No. 750,897. PATENTED FEB. 2, 1904.

F. K. RUSSELL.

BORING MACHINE.

APPLICATION FILED OCT. 9, 1902.

NO MODEL.

Fig. 1

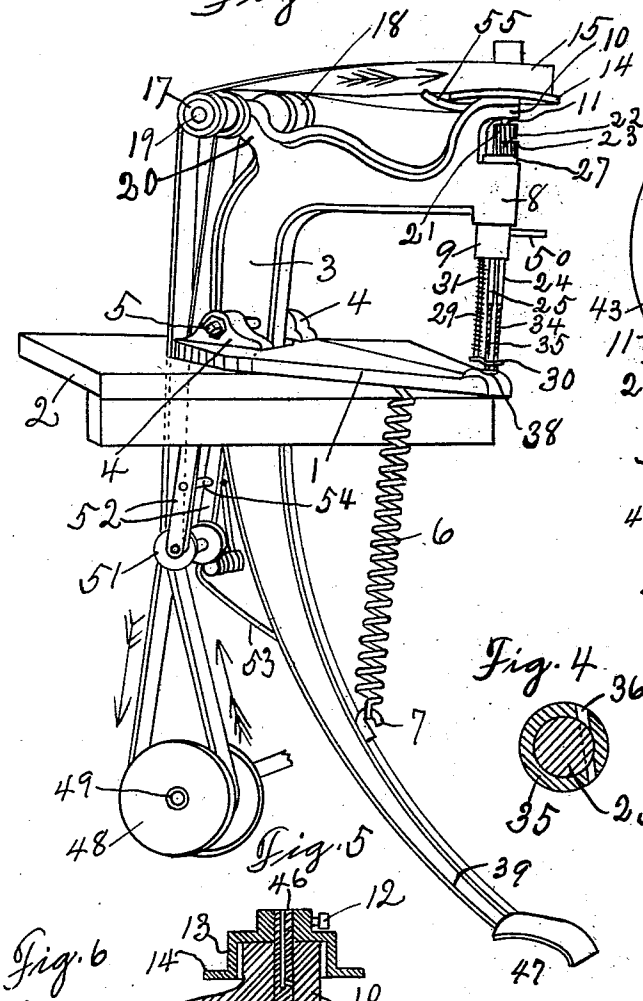


Fig. 2

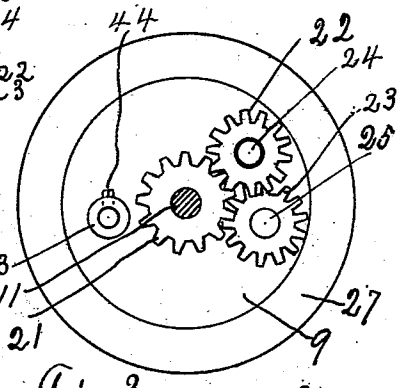


Fig. 3

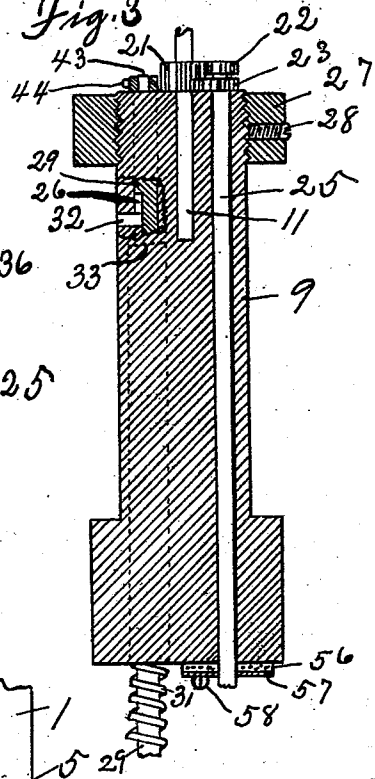


Fig. 4

Fig. 5

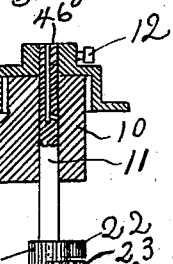


Fig. 6

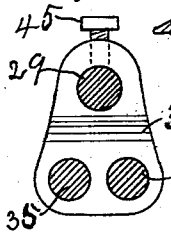
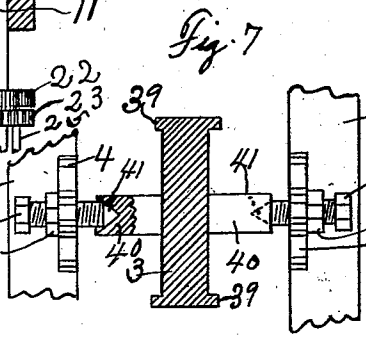


Fig. 7



Witnesses:-

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No. 750,897. Patented February 2, 1904.

UNITED STATES PATENT OFFICE.

FRANK K. RUSSELL, OF DALLAS, TEXAS.

BORING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 750,897, dated February 2, 1904.

Application filed October 9, 1902. Serial No. 126,555. (No model.)

To all whom it may concern:

Be it known that I, FRANK K. RUSSELL, a citizen of the United States, residing at Dallas, Texas, have invented certain new and useful Improvements in Boring-Machines, of which the following is a specification.

This invention relates to boring-machines, and more particularly to boring-machines for the use of saddle-manufacturers; and the object is to construct a practical machine which will bore two holes at once and in a very short time and return and stop automatically, which is provided with means for instantly adjusting the bits so that holes may be bored in the saddletrees without weakening the same, and which is provided with means for holding the leather and other parts firmly which are being bored and for cleaning the bits of any wool or other fibrous material when the bits are withdrawn from the holes.

Other objects and advantages will be fully explained in the following description and claims.

Reference is had to the accompanying drawings, which form a part of this application and specification.

Figure 1 is a perspective view of the complete machine. Fig. 2 is a plan view of the spindle-carrier and the driving-gear for the spindles, the driving-shaft being shown in section and the view being taken just below the bearing 10 of the machine-frame. Fig. 3 is a vertical section of the spindle-carrier, showing parts broken away. Fig. 4 is a horizontal section of one of the spindles and the bit, illustrating the manner of securing the bit-shank in the socket of the spindle. Fig. 5 is a broken vertical section of the driving-pulley and its bearing. Fig. 6 is a plan view of the presser-foot. Fig. 7 is a horizontal section of the swinging frame and a broken view of the frame-base, illustrating the manner of mounting the swinging frame.

Similar characters of reference are used to indicate the same parts throughout the several views.

The machine is mounted in a base 1, which may be set on any suitable table or bench 2. The machine is provided with a swinging frame 3, which is pivotally mounted in the base 1, which frame carries all the operative and operating mechanism. The base is provided with upwardly-projecting bearings 4, and the frame has a hub 40 projecting from each side thereof. These hubs have funnel-shaped recesses in the ends for the pivot-bolts. The pivot-bolts 5 are threaded and pass through the bearings 4, and have points 41, which engage the hubs 40. The bolts 5 are held in place by the jam-nuts 42, and are adjusted by means of the threads in the bearings 4. The swinging frame 3 must have the hubs 40 of some length in order to hold the bits in proper adjustment. The only other support the swinging frame 3 has is the spring 6, which is attached to the base 1 and to the lower part of the swinging frame 3 by means of the hook 7, the spiral spring 6 serving as a means for holding the swinging frame 3 in its normal position when not in use. The upper forward part of the swinging frame 3 is provided with a bearing 8 for the spindle-carrier 9 and a bearing 10 for the driving-shaft 11. A pulley 13, having a flange 14 on the lower edge thereof to support the driving-belt 15, is mounted on the driving-shaft 11 and is secured thereon by the set-screw 12, which passes through the wall of the hub of the pulley 13. On the upper back part of the frame are mounted two idlers 17 and 18, over which the belt 15 runs. The idlers 17 and 18 are mounted on the shaft 19, which has a bearing in the lug 20, which is formed integral with the swinging frame 3. The pulley 13 drives the shaft 11. A gear-wheel 21 is mounted on shaft 11 to drive the spindle-gearings 22 and 23, which are mounted on the spindles 24 and 25. These spindles are so close to each other that one of the gears for these spindles must be mounted above the other, both being driven by the cog-wheel 21. In the drawings the wheel 22 is shown above the wheel 23, the cogs on the wheel 21 being wide enough to permit this adjustment. The shaft 11 has a bearing-socket in the upper part of the spindle-carrier 9. The spindle-carrier 9 is secured in the bearing 8 by means of a nut 27, which is secured on the carrier 9 by a set-screw 28. The carrier 9 carries the spin-

dles 24 and 25, and the shaft or stem 29 of the presser-foot 30. The shaft or stem of the presser-foot is provided with a spiral spring 31, wound thereon. This spring holds the presser-foot yieldingly down.

Fig. 3 illustrates the construction of the spindle-carrier. From this figure and Fig. 2 the arrangement of the spindle-driving gear can be understood. The spiral spring 31 extends as high up around the stem 29 as the dotted-outline shoulder 33. One part of the carrier 9 is broken deeper to show a key 32, which prevents the stem 29 from turning. The stem 29 has a groove 26 therein, which forms a key-seat for the key 32. This key-seat must be as long as the bits 34 and 35. Each spindle 24 and 25 carries a bit. The spindle 24 has a bit 34, and spindle 25 has a bit 35. In Fig. 4 is illustrated the manner of fastening the bits in the socket in the spindle. A pin 36 passes through the wall of the spindle 25 and through a notch in the bit 35. The presser-foot stem is held in the carrier 9 by means of a set-collar 43, which is held on by a suitable pin 44. The presser-foot 30 is held on the stem 29 by means of a set-screw 45.

Fig. 6 shows the relative positions of the stem 29 and the bits 34 and 35. The bearing 10 is oiled by means of a duct 46, which is made down in the shaft 11 to a suitable depth, with branch ducts leading to the surface of the shaft 11, so that the centrifugal force will throw the oil to the surface of the shaft 11 and come in contact with the bearing 10.

The machine is set in motion by a simple pressure of the foot upon the foot-piece 47 of the swinging frame. The base 1 has a round cut-out 38 for the bits, and this cut-out must be large for the entire sweep of the bits as they may be adjusted by the carrier 9. The carrier 9 is provided with a handle 50 for convenience in adjusting the carrier. The machine may be driven by any suitable power. The belt 15 runs on the pulley 48, mounted on the shaft 49. The arrow-heads indicate the direction of the belt. A spring-pressed idler 51 is mounted in swinging bearings 52. A spiral spring 53 has one end 54 passing through the arms of the bearings 52 and the other end attached to the swinging frame 3. The upgoing part of belt 15 is engaged by the idler 51. In the normal position of the machine the belt 15 stands slack. When the machine is to be put into operation, pressure is applied with the foot to the swinging frame 3 on the foot-piece 47. This will throw the strength of the spring 53 to the idler 51 and press against the belt 15 sufficient to take up the slack of the belt. The shaft 49 is the power-shaft, and all that is necessary to put the machine to work is to press on the foot-piece 47, and when pressure is removed from the foot-piece the machine will stop immediately. A small arm 55 may be attached to the swinging frame 3 to aid in holding the belt 15 in its proper position. With the handle 50 the bits can be so adjusted that they will not bore two holes, so that the holes will be across a bar, and thus cut the bar almost in twain; but they will be longitudinally the bar, so that the bar will not be weakened by the holes enough to weaken the saddle.

The spindles 24 and 25 must be oiled to make them run well. The oil would run down on the work or the saddle material and soil the same if it is not prevented. I have provided means for preventing the oil from dropping or running down on the work or saddle material. I provide a block of absorbent material 56 and place the same about the spindles 24 and 25, the absorbent material having holes for the passage of these spindles, and secure the absorbent material on the bottom of the carrier 9 by means of a plate 57 and secure both the plate 57 and the absorbent material to the bottom of the carrier 9 by means of a screw 58.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A boring-machine comprising a suitable base, a swinging frame pivotally mounted in said base, a carrier carried by said frame, suitable bits and a presser-foot carried by said carrier, and means for operating said machine.

2. A boring-machine comprising a swinging frame provided with means for boring two holes at once and means for automatically withdrawing the bits from the holes and stopping the machine.

3. A boring-machine comprising a swinging frame provided with a shaft-bearing and a carrier-bearing, a spindle-carrier mounted in said carrier-bearing, a shaft mounted in said shaft-bearing, a presser-foot and spindles having suitable bits mounted in said carrier, and means for operating said bits.

4. A boring-machine comprising a swinging frame provided with suitable bits and means for operating the same, and means for mounting said frame consisting of a suitable base having an opening through the central part thereof, hubs formed on said frame, adjustable bolts mounted on said base and having points to engage said hubs.

5. A boring-machine comprising a frame provided with pivotal bearings, a foot-piece for rocking said frame, suitable bits, gear-wheels for driving said bits, a shaft having a suitable gear-wheel for driving said first-named gear-wheels, a pulley mounted on said shaft, a belt for driving said pulley, and a spring-pressed idler carried by said frame whereby said belt is tightened when said frame is rocked into operative position.

6. A boring-machine comprising a swinging frame provided with suitable bits and suitable gearing for driving said bits, a belt for transmitting power to said bit-driving gear, and means for tightening and loosening said belt

consisting of a spring-pressed idler engaged by said belt and a spiral spring carried by said swinging frame.

7. A boring-machine comprising a swinging frame provided with a carrier capable of rotary adjustment, a presser-foot and suitable bits mounted in said carrier, and suitable gearing for driving said bits.

8. A boring-machine comprising a swinging frame having suitable bits and gearing for operating the same, a base in which said frame is pivotally and adjustably mounted, a belt for transmitting power to said gearing, a spring-pressed idler connected to said frame for tightening and releasing said belt, and a foot-piece formed on the lower part of said frame.

9. A boring-machine having a frame provided with a shaft-bearing and a bearing for a spindle-carrier, a spindle-carrier mounted in the latter bearing, a driving-shaft mounted in said shaft-bearing and in said spindle-carrier, spindles mounted in said carrier and having cog-wheels mounted on the upper part thereof and being provided with suitable bits, the cog-wheel on one spindle being above the cog-wheel on the other spindle, and a cog-wheel mounted on said shaft and adapted to drive both cog-wheels on said spindles.

10. A boring-machine comprising a swinging frame having suitable bits and gearing for driving said bits, a base in which said frame is pivotally and adjustably mounted, a belt for transmitting power to said gearing, a spring-pressed idler connected to said frame for tightening said belt, and a spring connected to said base and to said frame for bringing said frame to its normal position as soon as an operation is completed.

11. A boring-machine comprising a swinging frame having a shaft-bearing and a bearing for a spindle-carrier, a spindle-carrier mounted in the latter bearing, a driving-shaft mounted in said shaft-bearing and in said spindle-carrier, spindles provided with suitable bits mounted in said carrier and having cog-wheels mounted on the upper parts thereof, a cog-wheel mounted on said shaft for driving the spindle-gearing, and a presser-foot stem mounted in said carrier and provided with a presser-foot adjustably mounted on said stem.

12. A boring-machine comprising a swinging frame having a spindle-carrier mounted therein, spindles carrying suitable bits mounted in said carrier, a presser-foot stem mounted in said carrier and provided with a presser-foot adjustably mounted thereon, a shaft-bearing, a driving-shaft provided with suitable oil-ducts for oiling said bearing, and suitable gearing by which said shaft drives said spindles.

13. A boring-machine comprising a frame having a shaft-bearing and a bearing for a spindle-carrier, a spindle-carrier mounted in the latter bearing, a driving-shaft mounted in said shaft-bearing and in said spindle-carrier, spindles provided with suitable bits and mounted in said carrier and having cog-wheels mounted on the upper parts thereof, the cog-wheel on one spindle being above the cog-wheel on the other spindle, a cog-wheel mounted on said shaft and adapted to drive both cog-wheels on said spindles, and an absorbent material secured to the bottom of said carrier about said spindles.

In testimony whereof I set my hand, in the presence of two witnesses, this 4th day of September, 1902.

FRANK K. RUSSELL.

Witnesses:
T. F. LOUGHLIN,
M. M. THOMPSON.