H. R. MITCHELL.

BENCH HOOK.

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960,369.

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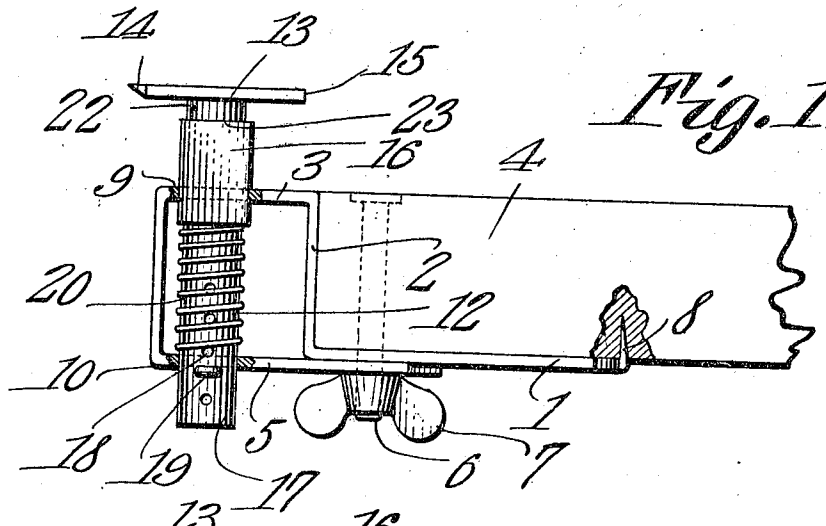

Fig. 1.

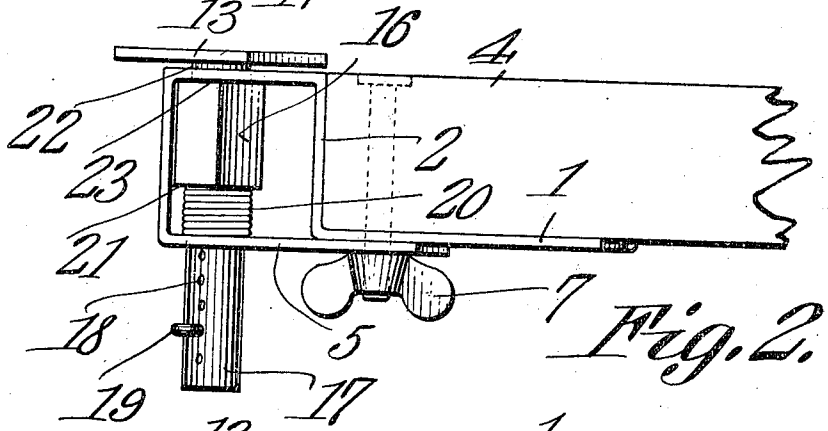

Fig. 2.

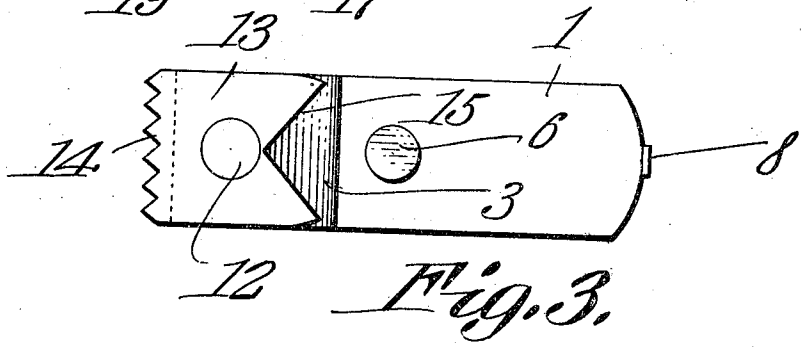

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

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BENCH-HOOK.

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To all whom it may concern:

Be it known that I, HARRY R. MITCHELL, a citizen of the United States, residing at North Yakima, in the county of Yakima and State of Washington, have invented a new and useful Bench-Hook, of which the following is a specification.

My invention relates to improvements in that general class of extensible stops used on the work benches of carpenters commonly known as "bench hooks," and has for an object to provide a simple and durable bench hook in which the bearings of the movable parts will not become clogged with sawdust or shavings.

Another object is to provide a bench hook which will not require its supports to be embedded in the bench as in the usual form of bench hook.

A still further object is to provide a bench hook which can be adjusted to a suitable height to form an abutment for the material without the manipulation of a lock nut, set screw or like adjusting device.

With the above advantages and other objects in view, which will appear as the description proceeds, my invention embraces certain novel details of construction and combination of parts which will be hereinafter more fully described and claimed.

In the accompanying drawing forming part of this specification, Figure 1 is a side elevation of my improved bench hook in applied position showing the dog in operative position. Fig. 2 is a side elevation of the bench hook showing the dog depressed and locked in this position. Fig. 3 is a plan view of my improved bench hook.

Like characters of reference designate similar parts in the views shown.

One of the disadvantages found in the ordinary form of yielding bench hooks is that when it is desired to adjust the hook to a new elevation, or to lower the hook flush with the working bench, the hook must be forcibly held against the pressure of a spring by the operator's hand or otherwise, while the adjusting devices are loosened and reset. To obviate this difficulty my present invention employs a rectangular socket in which a spring dog is adjustably mounted and provided with an annular bearing adjacent its working head to rotate in a squared opening formed in the top plate of the socket. A squared neck formed on the dog below the annular bearing engages the bottom face of said top plate when the annular bearing is partially rotated and locks the dog in its lower limit of movement until the adjusting operation is accomplished.

Referring to the parts by their characters of reference, 1 designates a bracket preferably formed from a single strip of metal looped back upon itself to form a rectangular socket 2 adjacent one end. The top plate 3 of the sockets extends parallel with the body portion of the bracket and is designed to aline with the top surface of the carpenter's bench or like support 4 to which the bracket is secured. That portion of the strap forming the bottom plate 5 of the socket extends along the bottom face of the bracket for a short distance and is provided with an annular opening which registers with an annular opening in the bracket to receive a clamping bolt 6 which passes through the carpenter's bench and terminates in a screw threaded end carrying a clamping nut 7 that securely clamps the bracket to the bottom face of the carpenter's bench. It is evident that as this bolt passes through the end portion of the bottom plate 5, bracket 1, and carpenter's bench 4, the socket will be rigidly held against any tendency to buckle or warp out of shape when the strain of the work comes upon it. An integral tooth 8 is upturned from the rear end of the bracket to penetrate the bottom face of the bench 4 and prevent the accidental twisting of the bracket should the work be cramped diagonally against the working dog. Formed in the top plate 3 is a squared opening 9 and in the bottom plate 5 is formed an annular orifice 10 in alinement with the opening 9. A dog is slidingly fitted in said openings and consists of a shank 12 and a working head 13. The head 13 is formed from a flat piece of metal and is rigidly secured transversely the end of the shank 12, being formed with a toothed working face 14 and a notched working face 15 adapted to form an abutment for the material being planed or otherwise worked upon. The shank 12 of the dog is provided adjacent the head 13 with a squared neck 16 which slidingly fits the squared opening in the top plate of the socket, being sufficient in length to engage said opening when the dog is in its upward limit of movement whereby to positively pre-

vent the rotation of the dog in the top plate. The shank terminates remote from the squared neck in a cylindrical stem 17 which slidingly fits the annular opening of the bottom plate of the socket. A plurality of openings 18 are formed in the stem adapted to engage a split pin 19 which, when inserted in any particular opening, engages the bottom face of the bottom plate 5 and limits the upward movement of the dog whereby to adjust the height of the working head 13 to any desired elevation above the carpenter's bench. A spiral spring 20 is seated on the tubular stem below the squared neck 16 and is held under tension between the bottom shoulder 21 of the neck and the top face of the bottom plate 5. The spring exerts an upward pressure upon the dog, and as the dog is compressed stores up energy to return the same to its initial position when the compression is removed.

It is desirable often times to bring a new working face to bear upon the material without displacing the material from its relative position. To accomplish this an annular bearing 22 is formed on the shank of the dog above the squared neck 16 adapted to rotate in the squared opening in the top plate 3 when the dog is compressed against the pressure of the spring sufficiently to cause the working head 13 to abut the top plate. The head may then be turned until the desired working face is in engagement with the work when the dog is released and is immediately returned by the spring to its initial position.

When it is desired to dispense with the use of the bench hook altogether the dog is compressed until its working head abuts the top plate of the socket, when a quarter turn of the head will cause the top shoulder 23 of the squared neck to engage the bottom face of the top plate and securely lock the dog in this position without further attention from the operator.

In order to adjust the bench hook to a new elevation, the dog is compressed and locked in position as above described when the split pin 19 may be inserted in the particular opening which will effect the proper elevation of the working head when the dog is released. It is evident that the adjustment of the bench hook is effected without requiring the operator to hold the working head compressed against the tension of the spring while resetting the adjusting member, as in the usual form of bench hook, and further that the dog may be locked in compressed position, or the working face of the head changed without loosening or resetting any set screw, lock nut or similar adjustment usually employed for this purpose. It will be further noted that with this peculiar form of socket, shavings or saw dust cannot find lodgment in the housing for the movable parts of the bench hook and clog the bearings of the dog as in bench hooks hitherto constructed.

From the foregoing description, taken in connection with the accompanying drawing, it is thought that the construction and operation of my invention will be easily understood without a more extended explanation, it being understood that various changes may be made in the form, proportion and minor details of construction without sacrificing any of the advantages or departing from the spirit of the invention.

What is claimed is:—

1. In a bench hook, a bracket formed from a single strap of metal looped upon itself to form a rectangular socket at one end, a yielding dog adjustably mounted in said socket and having an annular bearing formed at one end adapted to rotate in the top plate of said socket, and having an angular neck adjacent said bearing to engage the bottom face of said top plate when said bearing is partially rotated whereby to lock the dog in its lowest limit of movement.

2. In a bench hook, a bracket formed from a single strap of metal looped upon itself to form a rectangular socket at one end, a yielding dog vertically mounted in said socket and having a series of annular openings formed at one end, a pin insertible into said openings and adapted to bear against the bottom face of said socket whereby to adjust the dog longitudinally of the said socket, said dog having an annular neck disposed remote from said openings adapted to be engaged through the top plate of said socket whereby to prevent the rotation of said dog in said socket.

3. In a bench hook, a bracket formed from a single strap of metal looped upon itself to form a longitudinal socket at one end, said socket having a squared opening in its top plate and an annular opening in its bottom plate, a dog having at one end a squared neck adapted to conform to the contour and slidingly fit said squared opening, and at the other end a cylindrical stem adapted to slidingly fit said annular opening, a spring seated on said longitudinal stem below said squared neck to force the dog upward, but yield to a downward pressure upon the same, and means for limiting the upward movement of said dog.

4. In a bench hook, a bracket formed from a single strap of metal looped upon itself to form a rectangular socket at one end, said socket having a pair of alined openings formed in its top and bottom plate, a spring actuated dog slidingly fitted in said alined openings having a squared neck adapted to conform to the contour of the opening in said top plate and having a cylindrical stem remote from said neck adapted to be engaged through the opening in said bottom plate,

said stem being provided with a series of transverse openings, a pin insertible into said openings and adapted to bear against said bottom plate whereby to adjust the dog longitudinally in said socket.

5. In a bench hook, a bracket formed from a single strap of metal looped upon itself to form a longitudinal socket at one end, the top plate of said socket being provided with a squared opening and the bottom plate thereof with an annular opening in alinement with said squared opening, a dog engaged through said alined openings having an annular bearing adapted to rotate in said squared opening and a squared neck below said bearing adapted to bear against said top plate when said bearing is partially rotated therein whereby to lock the dog in its lowest limit of motion, said dog terminating in a cylindrical stem remote from said bearing adapted to slidingly fit the opening in the bottom plate, and a spring seated on said cylindrical stem to force the dog upward but yield to a downward pressure upon the same.

6. In a bench hook, a bracket formed from a single strap of metal looped upon itself to form a rectangular socket at one end, the top plate of said socket being provided with a squared opening and the bottom plate thereof with an annular opening in alinement with said squared opening, a dog engaged through said alined opening having at one end a transversely disposed working head provided with mutilated working faces, said dog having an annular bearing below said working head adapted to rotate in the squared opening in said top plate, and a squared neck below said bearing adapted to bear against said top plate when said bearing is partially rotated therein whereby to lock the dog in its lowest limit of motion, said dog terminating in a cylindrical stem remote from said bearing adapted to slidingly fit the opening in the bottom plate and having a series of openings formed longitudinally of its length, a pin insertible into said opening and adapted to bear against the bottom face of said bottom plate whereby to adjust said dog longitudinally in said socket, and a spring seated on said cylindrical stem to force the dog upward but yield to a downward pressure upon the same.

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

HARRY R. MITCHELL.

Witnesses:
JAMES O. CULL,
L. LANCASTER.