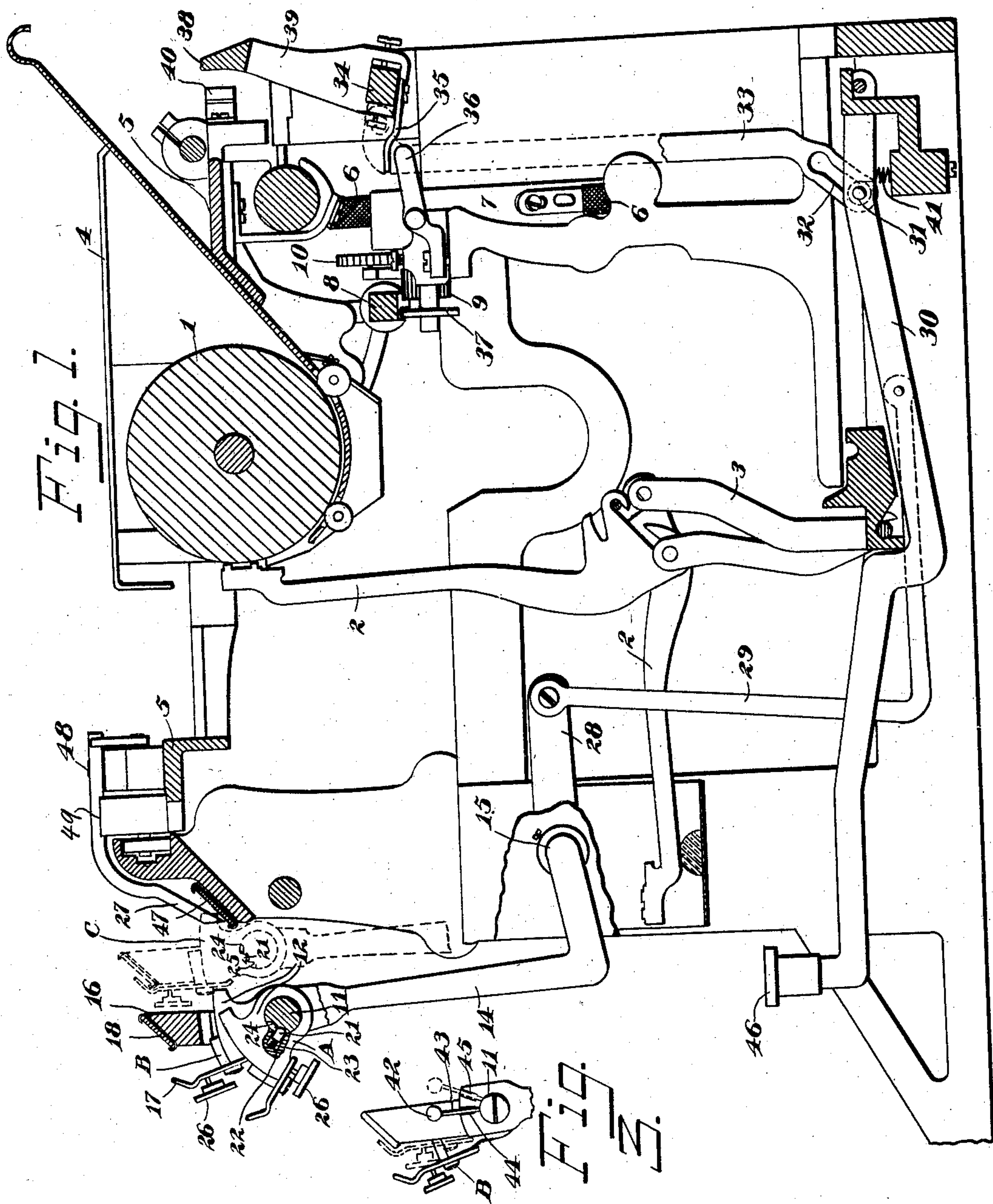


No. 850,839.

PATENTED APR. 16, 1907.

E. F. KUNATH.
TYPE WRITING MACHINE.
APPLICATION FILED JUNE 22, 1905.

2 SHEETS—SHEET 1.



WITNESSES:-
William M. Hilbert
Bertha Schmier

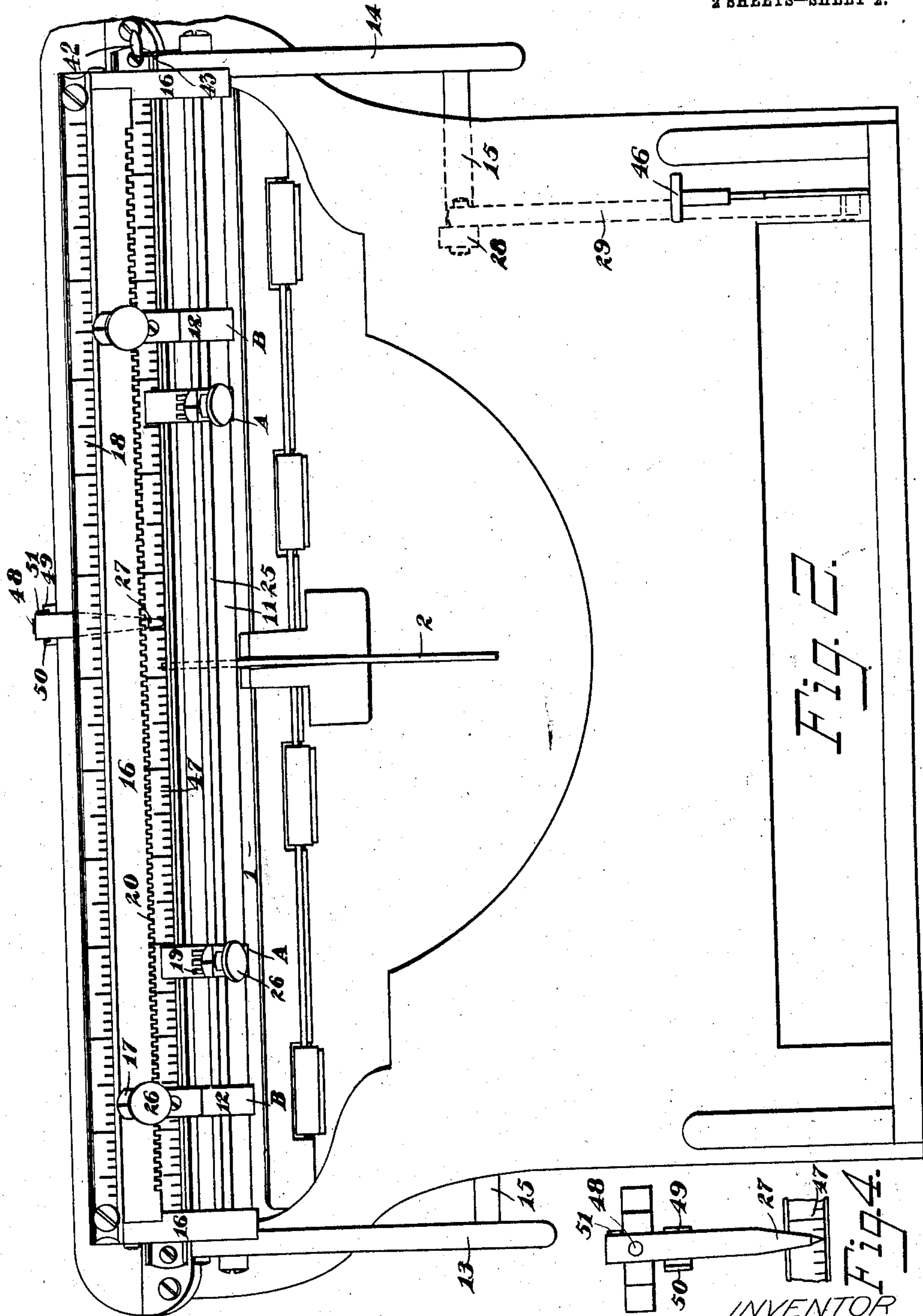
INVENTOR
Edward F. Kunath
BY Robert Kney
ATTORNEY

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Edward F. Kunath

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UNITED STATES PATENT OFFICE.

EDWARD F. KUNATH, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY

TYPE-WRITING MACHINE.

No. 850,839.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed June 22, 1905. Serial No. 266,447.

To all whom it may concern:

Be it known that I, EDWARD F. KUNATH, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to tabulators for type-writing and other machines, and is adapted particularly to machines in which the types strike upon the front side of the platen, so that the operator may see the writing as it progresses.

The invention relates to means whereby the operator may select and operate any particular one of a series of column-stops, and thereby cause the release of the carriage and its arrest by the selected stop. The columns written upon the paper being in constant view, the operator can refer constantly thereto and readily determine whether to skip one or more column-stops, the latter being mounted for this purpose at the front of the machine above the keyboard.

In carrying out my invention I mount a series of column-stops at the front of the machine, preferably upon the framework, and I also mount upon the carriage a cooperating stop. Instead of the latter there may in some cases be used a series of denominational stops. All of the column-stops are normally out of use and so mounted that by pressing upon any stop it may be moved into effective position. I also provide mechanism which is movable by means of pressure upon any selected column-stop for releasing the carriage from the control of its letter-feeding mechanism. Thus by a simple pressure upon any selected stop the same is put into working position, and the carriage is released and caused to run down until arrested by the engagement of its stop with the operated column-stop. The column-stops I mount upon a bar, so that any one of them may be turned upon the bar, and by a further movement both the stop and the bar are carried backward until the stop enters the path of the carriage-stop. Said movement of the bar effects the release of the carriage. I also provide means whereby said column-stops may all be turned simultaneously into such position and there held by mechanical means that it will be necessary only to move the bar to and fro in

order to bring the column-stops successively into play without skipping, and I connect said bar to a key at the keyboard, so that the stops thereon may be brought into use one after another when desired by depressing said key in the usual manner. I also mount the stop upon the carriage in such a manner that any of the column-stops may serve to arrest the carriage upon the return movement thereof, if desired. Hence if any column-stop is set at a selected point upon the scale it can serve to arrest the carriage at said point in whichever direction the carriage is moving. I also preferably employ said carriage-stop as an index to cooperate with the usual front scale upon the framework.

In the accompanying drawings, Figure 1 is a sectional side elevation of the well-known "Underwood" front-strike type-writing machine with my improvements applied thereto. Fig. 2 is a front elevation. Fig. 3 is a detail illustrating the manner of turning the column-stop bar so as to set all of the stops simultaneously to effective position. Fig. 4 is a plan showing the normal position of the stop which is provided upon the carriage.

Against the front of the usual platen I strike type-bars 2, which are actuated in the usual manner by key-operated levers 3. The platen is journaled upon a frame 4, which is mounted upon a carriage 5, connected by a strap 6 to a spring-barrel 7. The carriage has a rack 8 to mesh with a pinion 9, the latter connected to an escapement-wheel 10, which is controlled by the usual feed-dogs. (Not shown.)

At the front of the machine I mount a cylindrical bar 11, carrying a series of column-stops 12. Said bar extends between and is mounted upon a pair of upstanding rock-arms 13 and 14, hinged at 15 upon the framework of the machine, so that the bar may swing backwardly and forwardly between the full-line and dotted-line positions at Fig. 1. Said arms 13 and 14 are rigidly connected by a bar 16, which overlies the bar 11.

Each of the column-stops is adjustable along the bar 11 and may be provided with an index 17 to cooperate with a scale 18, fixed upon the top bevel-face of bar 16. The column-stops are provided with teeth 19 to engage a rack 20, formed upon the under surface of bar 16. When the teeth 19 are

out of the rack, as at A, said stop may be adjusted along the bar 11 and then turned upon the bar to reengage the teeth, as at B. The stops are held in the latter position by means of small balls or plungers 21, provided in the recesses 22 in the bodies of the stops and pressed by springs 23 into a groove 24, extending longitudinally in the bar 11. When the stops are in the position A, the spring-plungers 21 engage a groove 25, cut longitudinally in said bar. Each stop may be provided with a finger-piece or key 26. The keys 26 may have staggering relation upon the stops, so as to enable the latter to be placed close together. One key is mounted near the top of the index 17, while the other key is mounted at the base thereof, so that one key stands higher than the other.

The column-stops having been adjusted along the bar, any selected stop may be pressed back by pressure upon the key 26 until the index 17 is arrested by contact with the front face of bar 16. By this movement spring 23 is compressed as the ball 21 rides up the rear incline of the groove 24. Continued pressure effects a backward movement of the bar until the stop 12 is brought into the path of a stop 27, provided upon the carriage. During said movement of the bar the arms 13 and 14 rock backwardly. Arm 28, extending rearwardly from arm 14, is depressed and by means of a link 29 forces down a lever 30, which has a roller-stud 31 to engage a cam 32, formed in the lower end of an arm 33, the latter depending from a rock-shaft 34 at the rear end of the machine, so that by movement of bar 11 said shaft 34 is rocked. Upon the latter is also provided an arm 35, that depresses the rear end of a lever 36, the latter carrying upon its forward end a roller 37 to engage the under side of the rack 7 and lift the latter from the pinion 9, whereby the carriage is freed from the control of the mechanism and rapidly advanced by the spring-barrel 7 until the stop 27 engages the projected stop 12 and arrests the carriage. A bar 38, mounted by arms 39 upon said rock-shaft 34, is also brought into engagement with a leather strip 40, fixed upon the carriage to prevent unduly rapid movement of the latter. Upon the relief of the key 26 from pressure the parts are returned to normal position by means of a spring 41 beneath the lever 30, the rack 8 dropping by its own weight or otherwise. The ball 21, being pressed by spring 23 against the rear inclined wall of groove 24, serves to return the stop 12 to position B.

It will be understood that the actuated column-stop, which is shown at the position C in dotted lines in Fig. 1, is the only stop with which will engage the stop 27, since all of the other stops are in position B, where they are not in the path of said stop 27; and are hence ineffective.

It will be seen that normally all of the stops are out of effective position; but if it is desired to put them all into effective position it is only necessary to turn the shaft 11, which for this purpose is mounted to rotate in bearings in the arms 13 and 14. This turning movement may be effected by a finger-piece 42, the stem 43 whereof is fixed in the end of the bar 11 and adapted to engage either of a pair of notches 44 45, the former movement bringing all the stops into ineffective position B, while the latter movement brings them all into effective position C relatively to bar 11. In the last case a key 46, provided upon the end of the lever 30, may be depressed in order to operate the described tabulating mechanism. Hence said key 46 may be employed in the usual manner for tabulating, in which the work proceeds without a break, while when there are many skips to be made the stem 45 may be swung to the full-line position at Fig. 3 and the keys 26 used as required instead of the key 46.

The stop 27 also serves as an index to co-operate with a front scale 47, provided, as usual, upon the framework of the machine. Said stop 27 is also adapted to arrest the return movement of the carriage by cooperation with the column-stops 12. The stop 27 consists of a spring-arm, which is pivoted at 48 upon the carriage and vibrates to a limited extent between two abutments 49 and 50, also provided upon the carriage. A spring 51 holds the stop-arm 27 normally against the abutment 49, the stop 27 not vibrating during the usual tabulating operations heretofore described. When, however, it is desired to arrest the carriage at a predetermined point upon its return movement, a column-stop is set to said point by means of index 17 and scale 18, and said column-stop is pressed backward in the manner already described and the carriage moved manually to the right until arm 27 engages with the projected stop 12. The pivoting of the latter enables it to yield, so that the carriage may continue to move a short extra distance to the right after engagement of 27 with 12, this extra movement being limited by the abutment 50. This extra or lost motion of the carriage compensates for the thickness of the stop. In other words, the carriage goes back to such a point that when released it will come to rest at a point agreeing with the point upon the scale 18 to which the part 17 had been previously set. It will be understood that when the carriage has been arrested in its return movement it is held steady by the operator until the key 26 is released.

Having thus described my invention, I claim—

1. In a tabulating mechanism, the combination with a carriage, of a letter-feeding mechanism, a stop, a rack, a series of column-

stops adjustable along the rack and constructed to be held by the rack against displacement, yielding means for holding each column-stop out of effective position while held by said rack, each column-stop movable into effective position by means of finger-pressure applied thereto while other column-stops remain out of effective positions, and means rendered effective by such pressure upon any column-stop for releasing the carriage from the control of the letter-feeding mechanism.

2. In a tabulating mechanism, the combination with a carriage, of a letter-feeding mechanism, a stop, a bar, a series of column-stops adjustable along the bar, means for securing the column-stops against accidental displacement along said bar, means holding each column-stop out of effective position while so secured, each column-stop provided with an individual finger-piece and movable thereby upon said bar into effective position independently of the other column-stops, said bar being movable by pressure upon any of said finger-pieces, and a carriage-releasing mechanism controlled by said bar.

3. In a tabulating mechanism, the combination with a carriage and a letter-feeding mechanism, of a stop, a rack, a bar extending along said rack, a series of column-stops pivoted independently of one another upon said bar and adjustable therealong and having teeth and rotatable about said pivots to engage and disengage their teeth with said rack, springs holding said column-stops normally out of effective positions while engaged by said rack, said bar being movable by pressure applied to any of said column-stops for moving the same to effective position, and a carriage-releasing device operable by said bar.

4. In a tabulating mechanism, the combination with a carriage and a letter-feeding mechanism, of a stop, a rocking frame including a bar extending parallel with the carriage, a carriage-releasing mechanism operable by said rocking frame, column-stops upon and adjustable along said bar, individual springs normally holding said column-stops in ineffective positions, means preventing displacement of the column-stops along the bar while they are so held by said springs, and a finger-piece for each stop, the stops being movable by said finger-pieces to effective positions, and said frame being movable by pressure upon any of said finger-pieces.

5. In a tabulating mechanism, the combination with a carriage, of a letter-feeding mechanism, a stop, a series of column-stops, means for securing the column-stops against displacement in the direction of the run of the carriage, individual springs for holding the column-stops out of effective positions, each column-stop being movable by finger-pressure into effective position while other

column-stops remain out of effective position, and carriage-releasing devices operable by finger-pressure simultaneously with any operated stop; said springs being constructed to return their stops to normal ineffective positions after release from finger-pressure.

6. In a tabulating mechanism, the combination with a carriage, of a letter-feeding mechanism, a stop, a series of column-stops, means for securing the column-stops against displacement in the direction of the run of the carriage, a bar whereon said stops are mounted, means to enable said bar to be moved to a position to bring said column-stops into the path of the first-mentioned stop, a carriage-feeding mechanism operable by said bar during such movement; means for also enabling said bar to be shifted together with the column-stops to such a position as to render the latter ineffective at the carriage-releasing movement of said bar; each column-stop being however mounted for movement independently of the others from such shifted position to a position to engage the first-mentioned stop, and having means to effect a simultaneous carriage-releasing movement of said bar; and individual means for returning the column-stops to their normal positions with relation to said bar.

7. In a tabulating mechanism, the combination with a carriage, of a letter-feeding mechanism, a stop, a series of column-stops, a rack along which said column-stops are adjustable, mechanism for effecting relative movement between the first-mentioned stop and the column-stops to effect cooperation of the former with any of the latter, and for simultaneously releasing the carriage, and means for shifting the column-stops to ineffective position at the carriage-releasing movement of said mechanism, each column-stop being however mounted for movement independently of the others from such shifted position to a position for engagement with the first-mentioned stop, and having means to effect a simultaneous carriage-releasing movement of said mechanism; and individual means being provided for returning the column-stops after the last-mentioned operation.

8. In a tabulating mechanism, the combination with a carriage, of a letter-feeding mechanism, a stop, a series of column-stops, a cylindrical bar whereon the column-stops are pivoted, a rack along which the column-stops are adjustable, means being provided for effecting relative movement between the first-mentioned stop and said bar for effecting cooperation between the first-mentioned stop and the column-stops, and means for effecting a simultaneous release of the carriage; means being provided for turning said column-stops upon said bar out of position for cooperation with the first-mentioned

stop while they are still in engagement with said rack; each column-stop being however mounted for movement upon said bar independently of the others to a position to engage the first-mentioned stop and having provision for operating the carriage-releasing means; and individual springs for returning the column-stops after the last-mentioned operation.

9. In a tabulating mechanism, the combination with a carriage and a stop, of a series of column-stops, a bar, means for holding each column-stop in either of two normal positions relatively to the first-mentioned stop; and means for enabling said bar to move all of the column-stops from one normal position into position for cooperation with the first-mentioned stop; each column-stop being mounted for movement independently of the others from the other normal position into position for cooperation with the first-mentioned stop.

10. In a tabulating mechanism, the combination with a carriage and a stop, of a series of column-stops, means for either detaining all of the column-stops in one normal position or moving them all together from such position into position for engagement with the first-mentioned stop, and means for detaining all of the column-stops in a second normal position, each stop being mounted for movement independently of the others from said second normal position to engage said first-mentioned stop; the recited structure including springs for returning the column-stops after the last-mentioned operation.

11. In a tabulating mechanism, the combination with a carriage and a stop, of a series of normally ineffective column-stops, means for moving the column-stops all together from normal positions to positions for engagement with the first-mentioned stop, and means for detaining one or more of said column-stops in normal ineffective positions while another is moved into position for engagement with the first-mentioned stop; springs being provided for returning the column-stops to normal positions.

12. In a tabulating mechanism, the combination with a carriage and a letter-feeding mechanism, of a stop, a bar, a series of column-stops independently revoluble upon said bar, the latter provided with a longitudinal groove, and all the stops having yielding means engaging said groove to prevent the stops from turning upon the bar, means for effecting relative movement between said bar and the first-mentioned stop to enable the latter to cooperate with the column-stops, and means for shifting said bar together with said column-stops to carry the latter beyond the range of the first-mentioned stop; said column-stops being individually movable from the last-mentioned

positions into position to cooperate with the first-mentioned stop.

13. In a tabulating mechanism, the combination with a carriage and a letter-feeding mechanism, of a stop, a bar, a series of column-stops independently revoluble upon said bar, yielding means for retaining said stops in normal positions relatively to said bar, movable bar-supporting means for enabling the first-mentioned stop to cooperate with the column-stops, said bar having journals at its ends and provided with means for shifting it upon its journals together with said stops to carry the latter out of range of the first-mentioned stop; the column-stops being independently revoluble upon said bar into engagement with the first-mentioned stop, and said yielding means being constructed to return the column-stops to normal positions upon said bar after their last-mentioned operation; and means for detaining said bar in either normal or shifted position.

14. In a type-writing and tabulating mechanism, the combination with a carriage and a letter-feeding mechanism of a stop, a rocking frame mounted at the front of the machine, a carriage-releasing device operable by said rocking frame, column-stops mounted upon said rocking frame and movable thereby all together to positions for coaction with the first-mentioned stop, and means for shifting said column-stops all together relatively to said rocking frame to bring them out of range of the first-mentioned stop; the column-stops being movable each independently of the others from their last-mentioned positions into positions for coaction with the first-mentioned stop, and each having provision for simultaneously operating said rocking frame to release the carriage; springs being provided for returning the column-stops to their shifted positions.

15. In a tabulating mechanism, the combination with a carriage and a letter-feeding mechanism, of a stop, a cylindrical bar, a series of column-stops independently revoluble upon said bar, the latter provided with a longitudinal groove and all the column-stops having yielding means fitting in said groove to prevent accidental turning of the stops upon the bar, keys upon the stops, for turning the same relatively to the bar, said bar being movable bodily by any of said keys, a movable support for said bar, a carriage-releasing mechanism connected to said support, means for rotating said bar upon its own axis upon said support so as to shift all of said stops into or out of range of the first-mentioned stop, and means for detaining said bar in either position to which it is rotated upon said support.

16. In a tabulating mechanism, the combination with a carriage and a letter-feeding mechanism, of a stop, a series of column-

stops adjustable independently of one another in the direction of the carriage travel, and means for enabling said stop to cooperate with any selected column-stop to effect the setting of the carriage to the same point in both advance and return movements of the carriage, regardless of the remaining column-stops.

17. In a tabulating mechanism, the combination with a carriage and a letter-feeding mechanism, of a stop mounted to yield during the return movement of the carriage, a series of column-stops independently movable into cooperation therewith during both advance and return movements of the carriage, a rack for holding the column-stops when both in and out of cooperative relation with the first-mentioned stop, and means limiting the yielding movement of the first-mentioned stop to such an extent that the carriage may be set thereby to the same point whether advancing or returning.

18. In a tabulating mechanism, the combination with a carriage and a letter-feeding mechanism, of a stop mounted to yield during the return movement of the carriage, and a series of column-stops to cooperate with said stop when the carriage is moving in either direction, to arrest the carriage; said column-stops being movable independently

of one another into position to engage said stop, a rack for holding the column-stop when both in and out of cooperative relation with the first-mentioned stop, and means limiting the yielding movement of said stop to such an extent that the carriage is set thereby to the same position whether advancing or returning.

19. In a tabulating mechanism, the combination with a carriage and a letter-feeding mechanism, of a yielding stop upon the carriage, a bar extending along the carriage, and a series of column-stops upon said bar; said column-stops being movable independently one of another into effective position; a rack for holding the column-stops when both in and out of cooperative relation with the first-mentioned stop, and cooperating with said yielding stop to arrest the carriage at the same point in both advance and return movements of the carriage. yielding means being provided for enabling the returning carriage, after engagement of said carriage-stop with one of said column-stops, to continue its return movement to an extent sufficient to compensate for the thickness of the stop.

EDWARD F. KUNATH.

Witnesses:

B. C. STICKNEY,
BERTHA SCHNIER.