

F. A. THURSTON.  
MACHINE FOR SKIVING COUNTERS.  
APPLICATION FILED JAN. 25, 1911.

994,219.

Patented June 6, 1911.

2 SHEETS—SHEET 1.

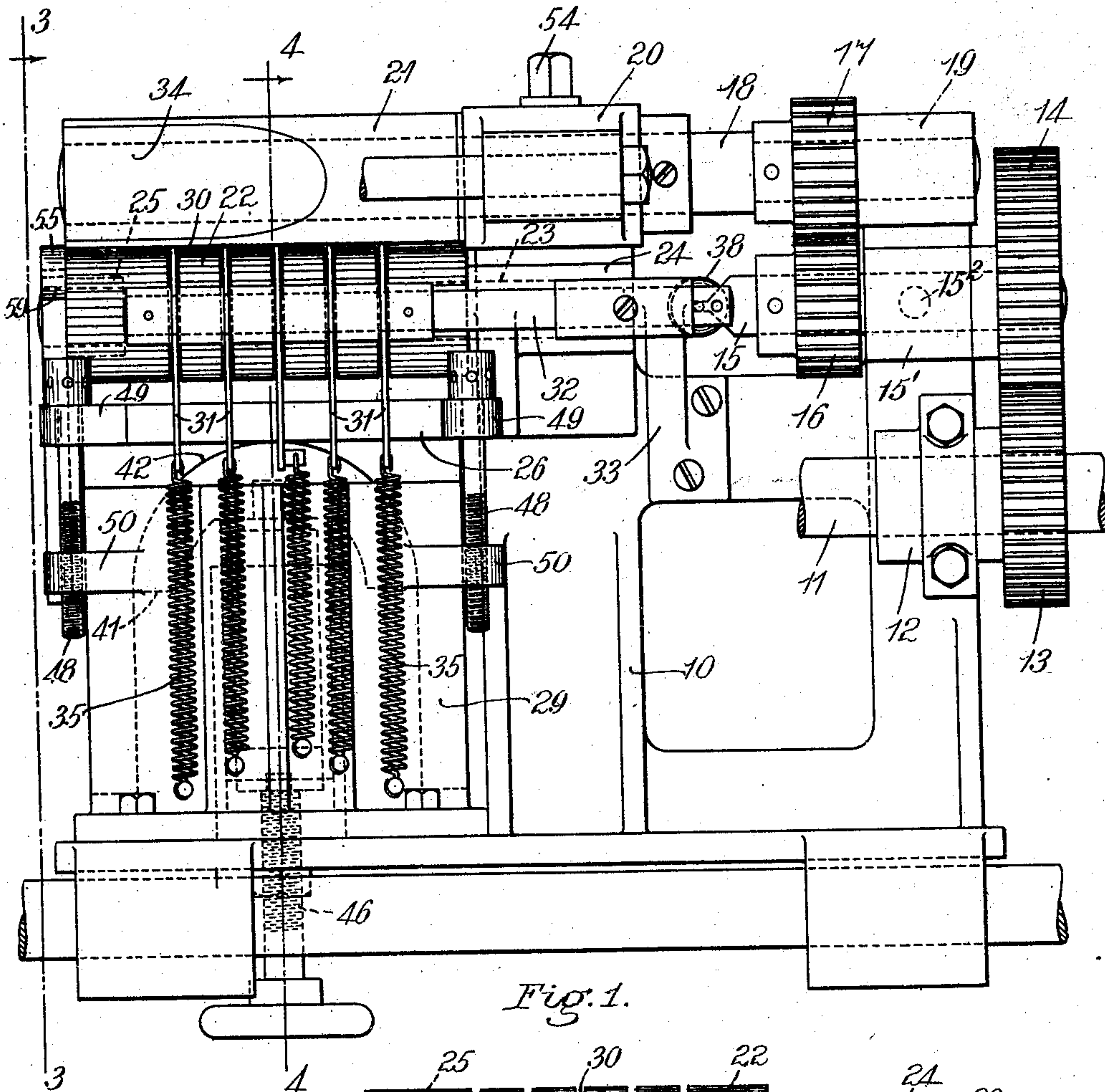


Fig. 1.

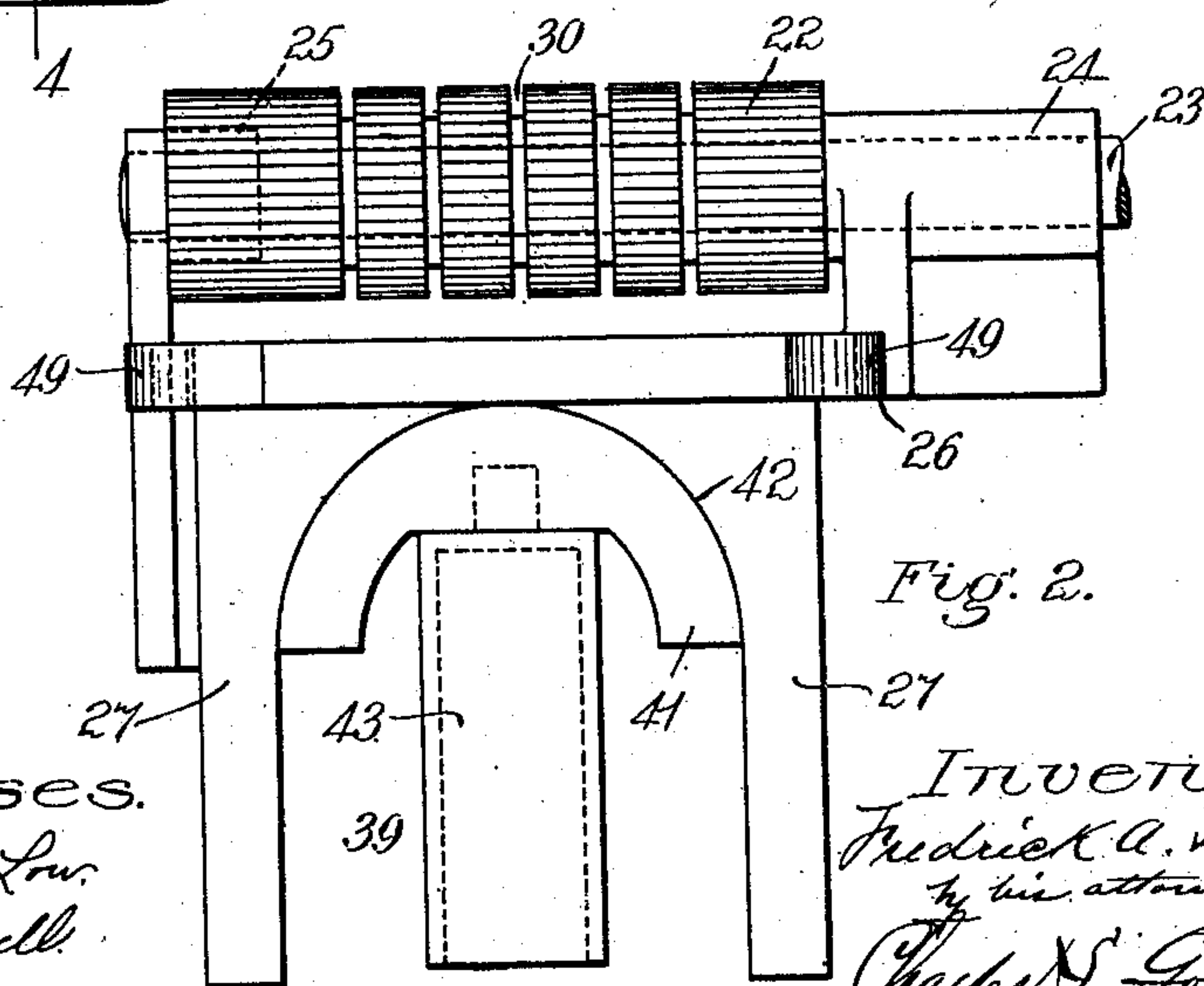


Fig. 2.

Witnesses.  
Franklin C. Low.  
Leonard H. Parrell.

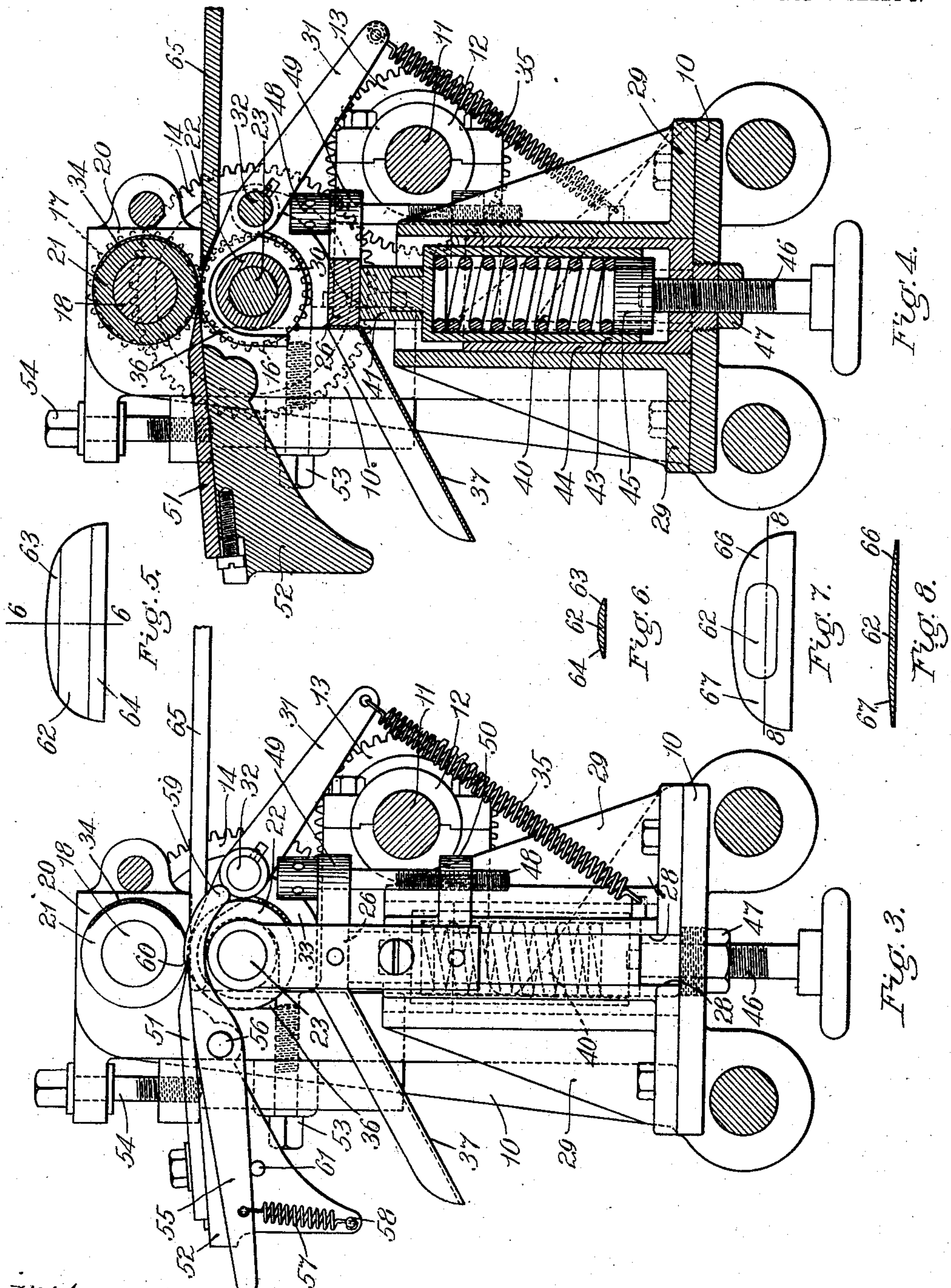
Inventor.  
Frederick A. Thurston,  
by his attorney,  
Charles V. Gooding.

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# UNITED STATES PATENT OFFICE.

FREDRICK A. THURSTON, OF LYNN, MASSACHUSETTS.

MACHINE FOR SKIVING COUNTERS.

994,219.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed January 25, 1911. Serial No. 604,576.

*To all whom it may concern:*

Be it known that I, FREDRICK A. THURSTON, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Machines for Skiving Counters, of which the following is a specification.

This invention relates to machines for skiving counters, box toes and the like, the machine in its entirety being what is known as a "twin" machine—that is a machine in which the counter is simultaneously skived along opposite ends.

While the machine is adapted to skive any article of curvilinear outline, the following specification is particularly set forth with relation to those articles of curvilinear outline which are known as "counters" for boots and shoes.

The object of this invention is to simplify the machine to support the lower feed roll in such a manner that, as it yields and moves downwardly when the counter passes between the rolls, it will be guided in such a manner as to preserve the same relation to the upper or matrix roll at all times as to its position longitudinally of said roll.

Further the object of the invention is to provide certain improvements in the bearing fingers, and also the object of the invention is to provide an improved means for supporting the counter adjacent to the inner ends of the feed rolls.

The object of the invention is still further to provide improved means for guiding the waste cut from the counter away from the feed rolls.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims.

In the drawings, the mechanism for skiving one end of the counter only is shown. The mechanism for skiving the opposite end of the counter is practically a duplicate in all respects, and, therefore, it is thought unnecessary to illustrate the same.

Referring to the drawings: Figure 1 is a front elevation of the right hand portion of my improved skiving machine showing some of the shafts broken away. Fig. 2 is a front elevation in detail of the shaft bearing slide

and follower. Fig. 3 is a sectional elevation taken on line 3—3 of Fig. 1, viewed in the direction of the arrow on said line. Fig. 4 is a sectional elevation taken on line 4—4 of Fig. 1, viewed in the direction of the arrow on said line. Fig. 5 is a plan view of the counter as it appears before being skived on my machine. Fig. 6 is a detail section taken on line 6—6 of Fig. 5. Fig. 7 is a plan view of the counter as it appears after being skived on my machine. Fig. 8 is a section taken on line 8—8 of Fig. 7.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10 is the frame of the machine, 11 the main driving shaft journaled to rotate in a bearing 12 on the frame 10. Said shaft has a gear 13 fast thereto which meshes in to a gear 14 fast to a shaft 15 rotatably mounted in a bracket 15' pivoted at 15<sup>2</sup> to the frame 10 and having fastened thereto a gear 16 which meshes into another gear 17 fast to a shaft 18, also rotatably mounted in bearings 19 and 20 on the frame of the machine.

The counter is fed into the machine in a manner well known to those skilled in the art between two feed rolls 21 and 22, the upper feed roll 21 being fast to the shaft 18. This upper feed roll has a depression in its periphery constituting a matrix. The lower feed roll 22 is fastened to a shaft 23 and this shaft is rotatably mounted in bearings 24, 25 forming a part of a slide frame 26. The slide frame 26 has two downwardly extending arms 27, 27 thereon which are adapted to slide in ways 28, 28 between two brackets 29, 29, which brackets are rigidly fastened to the frame 10 of the machine.

The lower feed roll 22 is provided in the usual manner with annular grooves 30, 30 and into these grooves project fingers 31, 31 pivotally mounted upon a shaft 32 fastened to a bracket 33 fastened to the frame of the machine. The fingers 32 are held against the counter to press the same into the recess 34 in the matrix roll 21 by springs 35, 35 in the usual manner. Said fingers are, however, extended downwardly at their free ends, as at 36, and form guides for the waste material after it has been skived from the counter which guide said waste material into a chute or trough 37 into which it drops



after having been skived from the counter, and said waste material is thus guided out of the machine and into a convenient box or other receptacle at the back of the machine.

5 The lower feed roll shaft 23 is connected by a universal joint 38 to the shaft 15, so that the lower feed roll may be moved upwardly or downwardly during the skiving operation in a manner well known to those skilled in this art. The lower feed roll is held up against the counter by a follower 39 and spring 40. The follower 39 (see Fig. 2) has a semi-circular bearing plate 41 at its upper end which fits in a correspondingly formed recess 42 in the slide frame 26. Said follower also has a hollow cylindrical sleeve 43 fast thereto which encircles the spring 40. The sleeve 43 is slidably mounted in a stationary hollow cylindrical bracket 20 44 fast to the frame 10 (see Fig. 4) between the two stationary brackets 29, 29. The upper end of the spring 40 bears against the upper end of the sleeve 43. The lower end of said spring bears against a cylindrical block 45 adapted to slide within the sleeve 43 and resting upon the upper end of a screw 46 having screw-threaded engagement with the lower end of the cylindrical bracket 44, said screw being locked in position by 30 a lock-nut 47. Thus by rotating the screw 46, more or less tension can be given to the spring 40, which spring, it will be understood, acts to hold the follower upwardly against the slide frame 26, and yields to 35 allow said slide frame to move downwardly as the counter is passed through between the upper and the lower feed rolls.

The distance to which the slide frame 26 can be moved upwardly is regulated by two 40 stop-screws 48, 48 which extend through ears 49, 49 on the slide frame 26 and have screw-threaded engagement with ears 50, 50 on one of the brackets 29 (see Figs. 1, 3 and 4).

45 The knife or cutter 51 is fastened to a knife block 52 which, in turn, is fastened to the frame of the machine by a screw 53 and is adjusted vertically by means of an adjusting screw 54 in the usual manner, the cutting edge of said knife projecting in the usual manner between the upper and lower feed rolls. Upon this knife block 52 is pivotally mounted a gage 55 by means of a stud 56 fast to said knife block. Said gage is 55 located at one end of the feed rolls and is adapted to bear against the surface of the counter which is to be skived by the knife and is held against said counter to support the same, where it is unsupported by the 60 rolls, by a spring 57, one end of which is fastened to said gage, as seen in Fig. 3, and the other end to a pin 58 fast to the knife block 52.

65 The gage 55 projects beyond the feed rolls toward the front of the machine at its free

end 59, as seen in Fig. 3, and has a shoulder 60 thereon which bears against the under side of the counter as it is being fed through the rolls. The shoulder 60 is for the purpose of enabling the operator to position the 70 edge of the knife correctly with relation to the feed rolls, the edge of said knife being preferably in alinement with said shoulder and, never being advanced between the rolls beyond said shoulder. The spring 57 draws 75 the gage 55 downwardly against a stop 61 when the counter has been fed past said gage by the feed rolls, as hereinafter described.

The general operation of my improved counter skiving machine is as follows: Assuming the counter 62 to be in the form 80 shown in Figs. 5 and 6—that is, with the portions of the sides 63 and 64 skived, the counter is placed on the table 65 and fed between the feed rolls 21 and 22. The fingers 85 31 act to press all that portion of the counter which is not to be skived into the recess 34 in the upper roll 21 and that portion which projects beyond the periphery of said feed roll is skived off by the knife 90 51 and is guided by the downwardly projecting ends of the fingers 36, 36 into the chute 37. The skived counter passes above the knife 51 and is then removed from the machine. In this skiving operation, that portion of the 95 machine illustrated in the drawings skives the end portion 66 of the counter, while the end 67 is skived by a like mechanism at the opposite end of the machine, hereinbefore referred to but not shown in the drawings. 100 That portion of the counter which projects beyond the inner ends of the rolls 21 and 22 on the left hand end of said rolls, as viewed in Fig. 1, is supported by the gage 55 and this gage rocks upon the pivot 56 to accommodate the different thicknesses of the counter at different parts thereof, or of different counters which may be fed through 105 between the rolls. Thus, while the gage 55 holds the counter up, it yields so as to accommodate itself to the counter in its varying positions and varying thicknesses, and also it will be particularly noted that if the counter is fed between the rolls at the wrong time through any mistake of the operator or 115 of the mechanism which may be used for automatically feeding said counters in between the rolls, then no harm will be done to the counter by the gage 55, on account of the same yielding to accommodate the varying positions of the under surface of the counter as it is fed through between the rolls. It will be noted that as the gage 55 is pivotally mounted on the knife block, any adjustment of the knife block upwardly or 125 downwardly will necessarily carry the gage 55 with it, so that said gage will always preserve the same relation to the edge of the knife and this is very desirable.

The advantage secured from mounting 130



the bearing slide 26 upon the follower 39, the said follower being guided to slide accurately upon the frame, is that said bearing frame is always held firmly in position and the lower feed roll 22 is necessarily also held firmly in position as to longitudinal movement relatively to the upper feed roll and, therefore, there is no tendency for the feed rolls to work the counter out of position longitudinally thereof.

It will be seen that while the bearing frame is pivotally mounted on the follower and is free to rock upon the plate 41 and about the pivotal universal joint 38, it is firmly held against any longitudinal movement and imparts to the whole construction an accuracy of movement even though the slide is so arranged as to automatically yield when the counters are fed through between the rolls, and also it will be understood that as the lower roll moves downwardly the shaft 15 will move slightly lengthwise thereof in the bearing 15' and that the bearing 15' will tip very slightly upon its pivot 15<sup>2</sup>.

Having thus described my invention, what I claim and desire by Letters Patent to secure is:

1. A machine for skiving counters and the like having, in combination, a pair of feed rolls, one of said rolls constituting a matrix, a slide in which the other of said feed rolls is journaled, and a spring-actuated follower upon which said slide is pivotally mounted.

2. A machine for skiving counters and the like having, in combination, a pair of feed rolls, one of said rolls constituting a matrix, a slide in which the other of said feed rolls is journaled, a spring-actuated follower and a circular bearing plate on said follower adapted to fit in a correspondingly formed recess in said slide, whereby said slide is pivotally mounted upon said follower.

3. A machine for skiving counters and the like having, in combination, a pair of feed rolls, one of said rolls constituting a matrix, a shaft to which the other of said feed rolls is fastened, a slide in which said shaft is journaled, a spring-actuated follower upon which said slide is pivotally mounted, a driving shaft pivotally connected to said feed roll shaft, and a pivotally mounted bearing in which said driving shaft is journaled.

4. A machine for skiving counters and the like having, in combination, a pair of feed rolls, one of said rolls constituting a matrix, a slide in which the other of said feed rolls is journaled, and a spring-actuated follower upon which said slide is pivotally mounted, said follower adapted to slide in ways on the frame of said machine.

5. A machine for skiving counters and the like having, in combination, a pair of feed rolls, one of said rolls constituting a matrix, a slide in which the other of said feed rolls

is journaled, a spring-actuated follower upon which said slide is pivotally mounted, and a stop adapted to limit the distance which said slide may be moved by said follower.

6. A machine for skiving counters and the like having, in combination, a pair of feed rolls, one of said rolls constituting a matrix, a yielding support upon which the other of said rolls is pivotally mounted, a knife with its cutting edge projecting between said rolls, a plurality of pivotally mounted fingers extending into annular grooves provided in the other of said rolls, adjacent the periphery of said matrix, resilient means acting to force said fingers toward said matrix feed roll, the free ends of said fingers extending downwardly at one side of said feed roll beneath said knife and constituting guides for the waste material cut by said knife from said counters.

7. A machine for skiving counters and the like having, in combination, a pair of feed rolls, one of said rolls constituting a matrix, a yielding support upon which the other of said rolls is pivotally mounted, a knife with its cutting edge projecting between said rolls, and a yieldingly mounted gage located at one end of said rolls adapted to bear against the surface of said counter which is to be skived by said knife.

8. A machine for skiving counters and the like having, in combination, a pair of feed rolls, one of said rolls constituting a matrix, a yielding support upon which the other of said rolls is pivotally mounted, a knife with its cutting edge projecting between said rolls, a gage pivoted at one end of said rolls adapted to bear against the surface of said counter which is to be skived by said knife, a stop, and a spring acting to hold said gage against said counter.

9. A machine for skiving counters and the like having, in combination, a pair of feed rolls, one of said rolls constituting a matrix, a yielding support upon which the other of said rolls is pivotally mounted, a knife block, a knife mounted thereon, with its cutting edge projecting between said rolls, and a gage yieldingly mounted on said knife block at one end of said rolls and adapted to bear against the surface of said counter which is to be skived by said knife.

10. A machine for skiving counters and the like having, in combination, a pair of feed rolls, one of said rolls constituting a matrix, a yielding support upon which the other of said rolls is pivotally mounted, a knife block, a knife mounted thereon, with its cutting edge projecting between said rolls, and a gage pivoted to said knife block adapted to bear against the surface of said counter which is to be skived by said knife.

11. A machine for skiving counters and



the like having, in combination, a pair of feed rolls, one of said rolls constituting a matrix, a yielding support upon which the other of said rolls is pivotally mounted, a  
5 knife block, a knife mounted thereon with its cutting edge projecting between said rolls, a gage pivoted to said knife block adapted to bear against the surface of said counter which is to be skived by said knife,

a stop, and a spring acting to hold said 10 gage against said stop.

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

FREDRICK A. THURSTON.

Witnesses:

CHARLES S. GOODING,  
DANIEL A. ROLLINS.

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

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