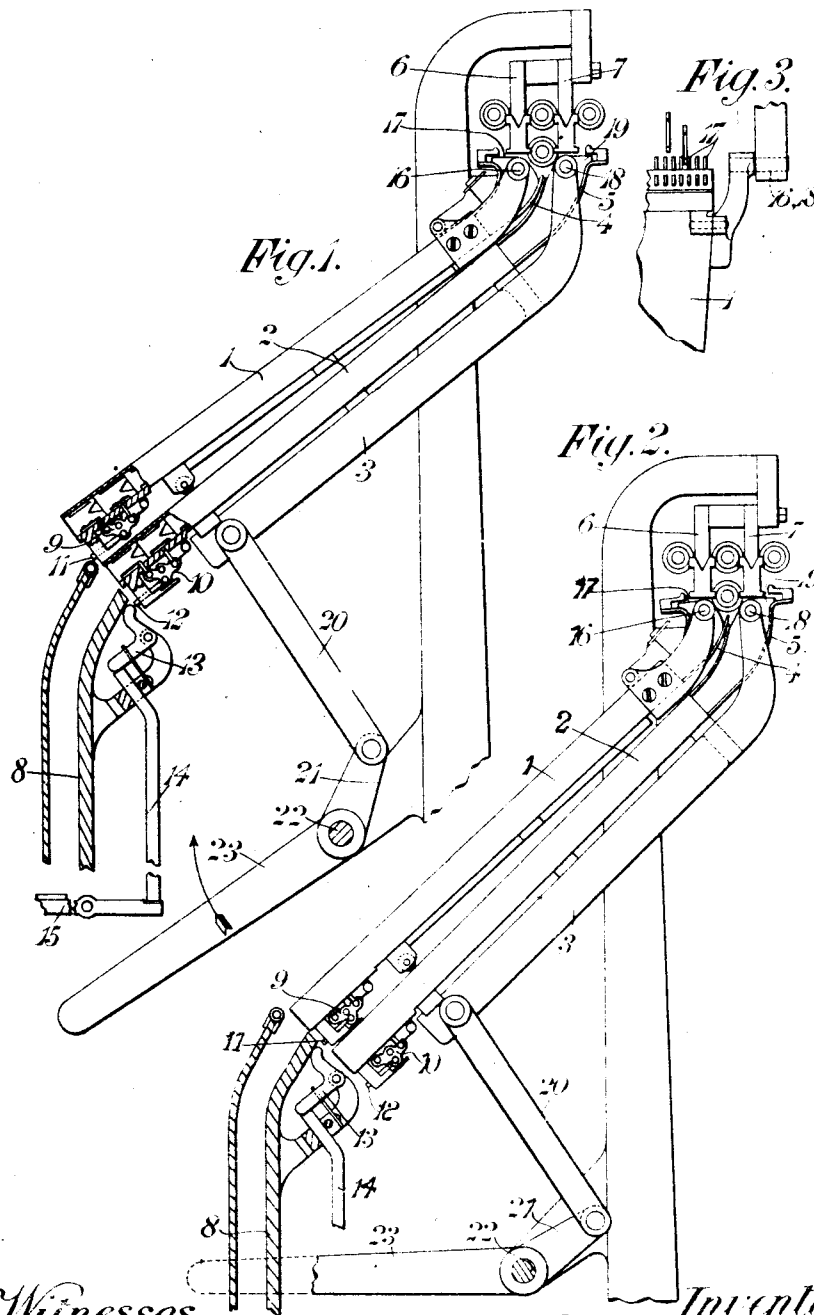


C. MUEHLEISEN.
 TYPOGRAPHICAL COMPOSING MACHINE.
 APPLICATION FILED FEB. 5, 1912.

1,031,952

Patented July 9, 1912

4 SHEETS-SHEET 1.



Witnesses
L. L. Thomson
R. R. Murphy

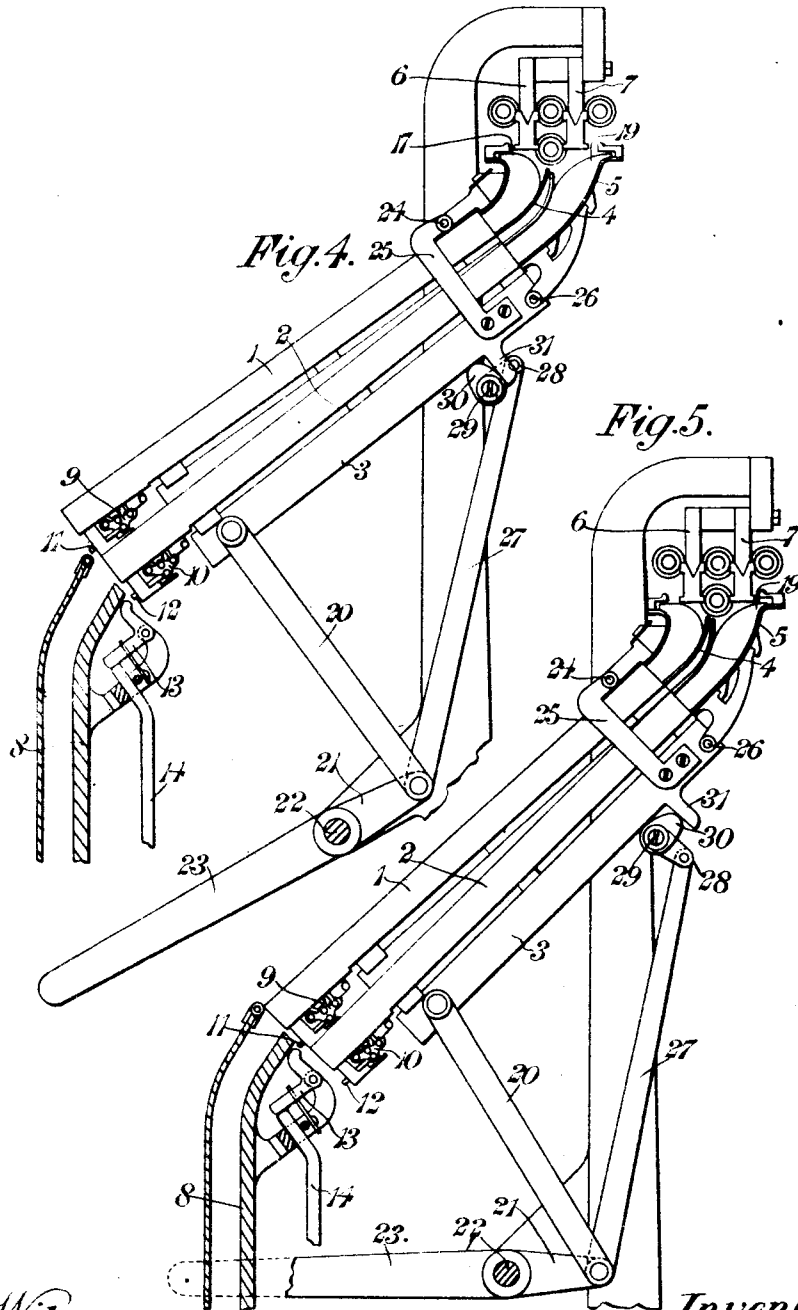
Inventor
Carl Muehleisen
 per
R. P. Dodge Attorney

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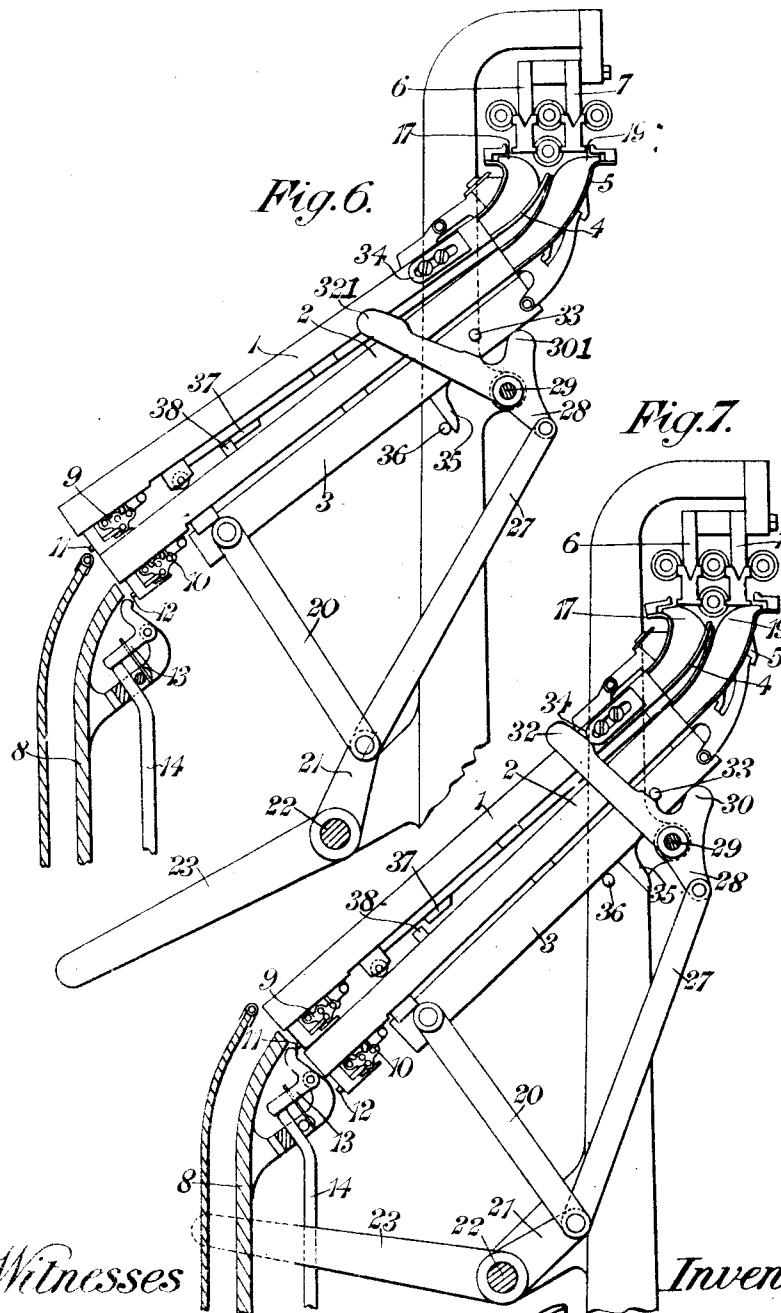
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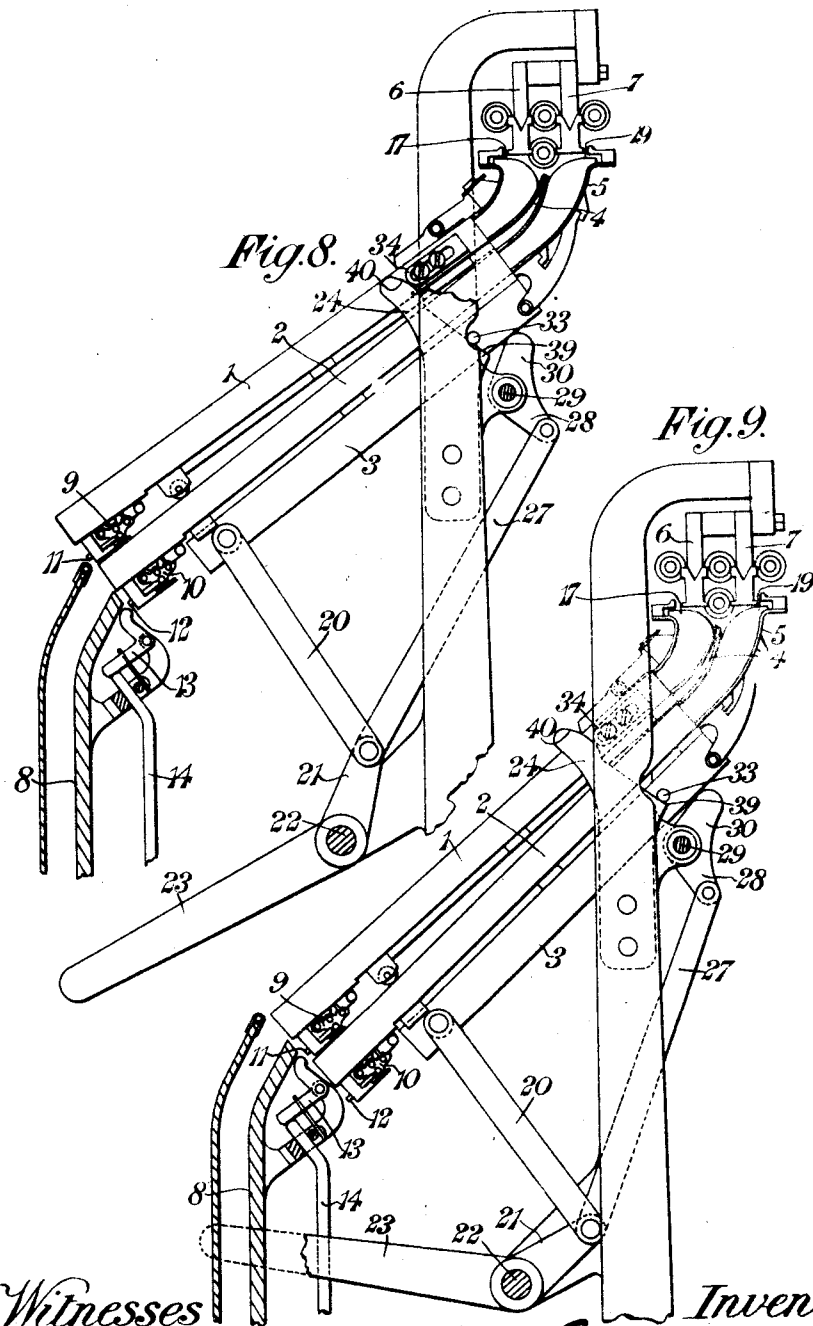
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 per
 R. T. Dodge Attorney.

UNITED STATES PATENT OFFICE.

CARL MUEHLEISEN, OF BERLIN, GERMANY, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

TYPOGRAPHICAL COMPOSING-MACHINE.

1,031,952.

Specification of Letters Patent.

Patented July 9, 1912.

Application filed February 5, 1912. Serial No. 675,524.

To all whom it may concern:

Be it known that I, CARL MUEHLEISEN, a citizen of the United States of America, residing at 23 Chausseestrasse, Berlin, N. 4, in the Empire of Germany, have invented new and useful Improvements in Typographical Composing-Machines, of which the following is a specification.

The invention relates to a typographical composing machine having a fixed assembler entrance and a plurality of magazines pivotally arranged relatively to the said entrance, which magazines, by means of magazine entrances movable with them, are in constant relation each with its respective distributor. When changing magazines in this kind of composing machine, the magazines must be moved relatively to the fixed assembler entrance in such a manner that the relationship between the said magazines and the magazine entrances shall not be so disturbed as to interfere with the admission of the matrices into the magazines. The accurate admission of the matrices into one or other of the magazines is secured, when the distance between the matrices hanging on the distributor bar and the partition or guide plates of the magazine entrance, is the same, or nearly the same, for each position of the magazines. The invention gives effect to this condition by arranging the pivotal axis about which each magazine, with its magazine entrance, is capable of being turned, parallel with, and underneath, the respective distributor bar and in, or nearly in, the horizontal plane containing the upper edges of the guide plates of the magazine entrance. The just mentioned axis of the magazines may either be real, that is to say, it may consist of an actual pivot, or it may be imaginary, by which latter term I mean that the location of the axis is determined by the resultant or combined effects of the specific movements hereinafter set forth. In the latter case, the turning of the magazines about the respective axes is effected by a lever, which, by means of a push or thrust rod, directly moves the front ends of the magazines relatively to the assembler entrance, and, by means of a link, partially rotates a cam, which simultaneously raises the rear ends of, and longitudinally moves the magazines.

Figure 1 is a side elevation, partly in sec-

tion, illustrating one form of my invention; Fig. 2 is a similar view showing the parts in different position; Fig. 3 is a detail view showing the mode of pivoting the magazines; Figs. 4 and 5 are views similar to Figs. 1 and 2, illustrating a modification; Figs. 6 and 7 are similar views illustrating another modification; and Figs. 8 and 9 are similar views illustrating still another modification.

Four constructional forms of the invention are shown in the drawings: The first constructional form is shown in side elevation, partly in vertical section in the two different positions of the magazines in Figs. 1 and 2. Fig. 3 is a front view of part of the arrangement shown in Figs. 1 and 2. In this constructional form the pivotal axes of the magazines are real and embodied in pivot pins. The three other constructional forms, in which the magazines have imaginary pivotal axes, are shown in various positions of the magazines relatively to the fixed assembler entrance in side elevation, partly in vertical section, in Figs. 4 and 5, 6 and 7, and 8 and 9 respectively. In all of the said constructional forms, 1 is the upper magazine, 2, the lower magazine, and 3, the magazine supporting frame. 4 and 5 are the magazine entrances movable with the magazines 1 and 2, to conduct the matrices from the distributor bars 6, 7, to the magazines. 8 is the fixed assembler entrance or plate, adjacent to which the front ends of the magazines are movable. The escapement levers 9, 10 of the magazines are connected with forwardly-projecting pushers 11, 12, each set of which, according to the particular magazine in register with the assembler entrance 8, is brought into operative relationship with the upper arms of a set of angle levers 13, upon whose other arms the escapement rods 14 of the keys 15 (Fig. 1) operate.

In the first constructional form, illustrated in Figs. 1, 2 and 3, the magazine 1 is, at its sides, provided with co-axial pivot pins 16 free to turn in fixed bearings on the machine frame. The axis of the pins 16 extends directly beneath the distributor bar 6 and nearly in the plane in which terminate the upper ends of the guide plates 17 of the magazine entrance 4. The lower magazine 2 rests upon the magazine frame 3, having on its sides co-axial pivot pins 18,

the axis of which extends beneath the distributor rail 7 and nearly in the plane in which terminate the upper ends of the guide plates 19 of the magazine entrance 5. The magazine 1 is slidable fore-and-aft upon the magazine 2 and the latter is similarly slidable upon the magazine frame 3. The pivoted magazine frame 3 is, at its front end, through thrust rods 20, connected with arms 21, fast on a rocking shaft 22, which can be turned by means of a hand lever 23, to adjust the magazines relatively to the fixed assembler entrance. In Fig. 1, the lower magazine 2 is in working position. If it be desired to bring the upper magazine into working position, as in Fig. 2, the lever 23 must be turned in the direction of the arrow shown in Fig. 1, so that the front end of the magazine frame 3, with the magazines thereon, will be moved downward, while the magazines at their rear ends turn about their respective pivots 16 and 18. By reason of their special arrangement according to the present invention, the upper edges of the guide plates 17 and 19 of the magazine entrances 4 and 5 respectively, remain closely beneath the matrices hanging on the distributor bar 6, 7, so that, even in this position of the magazines, the matrices can freely enter between the guide plates 17, 19.

In the second constructional form shown in Figs. 4 and 5, the magazines 1 and 2 which, as in the preceding example, are slidable fore-and-aft, are supported by the magazine frame 3. The magazine entrances 4 and 5 are pivotally attached to the magazine frame 3, the entrance 4 by means of pins 24 on arms 25 fixed to the said magazine frame 3, and the entrance 5 by means of pins 26 fixed directly to the magazine frame 3 itself; by these means the said magazine entrances are connected with the magazines 1 and 2, so that they participate in the movement of the latter. It will be seen that when the magazines 1 and 2 are shifted relatively in the manner subsequently to be described, the throats 4 and 5, due to their contact with the magazines, will be shifted about their pivots 24 and 26, respectively, but not to an extent sufficient to affect their constant relationship to the distributor rails 6 and 7. The front end of the magazine frame 3 as in the preceding example, is connected by means of thrust rods 20 to arms 21 on the rocking shaft 22 which can be turned by a hand lever 23. The arms 21 are also connected by means of links 27 with arms 28 fast to a shaft 29 carrying cams 30 and capable of turning in bearings in the main frame. The cams 30 act on the under side of the magazine frame and on lugs 31 extending downward from the under side of the magazine frame 3. When the lever 23 is raised from the

position in which it is shown in Fig. 4, to that in which it is shown in Fig. 5, the cams 30 simultaneously lower the magazine frame 3 and push it rearward. By these means the lowering movement given to the front ends of the magazines is larger than the lowering movement given to the rear ends relatively to the length of the arcual movement, and the lengthwise movement of the magazines corresponds with the versed sine of their arcual movement so that both of the magazines are turned about a shifting axis substantially located beneath the distributor bars and above the upper edges of the guide plates of the magazine entrances.

A similar device is shown in Figs. 6 and 7. In this construction the cam 301 does not push the magazines lengthwise, but serves solely to raise and lower them, while an arm 321 rigidly connected with the cam, causes the magazines to slide upward, and leaves them free to slide downward by gravity. The arm 321 operates upon lateral projections or studs 33 on the magazine frame 3, and 34 on the upper magazine 1. The projection 34 is preferably adjustable on the magazine 1, and the downward movement of the magazines is limited by stops. To this end the magazine frame 3 has a lug 35, cooperating with a fixed stop 36 on the machine frame, while the upper magazine 1 carries on its lower side, a stop rail 37 cooperating with stops 38 on the upper side of the lower magazine 2.

In the constructional forms shown in Figs. 8 and 9, a cam 30 again serves to raise and lower the magazines at their rear ends. The lengthwise sliding movement of the magazines, during the raising and lowering is controlled by stationary guiding surfaces or cams 39 and 40, provided on arms 41 fixed to the machine frame. These surfaces 39 and 40 serve as supports for the side stops 33 and 34 on the magazine frame 3 and upper magazine 1 respectively, so that during the raising and lowering of the rear ends of the magazines, the studs 33, 34, slide upon the surfaces 39 and 40. The form and arrangement of the surfaces 39 and 40 are such that during the raising or lowering of the rear ends of the magazines, the required sliding motion of the magazines also takes place.

Having described my invention, I declare that what I claim and desire to secure by Letters Patent is:—

1. In a typographical composing machine, the combination of assembling devices to cooperate with a single magazine at a time, and a plurality of conjointly movable magazines, any selected one of which may be brought into operative relation thereto, the said magazines being mounted so as to be capable of movement with reference to each

other in passing into and out of such operative position.

2. In a typographical composing machine, the combination of assembling devices to co-operate with a single magazine at a time, and a plurality of conjointly movable magazines, any selected one of which may be brought into operative relation thereto, the said magazines being mounted so as to be capable of movement with reference to each other in passing into and out of such operative position, together with means for imparting such relative movements thereto.

3. In a typographical composing machine, the combination of assembling devices to co-operate with a single magazine at a time, and a plurality of conjointly and pivotally movable magazines, any selected one of which may be brought into operative relation thereto, the said magazines being mounted so as to be capable of movement with reference to each other during their pivotal movement in passing into and out of such operative position.

4. In a typographical composing machine, the combination of assembling devices to co-operate with a single magazine at a time, and a plurality of conjointly and pivotally movable magazines, any selected one of which may be brought into operative relation thereto, the said magazines being mounted so as to be capable of movement with reference to each other during their pivotal movement in passing into and out of such operative position, together with means for imparting such pivotal and relative movements thereto.

5. In a typographical composing machine, the combination of assembling devices to co-operate with a single magazine at a time, and a plurality of conjointly movable magazines, any selected one of which may be brought into operative relation thereto, the said magazines being mounted so as to be capable of pivotal movement about inde-

pendent axes while passing into and out of such operative position.

6. In a typographical composing machine, the combination of assembling devices to co-operate with a single magazine at a time, and a plurality of conjointly movable magazines, any selected one of which may be brought into operative relation thereto, the said magazines being mounted so as to be capable of pivotal movement about independent axes and movement relative to each other while passing into and out of such operative position.

7. In a typographical composing machine, the combination of assembling devices to co-operate with a single magazine at a time, and a plurality of conjointly movable magazines, any selected one of which may be brought into operative relation thereto, the said magazines being mounted so as to be capable of pivotal movement about independent axes while passing into and out of such operative position, together with means for imparting such pivotal movements thereto.

8. In a typographical composing machine, the combination of assembling devices to co-operate with a single magazine at a time, and a plurality of conjointly movable magazines, any selected one of which may be brought into operative relation thereto, the said magazines being mounted so as to be capable of pivotal movement about independent axes and movement relative to each other while passing into and out of such operative position, together with means for imparting such pivotal and relative movements thereto.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

CARL MUEHLEISEN.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.