H. C. BIERTUEMPFEL.

CORK CUTTING MACHINE.

APPLICATION FILED APR. 20, 1909.

1,010,579.

Patented Dec. 5, 1911.

3 SHEETS—SHEET 1.

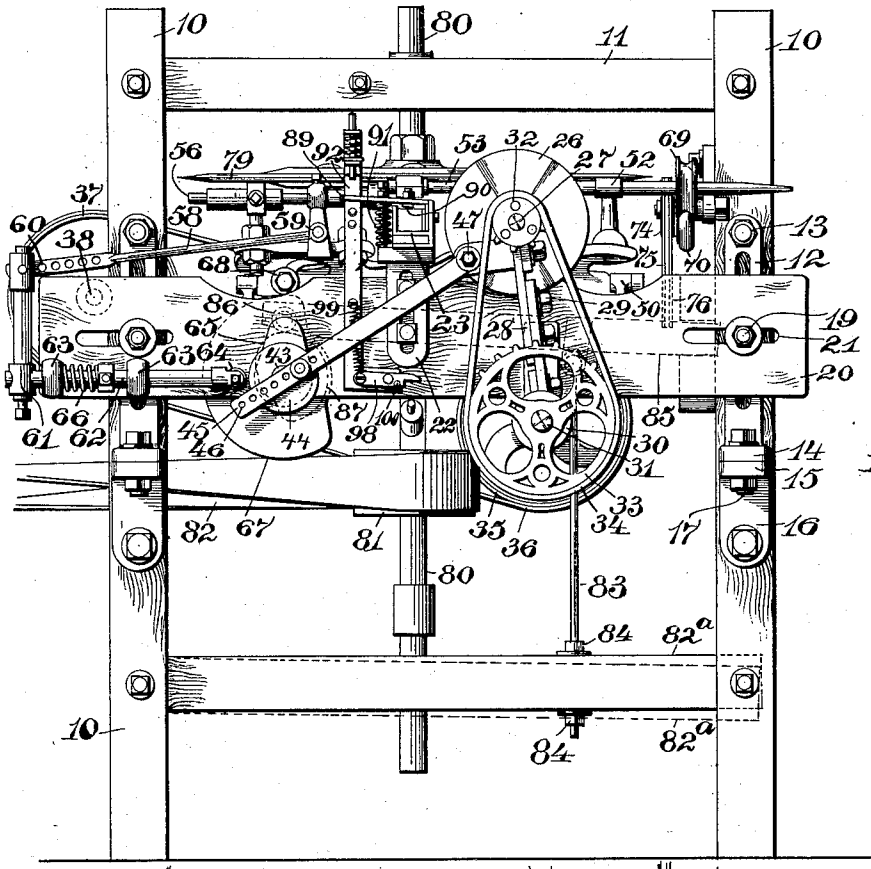


Fig. 1

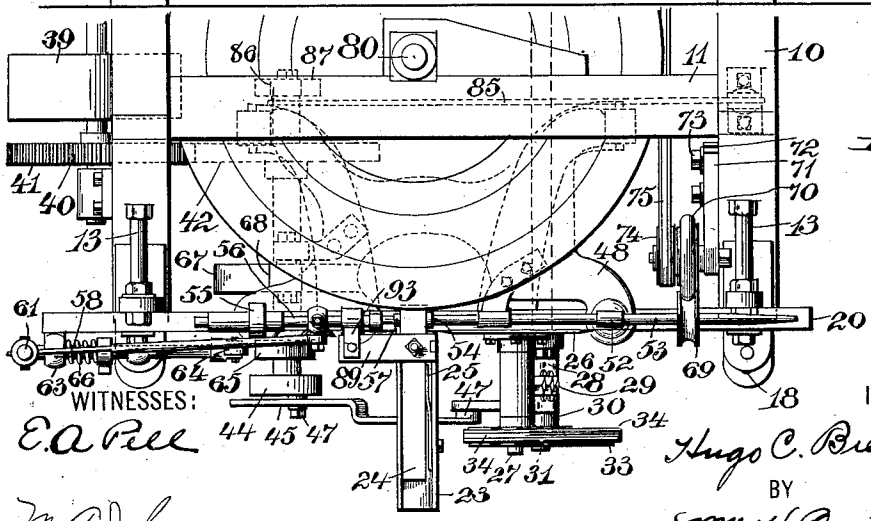


Fig. 2

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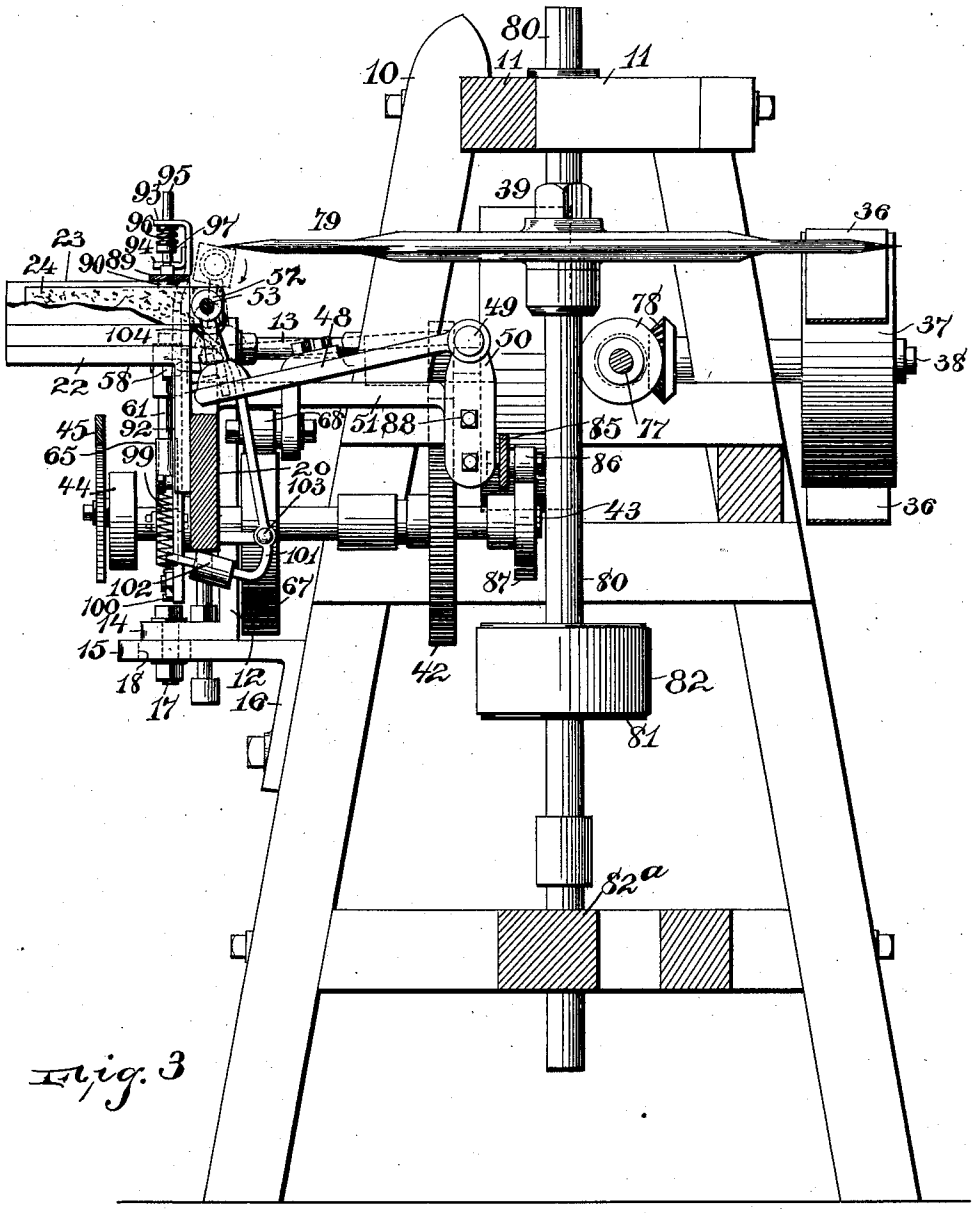


Fig. 3

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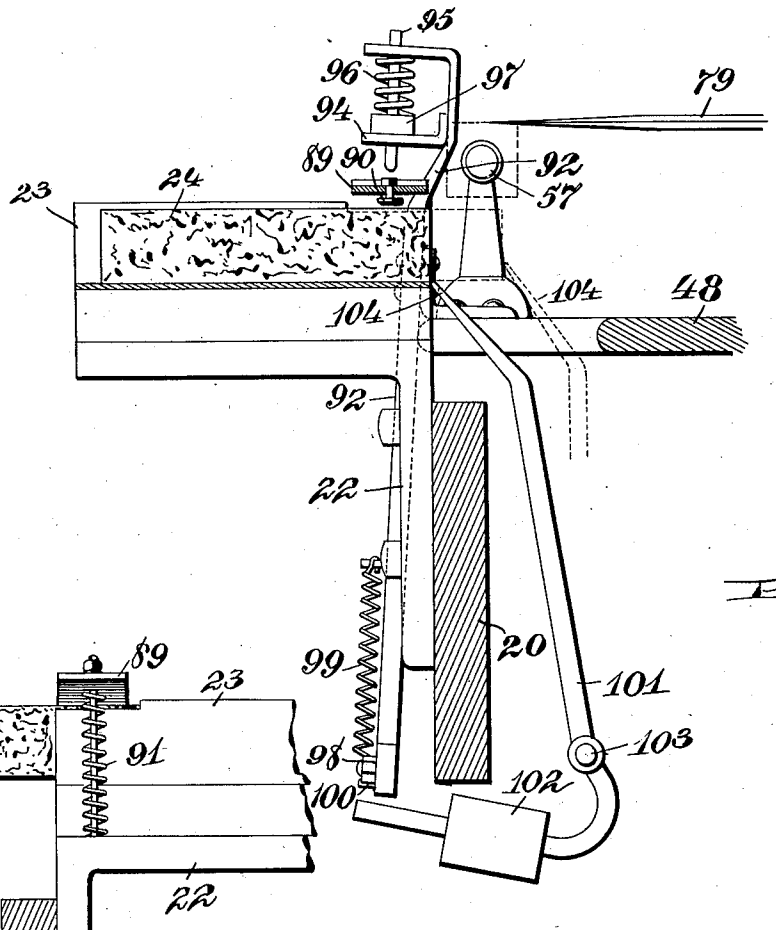


Fig. 4

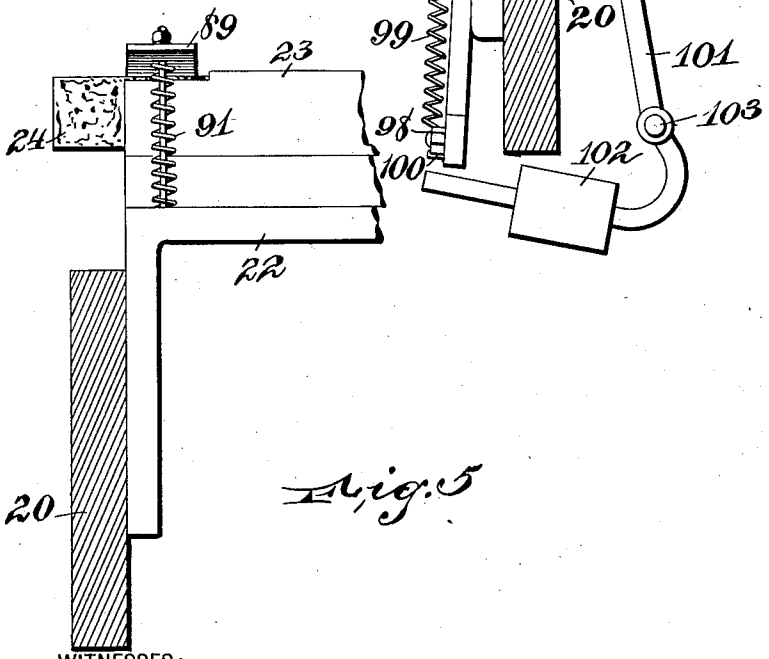


Fig. 5

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UNITED STATES PATENT OFFICE.

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CORK-CUTTING MACHINE.

1,010,579. Specification of Letters Patent. Patented Dec. 5, 1911.

Application filed April 20, 1909. Serial No. 491,084.

To all whom it may concern:

Be it known that I, HUGO C. BIERTUEMPFEL, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Cork-Cutting Machines; and I 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to an improved machine for cutting corks, and is designed to provide a machine in which strips of cork, of a width corresponding to what is to be the approximate length of the corks, are adapted to be fed, and cut off by a knife arranged to cut transversely of the strip into blocks that are approximately square, and then these blocks are grasped and lifted so that each block is fed up to a knife which is adapted to trim the block so as to make it round, the lifting device being in the form of a lathe that is inoperative when removed from the trimming knife, but which is operative when the cork is lifted to the trimming knife so that the cork is fed to the trimming knife while it is rotating.

The machine is further designed to provide a trimming knife having means for slowly feeding it toward the cork, so that the cork is cut to the required diameter and the cork is then automatically released and allowed to drop out of the machine.

Another improved feature of the machine is a lock on the feeding device so that while a cork is being cut it is impossible to feed the stock or strip of cork any farther.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a face view of the machine, and Fig. 2 is a top view of Fig. 1, but not showing the rear of the machine. Fig. 3 is a section through the machine, but showing the lathe and the trimming knife in elevation. Fig. 4 is a section of the trough and the surrounding mechanism taken on the center of Fig. 1 looking to the left, and Fig. 5 is a side view of the trough looking from the right of Fig. 1, these views being on an enlarged scale.

The device comprises a frame which consists of uprights 10 which are preferably arranged so as to lean toward each other at the top and connected at the top with a suitable cross-beam or beams 11. On the front uprights 10 are brackets 12, which are secured to screws 13 on which they are adjustable by means of suitable nuts on the screws, and having a flange 14 at the bottom resting on another flange 15 of a plate 16. This provides an adjustment from and toward the upright, since the bolt 17 passes through a slot 18. The bracket 12 is slotted, and through the slot in each bracket passes a bolt 19 which acts to secure to the brackets a plate 20 which is preferably of metal and is provided with the slot 21 on each end so that the plate 20 can be adjusted horizontally and also vertically. To the center of the plate 20 is secured a bracket 22, which bracket is slotted and thereby adjusted, by means of suitable bolts, to the plate, the bracket having, on its top, a trough shaped structure 23 through which the strip of cork 24 can be fed, the strip of cork being held against undue movement and vibration by a spring 25 secured to one side of the trough.

The strip of cork is adapted to be fed, preferably by the operator, so that a piece projects so that an approximately square portion is projecting from the inner end of the feeding trough. The knife 26, to sever the strip transversely so as to form it into rough corks, is rotatably arranged on the shaft 27, the whole device rocking on an arm 28 which is formed of two plates that are slotted and are adjustably held in engagement by the nuts 29, the arms being pivoted on a sleeve 30 on a shaft 31, and sprockets 32 and 33 are connected by a sprocket chain 34, although other means of transmitting the motion can be employed. This insures the turning of the transverse knife 26, the shaft 31 being operated by a pulley 35 connected in turn by a belt 36 with a pulley 37 on the drive-shaft 38. The drive-shaft 38 is provided with a pulley 39, illustrated in Figs. 2 and 3, which is adapted to be driven from any suitable shafting by a suitable belt. The drive-shaft 38 is provided with a gear 40 which meshes with a gear 41 which in turn drives a gear 42, which will be seen from Fig. 2. The gear 42 tends to rotate the shaft 43, which shaft carries the mechanism for elevating and lowering the lathe and for reciprocating the transverse knife 26. On the outer end of the shaft 43 is a disk or crank 44 which has secured thereto a link 45, the link being provided with a series of per-

forations 46 through any one of which it is adapted to be secured to the disk or crank 44 so that when the shaft rotates, the link, through a pivotal connection 47 with the rocking arm carrying the knife 26, causes the knife to be drawn across the cork strip at regular intervals to cut off a cork in the rough.

Projecting back from the plate 20 is a platform 48 of a lathe, the platform being pivoted at 49 onto plates 50 that are in turn secured to horizontal supports 51 which are fastened to the back end of the plate 20. On one side of the feeding trough and on the platform 48 are bearings 52 in which is adapted to rotate a shaft 53, which shaft is held against longitudinal movement and is provided on its end with a head 54 which is adapted to engage one end of the rough cork. The shaft just described is the shaft to rotate the cork after it is cut off and raised, the mechanism for doing the rotating being described hereinafter. On the other side of the platform, in the bearings 55, is a shaft 56, which shaft is adapted to slide and has a rotatable head 57 thereon, which head is adapted also to engage the cork, but on the side opposite to the head 54. When the platform 48 descends the shaft 56 is drawn backward to clear the cork that has been fed, the shaft being drawn back by reason of the rod 58 which is secured to a bar 59 on the shaft 56, and on its other end by means of the perforations 60 which make it adjustable to a standard 61, the standard being secured at the end of a rod 62 arranged in suitable bearings 63 on the plate 20, and having a roller 64 in its end, which roller is adapted to be engaged by a cam 65 on the shaft 43. The cam is so cut as to permit a slight movement of the rod 62 so that the shaft 56 is not drawn back to relieve the cork when the lathe is raised. When the platform has descended and the heads are in line to grasp a cork, the cam releases the roller 64 and permits a spring 66, acting against a collar on the rod 62, to force the shaft 56 to push the head 57 in engagement with the cork. The mechanism is so timed that after the cork has been fed and thus engaged by the heads on the shafts 53 and 56, the knife 26 is rocked on its arm so as to cut off a cork transversely of the strip, the cut piece being substantially rectangular in cross-section. The platform of the lathe is then lifted by a cam 67 mounted on the shaft 43, the cam supporting, by means of a roller 68, the platform 48 of the lathe.

When the platform is forced up, a pulley 69 on the shaft 56 is forced in engagement with a friction pulley 70 which is arranged in bearings on an arm 71 which is slotted as at 72 in Fig. 2, the slots receiving the bolt 73 to secure the arm and its friction drum in adjusted position. The friction drum 70 is constantly rotating by means of a sprocket wheel 74 over which passes a sprocket chain 75 which in turn is rotated by a sprocket 76. The sprocket 76 is arranged on the shaft 77 which is driven by a pair of gears 78, shown more particularly in Fig. 3. When the lathe is thus lifted the cork is at once rotated because the shaft 53 and its pulley are rotated by a pulley coming in close frictional contact with the friction pulley 70. The cork is thus lifted so that it is opposite the edge and is turned down by a trimming knife 79 which is rotated on a shaft 80 which is arranged in bearings suitably disposed on the cross-piece 11 and driven by a pulley 81 over which runs a belt 82 to a suitable source of power. The shaft 80 is tiltingly arranged in a cross-beam 82^a, which cross-beam is secured at one end and is free at the other so that it can be raised up and down to slowly elevate and depress the knife 79. The free end of the cross-beam 82^a is suspended by a rod 83 which is adjustable by reason of the nuts 84 being screwed on the rod 83. The rod 83 is fastened to a lever 85 pivoted at one end of the machine, and having its free end provided with a roller 86 which rests on the top surface of a cam 87, the cam being designed to permit the shaft 80 and the trimming knife to slowly descend when the cork gets in place, and the cork being rapidly rotated and the trimming knife slowly descending, the cork has a shaving taken off its periphery so that it becomes smooth and round, and is thus trimmed.

The two ends of the platform and the lathe are adjustable vertically by reason of the bolts 88 being arranged in slots in the support 51 so that the lathe can be slightly tilted to give the cork the necessary amount of taper.

The strip 24 is held against any accidental feeding by a plate 89 which is pivoted at one side of the trough 23, as will be seen from Fig. 2, and has an adjustable bearing piece 90 to bear on the strip of cork, the plate being normally forced upward by a spring 91 shown in Fig. 1.

When the platform of the lathe descends, it carries with it a strip 92 which is fastened to the platform and has at the top thereof a pair of forwardly projecting flanges 93 and 94 through which is adapted to reciprocate a rod 95 normally forced down by a spring 96 bearing against a collar 97 on the rod 95. This rod bears on the plate 89 when the platform of the lathe descends, and forces the friction piece 90 in contact with the strip of cork that is being fed so that there is no possibility of the cork being accidentally pushed forward, except when the cork previously cut has been finished and released. On the lower end of the strip 92 is a pivoted finger 98 which is normally forced with its end down by a spring 99,

and being limited in one direction by a pin 100. When the platform descends and the strip 92 comes with it, this finger 98 rides down and passes over the rod 101 which carries the weight 102, which rod is pivoted at 103 and has its upper end 104 made inclined and flat to receive the cork so that when the cork is released and drops it will be directed in its descent so as not to settle directly underneath the spot where it was cut. The platform of the lathe, when it rises to place the cork in place to be trimmed, carries with it the strip 92 and its finger 98 and lifts the weight 102 with its rod, and throws the end 104 of the rod out of the way until the finger has passed up to a point where the rod 101 and the finger 98 become disengaged, and then the weight 102 automatically acts to pull that end of the rod down again.

The drop of the cross-bar 82, supporting the trimming knife 79, can be regulated so as to take in and trim different sizes of corks, and almost any size cork can be made in the same machine by simply adjusting the machine as to the descent of the trimming knife and the size of the strip fed into the trough.

It will be understood that suitable guards are placed over the cutting edges and moving parts of the machine to prevent injury to an operator, and other attachments, such as a grinding device for the trimming knife and similar fixtures usually used in machines of this kind, can be placed on the machine as desired.

Having thus described my invention, what I claim is:—

1. A cork cutting machine comprising a frame, a trough adapted to receive a strip of cork and feed it to the machine, a knife, means for moving the knife across the strip of cork to successively cut it into blocks, a trimming knife, a lathe, means for operating the lathe to lift a cork cut from the strip to the trimming knife, a plate pivoted to one side of the trough and projecting across the trough and adapted to engage the cork, automatic means for forcing the plate in contact with the cork to lock the cork in the trough while the lathe is down, and means for raising the plate when the forcing means releases the plate and when the lathe is raised.

2. A cork cutting machine comprising a frame, a trough for guiding a strip of cork to the machine, a knife arranged to cut the cork successively into blocks, means for operating the knife, a trimming knife, a lathe, means for actuating the lathe to cause it to grasp a cut cork and conduct it to the trimming knife, a plate pivoted to one side of the trough and extending across the trough and the strip in the trough whereby the plate is adapted to engage the strip of cork, a spring for normally holding the plate out of engagement with the cork, and means actuated from the lathe for forcing the plate in engagement with the cork when the lathe is down.

3. A cork cutting machine comprising a frame, a trough for guiding a strip of cork to the machine, a knife arranged to cut the cork successively into blocks, means for operating the knife, a trimming knife, a lathe, means for actuating the lathe to cause it to grasp a cut cork and conduct it to the trimming knife, a plate pivoted to one side of the trough and extending across the trough and the strip in the trough, an adjustable bearing piece in the plate and adapted to engage the strip of cork when the plate is operated, a spring for normally holding the plate out of engagement with the cork, and means actuated from the lathe for forcing the plate in engagement with the cork when the lathe is down.

4. A cork cutting machine comprising a frame, a trough for guiding a strip of cork to the machine, a knife arranged to cut the strip of cork successively into blocks, a trimming knife, a lathe, means for raising the lathe to conduct a cut block to the trimming knife, a plate arranged to engage the strip of cork in the trough to lock it in position, means for normally holding the holding means out of engagement with the cork, and co-acting means between the lathe and the plate to cause the plate to lock the strip of cork when the lathe is down, permitting the cork to be released when the lathe is raised.

5. A cork cutting machine comprising a frame, a trough to receive a strip of cork and guide it to the machine, a knife arranged to successively cut the strip of cork into blocks, a trimming knife, a lathe for engaging the cut blocks and raising them to the trimming knife, means for raising and lowering the lathe, a plate pivoted to one side of the trough and extending across the trough and adapted to engage the strip of cork to lock it in position, a spring tending to normally force the plate away from the strip of cork, a strip secured to the lathe having flanges thereon, a rod arranged to slide in the flanges, the rod being adapted to engage the plate to lock the cork when the lathe is down, and a spring on the rod to prevent excessive pressure on the plate.

In testimony, that I claim the foregoing, I have hereunto set my hand this 15th day of April 1909.

HUGO C. BIERTUEMPFEL.

Witnesses:
WM. H. CAMFIELD,
E. A. PELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."