

No. 726,222.

PATENTED APR. 21, 1903.

H. C. HESS.
WRITING MACHINE.

APPLICATION FILED FEB. 21, 1900. RENEWED MAY 17, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

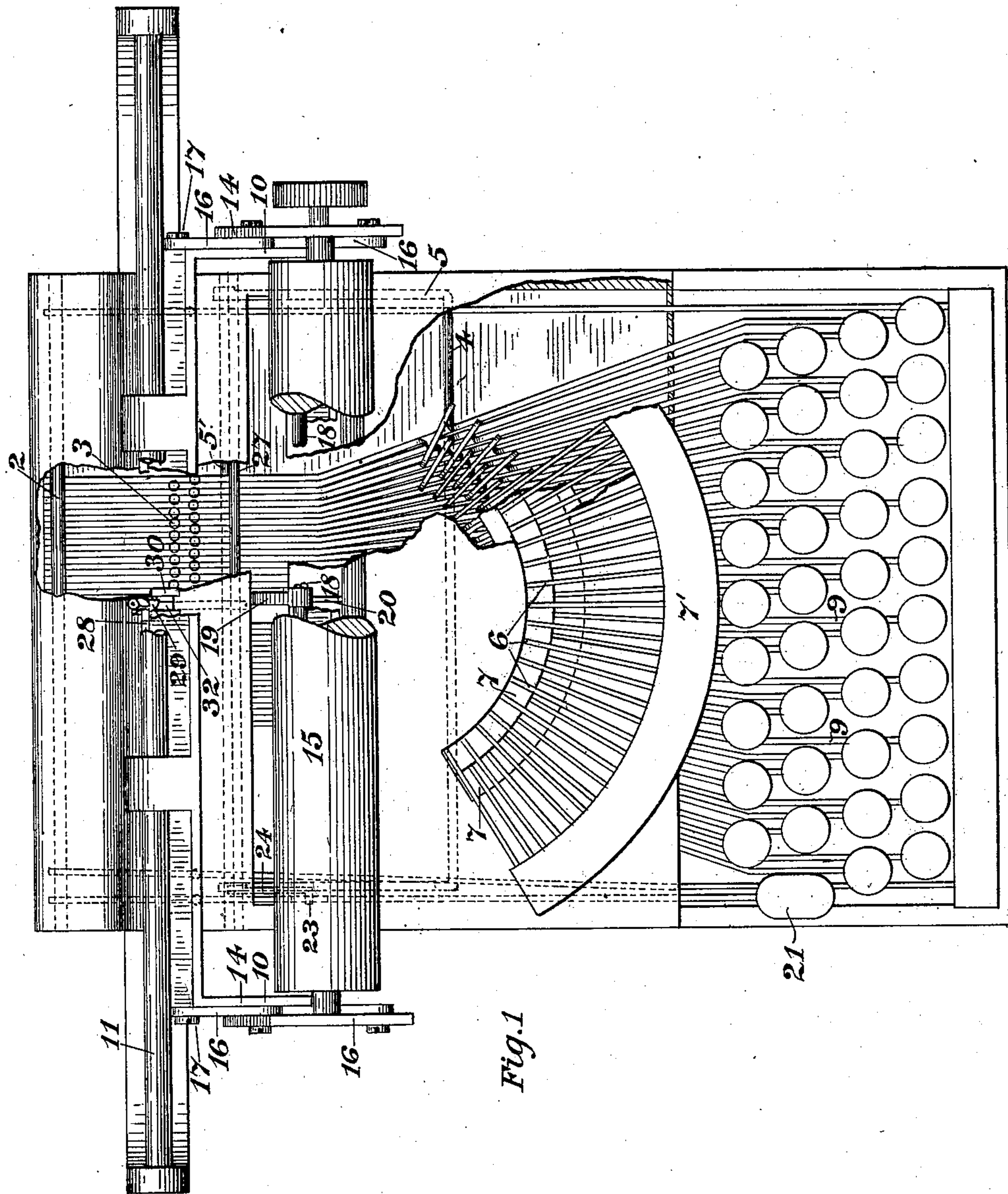


Fig. 1

Witnesses
C. D. Ladley
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Herbert C. Hess Inventor
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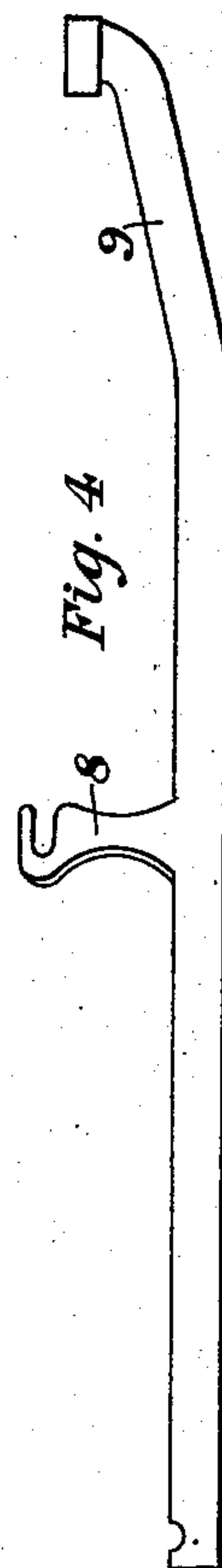
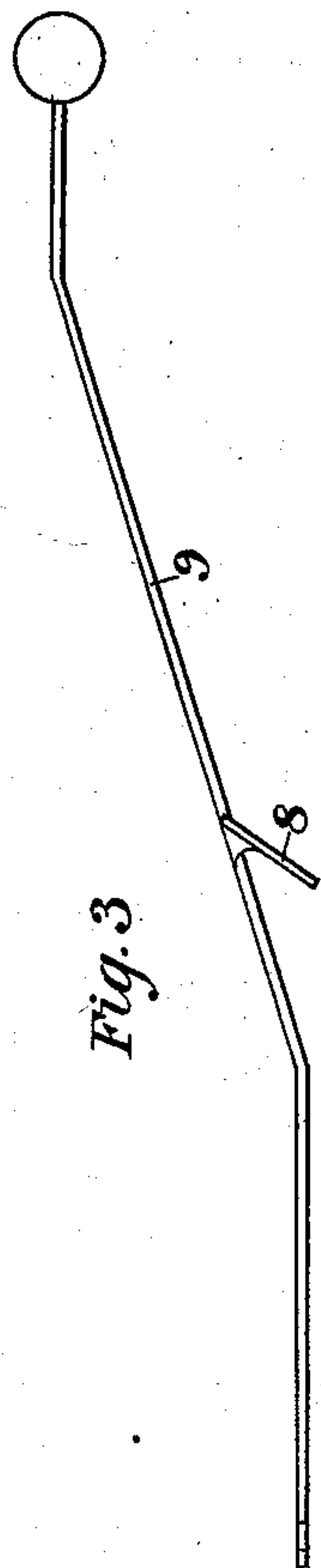
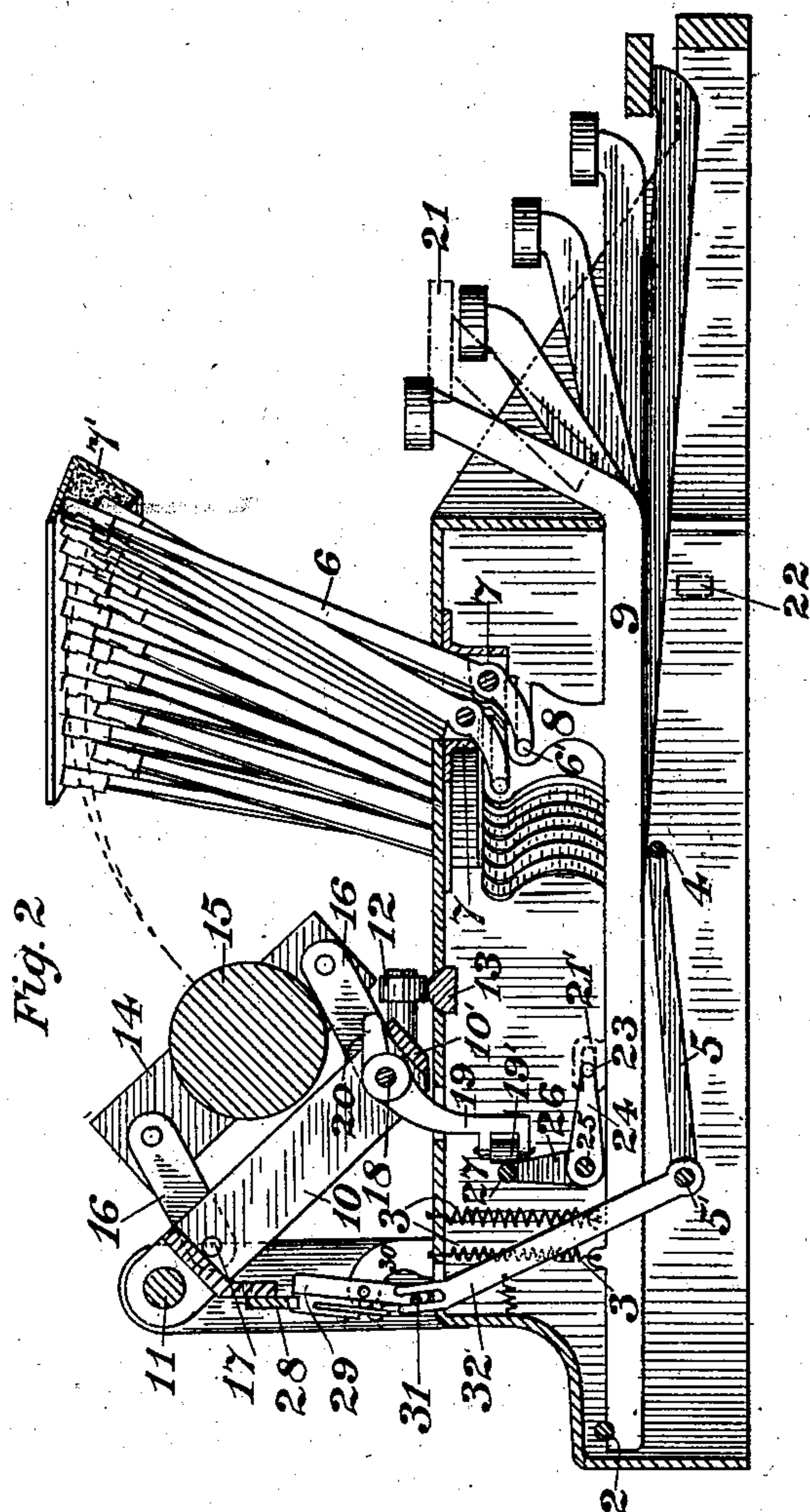
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2 SHEETS—SHEET 2.



Witnesses
C. D. Radley
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By his Attorneys
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UNITED STATES PATENT OFFICE.

HERBERT C. HESS, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO VISIBLE WRITING MACHINE COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

WRITING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 726,222, dated April 21, 1903.

Application filed February 21, 1900. Renewed May 17, 1901. Serial No. 60,768. (No model.)

To all whom it may concern:

Be it known that I, HERBERT C. HESS, a citizen of the United States, residing at Flatbush, borough of Brooklyn, New York city, State of New York, have invented certain new and useful Improvements in Writing-Machines, of which the following is a specification.

My invention relates to a machine in which the platen in addition to its ordinary endwise movement has a motion transversely thereto and in a plane oblique to the horizontal plane of the machine and wherein the type-bars normally occupy a position at rest inclined from their pivots, which are located in front of the platen, upwardly and toward the front of the machine, the printing-point on the platen being in a plane of about forty-five degrees, more or less, from a vertical transverse plane through the machine. One of the advantages of a machine of this general type is that the operator has the matter being printed constantly in view at a point most convenient for observation as she sits in front of the machine.

The purpose of my invention is to improve the construction of a machine of this general character, so as to render it more simple, more perfect in operation, and less liable to derangement.

In Letters Patent of the United States No. 644,515, dated February 27, 1900, I have shown a machine of the general type above suggested and have claimed therein certain special features of construction not herein disclosed.

In the accompanying drawings, Figure 1 is a plan view, partly broken away; Fig. 2, a central transverse section; Fig. 3, a detail plan of one of the key-levers, and Fig. 4 a side elevation of same.

In the machine illustrated I have shown two series of type-bars placed one behind the other and each containing nineteen bars. They are pivoted in front of and below the platen, and there is one shift-key for moving the platen transversely and obliquely from its normal position to one other position, and consequently there are two characters upon each type-bar. This gives seventy-six characters. The type-bars, however, might be differently

arranged and different in number. For instance, there may be twenty-eight type-bars arranged in a single series in front of the platen and two shift-keys, in which event each bar would have three characters thereon. Such a machine with but two characters on each type-bar and a single shift-key would be suitable for some special purposes.

A characteristic of the machine is that the operative connections between each key-lever and its type-bar is an interlocking connection directly between the type-bar and the key-lever, other connections—such as links, bell-crank levers, &c.—being entirely eliminated.

Any suitable inking devices may be employed; but as such feature of a writing-machine forms no part of the present invention it has not been shown. The platen-roll will be provided with usual line-spacing devices and the carriage with the usual marginal and other stops and other well-known devices usually employed in connection therewith, and as these various features form no part of the present invention they are not shown herein.

The frame of the machine may be of any suitable construction, and special reference thereto is unnecessary, as it is sufficiently illustrated in the drawings.

The various key-levers are arranged in a bank in the front of the machine, rock about a transverse bar 2 at the rear of the machine, being each normally drawn to their upper position by a spring 3, and lie above the universal bar 4 in suitable juxtaposition thereto. The universal bar 4 is mounted in the ends of arms 5, fixed at each side of the machine upon a transverse shaft 5', rocking upon suitable bearings. The type-bars 6 are pivoted in two series, one in front of the other, in front of and below the platen, and there are or may be nineteen bars in each series. The two series are pivoted, respectively, in two segments 7 7, mounted upon or carried by the top plate of the machine or otherwise mounted and supported, as may be desired. The segments are arcs of circles, or approximately so, of which the printing-point on the platen is approximately the axis. The type-bars lie

normally inclined toward the front of the machine, resting at their upper ends upon the pad or back-stop 7'. Their upper ends are respectively bent laterally, so that the parts carrying the printing characters or type shall when in juxtaposition to the platen be at right angles to the axis thereof. Each type-bar is extended beyond its pivot downwardly and rearwardly, as shown, and has thereon a lateral projection or pin 6', that engages a horizontal slot in the key-lever or in a plate or part 8, projecting up from the horizontal part of the key-lever 9. This connection between the key-lever and its type-bar will be understood clearly from the detail views, Figs. 3 and 4.

A feature of the invention is an arrangement of the key-levers 9, as indicated in the plan view, Fig. 1. It will be observed that their rear or pivot ends are relatively close together and that they diverge or incline laterally from the longitudinal center line of the machine. This arrangement of type-bars and key-levers brings each lever in better position relatively to its type-bar than would be the case if the type-bars were arranged as shown and the levers extended straight from the rear to the front of the machine in lines transverse to the axis of the platen. At the same time, while preserving as near as may be the proper relation of the key-levers and type-bars, a more open arrangement of the bank of keys is permissible. The pivots of the type-bars are arranged in an arc whose chords are of approximately the length of the space occupied by the key-levers immediately below the type-bars. Each projection 8 on a key-lever is twisted, so that it lies approximately in line with the radius of the arcs in which the type-bars are pivoted, and the lower ends of the type-bars are correspondingly deflected to bring each bar into proper relation to the slotted plate 8 of its key-lever. In this way I obtain quite a direct pull upon the key-lever and avoid torsional or lateral strains. As the platen has but a single shift or one position other than the normal one, there are two characters on each type-bar.

The carriage 10 at its upper or rear side runs upon a fixed transverse rod 11 and at its forward or lower side is provided with a roll 12, traveling on a fixed transverse bar 13, and the plane in which the carriage is disposed is oblique to a vertical transverse plane through the machine and is illustrated as at an angle of about forty-five degrees thereto. The mechanism for feeding the carriage may be of any suitable well-known kind, and the particular mechanism herein illustrated is hereinafter described.

The frame 14, in which the roller-platen 15 has its bearings, is mounted in two parallel links 16 16 at each end of the carriage. The two corresponding pivoted links 16 at the rear of the platen-frame are fast to a shaft 17, mounted in the carriage, while the

two corresponding pivoted parallel links at the front of the platen-carriage are rigidly connected with a rock-shaft 18, turning in suitable bearings in the end pieces of the carriage. Centrally fixed to this rock-shaft is a downwardly-extending arm 19, having at its end a roller 19', and a portion 20, extending from the opposite side of the rock-shaft 18 and coming against the front cross-bar 10' of the carriage, constitutes a stop that limits the movement of the platen-frame toward the pivots of the type-bars. This is the normal position, and when a key-lever is depressed the type-bar is swung about its pivot and the character nearest its pivot strikes against the platen at the printing-point. The platen has one other position at a greater distance from the type-bar pivots, and one shifting-key 21 is provided for effecting this movement. This lever is arranged at the left side of the machine, and its depth of movement is limited by a suitable stop 22 or in any other suitable manner. The shift key-lever 21 has a slotted projection or plate 21' at its upper edge, and in the slot works a pin 23, projecting from an arm 24, attached to a rock-shaft 25, which has arms 26 extending therefrom at or near its ends and connected by cross-bar 27, that normally is in contact with the roller 19' in the end of the arm 19, attached to the rock-shaft 18, to which are connected the parallel arms 16 16 at the front of the platen-frame. When the key-lever 21 is depressed, the cross-bar 27, coming against the arm 19, causes the platen-frame to move backwardly on its parallel link-supports (the extent of movement being limited by the stop 22 or otherwise) and the printing-point on the platen is brought into position to receive the impact of the second type or character on the type-bar.

Any suitable form of guide for receiving the end of the type-bar when it is adjacent to the platen and directing the character thereon accurately to the printing-point may be employed. In fact, the arrangement shown in the patent granted to me February 27, 1900, No. 644,515, may be employed, and in this connection I may say that the construction shown in that patent of the frame carrying the segment to which the type-bars are pivoted and also the back-stop or rest against which the type-bars normally lie may in general be employed in the machine herein described. In the drawings the manner of supporting the back-stop or pad 7' is not shown. It may, however, be held by standards by each end rising from the top plate of the machine or in the manner shown in my patent above referred to.

The feed-rack 28 of the carriage is shown attached to the rear cross-bar of the carriage and as arranged in a vertical plane. The feed-dog or latch 29 is pivoted upon an upright projection 30 on the top plate of the machine, and its lower end carries a laterally-projecting pin 31, that engages the forked or

slotted end of an arm 32, projecting from and fast on the rock-shaft 5' of the universal bar 4.

The operation is apparent and usual, and no detailed description is required.

It is apparent that the principles of construction shown and described may be embodied in a machine in which the platen has two positions other than normal and in which there are consequently two shift-keys and three characters upon each type-bar. A machine of that general character is shown in my patent above mentioned.

I have shown only such parts of the machine as are involved in or intimately associated with my present invention. As before stated, however, the machine will be provided with all of the usual adjuncts of a practical writing-machine; but as none of these have any bearing in a patentable sense on this invention I have omitted illustration and description of them.

I claim as my invention—

1. The combination with an endwise-movable carriage, a platen mounted thereon and movable transversely to the line of travel and obliquely to the horizontal plane of the machine, means for at will so moving the platen transversely, a series of pivoted horizontally-disposed key-levers extending under the carriage and to the front of the machine, a series of type-bars pivoted in front of the platen below the horizontal plane thereof and normally inclined away from the platen toward the front of the machine, two or more characters on each type-bar and a direct interlocking connection between each type-bar and its corresponding key-lever.

2. The combination of an endwise-movable carriage, a platen mounted thereon and movable transversely to the line of travel and obliquely to the horizontal plane of the machine, means for at will so moving the platen transversely, a series of horizontally-disposed key-levers radially arranged pivoted at their rear ends at the rear of the machine and extending under the carriage to the front of the machine, a series of type-bars each pivoted in a fixed support in front of and below the plane of the platen and normally inclined away from the platen toward the front of the machine, a direct interlocking connection between each key-lever and its corresponding type-bar and more than one character on each type-bar.

3. The combination of a carriage traveling endwise upon fixed rails or supports, a platen mounted thereon and adapted to be shifted transversely to its axis in a plane oblique to the horizontal plane of the machine from its normal position, a series of type-bars each pivoted at their lower ends upon a stationary frame or support in front of and below the level of the platen and normally lying at rest inclined from the pivots away from the platen and toward the front of the machine, a series of character key-levers horizontally arranged,

pivoted at the rear of the machine, extending forward under the carriage and type-bars and respectively operatively connected with their corresponding type-bars, a similarly pivoted and arranged shift key-lever, devices for shifting the platen obliquely and a direct interlocking connection between the shift key-lever and said devices, and two characters on each type-bar, substantially as set forth.

4. The combination of the fixed stationary front and rear guide-bars of the carriage, the front bar being arranged at a considerably lower level than the rear bar, an endwise-movable carriage arranged thereon in a plane oblique to the horizontal plane of the machine, a platen, a platen-frame mounted upon the carriage and adapted to be shifted transversely to the line of travel of the carriage in a plane oblique to the horizontal plane of the machine, a series of type-bars each pivoted upon a stationary frame or support at their lower ends and in front of and below the level of the platen and normally lying at rest with their upper ends inclined away from the platen and toward the front of the machine, a series of character key-levers horizontally arranged pivoted at the rear of the machine beneath the carriage, extending forward under the carriage and type-bars and respectively operatively connected with their corresponding type-bars by a direct interlocking connection, a similarly pivoted and arranged shift key-lever, an operative connection between the shift key-lever and the obliquely-movable platen-frame, and two type or characters on each type-bar, substantially as and for the purpose set forth.

5. The combination of a platen movable endwise and transversely in a plane oblique to the horizontal plane of the machine, means for at will moving the platen obliquely transversely, a series of type-bars pivoted in front of the platen and each having more than one character thereon, a series of horizontally-disposed key-levers pivoted at the rear of the machine and extending forward under the platen and type-bars and a direct interlocking connection between each key-lever and its corresponding type-bar.

6. The combination of a platen movable endwise and transversely in a plane oblique to the horizontal plane of the machine, means for at will moving the platen obliquely transversely, a series of type-bars pivoted in front of the platen and each having more than one character thereon, a series of horizontally-disposed key-levers pivoted at the rear of the machine and extending forward under the platen and type-bars, and a slot-and-pin connection between each key-lever and its type-bar.

7. The combination of the obliquely-shifting platen, type-bars pivoted in a curve in front of the platen, radially-arranged key-levers pivoted at the rear of the machine and extending forward under the platen and type-bars and each having thereon a projection

or plate disposed radially with reference to the curve in which the type-bars are pivoted and a pin-and-slot connection between each such plate and its type-bar.

- 5 8. The combination of the obliquely-shifting platen, type-bars pivoted in a curve in front of the platen, radially-arranged key-levers pivoted at the rear of the machine and extending forward under the platen and
10 type-bars and each having thereon a projection or plate disposed radially with reference to the curve in which the type-bars are pivoted and a direct interlocking operative connection between each such projection and its
15 corresponding type-bar.

9. The combination of an endwise-traveling platen movable transversely in a plane oblique to the horizontal plane of the ma-

chine, type-bars pivoted in front of the platen each of which moves in a single fixed arc to- 20 ward and from the platen and which is adapted when operated to strike upon the upper front quarter thereof at a point approximately midway between the horizontal and vertical planes through the axis of the platen, key- 25 levers and interlocking connections between the respective key-levers and type-bars arranged intermediate the opposite ends of the levers.

In testimony whereof I have hereunto sub- 30 scribed my name.

HERBERT C. HESS.

Witnesses:

HAROLD G. VILLARD,
C. D. LADLEY.