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TABULATING DEVICE FOR TYPE WRITING MACHINES.

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2 SHEETS-SHEET 1.

1,088,827.

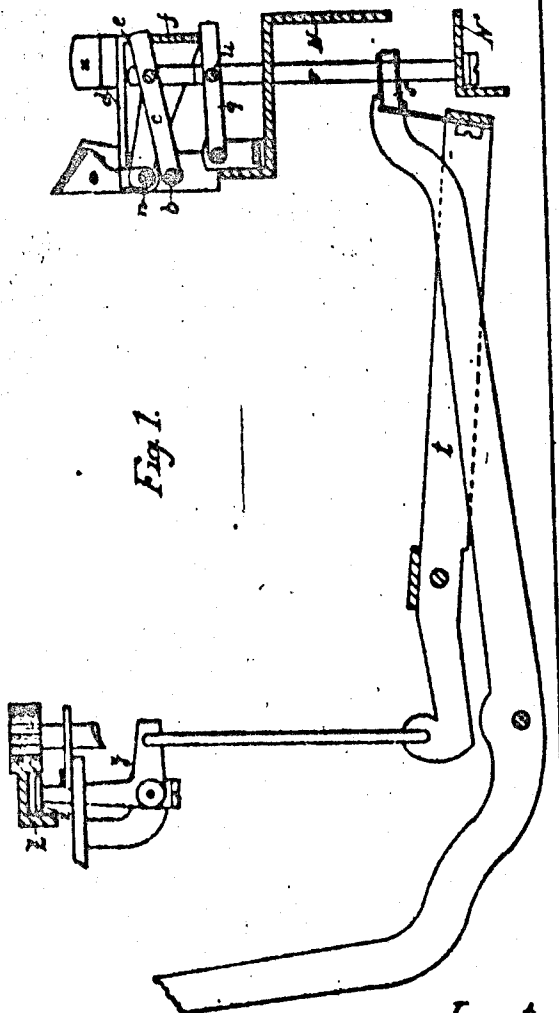


Fig. 1.

Witness.
Wilmann
Pioneer

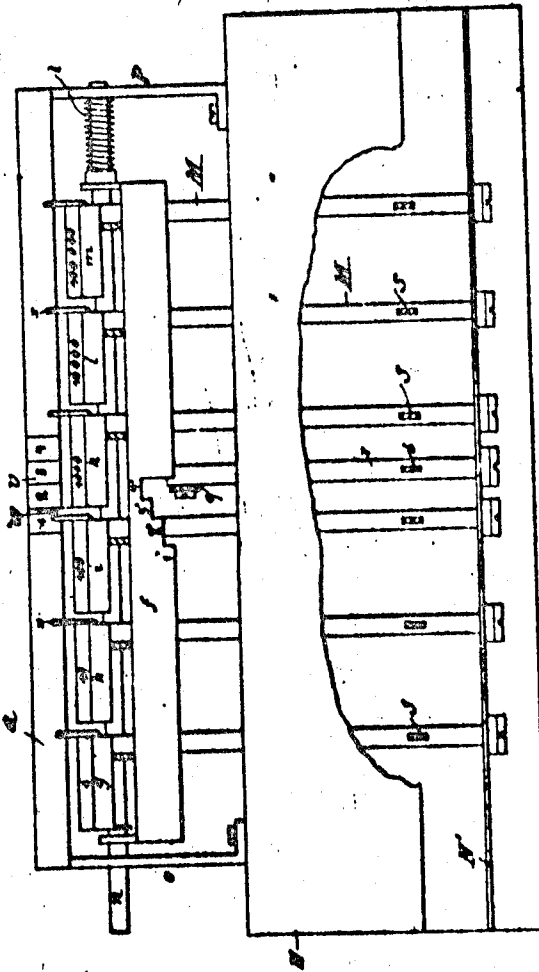
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1,028,887.

Fig. 2.



Witnesses.
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Thos. H. Mason

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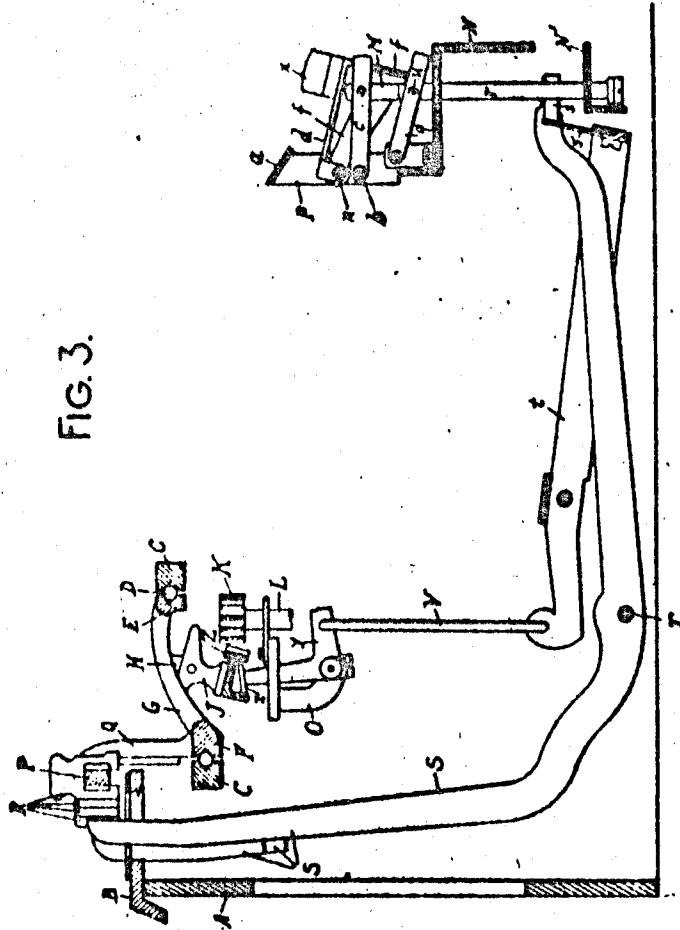
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2 SHEETS-SHEET 2.

FIG. 3.



WITNESSES.

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HIS ATTORNEY

1,023,827. TABULATING DEVICE FOR TYPE-WRITING MACHINES. RUDOLF FALLENSTEIN, Marseille, France, assignor to The Monarch Typewriter Company, Syracuse, N. Y., a Corporation of New York. Filed June 25, 1910. Serial No. 568,867.

To all whom it may concern:

Be it known that I, RUDOLF FALLENSTEIN, a citizen of the Republic of France, residing at Marseille, France, have invented certain new and useful Improvements in Tabulating Devices for Type-Writing Machines, of which the following is a specification.

My invention relates especially to tabulating mechanism in which column selecting and denominational devices are combined, and the object of the invention is to provide new and improved devices whereby any denominational position in a predetermined column may be attained at a single operation.

To the above and other ends my invention consists in the features of construction, combinations of devices and arrangements of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings which illustrate one form of my invention applied to a Yost typewriting machine. Figure 1 is a fragmentary vertical sectional view illustrating my improvements applied to said machine. Fig. 2 is a fragmentary front elevation partly in section of said machine. Fig. 3 is a view corresponding with Fig. 1 but showing additional parts and also showing some parts in different relationships from those occupied in Fig. 1.

As shown in Fig. 3 the framework of the Yost machine comprises a rear plate A which assists to support a top plate B. Fixed track-ways C are grooved to coop-

erate with anti-friction rollers D, said rollers likewise cooperating with grooved front and rear bars E and F comprised in a platen carriage which further includes webs G, connecting the bars E and F. Lugs H depend from certain of the webs and pivotally support arms J to which are secured a feed rack Z having a depending rear portion, said rack being normally maintained in spring pressed engagement with a feed pinion K supported at the top of a shaft L, said shaft being controlled by escapement devices (not herein shown). The platen, the carriage power and the printing and inking instrumentalities are also omitted from the drawings but may be of the usual construction found in the Yost machine. Simplified means are shown for disconnecting the feed rack Z from the pinion K to release the carriage, said means consisting of a roller *z* supported on a bell crank *y* pivoted on a fixed support O. The roller is adapted to cooperate with the depending portion of the feed rack Z to swing the rack rearward as shown in Fig. 3 when the bell crank *y* is actuated as hereinafter described.

The tabulating mechanism comprises a toothed stop bar P supported on standards Q rising from the carriage. Adjustably mounted on said stop bar are a plurality of column stops R, four being shown herein. The stopping portions of the stops project to different extents rearward from their support; or, in other words, the column stops are stepped or progressively disposed from left to right as clearly appears from Fig. 3. Adapted to cooperate with the column stops are a set or plurality of denominational stop levers S, six being shown herein, although a greater or less number may be provided, said levers being in the form of bell cranks pivoted at T and their upper end portions being arranged a letter space distance apart and being adapted, when moved forward, to cooperate with one or another of the column stops R, the particular column stop depending on the extent of the forward movement or projection of the actuated denominational stop lever. The forward ends of the horizontal arms of the bell cranks S are reduced and engage in slots in upright key stems M, said stems bearing slidably in openings in fixed plates N—N' on the machine frame. The lower ends of the stems N are headed and, together with the bell cranks S, are maintained in normal position (Fig. 2) by springs (not shown). Pivotally connected to the upper end of each key stem M is a lever or arm *c*, the set of levers *c* being fulcrumed on a fulcrum rod *b* which is mounted on fixed standards *o* and *p*, the upper ends of said standards being connected by an inclined cross bar *a* which is provided with a scale *v*, as appears in Fig.

2. The standards *o* and *p* also provide a support for a slidable rod *n* on which is pivoted a set of six arms *d*, said arms being provided at their forward end portions with oblong key caps which are similar in construction but for descriptive purposes are lettered herein beginning at the left, *g*, *h*, *i*, *k*, *l* and *m*. Each of the keys or key caps is provided at its right-hand end with an upright extension *e*. Each key cap is associated with one of the key stems M normally overlying said key stem as shown in Fig. 2 and having a downwardly turned edge adapted to engage the end portion *e* of the associate lever *c*. Underlying the forward edges of the levers *c* is a releasing bar or bail *f* having angular end portions or ears which extend rearward and bear on the slide rod *n*, the bail *f* embracing the arms *d* which also bear on the rod *n*. A spring U coiled around the rod *n* at its right and confined between the bail *f* and the standard *p* maintains the bail *f* and the key devices comprising the arms *d* and the key caps at the forward end thereof, in the normal position shown in Fig. 2, suitable stops (not shown) being employed if necessary. The under edge of the bail *f* is cut away at about the middle of its length, the cut-away forming a stepped slot, the horizontal edge portions of which are numbered 2', 3' and 4', the adjacent edge portion of the bar to

the left of the step 2' being numbered 1'. The edges 1', 2', 3' and 4' are adapted to cooperate with the upper edge of an arm *q* which is fulcrumed on a standard secured to the frame plate N. Said arm *q* is pivotally connected at *u* with an upright stem *r* slidable on the frame plates N, N', said stem *r* being slotted to receive a finger *s* extending forward from the upper end of an arm *s'* which is fixed to a rocking device or lever member *t*, said member having a fixed pivot and its rear arm being connected by a link V with the bell crank *y*.

The mechanism as herein constructed provides for a preliminary setting of the bail *f* by transverse sliding movements of the key caps, thus varying the relationship between the bail and the arm or releasing device *q*. A pointer *w* secured to the key cap *i* cooperates with the scale *v* so that the extents of transverse movement may be conveniently indicated. The rod *n* when slid rightward in its bearings by pushing one of the key caps carries with it the bail *f* and the key caps *g-m*. The amount of this sliding movement may be varied to bring one or another of the steps in the bail over the arm *q* so that the release of the carriage may be variably timed, thus enabling the stop levers S to cooperate variably with the column stops in order to select predetermined columnar positions of arrest. For example, if

it is desired to write in the hundreds position in the fourth column, the operator presses rightward against the extension *x* of the key *i* until the pointer *w* is opposite the numeral 4 on the scale plate *a*. The rightward sliding movement of the key cap *i* forces rightward the key caps *h*, *l* and *m*, the key cap *m* acting to slide the bail *f* rightward and the left-hand end of the bail in turn reacting on the key caps *g* and *h*. It will be apparent that no matter which key cap is pushed rightward it will result in a rightward sliding movement of the bail *f* against the spring U. The movement rightward of the key *i* to the extent described will bring the edge portion 1' of the bail *f* over the lever *q*. If now the key *i* be depressed, its arm *d* will swing downward on the pivot *m* and the forward edge of said key will act against the associate arm *c*. The arm *c* swinging downward will depress in turn the connected key stem M, rocking the associate denominational bell crank S on its fulcrum and swinging the stopping portion thereof forward into the path of the column stops. In the described operation there is substantially no lost motion between the bail *f* and the arm *q*, so that as soon as the depression of the key cap *i* is begun its movement which is transmitted through the associate lever *c* to the bail *f* will be promptly and fully transmitted by said bail to the arm *q*, causing said arm to depress the stem *r*, rocking the lever *t* and through the

link V rocking the bell crank *y* and disconnecting the feed rack Z from the pinion K, thus releasing the carriage which will move rapidly leftward under the pull of the main spring (not shown). The parts are so timed that the carriage is released when the actuated bell crank S has entered the field of the right-hand or longest column stop R and the result will be that the carriage will move leftward until said righthand column stop contacts with the actuated denominational stop as shown in Fig. 3. During this movement the intervening column stops will pass by the denominational stop. In other words, said intervening stops will be skipped. The result will be that the carriage will be arrested in the pre-selected column and in the proper denominational position in said column as determined by the particular stop lever S which has been actuated. Suitable restoring springs besides those shown are provided to restore the parts to normal position when the actuated key is released. Of course, if it is desired to write, say, in the second column, the bail *f* is slid rightward by one of the keys to bring the step 3 therein over the arm *q*, the result being that the bail *f* will be depressed by the actuated key cap and connections, to a considerable extent before the arm *q* is engaged

by the step 3', thus enabling the actuated stop lever S to be moved forward into the path of the second one from the left of the set of column stops R before the carriage is released.

It will be observed that my present invention provides improved and novel means for releasing the carriage and arresting it at the end of an uninterrupted run in a predetermined position in any desired column, the carriage passing or skipping in the columns which may intervene.

Various changes may be made without departing from the scope of my invention.

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

1. In a typewriting machine and tabulating mechanism, the combination of a plurality of column stops, a plurality of denominational stops, keys, and connections between said keys and said denominational stops for affording relative movement between said keys and said denominational stops enabling said keys to variably operate said denominational stops to cooperate with preselected column stops, intervening column stops being skipped or passed, said keys being mounted independently of said connections.

2. In a typewriting machine and tabulating mechanism, the combination of a carriage, a set of column stops, a set of denominational stops, releasing means for said carriage, keys, and connections between said keys and said denominational stops, said keys being mounted independently of said

connections and said connections affording a relative movement between said keys and said denominational stops enabling said keys to variably actuate said releasing means.

3. In a typewriting machine and tabulating mechanism, the combination of a carriage, a set of column stops, a set of denominational stops, releasing means for said carriage, keys, and connections between said keys and said denominational stops, said keys being mounted independently of said connections and said connections affording a setting movement of said keys independent of said denominational stops, said keys thereafter operating to actuate said denominational stops and variably release the carriage.

4. In a typewriting machine and in tabulating mechanism, the combination of a plurality of column stops, a cooperating stop, carriage releasing devices, and key controlled means for variably setting certain of said releasing devices to time the release of the carriage and cause said cooperating stop when actuated to co-act with a predetermined column stop, the keys of said means and the settable releasing de-

vices being mounted independently of each other.

5. In a typewriting machine and in tabulating mechanism, the combination of a set of column stops, a set of key controlled denominational stops, releasing devices, and means controlled by the keys of said denominational stops for setting certain of said releasing devices independently of said denominational stops; the keys of said means and the settable releasing devices being mounted independently of each other.

6. In a typewriting machine and in tabulating mechanism, the combination of a set of stepped column stops progressively arranged, a set of denominational stops, carriage releasing devices, keys, and connections to said keys affording a preliminary setting of certain of said releasing devices independently of said denominational stops, said keys being thereafter operative to actuate their associate denominational stops and release the carriage to bring a predetermined column stop into engagement with the actuated denominational stop, said keys being mounted independently of said connections.

7. In a typewriting machine and in tabulating mechanism, the combination of a plurality of column stops, a cooperating stop, carriage releasing devices, a key, and connections between said key and both said carriage releasing devices and said cooperating stop, said key being mounted independently of said connections and movable in one direction to variably set certain of the releasing devices independently of the cooperating stop and being movable in another direction to set said cooperating stop and release the carriage.

8. In a typewriting machine, the combination of a set of stepped column stops, a set of denominational levers, key stems connected to said levers, manual devices for actuating said stems, said devices being mounted independently of said stems, and carriage releasing devices settable by said manual devices independently of said key stems.

9. In a typewriting machine, the combination of a set of stepped column stops, a set of denominational levers, key stems connected to said levers, key caps supported independently of said stems and variably adjustable relatively to said stems, and a carriage releasing bail variably settable by each of said key stems.

10. In a typewriting machine, the combination of a set of stepped column stops, a set of denominational levers, key stems connected to said levers, a carriage releasing bail, and key caps slidable to variably set said bail to time the release of the carriage, said key caps being also depressible to cooperate with said key stems.

11. In a typewriting machine and in tabulating mechanism, the combination of a set of stepped column stops, denominational levers, key stems, key caps cooperative with said stems but pivotally supported independently thereof, a carriage releasing bail settable by sliding movements of said key caps independently of said key stems, and other carriage releasing devices with which said bail is cooperative.

12. In a typewriting machine and in tabulating mechanism, the combination of a set of stepped column stops, denominational levers, key stems, key caps cooperative with said stems but pivotally supported independently thereof, a carriage releasing bail having a stepped cut-out and being settable by sliding movements of said key caps independently of said key stems, and other carriage releasing devices comprising an arm with which the cut-out in said bail is cooperative.

13. In a typewriting machine and in tabulating mechanism, the combination of a set of stepped column stops, denominational levers, key stems, key caps cooperative with said stems but pivotally supported independently thereof, a slidable spring pressed carriage releasing bail settable by sliding movements of said key caps independently of said key stems, and other carriage releasing devices with which said bail is cooperative, said other devices comprising an arm and said bail being provided with a stepped cut-out to cooperate variably with said arm.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

RUDOLF FALLENSTEIN.

Witnesses:

M. L. MARRON,
S. ANDRÉANI.