B. DYSART.

RECORDING MACHINE.

APPLICATION FILED DEC. 19, 1913.

1,121,721.

Patented Dec. 22, 1914.

2 SHEETS—SHEET 1.

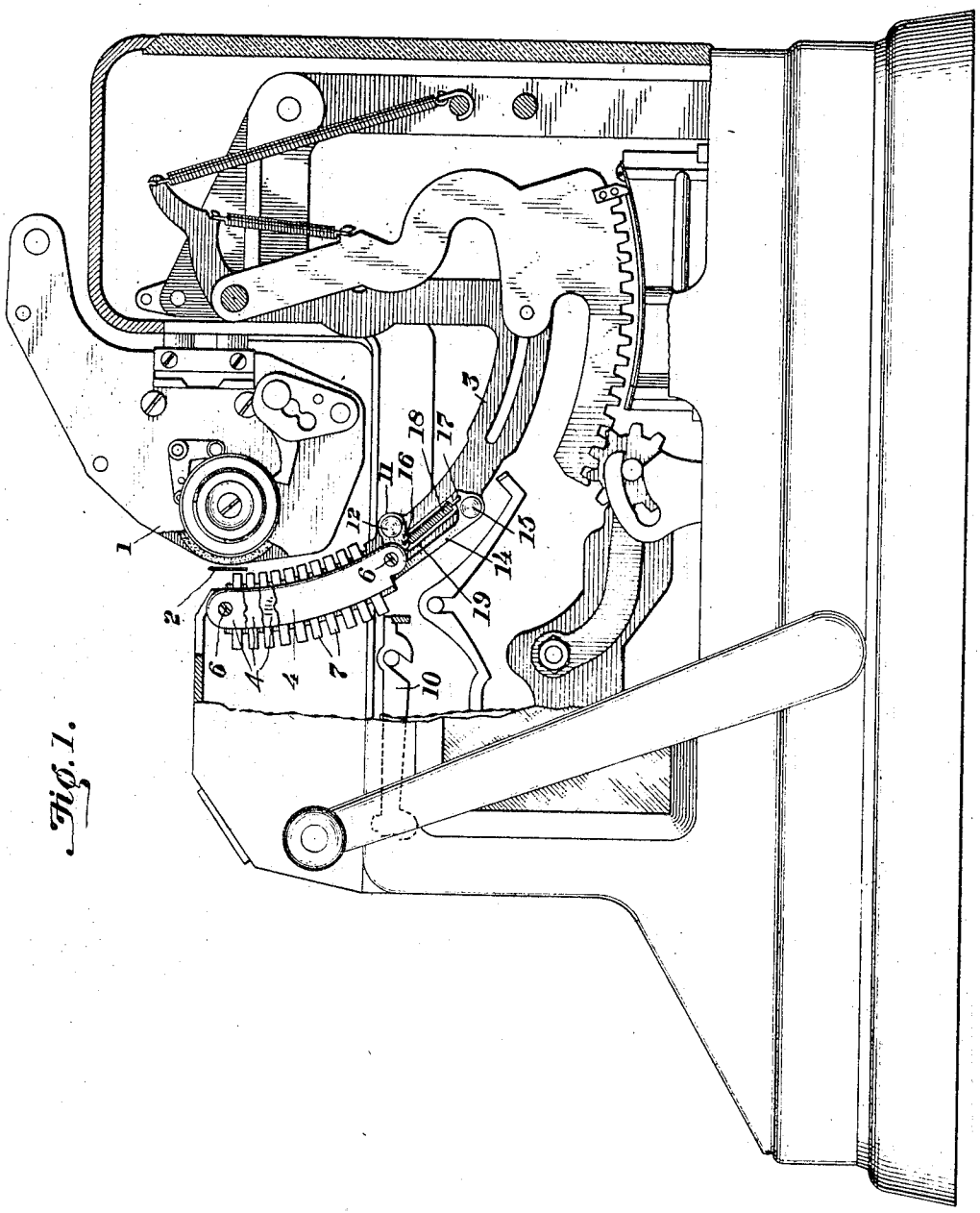

Fig. 1.

WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 2.

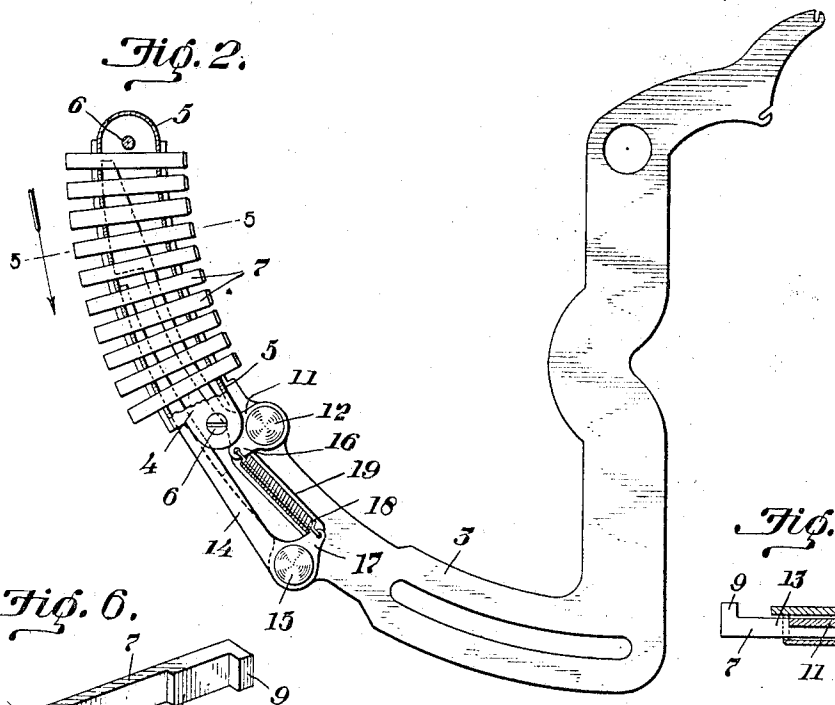

Fig. 5.

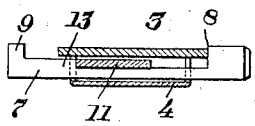

Fig. 6.

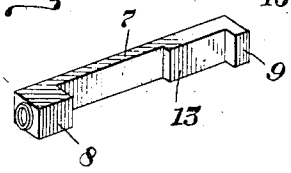

Fig. 7.

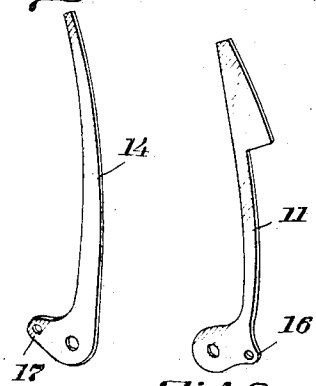

Fig. 3.

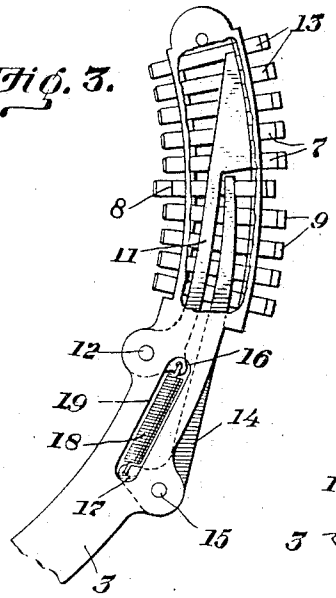

Fig. 4.

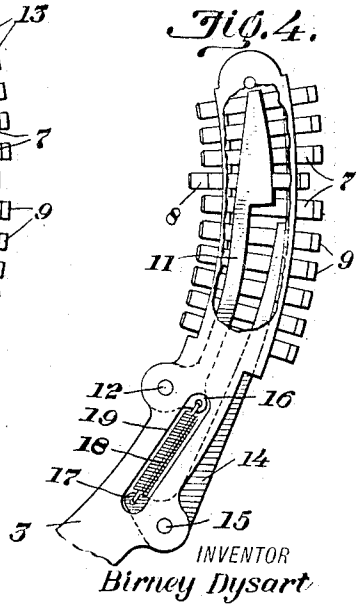

Fig. 8.

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UNITED STATES PATENT OFFICE.

BIRNEY DYSART, OF ST. LOUIS, MISSOURI, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE DALTON ADDING MACHINE COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

RECORDING-MACHINE.

1,121,721. Specification of Letters Patent. Patented Dec. 22, 1914.

Application filed December 19, 1913. Serial No. 807,572.

To all whom it may concern:

Be it known that I, BIRNEY DYSART, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented a new and useful Recording-Machine, of which the following is a specification.

This invention relates to recording machines of the class in which series of type are mounted movably upon movable carriers whereby the type are first positioned adjacent to the recording line of a platen, and are then driven against an interposed ribbon to effect printing upon the paper on the platen.

An object of the invention is to provide a recording mechanism comprising a number of type-carriers, and a series of type movably supported by each type-carrier, in combination with retracting devices for the type, and means supported by each carrier for actuating the retracting devices to retract the type after each printing operation, so that the type will be normally retained at the limit of their outward or downward movement on the type-carriers.

Another object is to provide a recording machine including a number of type-carriers, and a series of type movably supported by each type-carrier, in combination with an actuator engaging a plurality of said type, and means for actuating said actuator effectively to retract or move the type away from the platen after each printing operation, so that all of the type are normally held in retracted position and are capable of being driven toward the platen to record upon paper held against the platen.

A specific object of the invention is to provide a recording machine containing a series of type-carriers and a series of type upon each type-carrier, with actuating levers mounted upon each type-carrier and engaging the type thereon, and springs for actuating said levers to move the type away from the platen after printing operations.

A machine embodying much of the structure with which my present invention is combined, including the movable type-carriers, and the mechanism for controlling the type-carriers in their operations, is disclosed in Hopkins Patent No. 1,039,130, dated September 24, 1912.

In the accompanying drawings in which I have illustrated a preferred embodiment of the invention—Figure 1 is an elevation, partly in section, of a machine containing a series of movable type-carriers, having my invention combined therewith. Fig. 2 is a side elevation of one of the type-carriers removed from the machine, the case supporting the type being in section to illustrate the devices for retracting the type from the platen after printing. Fig. 3 is a side elevation of a part of one of the type-carriers, a part of the type-carrier being removed to illustrate the position of the parts when one of the lower type in the series is driven to record. Fig. 4 is a similar view illustrating the position of the parts when one of the upper type of the series is driven to record. Fig. 5 is a sectional view of the type-carrier on the line 5—5 of Fig. 2. Fig. 6 is a perspective view of one of the type blocks removed from the type carrier. Figs. 7 and 8 are perspective views of the type actuating levers by which the type are retracted from the platen after printing operation.

As usual the machine includes a paper carriage 1 by which the paper is supported and delivered to receive the printing impressions. A ribbon 2 is supported adjacent to the printing surface of the platen of the carriage, and is arranged to receive the impact of the type when the latter are driven toward the platen in printing operations. The machine also includes the usual carriers 3 operable adjacent to the printing surface of the platen, as required to position any of the type adjacent to the printing line. The operation of the type-carriers 3 is controlled in the usual and well understood manner so that the type thereon may be selectively and at the will of the operator utilized in printing operations. It is in connection with these usual and well understood devices that my present invention is arranged to operate.

The upper end of each type carrier 3 supports a plate 4 having its edges 5 turned laterally to engage against the side of the type-carrier 3 and thereby form a housing by which the type are supported. The plate 4 is secured in connection with its type-carrier by screws 6. The flanges 5 are provided with notches and the type blocks 7 are mounted in said notches. The type are on the ends of the type blocks which are nearest the platen, and said type blocks are longitudinally movable in their supports,

so that after the type carriers have been positioned adjacent to the platen the type which are alined at the printing line may be driven longitudinally to strike the ribbon and thereby effect printing upon the paper interposed between the ribbon and the platen.

The type-carrying end of each type block is provided with a shoulder or head 8 (Figs. 5 and 6), adapted to engage against the edge of the type-carrier as clearly illustrated in Fig. 5, and thereby limit outward or downward movement of the type block. Similarly, the outer or blank end of each type block is provided with a head or shoulder 9 whereby longitudinal movement of the type in the opposite direction is limited. Thus, each type block is provided on its opposite ends with heads or shoulders 8 or 9 adapted to engage the edges of the type-carrier 3 to limit the type in its movements, and to prevent removal of the type after the series have once been assembled.

The type-carriers are controlled in their operations in the usual manner, and the alined type are driven toward the platen in printing operations as usual by hammers 10. After each printing operation it is necessary to retract the type from the ribbon, and to hold the type in their retracted positions to enable the type-carriers to be operated freely, and to obtain the desired results in the printing operations of the type-carriers and the type. For retracting a number of the type blocks I utilize an actuator or retractor in the form of a lever 11 pivotally supported upon the type-carrier by a support 12. The lever 11 extends into the housing, between the plate 4 and the type-carrier and engages shoulders 13 upon a plurality of the type blocks, so that said lever 11 is effective to retract a plurality of the type, and to hold them retracted after each printing operation. Preferably the lever 11 engages only a part of the series of type, and another actuator lever 14 is provided to engage the remaining type of the series. The lever 14 is pivotally connected to the type-carrier by a support 15, and engages similar shoulders 13 upon a number of the type blocks in the series. The lever 11 is provided with a projecting part 16, and the lever 14 is provided with a projecting part 17. A spring 18 of suitable retractile power connects the projections 16 and 17, and is effective to actuate both of the actuating levers in a direction to retract and hold retracted all of the type on the type-carrier on which said levers are mounted. The type-carrier is provided with a slot 19 to receive the spring 18 so that the springs on the adjacent type-carriers will not interfere with each other during the differential movement of the type-carriers.

The type blocks are freely movable in their supports, and the spring 18 readily yields, so that the percussive action of the hammer 10 required to drive the type to print is not required to be materially increased in order to overcome the resistance of the spring 18. Since the type operate to effect printing by the percussive action of the hammer, and the hammer is immediately retracted after striking the type, no other type than those driven to record will be moved out in printing operation. Thus, as illustrated in Figs. 3 and 4 only those type driven by the percussive action of the hammers move from their normal positions in their supports. Immediately upon retraction of the hammer after each percussive action thereof, the spring 18 retracts and causes the coöperating actuator or retractor to retract the type which had been driven to record and leave the type-carriers free to return to their idle positions.

Recording mechanisms of the character described are particularly useful in listing machines of the type containing series of type-carriers arranged to move side by side parallel with each other. Such machines are well known commercially, and the particular machine with which I have illustrated my invention is known as the "Dalton" adding machine, and is manufactured in substantial comformity with the adding and listing mechanism constituting a part of the subject matter of Hopkins Patent No. 1,039,130, dated September 24, 1912, as hereinbefore mentioned.

It will be understood that in illustrating and describing my invention as embodied in such a machine I do not confine myself to that specific embodiment. Obviously, the invention may be utilized with equal advantage in various species of machines, and there may be various modifications and variations in the arrangement and construction and coöperation of the parts without departure from the spirit or scope of the invention.

What I claim and desire to secure by Letters Patent of the United States is:

1. In a recording machine, the combination with a type-carrier, a series of relatively movable type supported by said type-carrier, a hammer for driving said type in one direction to effect printing, and means for limiting movement of said type in both directions with respect to said type-carrier, of a lever engaging certain of said type and being moved by the movement of said type when said type are driven by said hammer as aforesaid, and means for actuating said lever to return said type to idle position after being driven by said hammer to print, substantially as described.

2. In a recording machine, the combination with a type-carrier, a series of relatively movable type supported by said type-

carrier, a hammer for driving said type in one direction to effect printing, and shoulders on said type, respectively, for limiting movement of said type in both directions with respect to said type-carrier, of a lever pivoted on said type-carrier and engaging said type and yielding to the blow of said hammer to enable said type to be driven by said hammer as aforesaid, and a spring actuating said lever to restore said type to idle position after being driven by said hammer as aforesaid, substantially as described.

3. In a recording machine, the combination with a type-carrier, a series of type supported by said type-carrier, and shoulders limiting movement of said type in both directions, of a lever pivoted on said type-carrier for holding said type in idle position, a spring acting on said lever to hold said type in idle position and to restore them to idle position after being driven to print, and a hammer operable to drive said type to print, in opposition to said lever and spring, substantially as described.

4. In a recording machine, the combination with a type-carrier, and groups of separately movable type-blocks supported by said type-carrier, of a lever for each of said groups, pivots supporting said levers on said type-carriers, and a spring connecting said levers and actuating said levers to hold said type-blocks in idle position, substantially as described.

5. In a recording machine, the combination with a type-carrier, a series of type supported by said type-carrier, a lever pivoted on said type-carrier and engaging a number of said type, a second lever pivoted on said type-carrier and engaging others of said type, and a spring connecting said levers and actuating them in the same direction to hold said type in idle position, substantially as described.

6. In a recording machine, the combination with a type-carrier, a series of type mounted on said type-carrier, separately movable levers pivoted on said type-carriers and engaging said type, and a spring connecting said levers and actuating said levers in the same direction, substantially as described.

7. In a recording machine, the combination with a series of type-carriers each provided with a slot and movable side by side in recording operations, and a series of type supported by each type-carrier, of levers supported by each type-carrier for actuating the type in one direction, and a spring connecting the levers on each type-carrier and supported within said slot whereby the type-carriers may be closely mounted and the springs on the several type-carriers will be permanently supported out of engagement with each other in said slots, substantially as described.

8. In a recording machine, the combination with a type-carrier, a series of relatively movable type supported by said type-carrier, a hammer for driving said type in one direction to effect printing, and shoulders on said type arranged to engage with said type-carrier to limit movement of said type in both directions with respect to said type-carrier, of a lever engaging certain of said type and being moved by the movement of said type when said type are driven by said hammer as aforesaid, another lever engaging others of said type and being moved by the movement of the type engaged thereby when said type are driven by said hammer as aforesaid, and means for actuating said levers to return said type to idle position after being driven by said hammer to print, substantially as described.

In witness whereof, I have signed this specification in the presence of two subscribing witnesses.

BIRNEY DYSART.

Witnesses:

HARRY LANDSIEDE,

HARRY C. YAEGER.