No. 883,699. PATENTED APR. 7, 1908.

M. E. DANNENBERG.

LATHE FOR BILLIARD CUES OR THE LIKE.

APPLICATION FILED APR. 16, 1906.

2 SHEETS—SHEET 1.

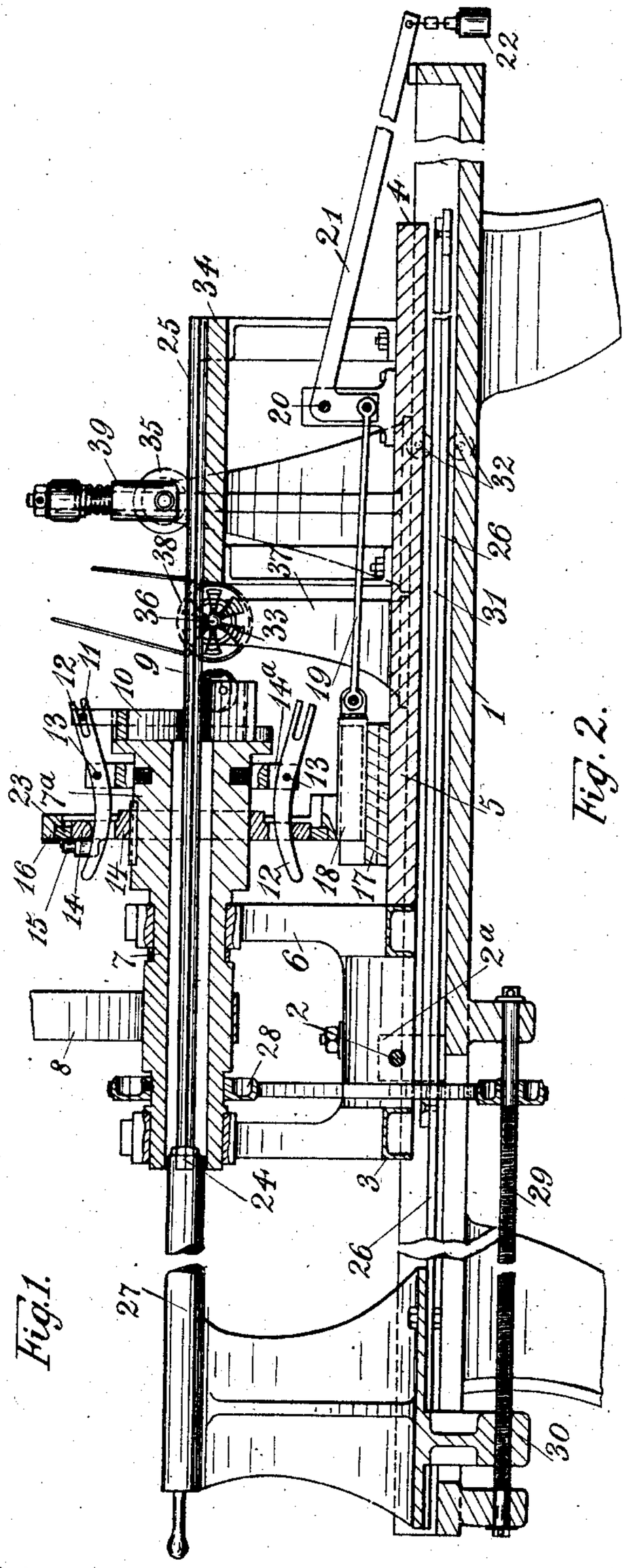

Fig. 1.

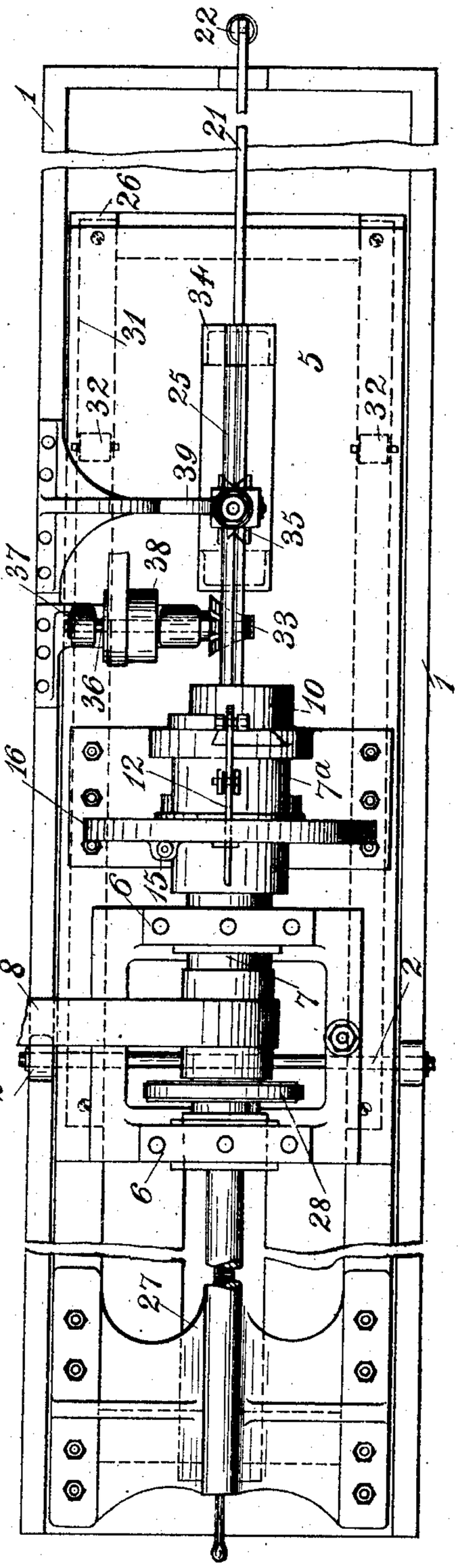

Fig. 2.

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Fig. 3.

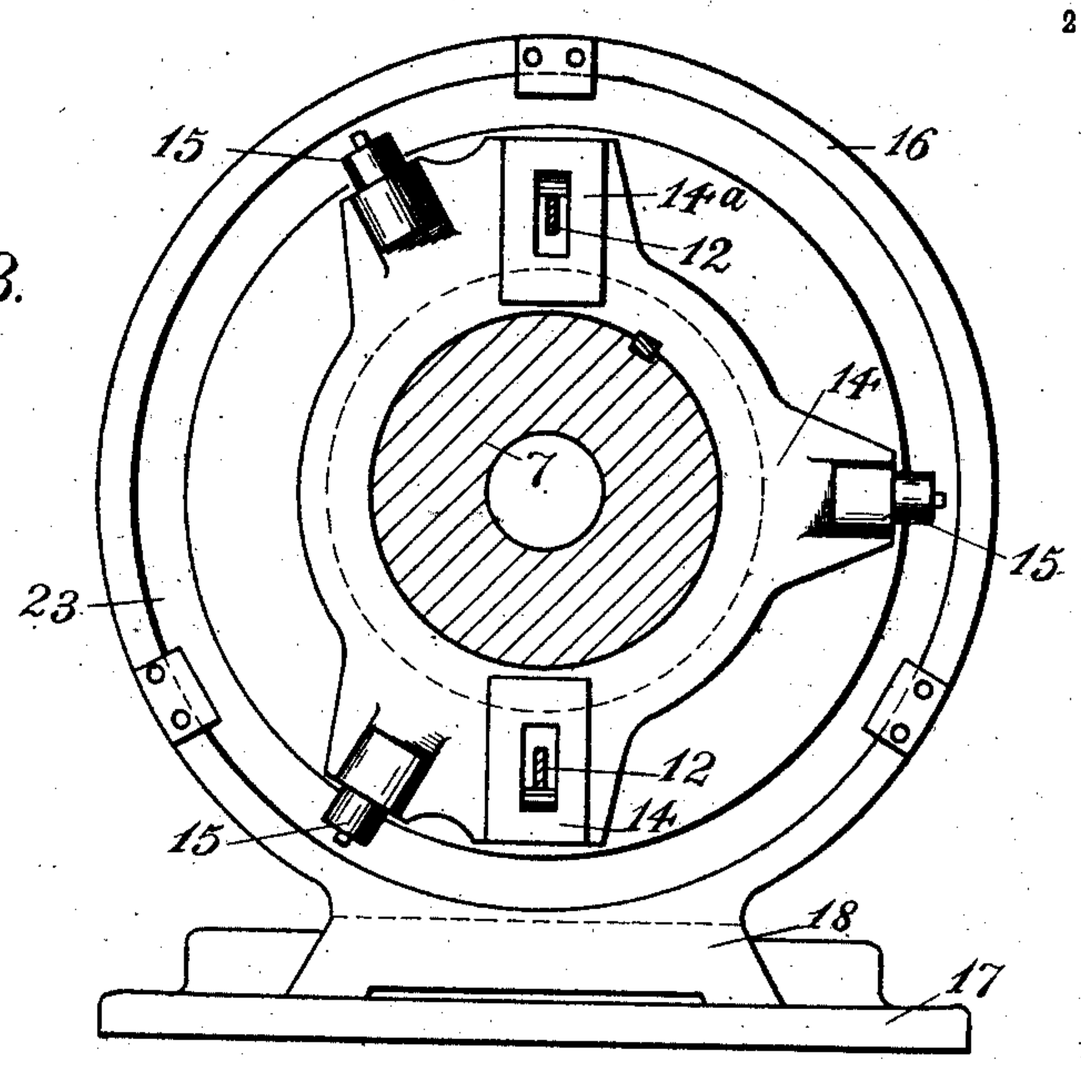
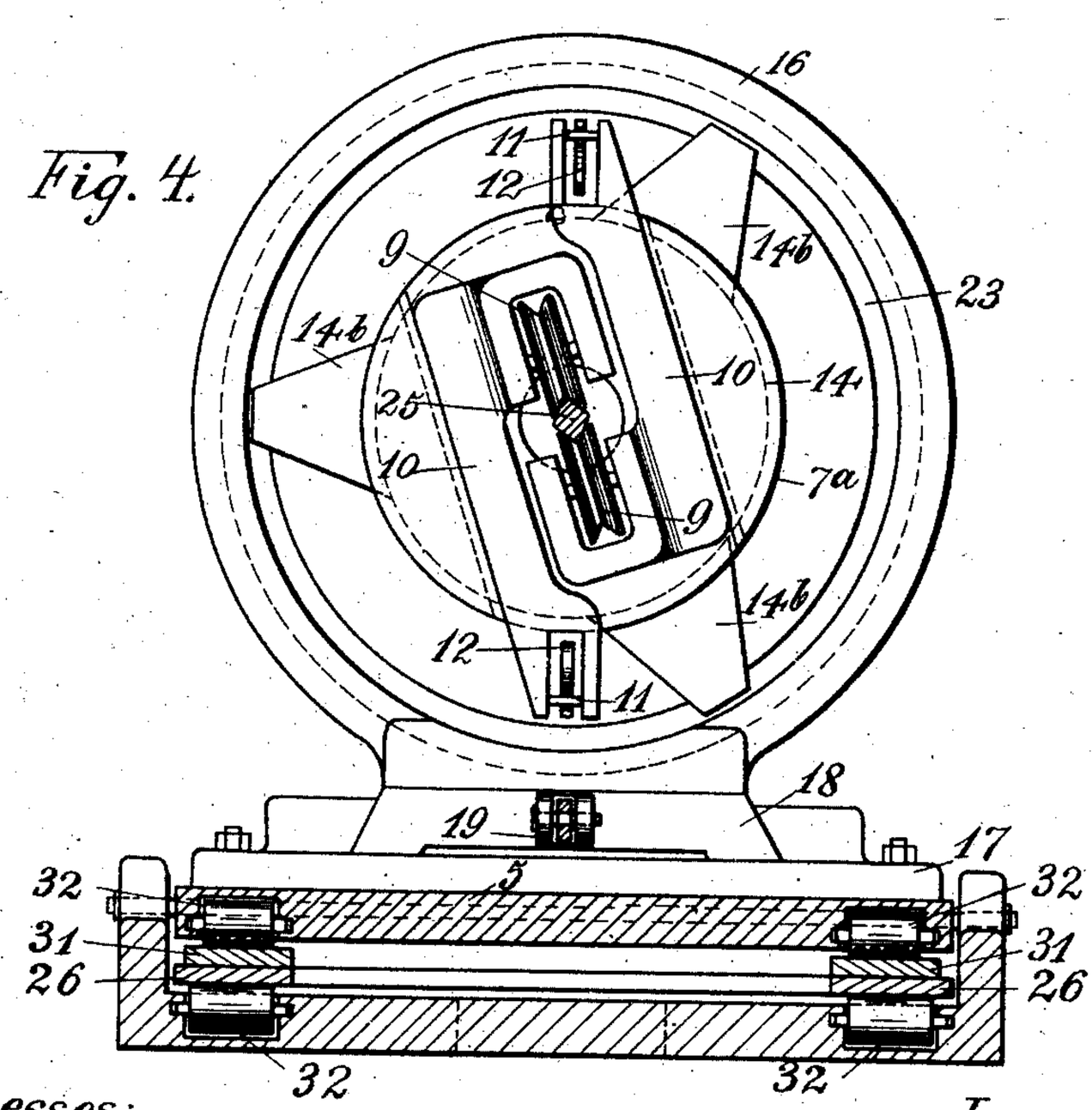


Fig. 4.



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UNITED STATES PATENT OFFICE.

MAX EUGEN DANNENBERG, OF BERLIN, GERMANY.

LATHE FOR BILLIARD-CUES OR THE LIKE.

No. 883,699. Specification of Letters Patent. Patented April 7, 1908.

Application filed April 16, 1906. Serial No. 312,059.

To all whom it may concern:

Be it known that I, MAX EUGEN DANNENBERG, manufacturer, a subject of the King of Prussia, German Emperor, and residing at No. 16 Weberstrasse, Berlin, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Lathes for Billiard-Cues or the Like.

This invention relates to a machine, by means of which billiard-cues and smooth or shaped rods or bars of circular or a similar section may be produced. The rod or bar, from which the cue shall be produced, is introduced, with its thinner end, into a rotary chuck after having been prepared as far as possible, the chuck being secured to a frame or the like provided with exchangeable guide-pieces, for instance of wedge-like section. There is, besides, a rotary and adjustable guide-head for guiding the rod or bar, this guide-head being located in front of the suitably shaped cutter and taking over the thicker end of the rod or bar. The wedge-shaped guide-pieces, as employed, for instance, for the manufacture of billiard-cues, and attached to the frame or its equivalent, cause the guide-head, and thus the cue-bar too, to tilt, so that the desired shape of the work-piece, which is dependent upon the shape of the wedges or otherwise shaped model or pattern, is obtained. In lieu of the wedge-shaped guide-pieces, such of another shape may be employed, the shape being, in every case, dependent upon the shape of the rods or bars to be produced.

In order to make my invention more clear I refer to the accompanying drawings in which similar letters denote similar parts and in which

Figure 1 is a longitudinal section of the machine, Fig. 2 is a plan of the machine, Fig. 3 is a rear view of the guide-head, and Fig. 4 is a cross-section of the machine with a frontal view of the guide-head.

The table 1 supports, in bearings 2^a, a shaft 2 supporting in its turn a plate 5 adapted to be slightly swung upwards and downwards around said shaft 2. The plate 5 carries a bearing 6 supporting a hollow shaft 7 adapted to be turned by a belt 8. The right-hand end 7^a of the shaft 7 carries a guide-head, the purpose of which is to turn the work-piece 25 moved horizontally through the machine. This guide-head is constructed as follows: The tiltable plate 5 is provided with a dovetailed guide 17 carrying an annular body 16 secured to a slide 18 adapted to be traveled within the guide 17. A bar 19 hinged to the slide 18 connects the latter with a bell-crank-lever 21 fulcrumed at 20 and being under the influence of a poise or weight 22 suspended from the longer arm of said lever. The annular body 16 contains a ring 23, one side of which forms a guide for three lugs 14^b, whereas the other side of said ring forms a guide for 3 rolls 15 carried by a disk 14 connected by feather and groove with the portion 7^a of the shaft of the machine. The portion 7^a is provided with two double-armed levers 12, the pivots of which are formed by bolts 13. One arm of each of the levers 12 is wedge-shaped and this arm is guided by a part 14^a of the disk 14. The other arm is forked and is connected by a pin 11 with a slide 10 guided in the portion 7^a and carrying guide-rolls 9 for the work-piece 25. There is, further, upon the table 1, a frame 26 adapted to be longitudinally displaced upon said table, the said frame supporting the wedges or models or patterns or the like, and carrying, besides, the chuck 24—27. The wedges or other models or patterns support the tiltable table 5 by means of rolls 32.

To move the frame 26, there is provided a spindle 29 being threaded having a female nut 30, as well as a small pulley connected by a belt with the pulley 28 secured to the hollow shaft 7 of the machine. Of course, any other means of rotating this shaft may be provided. In front of the guide-rolls 9, the cutter 33, the shaft 36 of which is journaled in a suitable bearing 37 attached to the side of the table 1 and is provided with a pulley 38 and a support 34 for the work-piece are provided. The work-piece is pressed upon the support 34 by means of a pressure-roll 35 carried by a support 39 attached to the side of the table 1.

The operation of the machine is as follows: The work-piece or the cue-bar 25 respectively is secured, with its thinner end, in the chuck 24—27 and thereafter the thicker end of the cue is introduced between the rolls 9. Then, the belt 8 is thrown into gear and the cutter 33 is made to rotate. The work-piece, or the cue-bar respectively, is thus turned and is longitudinally moved by the frame 26, or the equivalent of same, and, at the same time, the bar or cue is moved, or lowered respectively, by the mediation of the wedges or models or patterns 31 respectively, as well as

by the tiltable plate 5, completely corresponding to the conical or other shape of the model or pattern. The length of the chuck 24—27 is such that the chuck is capable of securely guiding the end of the work-piece 25 through the hollow shaft 7 to the cutter 33. If a work-piece, for instance the bar 25, shall be brought between the rolls 9, the poise or weight 22 is raised whereby the ring 16 is displaced and the levers 12 move in such a direction that the rolls 9 move away one from the other.

If in lieu of the wedge-shaped guide-pieces or model or pattern 31, as before described, another ledge or the like of uniform thickness is fixed to the frame 26, then a rod or bar of circular section, the thickness or diameter of which is uniform throughout its whole length, may be worked upon the machine, or by the device just described, without any change of the same. And if that model or pattern is provided with lugs or with cavities, as the case may be, then a correspondingly shaped bar may be manufactured in practically the same manner. Also a straight ledge so arranged as to be capable of being adjusted by means of a screw or the like may be employed for the manufacture of cues, the model or pattern formed by the straight ledge being then raised or lowered by means of said screw.

Having now described my invention what I desire to secure by a Patent of the United States is:

1. In a machine for manufacturing billiard-cues and smooth or shaped rods or bars of circular or similar section, the combination of a frame, models adapted to be attached to that frame, a chuck carried by said frame and adapted to receive one end of the work-piece, a tiltable plate, a guide-head arranged upon said plate a fixed support over which the work-piece is drawn by the chuck, a cutter journaled in a bearing attached to the table and located between the guide-head and said support and adjacent said support, and the arrangement being such as to tilt the tiltable plate by and according to said model, said chuck having a longitudinal movement relative to said guide-head, substantially and for the purpose as described.

2. In a machine for the manufacture of billiard-cues and smooth or shaped rods or bars of circular or similar section, the combination with a frame, models adapted to be attached to the frame, a chuck adapted to receive one end of the work-piece, a tiltable plate, a guide-head arranged upon said plate, a cutter located in front of the guide-head, means for moving the tiltable plate by and according to said model, said chuck being carried by said frame, the chuck and said guide-head having a relative longitudinal movement, the said guide-head consisting of a sleeve rigidly attached to the shaft of the machine, levers 12 carried by the sleeve and operating slides 10 carrying rolls 9 a disk 14 and ring 16 governing the positions of said levers and a bell crank lever 21 having a weight 22 yieldably maintaining the position of said disk 14 and ring 16.

In witness whereof I have hereunto set my hand in presence of two witnesses.

MAX EUGEN DANNENBERG.

Witnesses:
HENRY HASPER,
WOLDEMAR HAUPT.