A. H. HAWLEY.

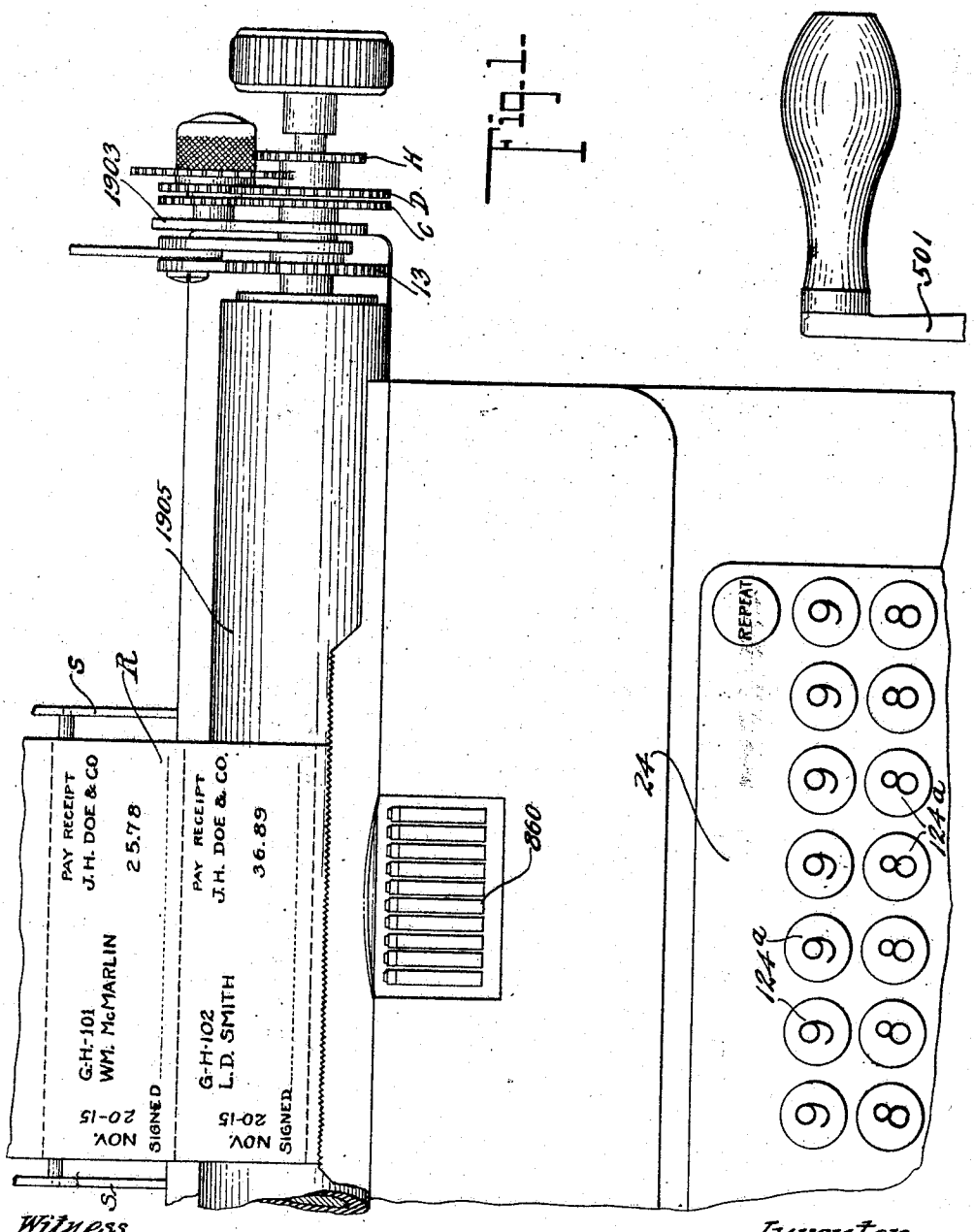
PLATEN FEED MECHANISM.

APPLICATION FILED JAN. 5, 1916.

1,192,629.

Patented July 25, 1916.

3 SHEETS—SHEET 1.



Witness
C. H. Wagner.

Inventor
A. H. Hawley
By J. Wolfe
Attorney

NORRIS PETERS, INC., LITHO., WASHINGTON, D. C.

A. H. HAWLEY.

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3 SHEETS—SHEET 2.

Fig. 3.

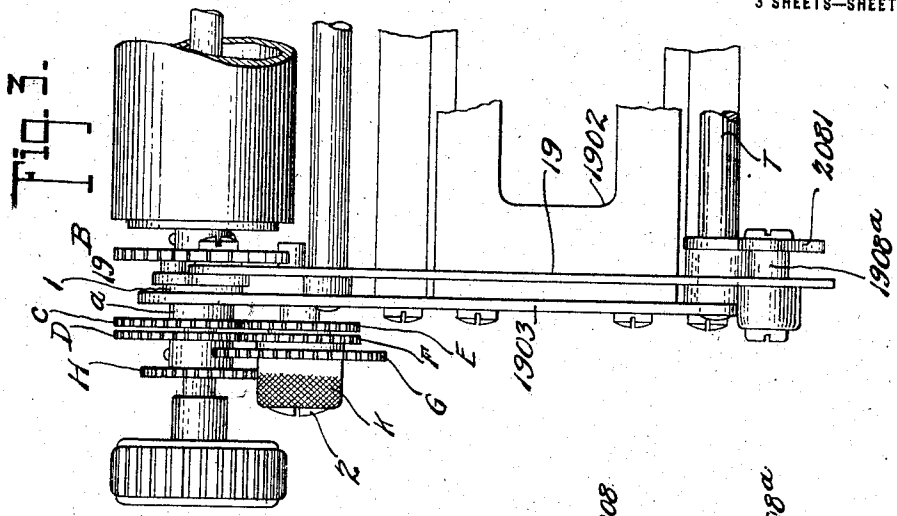
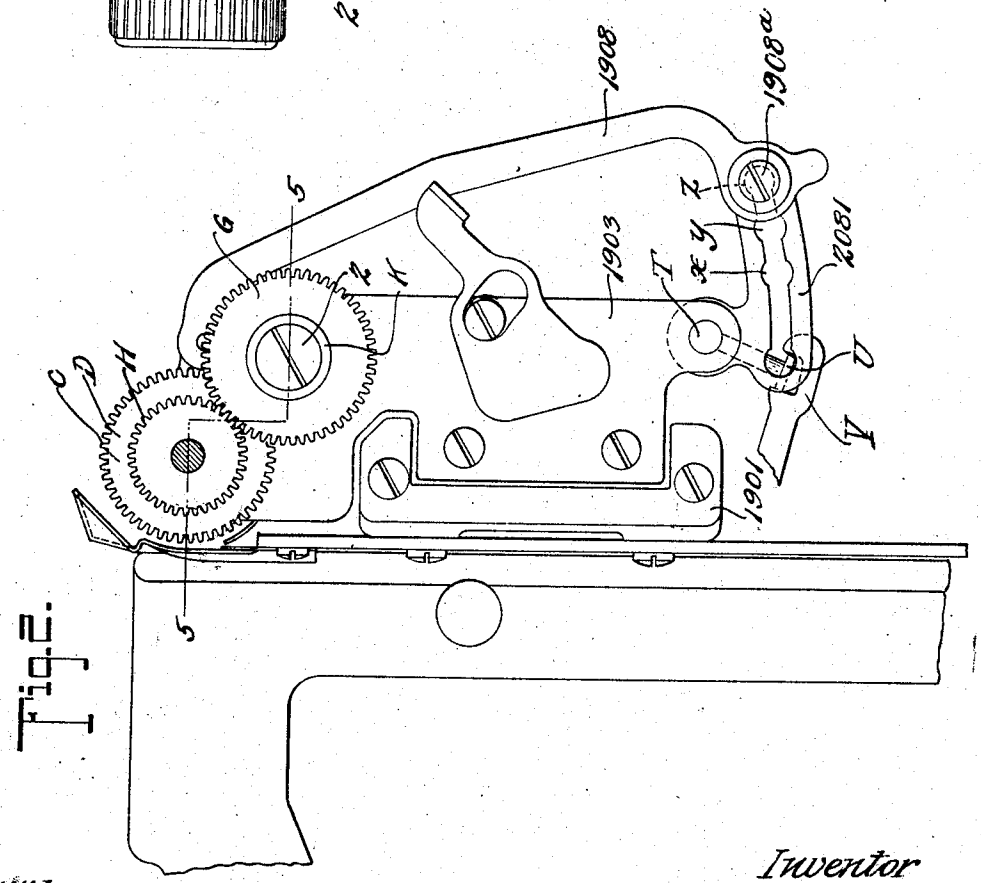


Fig. 2.



Witness
E. H. Wagner.

Inventor
A. H. Hawley
By J. W. Pratt
Attorney

NORRIS PETERS, INC., LITHO., WASHINGTON, D. C.

A. H. HAWLEY.

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3 SHEETS—SHEET 3.

Fig. 5.

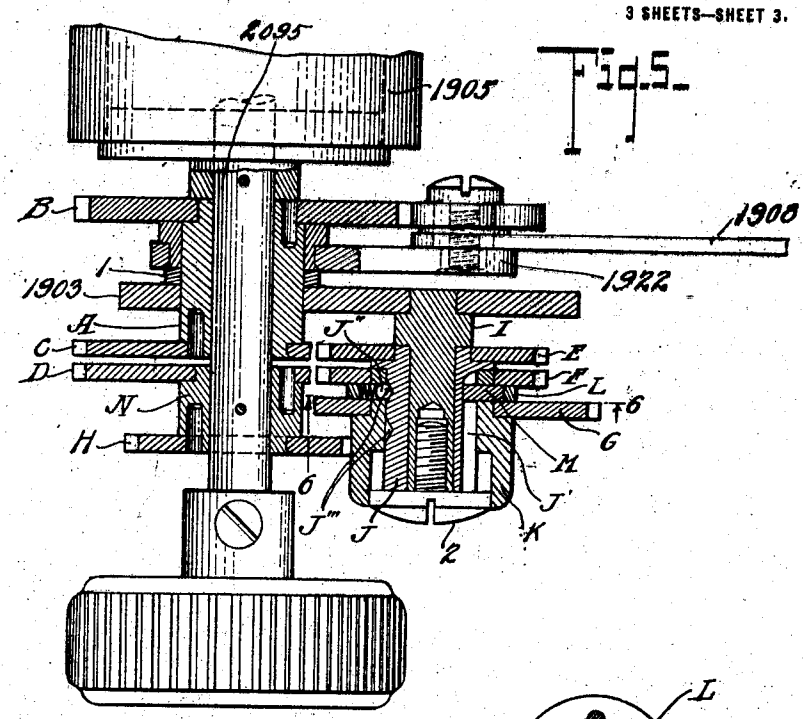


Fig. 6.

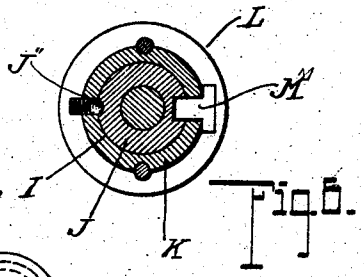


Fig. 4.

Witness.
E. H. Wagner

Inventor
A. H. Hawley
By J. F. Robb
Attorney.

NORRIS PETERS, INC., LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

AMOS H. HAWLEY, OF TERRE HAUTE, INDIANA, ASSIGNOR TO INTERNATIONAL MONEY MACHINE COMPANY, OF TERRE HAUTE, INDIANA.

PLATEN-FEED MECHANISM.

1,192,629. Specification of Letters Patent. Patented July 25, 1916.

Application filed January 5, 1916. Serial No. 70,463.

To all whom it may concern:

Be it known that I, AMOS H. HAWLEY, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Platen-Feed Mechanism, of which the following is a specification.

In the operation of listing machines wherein it is usual to employ a printing and feed platen, it is common also to utilize suitable means to impart single, double, or triple spacing movement to the platen for correspondingly spacing the items listed. Likewise it is customary to employ centering means such as a spring-pressed roller to hold the platen at uniform adjustments.

In certain establishments a payroll system is used wherein wage receipts to be signed by paid employees are printed on a scored web, each receipt being supplied with the employee's name, number and department, by an addressing or like machine, and the amount of salary or wages is printed or filled in by a typewriter or adding machine. Then each strip of receipts for a department is delivered to the foreman ordinarily who in turn tears off each receipt for signature by the employee and return to the paymaster. The receipts are ordinarily of some size, necessarily, and even where only an inch wide they require greater movement for spacing the amount items supplied by the adding machine than is obtained by the customary space feed instrumentalities.

While the present mechanism involves special platen feed mechanism, for effecting the unusual spacing movement of the paper web of receipts, or any like web, and is applicable to adding, typewriting, and accounting machines generally, an especial object in view has been to adapt certain platen feed mechanism of what are known as international pay roll, and international adding machines to the purposes hereinbefore described, without materially changing the main parts of said mechanism including the roll centering means which is of a common type.

In the carrying out of the invention it is contemplated to provide peculiar and novel differential transmission gearing intermediate the platen and its driving means, the latter being preferably, though not necessarily, manually operable, said gearing affording a most efficient mode of increasing or reducing the extent of movement of the platen, and doing so with the required expedition and accuracy, a desideratum of importance in fast operating machines of the class improved upon.

For a full understanding of the present invention, reference is to be had to the following description and the accompanying drawings, in which:—

Figure 1 is a fragmentary plan view of the rear portion of an adding machine equipped with platen feed mechanism in accordance with the invention. Fig. 2 is a side view of the same. Fig. 3 is a rear elevation. Fig. 4 is a sectional view showing in elevation the ratchet feed devices and the centering pawl. Fig. 5 is a horizontal sectional view taken about on the line 5—5 of Fig. 2. Fig. 6 is a section taken about on the line 6—6 of Fig. 5.

Referring to the drawings and especially to Figs. 1 to 3 inclusive, a conventional adding machine is partly illustrated, the same being supplied with listing mechanism including type carriers 860 controlled from the keys 124[a] of the keyboard 124. This adding machine is operated in the customary way by the actuator 501 in the form of a handle, or a motor drive may be employed, this being immaterial. At the rear of the machine is mounted a laterally sliding carriage having the platen 1905 mounted thereon, the latter being supported by the side plates 1903 of the carriage, as will be more fully described hereinafter. Since the mounting of the carriage supporting the platen 1905 is not material to the invention, as respects the slidable action, the same will not be described. It will be noted, however, by reference to Fig. 1 that a paper web R feeds upward over the platen 1905 from a roll supported on suitable brackets S, and this web is scored so as to be divided into receipt sections of a conventional form used in many establishments having large pay-rolls. The listing mechanism is adapted to print directly upon the receipt sections of the web R as illustrated in Fig. 1, and while a wide carriage platen mechanism is shown it is to be understood that the invention is equally adapted for use in connection with feed mechanism for narrower platens fixedly supported on the machine, the feature of slidability not having

any thing to do with the essence of the invention.

The feeding mechanism will now be set forth in detail, by reference to Figs. 2 to 6 inclusive.

In Fig. 5 it will be seen that the platen shaft 2095 passes through a sleeve A mounted rotatively in an opening in the side plate 1903 of the carriage and said sleeve forms a bearing for said shaft and also forms the axis of the feed pawl arm 1922. Pinned or otherwise fixed to the sleeve A is the ratchet wheel B engaged by the spring controlled pawl 1908′, the pawl being adapted to move with the arm 1922 aforesaid which arm is operable by a driving link 1908. A spacing collar 1 fitted about the sleeve A prevents lateral movement of the sleeve in one direction, the hub of the platen performing the same function as to possible movement in the opposite direction.

As seen in Fig. 4, the centering detent P is employed, the same being pivotally mounted on the plate 1903 and having the roller O engageable with the teeth of the ratchet wheel B, a suitable spring P′ acting to maintain said engagement in a well known manner.

The link 1908, see Figs. 2 and 3, extends downwardly and has an adjustable connection at 1908^a with a rocker arm 2081 which is mounted upon the rock shaft T supported in bearings in the side plates 1903 of the carriage. The rock shaft T is designed to be operated on each operation of the machine of which the present platen feed mechanism forms a part, but the actuating means for said shaft is not material and therefore only incompletely illustrated as a bail U on the shaft T, which bail is engaged by a driving bar V adapted to have motion imparted thereto from any driven part of the machine actuated incident to each operation of the latter. Longitudinal movement of the bar V rocks the shaft T and correspondingly rocks the arm 2081 upward, motion being thus imparted to the ratchet wheel B through the driving parts 1908 and pawl 1908′. A shifting of the connection 1908^a, employed intermediate the parts 1908 and 2081 to carry said connection to any of its positons designated x, y, z, in Fig. 2, will effect single, double or triple spacing movement of the ratchet B under normal conditions.

Referring now to Fig. 5, it is to be noted that the sleeve A carries in addition to the ratchet B a transmission gear C adapted to mesh with a corresponding gear E on a trunnion I fixed to the plate 1903. The gear E is carried by a sleeve J which in turn carries a sleeve K rotative with the sleeve J but slidable lengthwise of the latter, owing to the provision of the key M on said sleeve K engaging in a kerf J′ formed in the sleeve J. The sleeve K carries a gear G of relatively large diameter adapted to mesh with a gear H of relatively small diameter mounted upon a bushing N pinned or otherwise fixed to the platen shaft 2095; and the gear F carried by the sleeve J is adapted also to mesh with a gear D on the bushing N. The gears C, D, are of equal diameter, and gears E, F are of equal diameter as seen from the drawings, and provision is made by novel means to hold the sleeve K in either of two positions, namely with the gears C and D engaging the gears E and F respectively, and with said gears disengaged in such a manner that the gear G meshes with the small gear H. The holding means for the sleeve K for the above purpose includes a spring-pressed ball J″ seated in an opening in the sleeve K and adapted to engage in either of two recesses J‴ formed in the periphery of the sleeve J. To prevent displacement of the sleeve K from the sleeve J a screw 2 is screwed into the outer end of the stud I, and to likewise hold the key M and the ball J″ against displacement a ring L encircles the sleeve K, is recessed to receive the T-shaped head of the key M and the spring coacting with the ball J″ and located between the gears F and G (see Figs. 5 and 6).

The gearing above described permits of differential driving of the platen by the driving connections above set forth, the operation of the parts being substantially as follows. The normal operation of the platen feed mechanism for ordinary purposes will involve the adjustment of the connection 1908^a, seen in Fig. 2, in any one of the positions x, y, z. Operation of the link 1908 under such conditions, with the parts adjusted also as seen in Fig. 5, will cause partial rotation of the ratchet B and a corresponding extent of rotation of the platen 1905, motion being transmitted to the latter through the sleeve A, gear C, gear E, gear F, gear D and shaft 2095 to which the gear D is fixed.

For the unusual spacing of the printed items as required for the printing of the receips R in Fig. 1, the connection 1908^a of the link 1908 will be adjusted as seen in Fig. 2. The sleeve K which is formed so as to provide a knurled handle seen in Fig. 3, is then pulled outward so as to shift the gear F from its engagement with the gear D and the gear G into engagement with the gear H. By this adjustment the motion of the larger gear C is transmitted to the smaller gear H, the drive being as follows: sleeve A through gear C to gear E, sleeve J to sleeve K, gear G to gear H, sleeve N to platen shaft 2095. It is to be noted that the feeding ratchet B and consequently the centering means including the members P and O do not act directly on the platen to locate the same, but indirectly, such action making possible the advancing of the platen a fractional num-

ber of regular divisions such as is required in the ordinary use of the machine, as for single, double and triple spacing.

By reason of the peculiar construction and operation of parts as hereinbefore set forth, a large number of the usual driving instrumentalities required for platen feed mechanisms such as now used in many different forms of accounting machines may be retained when the mechanism is modified to secure the advantages of the construction and operation hereinbefore presented.

It is to be understood that I do not wish to be limited to the particular differential gear devices employed as hereinbefore described, however, because the differential driving of the platen may be effected by other arrangements of gearing than that specifically set forth within the purview of the invention and also with the use of other general controlling instrumentalities.

Having thus described the invention, what is claimed as new is:

1. In platen feed mechanism, the combination of a platen, driving means therefor, variable speed gearing intermediate said platen and the driving means, and control means for the gearing.

2. In platen feed mechanism, the combination of a platen, driving means therefor, variable speed gearing intermediate said platen and the driving means including transmission gears for communicating to the platen movement corresponding with that of the driving means, and other transmission gears adapted to move the platen with greater speed than that of the driving means.

3. In platen feed mechanism, the combination of a platen, driving means therefor, variable speed gearing intermediate said platen and the driving means, control means for the gearing, and means to vary the driving action of said driving mechanism.

4. In platen feed mechanism, the combination of a platen, driving means therefor comprising a ratchet wheel, means to variably operate said wheel, and means to communicate differential movement from said wheel to the platen.

5. In platen feed mechanism, the combination of a platen, driving means therefor comprising a driving member, means to increase and decrease the driving stroke of said member, and change speed gearing intermediate the platen and said driving member.

6. In platen feed mechanism, the combination of a platen, driving means therefor comprising a driving member, means to increase and decrease the driving stroke of said member, means to shift the platen corresponding with the variation of the stroke of the driving member, and means operable at variance with the stroke of the driving member for shifting the platen.

7. In platen feed mechanism, the combination of a platen, a drive member operable to cause spacing movement of the platen, differential speed gearing intermediate the drive member and platen, and detent means coöperative with the drive member and acting through the said gearing to control regularity of the spacing movement of the platen.

8. In platen feed mechanism, the combination of a platen, a drive member operable to cause spacing movement of the platen, a train of gearing intermediate the drive member and platen, detent means cooperative with the drive member and acting through the said gearing to control regularity of the spacing movement of the platen, and means to impart variable movement to the drive member.

9. In platen feed mechanism, the combination of a platen, a drive member operable to cause spacing movement of the platen, differential speed gearing intermediate the drive member and platen, detent means coöperative with the drive member and acting through the said gearing to control regularity of the spacing movement of the platen, and means to effect differential movement of the drive member.

10. In platen feed mechanism, the combination of a platen shaft, a platen mounted thereon, a driving ratchet wheel mounted loosely on said shaft, a sleeve fixed to said shaft, a train of differential speed gearing connecting the sleeve with said ratchet wheel, manually operable means controlling said gearing for speed variation purposes, and driving means for said ratchet wheel.

11. In platen feed mechanism, the combination of a platen shaft, a platen mounted thereon, a driving ratchet wheel mounted loosely on said shaft, a sleeve fixed to said shaft, a train of differential speed gearing connecting the sleeve with said ratchet wheel, manually operable means controlling said gearing for speed variation purposes, driving means for said ratchet wheel, and a detent coöperative with the teeth of the ratchet wheel.

12. In platen feed mechanism, the combination of a platen shaft, a platen connected therewith, a support, a sleeve loose on said shaft and mounted in said support, a driving ratchet wheel fixed to said sleeve, a sleeve fixed on said shaft, variable speed gears connecting said loose sleeve and the fixed sleeve, and operating means for the ratchet wheel.

13. In platen feed mechanism, the combination of a platen shaft, a platen connected therewith, a support, a sleeve loose on said shaft and mounted in said support, a driving ratchet wheel fixed to said sleeve, a

sleeve fixed on said shaft, variable speed gears connecting said loose sleeve and the fixed sleeve, operating means for the ratchet wheel, a stud carried by said support, and manually shiftable means carried by said stud connected with certain of the gears of said gearing for adjustment of the latter for change speed purposes.

14. In platen feed mechanism, the combination of a support, a sleeve rotatively mounted thereon, a platen shaft rotative in said sleeve, a platen carried by said shaft, a sleeve fixed to said shaft, variable speed gearing including gears of different diameters fixedly connected with the said sleeves, driving means for the first mentioned sleeve, other gears included in said variable speed gearing and mounted on the support, and manual means connected with the last named gears for shifting the same for different coöperation with the gears on the sleeves for change speed purposes.

15. In platen feed mechanism, the combination of a support, a sleeve rotatively mounted thereon, a platen shaft rotative in said sleeve, a platen carried by said shaft, a sleeve fixed to said shaft, variable speed gearing including gears of different diameters fixedly connected with the said sleeves, driving means for the first mentioned sleeve, other gears included in said variable speed gearing and mounted on the support, and manual means connected with the last named gears for shifting the same for different coöperation with the gears on the sleeves for change speed purposes, said manual means including a stud fixed to said support, a gear supporting sleeve mounted on said stud, a second gear supporting sleeve mounted on the sleeve last mentioned, and means to hold the second gear supporting sleeve in adjusted positions whereby to change the coaction between the several gears of the said speed gearing.

16. In mechanism of the class described, the combination of a shaft, a loose sleeve and a fixed sleeve carried by said shaft, driving means for said loose sleeve, variable speed gearing intermediate the loose and fixed sleeves aforesaid, a support, relatively movable sleeves mounted on said support, gears included in the variable speed gearing aforesaid and carried by said relatively movable sleeves, and means for holding the relatively movable sleeves at different relative adjustments whereby to transmit variable speed from the loose sleeve to the fixed sleeve of the shaft.

17. In mechanism of the class described, the combination of a shaft, a loose sleeve and a fixed sleeve carried by said shaft, driving means for said loose sleeve, variable speed gearing intermediate the loose and fixed sleeves aforesaid, a support, relatively movable sleeves mounted on said support, gears included in the variable speed gearing aforesaid and carried by said relatively movable sleeves, and means for holding the relatively movable sleeves at different relative adjustments whereby to transmit variable speed from the loose sleeve to the fixed sleeve of the shaft, the driving means aforesaid comprising a ratchet wheel fixed to the loose sleeve and a detent coacting with said ratchet wheel for positioning the same for regularity of spacing movement coöperative through the variable speed gearing to likewise position the shaft.

18. In platen feed mechanism, the combination of a platen shaft, a platen mounted thereon, a support, a sleeve loose on said shaft and mounted for rotative movement on said support, a ratchet wheel fixed to said sleeve, means for operating said ratchet wheel, a second sleeve fixed on said shaft, a train of gears intermediate said loose and fixed sleeve, a stud mounted on said support, relatively movable concentrically mounted sleeves carried by said stud, a connection intermediate the concentric sleeves compelling simultaneous rotative movement of the same but permitting relative longitudinal movement, gears included in said train of gearing carried by said relatively movable sleeves, and means for holding the relatively movable sleeves at different adjusted positions longitudinally one with respect to the other whereby to vary the cooperation between the gears of the train of gearing.

19. In platen feed mechanism, the combination of a platen shaft, a platen thereon, coöperative gear devices on said shaft, one loose and the other fixed, and variable speed gearing including said gear devices and comprising a supporting stud, concentric sleeves on said stud, each sleeve carrying gears, a connection intermediate the concentric sleeves compelling simultaneous rotation of the same but permitting relative longitudinal movement, one of the sleeves being manually operable to shift it for the purposes of changing the coöperation of the gears of the concentric sleeve with respect to the gear devices, means to hold the movable concentric sleeve at different adjustments including a ball and recess connection between the concentric sleeves, a key intermediate the concentric sleeves to compel the synchronous rotative movement of the same, and a member on the stud to limit the movement of the movable concentric sleeve and to prevent the displacement of said sleeve from its coöperating sleeve.

In testimony whereof I affix my signature.

AMOS H. HAWLEY.