

C. H. COCHRANE.

KEYBOARD.

APPLICATION FILED MAR. 10, 1902.

2 SHEETS—SHEET 1.

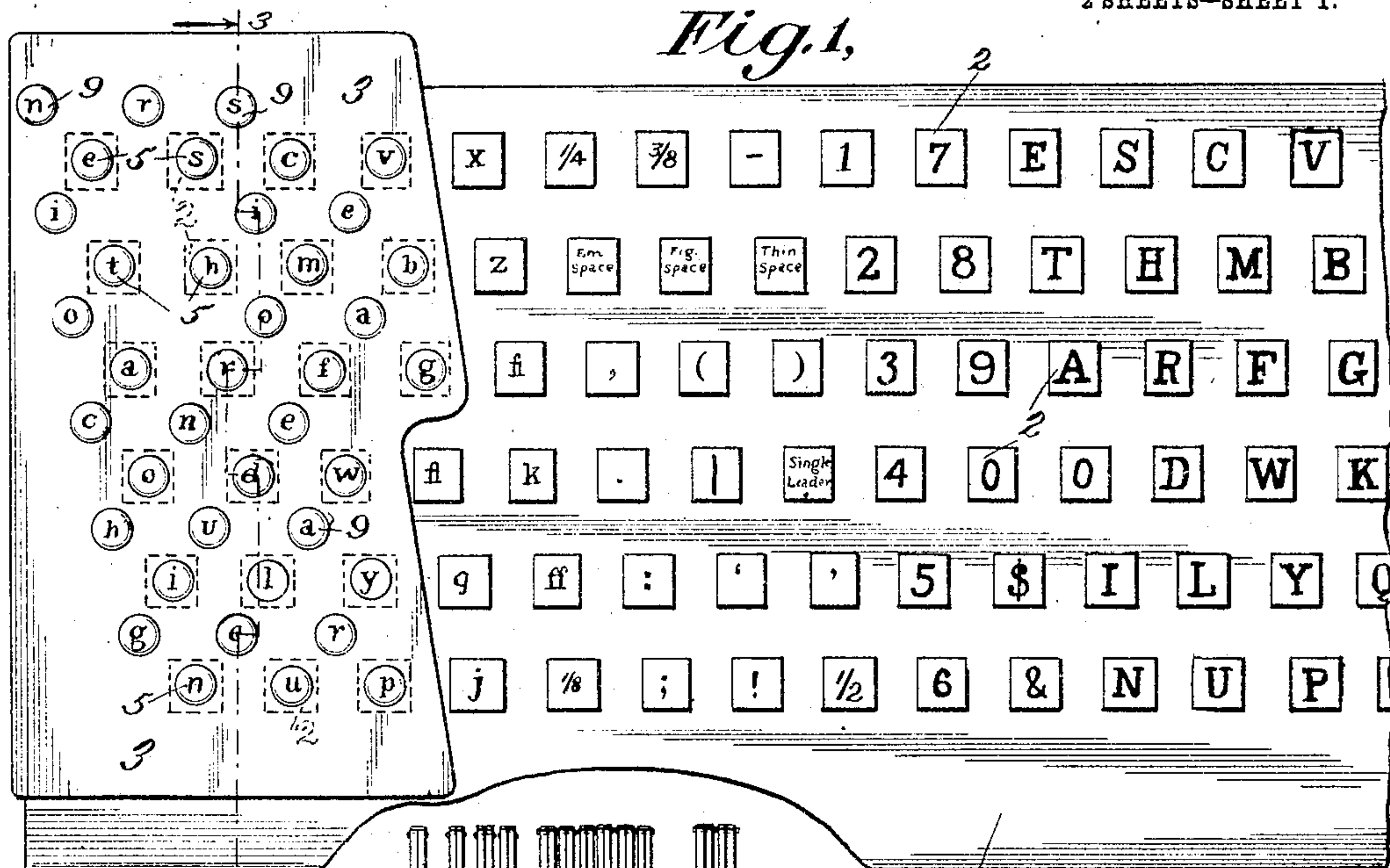
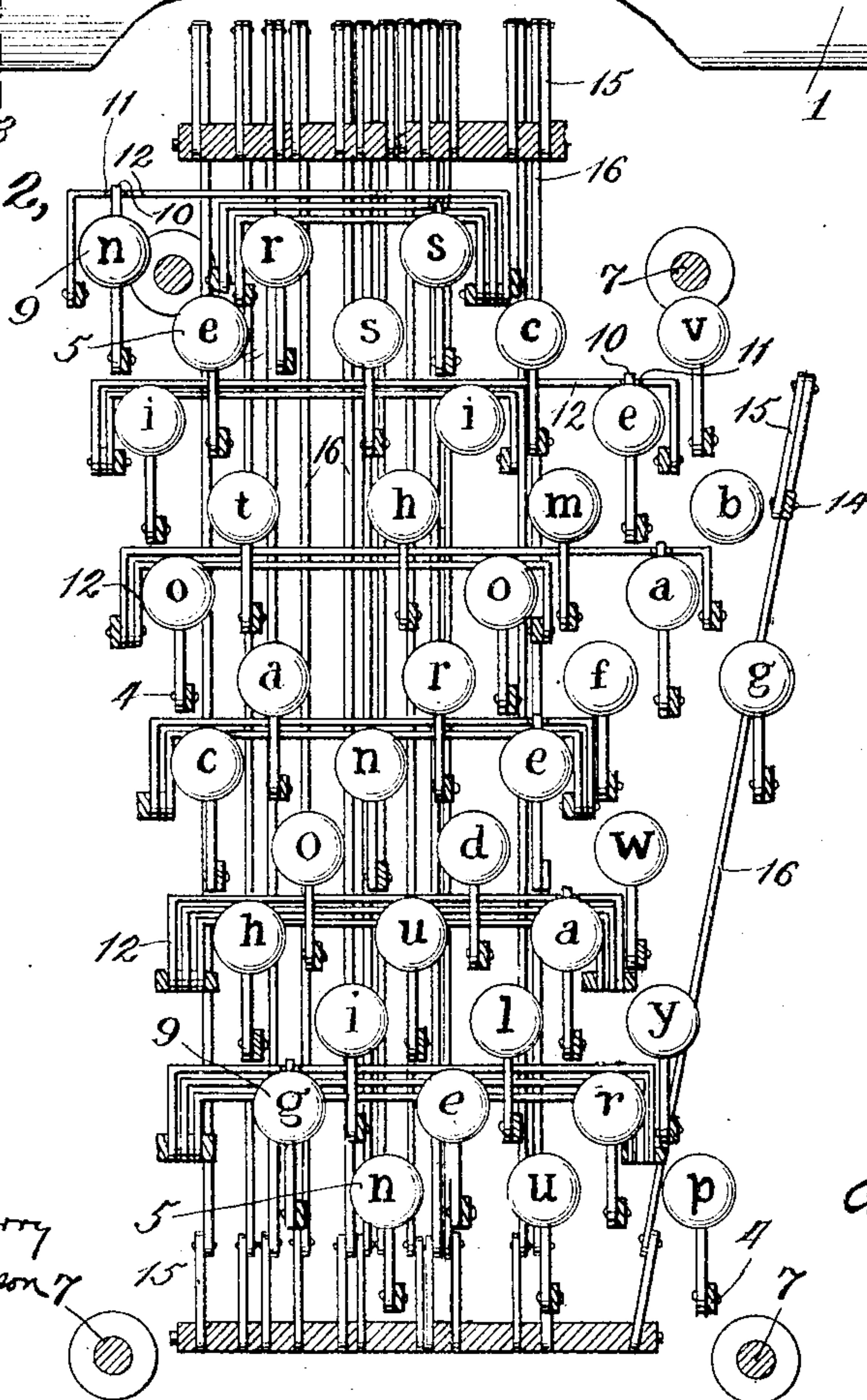


Fig. 2,



WITNESSES:

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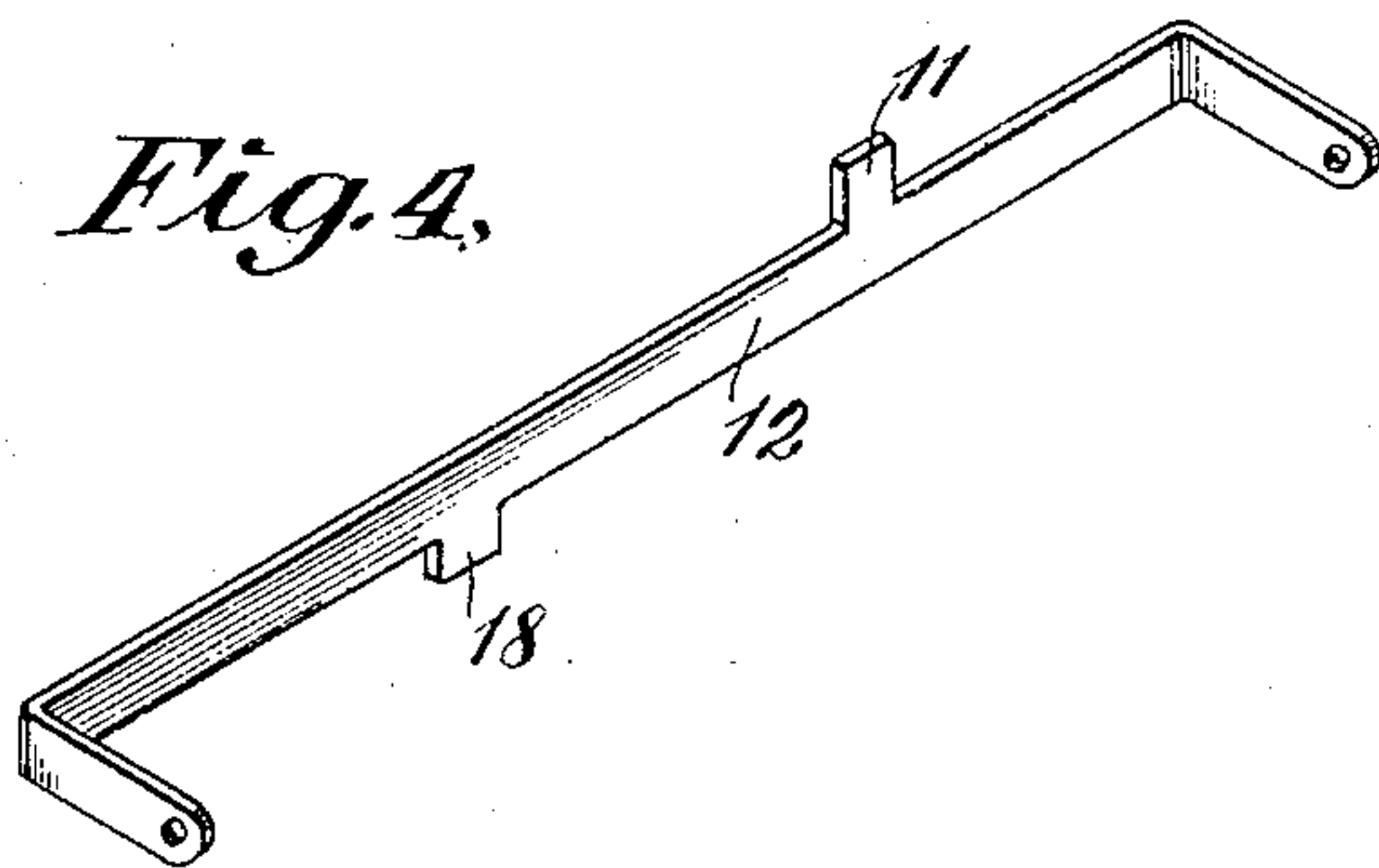
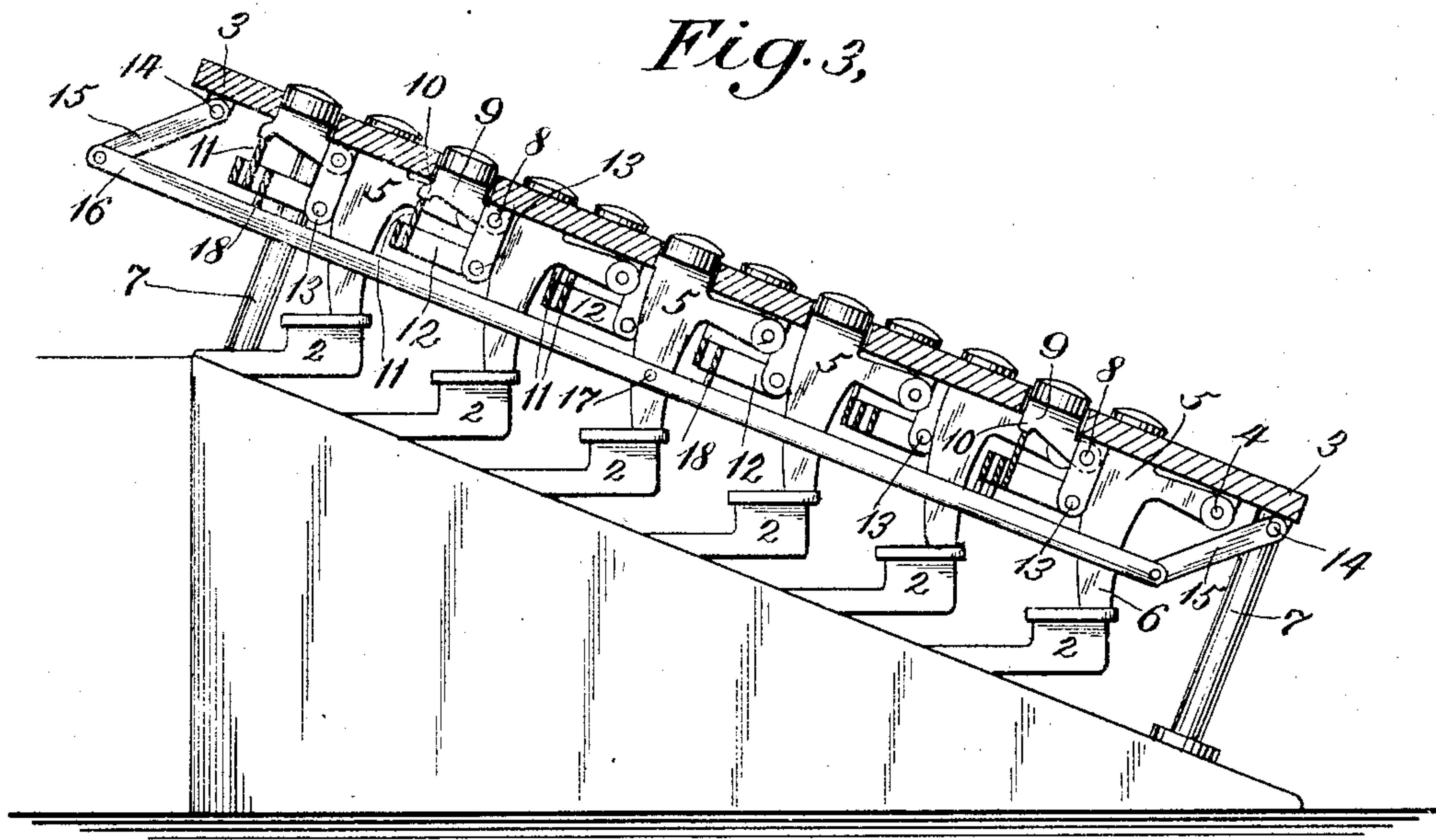
No. 785,406.

PATENTED MAR. 21, 1905.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

CHARLES H. COCHRANE, OF NEW YORK, N. Y.

KEYBOARD.

SPECIFICATION forming part of Letters Patent No. 785,406, dated March 21, 1905.

Application filed March 10, 1902. Serial No. 97,467.

To all whom it may concern:

Be it known that I, CHARLES H. COCHRANE, a citizen of the United States of America, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Keyboards, of which the following is a specification.

My invention relates to certain new and useful improvements in connection with keyboards.

The invention is equally applicable to a keyboard for operating linotype, matrix-making, composing, type-writing, perforating, or other machines in which a keyboard is used.

In the ordinary form of keyboard for any of the type of machines above referred to there is but a single key for a character, so that even when the keys are arranged to the best advantage it is not possible to so position the keys with relation to each other that the keys for the characters forming the common combinations will always be in proximity to each other, but the keys for most of the combinations will have to be widely separated. By my invention I have added to the ordinary keyboard a number of keys which are duplicates of the keys most commonly used, and preferably I insert these duplicate keys between the main keys, and thereby bring the keys for the characters of the more common combinations into proximity to each other, whereby the more common combinations may be struck by little or no movement of the hand of the operator.

In the following specification and in the accompanying drawings I will show and describe the preferred form of my invention in connection with the keyboard of a linotype machine; but it is to be understood that I contemplate the use of my invention with any other form of machine in which a keyboard is used.

Referring to the drawings, Figure 1 is a plan view of a linotype-keyboard with my invention in its preferred form applied thereto. Fig. 2 is a skeleton plan view showing the arrangement of the keys and their connecting parts. Fig. 3 is a sectional view taken on the line 3 3 of Fig. 1. Fig. 4 is a detail view of one of the levers used in my device.

In the form of my invention which I have

illustrated, 1 designates the keyboard of an ordinary linotype-machine, and 2 the keys thereof. In this form of my invention my device is in the nature of an attachment to the ordinary form of keyboard; and it consists of a plate 3, to the under side of which are pivoted at 4 what I term the "main" keys 5, the keys protruding up through holes formed in the plate. The keys 5 are provided with an arm 6, which projects down and rests on top of the keys 2. This plate is held in position over the keyboard by any suitable means, as by the pillars 7. Also pivoted at 8 are the keys 9, which are what I term "duplicate" keys. Those keys each carry a forwardly-extending lug 10, which stands over a projection 11 of a bail-shaped lever 12. The bail-shaped levers 12 are pivoted at 13 to suitable projections from the under side of the plate 3.

Pivoted at 14 to lugs on the under side of the plate 3 are pairs of links 15, and connecting the ends of these links are the bars 16. Each of these bars is pivoted at 17 to one of the main keys for which there are duplicate keys. The levers 12 have a projection 18, which is so arranged that it will stand over the proper one of the bars 16. It will be seen, therefore, that when one of the duplicate keys is depressed it will depress one of the bail-shaped levers 12, and this bail-shaped lever by means of the lug 18 will depress one of the bars 16, which being attached to the key represented by the duplicate key depressed will operate that key and so depress the key on the linotype-keyboard.

It will be seen that by the form of lever connection between the main and duplicate keys, which I have heretofore described, the said duplicate keys may be located at any point on the keyboard which may be convenient. This is true because the intersecting levers can be made to operate upon each other at any point where they may happen to intersect.

In the form of device which I have shown my supplemental keyboard covers only about a third of the key-board, as most clearly shown in Fig. 1. It has been found in practice, however, that ninety-five per cent. of the keys

struck are the keys covered by this supplemental keyboard. It will be seen that by the arrangement of the duplicate keys, as represented in Fig. 1, the duplicate keys for the
 5 letters most frequently struck are so positioned among the main keys and in such relation to them that while the main keys are arranged in the same order as on the ordinary keyboard the combinations of letters most
 10 commonly struck may be reached with a very slight movement of the hands.

As shown most clearly in Fig. 3, it will be seen that the keys on the supplemental keyboard project very slightly above the plate
 15 and that the keys may be depressed and in their proper order by merely drawing the finger over the top of the keyboard with what may be called a "wiping" action, since the keys are so arranged as to bring the common combinations of letters together. By having the
 20 keys project through the plate the amount of the downward movement of the keys is so limited that the keys may only be depressed the necessary distance.

25 While I have described what I believe to be a preferred form of my invention, I desire it to be understood that I do not desire to be limited to the construction I have shown and described, as many changes may be made and
 30 other forms of my invention be used without departing from the scope of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a keyboard provided with a set of main keys, of duplicate
 35 keys on the keyboard, corresponding with some of the main keys, which when actuated will actuate the main key of which it is a duplicate.

40 2. The combination with a main keyboard of a supplemental keyboard, said supplemental keyboard being provided with keys corresponding to the keys in the main keyboard and adapted to actuate the corresponding keys
 45 in the main keyboard, said supplemental keyboard also being provided with duplicate keys corresponding to some of the main keys which when actuated will also actuate the corresponding key in the main keyboard.

50 3. The combination with a main keyboard of a supplemental keyboard arranged over said main keyboard and provided with keys corresponding to the keys in the main keyboard and adapted to actuate the corresponding
 55 keys in the main keyboard, said supplemental keyboard also being provided with duplicate keys corresponding to some of the main keys which when actuated will also actuate the corresponding key in the main keyboard.
 60

4. The combination with a main keyboard of a supplemental keyboard arranged over said main keyboard and provided with a set of
 65 main keys corresponding to the keys in said main keyboard, and each adapted to operate the

key to which it corresponds, said supplemental keyboard being also provided with duplicate keys, each corresponding to a main key in said supplemental keyboard, and connections whereby when one of said duplicate keys is
 70 actuated the same key in said main keyboard will be actuated as if the main key in said supplemental keyboard had been actuated.

5. The combination with a main keyboard of a supplemental keyboard arranged over
 75 said main keyboard, and provided with a set of main keys corresponding to the keys in said main keyboard, and each adapted to operate the key in the main keyboard to which it corresponds, said supplemental keyboard being
 80 also provided with duplicate keys each corresponding to a main key in said supplemental keyboard and connections between said main keys and their duplicates, whereby when one of said duplicate keys is actuated it will actu-
 85 ate the main key to which it corresponds, and through the latter the corresponding key in the main keyboard.

6. In a keyboard, the combination with a board having a plain face which is perforated,
 90 of a series of pivoted key-levers provided with keys, the heads of which project through said perforations and slightly above said surface whereby the amount which the keys may be depressed is limited.
 95

7. In a keyboard the combination with a set of keys of means for operating a single key by any one of a plurality of keys of the keyboard.

8. In a keyboard the combination with a set of keys of means whereby said keys may be operated from different parts of said keyboard.
 100

9. In a keyboard, the combination with a board having a plain face which is perforated, of a series of pivoted key-levers provided with
 105 keys the heads of which project through said perforations and slightly above said surface, whereby the amount which the keys may be depressed is limited, the number of said keys being greater than the number of characters represented by said keys, whereby some of the
 110 keys are duplicates of other keys in the keyboard, said keys being so arranged that the keys for the ordinary combinations of letters and characters will be in proximity to each other.
 115

10. In a keyboard the combination with a board having a plain face which is perforated, of a series of pivoted key-levers provided with
 120 keys the heads of which project through said perforations and slightly above said surface, whereby the amount which the keys may be depressed is limited, there being a plurality of keys representing a single character, said keys being so arranged with reference to each other that they will be in proximity to each
 125 other for the common combinations of letters, the keys for the same letter all actuating the same part.

11. In a keyboard the combination with a board having a plain face which is perforated,
 130

of a series of keys the heads of which project through said perforations and slightly above said surface, and means for operating a single key of said series by any one of a plurality
5 of other keys of said series.

12. In a keyboard the combination with a board having a plain face which is perforated, of a series of keys the heads of which project through said perforations and slightly above
10 said surface, and means whereby said keys may be operated from different parts of said keyboard.

13. In a keyboard, the combination with a set of main keys, of keys which are duplicates
15 of some of said main keys, of means consisting of an arrangement of intersecting levers for said keys bearing on each other at their point of intersection, wherever that point may be, whereby said main keys may be operated
20 from one or more different points in the keyboard by means of said duplicate keys.

14. The combination with a main keyboard of a supplemental keyboard arranged over said main keyboard provided with a set of
25 keys corresponding to the keys of said main keyboard, each adapted to operate the key to which it corresponds, said supplemental keyboard being also provided with duplicate keys,

each corresponding to a main key in said supplemental keyboard, and connections consisting of intersecting levers connecting said main
30 and duplicate keys of said supplemental keyboard, whereby when one of said duplicate keys is actuated, it will actuate the main key to which it corresponds and through the latter the corresponding key in the main key-
35 board.

15. A keyboard provided with a set of main keys each key corresponding to a character in the machine controlled by the keyboard
40 and also provided with keys which are duplicates of some of the main keys, the duplicate keys being arranged between the main keys, whereby the keys for different combinations may be struck with a slight movement of the
45 hand, and connections whereby the same device is operated whether a main key is actuated or a duplicate of the main key.

Signed by me at New York city, county and State of New York, this 7th day of March, 50
1902.

CHARLES H. COCHRANE.

Witnesses:

FRANCIS M. PHELPS,
SIDNEY R. PERRY.