

No. 697,678.

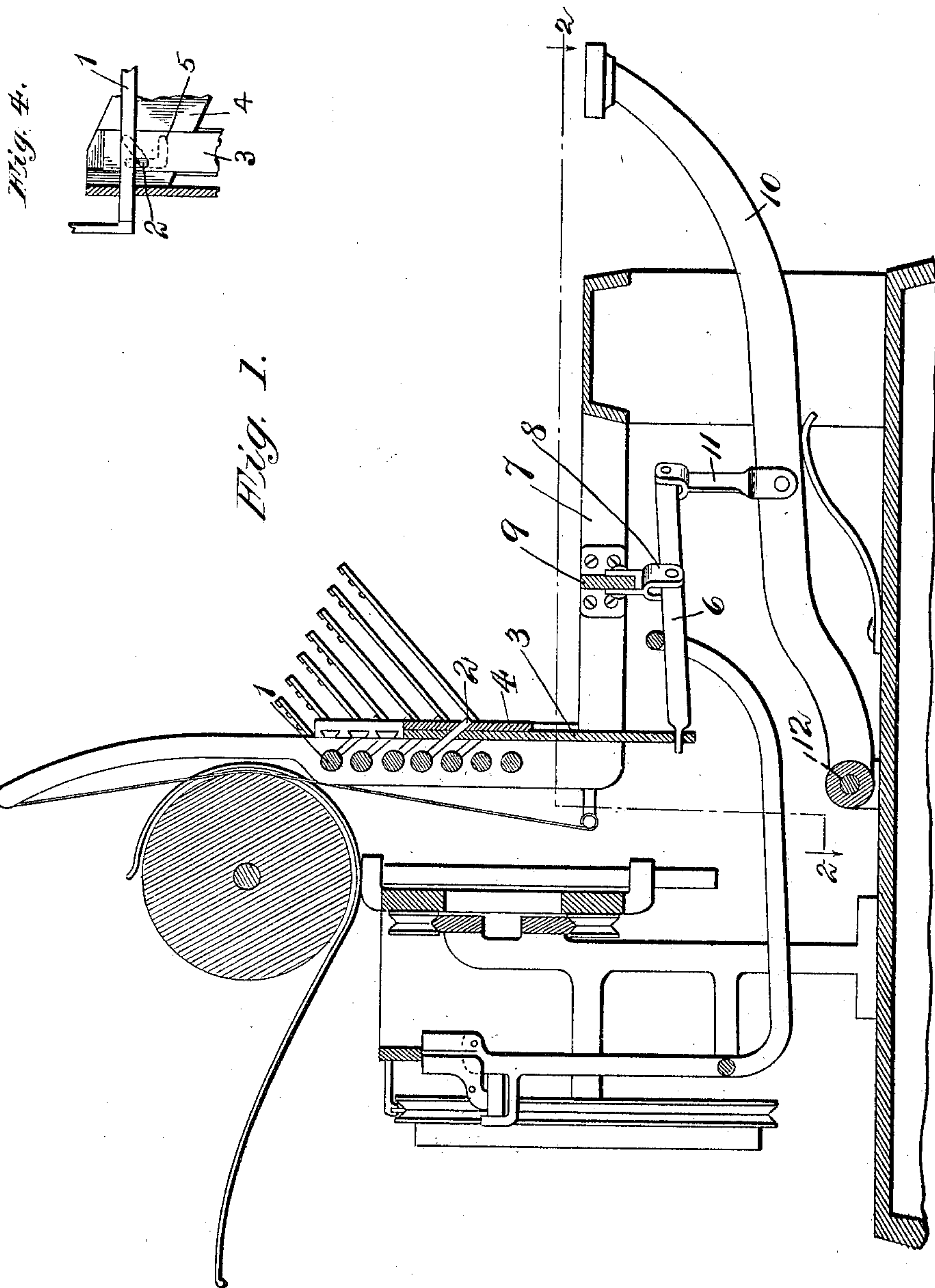
Patented Apr. 15, 1902.

F. SHOLES.
TYPE WRITING MACHINE.

(Application filed Dec. 7, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

W. Keir

H. S. Gaither.

Inventor:

Frederick Sholes

by Elliott & Hoff Bros

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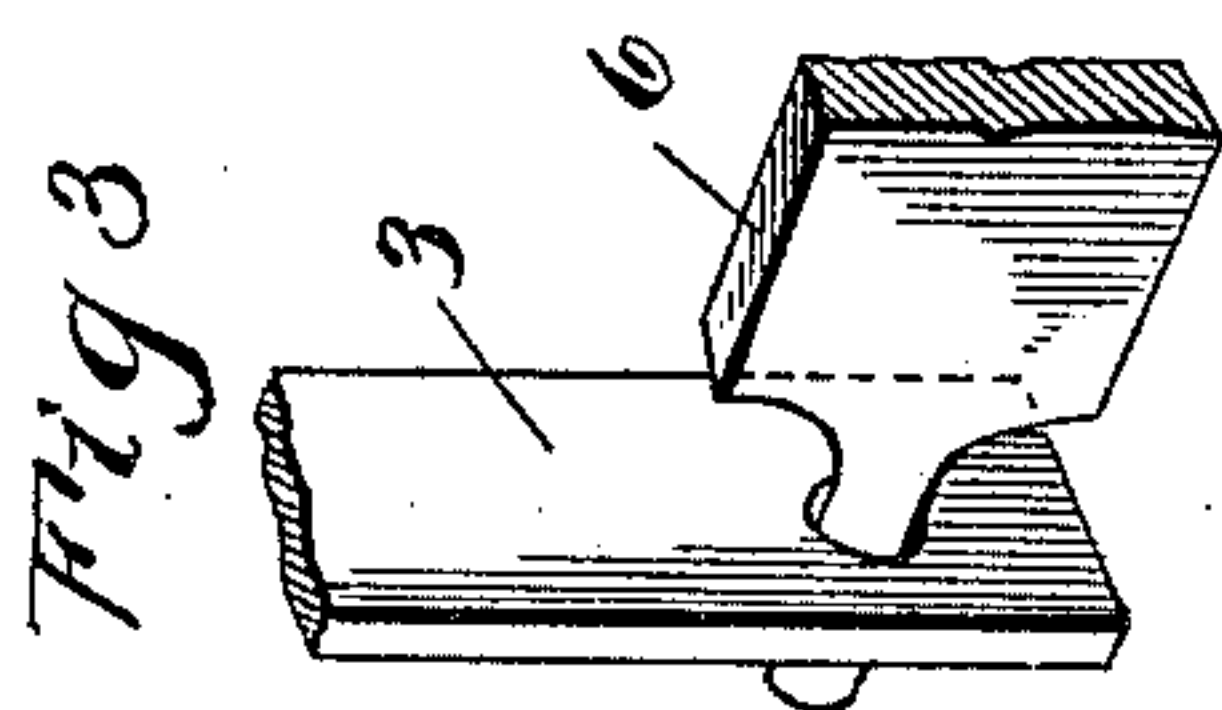
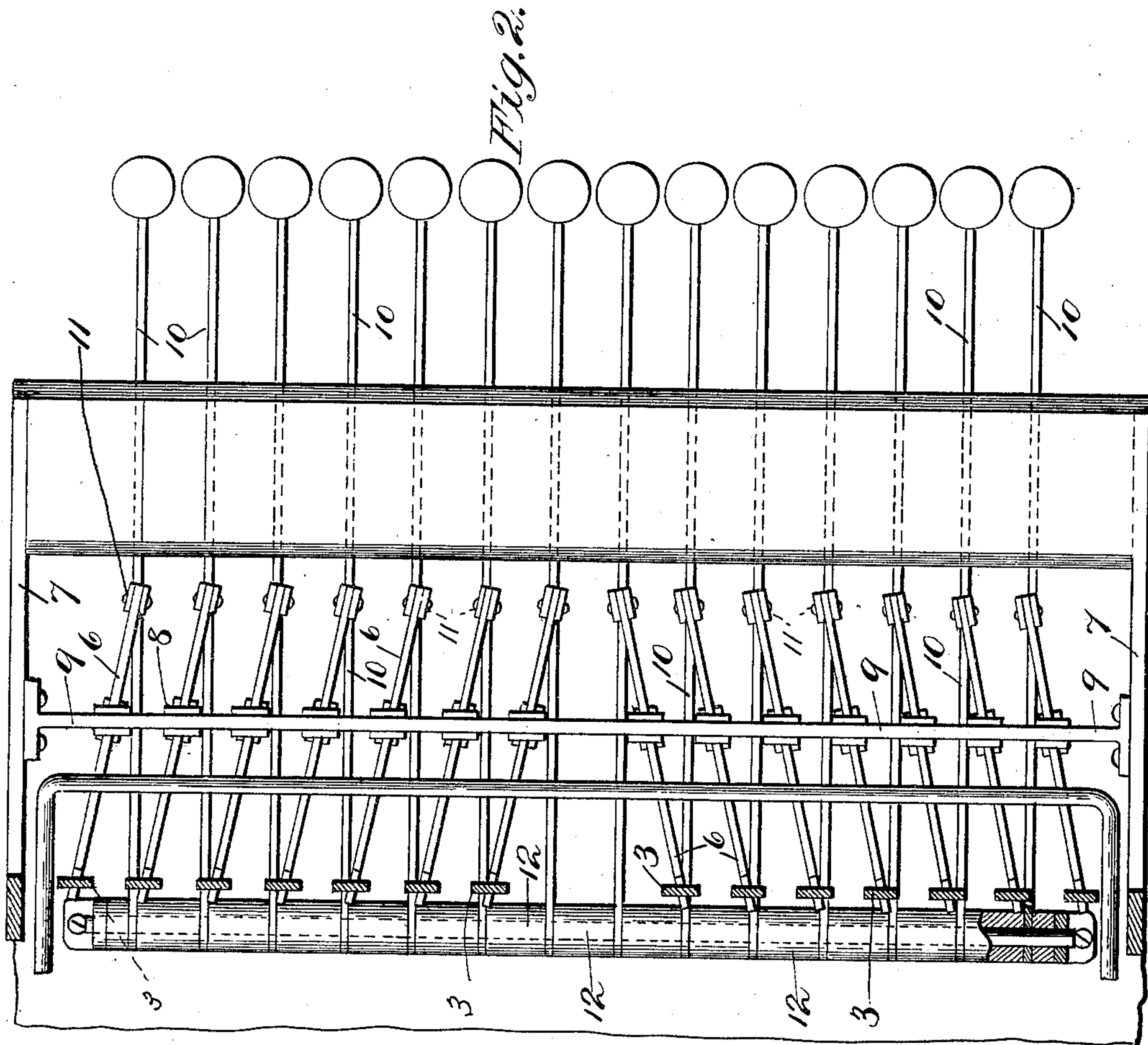
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UNITED STATES PATENT OFFICE.

FREDERICK SHOLES, OF CHICAGO, ILLINOIS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 697,678, dated April 15, 1902.

Application filed December 7, 1900. Serial No. 39,009. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK SHOLES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a full, clear, and exact specification.

My invention relates to that class of typewriters—such as shown and described in United States Letters Patent Nos. 464,902 and 464,903, issued to George B. Sholes, as executor of C. L. Sholes, December 8, 1891—in which the type-bearing arms are arranged in two planes transverse to the path in which the carriage moves and each at one side of the printing-point and in which the type-bars are actuated to first shift into the central or registering position between the two planes and then strike by means of vertically-movable cam-bars, and in which form of typewriting machine it has heretofore been customary to arrange the key-levers in two groups on each side of the center as an incident of this particular mode of operation of the type-bars, and as a consequence the keyboard is objectionably wide in the aggregate, and the individual groups of keys have an objectionably wide space between them.

The primary object of my invention is to provide improved means whereby this objectionable space between the keys of this species of type-writer may be avoided and the keys arranged in one continuous group or bank.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a vertical longitudinal sectional view of a type-writer of the character before described embodying my improvements. Fig. 2 is a plan section thereof. Fig. 3 is a detail view; and Fig. 4 is a detail view looking from the front, showing the means for causing the type-bars to shift laterally and then strike.

With the exception of the improvements

which I have added and made the subject-matter of the claims of this application the form of machine generally shown in this application is the same as that shown and described in the aforesaid Letters Patent, and to which reference may be had for an understanding of any features shown herein which do not bear upon the present invention.

1 represents the type-bars, each of which is provided with an arm 2, in accordance with the construction shown in the aforesaid patents, and these arms pass through vertical links 3, one of which is provided for each of the arms 2, and which links are arranged contiguous to fixed cam-plates or members 4, through cam-slots 5 in which the outer ends of the arms 2 also pass, and by means of which cam-slots the type-bars 1 are given their longitudinal movement, which causes them to shift into the central or registering position. In the aforesaid patents the lower ends of the links 3 are connected directly with the key-levers; but in my present invention I connect these links, respectively, with intermediate levers 6, corresponding in number with the links 3 and arranged in a horizontal position below the frame 7 or at any other convenient point and supported by hangers 8, which are secured to a cross-bar 9, supported on the frame 7, and to the other ends of the intermediate links 6 I connect the key-levers 10 by means of short links 11, the key-levers 10 being pivoted at 12 in any suitable manner, so that by downward pressure on the outer ends of the key-levers 10 an upward thrust will be imparted to the links 3, and the type-bars thereby actuated to shift and then strike.

As clearly shown in Fig. 2 of the drawings, the links 3 are arranged in two series with a wide space between them left for the registering position of the type-bars, while the key-levers 10 are arranged in one continuous series or bank at equal distances apart; but in order that the links 3 may be connected with their respective key-levers while being located to one side thereof the intermediate levers 6 incline in each series toward the central or registering position a sufficient distance to bring their rear or outer ends directly over their respective key-levers 10, to which they are coupled by the links 11, as before described. By this means it will be seen

that the links 3 for actuating the type-bars may be arranged in two series or groups with the necessary space between the groups, as heretofore, without necessitating a corresponding arrangement of the key-levers or without requiring the key-levers to be bent or offset.

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

1. In a type-writer the combination of the type-bars, shiftable toward a common center, means for causing said type-bars to shift and strike having links operatively connected with said type-bars respectively and arranged in two separate groups or series with a dividing-space between the series, key-levers corresponding in number to said links arranged in a single series or group without said dividing-space and intermediate levers connecting said links with said key-levers respectively, substantially as set forth.

2. In a type-writer the combination of the type-bars shiftable toward a common center, means for causing said bars to shift and strike having links arranged in two separate groups or series with a dividing-space between the series, key-levers corresponding in number to said links and arranged in a single group or

series without said dividing-space and diagonally-arranged intermediate levers connecting said links with said key-levers respectively, substantially as set forth.

3. In a type-writer the combination of the type-bars, shiftable toward a common center, the cam-plates 4, the links 3, the arms 2 operatively connecting said links and cam-plates with said type-bars, said links 3 being arranged in two groups one on each side of said common center, the key-levers 10 arranged in a single series equal distances apart, and the intermediate levers 6 connected at one end with said links 3 and inclined toward and connected with said key-levers respectively, substantially as set forth.

4. In a type-writing machine, the combination of angular type-bars having pivot-arms capable of turning and moving endwise and provided with fingers, slides having oblique slots engaging with the fingers on said arms, key-levers and auxiliary levers connected with said slides and by links with said key-levers, substantially as set forth.

FREDERICK SHOLES.

Witnesses:

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