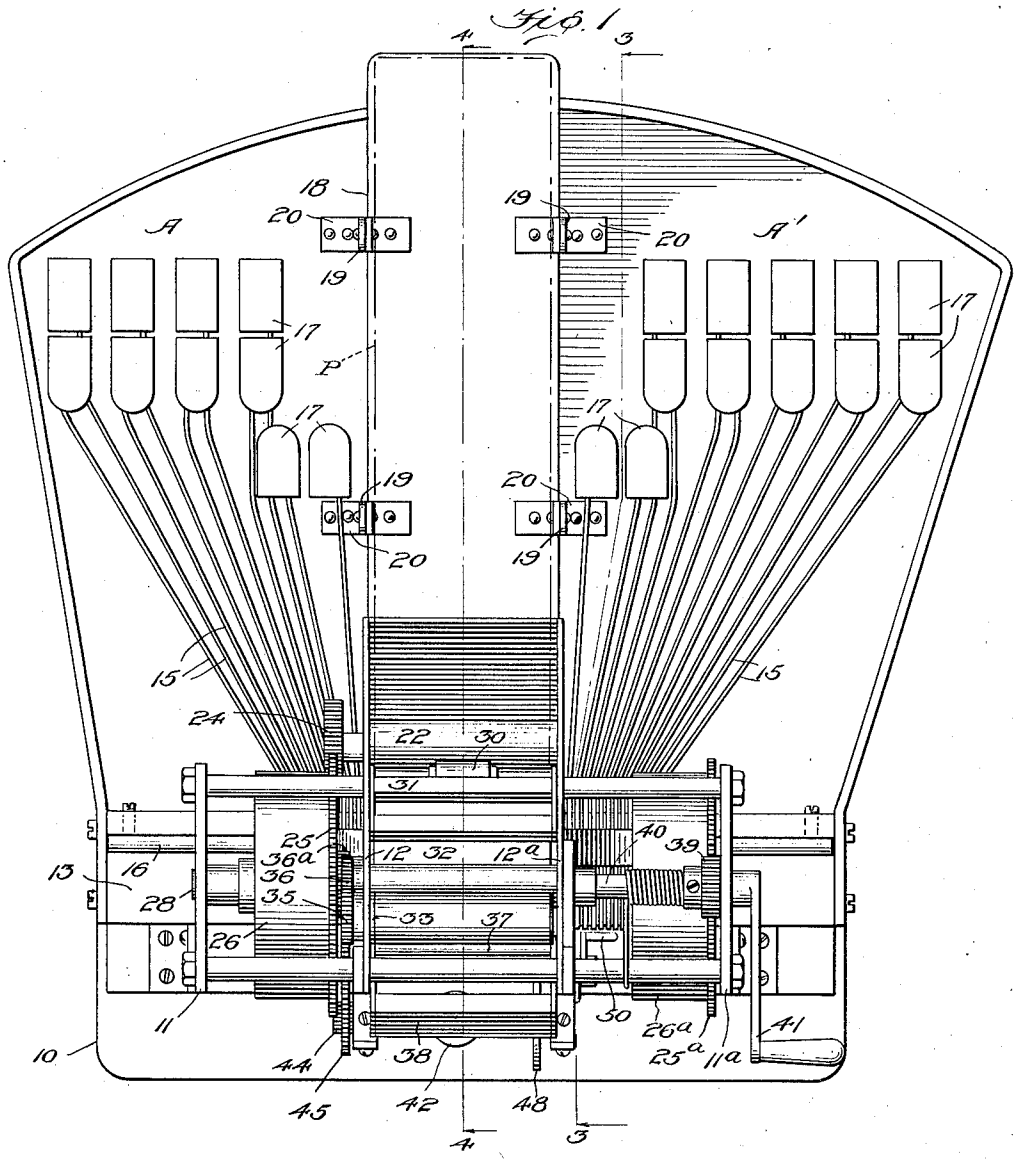
April 17, 1934. H. B. SMITH 1,954,834

SHORTHAND TYPEWRITER

Filed Nov. 8, 1927 3 Sheets-Sheet 1

Fig. 1



Inventor

Howard B. Smith

By Church & Church

Attorneys

April 17, 1934. H. B. SMITH 1,954,834

SHORTHAND TYPEWRITER

Filed Nov. 8, 1927 3 Sheets-Sheet 2

Fig. 2

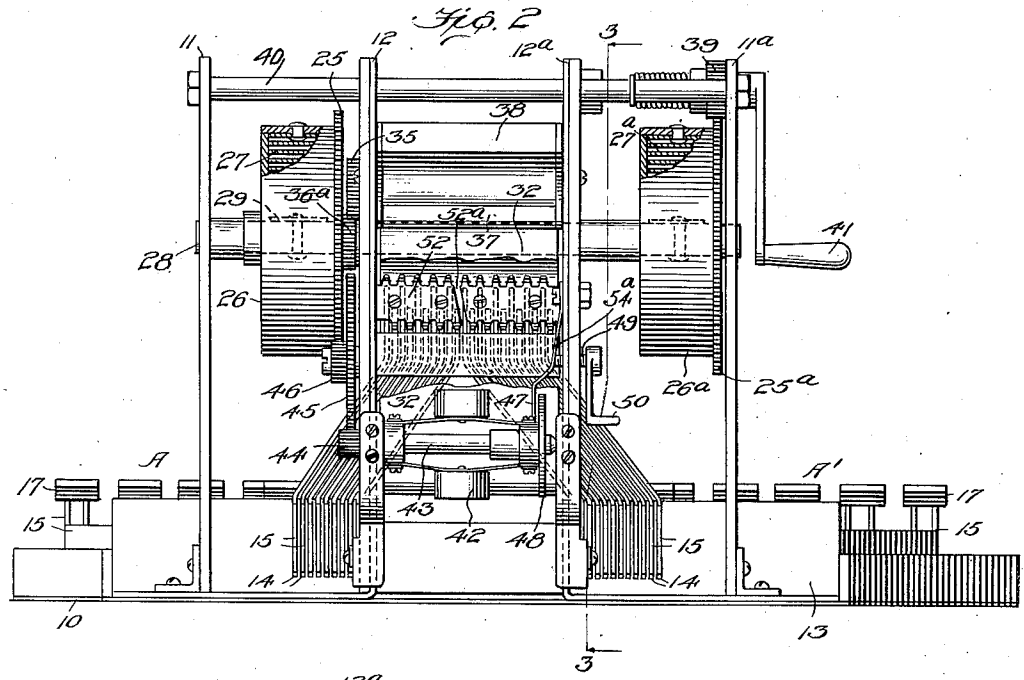
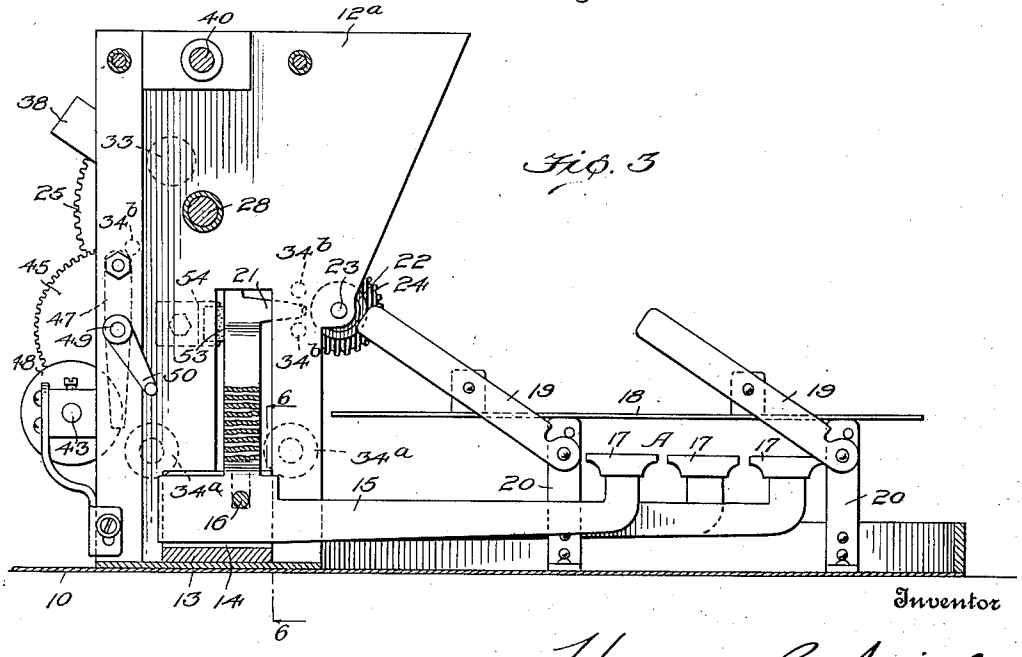


Fig. 3



Inventor

Howard B. Smith

By Chas. A. Sheinwald

his Attorney

April 17, 1934. H. B. SMITH 1,954,834

SHORTHAND TYPEWRITER

Filed Nov. 8, 1927 3 Sheets-Sheet 3

Fig. 4

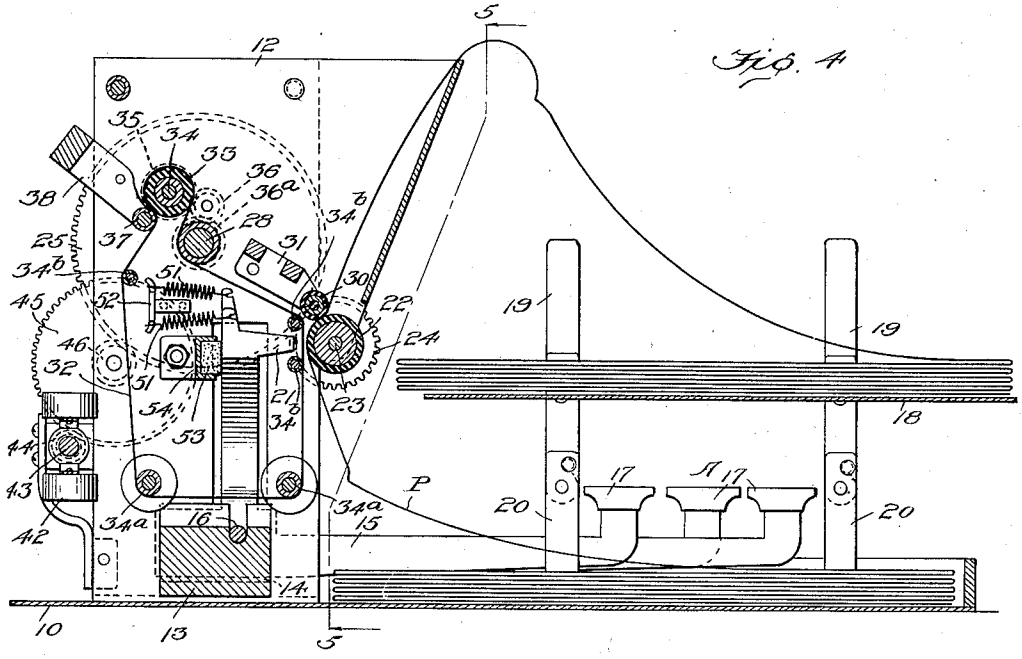


Fig. 5

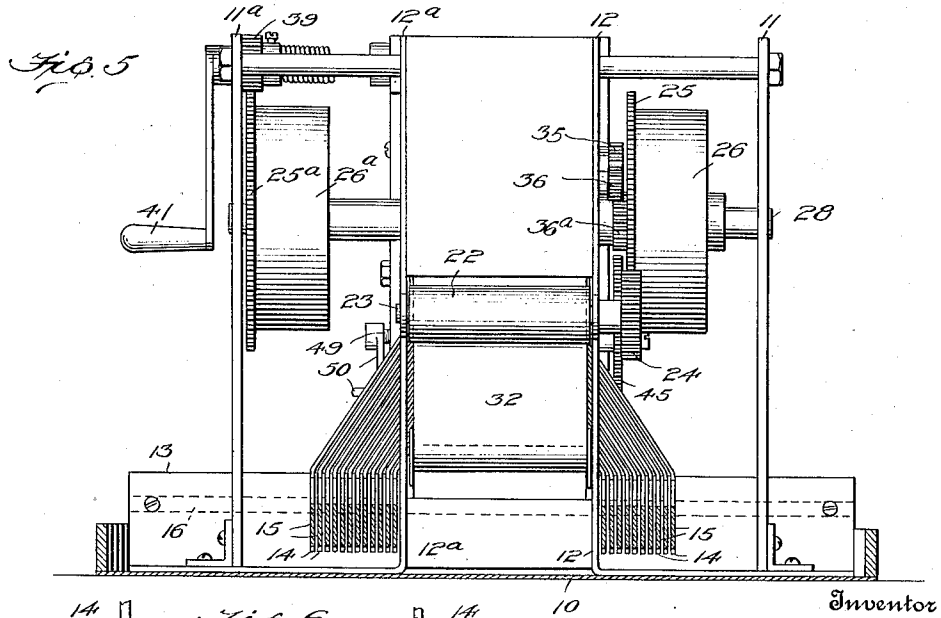
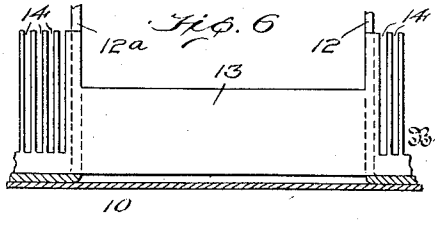


Fig. 6



Inventor

Howard B. Smith

By Thurlow Adams

his Attorney

Patented Apr. 17, 1934

1,954,834

UNITED STATES PATENT OFFICE

1,954,834

SHORTHAND TYPEWRITER

Howard B. Smith, Washington, D. C.

Application November 8, 1927, Serial No. 231,882

25 Claims. (Cl. 197—9)

This invention relates to improvements in shorthand typewriters, or machines whose printing elements carry hieroglyhic or letter characters, these machines being especially adapted for use in reporting proceedings, such as trials and oral hearings.

Circumstances under which these machines are used are sometimes such that no table or other support therefor is accessible, requiring the operator to hold it on his knees. Accordingly one object of the invention is to provide a machine that can be conveniently held on the lap or knees of the operator, the weight of the machine being so distributed on the frame as to facilitate retention of the machine in this position. To further facilitate holding the machine on the operator's lap or knees the present invention contemplates a construction which occupies considerably less space. The compactness of the present machine is also advantageous in that it is less likely to be interfered with by persons, who pass by the operator, brushing against or hitting the machine. More specifically, the present invention contemplates a machine of this character wherein the key board is supported at the end of the frame farthest from the operator, the mechanism for actuating the paper and ribbon feeds being positoned in the machine frame at a point where it will be located between the operator's hands and his body when the machine is in operation.

In machines of the present type, the impressions are made on a strip of paper of indeterminate length and for this reason paper supporting means are provided in the form of two supports, one for the paper before it is carried to the printing positon and one for the paper after it has been printed upon. In order to reduce the overall dimensions of the machine these two trays, in the present instance, are arranged at the central portion of the machine frame, and preferably one above the other, this being accomplished by arranging the keys of the key board in two groups, one located at each side of the machine frame. The paper carrying the printed impressions is adapted to rest upon the uppermost support and by having the supports arranged one above the other the printed impressions are nearer the operator's eyes, and can, therefore, be more readily read by him and, likewise, are more accessible to his hands.

A further object consists in utilizing a continuous ribbon for carrying the ink used in making the impressions on the paper. This is advantageous in that a continuous ribbon eliminates the necessity of reversing the direction of travel as in the case of a ribbon whose ends are attached and wound on two spools. In the present instance, the ribbon is also preferably as wide as the paper and runs in the same direction as the paper in passing through the machine, instead of running transversely of the direction of movement of the paper. In this way, the same feeding mechanism may be utilized for feeding both the paper and the ribbon. Again the ribbon moving longitudinally of the paper results in a better impression being made on the paper because the fresh ribbon is brought before the type-faces much more rapidly than in the case of a ribbon running transversely of the paper.

Another feature of the present machine is the provision of printing elements movable toward the hands of the operator when actuated to produce an impression.

With these and other objects in view the invention consists in certain novel types of construction and combinations and arrangements of parts all as will hereinafter be more fully described and the novel features thereof particularly pointed out in the appended claims.

In the accompanying drawings,—

Figure 1 is a top plan view of the machine embodying the present improvements.

Fig. 2 is a rear elevational view.

Fig. 3 is a longitudinal sectional view on lines 3—3 of Figs. 1 and 2.

Fig. 4 is a similar sectional view on the line 4—4 of Fig. 1.

Fig. 5 is a sectional view on the line 5—5 of Fig. 4; and

Fig. 6 is a sectional view on the line 6—6 of Fig. 3.

In the embodiment of the invention illustrated in the present instance the base 10 of the machine has mounted thereon a frame comprising exterior side plates 11, 11ª and interior plates 12, 12ª. Mounted on said frame, and extending transversely thereof, is a plate 13 having a series of slots 14 therein between each pair of frame members 11, 12 and 11ª, 12ª and resting said slots are the type bars 15 which are pivoted on the transverse shaft 16 located toward that end of the frame or base which is nearest the operator when the machine is being used. As will be observed in Figs. 1 and 3, the type bars extend from their pivotal center toward the opposite end of the machine and at their ends carry the keys 17, so that said keys are located near the end of the base which will be furthest from the oper-

ator. In order that the paper to be printed upon may be positioned centrally of the machine, the type bars 15 and keys 17 constituting the key board are separated into two groups A, A', which are located adjacent the opposite side edges of the frame, but in order that the characters on the printing elements of the respective keys may engage the centrally disposed paper, the key bars 15 are offset inwardly toward the center of the machine, as shown in Figs. 2 and 5.

With this arrangement, the paper, which as before mentioned, is in the form of a strip of indefinite length, may be supported centrally of the machine. In the preferred arrangement the paper, before it is fed to the point at which it is to be printed upon, is adapted to rest in folded condition upon the base 10, as illustrated in Fig. 4, and after it passes the printing elements it is adapted to be fed to a support 18 located above the folds of paper on the base. If desired, this upper support 18 may be carried by arms 19 pivotally mounted on bars 20 firmly attached to base 10. In this way, the upper support 18 may be lowered to reduce the overall dimensions of the machine, especially when it is to be carried from one place to another by the operator.

As the key board is adapted to be located at the end of the frame farthest from the operator it is desirable to have the greater portion of the weight of the machine located near the operator as this will aid in properly maintaining the machine on the operator's lap or knees. Accordingly, the entire paper and ribbon feeding mechanism or devices are mounted in the frame at the end thereof which will be nearest the operator. So far as the positions of the key board, and the paper supports, with respect to the location of the printing devices, is concerned, any form of paper and ribbon feeding devices may be utilized, but, in order to render the machine as compact as possible the devices illustrated in the present instance are preferred. For feeding the paper strip P from base 10 between the type members 21 and what may be termed the platen 22, said platen is carried on a shaft 23 between frame members 12, 12a, and at one side of its ends, on the exterior of said frame members there is a gear 24 which meshes with gear 25 adapted to be rotated by a spring motor consisting of a casing 26 carrying said gear 25 and having attached to its interior one end of a spring 27 whose other end is attached to a shaft 28 as indicated at 29. To hold the paper against platen 22, a roller 30 journaled in frame 31 pivoted in frame members 12, 12a is held by gravity against the paper so as to hold it closely against said platen.

Preferably, the ribbon which passes between the printing elements 21 and the paper P is in the form of a continuous band 32 adapted to travel longitudinally of the paper and preferably in the same direction as that in which the paper moves from one support to the other. As shown in Fig. 4 said band passes over a driving roller 33 journaled at one end in the frame member 12, and around suitable guide rollers 34a and guide bars 34b journaled or mounted in said frame members. The opposite end of roller 33 is spaced from frame member 12a to permit the band of ribbon to be slipped on. Said guide rollers or bars may also be spaced from one of the side members or they may have a slot intermediate their ends. For actuating the drive roller 33, shaft 34 thereof carries a gear 35 connected by an intermediate gear 36 with gear 36a on the shaft 28 of the spring motor. To insure the proper degree of friction between the band of ribbon and roller 33 the ribbon may be pressed against said roller by a roller 37 journaled in a frame 38 pivoted between the frame members 12, 12a and properly weighted so as to press the ribbon against roller 33.

In order that the spring motor may be of sufficient strength to drive both the ribbon and the paper, shaft 28 extends the full distance between the frame members 11, 11a and at the side of the frame opposite housing 26 there is a second housing 26a having in the interior thereof a spring 27a whose opposite ends are attached to said housing and the shaft. Housing 26a carries a gear 25a which meshes with gear 39 on a shaft 40 in the frame members 11a, 12a. Shaft 40 projects to one side of frame 11a so that a crank 41 may be applied thereto for the purpose of winding the two spring motors. It is, of course, necessary that some means be provided for regulating the speed of the motors. Such means may take the form of a governor 42 whose shaft 43 is journaled in the frame members. Said shaft projects beyond said frame members and at one end is provided with a gear 44 meshing with a gear 45 on a stub shaft which also carries a smaller gear 46 meshing with gear 25. The governor is also provided with a brake consisting of a spring member 47 adapted to bear against a disk 48 mounted on shaft 43, but when it is desired to disengage said plate 47 from the disk, the same can be accomplished by turning a screw 49 in frame member 12, said screw having a small crank 50 to facilitate operation thereof.

It might be added that the type members 21 are held retracted by springs 51, attached to said members, and to what might be termed the lever spring frame 52 bridging the space between frame members 12, 12a. When any of the keys of the keyboard are depressed, the type members will be brought against the ribbon and paper traveling over platen 22, but immediately upon the operator's finger being taken off the key, the spring 51 will retract the type member. To cushion this retracting movement of the type members, a cushioning member 53 of any desirable material is secured in or to a cross bar 54 carried by frame members 12, 12a. To permit insertion of the ribbon 32, the lever spring frame 52 and bar 54 are preferably divided by a slot such as is shown at 52a.

It will be observed that, in operation, with the machine on the operator's knees, the printing elements 21, when actuated by the keys, move toward the operator's hands and away from his body. With the several portions of the machine arranged on the base, as thus described, it will be clear that the center of gravity or the greater portion of the weight of the machine will be between the keyboard and the operator's body when the machine is held on his lap or knees. The paper supports being superposed one above the other reduces the length of the frame and by having the paper carrying the printed impressions arranged uppermost, those impressions can be easily read by the operator. The overall dimensions of the machine are also cut down by having the keyboard divided into two groups, and the paper supports interposed between such groups. The advantages of using a continuous band of ribbon traveling in the same direction as the strip of paper being printed upon have heretofore been pointed out and need not be reiterated.

What I claim is:

1. In a machine of the character described, the combination of a frame, a keyboard consisting of

two banks of keys spaced laterally of the frame, a paper feeding mechanism, printing elements operable by said keys for making the desired impressions on said paper, and supports for said paper arranged in the space between said banks of keys.

2. In a machine of the character described, the combination of a frame, a keyboard consisting of two banks of keys spaced laterally of the frame, a paper feeding mechanism, printing elements operable by said keys for making the desired impressions on said paper, and supports for said paper arranged one above the other in the space between said banks of keys.

3. In a machine of the character described, the combination of a frame, a keyboard consisting of two banks of keys spaced laterally of the frame, a paper feeding mechanism, printing elements operable by said keys for making the desired impressions on said paper, and supports for said paper arranged one above the other in the space between said banks of keys, the uppermost paper support being adjustable toward and from the lower support.

4. In a machine of the character described, the combination of a frame, a keyboard, having keys arranged in two groups spaced apart horizontally printing elements operable by the keys of said keyboard to make the desired impression on the paper, paper feeding mechanism for advancing a strip of paper to printing position, a support for a supply of paper to be fed to printing position, and a second support upon which the paper may fall after it has passed printing position, said supports being arranged one above the other, the receiving support uppermost and both between the printing zone of the paper and said keyboard and between said groups.

5. In a machine of the character described, the combination of a frame, a keyboard, printing elements operable by the keys of said keyboard to make the desired impression on the paper, paper feeding mechanism for advancing a strip of paper to printing position, a support for a supply of paper to be fed to printing position, and a second support upon which the paper may fall loosely after it has passed printing position, said second support being positioned closely adjacent the keyboard and above the first support, and also adjustable into different vertical levels toward and from the latter.

6. In a machine of the character described, the combination of a frame, a keyboard, printing elements operable by the keys of said keyboard to make the desired impression on the paper, paper feeding mechanism for advancing a strip of paper to printing position, a support for a supply of paper to be fed to printing position, and a second support upon which the paper may fall loosely after it has passed printing position, said second support being arranged above the first and both of said supports, together with said keyboard being located at the same side of the printing position of the paper longitudinally of the frame.

7. In a machine of the character described, the combination of a frame, a keyboard, printing elements operable by the keys of said keyboard to make the desired impression on the paper, paper feeding mechanism for advancing a strip of paper to printing position, a support for a supply of paper to be fed to printing position, and a second support upon which the paper may fall loosely after it has passed printing position, disposed above the first support both of said supports and the keyboard being located adjacent one and the same end of the frame and away from the operator.

8. In a machine of the character described, the combination of a frame, a keyboard comprising two banks of keys arranged at the sides and toward the rear of said frame, paper supporting means intermediate the two banks of keys, paper and ribbon feeding devices located toward the forward end of said frame, and printing elements operable by said keys.

9. In a machine of the character described, the combination of a frame, a keyboard comprising two banks of keys arranged at the sides of said frame, paper and ribbon feeding devices, printing elements operable by said keys for making the desired impressions on the paper, and paper supporting means intermediate said two banks of keys.

10. In a machine of the character described, the combination of a frame, a keyboard comprising two banks of keys arranged at the sides of said frame, paper and ribbon feeding devices, printing elements operable by said keys for making the desired impressions on the paper, and paper supporting means intermediate said two banks of keys, said paper supporting means and said banks of keys being located adjacent the same end of said frame.

11. In a machine of the character described, the combination of a base, a two bank keyboard located at that end of the base which is adapted to be farthest from the operator when the machine is in use, paper and ribbon feeding mechanisms, printing elements operable by the keys of said keyboard and located between said keyboard and the opposite end of the base, said printing elements being movable toward said keyboard when actuated or moved to their printing position, and paper supporting means intermediate the two banks of keys.

12. In a typewriting machine, a frame, a platen at one end of the frame, printing mechanism operable from the other end of said frame, and having type acting against said platen in a direction towards said other end, means to feed a paper strip between said platen and said type and upwardly therefrom and then toward said other end, means at said other end for receiving and holding said strip, and an inked ribbon interposed between said type and paper strip.

13. In a typewriting machine, a frame, a platen adjacent one end of the frame, a printing mechanism operable upon the platen and having a keyboard at the other end of said frame and facing the platen end of the frame, and means for feeding a paper strip between said platen and printing mechanism, whereby said machine may be operated with the platen end nearest the operator, and with the operator's arms extending past the ends of the platen for engagement with said keyboard.

14. In a typewriting machine, a frame, a platen adjacent one end of the frame, printing mechanism operable upon the platen and having a keyboard at the other end of said frame and facing the platen end of the frame, and means for feeding a paper strip between said platen and printing mechanism, whereby said machine may be operated with the platen end nearest the operator and with the operator's arms extending past the ends of the platen for engagement with said keyboard, said keyboard having individual keys arranged in spaced groups adjacent the sides of the frame.

15. In a typewriting machine, a frame, a platen adjacent one end of the frame, printing mechanism operable upon the platen and having a keyboard at the other end of said frame and facing the platen end of the frame, means for feeding a paper strip between said platen and printing mechanism, whereby said machine may be operated with the platen end nearest the operator, and with the operator's arms extending past the ends of the platen for engagement with said keyboard, said keyboard having individual keys arranged in spaced groups adjacent the sides of the frame, and means for guiding said paper strip leaving the platen in a direction away from the platen and between said groups.

16. In a typewriting machine, a frame, a platen at one end of the frame, printing mechanism operable against said platen and having a keyboard with individual operating keys at the other and opposite end of said frame, said keys being arranged in two groups along opposite sides of the frame, means for feeding a paper strip to be printed upon upwardly between the platen and printing mechanism, then towards the end of the frame having the keyboard between said groups of keys, whereby the sheet after printing will be visible to the operator for a considerable length and within convenient reach of the operator's hands, while the hands are operating the keyboard.

17. In a typewriting machine, a frame, a horizontally disposed platen extending laterally of the frame at one end thereof, printing mechanism operable against said platen in a direction toward the other end of said frame, and having an operating keyboard at said other end facing the platen end, means for feeding a strip of paper to be printed upon upwardly between said platen and printing mechanism, and then towards said other end to a point adjacent the keyboard, and means for feeding a ribbon upwardly between said paper and printing mechanism, and then immediately away from said paper strip to expose said paper to view.

18. In a typewriting machine, a frame, a horizontally disposed platen extending laterally of the frame at one end thereof, printing mechanism operable against said platen in a direction toward the other end of said frame, and having an operating keyboard at said other end facing the platen end, means for feeding a strip of paper to be printed upon upwardly between said platen and printing mechanism, and then towards said other end to a point adjacent the keyboard, and means for feeding a ribbon upwardly between said paper and printing mechanism, and then immediately away from said paper strip to expose said paper to view, said keyboard being arranged in sections on opposite sides of the paper strip leaving said platen.

19. In a typewriting machine, a frame, a platen at one end of the frame, printing mechanism operable against one side of said platen and having a keyboard at the opposite side of the platen and other end of said frame, a pair of superposed paper supports at the keyboard end of the frame, means for guiding a paper strip from the lower support upwardly between said printing mechanism and said platen, and then to said upper support, whereby the typed section of said strip will be directly readable and conveniently accessible to the keyboard.

20. In a typewriting machine, a frame, a horizontally disposed platen extending laterally of the frame adjacent one end of the frame, printing mechanism having type operable against said platen and also having an operating keyboard with individual keys adjacent the other end of said frame and facing the platen end of the frame, means for feeding a paper strip to be printed upon upwardly between the platen and printing mechanism, and then guiding it towards the keyboard end of the frame in full view of an operator at the platen carrying end of the frame, an endless ribbon movable upwardly between the paper strip and printing mechanism and then extending immediately away from the typed section of the paper strip, and means for feeding said ribbon with the strip during the upward movement of said strip.

21. In a typewriting machine, a frame, a horizontally disposed platen arranged at one end of the frame and extending laterally thereof, printing mechanism having type operable against said platen in a direction towards the other end of said frame and also having an operating keyboard at said other end of the frame, said printing mechanism being formed of two sections at opposite ends of said platen with the type-bearing portions of the mechanism of each section converging upwardly and toward the corresponding portions of the other section in a manner to present the type in a row parallel to and adjacent the platen and to provide a space between said sections below said row, means for feeding a paper strip to be printed upon between said type and said platen and then towards the keyboard end of the frame, and means for guiding a ribbon in a path including said space formed below the converging ends of said printing mechanism, between said strip and said type, and then immediately in a direction away from said paper, whereby the typed section of said paper will be visible to the operator, and means for feeding said ribbon through said space.

22. In a typewriting machine, a frame, a horizontally disposed platen adjacent one end of the frame and extending laterally thereof, printing mechanism having type operable against said platen and also having an operating keyboard adjacent the other end of said frame, said keyboard being arranged in two sections at opposite sides of said frame, said frame having a longitudinally extending supply paper support between said sections of said keyboard and also having a paper support extending above said supply paper support from adjacent said platen toward the keyboard end of the frame, means for feeding paper from said lower support upwardly between said type and said platen, and then toward the keyboard end of the frame and depositing it upon said upper support.

23. In a typewriting machine, a frame, a horizontally disposed platen adjacent one end of the frame and extending laterally thereof, type bars disposed along opposite sides of said frame and pivotally mounted on said frame adjacent said platen, said type bars having upwardly extending arms, the upwardly extending arms of each section extending obliquely towards the opposite side of the frame and presenting their type bearing ends in a horizontal row along the platen, means for feeding a ribbon between said sections at the pivoted portions, then upwardly between said type and said platen and then somewhat horizontally away from said platen, means for feeding a paper strip to be printed upon upwardly between said platen and ribbon and then towards the end of the frame opposite said platen, said type bars

having keys at the opposite end of the frame from the platen and facing the platen.

24. In a typewriting machine, a frame, a platen adjacent one end of the frame, printing mechanism having type operable against said platen and also having an operating keyboard adjacent the other end of said frame, and means for feeding a paper strip to be printed upon between said type and platen in line by line steps during the printing and guiding the strip progressively from and free of the platen towards the keyboard end of said frame in an exposed path where any printing thereon may be read directly by the operator while the operator is operating the keyboard.

25. In a typewriting machine, a frame, a platen at one end of the frame, printing mechanism operable against one side of said platen and having a keyboard at the opposite side of the platen and opposite end of said frame with its keys divided into two groups spaced apart horizontally, a paper support at the keyboard end of the frame between said groups of keys, means for guiding a paper strip between said printing mechanism and said platen, and then to said support, whereby the typed section of said strip will be conveniently accessible to the keyboard.

HOWARD B. SMITH.