G. F. HAWLEY.

Carpenters' Gages and Trams.

No. 152,488. Patented June 30, 1874.

Fig. 1

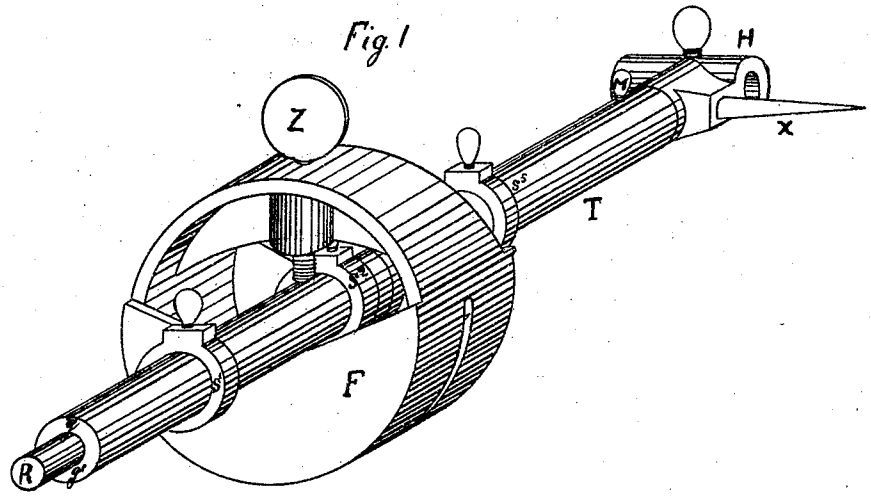
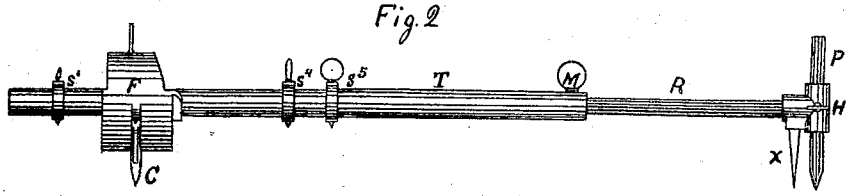


Fig. 2



Witnesses

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IMPROVEMENT IN CARPENTERS' GAGES AND TRAMS.

Specification forming part of Letters Patent No. **152,488**, dated June 30, 1874; application filed December 19, 1873.

To all whom it may concern:

Be it known that I, GEORGE F. HAWLEY, of the city of Grand Rapids, in the county of Kent and State of Michigan, have invented a certain new and useful Carpenter's Gage and Tram; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, and the same are made a part of this specification.

The nature of my invention consists in the combination, in a small carpenter's tool, of a thumb-gage, a single-mortise gage, a double-mortise gage, and a tram for striking arcs or arches, and also as a panel-gage, constructed and used substantially as shown in the drawings and described in the specification.

In the drawings hereto annexed, Figure 1 is a perspective view of my invention arranged as a thumb-gage. Fig. 2 is an elevation of my invention arranged to be used either as a tram or panel-gage.

In Fig. 1, T is a hollow cylinder, provided with five spur-collars, marked S^1, S^2 S^3, S^4, and S^5. Each of these spur-collars is adjustable longitudinally upon the cylinder T, and each spur-collar is provided with a set-screw, as shown in the drawings. *g* and *g'* are grooves running the entire length of cylinder T, and the set-screws in the spur-collars are so arranged that their points rest in the groove *g*, thereby preventing rotary motion by the spur-collars, and keeping the points of the spurs in line. The spur-collars can be readily adjusted in any required position on the cylinder T. F is a cylinder, made of convenient size to be readily grasped in the hand, and serves as a handle for the tool, as a receptacle of the spur-collars when not in use, and also as the gage head or rest. It is provided with the set-screw Z, the lower point of which rests in the groove *g*, and the cylinder F is also provided with a small tongue, which moves in the groove *g'*, the object being the more effectually to retain the large cylinder in position, and to prevent any rotary motion of the cylinder T.

In Fig. 2, R is a rod, constructed of such size as to move readily in the cylinder T; and it may be made of the same length as cylinder T, or a little longer, so as to project, as shown in Fig. 1. This rod R has the tram-head H, provided with a pencil-holder and set-screws, as shown, and also the spur *x*, and is adjusted longitudinally in the cylinder T, and also rolls in it, so as to turn the point of the spur *x* in any direction at right angles with cylinder T. C is a spur turning on a rivet, so arranged that when open its point is in a line with the points of the spurs in the spur-collars, and when closed it is contained in the gage-head F, as shown in Fig. 1.

In using my invention as a thumb-gage I close the spur C, place spur-collar S^1 as shown in Fig. 2, and then adjust spur-collar S^5 at the required distance from the gage-head F; then the distance between the head F and collar, or, rather, the spur in spur-collar S^1, will gage the thickness of the stock, and the distance between the head F and the spur of spur-collar S^5 will gage the width of the stock.

In using my invention as a thumb-gage, all the spur-collars except S^1 and S^5 should be placed within the cylinder F.

In using my invention as a single-mortise gage, S^1 may occupy the position shown in Fig. 2, or may be placed in the head F, and two spur-collars, S^4 and S^5, be adjusted in the manner shown in Fig. 2, and the spur on S^4 will gage one side of the mortise, and the spur on collar S^5 will gage the other side of the mortise.

In using my invention as a double-mortise gage, spur-collars S^2, S^3, S^4, and S^5 can be adjusted on the cylinder T in the required position, and then the spurs on collars S^2 and S^3 will gage one set of mortises, and the spurs on collars S^4 and S^5 will gage the other set of mortises.

In using my invention as a thumb-gage, or as a single or double mortise gage, the spur C is closed and the tram-head turned so as not to interfere with the small spurs, as shown in Fig. 1, or the tram-head and the rod R may be removed altogether, thus rendering the gage lighter and very readily handled.

In using my invention as a tram, the spur C is set as shown in Fig. 2, and its point placed at the center of the required circle; then adjust

the tram-head at the required distance, fastening it by means of the set-screw M, and strike the circle either by the spur *x* or pencil, the part F being adjustable on the cylinder T, and the rod R adjustable in the same cylinder. The spurs C and *x* may be brought very close together or carried far apart, so as to strike large or small circles, at pleasure.

In using my invention as a panel-gage, the stock is gaged between the head F and the spur *x*.

Having thus described my invention, I claim—

As a new article of manufacture, the combined gage and tram, when constructed substantially as and for the purposes described.

Dated December 13, 1873.

GEO. F. HAWLEY.

Witnesses:
CHARLES A. RENWICK,
EDWARD TAGGART.