No. 705,535. Patented July 22, 1902.

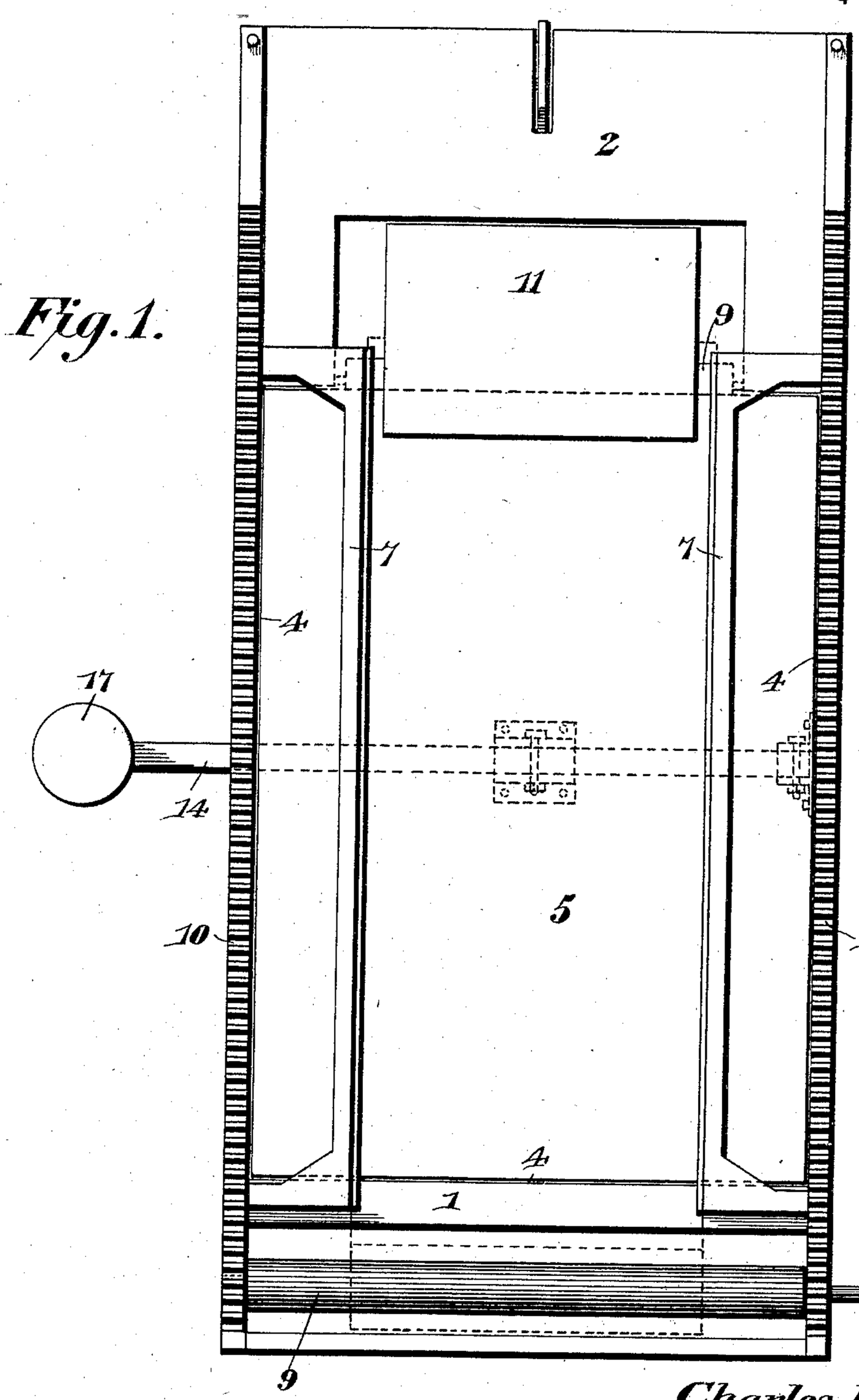
C. F. LAGANKE.

TYPE WRITING MACHINE.

(Application filed Dec. 31, 1900.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1.



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No. 705,535. Patented July 22, 1902.

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TYPE WRITING MACHINE.

(Application filed Dec. 31, 1900.)

(No Model.) 4 Sheets—Sheet 2.

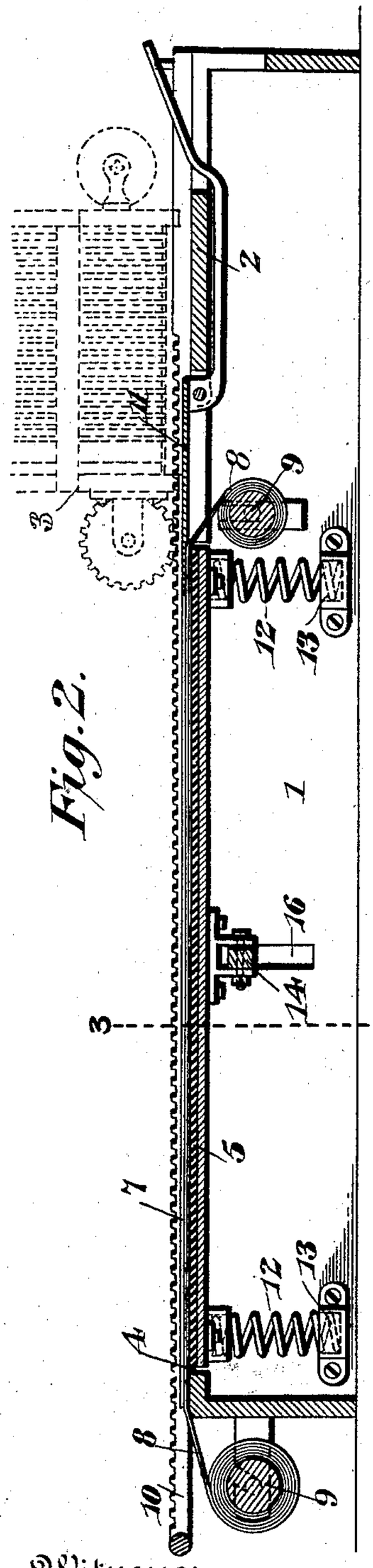

Fig. 2.

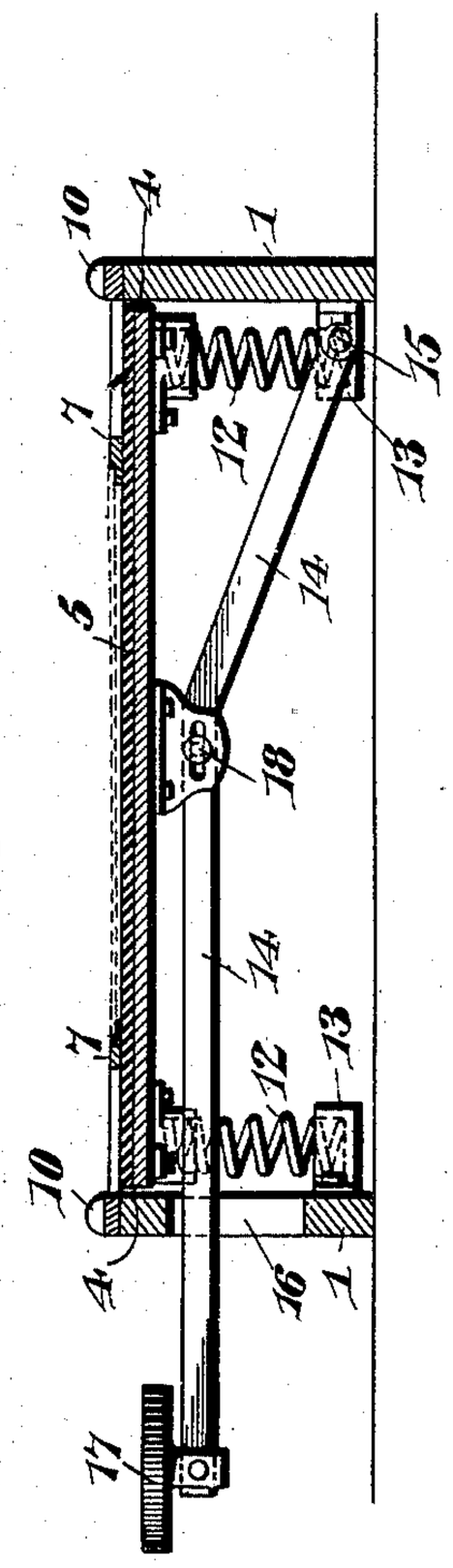

Fig. 3.

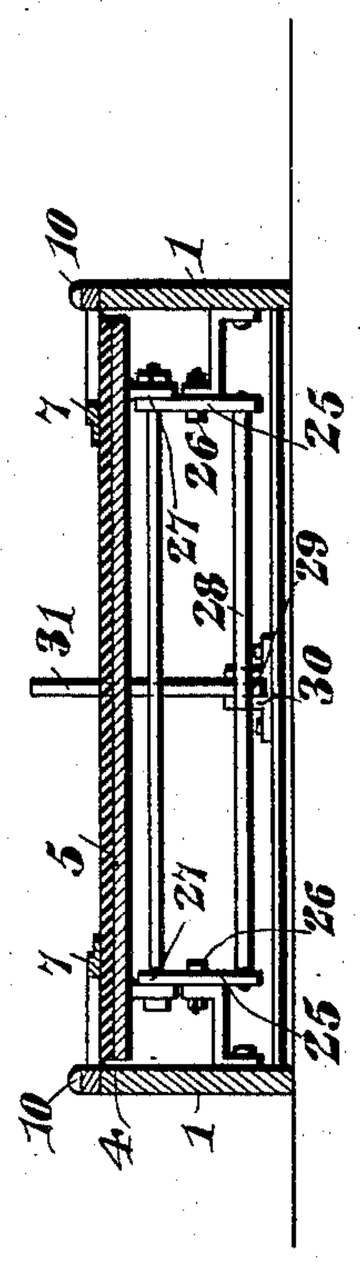

Fig. 9.

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TYPE WRITING MACHINE.

(Application filed Dec. 31, 1900.)

(No Model.) 4 Sheets—Sheet 3.

Fig. 4.

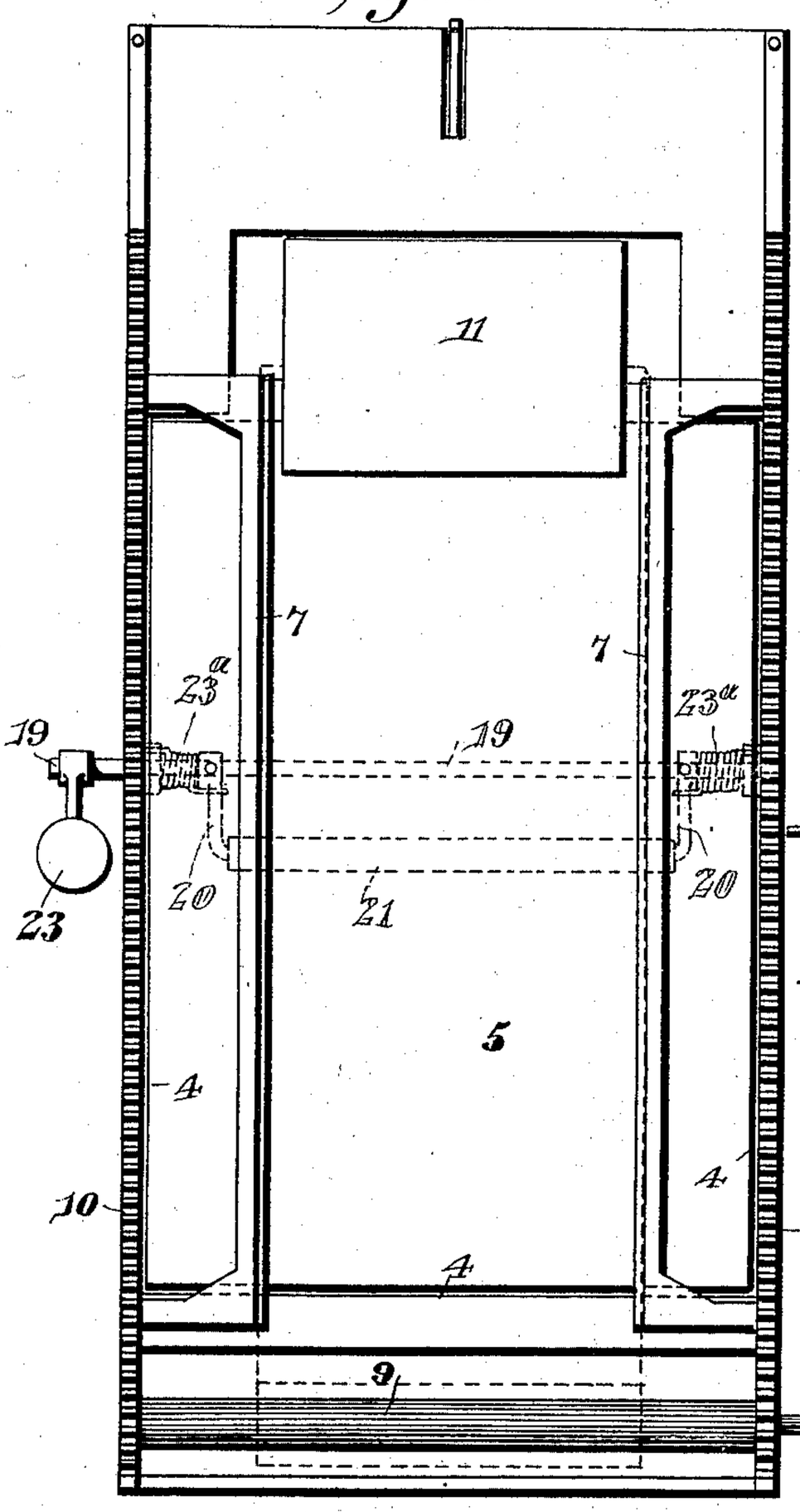


Fig. 6.

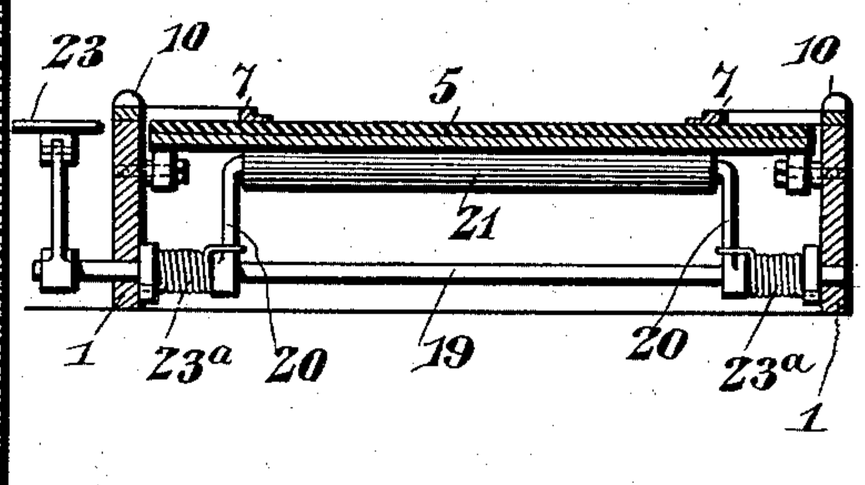
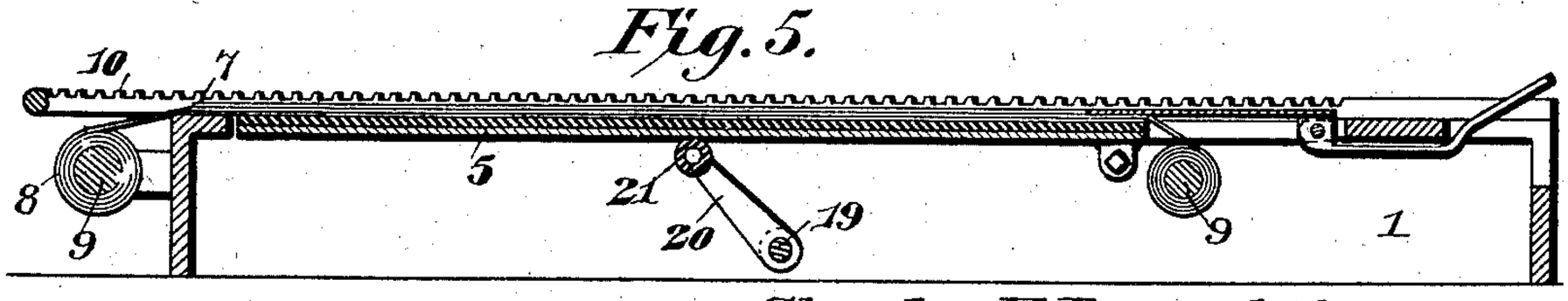


Fig. 5.



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No. 705,535. Patented July 22, 1902.

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TYPE WRITING MACHINE.

(Application filed Dec. 31, 1900.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 7.

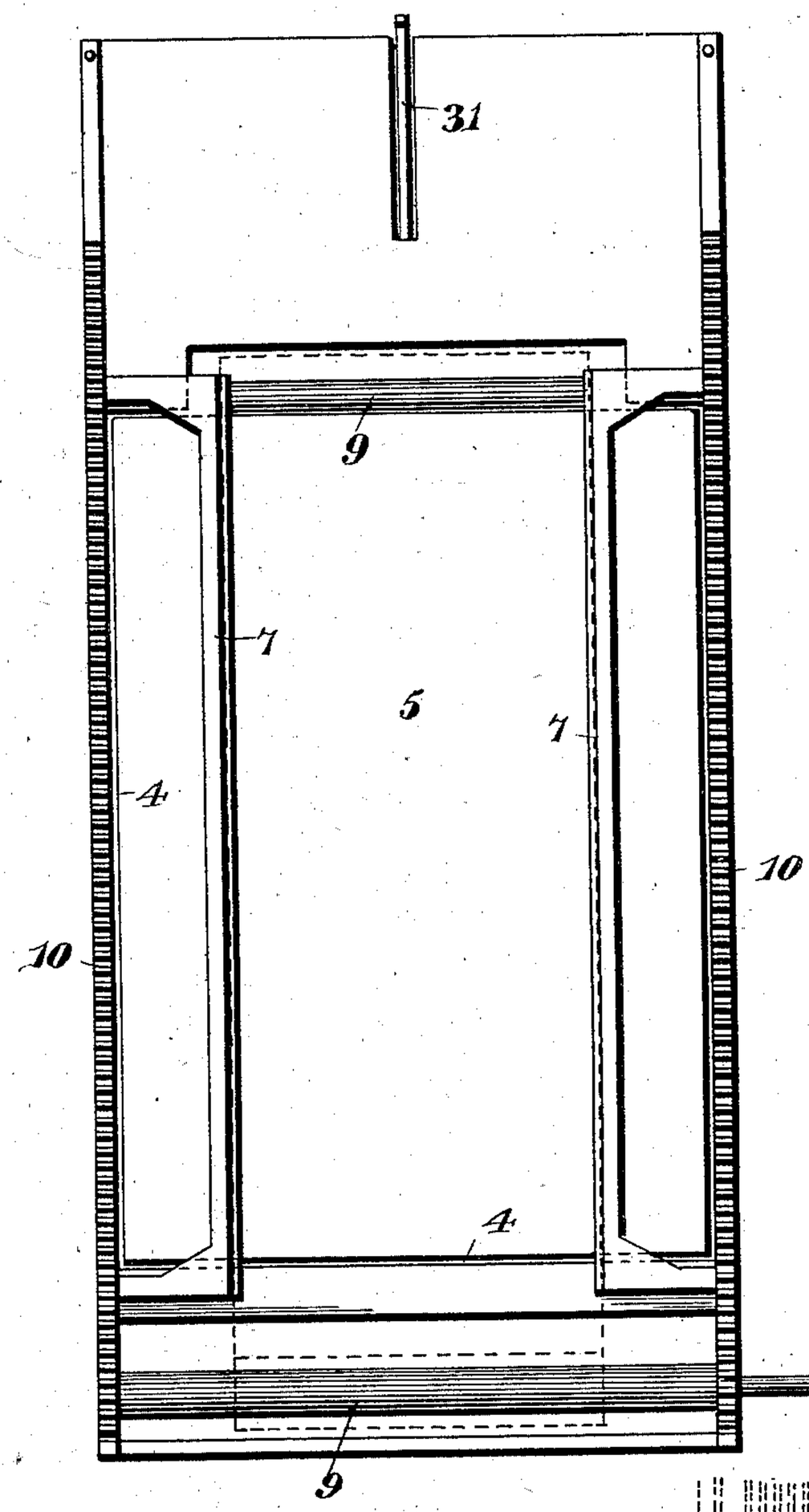
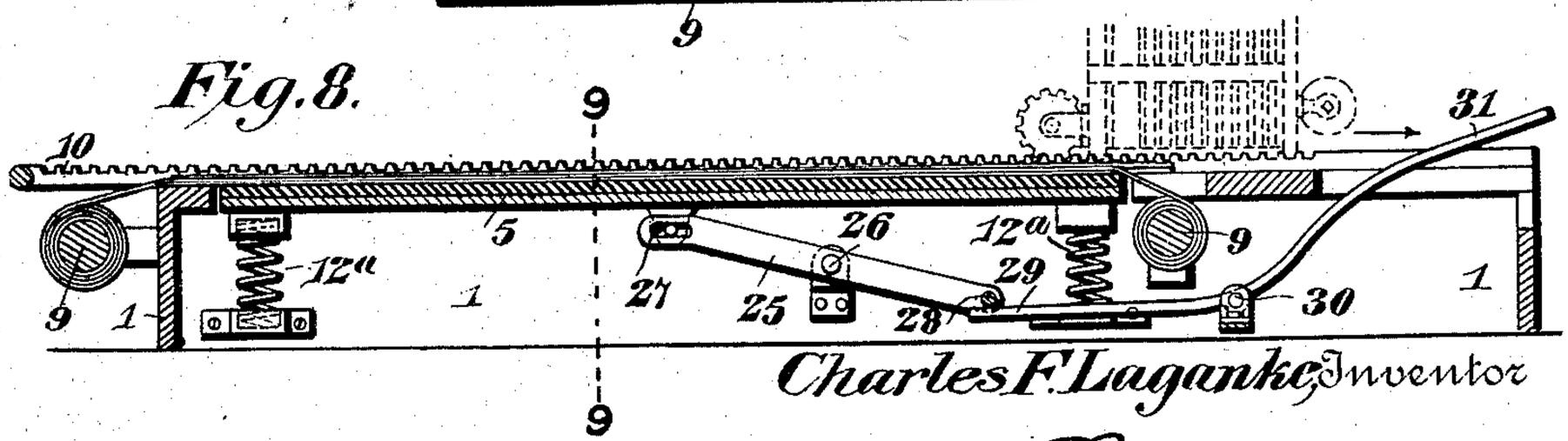


Fig. 8.



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L. T. Wallace

UNITED STATES PATENT OFFICE.

CHARLES FREDERICK LAGANKE, OF CLEVELAND, OHIO, ASSIGNOR TO THE FISHER BOOK TYPEWRITER COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 705,535, dated July 22, 1902.

Application filed December 31, 1900. Serial No. 41,706. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FREDERICK LAGANKE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Type-Writing Machine, of which the following is a specification.

This invention relates to type-writing machines, and more particularly to that class of type-writers which print upon the work in a flat or spread-out condition and which include a flat platen upon which the work is supported and over which the printing mechanism travels during the printing operation.

The invention has special reference to an improvement in the platen-mounting and the work-holding means to facilitate the handling of the work whether in card, sheet, or bill form, and to this end primarily contemplates a novel manner of utilizing the platen in connection with the work-holder or work-holding means, whereby the insertion and removal of the work is greatly facilitated, besides permitting the work to be accurately located in a printing position.

In its special application the invention contemplates the improvement of that type of flat platens now known as "billing-platens," which are equipped with means permitting of manifold printing, especially for commercial billing purposes. In billing-work of this character it is necessary to keep the work in a straight or spread-out condition to facilitate the entry thereon of items in properly-alined columns, and the present invention provides a construction permitting of the carrying out of this work with facility and accuracy, although it will be understood that the improvement is capable of general application to analogous uses.

Another object of the invention is to provide means in connection with the movable platen whereby the adjustment thereof may be effected manually or automatically.

In the broad aspect the invention contemplates the provision of a fixedly-positioned work-holder and a platen movable to and from the writing plane, or, in other words, movable in a direction toward and from the work-holder, which is designed to be interposed in a plane between the printing mechanism and the writing-surface of the platen. This novel relation of elements may be embodied in a number of different constructions without departing from the spirit of the invention; but for illustrative purposes a few of the simple embodiments of the invention are shown in the accompanying drawings, in which—

Figure 1 is a plan view of a type-writing-machine platen and a work-holder bearing the novel relation contemplated by the present invention. Fig. 2 is a vertical longitudinal sectional view of the form of the invention shown in Fig. 1. Fig. 3 is a transverse sectional view on the line 3 3 of Fig. 2. Fig. 4 is a plan view showing another modification of the invention, in which the movable platen is manually controlled. Fig. 5 is a vertical longitudinal sectional view of the construction shown in Fig. 4. Fig. 6 is a transverse sectional view of the same construction. Fig. 7 is a plan view of a form of the invention in which the movement of the platen is controlled automatically by the movement of the traveling machine or printing mechanism. Fig. 8 is a longitudinal sectional view of the construction shown in Fig. 7. Fig. 9 is a cross-sectional view on the line 9 9 of Fig. 8.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

In carrying out the present invention the essential idea preserved in all embodiments thereof is the combination of a fixedly-positioned work-holder of a suitable form and a platen movable to and from the writing plane and arranged below the work-holder. The different forms of the invention also involve the interposition of the work-holder in a plane between the printing mechanism and the writing-surface of the platen. These features of the invention may be embodied in a variety of constructions and associated with platens designed for different purposes, as well as with different kinds of work-holders; but it is deemed sufficient for illustrative purposes to show the improvements in the drawings as utilized in connection with the form

of platen known as a "billing-platen," especially designed for commercial billing purposes.

From the foregoing it will be understood that the invention is not restricted to any particular kind of platen, nor to the manner of mounting and controlling the same, nor to the particular construction of work-holder, inasmuch as the latter could necessarily be of a form adapted for billing or loose-sheet work without affecting the principle underlying the invention with reference to the fixed position of the work-holder and the movement of the platen to and from the writing plane. Therefore in referring to the drawings it will be understood that the specific construction shown is simply exhibited for illustrative purposes and does not constitute essential or necessary embodiments of the invention.

By reference now to the drawings, and first to those forms of the invention shown in Figs. 1 to 3, inclusive, the numeral 1 designates a stationary machine-support, which may be in the form of an elevated base and provided at the rear or back end thereof with a rest extension 2, upon which the traveling machine or printing mechanism 3 is supported when moved back beyond the printing area.

In carrying out the present invention the machine-support 1 may be provided with a cut-out portion or opening 4 to accommodate therein the flat platen 5, which is shown as of the ordinary construction utilized in book type-writing machines and which is supported in a way so as to be vertically movable, whereby the same has a movement to and from the writing plane, so as to facilitate the handling of the work in connection with the work-holder. This work-holder, as already stated, may be of any form adapted for use in connection with a flat platen and which may be interposed in a plane between the platen and the printing mechanism; but in connection with billing-work the work-holder usually consists of a pair of oppositely-located frame members 7 7, constructed so as to not only hold a bill of the doubled or folded type, but also to hold the carbon element or web 8, which is designed to be interposed between the leaves or sheets to be printed upon, and in the construction shown in the drawings is arranged to wind and unwind upon the oppositely-located winding-rolls 9, supported at opposite points upon the machine support or base 1 in substantially the manner and for the same purpose as disclosed in a companion application filed March 21, 1901, No. 52,213.

The oppositely-located frame members 7 7, constituting the form of work-holder shown in the drawings, are arranged to project inwardly from the machine-guides or track-rails 10, which in the present invention are designed to be supported in stationary positions upon the stationary machine support or base 1 at opposite sides of the platen 5, so as to not interfere in any respect with the movement or adjustment of said platen while permitting the free travel of the machine or printing mechanism thereover. The work-holding frames or frame members 7 7 may be attached to the machine-guides or track-rails or to opposite portions of the machine support or base 1; but irrespective of the manner in which said frames or frame members are supported the same are designed to be stationary or fixed with relation to the platen and extend inwardly thereover besides being disposed longitudinally of the same. This disposition of the frame members 7 in the form of work-holder shown is necessary in order to permit of their dual function as holding and alining means for the bill or sheet and also as holders for the carbon element or web 8.

No claim is made in the present application to the specific construction of work-holder shown in the drawings, inasmuch as this element is fully described and claimed in the other application aforesaid, nor to the clamp-plate 11, which is described and claimed in the concurrent application of Robert J. Fisher, No. 46,362; but as the relation of the work-holder to the platen and the machine-guides has been defined further reference will now be made to the movement of the flat platen toward and from the writing plane, or, in other words, toward and from the plane of the work-holder.

The elevation and depression of the platen may be accomplished by many mechanical expedients, both manually and automatically controlled; but for illustrative purposes it is only deemed necessary to show a few of these expedients. In the form of the invention just described—namely, the form shown in Figs. 1 to 3, inclusive—the platen is illustrated as normally sustained in an operative position—that is, in the writing plane—through the medium of a plurality of yielding supports 12 in the form of supporting or elevating springs located within the machine support or base 1 and held at their lower ends within brackets or holders 13, fitted to the machine support or base and bearing at their upper ends beneath the platen to sustain the same in the writing plane directly underneath the work-holder 7 7. In order to provide for the removal and insertion of the work, it is necessary to provide for a separation between the work-holder and the flat platen, and in the present invention this is accomplished by depressing or lowering the platen away from the work-holder. The means shown in Figs. 1 to 3, inclusive, of the drawings for effecting this simply include a manually-controlled operating-lever 14, arranged transversely within the machine support or base 1 and having a pivotal support at one extremity, as at 15, upon the machine support or base, at one side thereof. The outer portion of the operating-lever 14 extends through

a slot or opening 16 in one side of the machine support or base and carries upon its exposed end a finger-key 17. At a point intermediate its ends the said operating-lever 14 has a sliding pivotal engagement 18 with the flat platen at the under side thereof, so that when the key 17 is depressed the lever 14 will serve to draw the platen 5 downward and away from the writing plane, thus permitting of the handling of the work in connection with the work-holder or work-holding members. When the pressure on the key 17 is relieved, the springs 12 will automatically return the platen to the writing plane beneath the work-holder.

Another embodiment of the invention involving mechanically-controlled means for adjusting the platen is shown in Figs. 4, 5, and 6 of the drawings, and simply consists in the employment of a rock-shaft 19, arranged transversely within the machine support or base 1 and carrying one or a plurality of swinging lifting-arms 20, bearing a roller-contact 21, engaging the under side of the platen. The said rock-shaft 19 is fitted at one end, outside of the plane of the machine support or base, with an operating lever or key 23, which is depressed by the operator to provide for rocking the shaft in a direction to permit of the lowering of the platen from the writing plane. Instead of springs arranged in the manner shown in Figs. 1, 2, and 3 of the drawings the modification now being described may utilize lifting-springs 23^a, coiled upon the rock-shaft and exerting a tension in a direction for normally and yieldingly sustaining the platen in the writing plane. With such an arrangement the platen should be hinged at its rear end, so as to raise and lower at its forward end.

Many other mechanically-controlled devices or mechanisms will readily suggest themselves as being adapted for use in the raising and lowering of the platen, and inasmuch as both the raising and lowering of the platen can be accomplished automatically another embodiment of the invention is shown in Figs. 7, 8, and 9 of the drawings. In the construction shown in these figures of the drawings a plurality of springs 12^a are illustrated as the means employed for effecting an automatic elevation of the platen and the holding thereof normally in the writing plane, although other mechanical means could be utilized for the same purpose; but to provide for the automatic lowering of the platen or the movement thereof away from the writing plane a mechanism is shown which is automatically controlled by the movement of the machine or printing mechanism. This mechanism includes adjusting-levers 25, pivotally supported intermediate their ends, as at 26, within the machine support or base 1 and having a sliding pivotal connection 27 at one end with the under side of the platen. The opposite ends of the oscillatory adjusting-levers 25 are connected by a common coupling-bar 28, beneath which is designed to engage one end of an oscillating operating-lever 29. This operating-lever 29 is pivotally supported intermediate its ends, as at 30, and is provided at one side of its pivot with an upturned rearwardly-extending engaging cam-arm 31, which lies in the path of the traveling machine or printing mechanism 3 and is adapted to be engaged by the frame of said machine or printing mechanism when the same is moved backwardly upon the rest extension 2 in rear of the platen and work-holder. When the machine is thus moved backwardly and engages with the cam-arm 31, the lever 29 is oscillated in a direction to move it against the coupling-bar 28 for the levers 25 and to cause the ends of said levers connected with the platen to move downward. This will accomplish an automatic lowering of the platen away from the writing plane, and when the work has been readjusted and the machine or printing mechanism again moved forwardly the platen will automatically resume its normal position within the writing plane. Other forms of automatically-operated mechanisms controlled by the movement of the machine can be utilized to accomplish the result just described.

From the foregoing it is thought that the essential features of the invention and the operative relations thereof will be readily understood from the different forms disclosed, but it will of course be understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a type-writing machine, the combination with the machine-support, and a work-holder adapted to occupy a position thereon beneath the printing mechanism, of a movable platen, and means for automatically moving the platen from the writing plane.

2. In a type-writing machine, the combination with the machine-support, and a work-holder adapted to occupy a position thereon beneath the printing mechanism, of a movable platen, and means for automatically moving the said platen to and from the writing plane.

3. In a type-writing machine, the combination with the machine-support, and a work-holder adapted to occupy a position thereon beneath the printing mechanism, of a movable flat platen, means for holding the platen in the printing plane, and means, controlled by the movement of the machine, for causing the platen to move from the writing plane.

4. In a type-writing machine, the combination with the machine-support, and a work-holder adapted to occupy a position thereon beneath the printing mechanism, of a movable platen, yielding means for normally ele-

vating the platen, and means, operated by the movement of the machine, for automatically depressing the platen.

5. In a type-writing machine, the combination with the machine-support, and a work-holder adapted to occupy a position thereon beneath the printing mechanism, of a movable flat platen, means for holding the flat platen in an operative position, and means for automatically depressing the platen when the machine or printing mechanism is moved beyond the plane thereof.

6. In a type-writing machine, the combination with the machine-support, and a relatively fixed work-holder adapted to occupy a position beneath the printing mechanism, of a movable platen located below the work-holder, yielding means for normally elevating the platen, and independent means for depressing the platen.

7. In a type-writing machine, the combination with the main tracks or guides for the traveling printing mechanism and disposed in the same horizontal plane, of a fixedly-positioned work-holder disposed in a plane between said tracks or guides, and a platen located below the work-holder and movable toward and from the writing plane.

8. In a type-writing machine, the combination with the main tracks or guides for the traveling printing mechanism, of a fixedly-positioned work-holder disposed in a plane intermediate of said tracks or guides and arranged to support the work, and a platen located below the work-holder and movable to and from the writing plane.

9. In a type-writing machine, the combination with the main tracks or guides for the traveling printing mechanism and located in the same horizontal plane, of a fixedly-positioned work-holder disposed between and substantially in the horizontal plane of said tracks or guides, and a platen normally located immediately under the work-holder and depressible to a plane below said tracks or guides.

10. In a type-writing machine, the combination with fixedly-positioned main tracks or guides for the traveling printing mechanism, of a fixedly-positioned work-holder extending inwardly from said tracks or guides, and a depressible platen disposed immediately under the work-holder for presentation to the sheet held thereby.

11. In a type-writing machine, the combination with the main tracks or guides for the traveling printing mechanism and located in the same horizontal plane, of a fixedly-positioned work-holder disposed in a plane intermediate of said tracks or guides, and a depressible platen located below the work-holder and movable to the writing plane to engage a work-sheet held by the work-holder.

12. In a type-writing machine, the combination with the main tracks or guides disposed in the same horizontal plane for the support of the traveling machine, of a work-holder located between the vertical planes of the tracks or guides, and a spring-supported platen disposed below the work-holder and depressible from the writing plane.

13. In a type-writing machine, the combination with the main tracks or guides for the traveling printing mechanism, of a flat stationary work-holder disposed between said tracks or guides to support the work-sheet, and a platen located below said work-holder, said platen being movable toward the holder to engage the sheet and depressible from the writing plane.

14. In a type-writing machine, the combination with the main tracks or guides for the traveling printing mechanism, of a stationary work-holder extending horizontally from a track or guide, and a platen located below the work-holder, said platen being movable toward and depressible from the writing plane.

15. In a type-writing machine, the combination with the main tracks or guides for the traveling printing mechanism, of a horizontal stationary work-holder comprising members extended inwardly from the tracks or guides, and a platen located below the work-holder, said platen being movable toward and depressible from the writing plane.

16. In a type-writing machine, the combination with the main tracks or guides for the traveling printing mechanism, of a flat work-holder located in a plane wholly below the upper edges of the tracks or guides to permit the machine to travel freely thereover, and a platen disposed immediately below the work-holder, said platen being movable to and depressible from the writing plane.

17. In a type-writing machine, the combination with the flat platen, the traveling machine, and the main tracks or guides, of a work-holder interposed in a plane between the machine and the writing-surface of the platen and having holding and alining means for the work, said platen being depressible from the writing-surface.

18. In a type-writing machine, the combination with the tracks or guides for the traveling machine, of a platen depressible from the writing plane, and a work-holder located above the platen and arranged to sustain a work-sheet in the printing position.

19. In a type-writing machine, the combination with the main tracks or guides disposed in the same horizontal plane for the support of the traveling printing mechanism, of a work-holder disposed between said tracks or guides, and a platen located below the work-holder and movable toward and depressible from the writing plane, said work-holder being sustained independently of the platen.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES FREDERICK LAGANKE.

Witnesses:

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L. M. WOLF.