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3,293,754

SCRIBING TOOL

Filed Feb. 15, 1965

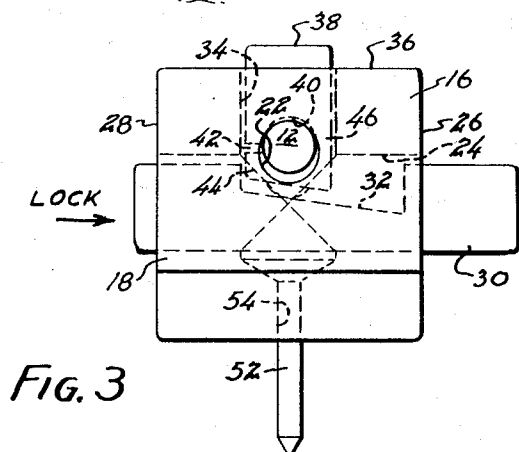
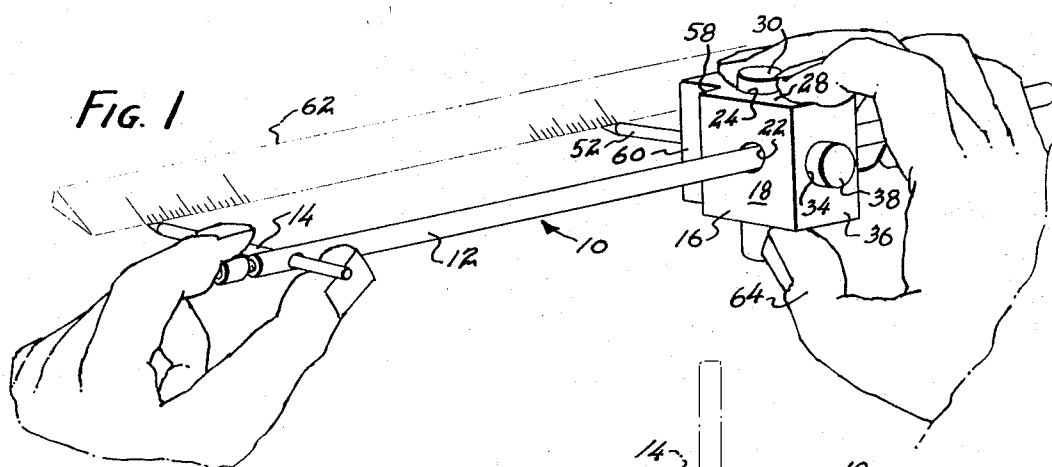


FIG. 2

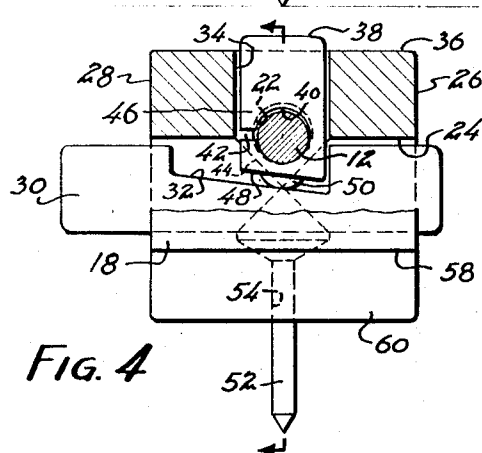


FIG. 3

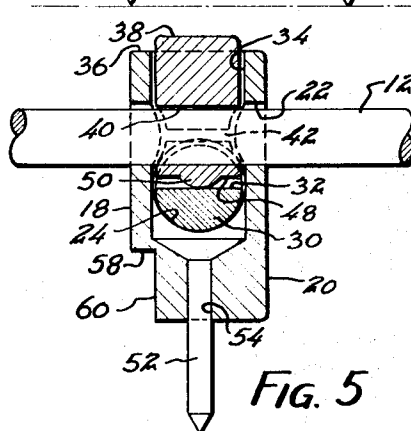


FIG. 4

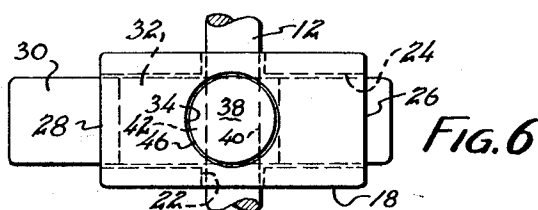


FIG. 5

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1

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SCRIBING TOOL

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This invention relates to an improved surface gauging or marking tool for use in layout work or pattern making by sheet metal workers and the metal trades, as well as machinists, carpenters and the like.

Marking or scribing tools of the type generally comprising an elongated beam with a marking means fixed at one end and a block or fence movably attached to the beam are well known in the art. However, a long standing problem with all such tools prior to the present invention was in providing a satisfactory means for positively locking the block or fence component on the beam after it was moved to a desired position thereon. In tools heretofore devised, a common expedient for securing the movable block to the beam was some form of a threaded set screw or the like. Such locking devices required a turning or twisting movement and were generally unsatisfactory and inconvenient to operate, particularly in situations where the movable block must be moved back and forth to different positions at frequent intervals, and must be adjusted to achieve a high degree of precision.

It is, therefore, a general object of the present invention to provide an improved marking or scribing tool having a movable block on a beam, and more specifically to provide a locking means within the block for securing it to the beam at a predetermined location which can be operated quickly and conveniently with one hand to lock and unlock the movable block by applying external linear pressure with the user's thumb or finger, rather than by a twisting force.

Another object of our invention is to provide a locking means for a movable block on the beam of a marking tool which can be relied on to hold the block firmly in place when the locking means is engaged without allowing the block to slip during long periods of use. Our locking means comprises a unique arrangement of elements which utilizes a large mechanical advantage and provides a force causing a positive gripping of the beam to secure the block in place, even though the force required to actuate the locking means is relatively small.

Still another object of the present invention is to provide a marking or scribing tool that is strong and durable, and yet particularly well adapted for ease and economy of manufacture.

Other objects, advantages and features of the invention will become apparent from the following detailed description of one embodiment thereof, presented in accordance with 35 U.S.C. 112.

In the drawings:

FIG. 1 is a view in perspective showing a scribing tool embodying the principles of the invention;

FIG. 2 is a side elevation view partially in section of the scribing tool of FIG. 1 with portions of the beam broken away to conserve space;

FIG. 3 is a view in elevation of the scribing tool of FIGS. 1 and 2 with dotted lines showing the guide block in the locked position;

FIG. 4 is a view in elevation and partially in section showing the guide block of our scribing tool in the unlocked position;

2

FIG. 5 is a view in section taken along the line 5—5 of FIG. 4;

FIG. 6 is a top view showing the guide block of our scribing tool in the unlocked position.

With reference to the drawing, FIG. 1 shows a scribing or marking tool 10 embodying the principles of the present invention. Generally, it comprises a rigid elongated rod or beam 12 having a uniform cross-section along its entire length. Fixed near one end of the rod 12 is a marking or pivot means such as pin 14, and slidably connected to the rod is a guide block or fence 16, which, in accordance with our invention, can be moved to any desired location on the rod relative to the pin 14 and then locked in that position. When the block is locked on the rod the tool can then be used for transferring dimensions and for scribing or marking lines or circles on material in accordance with well known manufacturing layout and pattern making procedures.

The guide block 16, as shown in FIGS. 2 and 3, preferably has a square or rectangular shape and is formed from a solid piece of some durable material such as a suitable metal or plastic. Extending through the front and rear faces 18 and 20 of the block, which are preferably parallel, is a first cylindrical passage 22 having a diameter that is greater than that of the rod 12 so that an easy sliding fit is provided. The axis of this first passage 22 is perpendicular to the front face 18 and is preferably located somewhat above its center.

A second passage 24 having a larger diameter than the first passage 22 extends through the guide block 16 horizontally from one side face 26 to an opposite side face 28, as shown in FIG. 3. This latter passage 24 is substantially centrally located in the guide block 16 and perpendicular to a vertical plane containing the axis of the first passage 22, although being located somewhat lower than, and therefore intersecting only a lower portion of the first passage 22. Situated within the second passage 24 of the guide block 16 is a movable locking bar 30 which is generally cylindrical with a diameter that allows it to slide freely within the passage 24. The locking bar 30 is substantially longer than the distance between the side faces 26 and 28 of the guide block, and when in place, both of its ends extend outwardly therefrom. Between the ends of the locking bar on its upper side is a cut away portion forming a surface 32 having a gradual slope relative to the central axis of the bar 30.

A third passage 34 in the guide block 16 extends downward vertically from a top side face 36 and connects with both the first and the second transverse passages 22 and 24. Disposed within the third passage 34 is a unique rod gripping member 38 that is a vital member of our locking system in the guide block 16. The gripping member 38 (as best seen in FIG. 4), is substantially cylindrical and when in place, its upper end preferably extends slightly above the top side face 36 of the guide block. Near the lower end of the gripping member is a transverse bore hole 40 which has a diameter somewhat smaller than the first passage 22 in the guide block, but still larger than the rod 12 and is perpendicular to the axial center line of the member 38. At approximately the same level as the center line of the bore hole 40, and essentially parallel therewith is a slot 42 which is cut through from one side of the bore hole to the outer edge of the member 38. The slot thus forms a lower jaw portion 44 on the member 38 which is resiliently yieldable with respect to an upper jaw portion 46 thereof. The lower end 48 of the gripping member 38 is preferably beveled at an angle which is substantially the same in degree with respect to a plane that is perpendicular to its longitudinal axis as the angle

between the sloped surface 32 and the longitudinal axis of the locking bar 30. On the beveled surface 48 a button-like protuberance 50 is preferably provided which reduces the amount of contact area between the gripping member 38 and the surface 32 on the locking bar.

To increase the versatility of our scribing tool, a pin 52 having a sharp point may be removably secured within a bore hole 54 extending vertically upward into the block 16 from its bottom side face 56. Such a pin can be frictionally held in place merely by making the bore hole 54 of a diameter that forms a snug fit, or it can be secured in some other convenient manner.

Along its lower edge, the front face 18 is preferably provided with a shoulder 58 forming a recessed face 60 having a planar surface. This shoulder is particularly helpful in increasing the stability of the scribing tool when it is used for marking lines on a relatively thick member, as indicated by the numeral 61, since it can support the block as it is moved along the edge of the material being scribed (FIG. 2). Generally, if the tool is used on sheet metal (e.g. 1/4" thick or less) the block 16 should be reversed in position so that its face 20 bears against the edge of the sheet metal being scribed. The marking pin 14 can be retained in the rod in any suitable well known manner, such as by the set screw 62 which is threaded into the end of the rod, as shown in FIG. 2. Pins of various sizes can be used for marking or for a center pivot point if a circle is to be scribed. Also, other forms of marking devices such as a serrated wheel or disc could be used, if desired.

In using the tool 10, as shown in FIG. 1, the desired distance to be transferred and marked may be set by placing the tool adjacent a rule 62 with the marking pin 14 and the pin 52 of the guide block 16 on the appropriate graduation marks of the rule. When the proper measurement on the rule is determined, the guide block 16 is locked firmly to the rod 12 by means of pressure applied to one end of the locking bar 30. As seen in FIG. 1, the scribing tool 10 may be held conveniently so that the user's thumb 64 can easily engage and press the end of the locking bar 30 to lock the guide block in place. In setting the tool for scribing, the end of the rule is placed against the face 60 and the rod 12 is moved until the marking pin 14 is on the desired graduation mark on the rule. The locking means is now actuated by pressing the end of the locking bar 30, thereby fixing the guide block in position on the rod 12.

In FIG. 4, the guide block 16 is shown in the unlocked position with respect to the rod 12. When the end of the locking bar 30 is pushed inwardly toward the guide block in the direction indicated by the arrow in FIG. 3, the sloped surface 32 provides a camming action that applies an upward axial force to the lower jaw 44 of the gripping member 38. The gripping member is prevented from moving upward within its bore hole 34 by the rod 12 which extends through its passage 40, as well as the first passage 22 of the guide block 16. The upward axial force on the lower jaw portion 44 produced by movement of the locking bar causes this jaw portion to deflect slightly about its unslotted connecting portion and thereby grip the rod tightly. The friction between the protuberance 50 of the gripping member 38 and the sloped surface 32 is sufficient to hold the locking bar 30 in the locked position so that continuous pressure on it is not necessary. When the locking bar is to be released so that the guide block can be reset to another position on the rod, the other end of the locking bar is merely pressed until the gripping member is disengaged therefrom, and the resilient lower jaw member 44 opens to release the rod 12.

From the foregoing it should be apparent that the elements of our scribing tool 10 cooperate in such a manner that a large frictional gripping force is created which enables the guide block to grip the rod tightly. Yet, this gripping or locking force can be applied and released quickly, with little effort on the part of the user. This

positive locking feature enables the tool to be used with ease and precision.

In addition to the one standard method for scribing a line mentioned above, the tool 10 can, of course, be utilized in various ways for scribing circles and making other layout pattern lines and measurements.

To those skilled in the art to which this invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. The disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

We claim:

1. A scribing tool comprising in combination:
 - an elongated beam-like member having a marking element fixed near one end;
 - an adjustable guide block having a transverse passage through which said beam-like member extends;
 - a locking means within said guide block including a gripping member having a pair of jaws between which said beam-like member extends;
 - a locking bar slidably retained within said guide block and engaging said gripping member for closing said jaws to grip said beam-like member in response to axial movement of said locking bar within the guide block.
2. A scribing tool comprising in combination:
 - an elongated beam-like member having a marking element fixed near one end;
 - an adjustable guide block having a transverse passage through which said beam-like member extends;
 - a locking means within said guide block including a gripping member having an opening near one end aligned with said transverse passage and forming a pair of jaws through which said beam-like member extends within said guide block;
 - a locking bar slidably retained within said guide block and movable axially along a line generally perpendicular to the axis of said gripping member, said bar having a sloped surface engaging the end of said gripping member and being thereby operable to cause said jaws to close and grip said beam-like member in response to axial movement of said locking bar.
3. The tool as described in claim 2 wherein the end of said gripping member adjacent said locking bar has a slightly beveled surface and a protuberance on said beveled surface forming a minimum area contact on the sloped surface of said locking bar.
4. The tool as described in claim 2 wherein said guide block has rectangular shaped and parallel front and rear surfaces, side faces, and top and bottom faces, said locking bar being retained in a horizontal passage through said side faces which intersects with a vertical passage extending downwardly from said top face.
5. A scribing tool comprising in combination:
 - an elongated beam-like member having a marking element fixed near one end;
 - an adjustable guide block having a transverse passage through which said beam-like member extends;
 - a locking means within said guide block, including a gripping member having a transverse opening near one end and a transverse slot extending inwardly from one side of said member and communicating with said opening to form a lower jaw portion of said gripping member resiliently yieldable with respect to an upper jaw portion thereof;
 - a locking bar member slidably disposed in a transverse passage in said block, said locking bar having between its ends a sloped surface forming an angle with the longitudinal axis of said bar, said sloped surface being engageable with the lower end of said gripping member when said bar is within said block; whereby when said locking bar is moved axially within said block with its sloped surface in engagement with

5

the lower end of said gripping member, said jaw portions are forced together to grip said beam-like member and secure said guide block in place thereon.

6

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