May 22, 1928.

1,670,657

S. M. FRIEDE

VENEER MACHINE

Filed Jan. 23, 1926

7 Sheets-Sheet 1

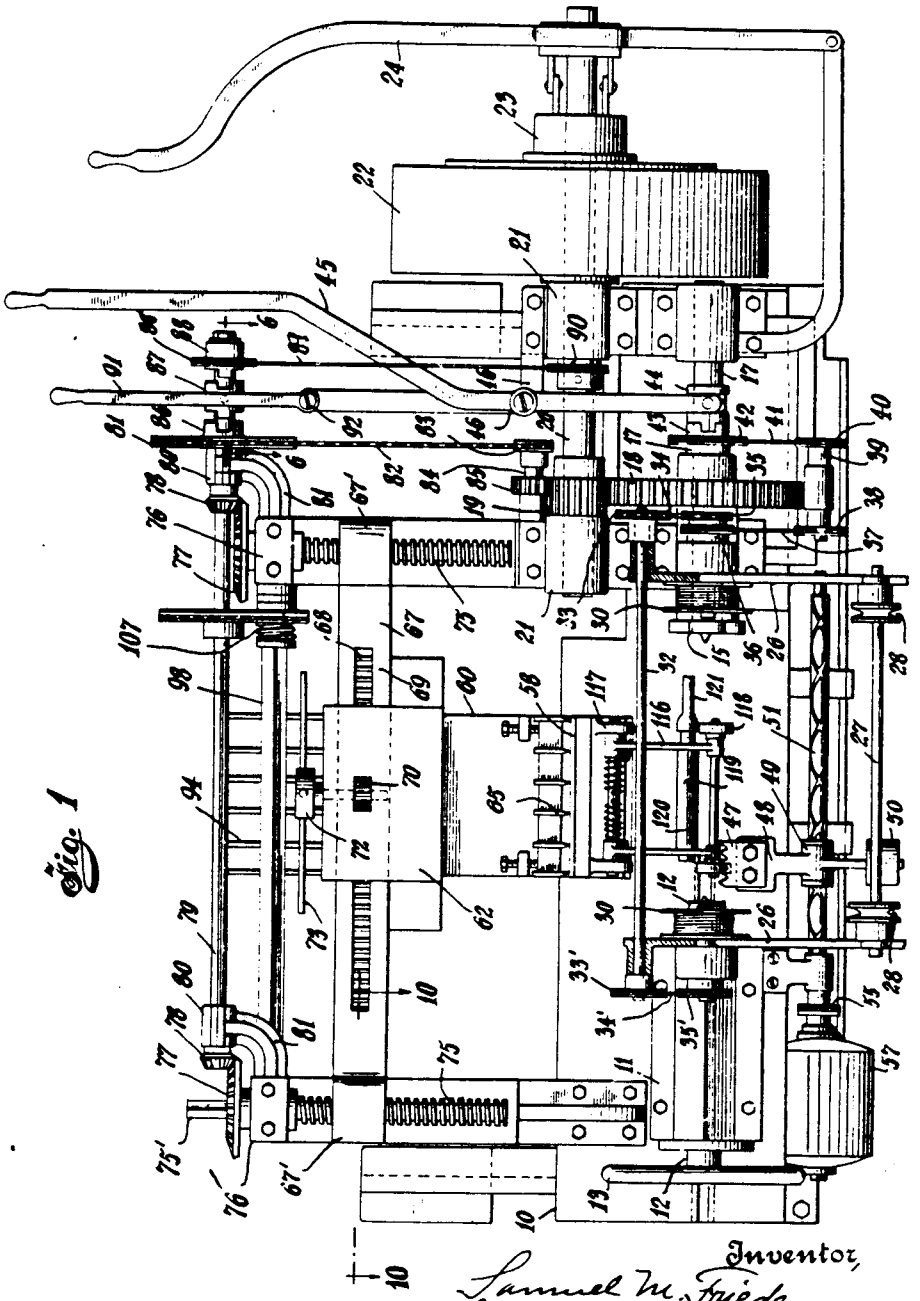


Fig. 1

Inventor,
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By his Attorney,
W. P. Hulsthmoore

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7 Sheets-Sheet 2

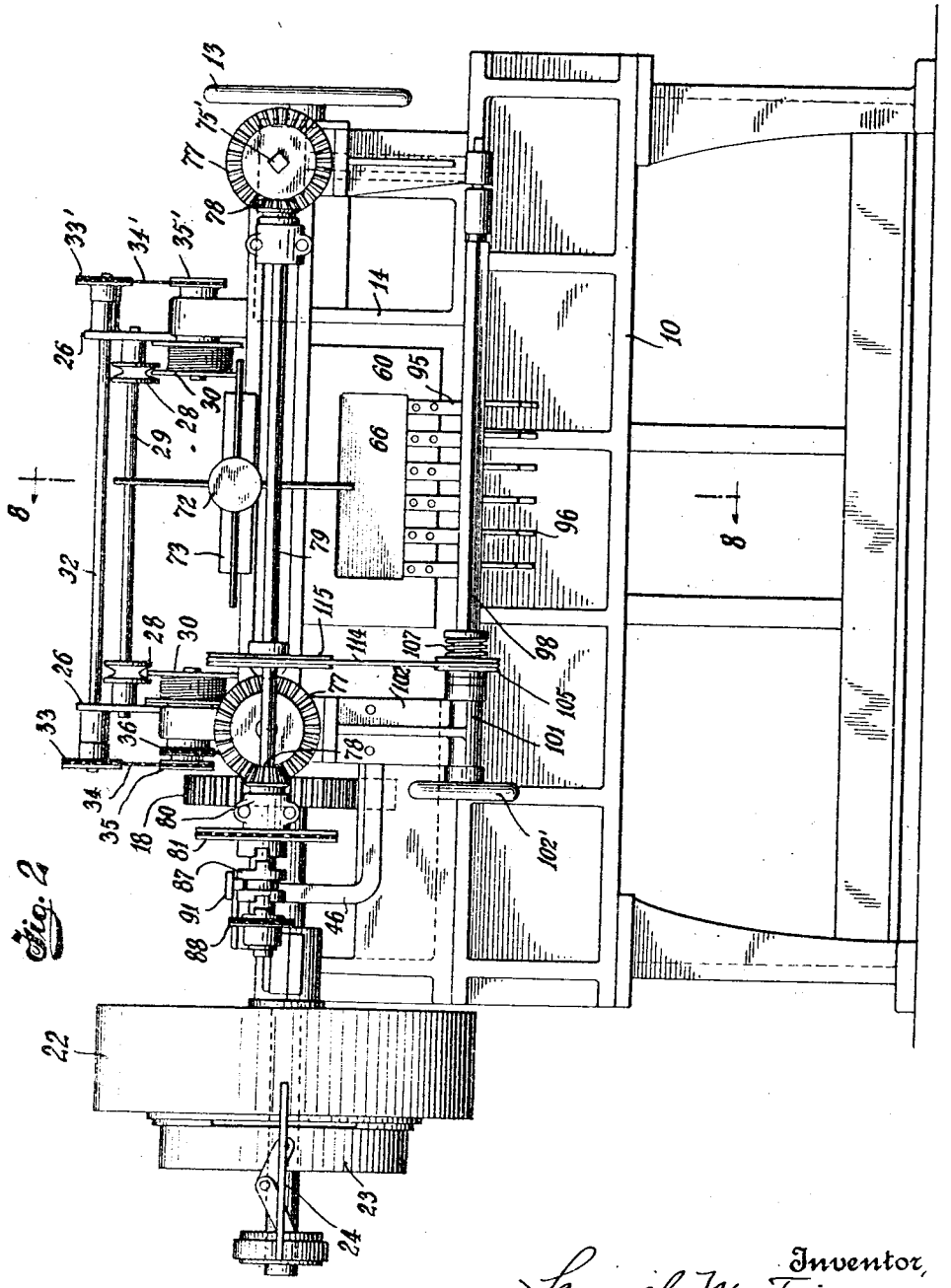


Fig. 2

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VENEER MACHINE

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Fig. 3

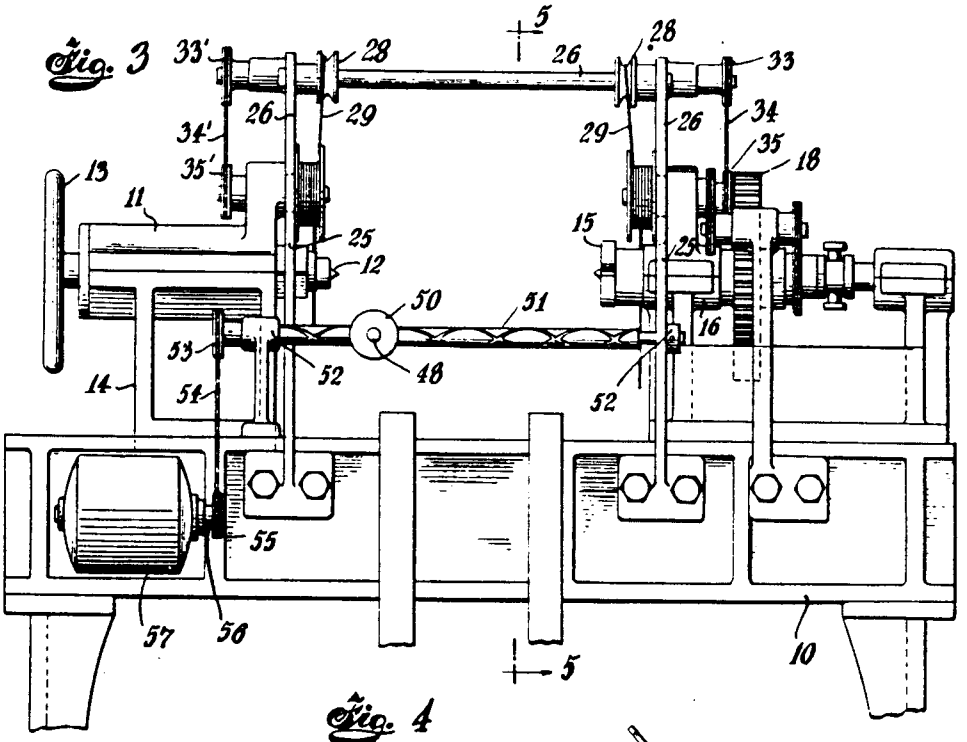
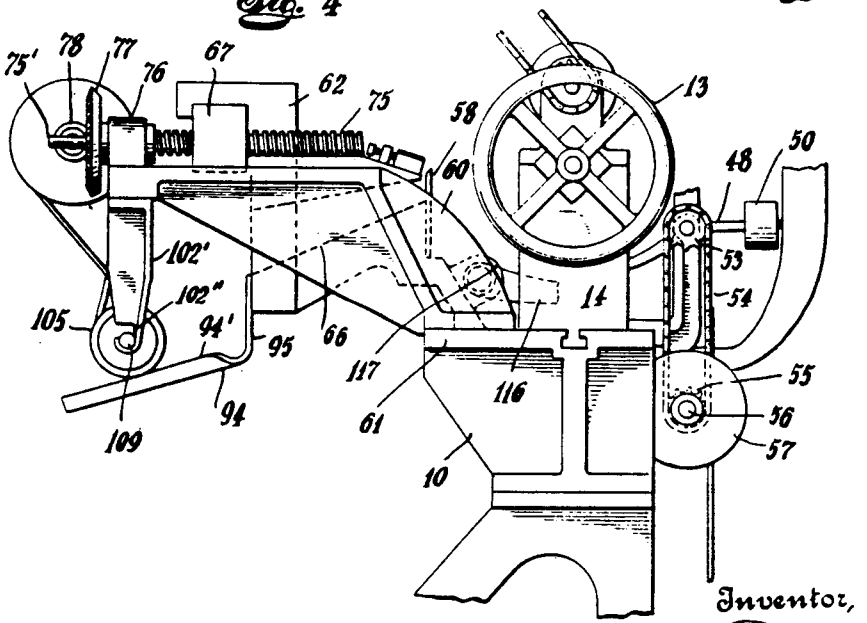


Fig. 4



Inventor,
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7 Sheets-Sheet 4

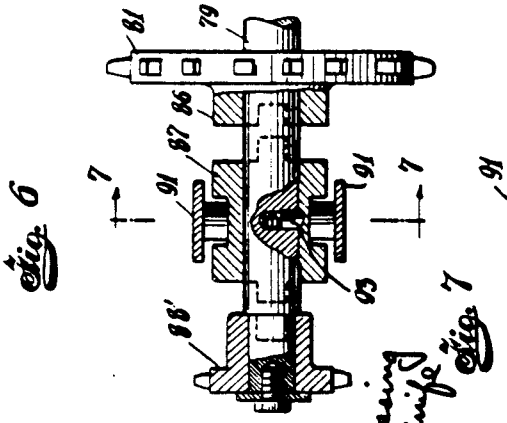


Fig. 6

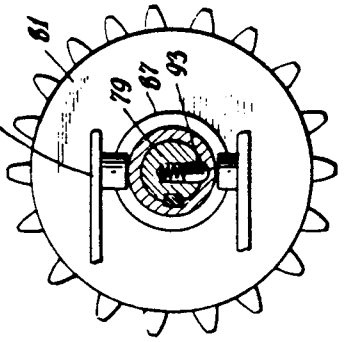


Fig. 7

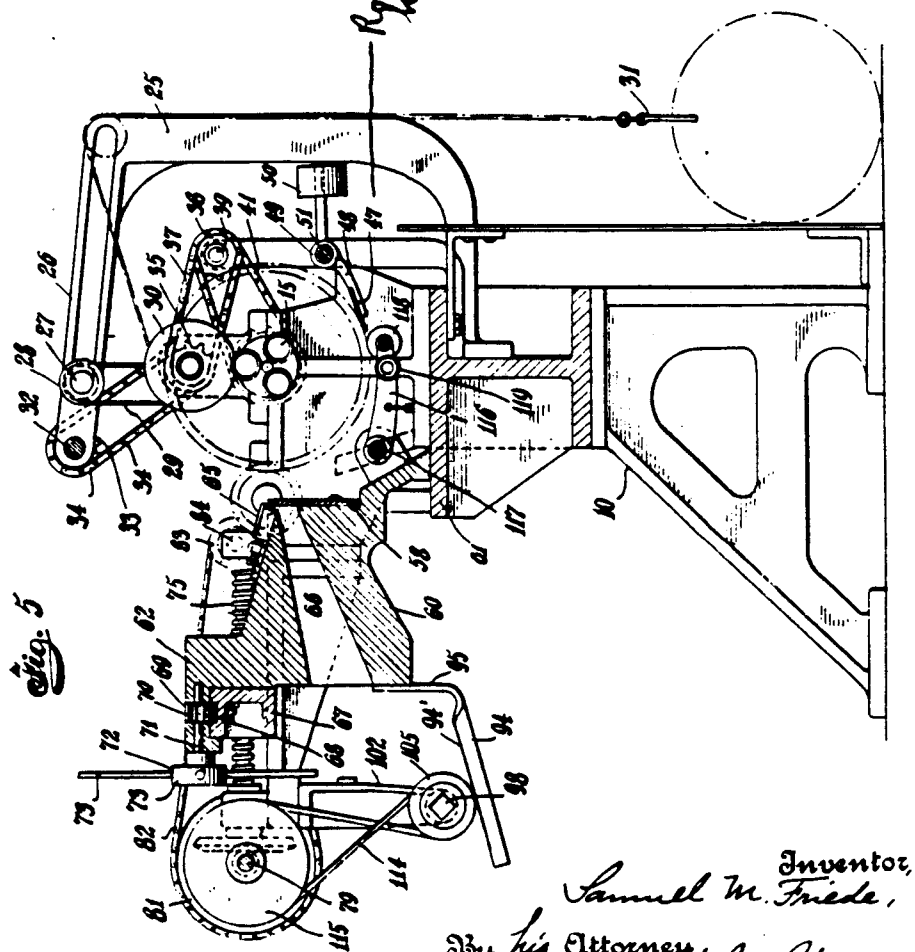


Fig. 5

Roaring knife 47 arranged below log

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Fig. 8

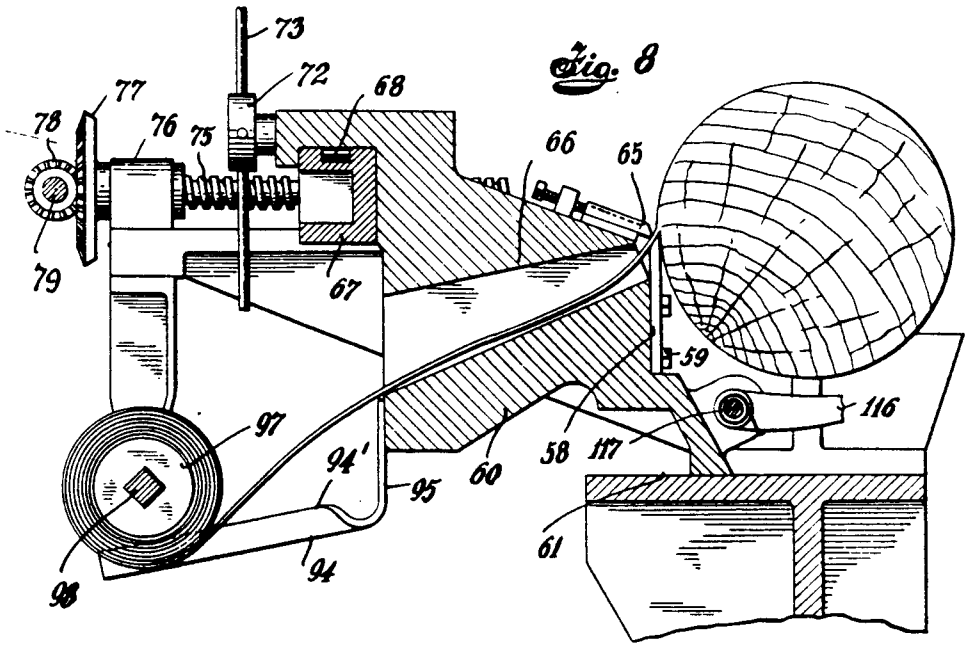
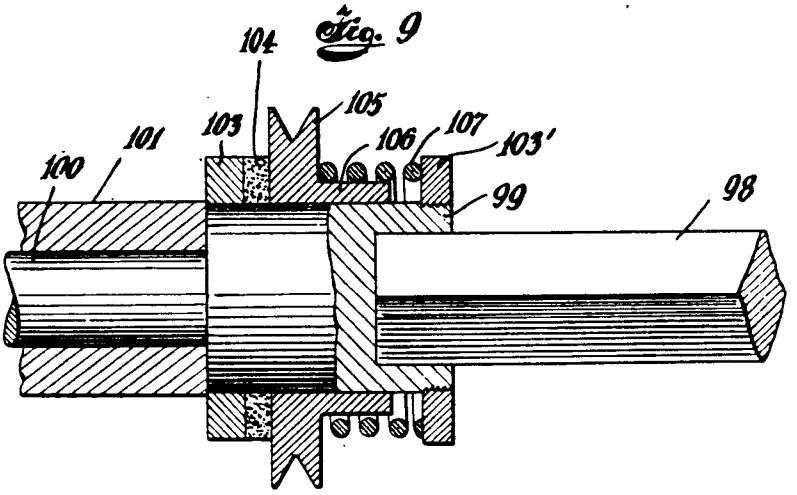


Fig. 9



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Fig. 10

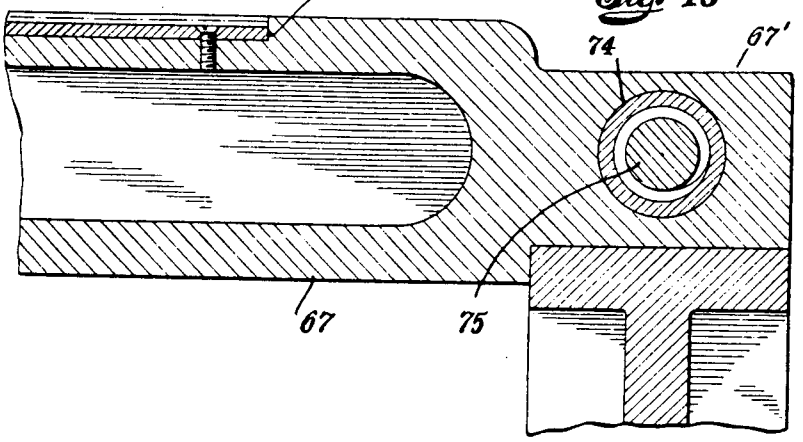


Fig. 11

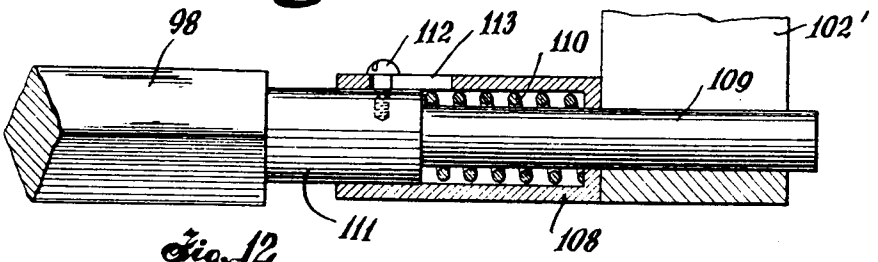
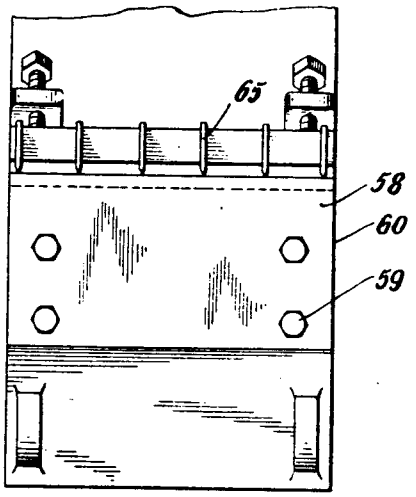


Fig. 12



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Fig. 13

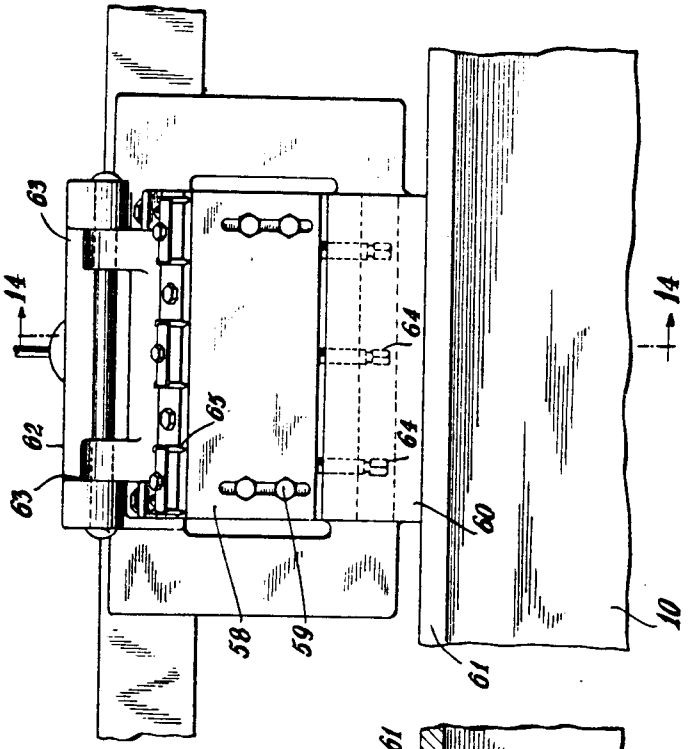
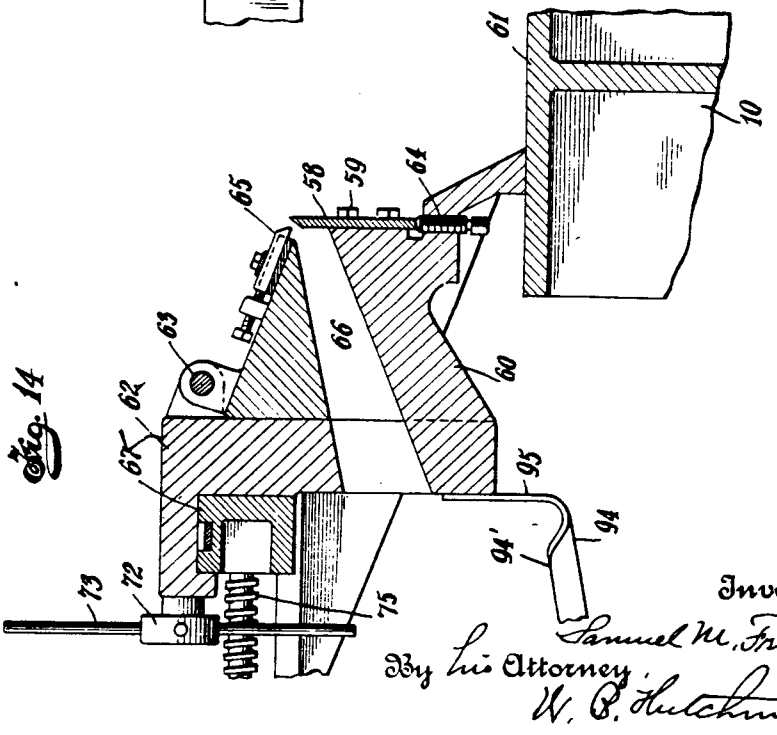


Fig. 14



Inventor,
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By his Attorney,
W. P. Hutchinson.

Patented May 22, 1928. 1,670,657

UNITED STATES PATENT OFFICE.

SAMUEL M. FRIEDE, OF NEW YORK, N. Y., ASSIGNOR TO AMERICAN SAFETY MATCH CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

VENEER MACHINE.

Application filed January 23, 1926. Serial No. 83,318.

My invention relates to improvements in rotary veneer machines or lathes such as are used for turning a log into veneer strips. The object of my invention is to produce a machine of this character which can be used to special advantage in preparing wood veneers for the manufacture of matches, toothpicks, or the like, although the machine can be used for turning veneers for any purpose. The invention is intended also to combine with the machine or lathe a convenient hoisting means by which a log can be quickly and nicely placed in the machine, thus facilitating the rapidity and ease of operation. The machine is further intended to provide an improved means for taking away the stock as it is turned, automatically rolling it for use, and to provide a rolling means and a means for supporting the rolls which will do the work nicely and without seriously breaking the stock which is rather brittle. The invention is further intended to provide means in combination with the turning mechanism for automatically rossing the log, that is removing the bark, and in this connection the rossing attachment is arranged below the log so that as the bark is cut away it will automatically fall away from the work. Another improvement relates to steaming the surface of the log as it is being cut. Such machines are used when the log is green, or when it has been steamed or soaked to render the wood soft and pliable, but in cold weather it often happens that the log is frozen, and where the log is not steamed it is frequently too dry to work to advantage.

In my improvement I arrange a steam pipe which can be used when desired and which runs directly on the surface of the log being cut, and discharges jets of steam against said surface so that the part which is being cut is automatically steamed as cut, and the necessity of separately steaming the log is avoided. My invention also embodies other features, the advantages of which will appear from the description which follows.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is a plan view partly in section of the machine embodying my invention.

Figure 2 is a front elevation thereof.

Figure 3 is a broken enlarged detail elevation of a part of the machine taken from the rear.

Figure 4 is an end view of the machine looking from the left hand in Figure 3.

Figure 5 is a cross section on the line 5—5 of Figure 3.

Figure 6 is a sectional detail on the line 6—6 of Figure 1, showing a means for temporarily locking one of the actuating levers.

Figure 7 is a cross section on the line 7—7 of Figure 6.

Figure 8 is a cross section on the line 8—8 of Figure 2 with parts removed and with a log in the machine.

Figure 9 is an enlarged detail section showing a means of mounting and turning one end of the coiling shaft.

Figure 10 is an enlarged detail section on the line 10—10 of Figure 1.

Figure 11 is a broken sectional elevation of a means for supporting the second end of the coil shaft.

Figure 12 is an enlarged detail showing the arrangement of the cutting device.

Figure 13 is a detail elevation of a slight modification of the machine, and

Figure 14 is a section on the line 14—14 of Figure 13.

The general arrangement of the machine is conventional, that is to say it is provided with a frame 10 of any suitable design, at one end of which is a tail stock 11 having a chuck or spindle 12, and a wheel 13 to operate the chuck or spindle, the wheel being mounted in a longitudinally sliding bracket 14. Spaced apart from the tail stock 11 is the head stock comprising the chuck 15 and its operating means, this being mounted in the bracket 16 and having its shaft 17 connected by gears 18 and 19 (see Figure 1) with a driving shaft 20. This is shown driven by a pulley 22 which is generally on veneer machines a clutch pulley having the clutch mechanism 23 operated by a suitable lever 24. All the foregoing is common to veneer machines.

To facilitate handling the stock I arrange a hoist in combination with the machine, and to this end spaced brackets 25 rise from the rear of the machine and have inwardly extending slotted arms 26 projecting over the head and tail stocks, so as to substantially align therewith. Through the slots of the arms 26 extends a shaft 27 hav-

ing guide rollers 28 thereon over which run the cables 29 from the spaced drums 30 (see Figure 1) on which the cables are wound. The cables connect with an ordinary or any preferred grappling hook 31 adapted to engage the ends of the logs. The drums for winding the cable and raising the logs can be operated in any convenient way, and when turned to wind up the cables, it will be seen that the log will be raised first to the top of the brackets 25 as shown by dotted lines in Figure 5, and then the shaft 27 will slide in the slots of the arms 26 and carry the log inward near the center of the machine where by lowering the cables, that is by permitting the unwinding of the drums, the log can be centered between the spindles or chucks of the machine.

As a means of turning the drums 30 I have shown a shaft 32 mounted at the inner end of the hoist brackets, that is at the inner end of the arms 26, this having sprocket wheels 33—33′ at the ends. The sprocket wheel 33 is driven by a chain 34 connecting with a sprocket wheel 35 on the shaft of one of the drums 30, which in turn is driven by a sprocket wheel 36 connecting by a chain 37 with a sprocket wheel 38 on the shaft 39 (see Figures 1 and 5), this shaft being suitably mounted and having a sprocket wheel 40 connecting by a chain 41 with the sprocket wheel 42 on the shaft 17 of the head stock. Thus power is transmitted from said head stock through the sprocket wheels and chains as stated to one drum 30, and also it is transmitted from the shaft 32 through a sprocket wheel 31′, chain 34′, and sprocket wheel 35′ to the second drum 30, and thus the two drums turn in unison. Obviously they may be driven in any other suitable way. It is desirable to have the hoisting means easily controlled, as it is only used for placing a log in the machine, and to this end the hub of the sprocket wheel 42 (see Figure 1) is provided with a clutch member 43 turning loosely on the shaft 17, but engaged by a complementary clutch member 44 keyed as usual to the shaft and operated by the lever 45, the latter being pivoted as at 46 and extending forward to the front part of the machine where it can be easily reached by the operator.

After the log is in the machine, the next operation is to ross it, that is to remove the bark and bring the log to substantially cylindrical form before the veneer knife starts to work. In my arrangement the rossing knife 47 is arranged so as to engage the under side of the log and thus the débris will automatically drop out of the way. The knife has preferably a serrated edge as its work is coarse and must be rapid. I prefer to have the knife attached to the rocking arm 48 which has a nut 49 to engage the double threaded feed screw 51, and which has at its outer end a weight 50 to hold the knife 47 in flexible engagement with the log on which it is operating, so that it can adapt itself to the irregularities of the log without gouging in too hard. The feed screw 51 for the rossing knife is arranged parallel with the main log supports, and is a conventional double acting feed screw engaging the nut 49 so to move it and the rossing knife backward and forward. The feed screw 51 is journaled in suitable supports 52 (see Figure 3) and is driven by means of a sprocket wheel 53 connecting through a chain 54 with a sprocket wheel 55 on the shaft 56 of a motor 57 which is supported on the machine frame. Thus the rosser is independently driven. I prefer this arrangement because it takes a great deal of power and it avoids the complication of having it operated from some other part of the machine. As arranged it will be seen that the motor can be started when the rosser is to be used and stopped when it is finished, and that the rossing knife can be moved out of the way of the log by simply tipping up the arm 48 on the feed screw.

The arrangement of the veneer cutting knife 58 is substantially as usual, that is to say it is held to the arm 60 forming a part of the carriage, moving parallel with the log, and having an in and out motion with relation to the log. The knife can be held by bolts 59 or the like, and is secured to the face of the arm 60 as shown clearly in Figure 8. The inner end of the arm 60 slides on the bed 61 of the machine frame, and the carriage portion 62 moves longitudinally of the frame as presently described. I prefer to have the arm 60 hinged to the carriage 62 as shown at 63 in Figures 13 and 14. In this case the carriage can be tilted up so that access to the knives is easier, and the main knife 58 can be adjusted by the set screws 64.

I have shown the usual arrangement of spur knives 65 which move in and out with reference to the log, and are adjustable as usual, these serving to cut the stock into strips of the desired width as it is turned.

In veneer machines generally the stock as cut passes between the cutter bar and a presser bar, or else is bent and carried away in some other fashion, and in any event it is strained, cracked, and often broken. To obviate this and facilitate the easy safe handling of the stock, I make an opening 66 through the arm 60 and carriage body 62 directly behind the main cutting knife 58, and of course behind the spur knives 65, so that the stock as cut will pass freely and easily through this opening without bending and without any essential disturbance. This is an important feature of the invention.

As illustrated the carriage 62 rides on a bar 67, this arrangement being common to veneer machines, and the bar is shown hollow for lightness. The bar has nut portions 67′ at the ends by which it may be moved in and out as presently described. The bar is slotted on top as shown at 69 (see Figure 1) and has a toothed rack 68 in the upper part thereof which is engaged by a pinion 70 turning on a shaft 71 (see Figure 5) and this shaft can be turned in any suitable way. As shown the shaft 71 has a head 72 with removable handles 73 therein by which it may be turned, and obviously when the shaft is turned, the pinion 70 engaging the rack 68 will cause the carriage 62 to be moved longitudinally of the machine.

The nut portions 67′ of the bar 67 are fitted with threaded bushings 74 (see Figure 10) which fit the feed screws 75, these being spaced apart and arranged substantially as usual in veneer machines, that is to say they are mounted in suitable bearings 76 and connect by means of gears 77 and 78 with a countershaft 79 (see Figure 1) and if desired a squared shank 75′ may be provided on one of the screws so that when necessary it can be turned by a wrench. Provision is made for feeding the carriage 62 in and out, and this can be done in any conventional way. I provide for a slow in-feed and a quick return. As illustrated the shaft 79 has a sprocket wheel 81 thereon driven by a chain 82 connecting with a sprocket wheel 83 on the shaft 84 which connects by a pinion 85 with the pinion 19 on the driving shaft 20. The hub 86 of the sprocket wheel 81 shows a conventional clutch arrangement for engaging the clutch member 87, which is also adapted to engage a clutch member 88 of the sprocket wheel 88′, this being driven by a chain 89 connecting with a sprocket wheel 90 on the shaft 20. The clutch member 87 can be moved into engagement with the sprocket wheel 81, thus turning the shaft 79 and feed screws 75 in a direction to move the carriage 62 inward, or the clutch can be thrown into connection with the wheel 88′, thus reversing the feed. The clutch member 87 can be operated by the lever 91 arranged like the conventional shipping lever, and pivoted at 92. I prefer to have the clutch member 87 provided with a spring pressed button 93 (see Figure 6) which will engage a corresponding socket in the clutch member and hold the member 87 in neutral position so that the feed will not be inadvertently started in either direction. The button 93 serves to hold the parts neutral, but when pressure is applied by hand to the lever 91, the button easily leaves its socket and permits the lever to be actuated.

When the stock passes through the guide slot 66 it is coiled on the yielding supports 94 which are of spring material and are attached by means of the gooseneck 95 to the back of the carriage 62. Each support is adapted to carry a coil of stock, and is turned up at one edge as at 94′ (see Figures 4 and 8) this turned up portion serving to enter between forming coils and keep them separated. I also preferably arrange plates 96 between the coils in order that they may be kept straight.

As the stock passes from the guide slot 66, it is wound on spools 97 carried by the shaft 98 (see Figures 4, 5 and 8). This shaft is driven in a manner to coil the stock up as fast as it is formed, but the stock is wound at varying speeds, owing to the varying size of the coils into which it is rolled. To compensate for this, and to prevent the stock from being broken, I provide a slipping driving connection for the shaft 98 so that as the stock tightens the drive will slip before the stock will break. To this end one end of the shaft 98 enters a socket member 99 (see Figure 9) which is carried by a shaft 100, this being mounted in a suitable bearing 101 at the lower end of the bracket 102. There are two of these brackets spaced apart, and one which I have marked 102′ (see Figure 4) has a hook 102″ at the bottom so that the shaft which it carries can be easily removed if desired. The socket member 99 is threaded at one end as shown in Figure 9 and receives a nut 103′. The other end has a collar 103 next which is a layer of felt, fibre, or the like 104, and next this is a driving pulley 105, the hub 106 of which has a spring 107 coiled around it and between the pulley 105 and the nut 103′, so that by adjusting the nut, the spring 107 can be adjusted, and so the point at which the wheel 105 will slip can be determined.

The second end of the shaft 98 enters the socket 108 (see Figure 11) carried by the bracket 102′. The shaft 98 has a recessed end 109 resting in the hook 102″, and within it is a spiral spring 110 pressing against the part 111 of the shaft 98. A set screw 112 is entered in the part 111 and slides in a slot 113 extending lengthwise of the socket 108 so that the shaft 98 can be pushed endwise and is held under spring tension at each end. The shaft 98 is driven by a belt 114 (see Figure 5) which runs on the pulley 105 and connects with a pulley 115 on the shaft 79 already referred to.

It is sometimes desirable to steam the surface of the log which is being veneered, either to remove frost, or to soften the surface, and to this end I provide a swinging frame 116 which is hinged in a manner to be pressed against or substantially against the log which is being turned. The frame can be hinged conveniently as shown at 117 to the arm 60 of the carriage 62, so that its relation to the log will be constant as the log is reduced in size under the veneering opera-

tion. The frame 116 is preferably provided with rollers 118 to run on the log and it carries a pipe 119 with jet openings 120 therein (see Figure 1) and with a flexible pipe 121 which can connect with a source of steam supply. Thus as the log is turned the outer surface which is gradually changing, will be softened by the constant application of steam, and this is fully as effective as if the entire log had been subjected to the long troublesome and expensive steaming operation.

From the foregoing description it will be seen that so far as the general operation of turning a log and cutting it into veneers is concerned, my machine is substantially as usual, but it will also be noticed that the machine has attachments and structures which render it far more effective than the ordinary veneer lathe. First the rossing is accomplished without the necessity of putting the log in a separate machine, and in a way to have the débris drop out of the way; provision is made for easily placing the log in the machine; and provision is also made for effectively coiling the turned stock, for delivering it uninjured to the coiling apparatus, for steaming it, and generally for quickly turning out good stock in convenient form for use. It will also be noticed that the parts are all under easy control, and while I have shown complete driving connections for all the different parts, it will be understood that these may be changed at will without affecting the invention.

I claim:—

1. A veneer machine having means for turning and veneering a log and for cutting it into a plurality of strips, an automatic winder for winding the several strips into rolls, and yieldingly mounted supports extending beneath the rolls and on which the rolls ride bodily.

2. A veneer machine having means for turning and veneering a log, an automatic winder for winding the turned stock into a roll, a yielding support extending beneath the roll and on which the roll rides bodily, and a slipping driving connection for the winder.

3. A veneer machine having means for turning and veneering a log and for cutting it into a plurality of strips, an automatic winder for winding the severed strips into rolls, a slipping driving connection for the winder, and yieldingly mounted supports extending beneath the rolls and on which the rolls ride bodily.

4. A veneer machine having means for turning and veneering a log and for cutting the stock into a plurality of strips, a rotatable winding device to wind the strips into rolls, and supports for the rolls, said supsports having a yielding connection with the machine carriage and having upturned flanges which enter between and separate the lower portions of the rolls.

5. A veneer machine having means for turning and veneering a log and a rossing knife spaced apart from the veneer knife and arranged to engage the under side of a log in the machine, whereby the débris falls clear of the operating parts of the machine.

6. A veneer machine having means for turning and veneering a log, a rossing knife spaced apart from the veneer knife and engaging the under part of the log, means for reciprocating the rossing knife, and means for adjusting the knife with relation to the log.

7. A veneer machine having means for turning and veneering a log, a reciprocating rossing knife spaced apart from the veneer knife and engaging the under part of the log, and means independent of the machine driving means for driving the rossing knife.

In testimony whereof, I have signed my name to this specification this 18th day of January, 1926.

SAMUEL M. FRIEDE.