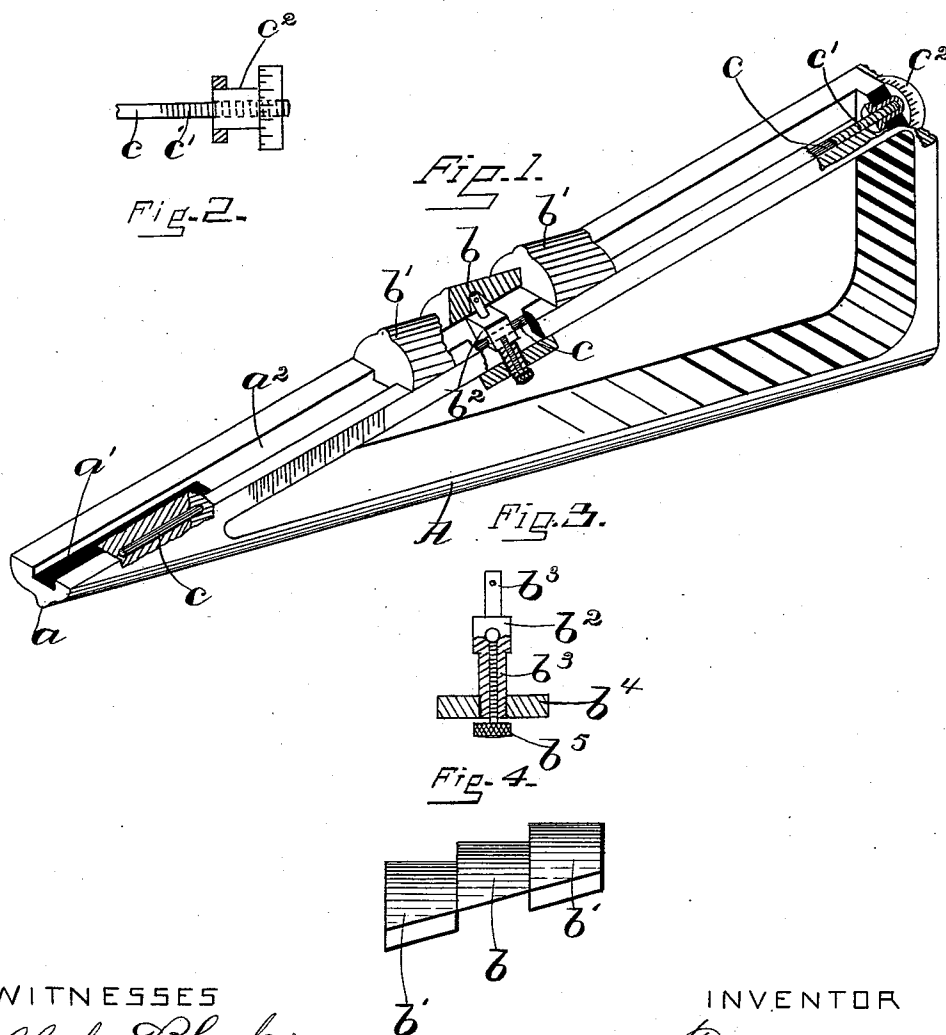


(No Model.)

F. S. STONE.
MEASURING DEVICE.

No. 539,492.

Patented May 21, 1895.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK S. STONE, OF HYDE PARK, MASSACHUSETTS.

MEASURING DEVICE.

SPECIFICATION forming part of Letters Patent No. 539,492, dated May 21, 1895.

Application filed May 7, 1894. Serial No. 510,279. (No model.)

To all whom it may concern:

Be it known that I, FRANK S. STONE, of Hyde Park, county of Norfolk, State of Massachusetts, have invented an Improvement in Measuring Devices, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to construct a measuring device for measuring the internal diameter of cylinders or holes, and also for setting calipers and for other analogous uses.

In accordance with this invention, a triangular frame is employed, having one of its sides or faces grooved exteriorly, or otherwise provided with a guideway, extending from the apex of the frame toward the base, and a graduated scale is or may be provided, by the side of and in parallelism with said guideway, and a sliding block is constructed and arranged to fit said guideway, and to be moved longitudinally toward and from the apex of the triangular frame, and to be secured in whatever position it may be set, by means of a set screw or other form of fastening. As herein shown, the slide block, in addition to moving in the guideway, slides freely upon a rod having its bearings in the frame, and having at one end, as at the base of the triangular frame for instance, a screw threaded portion which receives upon it a flanged bushing or nut, the parts being so arranged that by turning said nut the said rod will be moved longitudinally. The set screw or other means employed for securing the slide block in its different adjusted positions is designed to impinge or engage said rod, so that, as the rod is moved longitudinally the slide block will be correspondingly moved.

Figure 1 shows in perspective a measuring device embodying this invention, it being broken away at several points to disclose the working parts; Figs. 2 and 3, details to be referred to, and Fig. 4 a side view of the block.

The main frame A of the device is triangular in shape, and upon the exterior of one of its sides a rib a is formed, extending from the apex toward or to the base. Upon its opposite side a guideway is formed, extending from the apex toward or to the base, said guideway

being represented as a groove a' extending from the apex a short distance toward the base, and a slot a^2 , cut through said side, beginning at the termination of said groove a' , and extending toward the base. A slide block b constructed with an inclined bottom, and fitted to slide in said guideway a' , a^2 , has a stepped upper or outer surface, as shown in Figs. 1 and 4, the steps thereof being in parallel planes with the rib a , and each step having formed upon its outer side a rib b' like unto the rib a . By stepping the slide block in this manner it will be seen that the ribs b' will always occupy a position in parallelism with the rib a , but at different distances therefrom.

The slide block b is cut away at its under side, for a short distance between its ends, to receive a block b^2 , having a pin or projection b^3 , through which passes transversely a small pin connecting the block loosely with the slide block. The block b^2 is shaped to fit and move in the slot a^2 , and has upon its under side a projection b^3 , extending down through the slot, and the lower end of said projection b^3 , is externally screw threaded to receive a nut b^4 . See Fig. 3. The block b^2 has a hole through it which receives a rod c , extending lengthwise of and occupying a position in the slot a^2 , and bearing at its ends in the frame, said rod serving as a guide-rod upon which the block b^2 , and the attached slide block b may be adjusted. A set screw b^5 extends up through the projection b^3 of the block b^2 , and when turned in will impinge against the rod c , to thereby secure the block b^2 with its connected slide block b in whatever position it may be set. The end of the rod c , at the base of the triangular frame, is screw threaded, and receives upon it a flanged nut c^2 , having its bearings in the frame, so that by turning said nut the rod c will be moved longitudinally.

When it is desired to take the internal diameter of a cylinder, the nut b^4 and set screw b^5 , are both loosened, and the slide block b moved toward the apex of the triangular frame, and said frame with the block thereon is then introduced into the cylinder, and the slide block moved toward the base of the frame, until one of the ribs b' , and the rib a ,

bears against the interior of the cylinder, and the nut b^4 is then turned to secure the block in place.

If the part to be measured is so shaped, that it is difficult to move the slide block, and set it at just the right place by turning the nut b^4 , said block may be set as nearly as possible, and the set screw b^5 turned in, to impinge the rod c , after which said rod may be adjusted by means of the flanged nut; or if it is desired to set the block b at any desired point, for the purpose of using the tool to set calipers, it may be moved to such point, and the nut b^4 turned sufficiently to hold the block easily by friction. Then the set screw b^5 will be turned, securing the block to the rod c , and if it becomes necessary to thereafter slightly adjust the block, such adjustment may be made by turning the nut c^2 . The nut c^2 is graduated in thousandths of an inch.

At the side of the grooved portion of the frame is a series of graduations with which the slide block may co-operate whenever desired, as for instance in setting calipers, for in such case the slide block may be moved to any desired point, and then the rib a and one of the ribs b' of the slide block will be used to distance the points of the calipers.

The ribs a , b' , are made rounded or tapering so that only a single point thereof contacts with the interior of a cylinder when measuring it; or when the device is used for setting calipers, single contact points are pre-

sented with which the points of the calipers may engage, and hence the full diameter or distance may be measured.

I claim—

1. The measuring device herein described, consisting of the triangular frame, having upon one side a guideway, a slide block fitting said guideway, the rod c having end bearings in the frame, to which said slide block is adjustably secured, the screw threaded portion c' on the end of said rod, and the flanged nut thereon, having its bearings in the frame, substantially as described.

2. The measuring device herein described consisting of the triangular frame, having upon one side a rib a , and upon the opposite side a guideway consisting of the groove a' , and slot a^2 , the stepped slide block fitting said guideway having formed upon each step thereof a rib b' , the rod c having end bearings in the frame, upon which said slide block is mounted, a set screw for securing said slide block to the rod c at whatever position it may be set, and means for adjusting said rod longitudinally, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK S. STONE.

Witnesses:

B. J. NOYES,

FLORENCE H. DAVIS.