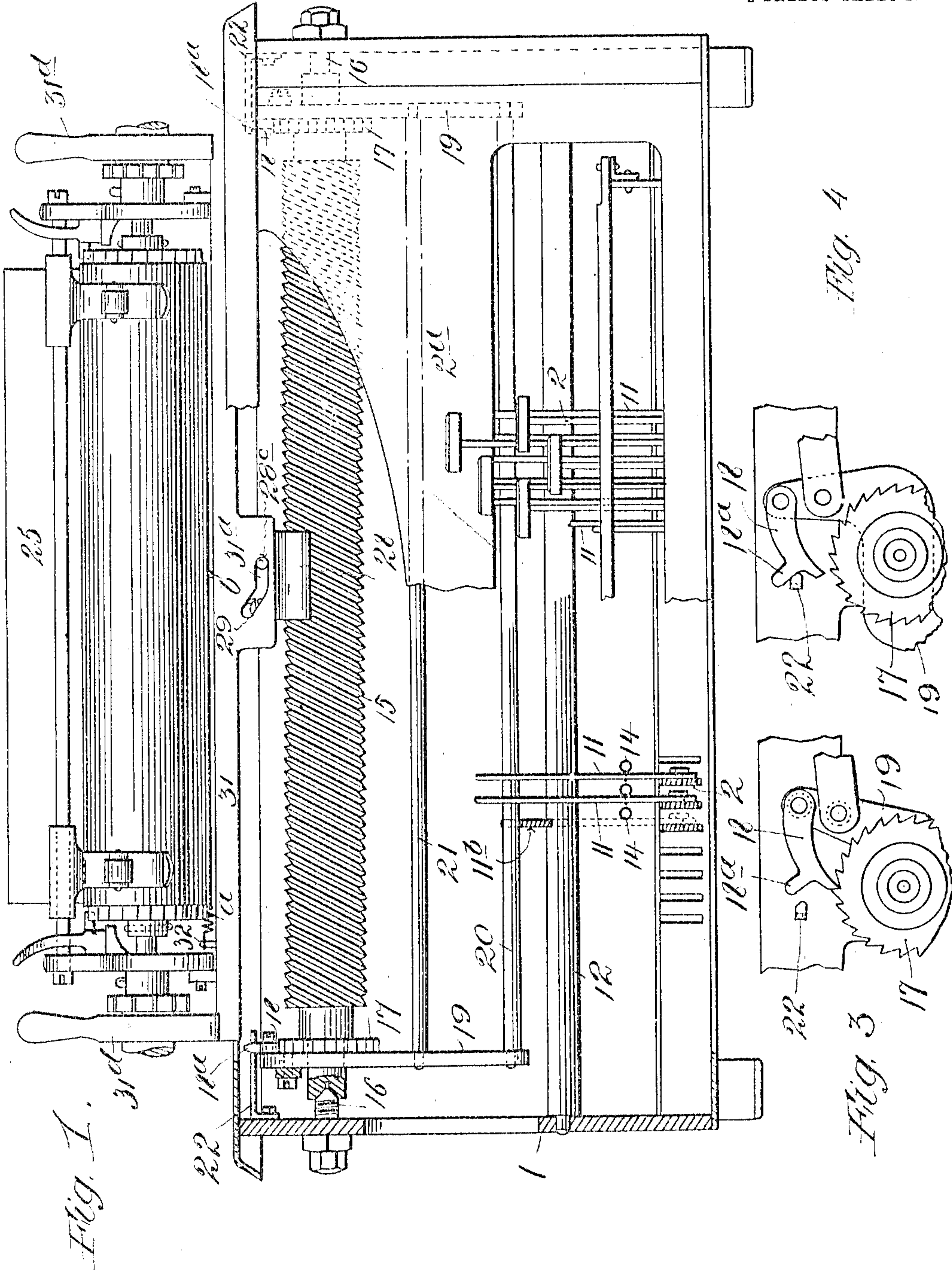


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 CARRIAGE FEEDING MECHANISM FOR TYPE WRITING MACHINES.
 APPLICATION FILED MAY 7, 1909.

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Patented Apr. 25, 1911.

2 SHEETS--SHEET 1.



Witnesses:
 C. W. Benjamin
 Harry J. Wainwright

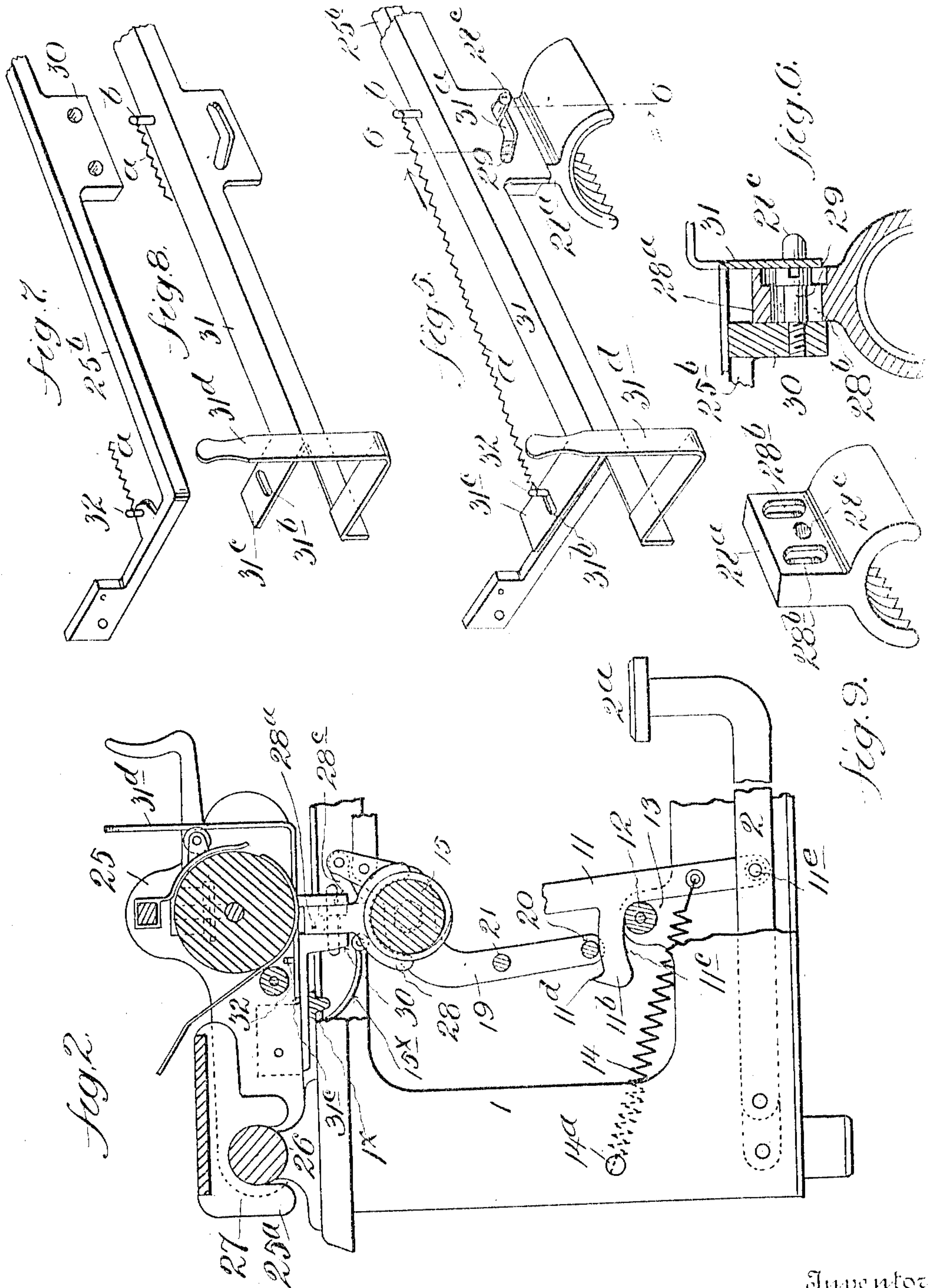
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UNITED STATES PATENT OFFICE.

WILLIAM W. LASKER, OF NEW YORK, N. Y.

CARRIAGE-FEEDING MECHANISM FOR TYPE-WRITING MACHINES.

990,569.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Original application filed December 12, 1908, Serial No. 467,238. Divided and this application filed May 7, 1909. Serial No. 494,565.

To all whom it may concern:

Be it known that I, WILLIAM W. LASKER, a citizen of the United States, and resident of New York city, in the county of Kings and State of New York, have invented certain new and useful Improvements in Carriage-Feeding Mechanism for Type-Writing Machines, of which the following is a specification.

10 This application is a division of my application for improvements in typewriting machines, filed December 12, 1908, Serial No. 467,238, and the object of the invention is to provide improved means for causing
15 positive feeding of the paper carriage and to permit the ready release and return of the carriage as required.

In carrying out my invention I provide a typewriting machine having a carriage, with
20 a screw extending longitudinally with respect to the carriage, a nut adjustably connected with the carriage for co-action with said screw, and means for placing the nut into and out of operative correlation with
25 the screw, whereby the carriage may be manually shifted while the screw remains in its operative position in the frame.

My invention further comprises the novel details of improvement and combinations of
30 parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein,

Figure 1 is a front elevation of a typewriting machine embodying my improvements, parts being broken away and other parts removed, Fig. 2 is a partly sectional end view of the machine looking from the left in Fig. 1, Fig. 3 is a detail illustrating
40 the carriage feeding ratchet and pawl device, Fig. 4 is a similar view, showing the parts in a different position, Fig. 5 is a detail perspective view of part of the carriage feeding devices, Fig. 6 is a cross section on the line 6, 6, in Fig. 5, Fig. 7 is a perspective detail of part of the carriage, Fig. 8 is a detail perspective of the shifting or slide member of Fig. 5, and Fig. 9 is a detail of the nut of the carriage feeding device.

50 Similar numerals of reference indicate corresponding parts in the several views.

The numeral 1 indicates the main frame of the machine, which may be of any suitable construction, and at 2 are key levers
55 having their keys 2^a arranged in any suit-

able or well known manner, the key levers being pivotally supported in any desired manner, or as set forth in my application Serial No. 467,238. For convenience of illustration the type bars, ribbon feeding mechanism and other parts are omitted, but they may be arranged as set forth in my said application Serial No. 467,238, or in any other suitable manner.

Links 11 are pivotally connected with the
65 key levers, as at 11^c, and said links each have a rearward projection 11^b, the under surface of which is shown curved at 11^c and rests upon an abutment shown in the form of a traverse bar or roller 12 supported by
70 frame 1 in any suitable manner, as upon the slotted member 13 thereof, all whereby as a key lever is depressed it will tend to draw the corresponding link 11, and as the projection 11^b of such link rides over the abut-
75 ment or bar 12 said link will be caused to swing toward the front. A spring 14 attached to each link 11 and to a rod 14^a on frame 1 tends normally to draw and maintain the respective parts in the posi-
80 tions shown in Fig. 2, for as the key lever is released the spring 14 by drawing back the link 11 will cause the type bar to be depressed and the key lever to be raised. At
85 15 is a screw or spiral worm extending lengthwise below the paper carriage and suitably journaled, as by pivots or studs 16 carried by frame 1, which screw or worm is suitably pitched and preferably is a compound screw. Step by step rotation of said
90 screw is given for each depression of a type key or space key, for which purpose I have shown a suitable ratchet wheel 17 secured at opposite ends of the screw and operated
95 by pawls 18 carried by rocking arm or lever 19 hung concentric with or upon a suitable portion of screw 15. The rocking arm or lever 19 is provided with two depending arms connected together by a cross bar 20
100 located above the projections 11^b of links 11, a brace 21 also being shown connecting the depending arms of the rocking arm or lever. The projections 11^b are provided with upwardly extending lugs 11^d adapted to engage cross bar 20 at the appropriate time.
105 The relation of the parts is such that as a key lever or space key is depressed the corresponding lug 11^d will engage the cross bar 20 and thus cause pawls 18 to operate ratchets 17 to rotate screw or worm 15 the
110

appropriate distance for each forward step of the paper carriage. Lugs 11^a are shown normally at a distance back of cross bar 20 so that there will be independent movement of key levers 2 before lugs 11^a engage cross bar 20, then before the completion of the down stroke of the key lever lug 11^a will engage cross bar 20 to cause appropriate movement of screw 15. To cause screw 15 to come to rest just before the key strikes the paper, pawls 18 are disengaged from the corresponding ratchets, which may be accomplished by means of a lug 18^e on the pawl engaging stud 22 placed in suitable relation upon frame 1 (see Figs. 3 and 4), whereby pawls 18 will be in engagement with the ratchets for a suitable distance of the movement of the pawls and as lugs 18^a engage studs 22 and ride on the latter the pawls will be moved out of engagement with the ratchets and the screw 15 and the carriage will be at rest at the moment the type strikes the paper. The paper carriage, indicated generally at 25, and which may be of any suitable construction, may be guided by rod 26 secured upon frame 1 (as by brackets 27), the carriage being shown provided with yokes 25^a open at the bottom fitting over and sliding upon rod 26, whereby the carriage may be readily lifted off the frame.

The carriage 25 is provided with a nut or internally threaded piece 28 fitting the threads of screw or worm 15, and means are provided for raising and lowering nut 20 out of and into engagement with screw 15 as required for adjustment of the carriage. Nut 28 is movably connected with carriage 25, and for this purpose said nut is shown provided with a stem 28^a having slots 28^b receiving the shank portions of screws 29 which are secured in a lug 30 depending from the carriage, whereby nut 28 may have up and down movement. Nut 28 carries a pin 28^c that enters a suitable slot 31^a in a slide 31 that is carried by carriage 25. Slide 31 is shown mounted to slide along the bar 25^b of carriage 25, which slide is provided with longitudinally extending slots 31^b in portions 31^c that receive pins 32 extending from the carriage, and slide 31 is also shown provided with handles 31^d whereby the slide may be shifted upon the carriage. A spring *a* connected with pin *b* on slide 31, and with the carriage (as with pin 32) maintains slide 31 in the normal position shown in Fig. 5, and automatically returns slide 31. Slot 31^a is shown having a horizontal portion and an upwardly inclined portion, the arrangement being such that when the slide is in one position the pin 28^c of nut 28 will be in the horizontal portion of slot 31^a and thus the threads of the nut will be held in engagement with the threads of screw 15, and when the slide is moved to the opposite position pin 28^c will ride up the

inclined portion of slot 31^a thereby raising nut 28 out of engagement with screw 15 to permit the carriage to be shifted by hand, whereupon slide 31 will again be moved in the opposite direction to cause nut 28 to engage screw 15. When the nut is raised from screw 15 the carriage may rest upon rail 1^x on frame 1. Spring detents 15^x acting on ratchets 17 retain screw 15 in normal position.

My invention is not limited to the details of construction and arrangements of parts shown and described, as the same may be varied within the scope of the appended claims without departing from the spirit of my invention.

Having now described my invention what I claim is:—

1. A typewriting machine having a screw, means to operate the screw step by step, a carriage, a nut connected with the carriage for co-action with said screw, a slide movably connected with the carriage, and means interposed between the slide and the nut for placing the latter into and out of operative correlation with the screw.

2. A typewriting machine having a screw, means to operate the screw step by step, a carriage, a nut for co-action with the screw, means for adjustably connecting the nut with the carriage, said nut having a projection, a slide carried by the carriage and provided with a slot receiving said projection for placing the nut into and out of operative correlation with the screw according to the position of the slide.

3. A typewriting machine having a screw, means to operate the screw step by step, a carriage, a nut connected with the carriage for co-action with the screw, a pin and slot connection between the nut and the carriage, a slide carried by the carriage, and a pin and slot connection between the nut and slide for placing the nut into and out of operative correlation with the screw.

4. In a typewriting machine, the combination of a screw, means for operating the same step by step, a nut for co-action with the screw, a carriage, means for movably connecting the nut with the carriage, a slide having a depending portion provided with a slot, the nut having a pin entering said slot, said slide having inwardly extending portions provided with slots, pins carried by the carriage receiving said slots, and handles on said slide.

A typewriting machine having a carriage, a screw, a nut connected with the carriage for co-action with the screw, a ratchet connected with the screw, a lever and pawl for operating said ratchet, a key lever, means operated by the key lever for operating said lever and pawl, and means for disconnecting the pawl from the ratchet on the operating stroke of the latter.

6. A typewriting machine having a carriage, a screw, a nut connected with the carriage for co-action with the screw, a ratchet connected with the screw, a lever and pawl for operating the ratchet, a key lever, a link operated by the key lever, means for causing the link to have lateral motion, and means for causing the lateral motion of the link to operate said lever and pawl.

7. A typewriting machine having a carriage, a screw, a nut connected with the carriage for co-action with the screw, a ratchet connected with the screw, a lever and pawl for operating the ratchet, a key lever, a link operated by the key lever, means for causing said link to have lateral motion, said link having a projection adapted to operate the lever and pawl by and during the lateral motion of the link.

8. A typewriting machine having a carriage, a screw, a nut connected with the carriage for co-action with the screw, a ratchet connected with the screw, a lever and pawl for operating the ratchet, a key lever, a link operated by the key lever, and means for causing said link to have lateral motion, said link being provided with means for operating said lever and pawl.

9. A typewriting machine having a carriage, means for feeding the carriage step by step, a key lever, a link connected with the key lever, means for causing the link to have lateral movement upon depression of the link, and means for causing said lateral movement of the link to operate said carriage feeding means.

10. A typewriting machine having a carriage, devices for feeding the carriage step by step, a key lever, a link connected with the key lever, said link having a projection to operate the carriage feeding devices, and an abutment upon which the link slides for causing the link to have lateral movement to cause said projection to operate said carriage feeding devices.

11. A typewriting machine having a carriage, devices for feeding the carriage step by step, a lever to operate the feeding devices, a key lever, a link connected with the key lever, said link having a projection provided with a lug to operate the first named lever, and means for causing the link to have lateral movement to cause said lug to operate said lever.

12. A typewriting machine having a carriage, devices for feeding the carriage step by step, a lever to operate the feeding devices, a key lever, a link connected with the key lever, said link having a projection provided with a lug to operate the first named

lever, and means for causing the link to have lateral movement to cause said lug to operate said lever, said lug being normally out of operative co-action with said lever.

13. A typewriting machine having a carriage, devices for feeding the carriage step by step, levers to operate said devices, a cross bar connecting said levers, key levers, links connected with the key levers, said links having projections provided with lugs to engage the cross bar between said levers, and means to cause the links to have lateral movement upon operation of the corresponding key lever.

14. A typewriting machine having a carriage, devices for feeding said carriage step by step, a key lever, a link connected with the key lever, said link having a projection, an abutment engaging said projection to cause the link to have lateral movement, and means operated by the lateral movement of said link for operating said carriage feeding devices.

15. A typewriting machine having a carriage, devices for feeding said carriage step by step, a key lever, a link connected with the key lever, said link having a projection, an abutment engaging said projection to cause the link to have lateral movement, said link being provided with a projection, and a lever for operating the carriage feed devices arranged to be operated by the lateral movement of said link.

16. A typewriting machine having a carriage, a screw, a nut connected with the carriage for coaction with the screw, a ratchet connected with the screw, a lever and pawl for operating said ratchet, a type bar, a key lever, means connecting the type bar with the key lever for operating the former by the latter, means operated by the key lever for operating said lever and pawl, and means for disconnecting the pawl from the ratchet before the type strikes the paper.

17. A typewriting machine having a carriage, a screw, a nut connected with the carriage for coaction with the screw, a ratchet connected with the screw, a lever and pawl for operating said ratchet, said pawl having a projection, an abutment for coaction with said projection, a key lever, and means operated by the key lever for operating said lever and pawl.

Signed at New York city, in the county of Kings, and State of New York, this 3rd day of May, A. D. 1909.

WILLIAM W. LASKER.

Witnesses:

H. J. P. HAMPTON,
T. F. BOURNE.