

EDWARD DANIEL DE FREHN.

Witnesses:

C. W. ALBERT,
H. W. HARRISON.