

No. 680,485.

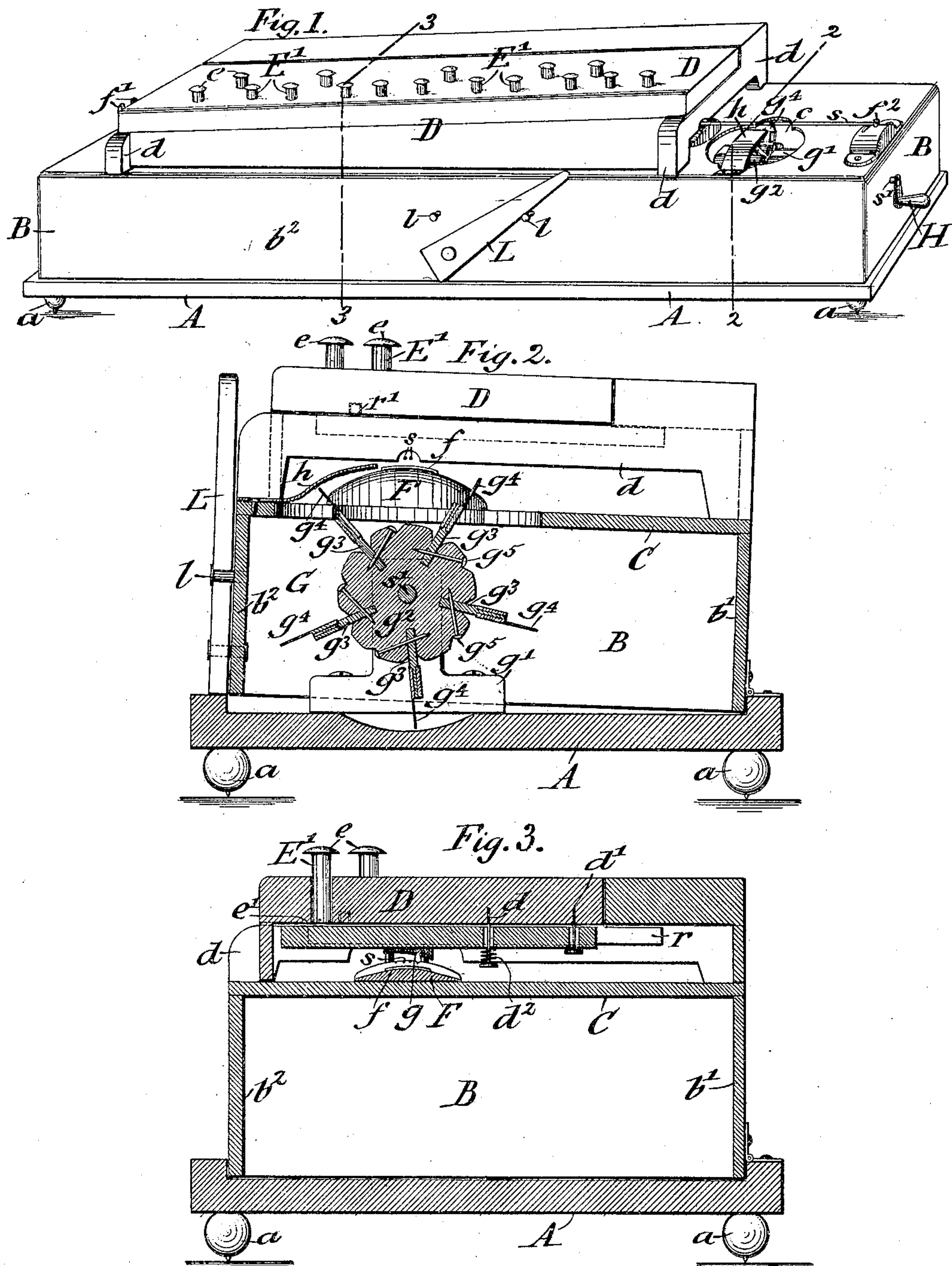
Patented Aug. 13, 1901.

W. F. HOCHSPEIER.  
MUSICAL INSTRUMENT.

(Application filed Feb. 9, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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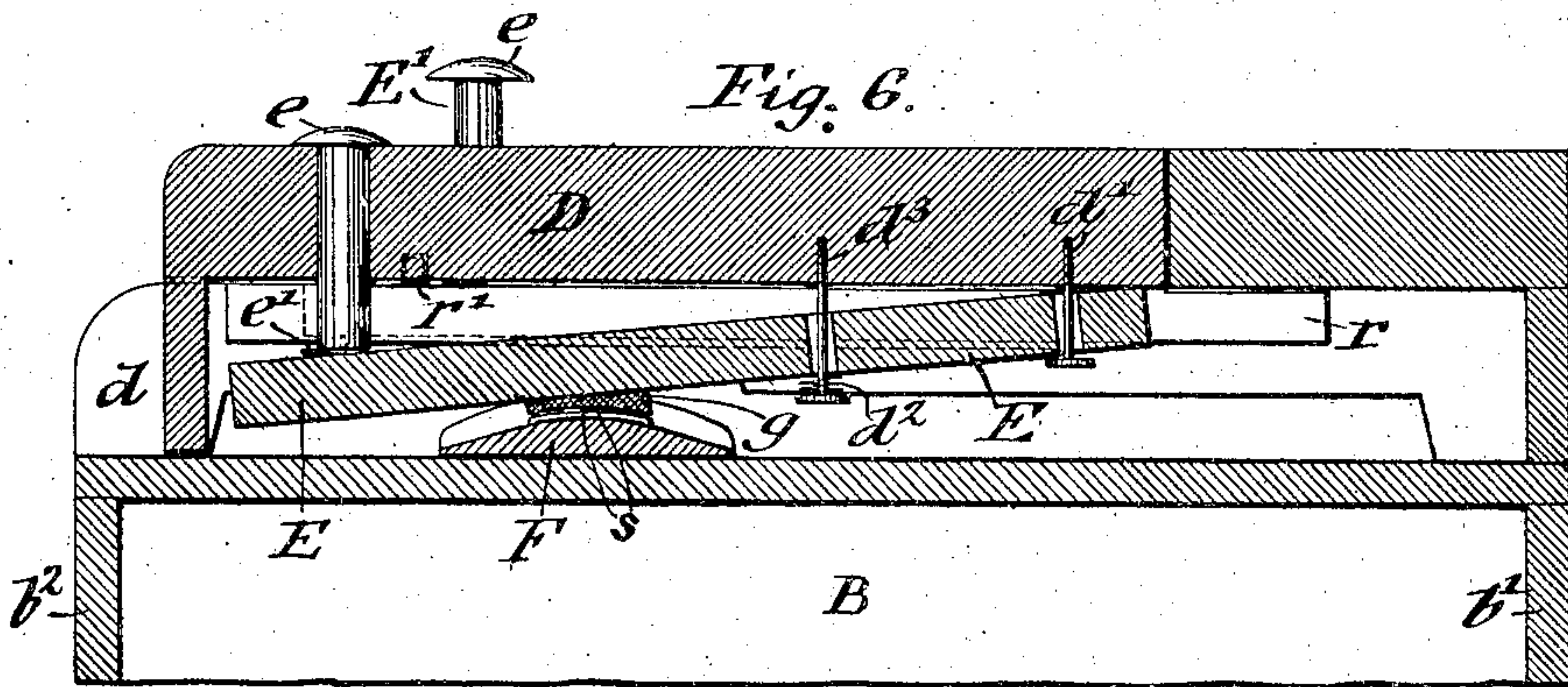
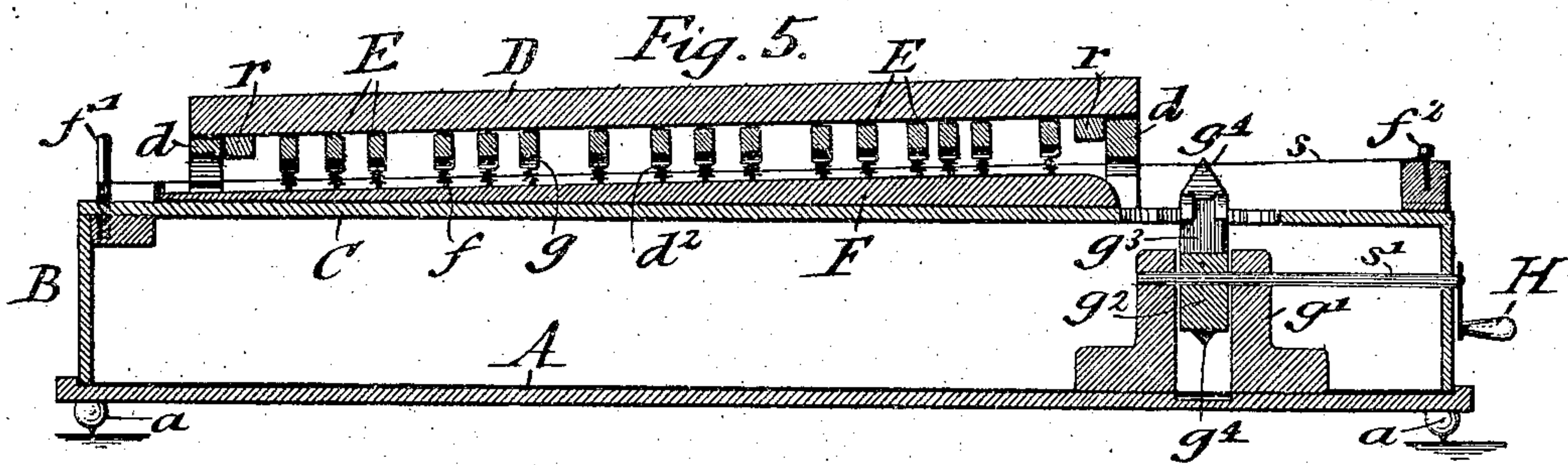
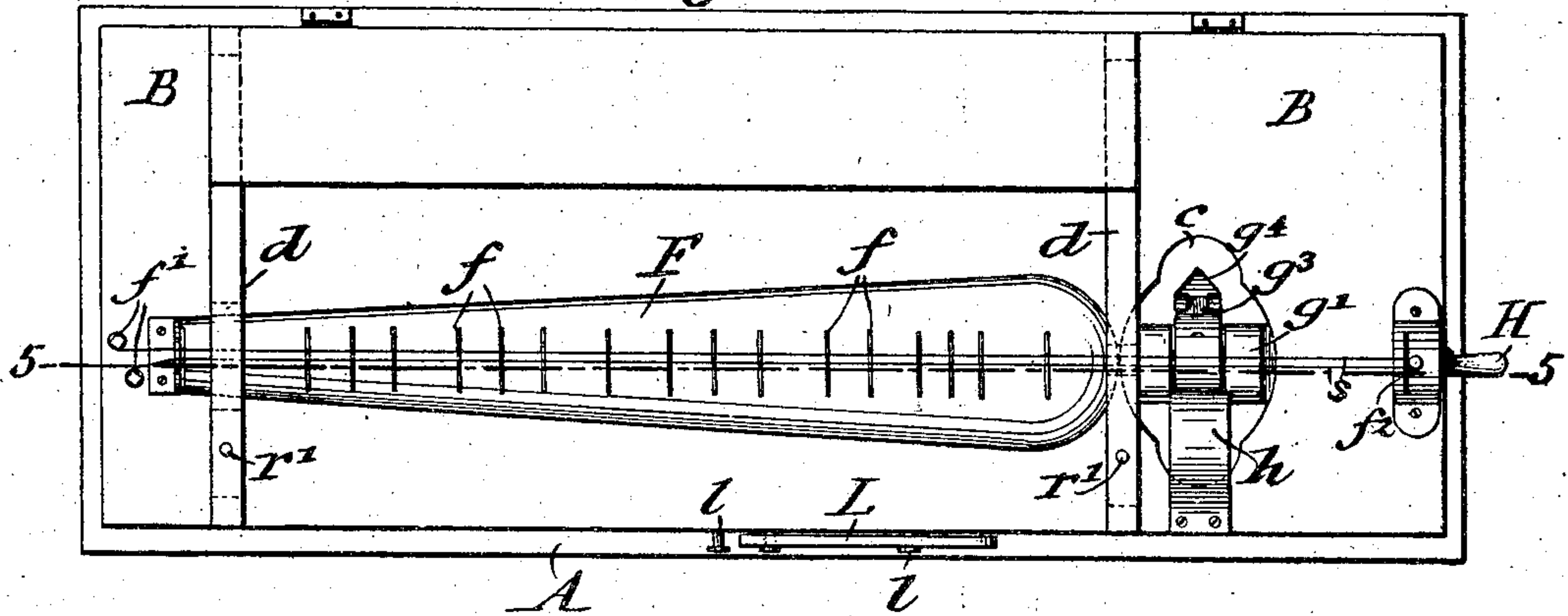
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2 Sheets—Sheet 2.

Fig. 4.



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# UNITED STATES PATENT OFFICE.

WILLIAM F. HOCHSPEIER, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF  
ONE-HALF TO ABRAHAM HIRSCH, OF SAME PLACE.

## MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 680,485, dated August 13, 1901.

Application filed February 9, 1901. Serial No. 46,685. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM F. HOCHSPEIER, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Musical Instruments, of which the following is a specification.

This invention relates to an improved musical instrument of that class which is intended to be used for playing a tune or melody on one string; and the invention consists of a musical instrument which comprises a base-board, a box-shaped sounding-board supported on the same, a fret-board attached to the sounding-board and provided with a number of transverse frets, a string or strings stretched by means of tuning and straining pins longitudinally of the sounding-board across said frets, a keyboard supported above the fret-board and provided with a number of pivoted and spring-actuated key-levers, grippers on said key-levers, a plurality of keys—one for each key-lever—for actuating the same, a picker-wheel rotatably supported on the base and provided with a number of yielding pickers the outer ends of which are adapted to contact with the string or strings and sound the same, and means for rotating the picker-wheel while the keys are depressed, so as to produce a melody; and the invention further consists in the specific construction of the picker-wheel, and, lastly, in means for regulating the volume of sound produced by the action of the picker-wheel on the strings.

In the accompanying drawings, Figure 1 represents a perspective view of my improved musical instrument. Fig. 2 is a vertical transverse section of the same on line 2 2, Fig. 1, drawn on a larger scale. Fig. 3 is a like section on line 3 3, Fig. 1. Fig. 4 is a top view of the instrument with the keyboard removed. Fig. 5 is a vertical longitudinal section of the same on line 5 5, Fig. 4; and Fig. 6 is a detail vertical transverse section through the fret-board and one of the sound-producing key-levers upon a larger scale than any of the other figures.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A indicates the

base-board of my improved musical instrument, which base-board is provided with the usual feet *a*, having pins, so as to be rigidly supported upon a table or other suitable support.

To the base-board A is hinged the body B of the instrument, which, like the base-board, is of oblong shape and is of a height sufficient to accommodate the picker-wheel within the same. The top part of the body B forms the sounding-board C. To the sounding-board is attached the fret-board F, which is provided with a number of metallic frets *f*, extending transversely across the same. One or more strings are stretched longitudinally above the fret-board F, said strings *s* being preferably of the same size and tuned in unison, so as to produce the same sound when sounded together. The string or strings are applied in the usual manner at one end to tuning-pins *f'* and at the opposite end to straining-pins *f''*, as shown in Figs. 4 and 5. Above the fret-board and strings is supported on transverse rails or bridges *d* a keyboard D, which is secured detachably in position by ribs *r* and pins *r'*. To the under side of the keyboard are applied as many key-levers *E* as there are frets *f*, each key-lever being preferably pivoted at its rear end, by a pin *d'* or otherwise, to the keyboard D and supported by means of suitable springs *d''* on hanger-pins *d'''*, each key-lever *E* being acted upon at the front end by a headed key *E'*, the shanks of the keys being guided in holes in the keyboard. The keys are preferably arranged in two rows, corresponding to the full tones and the sharps or flats of the same. Each key-lever is provided at its under side with a gripper *g*, of leather or other suitable material, that presses the strings on the frets, corresponding to the action of the fingers in stringed instruments, said grippers being made of sufficient width so as to press on all the strings simultaneously. The keys are retained in the keyboard by their heads *e* and retaining-pins *e'* at their lower ends.

The sounding-board C is provided at one end, outside of the keyboard-rail, with an opening *c*, below which a picker-wheel G is arranged, the shaft *s'* of the same being supported in suitable upright standards *g' g'*, sup-



ported on the base-board A. The shaft of the picker-wheel is extended beyond the bearing of one of its standards and through the adjacent end wall of the body B to the outside and provided with a hand-crank H for turning the picker-wheel by the right hand, while the left hand operates the keys E' for playing the melody. In place of the hand-crank the picker-wheel may be rotated by a spring-actuated clock-train or other suitable motor, if desired, as I do not confine myself to a hand-crank for rotating the picker-wheel. The picker-wheel itself is constructed of a disk  $g^2$ , which is provided with elastic radial arms  $g^3$ , having at their outer ends fingers  $g^4$ , made of metal or any other suitable material and of proper shape for producing a clear and distinct picking of the strings. The picker-arms may be secured in radial slots or recesses of the disk  $g^2$  by cementing them therein or by means of screws or pins  $g^5$  for rendering them more easily detachable for replacement when worn out or may be secured to the disk in any other suitable manner.

A tongue  $h$ , provided with a lining of sound-deadening material, such as felt, is applied to the sounding-board and extends over the picker-wheel into the path of the pickers as they approach the strings, so as to set the same to tension and cause the same to snap against and pass the strings, producing thereby a more effective picker action than would be possible without the tongue.

For the purpose of regulating the volume of sound to be produced by the instrument the body B is preferably hinged at its rear wall  $b'$  to the base-board A, and the front wall  $b^2$  is provided with a cam-lever L, fulcrumed to the same and capable of being swung between two stop-pins  $l$ , applied to the front wall. The lower end of the cam-lever bears upon the base-board and when turned from inclined into vertical position produces a slight lifting of the body, and thereby of the strings and the retaining-tongue relatively to the ends of the yielding pickers, so that the pickers are caused to act on the strings with less power than before and produce thereby a softer tone. The sound-regulating attachment is somewhat analogous to the pianissimo or expression-pedal in pianos.

When two or more strings are employed, the fret-board and frets are curved transversely of the instrument on circles of which the axis of the picker-wheel is the center, and the strings are arranged likewise in the arc of a circle, and the grippers are concaved, so that all the strings are pressed simultaneously upon depressing a key. The sounding-board, instead of being made of wood or other firm material with which the tone of the instrument resembles that of a mandolin, may be made of skin to produce a banjo-toned instrument, the fret-board being in this case supported from the bridges  $d$  or in any other suitable manner.

The instrument may be made up in elab-

orate style, with keys for all the whole and half tones, as on a piano, or with only those required for playing in certain keys, and the strings may be tuned all the same or to octaves. When the instrument is made up for use as a toy, however, the expression mechanism is omitted and the number of keys and strings reduced and the entire instrument made up in a cheaper style. Even as a toy, however, it has the advantage of being easily understood and operated and of producing tunes within its limits. When the expression-lever is used, it can be operated by the thumb of the left hand, the fingers of this hand operating the keys without interruption, while the right hand operates the picker-wheel.

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

1. A musical instrument, consisting of a base-board, a body thereon provided with a sounding-board at its upper part, a longitudinal fret-board provided with transverse frets, a string or strings stretched longitudinally above said fret-board, a keyboard provided with keys, transverse spring-actuated key-levers actuated by said keys, said key-levers being provided above the strings with grippers, a picker-wheel rotatably supported on the base and provided with a plurality of yielding pickers adapted to sound the strings, and means for imparting rotary motion to the picker-wheel, and a retaining-tongue adapted to engage the pickers, so as to set them to tension before they strike the strings, substantially as set forth.

2. In a musical instrument, the combination of a base-board, a body, a sounding-board supported by said body, strings stretched on the sounding-board, a picker-wheel provided with yielding pickers adapted to sound the strings, means for rotating said picker-wheel, and a retaining-tongue adapted to engage the ends of the pickers so as to set them to tension before they engage the strings, substantially as set forth.

3. In a musical instrument, a base-board, a body supported on the same, strings stretched on said body, a picker-wheel supported on the base-board, pickers carried by said picker-wheel and adapted to sound the strings, a retaining-tongue located on said body, and means for altering the distance between the strings and retaining-tongue and the axis of the picker-wheel, for controlling the volume of sound to be produced, substantially as set forth.

4. In a musical instrument, a base-board, a body supported on the same, a sounding-board on said body, a longitudinal fret-board provided with transverse frets, a string or strings stretched longitudinally above said fret-board, a keyboard provided with keys, transverse spring-actuated key-levers below said keys, said key-levers being provided with grippers above the frets, a picker-wheel pro-



vided with a plurality of yielding pickers, means for imparting rotary motion to the picker-wheel, and means for raising said body from the base-board so as to regulate the expression, substantially as set forth.

5 5. In a musical instrument, the combination of a base-board, a body supported on the same, a sounding-board supported by said body, a fret-board supported on the sounding-board, strings applied to the sounding-board and stretched across the fret-board, a keyboard, keys guided on the same, key-levers actuated by the keys and adapted to engage the strings, a picker-wheel, means for  
10 rotating the same, a cam-lever fulcrumed to the front wall of the body and adapted to engage the base-board so as to raise or lower the body, and stop-pins for said cam-lever on the front wall of the body, substantially as  
15 set forth.

20 6. In a musical instrument, the combination, with strings, and means for supporting the same, of a picker-wheel provided with yielding pickers adapted to engage and sound the strings, means for rotating said picker-wheel, and means adapted to engage said  
25 pickers and set them to tension before they engage the strings, substantially as set forth.

7. In a musical instrument, the combination, with a string, and means for supporting  
30 the same, of a fret-board adjacent said string, a shaft journaled in suitable bearings, a picker-wheel mounted on said shaft, a plurality of yielding pickers attached to said wheel and adapted to sound the string, a  
35 hand-crank attached to said shaft, a keyboard, a plurality of spring-actuated keys mounted in said keyboard, and grippers engaged by said keys for pressing the strings upon the fret-board, substantially as set forth.  
40

8. In a musical instrument, the combination, with strings, and means for supporting  
45 the same, of a picker-wheel provided with pickers adapted to sound the strings, means for rotating said picker-wheel, and a retaining-tongue adapted to engage the pickers and set them to tension for causing the same to snap against and past the strings, substantially as set forth.

In testimony that I claim the foregoing as  
50 my invention I have signed my name in presence of two subscribing witnesses.

WILLIAM F. HOCHSPEIER.

Witnesses:

PAUL GOEPEL,  
JOSEPH H. NILES.