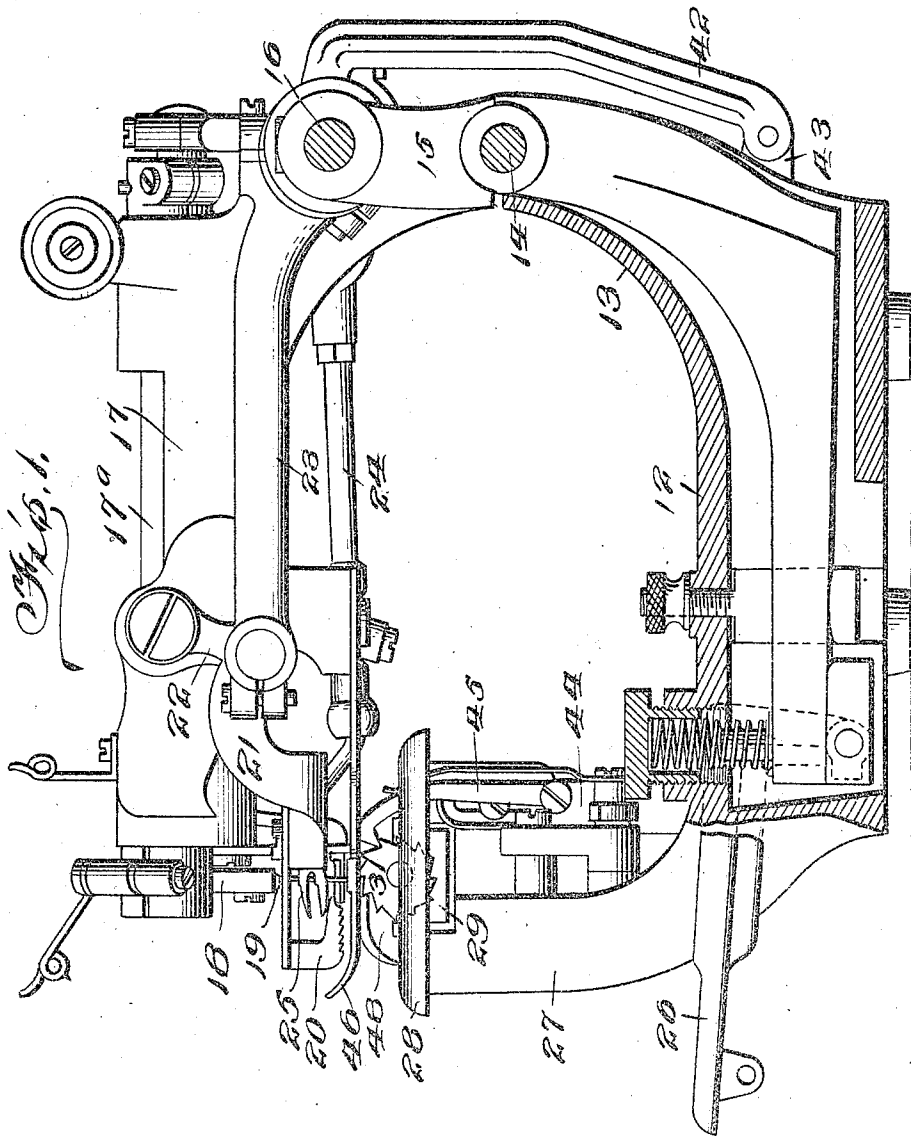


983,507.

W. A. McCool.  
SEWING MACHINE.  
APPLICATION FILED JUNE 16, 1910.

Patented Feb. 7, 1911.

4 SHEETS—SHEET 1



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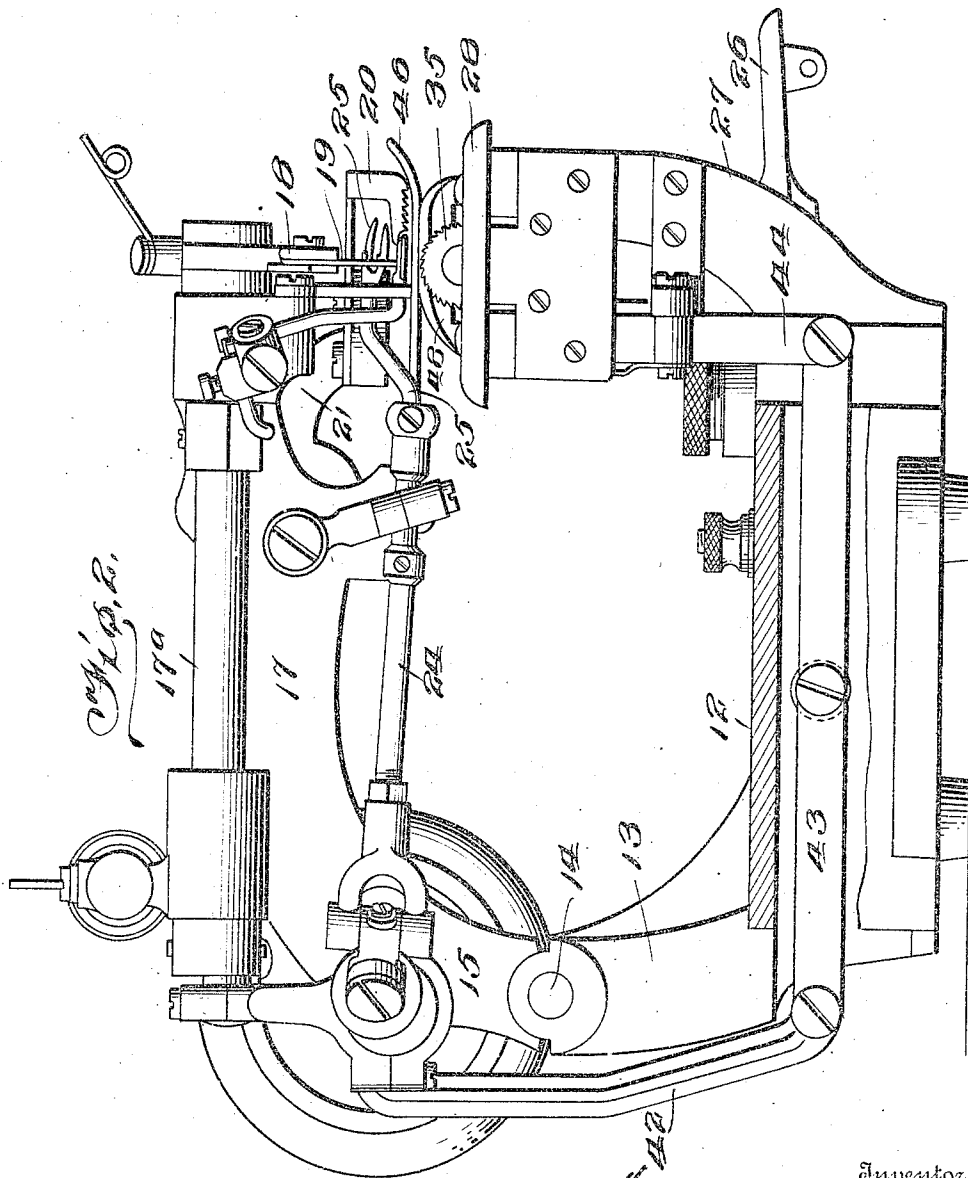
SEWING MACHINE.

APPLICATION FILED JUNE 18, 1910.

983,507.

Patented Feb. 7, 1911.

4 SHEETS—SHEET 2.



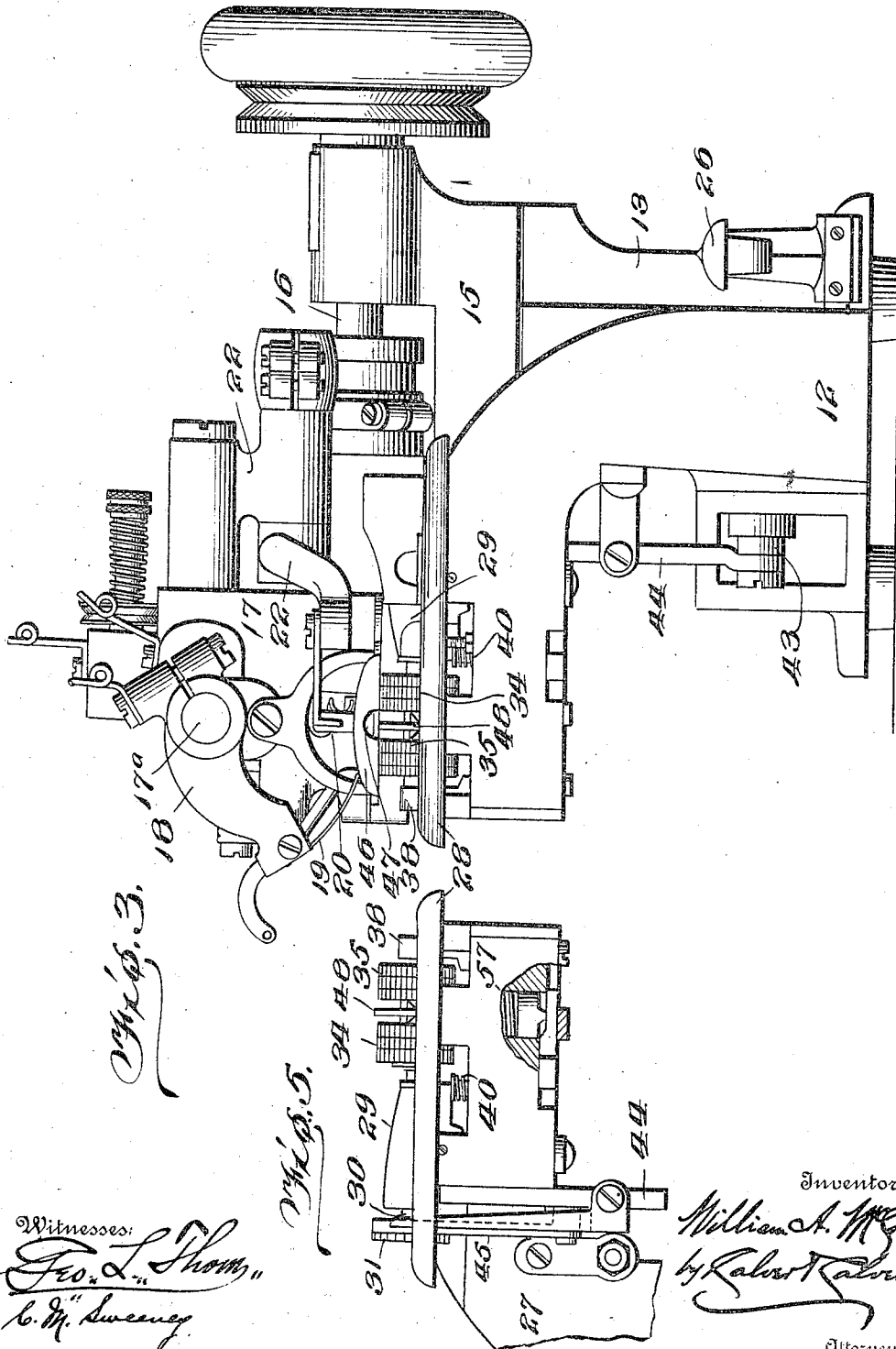
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4 SHEETS—SHEET 3.



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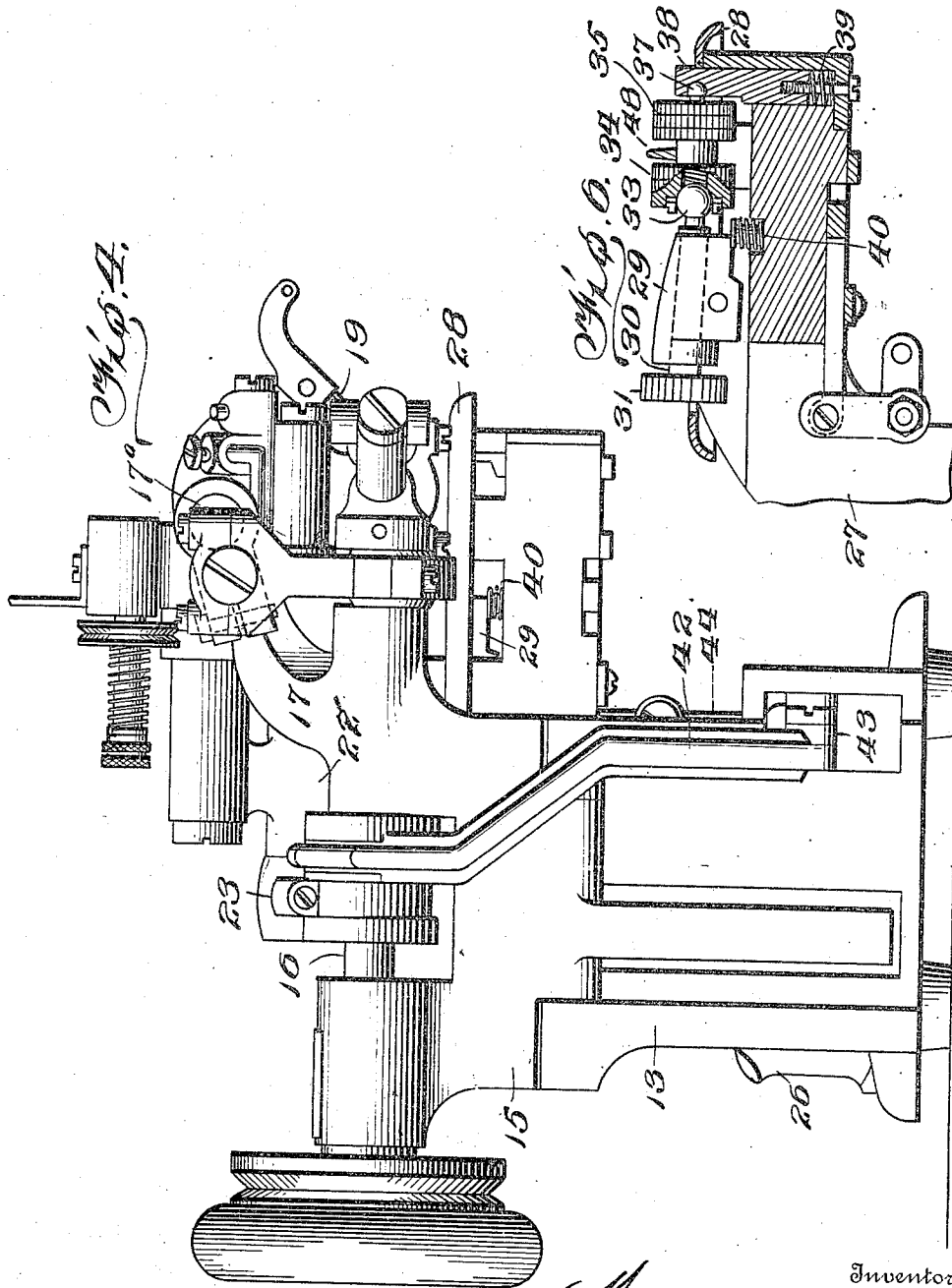
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4 SHEETS—SHEET 4.



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# UNITED STATES PATENT OFFICE.

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## SEWING-MACHINE.

983,507.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed June 16, 1910. Serial No. 567,162.

*To all whom it may concern:*

Be it known that I, WILLIAM A. McCool, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to blind stitch sewing machines such for example as those shown and described in U. S. Patents Nos. 639,669 and 679,553, in which the needle is caused to pass through a ridge or bend in the work in such a manner that the stitches will be visible only on one side of the work; and the invention has for its object to provide a machine, of the class referred to, which will not only afford more room beneath the arm which supports the stitch-forming mechanism than is afforded in the machines of the patents above referred to, as in the machines shown by my application for U. S. Letters Patent filed May 22, 1906, Serial No. 318,480, but which will also contain a positively-operated lower feed co-operating with an upper feed, as in the machine of said Patent No. 679,553.

In the accompanying drawings, Figures 1 and 2 are side views of the improved machine, looking from opposite sides, with certain parts in vertical section; Fig. 3 is a front view of the same, partly in vertical section, and Fig. 4 is a rear view of the improved machine. Figs. 5 and 6 are detail views, partly in section, illustrative of the lower feeding device and of the mechanism for operating the ridge-forming device.

Referring to the drawings, 12 denotes the lower portion of the frame of the machine from which, at its rear end, rises a standard 13 with which is pivotally connected, by a hinge pin 14, a stitching frame comprising a rear portion 15 in which is mounted the driving shaft 16, said frame also comprising an overhanging arm 17 providing bearings for a rocking shaft 17<sup>a</sup> to the front end of which is secured the vibrating arm 18 carrying the curved needle 19. The said arm 17 also supports the upper feeding device comprising the feed-dog 20 connected with an arm 21 pivotally mounted in a rocker 22 supported from said overhanging arm 17

and operated from an eccentric on the driving shaft through a connecting rod 23. From the said overhanging arm 17 is also supported a looper rod 24 carrying at its forward end a longitudinally reciprocating and rocking looper 25 operated from said driving shaft through a double crank connection. The stitch-forming mechanism, comprising the needle and looper above referred to, is essentially the same in its construction and operation as the stitch-forming mechanism of the machines of Patents Nos. 639,669 and 679,553, above mentioned; and need not therefore be herein more fully described; while the mechanism for operating the feed dog 20 is essentially the same as that of my said application No. 318,480, hereinbefore referred to. The pivotal mounting of the stitching arm is also essentially the same as in my said application, although differing slightly in details of construction, and the forward end of said stitching frame may be lifted by pressing down on the hand lever 26 as in the machine of my said application.

In order to provide a proper clearance for the work beneath the overhanging arm of the machine, and at the same time to properly operate a lower rotating feeding device, coöperating with an upper feeding device of feed dog, the improved machine comprises a novel lower feed operating mechanism which will now be described.

Rising from the front part of the base portion 12 of the frame of the machine is a work-supporting arm or post 27 rigid and preferably formed integral with said base portion and to the top of which arm is secured a work-plate 28. Pivotaly mounted in the said arm, so as to be free to have a limited rocking movement, is a block 29 in which is mounted a feed shaft 30 provided at its rear end with a ratchet wheel 31, said shaft having at its forward end a ball-like stud 33 entering a socket in a feed wheel 34 rigidly connected with a second feed wheel 35, said ball-like portion of said shaft being provided with a pin entering a slot in the first-named feed wheel so as to be capable of imparting a positive rotating movement to the said rigidly connected and preferably integral feed wheels 34 and 35. Rigid with the feed wheel 35 is a ball-like stud 37 en-

tering a socket in a yielding mounted post 38 forced upward by a suitable coil spring 39. The block 29 is yieldingly pressed upward at its inner end by a coil spring 40. 5 The feeding mechanism just described is thus essentially the same as that covered by the said Patent No. 679,553, but its operating mechanism, which will now be described, is essentially different from that of the said 10 patent.

The driving shaft 16 carries an eccentric which is connected by means of a rod 42 with the rear end of a lever 43 pivoted to the base portion 12 of the frame of the machine 15 and jointed at its forward end to a bar 44 which carries a spring-pressed pull-pawl 45 engaging the ratchet wheel 31 on the feed shaft, so that as the said eccentric rotates a vertical movement will be imparted to the 20 said bar 44 and to the pawl carried thereby for the purpose of imparting an intermittent rotating movement to the said feed shaft and to the feed wheels 34 and 35 operated therefrom. It will thus be seen that 25 the operating mechanism just described affords an operative connection for the feed shaft with the driving shaft through the base of the machine, so that a suitable clearance for the work above said base is afforded without in any way interfering with the 30 feed-operating mechanism.

The presser foot 46, rigidly connected with the overhanging arm 17, is provided, as in the machines of the said patents, with 35 a longitudinal slot 47 through which a bend or ridge in the goods through which the needle is to pass in forming blind stitching is forced by a ridge-former 48.

By reference to Fig. 3 of the drawings it 40 will be seen that the feed dog 20 is arranged directly over the ridge-former 48 which latter serves as a support for the work against the thrust of the feed dog. As shown in Figs. 1 and 2 the feed dog has a straight 45 lower serrated face working against a straight or horizontal portion of the upper face of the ridge-former or work-support 48, and owing to the coöperative action of the feed dog and the ridge-former or work support 48, the said feed dog has a strong grip 50 upon the goods, so that an accurate feeding of the latter is insured. Thus the feed dog coöperating with the ridge-former or work-support, arranged directly beneath the said 55 feed dog and also in coöperation with the lower feeding wheels 34 and 35, provides a feeding mechanism by which two plies of goods which are being blind-stitched will be fed along together with the greatest accuracy and uniformity, so that any puckering 60 of the work, owing to the uneven feeding of the two plies of goods, will be absolutely avoided.

Having thus described my invention I 65 claim and desire to secure by Letters Patent:

1. In a blind-stitch sewing machine, the combination with a frame comprising a base portion having at its forward end a raised work-support and a raised portion at its rear end, with a clear space between said 70 rear raised portion and said raised work-support, of a ridge-forming device mounted on said raised work-support, a transverse driving shaft journaled above the said base portion of said frame and provided with an 75 eccentric, a stitch-forming mechanism operated from said driving shaft, a vertically vibrating lever pivoted in the base portion of said frame, a connecting rod operated by said eccentric and jointed at its lower end to 80 the rear end of said lever, and a rotating feeding device mounted in the said work-support and operatively connected with the forward end of the said lever.

2. In a blind-stitch sewing machine, the 85 combination with a frame comprising a base portion having at its forward end a raised work-support and a raised portion at its rear end, with a clear space between said rear raised portion and said raised work- 90 support, of a driving shaft journaled above said base portion of said frame, a ridge-forming device mounted on said raised work-support, a stitch-forming mechanism operated from said driving shaft, a lever 95 pivoted in the base portion of said frame and operatively connected with said driving shaft, a rotating feed shaft provided with a ratchet-wheel, one or more feed wheels operated from said shaft, and a vertically re- 100 ciprocating bar jointed to the forward end of said lever and provided with a pawl for operating said feed shaft.

3. In a blind-stitch sewing machine, the combination with a frame comprising a 105 base portion having at its forward end a raised work-support and a raised portion at its rear end, of a driving shaft journaled in the upper part of the said raised portion of said frame, a ridge-forming device mounted 110 on said raised work-support, a stitch-forming mechanism operated from said driving shaft, a lever centrally pivoted in the base portion of said frame and arranged transverse to said driving shaft and operatively 115 connected therewith, and a rotating feeding device mounted in the said work-support and operatively connected with the forward end of the said lever.

4. In a blind-stitch sewing machine, the 120 combination with a frame comprising a base portion having at its forward end a raised work-support and a raised portion at its rear end, of a driving shaft journaled in the upper part of the said rear raised portion of 125 said frame, a ridge-forming device mounted on said raised work-support, a stitch-forming mechanism operated from said driving shaft, a lever centrally pivoted in the base portion of said frame and disposed 130

transverse to said driving shaft and operatively connected therewith, a rotating feed shaft provided with a ratchet-wheel, one or more feed wheels operated from said shaft, and a vertically reciprocating bar jointed to the forward end of said lever and provided with a pawl for operating said feed shaft.

In testimony whereof I affix my signature, in presence of two witnesses.

WILLIAM A. McCOOL.

Witnesses:

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ROLAND GASTBELL.