R. H. HENDERSON.

STAND FOR MECHANICAL DEVICES.

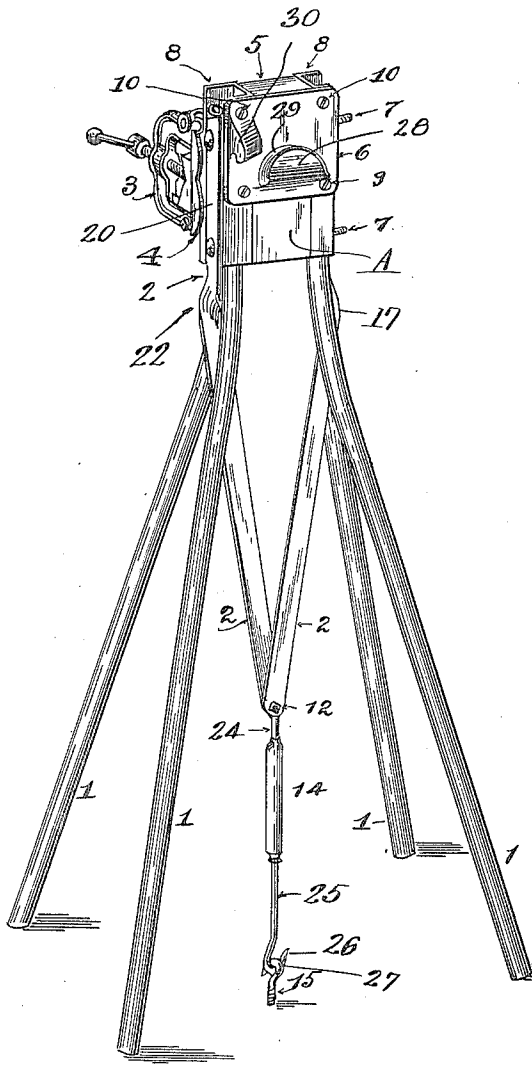
APPLICATION FILED FEB. 12, 1917.

1,238,015.

Patented Aug. 21, 1917.

2 SHEETS—SHEET 1.

FIG. 1.



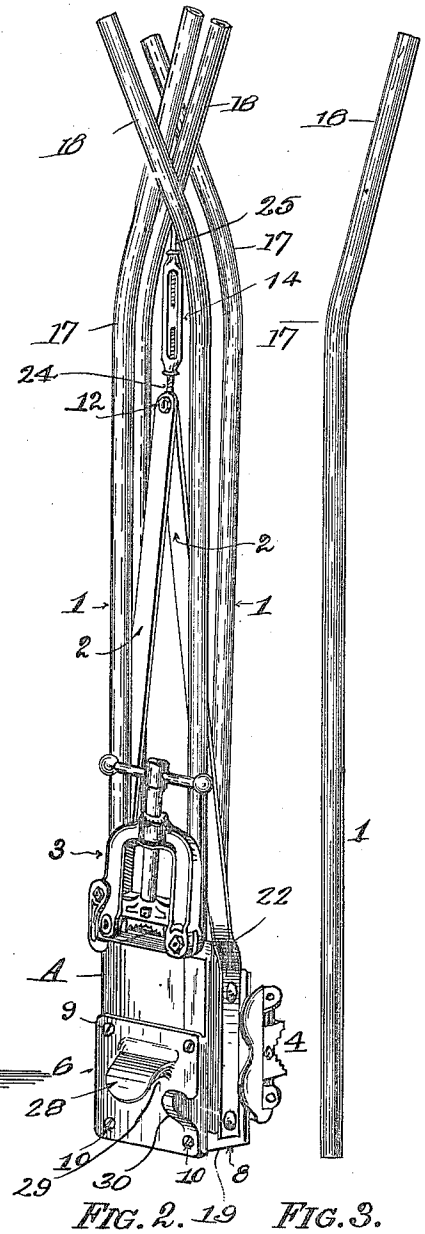


FIG. 2. FIG. 3.

WITNESS:

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2 SHEETS—SHEET 2.

FIG. 5.

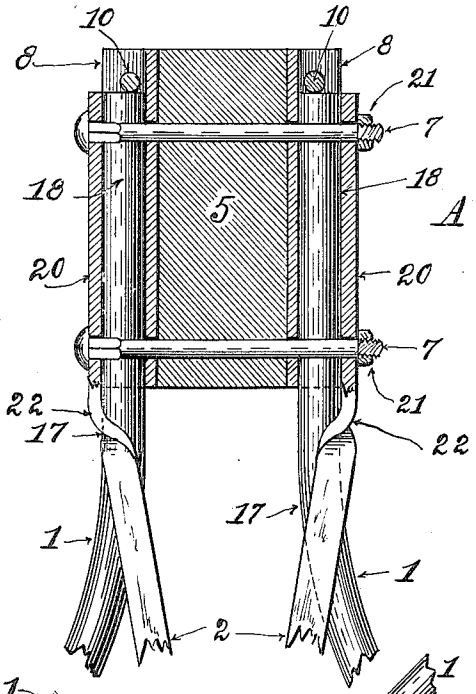


FIG. 4.

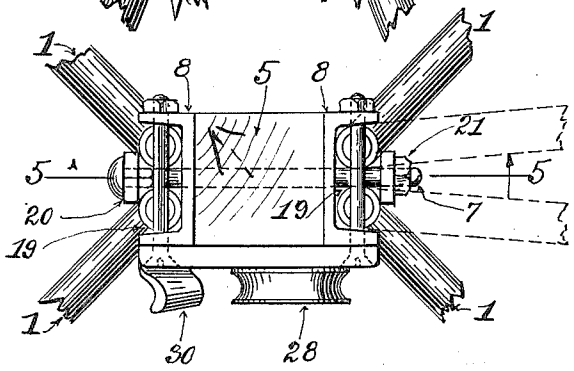
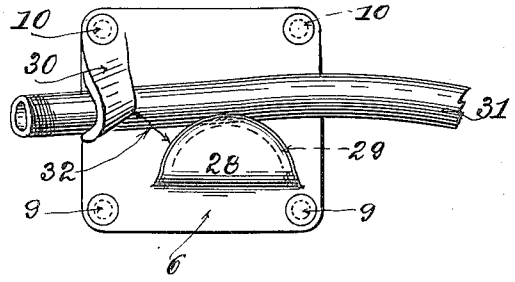


FIG. 6.



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UNITED STATES PATENT OFFICE.

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STAND FOR MECHANICAL DEVICES.

1,238,015. Specification of Letters Patent. Patented Aug. 21, 1917.

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To all whom it may concern:

Be it known that I, ROBERT HALSEY HENDERSON, a citizen of the United States, and a resident of East Orange, county of Essex, and the State of New Jersey, have invented certain new and useful Improvements in Stands for Mechanical Devices, of which the following is a specification.

This invention relates to stands for mechanical devices of various kinds, and particularly to portable stands or work benches for mechanics who cut, thread and bend conduit, pipe and rods.

Great strength and rigidity are necessary in benches for the proper manipulation of pipe and conduit, especially in the larger sizes. Several attempts have been made to devise portable benches for working conduit, but they have either been so heavy as to be prohibitive, or the legs were spread so wide in an attempt to keep the bench from tipping over or to furnish sufficient stability for bending conduit that the device was inoperative except for the very small sizes of conduit; others have attempted to obtain the required rigidity by wedging a long brace between the bench and the ceiling. The widely varying heights of ceilings, and the fact that the nature of the operations of cutting, threading, and especially bending, set up recurrent stresses at right angles to the brace which stresses quickly tend to loosen the brace, or to cause it to fall down; these difficulties in practice make a bench that is braced from overhead inefficient and impracticable.

The main object of my invention is to produce a stand for mechanical devices of novel construction, which shall be light enough to be readily portable and yet strong enough for the hardest service and at the same time when properly mounted to be entirely rigid and suitable for the support of grinding heads, light machinery, pipe, conduit, and rod working devices.

A specific object of my invention is to provide a portable conduit bench, with detachable and reversible legs, an adjustable means for holding the bench head rigidly to the floor or supporting medium, as by means of a turnbuckle or turnbuckles, or similar devices, a conduit bender mounted on the bench head, said conduit bender preferably having a side outlet through which the conduit can readily be removed, or the bender may be made in any suitable form, and a pipe vise mounted on the bench head for the ordinary operations of pipe manipulation.

Another object of my invention is to produce a pipe working bench which shall occupy a minimum of floor space, and at the same time have a maximum of strength, and it is a fact that I have bent one and one half inch conduit, which requires the exertion of great pressure, on a turnbuckle conduit bench, made in accordance with this specification, which took up a floor space of only 26 inches square, which bending could not have been done on any other portable bench device with which I am acquainted.

In the drawings which are a part of this specification Figure 1, is a perspective view of a portable stand built in accordance with my invention. Fig. 2, is a dis-assembled view of the same stand, showing it in a compact form ready for carrying. Fig. 3, is a view of one of the legs. Fig. 4 is a plan view of the head of this stand. Fig. 5 is a vertical sectional elevation on line 5—5 of Fig. 4. Fig. 6 is an elevation of the bending plate detached, showing a conduit in position and partly bent.

Similar numerals refer to similar parts throughout the several views.

This apparatus comprises a head A, which is mounted on, preferably four, legs 1, preferably made of strong wrought iron pipe of suitable diameter, said legs being removably, reversibly, and rotatably held to said head A, as will hereinafter more fully appear.

The head A comprises a, preferably cast iron, or cast steel, vertically disposed plate 6, to which are attached two vertically placed channels 8, in parallel spaced relationship, said channels being longer than the plate 6, and extending below the lower edge thereof for a suitable distance. These channel bars 8 are secured to the plate 6 by two bolts 10, passing through the plate and through the flanges of said channel bars, said bolts 10 having nuts 16, by which the channel bars 8 are securely fastened to the upper end of the plate, short, preferably countersunk machine screws 9, being provided to hold said channels to said plate near the lower end thereof.

Between the webs of the opposing channel bars there is placed a filler block 5, preferably of wood, for the sake of lightness, and of a length approximately equal

to the length of the channel bars. This block 5 serves to stiffen the structure and prevents the channel bars from approaching each other when bolts 7 are drawn taut.

The legs 1 are of suitable length, and they have near one end a bend 17, so that the shorter portion 18, of said legs is angularly disposed to the longer portion of said legs.

As shown in Fig. 4, the channel bars 8 consist each of a web having two laterally extending flanges, which flanges are tapering, being thickest at their bases, thereby affording between these flanges a wedge-shaped space 19, and in this wedge-shaped space the shorter ends of the legs 1 are placed when the stand is in erected condition. In front of these leg-portions 18 there is placed on each side of the head A, a flat bar 20, punctured with, preferably two, holes through which the bolts 7 are passed, that reach from one bar to the opposite bar, said bolts also passing through the block 5, as clearly illustrated in Figs. 4 and 5, and having nuts 21, by which the bars 20 are drawn toward each other. The spaces 19 between the flanges of the channel bars are each approximately equal to twice the external diameter of the legs plus the external diameter of the bolt 7, so that when the legs are in position in the head A, and the nuts 21 are drawn up, the bars 20 bearing on the legs, these legs will be forced tightly and snugly into the wedge-shaped space 19, and thereby securely held in position, the upper extremities of the legs bearing against the bolts 10, and thereby prevent the head from sliding downwardly on the legs should there be any slackness in the clamping mechanism described.

The bars 20 are bent and twisted, as at 22, a short distance below their upper ends to afford converging members 2, the lower ends of which are connected to a rod 24, of a turn buckle 14, by a bolt 12, a second rod 25, also engaging the turn buckle and having a hook 26, to connect to a similar hook 27, formed on a screw-bolt 15, which bolt is secured to the floor upon which the apparatus is to be erected. In this erected position, the legs 1 are spread apart at their lower extremities, thereby affording a pyramidal construction which, with the turn buckle in the vertical center, and the converging tie-rods 2 properly tensioned, is productive of a structure that is absolutely immovable during the ordinary operations of cutting, threading, and bending pipe when performed on this apparatus.

In a knocked-down condition, the nuts 21 on the bolts 7 are slackened to loosen the clamping bars 20, and the legs pulled out of their then occupying position, and reversed so that the long ends of the legs occupy the spaces 19 between the flanges of the channel bars, in which condition, shown clearly in Fig. 2, the apparatus is extremely portable, occupying, as it does, the least possible space.

Upon the face of the plate 6, there is formed, preferably integrally therewith, a curved member 28, which serves as a form over which conduit pipe may be bent, the peripheral margin of said arcuate member 28, being of concave contour, as indicated at 29, which affords a suitable surface over which the pipe may be bent; and adjacent this form 28, there projects from the plate 6 a hook-shaped element 30, serving as an abutment for the conduit or other pipe 31, when being bent over the form 28, the abutment 30 being spaced apart from the form 28, a sufficient distance, such as indicated at 32, Fig. 6, to permit the pipe 31 being sidewise withdrawn from the apparatus, in a manner readily comprehended.

A pipe vise, comprising members 3, 4, of usual construction is bolted to the head A, at the back thereof, (the pipe vise being omitted in Fig. 4,) and forms a desirable and necessary adjunct to the apparatus heretofore described, for holding pipe when being cut off and screw-threaded.

It will now be observed that the construction hereinbefore disclosed affords an efficient, serviceable, strong, and durable apparatus for supporting tools and implements, especially where pipe fitting has to be done in buildings in course of erection, and where these tools and implements have to be moved from place to place.

Attention is now directed to the fact that when the clamps 20, that hold the legs to the head A, are loosened, these legs may be rotated. This is an important feature of my invention, because in screw-threading short nipples held in the pipe vise, a pipe die may not be able to be rotated in front of the legs when the legs are spread apart as shown. In this case the corresponding front and rear leg may be rotated so that they are in vertical alinement, a matter which will be readily understood by persons using this apparatus. Another important feature of the rotatability of the legs is that they may be placed in various positions to accommodate local conditions, where the spreading of the legs as shown, is not possible.

And finally, I may here state that when extra heavy pipe is to be bent in this apparatus, I may rotate the front and rear leg at the right end of the head so that they are approximately parallel and spread in the direction in which the operator stands to exert his force or apply his weight to the pipe to be bent, which has a tendency to pull the head A toward the operator. This position of the legs offers greater resistance to the movement of the head, and is indicated in Fig. 4 in dottde lines.

While I have hereinbefore disclosed the

preferred embodiment of my invention, I desire it to be distinctly understood that I am aware that minor details of construction may be changed, and parts omitted without departing from the scope of my invention as defined in the subjoined claims.

Having thus fully described this invention, I claim as new, and desire to secure to myself by Letters Patent of the United States—

1. A stand for mechanical devices, including a head, said head comprising a vertically disposed plate, channel bars secured to said plate with the webs of said channel bars in opposition, a series of tubular legs removably located between opposing flanges of said channel bars, and clamping means for rigidly holding said legs to said head between said flanges.

2. A stand for mechanical devices, including a head, said head comprising a vertically disposed plate, two channel bars secured to said plate, said bars having each a web and two laterally extending flanges, said channel bars being secured to said plate in vertical position with one of their flanges, the webs of said channel bars being in opposition, a filler block between said webs, a series of tubular legs, one member of said legs terminating between opposing pairs of flanges, clamping plates on the outer side of said leg-terminals, and bolts connecting said clamping plates.

3. A stand for mechanical devices, including a head, said head comprising a vertically disposed plate, there being projecting from said plate an arcuate form, an abutment extending from said plate and spaced from said arcuate form, channel bars secured to said plate in vertical position, at the back of said plate, said channel bars being secured to said plate with one of their flanges, a pair of tubular legs between each pair of correlated flanges, and clamping means for removably holding said legs between said correlated flanges.

4. A stand for mechanical devices, including a head, said head comprising a vertically disposed plate, channel bars secured to said plate with the webs of said channel bars in opposition, a series of legs removably located between opposing flanges of said channel bars, clamping means for rigidly holding said legs to said head between said flanges, and adjustable tie-rods reaching from said head to the floor on which the stand is to be erected.

5. A stand for mechanical devices, including a head, said head comprising a vertically disposed plate, channel bars secured to said plate with the webs of said channel bars in opposition, a series of legs rotatably and removably located between opposing flanges of said channel bars, clamping means for rigidly holding said legs between said flanges, and adjustable tie-rods depending from said head, said tie-rods being convergingly disposed and connected at their lower ends, and a turn buckle connected to said ends for tensioning said tie-rods.

6. A stand for mechanical devices, including a head, said head comprising a vertically disposed plate, channel bars secured to said plate with the webs of said channel bars in opposition, a series of legs rotatably and removably located between opposing flanges of said channel bars, a pair of clamping plates in front of said legs, bolts passing through said clamping plates and the webs of said channel bars, said bolts having nuts which when slackened permit of rotation of said legs and their removal from said head.

7. A collapsible support for mechanical devices, comprising a head, said head including a vertically disposed plate, a pair of channel bars secured to said plate in vertical position with their webs in opposition, four detachable and reversible legs, said legs being located in the open sides of said channel bars, a pair of clamping plates in front of said legs at their upper ends, bolts passing through said clamping plates and the webs of said channel bars between adjacent legs, said clamping plates being converging bars, said bars being connected at their lower, meeting ends, and means for tensioning said bars, said means being located at the lower end of said bars.

8. A collapsible support for mechanical devices, including a head, said head comprising a vertically disposed plate, a pair of channel bars secured to the vertical margins of said plate, in vertical position with the webs of said channel bars in opposition, four detachable and reversible legs, said legs being located in the open sides of said channel bars, a pair of clamping plates in front of said legs at their upper ends, bolts passing through said clamping plates and the webs of said channel bars between adjacent legs, said clamping plates being converging bars, said bars being connected at their lower meeting ends, and tensioning means for said converging bars, said tensioning means being located below the said head and in vertical central line therewith.

9. In a collapsible and portable support for mechanical devices, a head, said head including a vertically disposed plate, two vertically disposed channel bars secured to said plate at the vertical margins thereof, two pairs of bent, tubular legs, removably and reversibly secured in said channel bars between the flanges thereof, and clamping means at opposing ends of said plate and in front of said channel bars.

10. In a collapsible and portable support for mechanical devices, a head, said head including a vertically disposed plate, two vertically disposed channel bars secured to

said plate at the vertical margins thereof, two pairs of bent, tubular, legs, the bends in said legs being near one end thereof to afford long and short leg-members, said legs being removable and reversible, said legs being located between opposing flanges of said channel bars, and clamping means at opposing ends of said plate and in front of said channel bars.

11. In a collapsible and portable support for mechanical devices, a head, said head including a vertically disposed plate, two vertically disposed channel bars secured to said plate at the vertical margins thereof, two pairs of bent, tubular legs, the bends in said legs being near one end thereof to afford long and short leg-members, said legs being removably and reversibly located in the said channel bars between opposing flanges thereof, clamping plates in front of said legs, bolts passing through said clamping plates and said channel bars, and adjusting nuts on said bolts, whereby when the short members of said legs are clamped to said head said legs will be spread apart at their lower ends, while when the long leg-members are clamped to said head, the legs will be in parallelism and the short leg-members overlying one another.

12. A stand for mechanical devices, including a vertically disposed head, said head having in each of its ends a vertically disposed open groove, a series of bent legs removably located in said grooves between opposing walls thereof, and clamping means for rigidly holding said legs in said grooves, a number of said legs being located in one of said grooves, the remainder of said legs being located in the other of said grooves.

13. A stand for mechanical devices, including a head, said head comprising a vertically disposed plate, there being projecting from said plate an arcuate form and an abutment spaced from said arcuate form, channel bars secured to said plate in vertical position at the back of said plate, said channel bars having their webs in opposition, a filler block between said webs, said channel bars being secured to said plate with one of their flanges, a pair of tubular legs between each pair of correlated flanges, clamping means for removably holding said legs between correlated flanges, stops for the upper ends of said legs, and adjustable tie-rods depending from said head, said tie-rods being convergingly disposed and connected at their lower ends, and a turn-buckle connected to said ends for tensioning said tie-rods.

14. A stand for mechanical devices, including a head, said head including channel bars with the webs of said channel bars in opposition, a filler block between said webs, a series of tubular legs removably located between opposing flanges of said channel bars, and clamping means for rigidly holding said legs to said head between said flanges.

In testimony that I claim the foregoing as my invention, I have hereunto set my hand.

ROBERT HALSEY HENDERSON.