Mar. 6, 1923

1,447,768.

G. W. DOVER ET AL.

DRAWING DEVICE.

FILED JUNE 22, 1921.

Fig-1-

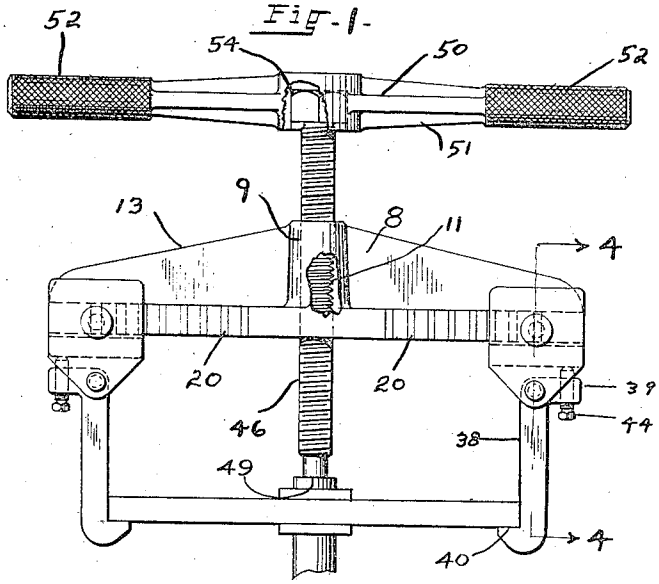



Fig-2-

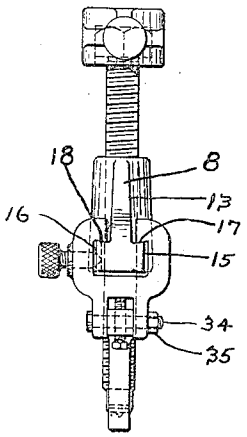



Fig-3-

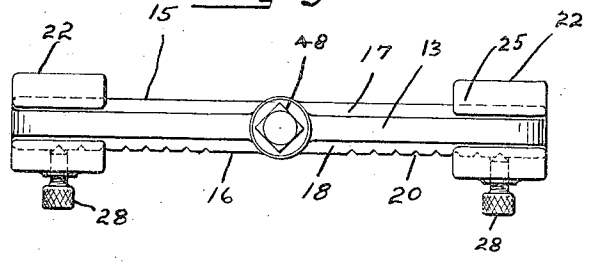



Fig-5.

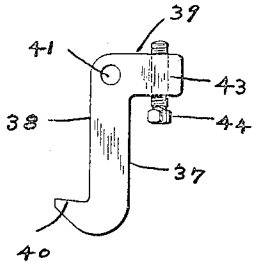



Fig-4.

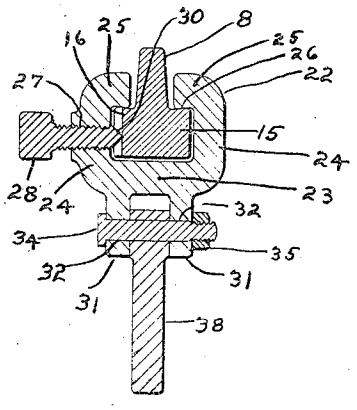



Fig-6.

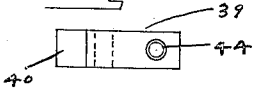
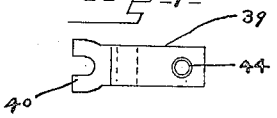



Fig-7.




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Patented Mar. 6, 1923. 1,447,768

# UNITED STATES PATENT OFFICE.

GEORGE W. DOVER, OF CRANSTON, AND WILLIAM S. GLINES, OF PROVIDENCE, RHODE ISLAND, ASSIGNORS TO GEORGE W. DOVER, INCORPORATED, A CORPORATION OF RHODE ISLAND.

## DRAWING DEVICE.

Application filed June 22, 1921. Serial No. 479,469.

*To all whom it may concern:*

Be it known that we, GEORGE W. DOVER and WILLIAM S. GLINES, both citizens of the United States, residing, respectively, at Cranston and Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Drawing Devices, of which the following is a specification.

Our invention relates to devices intended to withdraw a wheel, gear or other element from an axle shaft, or rod upon which the element is mounted. These devices are commonly called wheel or gear pullers.

The essential objects of our invention are to adapt the device to operation upon elements of different diameters or widths; to render the parts adjustable in any set position; to afford means for maintaining the engaging elements of hooks in set position and in such a manner as to insure their rigidity at any set angle; to facilitate actuation of the operating screw; to provide a construction adapted to substitution therein of arms of various length and capable of permitting a reversal of direction of the arms or hooks; and to attain these ends in a simple and inexpensive structure.

To the above ends essentially our invention consists in such parts, and in such combinations of parts, as fall within the scope of the appended claims.

In the accompanying drawings which form a part of this specification,

Figures 1 and 2 are a front elevation and an end view respectively of our novel device including the double wrench,

Figure 3, a plan view of the same omitting the wrench,

Figure 4, a section on line 4—4 of Figure 1,

Figure 5, a detail side elevation of one of the clinching arms or hooks,

Figure 6, a top plan view of the latter, and

Figure 7, a similar view of a modified form of the same.

Like reference characters indicate like parts throughout the views.

In the preferred form of construction our device comprises an oblong plate on the body 8 provided with a centrally disposed boss 9 having a threaded bore 11. The body of the plate 8, except the boss portion, is relatively thin, forming web portions, such as 13. The bottom of the plate is broadened to form lateral longitudinally disposed shoulders 15 and 16 upon each side of the web portion 13. The upper faces 17 and 18 of these shoulders respectively are preferably inwardly inclined in a downward direction. The side faces of the lugs 18 are provided with vertical V shaped grooves 20. Upon each end of the body is mounted a sliding block 22. In detail each block comprises a base 23 with upwardly directed flat arms 24 provided upon their upper ends with inwardly directed fingers 25 provided with inclined or beveled internal faces 26. The lugs 15 and 16 are embraced by the arms 24 and fingers 25 with the surfaces 26 registering with the inclined faces 17 and 18 of the lugs so that the parts are relatively slidable. Each of the arms 24 is provided with a threaded opening 27 to receive a thumb screw 28 having a pointed end 30 adapted to register in any one of the series of grooves 20. By this means the blocks are adjustable upon the body towards and away from each other. Depending from and integral with the base 23 are ears 31 provided with openings 32 to receive an attaching bolt 34 having a nut 35 upon its end. Each bolt serves as a removable attaching means for a gripping or engaging element 37 shown in detail in Figure 5. Each attaching element comprises a finger or arm 38 provided upon one end with a lateral attaching finger 39 and upon its other end with an oppositely disposed pulling finger or hook 40. The portion 39 is provided with a hole 41 adapted to loosely receive the bolt 34. The portion 39 of the member 37 is provided with a threaded perforation 43 through which passes an adjusting screw 44 whose end is adapted to abut against the bottom face of the base 23. It will be understood that by moving the screw 44 the members 37 may be rigidly maintained in any angular position of engagement with the article grasped by the hooks or fingers 40. A threaded rod or screw 46 engages the threads of the boss 9 and is provided with a squared head 48. In the present instance the rod 46 is provided upon its inner end with a point 49 adapted to prevent sliding upon the surfaces engaged. It will be further understood that the member 46 is placed against the shaft or axial member carrying the wheel or other element intended to be removed from the shaft and is

advanced by manually rotating the screw member 46. To facilitate turning of this screw it is preferred to use a wrench 50 similar to that shown in Figures 1 and 2. This is a double handed socket wrench comprising a shaft or body 51 having knurled ends 52 and provided in its center with a squared socket 54 adapted to slidably fit the head 48 of the screw member.

We claim:—

1. In a device of the character described, a crossbar, a power screw engaging the middle portion of the crossbar, blocks slidably mounted on the bar movable towards and from the screw, and grappling members pivotally mounted on the blocks.

2. In a device of the character described, a crossbar, a power screw engaging the center of the crossbar, longitudinally adjustable blocks mounted on the ends of the crossbar, and grappling members pivotally attached to the blocks.

3. In a device of the character described, a crossbar, longitudinally disposed lateral shoulders on the crossbar, a power screw traversing the center of the crossbar, carrier blocks comprising bases, inturned arms on the bases slidably engaging the shoulders, and depending ears, adjusting screws on the arms engageable with the shoulders, and grappling members pivotally supported in the ears.

4. In a device of the character described, a crossbar, longitudinally disposed lateral shoulders on the crossbar provided with a plurality of vertical grooves, carrier blocks slidably mounted on the crossbar comprising arms loosely overlapping the shoulders, adjusting screws in the arms registerable in the grooves, and grappling members pivotally mounted on the blocks.

5. In a device of the character described, a structure such as described in claim 3 wherein the grappling members comprise arms, hooks on the free ends of the arms, lateral fingers on the inner ends of the arms, pivot members engaging the ears and inner ends of the arms, and screws in the fingers engaging the bases of the blocks.

6. In a device of the character described, a structure such as set forth in claim 4 wherein the upper faces of the lateral shoulders are inwardly and downwardly inclined, and the arms of the carrier blocks are provided with inclined shoulders engageable with said inclined faces.

7. In a device of the character described, a crossbar, an internally threaded boss upon the center of the crossbar, carrier blocks mounted on the ends of the crossbar, grappling members depending from the blocks, adjusting screws in the blocks engaging the crossbar, a power screw engaging the boss, a polygonal head upon the screw, a socket wrench provided with a polygonal socket adapted to receive the head, and handles on the ends of the wrench.

In testimony whereof we have affixed our signatures.

GEORGE W. DOVER.
WILLIAM S. GLINES.