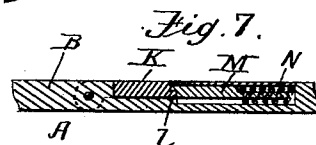
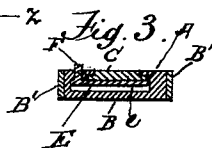
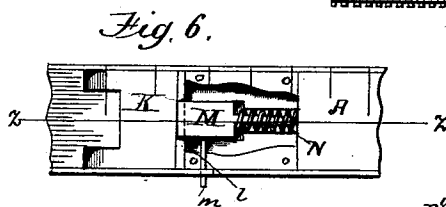
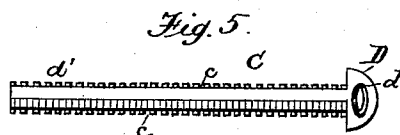
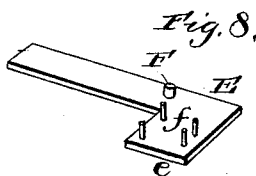
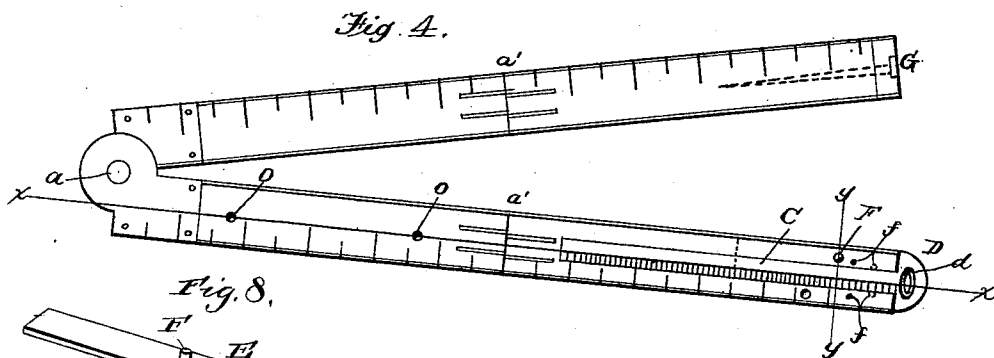
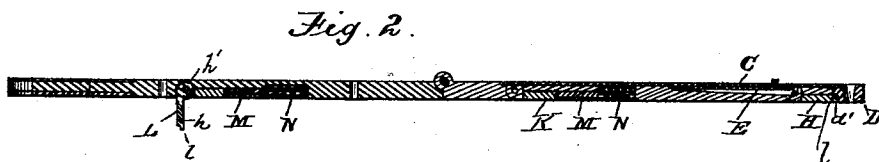
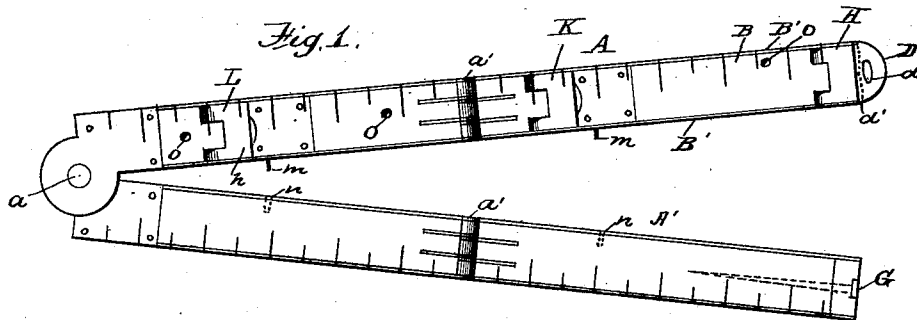


(No Model.)

L. M. WEAVER & Z. C. LEISER.
COMBINED RULER, GAGE, AND CIRCLE SCRIBER.

No. 482,886.

Patented Sept. 20, 1892.



Witnesses

W. H. H. Knight
Arthur L. Bryant

Inventors:
L. M. Weaver & Z. C. Leiser
By their Attorneys
Edson Bros.

UNITED STATES PATENT OFFICE.

LEWIS M. WEAVER AND ZACHARIAS C. LEISER, OF LOCK HAVEN,
PENNSYLVANIA.

COMBINED RULER, GAGE, AND CIRCLE-SCRIBER.

SPECIFICATION forming part of Letters Patent No. 482,886, dated September 20, 1892.

Application filed January 21, 1892. Serial No. 418,831. (No model.)

To all whom it may concern:

Be it known that we, LEWIS M. WEAVER and ZACHARIAS C. LEISER, citizens of the United States, residing at Lock Haven, in the county of Clinton and State of Pennsylvania, have invented certain new and useful Improvements in Rulers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in rules; and the objects of the invention are to provide a simple, cheap, and durable ruler which can be used either as a rule, a gage, or a compass.

With these ends in view our invention consists in the peculiar construction and arrangement of parts, as will be hereinafter fully pointed out and claimed.

In the accompanying drawings, Figure 1 is a top plan view of a ruler constructed in accordance with our invention. Fig. 2 is a longitudinal vertical sectional view on the line $x x$ of Fig. 4. Fig. 3 is a transverse vertical sectional view on the line $y y$ of Fig. 4. Fig. 4 is a bottom plan view, and Fig. 5 is a detail view, of the extensible slide. Figs. 6 and 7 are detail views of the gages. Fig. 8 is a detail view of the plate for holding the movable slide in place.

Like letters of reference denote corresponding parts in all the figures of the drawings, referring to which—

A A' designate the two sections or members of the ruler, which are pivotally connected together at a in a manner well known in the art. Each of these sections or members is composed of two parts connected by suitable hinges a' .

The sections or members A A' are preferably formed of a central longitudinal piece or block B, which is protected and strengthened by metallic side plates or strips B'. (See Fig. 3.)

The sections or members A A' are graduated in the usual manner, and in a suitable chamber or recess formed in the member A and opening through the free end thereof is arranged a slide or member C. This slide or member C is provided at its outer end with an enlarged head D, in which is formed an

aperture d , for a purpose to be hereinafter pointed out. This head D of the slide C is of greater thickness than the slide, and on one face thereof is formed an integral projecting lip or flange d' . The sides of the slide C are provided with a series of notches c , extending throughout the length of the slide and preferably spaced apart one-sixteenth of an inch.

E designates a spring-plate which is arranged within the chamber in which the slide C normally fits. One portion e of this plate extends across said slide at right angles to the main portion of the plate E. The portion e of the plate E is provided with four projecting pins f , (see Fig. 8,) two of which pins extend above the slide C and pass through suitable passages formed in the central piece B of the section A to steady the plate E. The other two pins on the plate E are adapted to fit into aligned notches c on opposite sides of the slide C and hold said slide in any desired position with regard to the ruler. The spring-plate E is further provided with a thumb piece or stud F, which extends through a suitable aperture in the body of the rule and extends a slight distance beyond the surface thereof.

In a suitable chamber or socket formed in the member or section A' and opening through the free end thereof is fitted a tapering pin G.

H, K, and L designate three gages, which are pivotally connected to the side plates or strips B'. These gages consist of a plate h , provided at one end with a disk-like portion h' , through which the pivot-pin extends, and are preferably arranged on the section A at one-half inch, five inches, and ten inches, respectively, from the outer free end thereof.

The gages H K L are adapted to be turned on their respective pivots, so as to extend at right angles to the length of the ruler, as shown in Fig. 2 of the drawings; but said gages are normally turned down and fit in suitable recesses formed in the upper surface of the central piece or block B, so that their exposed surface lies flush with the edges of the side plates or strips B'. The front end of each of these gages is cut away to form a projecting lip l . When the gages are forced down to contact with the body of the ruler, the lip d' on the head D fits over the lip l on the gage H and holds such gage in position. The other

two gages K L are held in their closed position by spring-pressed plates M, which take over the lips *l* on such gages. The plates M are arranged in suitable sockets, and each of said plates is provided with a longitudinal stem, around which is fitted a coiled spring N, and with a stem *m*, extending at right angles to the stem having the coiled spring thereon. The pins *m* extend through one of the side plates or strips B' and are adapted to fit in sockets or recesses *n*, formed in the section or member A' when the two sections A A' are forced together.

O designates a series of apertures which are formed in the ruler at any desired distance apart. The aperture which is formed nearest the outer end of the section A is slightly out of line with the apertures in the other sections of the ruler to avoid the slide C.

When it is desired to use our improved ruler as a compass, the pin G is withdrawn from its socket and inserted in any desired one of the series of apertures O. A pencil is passed through the opening *d* in the enlarged head D of the slide C and a circle of the desired size is readily described about the pin G as a center.

The slide C can be withdrawn from its socket any desired distance by pressing on the stud F to release the pins *f* from the notches in the side of the slide and measurements of less degree than the divisions of the ruler thus obtained.

We are aware that changes in the form and proportion of parts and details of construction of the devices herein shown and described as an embodiment of our invention can be made without departing from the spirit or sacrificing the advantages thereof, and we therefore reserve the right to make such changes as fairly fall within the scope of our invention. For instance, though we have shown but three gages, all on the section A of the ruler, we would not be understood as limiting ourselves to the number or exact location of the gage-plates herein shown and described, as the number and relative positions thereof can be varied at pleasure.

By turning up any desired one of the gages and inserting the pin G or a pencil in the aperture in the head of the extensible slide a gage of the desired size is obtained.

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

1. In a ruler, the combination, with the two pivotally-connected sections, of a notched slide fitted in a socket formed in one of the sections and a spring-plate arranged in said socket and provided with projecting pins adapted to take into the notches in the slide to hold the same in any desired position, substantially as described.

2. In a ruler, the combination, with the two sections pivotally connected together, each of said sections being composed of a central piece and metallic side plates or strips, of plates pivotally connected to the side plates and adapted to extend at right angles to the length of the ruler and means for normally keeping said plates in contact with the ruler, substantially as described.

3. In a ruler, the combination, with the two sections pivotally connected together, of a slide fitted in a socket in one of the sections and provided with an enlarged head having an integral lip or flange on one face, a plate pivotally connected to the ruler near one end and having a lip or flange formed on its free end and normally extending below the lip on the head of the slide, similar plates pivotally connected to the ruler at intermediate points of its length, and means for normally holding such plates against the ruler, substantially as described.

4. In a ruler, the combination, with the two sections pivotally connected together, of the gage-plates pivotally connected to one of the sections and adapted to fit in suitable recesses formed therein, and spring-pressed plates for holding the gage-plates against the ruler, said plates being provided with outwardly-extending pins or studs which are adapted to fit in suitable sockets in the other section when the sections are brought together, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

LEWIS M. WEAVER.
ZACHARIAS C. LEISER.

Witnesses:

A. W. BITTNER,
N. J. LEISER.