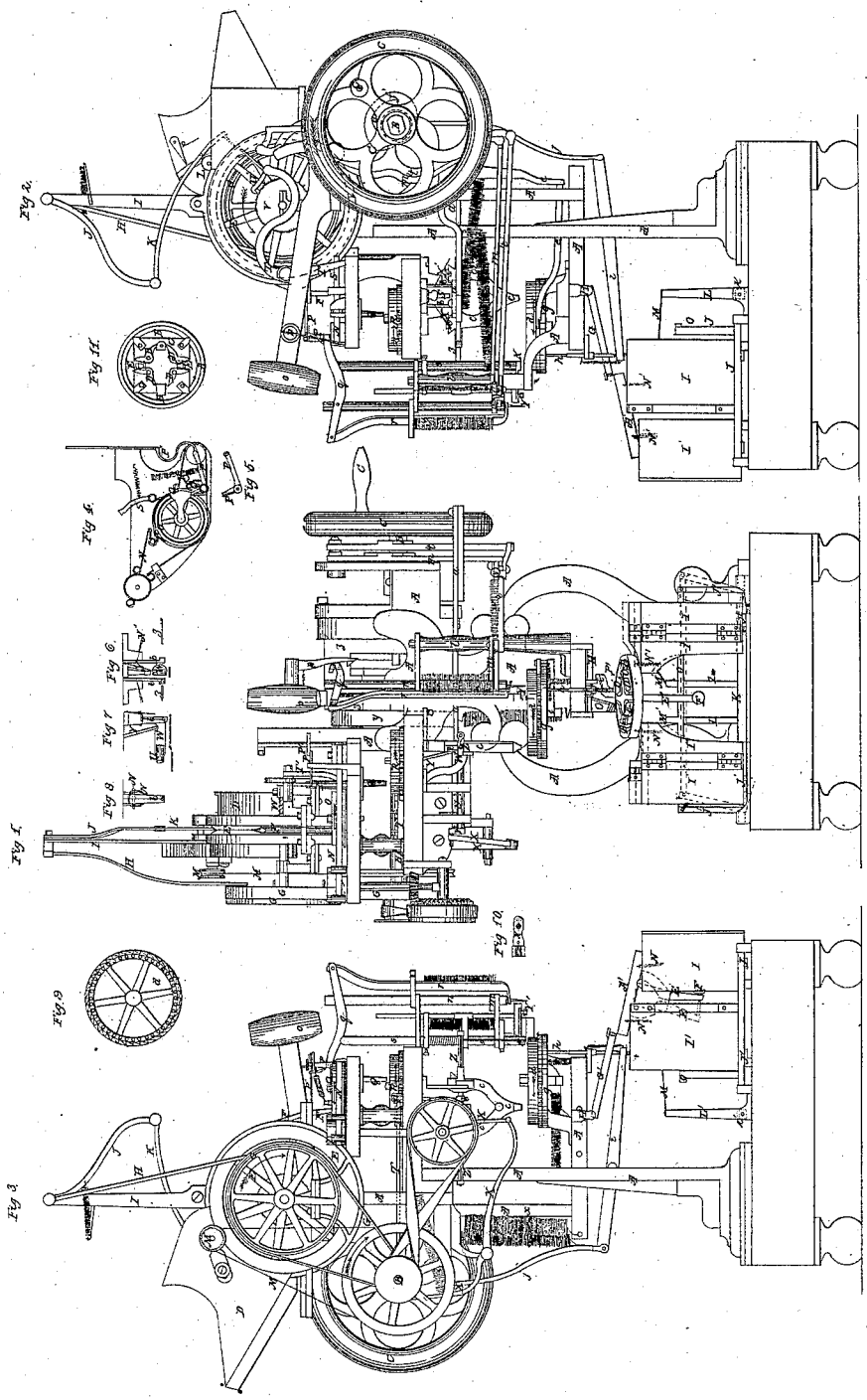
J. A. Bradshaw,

Pegging Machine,

No. 11,514. Patented Aug. 15, 1854.



UNITED STATES PATENT OFFICE.

JOHN A. BRADSHAW, OF LOWELL, MASSACHUSETTS.

MACHINE FOR PEGGING BOOTS AND SHOES.

Specification of Letters Patent No. 11,514, dated August 15, 1854.

To all whom it may concern:

Be it known that I, JOHN A. BRADSHAW, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Machines for Pegging Boots, Shoes, Belts, &c.; and I do hereby declare the following to be a full, clear, and exact description of the several parts and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a front elevation; Fig. 2 an elevation of the driving end; and Fig. 3, an elevation of the other end. Other figures will be described hereafter.

Similar letters of reference indicate corresponding parts in each of the several figures.

A Figs. 1, 2 and 3, represents the frames or support, to which the working parts are secured.

B is the main driving shaft, which may be put in motion by the crank and fly wheel C, turned by hand, or a pulley and belt may be substituted for the crank.

D is the hopper or receptacle into which the pegs are put ready for use.

E is a grooved wheel that receives the pegs from the receptacle D, and passes them over to the channel F. It is driven from the main shaft by the pulley and belt G, G. On either side of the wheel E is a circular plate which prevents the pegs from being thrown out of the groove in the wheel E.

H is a lever, fastened to one end of a pin which is movable in the stand I.

J is an arm fastened to the other end of the pin, and carries the swipe K, which is connected to it by a joint at its lower extremity. The object of the swipe K, is by its motion to arrange all the pegs in one direction parallel with the groove in the wheel E, and to assist depositing the pegs in the groove E. Motion is communicated to it through the lever H, which is moved by pins in the side of the pulley G.

L is a small bur wheel adjusted near the surface of the grooved wheel E, the bur wheel being placed sufficiently near the periphery of the grooved wheel to detach all but one peg when more than one attempts to pass at the same time, the teeth of said bur wheel striking all but the under peg in the groove of the wheel, and by its rotary motion throwing the surplus pegs back into the hopper, as it is important that only one peg at a time should enter the channel F. The bur wheel L, is driven from the main shaft by the pulley and band M, M. The channel F, has at its mouth, a pointed projection, that fits into the bottom of the groove in the wheel E, so that no peg can pass over the wheel without being arrested by it, and directed into the mouth of the channel. After the peg passes through the channel F, it drops in between the belt N, and pulley O, as shown at Fig. 4. By these it is carried around in the direction of the arrow until it comes in contact with the short arm of the lever P. This arm consists of two parts, which fit into two grooves, made for the purpose, in the rim of the pulley O, and directly behind the arm is a spring (P′ Fig. 5) which also fits in the grooves, and is placed there to prevent the possibility of a peg being pushed behind the arm.

Q′ Fig. 4 is a spring guide placed so as to conduct the column of pegs after they come from between the belt N and pulley O, to the front of the lever arm P.

R′ Fig. 4, is a guard to the passage Q, and is adjusted so as to prevent more than one peg at a time from passing in. The lever P, is operated by the lever P″ seen in the plan Fig. 5, and which receives motion from a cam on the main shaft, when the peg comes in front of the lever arm P, the cam operates the levers, and the effect is, to throw the peg into the hole in the tube Q, which conducts it to the cells drilled in the circumference of the wheel R.

Lest the pegs should be fed over the wheel E too fast: *i. e.* in such quantity as to clog up the pulley and belt O, and N, a stop motion is attached, which stops the feed entirely until the passage is cleared.

S′ is a lever, one end of which is kept pressed against the belt N, by means of a spiral spring, the other end, when the space between the pulley and belt is filled with pegs so as to press the short end out, is brought in contact with the lever T′ which operates upon the pawl U′ and brings it down upon the ratchet V′, which being attached to the wheel E stops it until the pulley and belt have cleared themselves sufficiently of the superabundance of pegs. This is done without stopping the pulley G, as the grooved wheel E is attached to its shaft by a friction wheel pressed against its sides by a spiral spring W′. As the cells in the

wheel R are filled up (each cell receiving one peg) the wheel turns around in the direction of the arrow and drops each peg, in turn, into the tube S Fig. 2. The wheel R is provided with a ratchet on its outer circumference, which is operated by a pawl connected with the lever T, and T is connected with, and set in motion by, a cam on the main shaft.

Figs. 5, 6, 7 and 8 are different views of the apparatus connected with the tube S, which composes what I call "the detectors" and is explained as follows, viz: When the peg comes down the tube S, it may come point downward, or not, just as it happens, and the object of this part of the machine is to set the points of all the pegs in one direction, which is effected as follows, viz: U, Figs. 1 and 7 is a short shaft, with a crank V at one end, and the forceps or clamps W at the other. This shaft makes only one fourth of a revolution, alternately, forward and back, and is operated by the levers X, X, which are moved by a cam on the main shaft. When the levers X turn the shaft U so as to bring the clamp W into a perpendicular position as seen in Fig. 6, one half of the clamp strikes against the stationary piece Y which causes it to open. The peg now drops from the tube Q in between the jaws of the forceps and is prevented from dropping farther by the steel plate just beneath. The levers X now turn the forceps, with the peg between them, one fourth turn to a horizontal position. The peg is next operated upon by the small wire punches Z, Z, which are moved to and fro, by the levers *a*, *a*, operated by a cam on the main shaft. If one of these punches Z, strikes the peg on its head it forces it from the forceps W, and pushes it point first through one of the detectors *b*, *b*, into the channel *c*, *c*.

The form and construction of the detectors *b*, *b*, may be better seen in Figs. 6, 7, and 8. Fig. 8, shows a front of one of the detectors, which, as is indicated is made in two parallel pieces which are kept pressed together by the springs N. The square hole at the bottom is where the peg enters; the edges of this hole at its entrance are beveled or chamfered so that the point of the peg may enter readily. If the point of the peg comes first, it presses the two parts asunder and the peg is forced through, but if one of the punches Z should strike on the point of the peg, the head would be forced against the detector, and the hole not being large enough to admit it, the peg would not enter, but would remain in the forceps W, until the other punch came and forced it point first, into and through the opposite detector. When the first punch strikes on the point of a peg, the lever *a*, that operates it being dependent for its action upon the face of a spiral spring "gives way" and does not push the peg out of the forceps W, but the other punch is operated by the cam and lever, and when it comes up pushes the peg into the channel as aforesaid. The ends of the punches Z, Z have holes of a conical shape drilled in them, so that when they strike the point of a peg they will not "batter it up" as they otherwise would do. X, X, are little pawls which are so shaped and arranged as to direct the point of the peg downward as it enters the channel; they are so arranged that the punches raise them as they pass through, and when they withdraw, the pawls fall in season to serve their purpose.

The pegs passing through the double channel *c*, fall point first into the cells perforated in the wheel *d*, a plan of which may be seen at Fig. 9. This wheel rests upon a circular plate (*g*) beneath it, and is made to rotate on its axis by means of a ratchet and pawl, operated by levers *e*, *e*, Figs. 1 and 2, which levers are moved by a cam on the main shaft.

I may vary the construction of the wheel *d*, so that instead of a circular rim provided with arms and drilled with a series of holes, I may have spokes or arms merely, with holes or cells at their extremity. *h*, is a small punch that is operated by the levers *i*, *j*, which are moved by a cam on the main shaft. The punch *h*, plays through a hole in the circular plate *g*, and every time the ratchet moves the perforated wheel *d*, so as to bring a peg over this hole, the punch *h*, pushes it up between the forceps *k*, and then withdraws to allow the wheel to pass on again. We have now brought the peg into a position ready for use.

The awl and hammer are both mounted on the same carriage with the forceps *k*, and all swing together about the post *l*. This carriage is swung back and forth by the levers *m*, *m*, operated by the cam *f'*, on the main shaft. The rod *n*, having the awl in its lower end, is first brought under the maul or hammer *o*, and by the maul is driven into the leather beneath. Now when the cam raises the hammer, the hook *p*, attached to the arm of the hammer, catches the lever arm *q*, and first depresses the bar *r*, down, so as to bring it to bear upon the leather; then this acts as a fulcrum for the lever *q*, to raise the awl out from the leather. Now the cam *f'*, and levers *m*, swing the carriage around, so as to bring the peg which is in the forceps *k*, directly over the hole made by the awl; then the maul *o*, comes down again, and striking the rod *s*, which acts as the hammer, carries the peg quite to the hole, and then drives it in as well and securely as by hand. It will be noticed that the forceps *k*, when the blow is given, descend with the hammer, and do not let go of the peg until it is fairly entered in the

hole, then the hammer is so shaped as to force them apart and drive the peg completely in. To prevent the forceps from striking the leather beneath, there is inserted a set screw y', the head of which strikes the work and arrests the forceps before they have a chance to strike. The forceps are kept in contact with each other by springs pressing against their sides in opposition to each other. t, t, are levers worked by the cam u, on the main shaft, and are attached by a collar around the lower end of the rod n, and while the awl is in the shoe or other piece of leather the cam u, operates the levers t, t, so as to cause the shoe to move along the same distance the pegs are to be apart; (and this distance can be regulated by the set screw v,) when this is done, the awl is withdrawn, and as soon as it is withdrawn, a spring w, brings it back to its former position ready to be driven again. The maul o, is driven similar to a trip hammer by cams on the main shaft, and strikes twice to one revolution of the shaft. A spiral spring x, attached to the end of a belt y, which is partly wound around the axis z of the maul, assists in giving force to the blow.

A′, Figs. 1, 2, 3 and 11 is a circular ring having a ring B′, projecting from its inner surface.

C′ is a plate, supported by the ring B′, and movable in it. It carries the clamps D′, D′, which are intended to hold the shoe last firmly, while the pegs are being driven in; they are clothed with leather or other elastic material to prevent injury to the shoe.

P′ is a pin that is intended to enter the heel of the last, and secure it from moving in its seat. The clamps D′, D′, are brought to bear against the sides of the last, by means of the levers E′, E′, the lower ends of which levers are pressed apart by turning up the screw F′ which causes the upper ends (which are wedge shaped) to enter between the clamps and press them against the last. This arrangement holds the shoe firmly to the plate C′, but in order that every point in the edge of the sole may be brought under the awl, the plate C′ is made so as to turn easily in the ring B′.

G′, is a gage, one end of which is hung on a joint H′, the other end of which rests on and against the edge of the sole; of the boot or shoe; being pressed against the gage by the hands of the operator, and turned by the hand in such a position as will keep the edge of the sole at right angles with the gage during the operation of pegging the boot or shoe, the pegs are all driven exactly the same distance from the edge of the sole. The spiral grooves in the end of the gage G′ are made so as to prevent any tendency of the gage to slip from the edge of the sole as the shoe is turned around.

I′ I′ are four hinge joints of cast iron; they rest upon the levers J′, J′, and form a seat for the apparatus that holds the shoe. The ring A′ rests upon points on the four hinge joints and is attached to each one of them by means of the four spiral springs, N, N. The whole arrangement forms a species of universal joint and is so constructed as to enable the operator to give various inclinations to the sole of the shoe, for as the awl only works in a perpendicular direction, it is necessary to change the position of the shoe, so as always to keep that portion of the surface of the shoe into which the pegs are being driven at right angles with the awl.

K, is a squaring shaft, having attached the levers L′, L′. Rods M′, M′, connect the tops of these levers with each of the two sets of hinge joints, and thus serve to give a parallel motion to them. The tops of the levers J′ are connected by the bar o' so that the action of the two sets of hinge joints may be simultaneous; that is, when we wish to elevate one set of hinge joints by raising the levers that support them, the levers that support the opposite set will be depressed in proportion.

The drawings are made one half the size of a working machine, excepting that part which holds and adjusts the shoe, which is only one tenth size; and was so drawn for the sake of making the drawings more compact.

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

1. The combination with the grooved wheel E, of the arm K, for the purpose of presenting the pegs to the wheel longitudinally, arranged and operated substantially as above set forth and described.

2. The application of the grooved wheel E, in combination with the bur wheel L and tube F, substantially as, and for the purpose above set forth and described.

3. The levers S′ and T′, pawl U′ and ratchet V′ on grooved wheel E—or their equivalents—arranged and combined substantially as, and for the purpose above set forth and described.

4. The clamps or forceps W, to receive the peg from the wheel R, in combination with the detectors b b, the punches z z and the double channel c, for the purpose of insuring the proper presentation, of the peg with the point downward.

5. The combination of the forceps k, the wedge shaped driver s and the adjustable stop screw y', substantially as, and for the purpose above set forth and described.

6. The apparatus for holding the boot or shoe during the operation of pegging, consisting of the plate c' revolving upon the ring B′ of the plate A′, and having the

clamps D′ D′ D′ D′, or their equivalents, the whole being arranged substantially as, and for the purpose above set forth and described.

7. The combination of the hinge joints I′ I′, the shaft K′, and the levers J′, J′, or their equivalents, substantially as and for the purpose above set forth and described.

JOHN A. BRADSHAW.

Signed in presence of us—

E. A. ALGER,

FISHER A. HILDRETH.