(No Model.) 4 Sheets—Sheet 1.

F. Q. STUART.

TYPE SETTING MACHINE.

No. 541,217. Patented June 18, 1895.

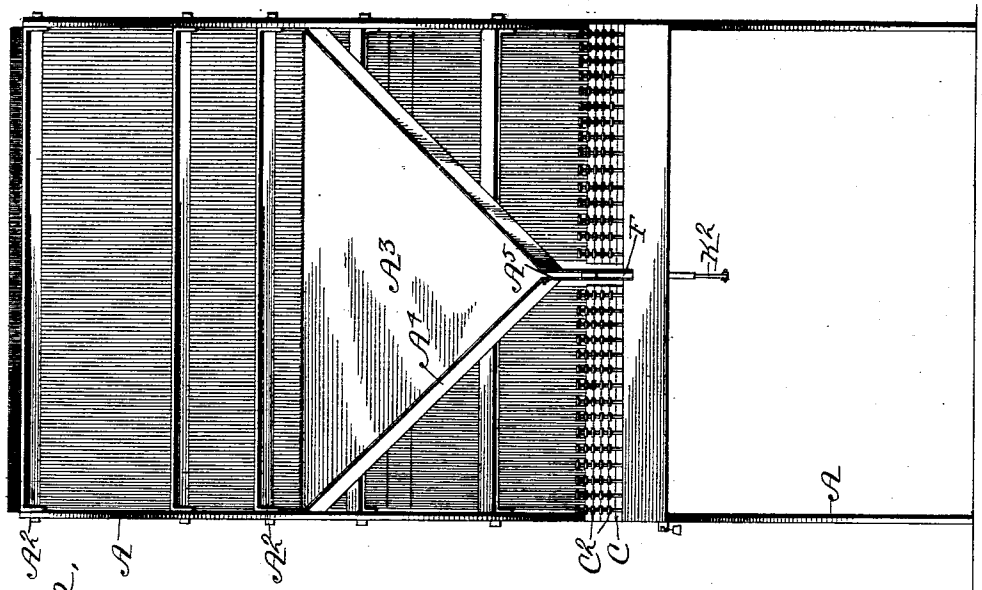

Fig. 2.

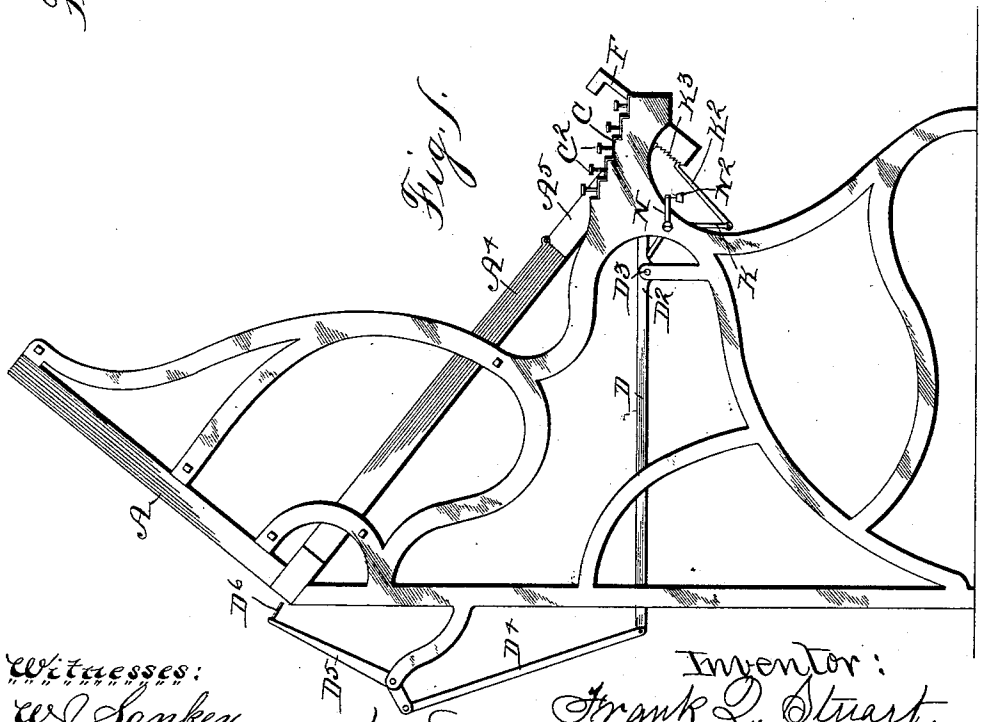

Fig. 1.

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Inventor:
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(No Model.) 4 Sheets—Sheet 2.

F. Q. STUART.

TYPE SETTING MACHINE.

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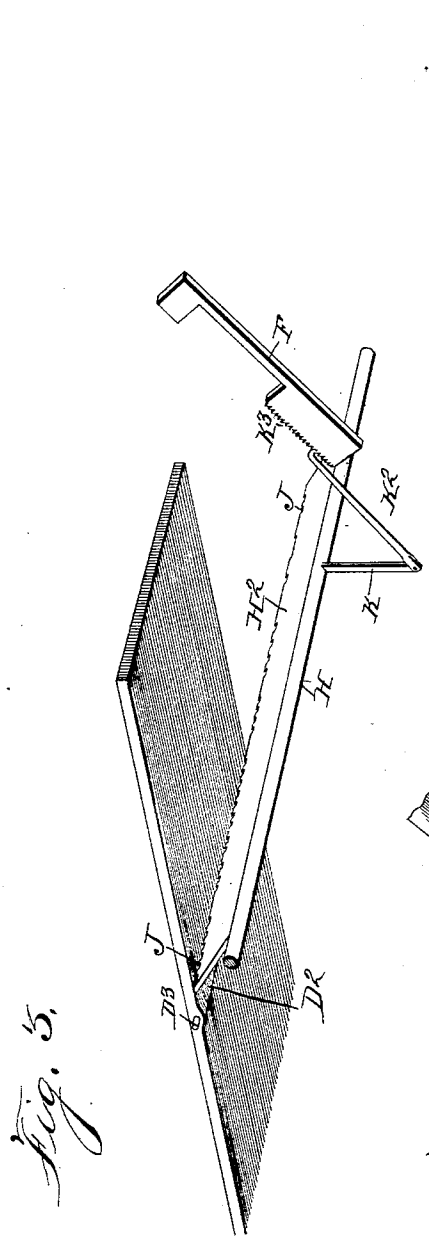

Fig. 5.

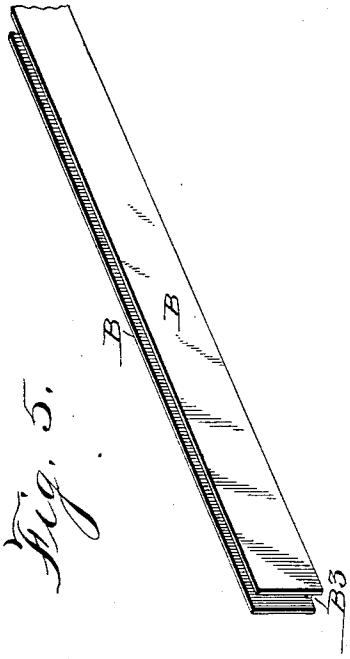

Fig. 5.

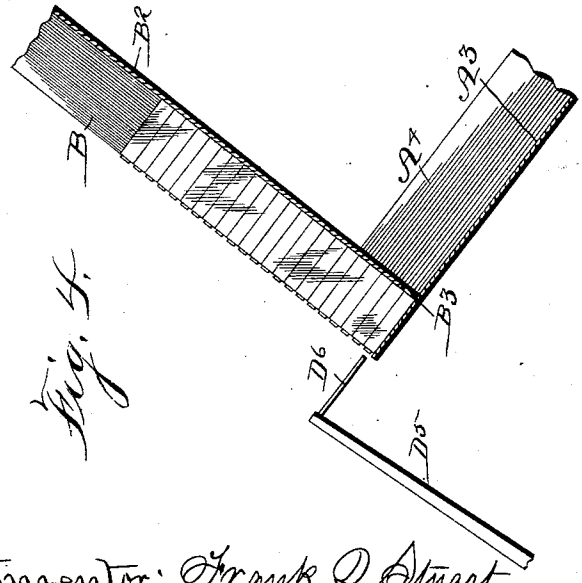

Fig. 4.

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(No Model.) 4 Sheets—Sheet 3.

F. Q. STUART.

TYPE SETTING MACHINE.

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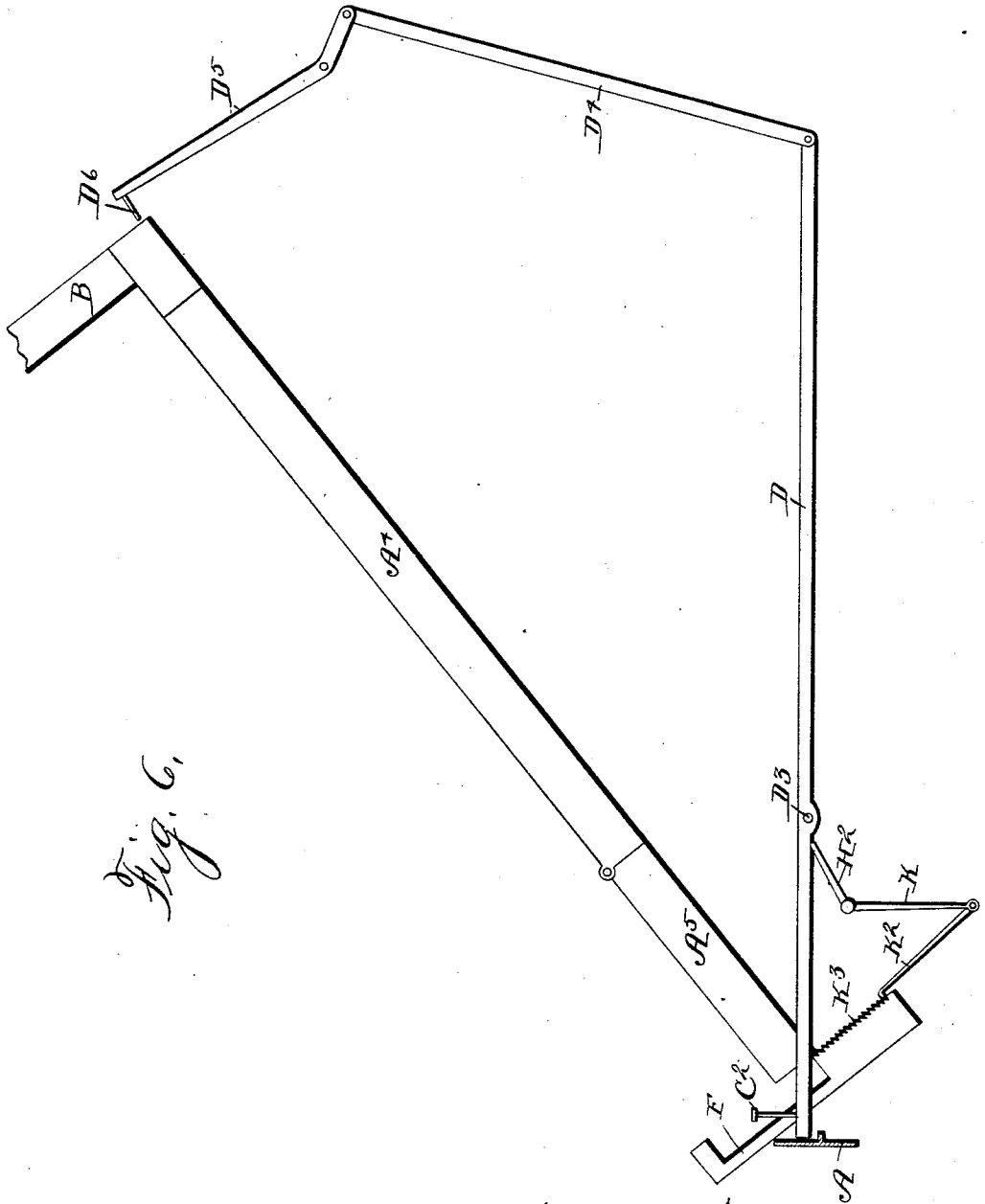

Fig. 6.

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(No Model.) 4 Sheets—Sheet 4.

F. Q. STUART.

TYPE SETTING MACHINE.

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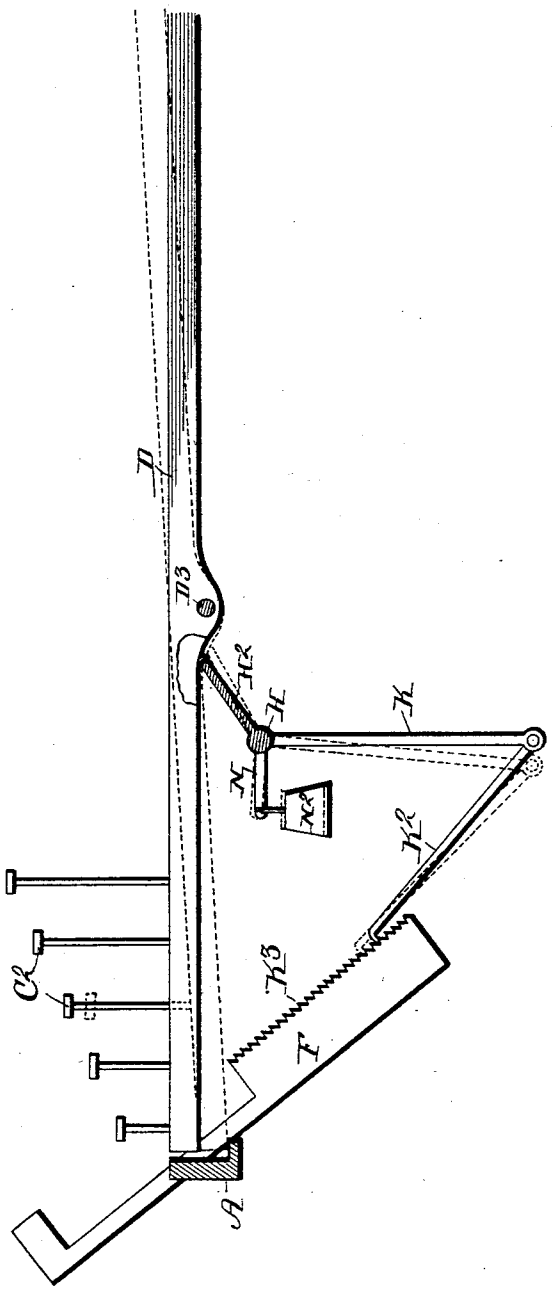
Fig. 7.



Witnesses:
W. J. Sankey
R. C. Orwig.

Inventor: Frank Q. Stuart,
By Thomas C. and J. Ralph Orwig, Attorneys.

UNITED STATES PATENT OFFICE.

FRANK Q. STUART, OF CHARITON, IOWA.

TYPE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 541,217, dated June 18, 1895.

Application filed February 1, 1895. Serial No. 536,912. (No model.)

To all whom it may concern:

Be it known that I, FRANK Q. STUART, a citizen of the United States, a residing at Chariton, in the county of Lucas, in the State of Iowa, have invented certain new and useful Improvements in Type-Setting Machines, of which the following is a specification.

My objects are, first, to provide a simple, strong, durable and compact machine in which the line of type is plainly visible and readily accessible to the operator at all times, and, second, to provide improved means for automatically moving the stick a distance corresponding to the thickness of the type bearing the symbol corresponding to the key depressed, so that the stick will always be directly in position to receive the succeeding type.

My invention consists in certain details in the construction, arrangement and combination of the various parts of the device, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the complete machine. Fig. 2 is a front view of the same. Fig. 3 is a perspective view of the under side of the key-levers, showing the mechanism for moving the galley upon an operation of said levers. Fig. 4 is a detail sectional view showing the means for dropping the types from the type-holders. Fig. 5 is a perspective view of one of the type-alleys. Fig. 6 is a detail side elevation of one of the keys, the type-ejecting mechanism, the stick, and the stick-operating mechanism. Fig. 7 is an enlarged detail sectional view showing the keys and stick-operating mechanism and by dotted lines the movements of the same.

Referring to the accompanying drawings, the reference letter "A" is used to indicate the frame of the machine, having cross bars A^2 at its top adapted to support type alleys at a comparatively sharp incline, to extend from the top of the machine rearwardly with respect to themselves, and downwardly.

A^3 is an apron upon which the lower ends of the type alleys rest, and is extended forwardly and downwardly therefrom tapered toward the center of the machine, and having guides A^4 at its sides to direct the types toward the said central portion. A raceway A^5 is hinged to its lower end and capable of swinging upwardly and of a size to admit the types to slide longitudinally therethrough. The type alleys or channels each comprise a long straight frame with parallel sides B separated a sufficient distance to admit one type between them, and a bottom B^2 extending to a point near the lower end of the sides, leaving a space B^3 slightly larger than the size of the type in said alley. A number of these alleys corresponding to the number of type in the font are placed on said frame with their ends resting upon the apron A^3.

C indicates the key board of the device, and C^2 a number of spring actuated keys of common construction in said key board, corresponding to the number of different kinds of type in the font, and each bearing a letter or symbol indicating the corresponding alley of type.

A device is connected with each key to project the lower type in the corresponding alley each time the key is struck, comprising a lever D pivoted at D^2 to the rod D^3, and connected at one end with a key, and at its other with a link D^4. D^5 indicates a bell crank lever fulcrumed to a support and having its lower end pivoted to the link D^4 and on its top end an arm D^6, extended at right angles to the type alleys and adapted to strike the top or face of the undermost type in the alley when the key is depressed, thus forcing the type through the opening in the bottom of the alley.

F indicates a galley or stick for the reception of the type, slidingly mounted in the machine frame, at right angles to the raceway at the end of the apron, and adapted to admit a line of type the width of a column, and placed directly beneath the raceway, so that the types will pass from said raceway into said galley landing on their feet in an upright or partially upright position. I have provided means for automatically advancing the said sliding galley or stick a distance corresponding to the thickness of each type as it is delivered in the galley, so that the terminus of the raceway will be directly above the last type dropped in the galley at all times, as follows:

H indicates a shaft mounted in suitable bearings in the machine frame beneath the levers D having a plate H^2 connected therewith and extended upwardly and rearwardly

and provided with slots J in its top edge to receive the lower edges of said levers. These slots are of such relative depths that when the levers are depressed the same distance the levers corresponding with the thin types will depress said plate less than the levers corresponding with the thicker ones will depress it—that is, a deep cut is made beneath the levers that correspond with the thin types, and as the thickness of the types increases the depths of the cuts decrease. K indicates an arm on the under side of said shaft and K^2 a pawl pivoted to its end to engage a rack K^3 formed on said galley. The teeth in this rack are of a size corresponding to the least relative thicknesses of any two types; that is, about the thickness of a hair space. It will be obvious that when the key corresponding to the hair space is struck, the plate H^2 will be depressed just sufficiently to move the pawl K^2 one notch on the rack K^3, and when the key corresponding with the letter "m" is depressed, the pawl will be moved over a number of notches in said rack. An arm N bearing a weight N^2 is fixed to either end of this shaft to normally elevate said notched plate, until it strikes the under surfaces of the key levers. This it will be seen will rock the shaft H thereby forcing the pawl N^2 downwardly and thus moving the stick a distance corresponding to the distance which the pawl was elevated by the depression of the key. This pawl is held in contact with the rack by gravity.

In Fig. 7 the plate H^2 is shown in contact with the under surface of the key levers. However only the levers corresponding to the types of an "m" thickness are engaged by the plate H^2. The remaining levers must be depressed a slight distance before engaging the bottom of the notch in the plate directly beneath the lever. When it does engage the plate H^2 it depresses it a distance just as much less than do the levers corresponding with "m" types as the difference between the bottom of the notch and the edge of the plate H^2.

The operator may see the line of types in the galley at all times and when the end of a line is reached a word may be divided if necessary, and, as the sliding galley or stick is brought back to its original position by the operator, the line of type can be speedily justified before removal; or, the line can be removed before justification, and be justified in the common way.

It will be obvious that any one of various devices may be used to place the types in the type alleys; either by a type distributing machine, or, after distribution by hand, by feeding the types through an inclined chute into their respective alleys.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

1. In a type setting machine the combination of a suitable frame a number of type holders mounted thereon, a raceway leading from the type holders, a series of keys and key levers, means for ejecting types from the holders when the keys are depressed, a stick slidingly mounted in the machine frame to receive types from said raceway, and mechanism connecting the key levers and stick, whereby the stick is advanced a distance corresponding to the thickness of the type designated each time a key is depressed, for the purposes stated.

2. In a type setting machine the combination of a suitable frame, type alleys therein, a raceway to receive types from said alleys, a suitable keyboard, a lever connected with each key, type ejecting mechanism connected with each lever, a stick designed to receive a line of type, slidingly mounted in the machine frame, a shaft mounted beneath the key levers, a plate fixed to said shaft and extended into close proximity to the said levers, a series of notches therein each corresponding to the thickness of the type it represents, and mechanism connected with said shaft and said stick whereby the stick is moved a distance corresponding to the thickness of the type deposited therein, for the purposes stated.

3. In a type setting machine the combination of a suitable frame, type alleys therein, a raceway to receive types from said alleys, a suitable keyboard, a lever connected with each key, type ejecting mechanism connected with each lever, a stick designed to receive a line of type, slidingly mounted in the machine frame, a rack formed on the stick, a shaft mounted beneath the key levers, a notched plate fixed to the shaft, a yielding pressure device for holding the plate toward the levers, a lever connected with said shaft, and a pawl pivoted to said lever and in engagement with said rack, substantially as set forth.

4. A type setting machine comprising a suitable frame, an inclined apron having guides at its sides mounted thereon, a raceway hinged to the apron, a series of open ended type alleys having openings in the bottom of their lower ends, placed on the top of said aprons, a key board surrounding said raceway, a lever connected with each key, a type ejector connected with each lever, a stick slidingly mounted at the lower end of the raceway, a rack on said stick, a rock shaft mounted beneath said levers, a notched plate on said shaft a yielding pressure device for normally holding said plate in position and a pawl on said lever in engagement with said rack, substantially as set forth.

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