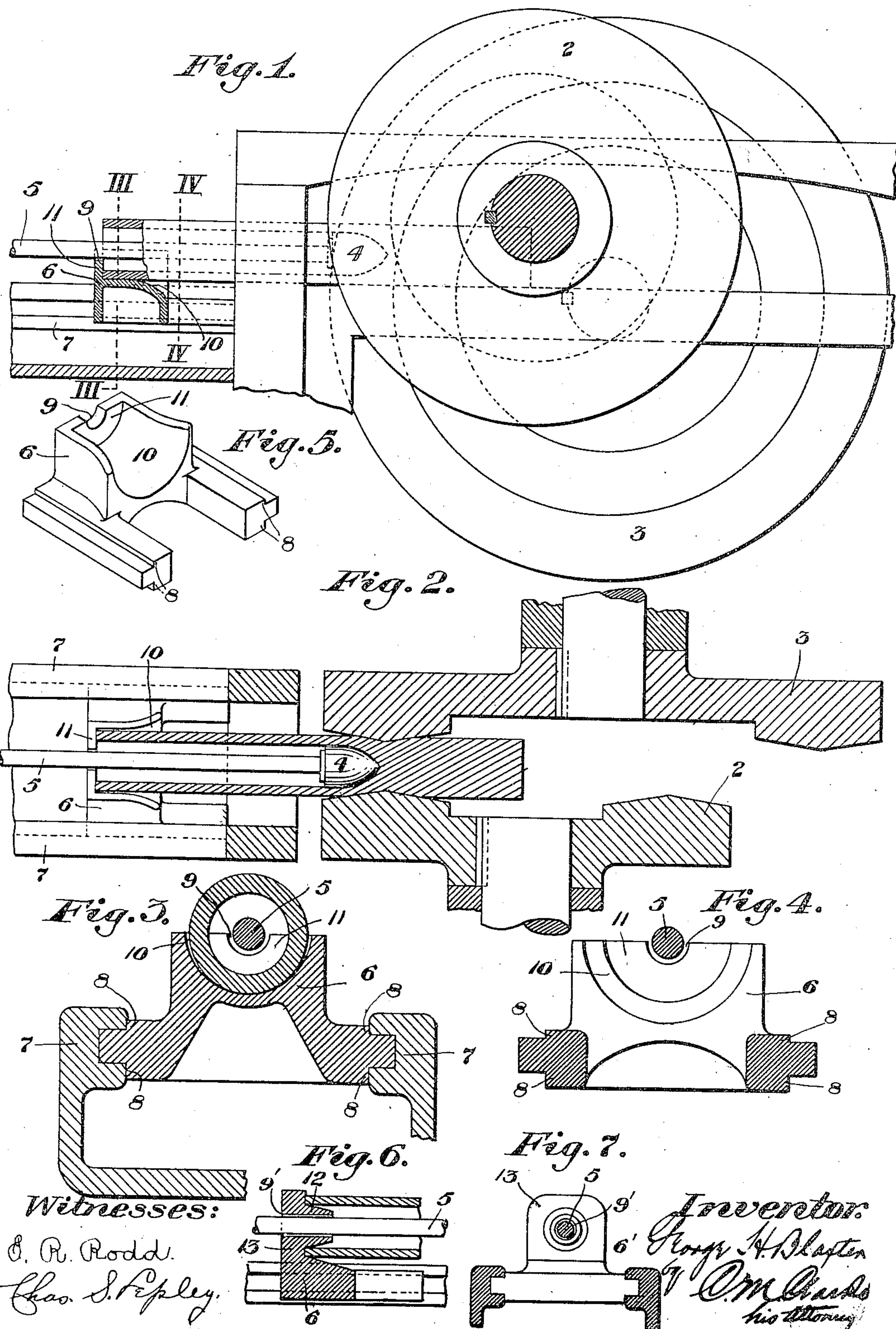


No. 848,285.

PATENTED MAR. 26, 1907.

G. H. BLAXTER.
BLANK SUPPORT FOR TUBE MILLS.

APPLICATION FILED SEPT. 19, 1905.



UNITED STATES PATENT OFFICE.

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BLANK-SUPPORT FOR TUBE-MILLS.

No. 848,285.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed September 19, 1905. Serial No. 279,094

To all whom it may concern:

Be it known that I, GEORGE HENRY BLAXTER, a citizen of Great Britain, residing at Beaver, in the county of Beaver and State of Pennsylvania, have invented certain new and useful improvements in Blank-Supports for Tube-Mills, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of the specification, in which—

Figure 1 is a view in side elevation of a piercing-mill provided with my improvement. Fig. 2 is a horizontal sectional view indicated by the line II II of Fig. 1, illustrating the commencement of the operation. Fig. 3 is an enlarged cross-sectional view on the line III III of Fig. 1. Fig. 4 is a similar view on the line IV IV, showing the sliding support and slides only. Fig. 5 is a perspective detail view of the sliding support. Fig. 6 is a detail view illustrating a modified construction. Fig. 7 is an end view of the bearing shown in Fig. 6.

My invention relates to the art of piercing blanks for seamless tubing; and it consists in a device for supporting and preventing free movement of the advancing end of the shell as it travels over and away from the piercing-point and for preventing contact with the mandrel-bar.

Heretofore in piercing or expanding long billets the forward end of the shell has been unrestrained, so that it was free to drop down onto the supporting-bar of the mandrel and to whip violently around it, tending to distort the hollow billet and injure the bar, while preventing the manufacture of a perfect blank. This objection is partly obviated by the sliding bushing shown in patent of William Dicks, No. 693,381, dated February 18, 1902; but I have found in practice that the weight of the advancing tube-in-process or "hollow" and the bushing, being borne entirely by the mandrel-bar upon which it is slidably supported, tends to deflect the bar from true alinement, resulting in injury to the bar and an imperfect product.

My invention is designed to overcome these objections and to provide a sliding support for the blank which will guide it uniformly in true alinement as it advances over the mandrel entirely independent of the bar, while at the same time providing a supporting-bear-

ing for the bar, as shall be hereinafter described.

Referring to the drawings, 2 3 are the disks of a piercing-mill of different diameters, having the same peripheral speed, rotating in opposite directions, as indicated, and vertically offset above and below each other, so as to secure the forward feed of the billet due to such arrangement, in the manner well understood and practiced in this art.

4 is the piercing-point or mandrel, located midway between the different horizontal centers, and suitably located with relation to the disks to penetrate the billet as it advances, the point being secured upon the end of the usual bar 5, positively held in position by a rigid bearing at the opposite end (not shown) and also by the sliding bearing 6 when adjacent to the point 4 at the commencement of the operation.

The bearing 6 is slidably mounted on supporting sliding bearings 7, being provided with suitable shoulders 8 or other guiding devices to insure its proper direction of travel. It is provided at its front portion with a recess or bearing-neck 9 for the bar 5, which may be merely a clearance-opening, but is preferably adapted to engage the bar and provide a bearing, so as to support the bar as it travels along underneath it. At its back portion toward the advancing end of the tube-in-process the bearing is provided with a semicircular flaring or tapered cavity 10, converging toward an annular shoulder 11, against which the end of the blank abuts. The width of the receiving-cavity 10 is somewhat greater than the diameter of the blank to insure its seating against the shoulder 11, at which point the upwardly-tapering bottom and inwardly-tapering sides converge to about the same dimensions as the outer diameter of the blank, so as to insure its central engagement therewith.

At the commencement of the operation the bearing is set up close to the piercing-point, and as the blank emerges from between the disks over the point it enters the tapered opening of the bearing and abuts against the shoulder 11. As the blank continues to advance it pushes the bearing ahead of it along and upon the slides 7 to the limit of its travel, during which time the end of the blank is

positively supported and retained and prevented from lateral movement or contact with the bar. During such operation the bearing also supports the bar by the neck 9 and positively prevents the injurious "whipping" referred to. If desired, the sides of the tapering opening and of the neck-bearing may be extended somewhat above the center of the bearing, insuring sufficient stock and giving good bearing-surfaces for the bar and blank. At the end of the rolling operation the bar and the finished hollow billet are removed, the shoulder 11 acting as a stop to hold the blank as the mandrel is withdrawn. The billet or shell is then disengaged and the mandrel and bar and sliding bearing are replaced ready for another operation. In cases where an already-pierced billet is again passed over an expanding-plug the bearing is employed in the same manner as has been described, with the same beneficial results.

In Figs 6 and 7 I have shown a modified construction wherein the bearing 6' is provided with an opening 9' somewhat larger than the bar 5 and a backwardly-extending tapered nozzle 12, extending from the base 13, which provides an annular shoulder against which the hollow billet abuts. The diameter of the nozzle at its base is about the same or slightly less than the inner diameter of the hollow billet, so that when once centered on it, as in Fig. 6, the billet will be maintained centrally throughout its travel and operation, entirely preventing contact with the bar.

The advantages of my invention will be appreciated by those skilled in the art and will be found to provide a simple, efficient, cheap, and durable device for the purposes in view. It may be changed or varied by the skilled mechanic; but all such changes are to be considered as within the scope of the following claims.

What I claim is—
1. In combination with the supporting-bar for the plug or point of a piercing-mill, a

bearing slidably mounted parallel with and underneath the bar, and provided with an open top and a lower portion adapted to engage and support the hollow billet.

2. In combination with the supporting-bar for the plug, or point of a piercing-mill, a track parallel with the bar and a bearing slidably mounted thereon provided with an open top and a lower portion adapted to engage and support the hollow billet.

3. In combination with the supporting-bar for the plug or point of a piercing-mill, a bearing slidably mounted parallel with and underneath the bar and provided with an interior tapered bearing and a shoulder adapted to engage and support the hollow billet.

4. In combination with the supporting-bar for the plug or point of a piercing-mill, a bearing slidably mounted parallel with and underneath the bar and provided with an interior tapered bearing and a shoulder adapted to engage and support the hollow billet, and a bearing for the bar.

5. A device for the purpose described consisting of a slidable bearing having an open top and a lower concave interior tapered wall, and a shoulder for the end of the hollow billet.

6. A device for the purpose described consisting of a slidable bearing having interior tapered walls, a shoulder for the end of the hollow billet and a neck-bearing for the mandrel-bar.

7. In combination with the disks or rolls of a piercing-mill, a plug or point, a bar therefor, and guiding-tracks parallel with the bar; an interiorly-tapered open top concave bearing slidably mounted upon the tracks and adapted to support the hollow billet.

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

GEORGE HENRY BLAXTER.

Witnesses:

L. G. GRAY,
S. E. McKIBBEN.