(No Model.)

M. P. WARD.

TRY SQUARE.

No. 351,820. Patented Nov. 2, 1886.

Fig. 1.

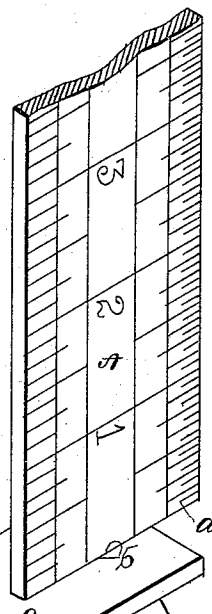


Fig. 2.

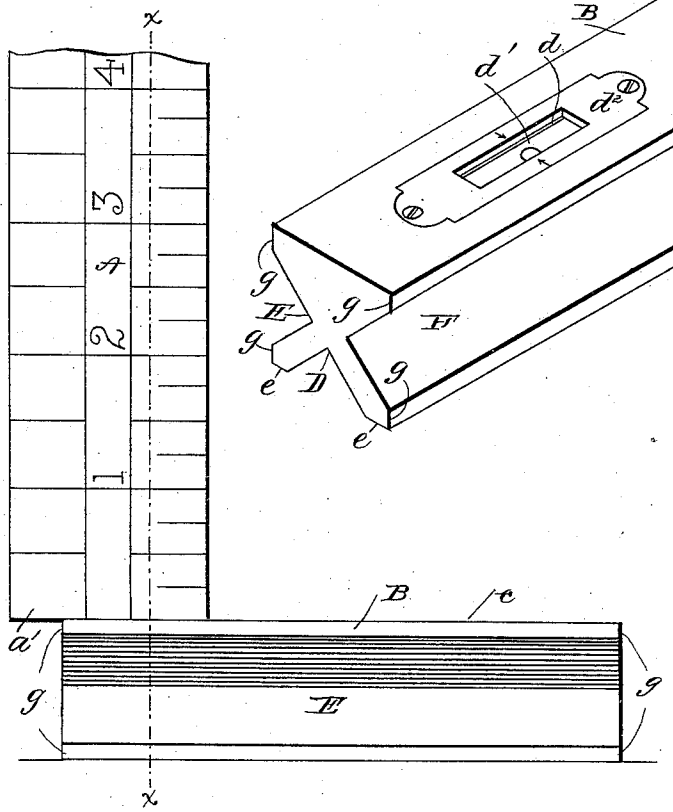
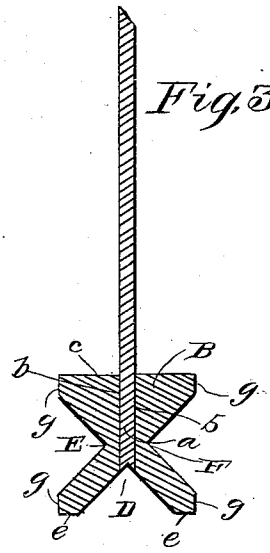


Fig. 3.



Witnesses

James M. Hilton

W. T. Perkins

Inventor

Matthew P. Ward

By his Attorneys

C. A. Snow & Co.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

MATTHEW P. WARD, OF MOUNT CARMEL, PA., ASSIGNOR OF A PART TO DAVID C. HAAS AND WALTON H. MONTELIUS, BOTH OF SAME PLACE.

TRY-SQUARE.

SPECIFICATION forming part of Letters Patent No. 351,820, dated November 2, 1886.

Application filed May 12, 1886. Serial No. 201,974. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW P. WARD, a citizen of the United States, residing at Mount Carmel, in the county of Northumberland and State of Pennsylvania, have invented a new and useful Improvement in Try-Squares, of which the following is a specification.

My invention relates to improvements in try-squares; and it consists of the peculiar construction and arrangement of parts, substantially as hereinafter fully described, and particularly pointed out in the claims.

The object of my present invention is to provide a try-square which is especially adapted for use by engineers in tightening up the packing in piston-rods, slide-valve rods, &c., and which can be used upon cylindrical or plane surfaces with equal facility, and which shall also be simple and strong in construction and easy of ready manipulation and operation.

In the accompanying drawings, Figure 1 is a perspective view of my invention. Fig. 2 is a side elevation thereof, and Fig. 3 is a transverse sectional view through the stock on the line *x x* of Fig. 2.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the blade of my improved try-square, which is made of steel or any other suitable metal and material, and provided with a scale of any suitable character, and subdivided into spaces of any desired length on one or both of its faces; and B designates the stock which is secured to the blade. The end of the blade where it is connected to the stock is provided with a tongue, *a*, that provides a shoulder, *a'*, between the ends of the blade and the stock, and when the blade is secured in the stock the tongue *a* thereof is fitted in a mortise, *b*, at the upper end of the stock, so that its outer edge lies flush with the end of the stock, and the shoulder *a'* of the blade projects beyond the end of the stock, for a purpose presently described.

The upper or try face, *c*, of the stock is arranged at right angles to the inner edge of the blade, and in this face is formed a recess, *d*, in which is fitted a level-bulb, *d'*, of any preferred construction, this bulb being retained in place by means of a plate, d^2, or any other suitable means. The device is thus adapted for use as a spirit-level, to determine the horizontality of an object or piece of work by placing it against the same, or to ascertain the perpendicularity of the work by placing the blade A against the work.

The stock B is made of any desired or preferred material, and the lower face thereof, opposite to the try or upper face, *c*, is provided with a longitudinal groove, D, the sides of which are arranged at right angles to each other, and the outer edges of the sides are beveled or inclined at an angle to the right-angled sides, as at *e*, so that the stock can be fitted or adjusted upon a cylindrical as well as a straight or plane surface. The side faces of the stock are also provided with the right-angled grooves E and F, and the edges of the sides thereof are also beveled or inclined, as at *g*, similar to the edges of the grooves D.

As hereinbefore mentioned, the try-square is especially adapted for use by engineers and others in squaring up a cylindrical object, and I will now proceed to describe the manner of using the device in a steam-engine.

In tightening up the packings in moving joints—such, for instance, as in piston-rods or slide-valve rods—the lower face of the stock is adjusted so that its edges bear against the periphery of the rods, and allowing the outer edge of the blade to touch or come in contact with the gland, and it can at once be seen or ascertained whether the gland is true with the rod at the top, and by placing the stock so that the edges thereof come in contact with one of the sides of the rod it can likewise be ascertained whether the gland is true with the sides of the rod. When the bolts or burrs are in the way of the stock, it is turned or adjusted to bring its lower groove, D, out of the way, and bring the side grooves into play or position for use, and the horizontality of the rod or rods can also be determined by the use of the spirit-bulb. Some of the glands of a steam-engine are "bunched" out from various causes, and this leaves an enlargement around the orifice of the gland, which would prevent the blade of the square from fitting up against the

gland; but by means of the projecting shoulder *a'* at the end of the blade this difficulty is avoided, as will be readily seen.

It will thus be seen from the foregoing description that I provide a try-square which can be adjusted for use very easily and readily upon cylindrical or circular pieces of machinery and other devices as well as straight or plane surfaces, and that it can also be used to ascertain the horizontality or perpendicularity of objects, &c.

I am aware that it is not new to provide a try-square with a metallic stock having longitudinal grooves; but in all such cases known to me the grooves are curved, but not right-angled in cross section, and are formed therein for the purpose of lightness in the construction of the handle.

By means of the beveled edges to the sides of the right-angled grooves the device adapts or adjusts itself upon either cylindrical or straight surfaces, and by the shoulder *a'*, at the end of the blade, the square can be adjusted in small places where it is difficult or impossible to use the blade itself.

I attach especial importance to the right-angled grooves formed longitudinally of the stock, and having the sides arranged at right angles to each other and provided with the beveled outer edges, and to the shoulder *a'* at the end of the blade and stock, as therein lies the gist of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A try-square comprising a blade, and a stock arranged and connected to the blade at right angles thereto, and provided with a longitudinal groove having its sides arranged at right angles to each other, substantially as described, for the purpose set forth.

2. As a new article of manufacture, a try-square comprising a blade and a right-angled stock, the blade being secured to one end of the stock so as to provide a projecting shoulder that lies at right angles to the end of the stock, substantially as described, for the purpose set forth.

3. As a new article of manufacture, a try-square comprising a blade, a stock secured thereto at right angles and having a longitudinal groove the sides of which are arranged at right angles to each other and beveled or inclined outwardly at their free edges, substantially as described.

4. As a new article of manufacture, a try-square comprising a blade having a tongue, *a*, and a shoulder, *a'*, and a stock having the straight try-face and a mortised end, in which the tongue of the blade is secured so as to lie flush with the end thereof, the said stock being further provided with longitudinal grooves having their sides arranged at right angles to each other and their outer edges inclined or flared outwardly, substantially as described.

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

his
MATTHEW × P. WARD.
mark.

Witnesses:
R. J. WILSON,
ANNIE THOMAS.