

(No Model.)

R. BELLES.  
WRENCH.

No. 480,801.

Patented Aug. 16, 1892.

Fig. 1.

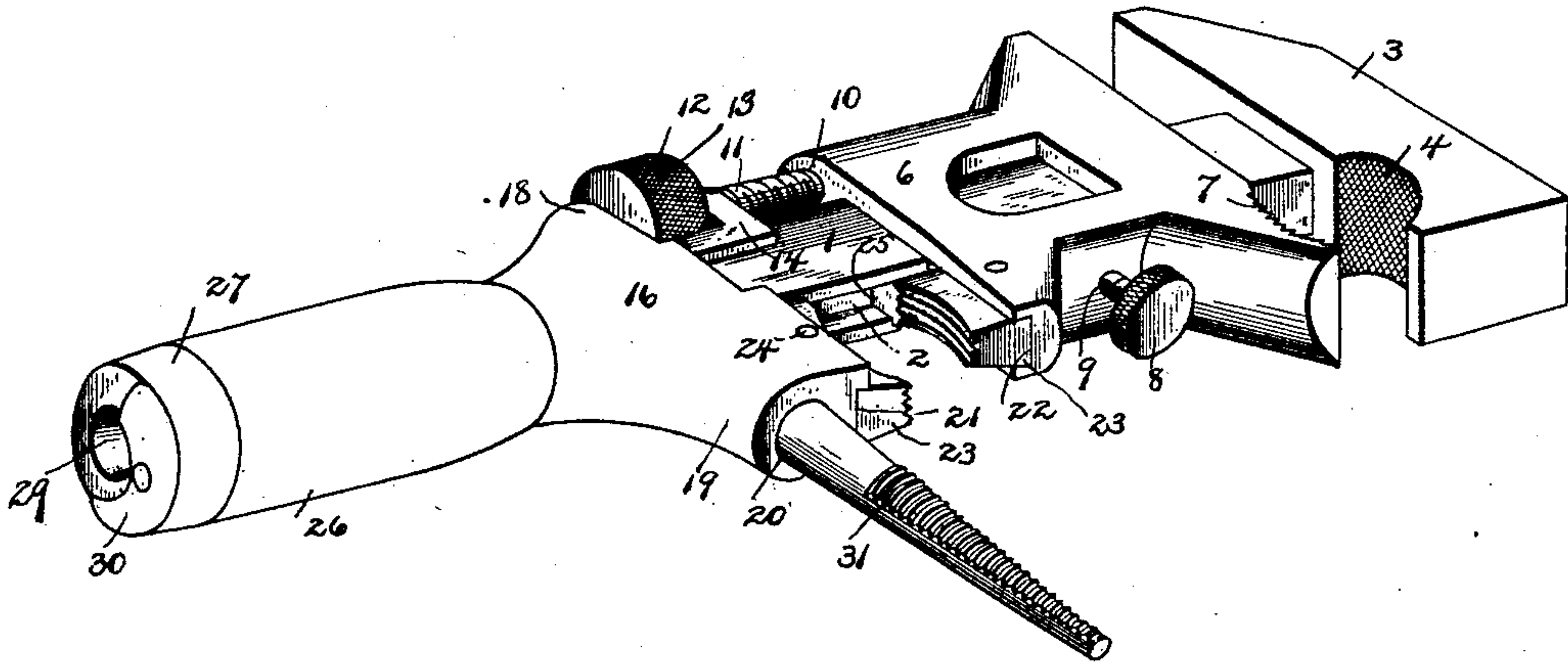


Fig. 2.

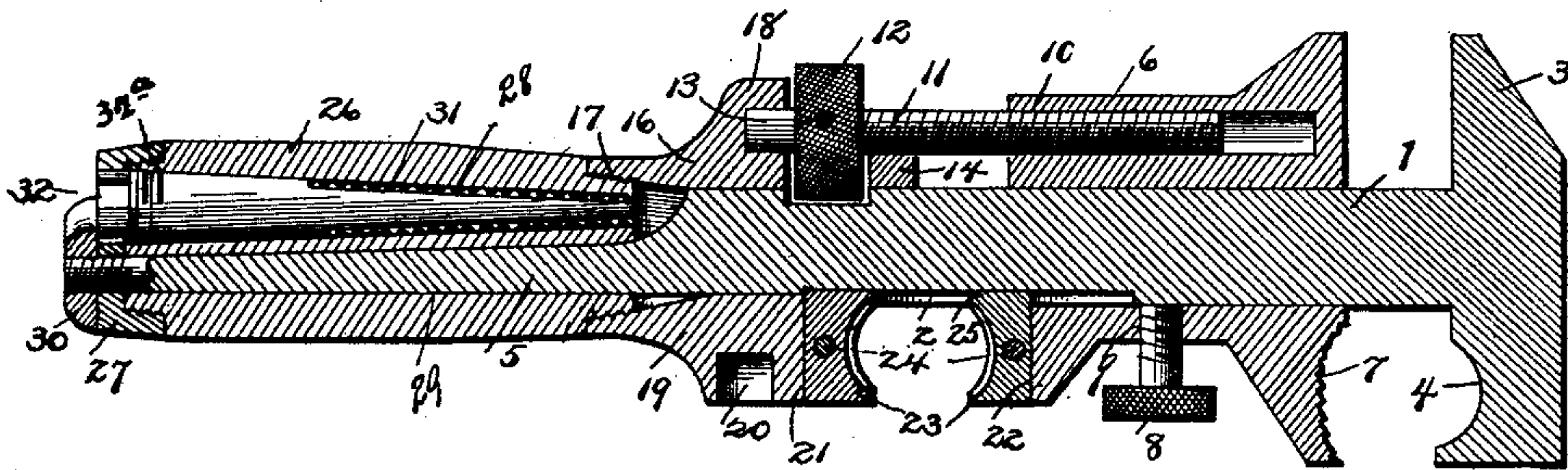
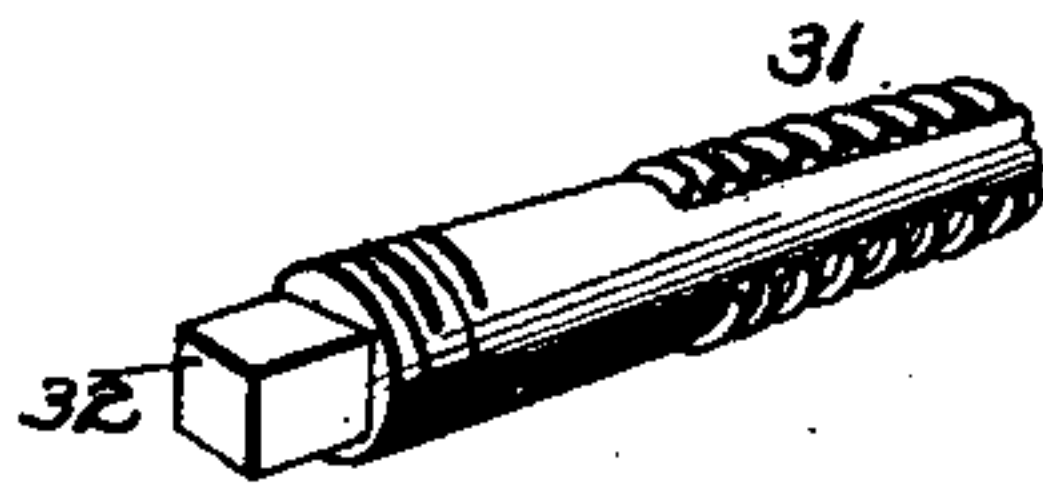


Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## WRENCH.

SPECIFICATION forming part of Letters Patent No. 480,801, dated August 16, 1892.

Application filed January 28, 1892. Serial No. 419,599. (No model.)

*To all whom it may concern:*

Be it known that I, ROLAND BELLES, a citizen of the United States, residing at Moosic, in the county of Lackawanna and State of Pennsylvania, have invented a new and useful Wrench, of which the following is a specification.

This invention relates to improvements in wrenches; and the objects in view are to so construct the same as to perform its ordinary function, and, in addition thereto, to serve as a tap and die holder, whereby threads may be cut upon rods and pipes or within the latter.

A further object is to adapt the wrench-handle to receive and conceal the tap when not in use.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a wrench constructed in accordance with my invention, the tap being in position for use. Fig. 2 is a vertical longitudinal section of the wrench, the tap being in the handle, as when not in use. Fig. 3 is a detail of the tap.

Like numerals of reference indicate like parts in all the figures of the drawings.

The shank or stock 1 is rectangular in cross-section, and is provided at its rear side with a longitudinal groove or way 2. The upper end of the shank terminates in the usual fixed transverse head 3, which at opposite sides of the shank forms jaws, the rear one being concaved transversely upon its under side, as at 4, whereby it is adapted to operate upon pipes and rods. The lower end of the shank is reduced and tapered to form a tang 5, the extremity of which is threaded, as shown.

6 designates the sliding jaw or head, the same being provided with the usual longitudinal bore for the loose reception of the shank 1. The rear upper side of the jaw is provided with a series of teeth 7, designed to coact with the concaved jaw 4 when the wrench is used for operating upon cylindrical pipes or rods. A set-screw 8 is passed transversely through a threaded perforation 9, formed in the rear side of the sliding jaw, and at its inner end terminates against the shank. By means of

the set-screw the sliding jaw 6, when adjusted, may be secured rigidly in position. In front of the shank the sliding jaw is provided with the usual threaded perforation 10, in which is located the upper end of the threaded feed rod or screw 11. This rod or screw 11 is provided immediately above its lower extremity with a milled thumb-piece 12, rigid upon the rod and provided with one or more sockets or openings 13, into which an ordinary key may be inserted, and when in position will constitute a lever for rotating the nut and rod, for a purpose hereinafter obvious. A bracket or keeper 14 is recessed at its front side to loosely embrace the rod and forms an upper bearing for the nut, retaining the same in position. The rear edge of the bracket is recessed to embrace the shank, to which it is secured.

16 designates a metal foot, which is located upon the shank at its juncture with the tang 5. For the reception of the shank the said foot is provided with a rectangular opening, which opposite the tang merges into a cylindrical bore 17, the interior of which is in this instance threaded. The foot extends at opposite sides of the shank, and in one of its extended portions 18 a countersunk bearing is formed, and in the same is stepped the lower end of the feed rod or screw 11. The opposite extension 19 of the foot is provided at its outer side with a square socket 20 and upon its upper side with a dovetailed recess 21, which is directly opposite a similar recess 22, formed in the under side of the movable jaw 6. In these dovetailed recesses dies 23 are located, the same being dovetailed in cross-section and being secured removably yet rigidly in position by means of transverse pins 24, extending through the dies and walls of the recesses 21 and 22. These screw-thread-cutting dies are provided at their inner ends with tenons 25, which fit within the groove or way 2 of the shank, and their adjacent faces are of the usual formation. The handle 26 is reduced at its upper end to fit within the cylindrical bore 17 of the foot, while its lower end is reduced, as shown, for the reception of a metal cap 27. At each side of its axial center the handle is provided with a tapered bore 28 and 29, the former decreasing in size toward its lower end and the latter increasing. In other words, they are arranged reversely



with relation to each other. The tang 5 of the shank 1 fits the bore 29 and its extremity projects beyond the same and through a perforation formed in the cap 27, which constitutes a continuation of the bore. Beyond this cap there is threaded upon the end of the tang a crescent-shaped clamping-nut 30, which serves to bind the shank, foot, handle, and cap all securely together.

The tap for the most part is of the ordinary construction—that is, it consists of the usual thread-cutting tapered body portion 31, and at its butt is provided with a square tenon 32, designed to fit snugly in the socket 20 of the foot. When in this latter position, the wrench as a whole constitutes an efficient handle for operating the tap for the purpose of interiorly threading the ends of pipes. When not in use, the tap is inserted, small end up-  
permost, into the tapered bore or socket 28 of the handle. The crescent-shaped nut will permit of such insertion, and the tap may be secured against accidental removal by its threads at its base or enlarged portion engaging with a short series of threads 32<sup>a</sup>, with which the lower end or base of the tapered socket 28 is provided.

The operation of the wrench as such will at once be obvious in that it is the same as numerous wrenches of this class, and I will therefore proceed to describe the manner of manipulating the parts for the purpose of forming internal or external threads. In forming an external thread upon a rod or pipe the jaw 6 is slid toward the foot until the dies 23 embrace the pipe. A key or lever is inserted in the holes 13 of the thumb-piece of the feed-screw and the latter revolved so as to clamp the dies tightly upon the said pipe, whereby their cutters take into the metal. The binding-screw 8 is now rotated until it securely clamps the movable collar upon the shank. It now simply remains to revolve the wrench, employing the same as a handle, and cutting the threads as far along the pipes or rods as may be desired.

In cutting internal threads in a pipe or tube the same is placed in any suitable vise and the tap withdrawn from the handle of the wrench and its squared tenon inserted in the socket 20 of the foot. The wrench is now operated in the same manner as heretofore described—that is, revolved—and in so doing the internal thread is formed.

From the foregoing description, in connection with the accompanying drawings, it will be seen that I have provided a wrench adapted to operate upon nuts, rods, or pipes, that may be employed for forming internal or external threads upon the same, and whose dies and tap may be removed and replaced as occasion may require.

Having described my invention, what I claim is—

1. A wrench for the purpose described, comprising a shank terminating at its lower extremity in a tapered tang, a foot having an opening for the reception of the said tang and provided laterally with an annular socket, a handle mounted on the said tang and provided at opposite sides of its center with longitudinal bores, one of which receives the tang, means for securing the handle in position on the tang, and a thread-cutting tap removably insertible in the other bore and terminating at its base in a tenon fitting the socket of the foot, and above the latter fitting threads formed in the lower ends or base of the cap-receiving bore, substantially as set forth.

2. A wrench for the purpose described, comprising a rectangular shank, a metal foot having an opening for the reception of the shank and below the same opposite the tang portion of the shank merging into an annular bore, a handle bored to receive the tang and at one side of the same provided with a cap-receiving bore, a cap fitting the lower reduced end of the handle and provided with bores agreeing with those of the handle, and a crescent-shaped nut threaded on the end of the tang below the cap and adapted to cover the cap-receiving bore, substantially as described.

3. In a wrench, the combination, with the shank terminating at its lower end in a handle, a metal foot at the upper end of the handle, and a sliding jaw above the foot, the two being provided at their adjacent faces with recesses, of dies mounted in the recesses and means for adjusting the sliding jaw with relation to the foot, substantially as specified.

4. The combination, with the shank terminating at its lower end in a handle, the metal foot at the upper end of the handle, the sliding jaw above the foot, said jaw and foot being provided at their adjacent faces with dovetailed recesses, of dovetailed dies inserted in the recesses and means for adjusting the jaw, substantially as specified.

5. In a wrench, the combination, with the shank provided upon its rear side with a groove, a metal foot secured to the shank, and a sliding jaw mounted upon the shank, the jaw and foot being provided with recesses, of means for adjusting the jaw and dies inserted in the recesses and having their rear ends tenoned to take within the groove of the shank and the transverse pins passed through the walls of the recesses and the dies, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROLAND BELLES.

Witnesses:

THOS. P. DANIELS,  
EMIL BONN.