(No Model.)

C. E. BILLINGS.

BEAM CALIPERS.

No. 382,348. Patented May 8, 1888.

Fig. 1

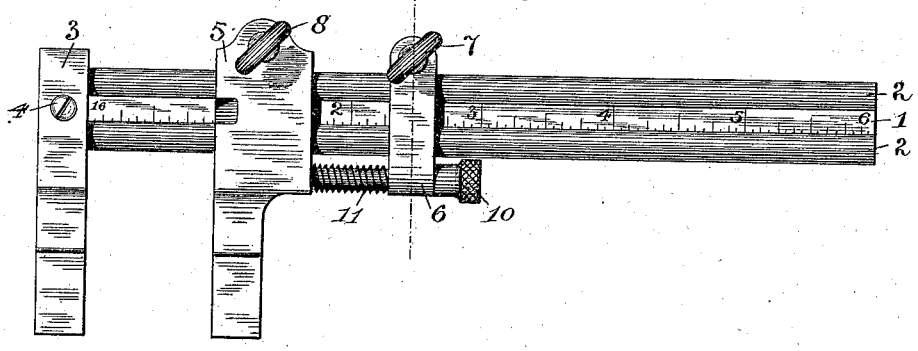


Fig. 2

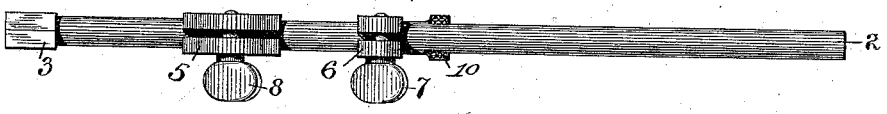
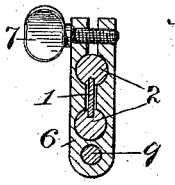


Fig. 3



Witnesses:
H. R. Williams.
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UNITED STATES PATENT OFFICE.

CHARLES E. BILLINGS, OF HARTFORD, CONNECTICUT.

BEAM-CALIPERS.

SPECIFICATION forming part of Letters Patent No. 382,348, dated May 8, 1888.

Application filed March 6, 1888. Serial No. 266,325. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BILLINGS, of Hartford, in Hartford county, Connecticut, have invented a new and useful Caliper-Square, which is described in the following specification, and is illustrated by the accompanying drawings.

This invention belongs to that class of caliper-squares in which a sliding jaw moves upon a graduated beam.

The object of my invention is to produce a caliper-square of easy construction and of superior lightness and durability. To accomplish this object I construct the beam of the instrument of a thin graduated plate and two parallel rods, each of which has a longitudinal groove containing one edge of said plate.

The best method in which I have contemplated applying the principle of my invention is shown in said drawings, in which—

Figure 1 is a side view of a caliper-square constructed in accordance with my invention. Fig. 2 is a top edge view of Fig. 1, and Fig. 3 is a section on the dotted line of Fig. 1.

In the drawings, the numeral 1 denotes a plate or straight strip of steel, which is graduated longitudinally on both sides in the usual manner. Each of the two longer edges of plate 1 is let into a longitudinal close-fitting groove in the side of a rod, 2, and is secured therein by brazing, or otherwise. The two rods 2 and the plate 1, being so joined together, constitute a beam of uniform cross-section. Upon the zero end of this beam is a stationary steel jaw, 3, which is bored and split to receive the end of said beam, and is clamped thereon at a right angle thereto by means of screw 4. Upon the same beam, and at right angles therewith, are a sliding jaw, 5, and an adjusting-slide, 6. Slide 6 has two parallel perforations, which are bored through it for the purpose of receiving rods 2, and are connected with each other by an intercommunicating slot wider than the thickness of plate 1, as shown in Fig. 3. Slide 6 is further split in the upper part and provided with a clamping-screw, 7, as seen in the same figure. Slide 5 is perforated, slotted, split, and provided with a clamping-screw, 8, in the same manner. Slide 6 and jaw 5 are connected with each other by means of an adjusting-screw, 9. This screw is set immovably into the back of jaw 5, passes through a round hole in the lower part of slide 6, and is provided with a terminal thumb-nut, 10, and with a surrounding coiled spring, 11, which lies between said jaw and slide.

All other particulars of construction sufficiently appear from the drawings, and from the mode of operation which is now to be described.

Clamping-screws 7 and 8 being turned so as to loosen slide 6 and jaw 5 upon rods 2, the jaw 5 is set by hand, approximately at the desired measurement indicated upon the graduated scale. The accompanying slide 6 is then clamped in its assumed position by turning in screw 7. The sliding jaw then receives its accurate and final adjustment by turning nut 10. When nut 10 is turned on, jaw 5, sliding upon rods 2, is retracted from jaw 3 against the resistance of spring 11, and when that nut is turned in the opposite direction jaw 5 is advanced toward jaw 4 by the expansive energy of that spring. Jaw 5, after receiving its final adjustment, as described, is clamped upon the beam by turning screw 8. The described clamping of jaw 5 and slide 6 causes them to grip rods 2 and 2 without touching plate 1. Operating in this manner, my invention is superior to other instruments of the same class in several respects. In particular, graduated plate 1, by virtue of its secluded position, is free from abrasion by the sliding parts 5 and 6, and is out of the way of accidental injury. That plate, being thin, is re-enforced by rods 2, and those rods, being severally gripped in surrounding perforations, are collectively clamped in the described manner with superior firmness and precision. At the same time spring 11 prevents loss of motion between the sliding jaw 5 and the adjusting-slide 6.

Such being the nature, construction, operation, and advantages of my invention, I claim—

1. In a caliper-square, a beam consisting of two longitudinally-grooved parallel rods and a graduated plate having one edge let into the groove of one of said rods and having an opposite edge let into the groove of the other of said rods, substantially as and for the purpose specified.

2. A beam consisting of two parallel grooved

rods and an intermediate graduated plate which is let into the grooves of said rods, in combination with a sliding jaw having two parallel perforations, which are connected by a slot, substantially as and for the purpose specified.

3. A beam consisting of two parallel rods and an intermediate plate having two opposite edges let into said rods, in combination with a stationary jaw upon said beam and a split sliding jaw having a perforation for each of said rods and having a slot for said plate, substantially as and for the purpose specified.

4. A beam consisting of two parallel grooved rods and an intermediate plate whose edges are held in the grooves of said rods, in combination with a stationary jaw and with a split sliding jaw and a split adjusting-slide, which are severally provided with clamping-screws and with a connecting-screw adjustment, substantially as and for the purpose specified.

5. A beam consisting of two parallel rods and a graduated plate whose opposite edges are let into said rods, respectively, a stationary jaw, which is secured to said beam, an adjustable jaw, which is split and provided with a clamping-screw, and is perforated, slotted, and adapted to slide upon said rods, and a split adjusting-slide, which is similarly perforated, slotted, and provided with a clamping-screw, in combination with a connecting-screw, and a spring and nut, which work upon said screw, substantially as and for the purpose specified.

In testimony whereof I hereunto set my name in the presence of two witnesses.

CHARLES E. BILLINGS.

Witnesses:
FREDERIC C. BILLINGS,
WILLARD EDDY.