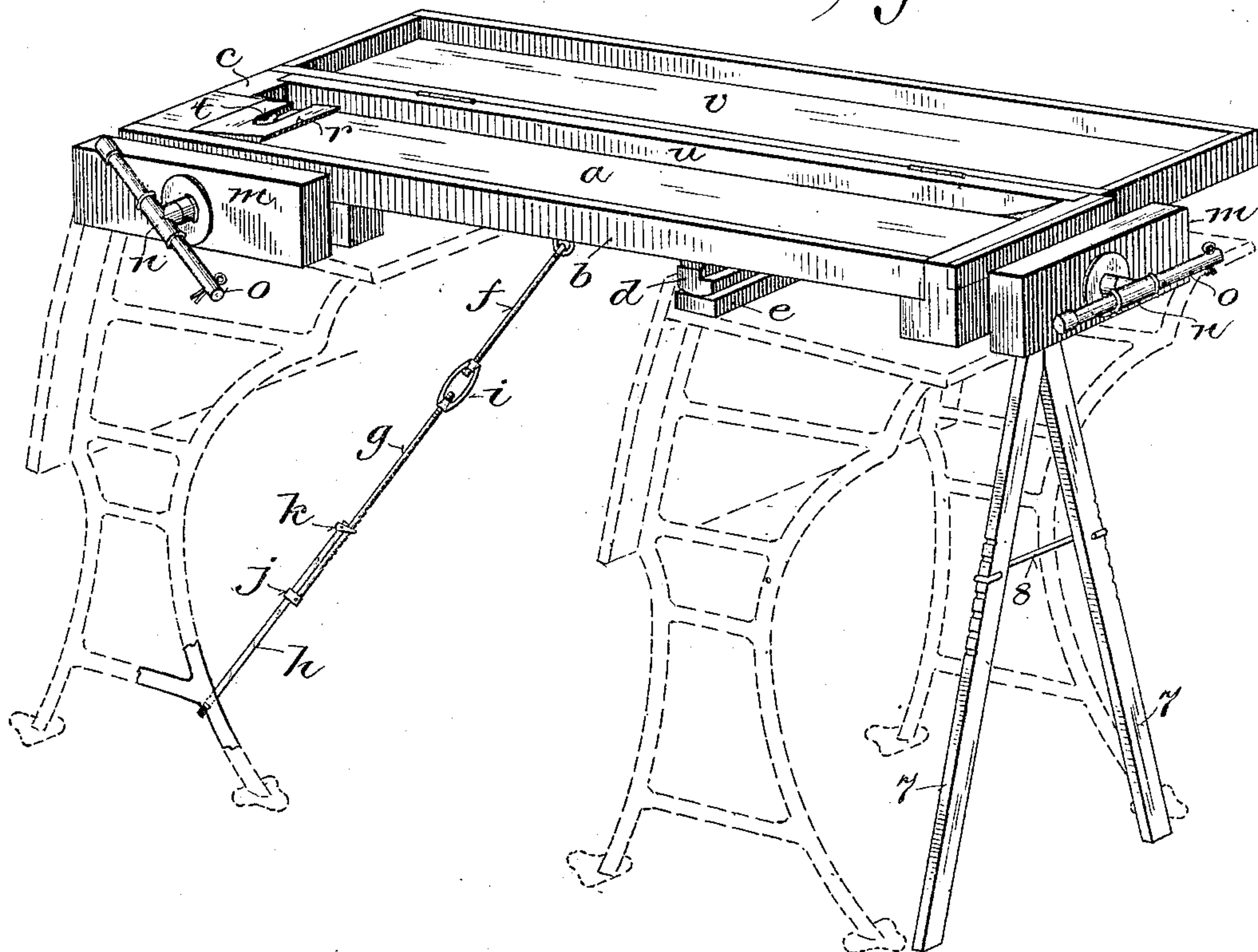
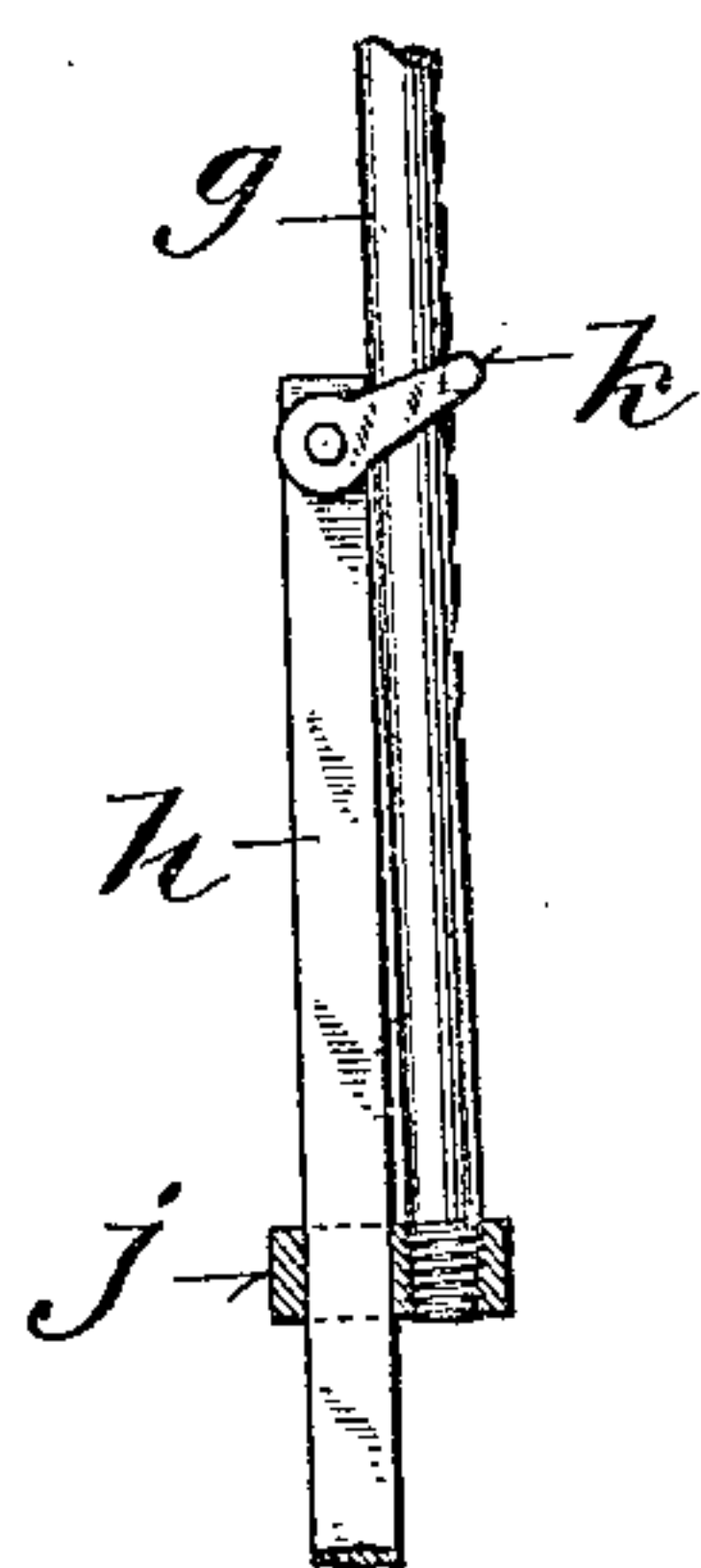


946,960.

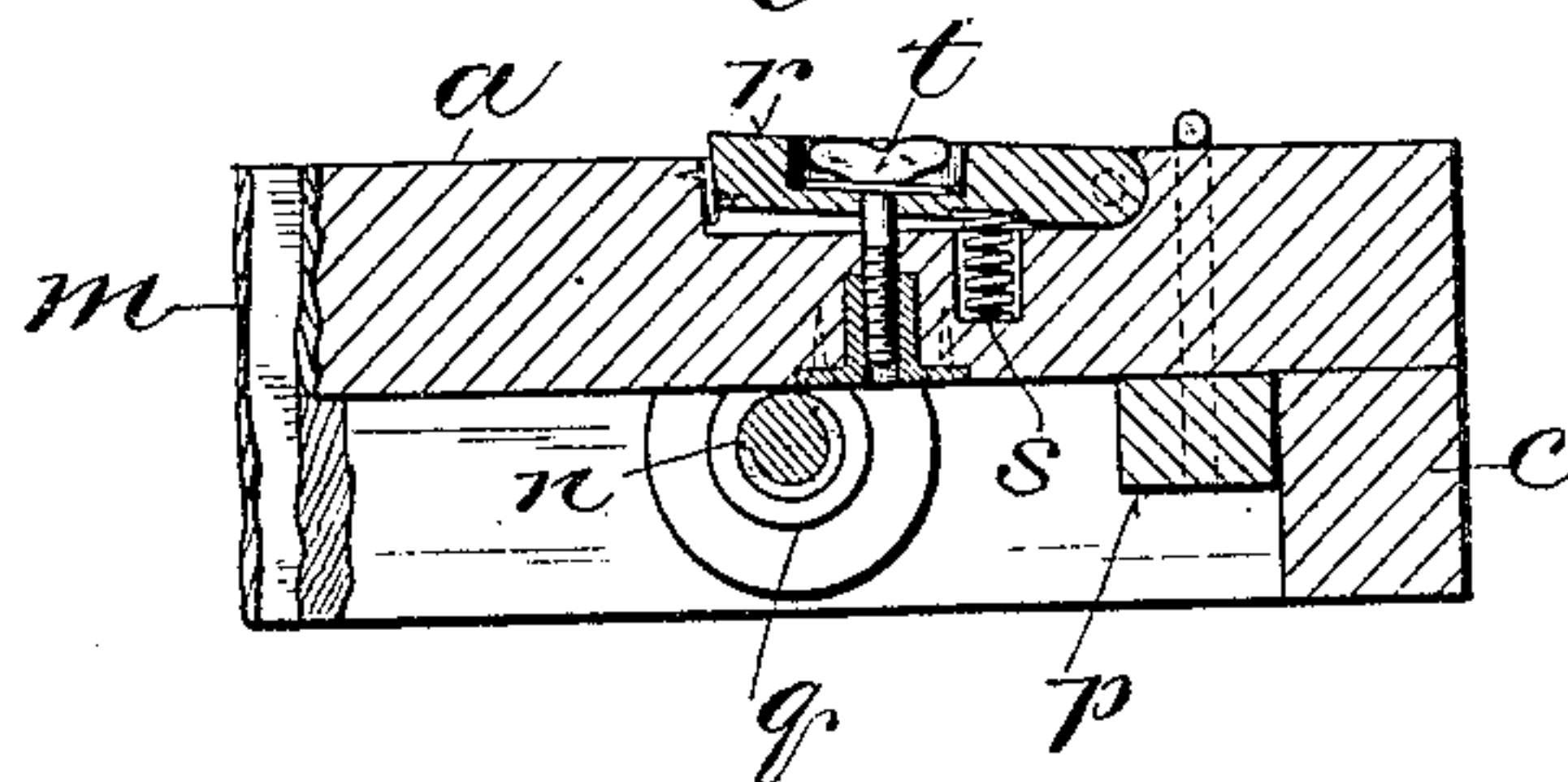
*Fig. 1.*



*Fig. 5.*



*Fig. 6.*



Inventor:  
Robert L. Cooley.

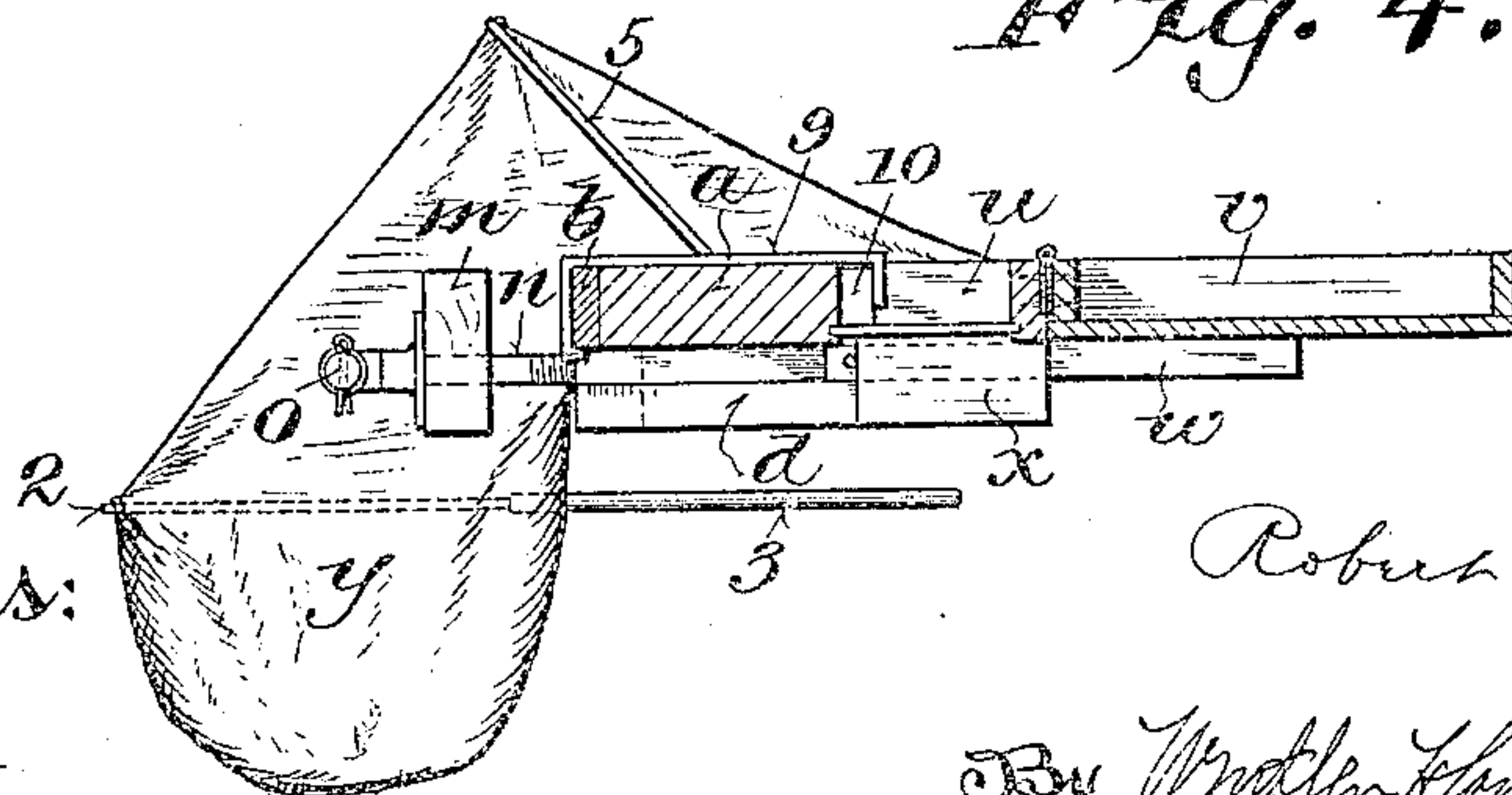
By Writler-Londens Bottom & Fawcett  
Attorneys.

946,960.

Patented Jan. 18, 1910.

2 SHEETS--SHEET 2.

*Fig. 2.*



Innenkor:

Robert L. Cooley

By *Walter Flanders Putnam Bennett*  
Attorneys.



# UNITED STATES PATENT OFFICE.

ROBERT L. COOLEY, OF MILWAUKEE, WISCONSIN.

## MANUAL-TRAINING BENCH.

946,960.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed April 5, 1907. Serial No. 366,554.

*To all whom it may concern:*

Be it known that I, ROBERT L. COOLEY, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Manual-Training Benches, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

This invention relates more particularly to appliances for manual training in wood work. Its main objects are to temporarily equip a class room having the usual stationary desks and seats with benches provided with attachments suitable for manual training in wood work; to avoid the expense involved in equipping and maintaining shop centers exclusively for manual training, and the loss of time incident to pupils going to and from such centers which are frequently located quite a distance from the regular schools they are designed to serve; to make it possible to enlarge the scope of manual training in schools designed and equipped primarily for instruction in the usual courses pursued in public schools; and generally to improve appliances for manual training in connection with the ordinary courses of instruction.

It consists essentially in a portable work bench top adapted to be readily and firmly secured upon two or more ordinary school desks and provided with suitable appliances, such as vises, for wood working and the like; also in certain novel features of construction and in the peculiar arrangement and combinations of parts as hereinafter particularly described and pointed out in the claims.

In the accompanying drawing like characters designate the same parts in the several figures.

Figure 1 is a perspective view of a combined work bench and tool and work receptacle embodying the present invention as mounted and secured in place upon two school desks and opened ready for use; Fig. 2 is a plan view of the same, including an apron or litter receptacle and its adjustable supports spread and ready for use; Fig. 3 is a front elevation of the complete device shown in Fig. 2; Fig. 4 is a cross section of the same on the line 4 4, Fig. 2; Fig. 5 is a detail view on an enlarged scale of a part of the stay rod or anchor for securing the bench in place; and Fig. 6 is a section on the line

6 6, Fig. 2, showing the plane stop on an enlarged scale.

Referring to the drawing, and more particularly to Fig. 1, *a* designates a bench, preferably made of some light wood such as pine, and faced on the front edge which is subjected to the greatest wear and hardest usage, with a strip *b* of hard wood. It is made of sufficient length to extend over and span the space between the tops of two or more (in the present case two) school desks as they are ordinarily arranged in rows, one in front of another. It is provided on the under side with bearing and elevating cleats or supports *c* and *d* arranged to rest upon the tops of desks, preferably against or close to the upwardly projecting backs thereof and to carry the bench above and clear of the intervening desk back and sufficiently above the desk top to admit of the attachment and unobstructed use of vises. The cleat *c* is attached to the front end of the bench, and the cleat *d* is attached thereto at such a distance from its rear end that when it bears against the back of the rear desk, as shown, the rear end of the bench will overhang or project over the rear lower edge of the top of that desk, in order to afford a clear space for the insertion of work in the vise or for the use of a saw or other tools at that end of the bench without interfering with the desk.

The bench is leveled or adjusted to an approximately horizontal position when placed on desks of different heights, by inserting one or more leveling strips or lifts *e*, as shown in Figs. 1 and 2, underneath either or both of the cleats or supports *c* and *d*. When thus leveled and adjusted the bench is firmly secured and held in place on the desks by a downwardly and forwardly inclined stay or anchor connecting it on the under side with a fixture below it. This stay or anchor is preferably composed of adjustably connected sections *f*, *g* and *h*, the sections *f* and *g* being reversely threaded at their adjacent ends and provided with a turn buckle *i*, and the sections *g* and *h* being connected by a guide *j* attached to one end of the section *g* and a loop *k* pivoted to one end of the section *h* and adapted to be engaged with any of a series of notches formed in section *g*, as clearly shown in Fig. 5. The section *h* slides freely in the guide *j* and the section *g* is movable freely through the pivoted loop *k* when the latter is turned at



right angles thereto. These connections afford means of easily and quickly adjusting the stay or anchor to any desired length, while the turn buckle *i* affords means for drawing it taut when the lower end of the stay or anchor, which may be hooked as shown, is engaged with a fixture such as one of the legs of a desk, as shown in Fig. 1. The stay or anchor is pivotally connected at its upper end by a ring or staple with the under side of the bench about midway between its ends, and by connecting it at its lower end with a leg or one of the side frames of the front desk near the floor, so that it will pull forwardly as well as downwardly, the cleat *d* will be drawn and held against the upwardly projecting back of the rear desk and the bench will be held very firmly in place.

In case a space is left between the back of the front desk and the cleat *c* when the cleat *d* comes in contact with the back of the rear desk, an adjustable filling piece consisting of two reversely arranged wedges *l* is inserted in said space so as to bear at its opposite edges against the back of the front desk and the cleat *c*, as shown in Fig. 2, and thereby assist in holding the bench firmly in place at that end. The strain on the stay or anchor is thus equally distributed and applied to both desk backs.

The bench is preferably provided with two vises one arranged across its rear end and the other along the front side at or adjacent to the front end so as to accommodate two pupils at the same time and to hold work of various kinds and dimensions and in different positions with relation to the bench. These vises each comprise two jaws preferably made of wood, one of which is attached to or is formed by a part of the bench. The movable jaw *m* of each vise is adjustably connected with the fixed jaw or an adjacent part of the bench by a screw *n* provided at its outer end with a loose cross bar or handle *o*, which may be removed so as to be out of the way in handling and carrying the bench or for stacking or piling a number of the benches together when they are not in use. A guide bar *p* formed with a series of holes is attached to the movable jaw *m*, parallel with the screw *n* of each vise, and is fitted to slide freely through a correspondingly shaped opening in the fixed jaw. A stop pin inserted in one of the series of holes and bearing against the inner jaw, serves to adjust the vise for holding work of various thicknesses and to hold the movable jaw approximately parallel with the fixed jaw when the work is clamped between them. A metal nut *q* for the screw of each vise is attached to the inner side of the fixed wooden jaw thereof, as shown in Fig. 6. A

wooden plane stop *r*, fitted and removably pivoted at its front side in a transverse re-

cess in the upper face of the bench near its front end, is pressed upward into working position by a spring *s* and is adjusted by means of a screw *t* threaded in a nut on the under side of the bench, as shown in Fig. 6. The head of the screw *t* is sunk in a recess in the stop below its upper face, so as to be out of the way, and the upper face of the stop lies flush with the top of the bench *a* when the screw is turned down as far as it will go.

Along its rear side the bench is formed or provided with a depressed receptacle *u* for holding tools, loose attachments of the bench such as the stay or anchor, and the removable cross bars or vise handles *o*, or other articles. It is also provided with a recessed cover *v* which is hinged thereto on the rear side of the receptacle *u*, and serves when open, as shown in Figs. 1 and 2, as a tray for holding work, tools and other articles and as a shield for protecting the desk tops against injury.

As shown in Fig. 4, a bar or slide *w* fitted and movable endwise in a grooved guideway in one side of the cleat *d* and held therein by a keeper *x*, is adapted when drawn or thrust out from the bench, to support the cover *v* in its open position with any tools or articles which may be placed thereon, and thereby prevent breaking or injuring it or its hinges in case it should be unduly loaded.

To catch and hold chips and shavings and to prevent littering the floor, a bagging apron *y* is removably attached along its inner edge to the front side and the ends of the bench or to the desks on which it rests. The outer edge of the apron, which is made yielding by the insertion of a cord and spiral spring *z* in its hem, is adjustably supported and held at any desired distance from the bench by rods 2, which are fitted to slide endwise in tubes or guides 3, secured in the desired positions to the adjacent desk backs by adjustable clamps 4. At the front end of the bench the outer edge of the apron may be held upwardly and away from it by an oblique arm 5, removably fitted in a socket formed therefor in the bench, as shown in Figs. 2 and 3. At the other end of the bench the apron may be extended backward and attached at its edges by hooks and eyes or other suitable fastenings to the adjacent tube or guide 3 and to the end of the bench and its cover *v*, or to the desk on which the bench rests at that end.

A hole for discharging chips, shavings and dirt into a basket or receptacle temporarily placed underneath it, is preferably made in the apron, and this hole is normally closed by a flexible valve or flap 6, as shown in Fig. 2.

To hold the rear end of the bench firmly against lateral play, especially when the



desks upon which it is mounted are insecure, a brace consisting of two downwardly diverging legs 7, pivotally fastened together at their upper ends and adjustably connected between their ends by a hooked cross tie 8 engaging with notches in their outer edges, is inserted underneath the rear end of the bench or adjacent desk top and the legs are drawn together till the upper end of the brace is forced tightly upward against the bench or desk top while the lower ends of the legs engage with the floor. The legs being somewhat flexible the cross tie is sprung into place in opposite notches therein at such points as will hold the brace under tension in fast engagement with the bench or desk and with the floor.

To hold work in place against the plane stop *r* the bench is provided with a removable clamp or dog 9, hooked or bent at the ends and adjustably secured in place on the bench by a wedge 10, as shown in Figs. 2 and 4.

I claim:

1. A manual training bench consisting of a portable bench top provided on the under side with transverse supports arranged to rest upon and carry it above the tops of separate school desks transversely to their backs and an adjustable stay adapted to detachably connect and bind the bench top obliquely in the direction of its length to a fixture below.

2. A manual training bench consisting of a portable bench top provided on the under side with transverse supports arranged to rest on and carry it above the tops of separate school desks transversely to their backs and an adjustable stay pivoted to the under side of the bench top and adapted to detachably connect and bind it obliquely in the direction of its length to a fixture below, said stay being capable when detached from the fixture of being folded against the bench top.

3. A manual training bench consisting of a portable bench top provided with transverse supporting cleats adapted to rest on and carry it above the tops of separate school desks transversely to their backs, one of the cleats being arranged to bear against the back of one of the desks, and an adjustable stay adapted to detachably connect and bind the bench top obliquely in the direction of its length to a fixture below and in advance of the attachment of the stay to the bench top.

4. A manual training bench consisting of a portable bench top provided on the under

side with supports adapted to rest upon and carry it above the tops of separate school desks transversely to their backs, and a stay adapted to detachably connect and bind the bench top obliquely in the direction of its length to a fixture below and having a slip connection for quick variation of its length and a screw connection for drawing it taut.

5. A manual training bench consisting of a portable bench top provided on the under side with supports adapted to rest upon and carry it above the tops of separate school desks transversely to their backs, one of said supports being vertically adjustable for leveling the bench top on desks of varying heights, and an adjustable stay adapted to detachably connect and bind the bench top obliquely in the direction of its length to a fixture below.

6. A manual training bench consisting of a portable bench top provided on the under side with supports adapted to rest upon and carry it above the tops of separate school desks transversely to their backs and having a cover hinged to its rear side and forming a tool and work receptacle, a slide guided in the under side of the bench top and adapted when drawn out to support said cover in a horizontal position, and an adjustable stay adapted to detachably connect and bind the bench top obliquely in the direction of its length to a fixture below.

7. A manual training bench consisting of a portable bench top provided on the under side with supports adapted to bear upon desks, an adjustable filler piece adapted to be inserted between and to bear against the front support and the back of the next seat, and a stay adapted to connect the bench top with a fixture below and to draw said top toward said seat back, substantially as described.

8. A manual training bench comprising a bench top adapted to be supported upon two or more desks, a stay or anchor for securing said bench top to a fixture below the desk tops and holding it in place on the desks, and an adjustable brace adapted to prevent transverse movement of the bench top and consisting of two downwardly and transversely diverging legs adjustably connected with each other by a cross tie, substantially as described.

In witness whereof I hereto affix my signature in presence of two witnesses.

ROBERT L. COOLEY.

Witnesses:

CHAS. L. GOSS,  
ALICE E. GOSS.