F. F. SCHRODER.

CHECK WRITER.

APPLICATION FILED FEB. 2, 1916.

1,271,231.

Patented July 2, 1918.

3 SHEETS—SHEET 1.

Fig. 1.

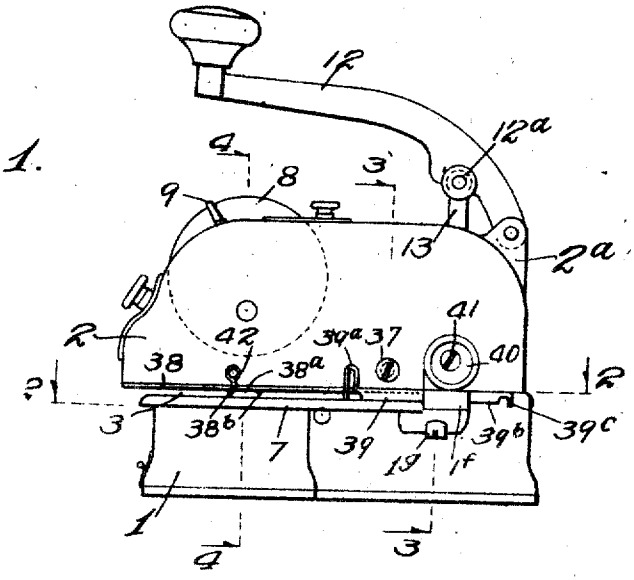
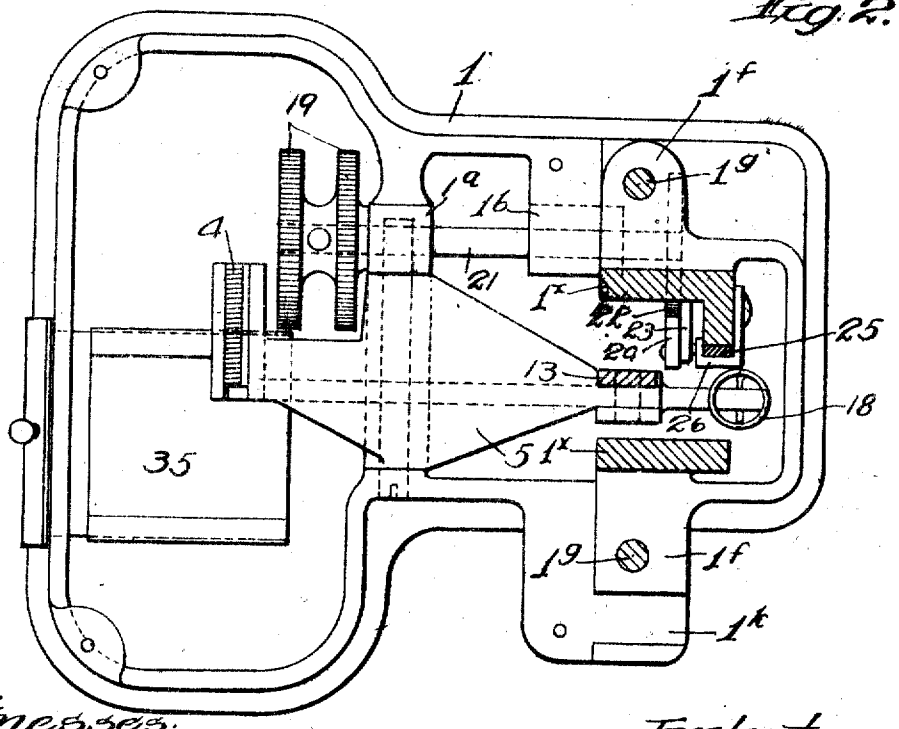


Fig. 2.



Witnesses:

Inventor

Fred F. Schroder.

by Burton & Burton

his Attys

F. F. SCHRODER.

CHECK WRITER.

APPLICATION FILED FEB. 2, 1916.

1,271,231

Patented July 2, 1918.

3 SHEETS—SHEET 2.

Fig. 7.

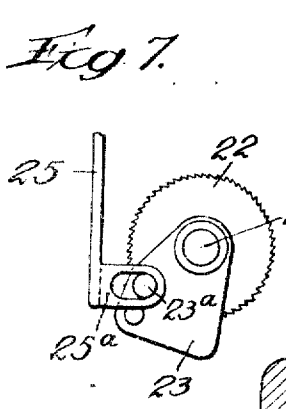


Fig. 3.

Fig. 4.

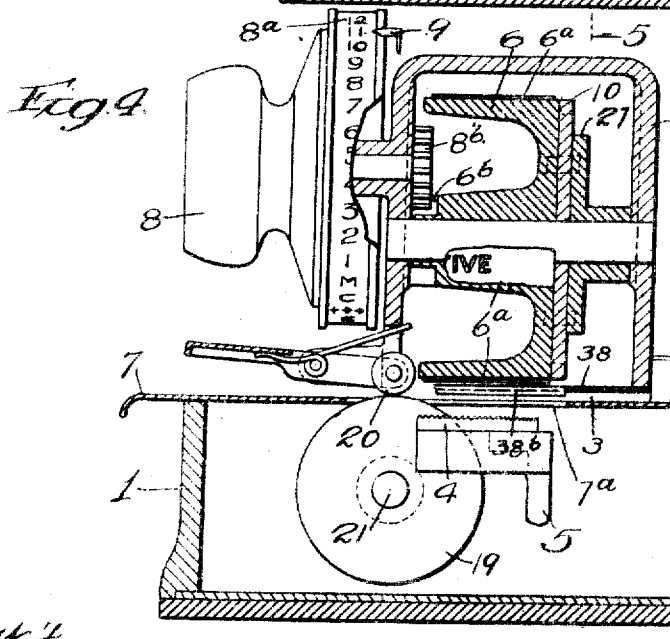
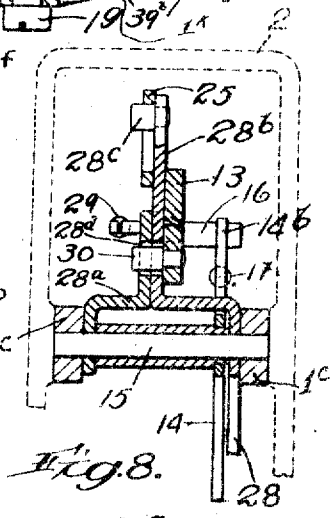


Fig. 8.



Witnesses:

Inventor

Fred F. Schroder.

by Burton & Burton

his Attys.

F. F. SCHRODER.

CHECK WRITER.

APPLICATION FILED FEB. 2, 1916.

1,271,231.

Patented July 2, 1918.

3 SHEETS SHEET 3.

Fig. 5.

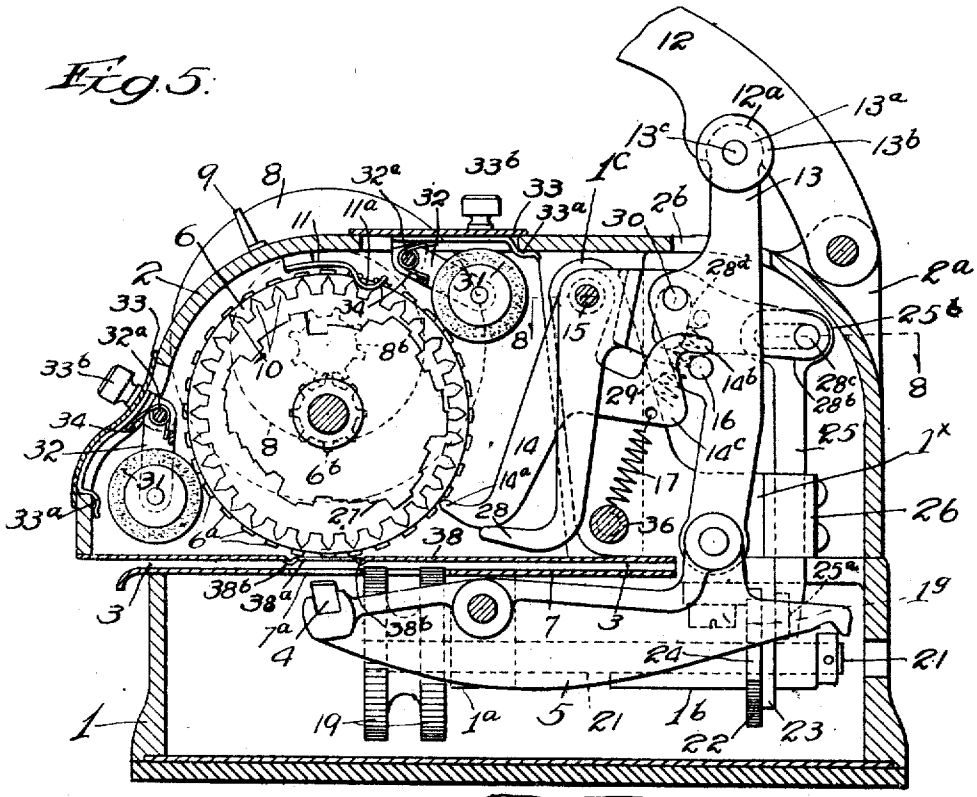
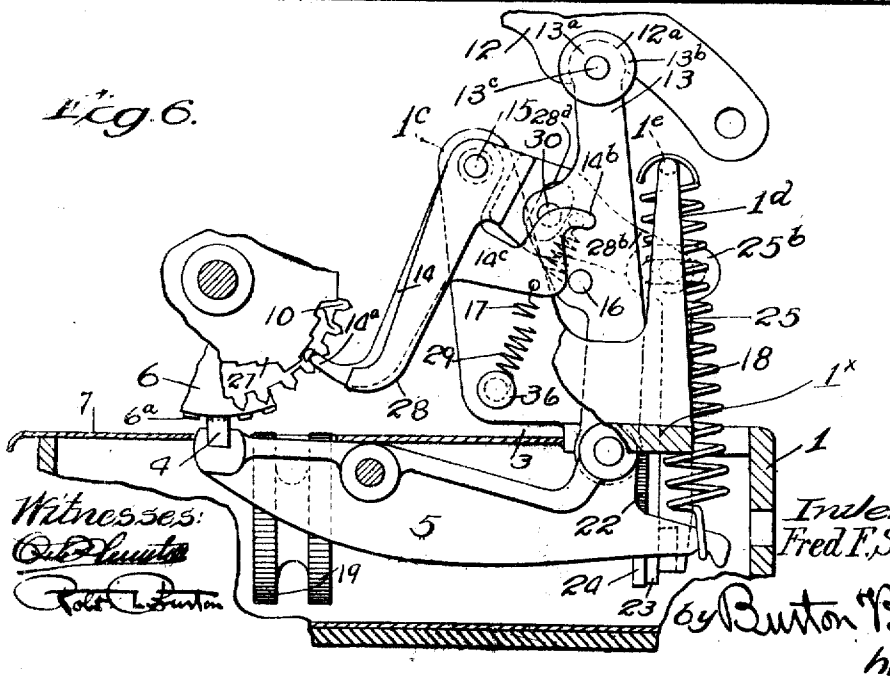


Fig. 6.



Witnesses:

Inventor
Fred F. Schroder.

by Burton & Burton
his Attys.

UNITED STATES PATENT OFFICE.

FRED F. SCHRODER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE STEWART MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CHECK-WRITER.

1,271,231. Specification of Letters Patent. Patented July 2, 1918.

Application filed February 2, 1916. Serial No. 75,705.

To all whom it may concern:

Be it known that I, FRED F. SCHRODER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Check-Writers, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide a machine for filling in a check, draft, or like instrument, with words indicating the exact amount for which the instrument is drawn. The machine is designed to print a word at each stroke of the operating lever and to automatically feed the printed sheet a distance corresponding to the length of the word printed by each respective stroke. The invention consists in mechanism for accomplishing these results together with other details of construction as described and shown in the drawings and as indicated by the claims.

In the drawings:

Figure 1 is a side elevation of a check writing machine embodying this invention.

Fig. 2 is a plan view of the base frame together with certain parts of the mechanism mounted thereon, being taken as a section, as indicated at line, 2—2, on Fig. 1.

Fig. 3 is a transverse vertical section taken as indicated at line, 3—3, on Fig. 1.

Fig. 4 is a transverse vertical detail section taken as indicated at line, 4—4, on Fig. 1.

Fig. 5 is a longitudinal vertical section taken as indicated at line, 5—5, on Fig. 3.

Fig. 6 is a detail view of the operating parts shown in Fig. 5, but illustrating said parts in a different position.

Fig. 7 is a detail view of the feed ratchet and its actuating connections.

Fig. 8 is a detail section taken as indicated at line, 8—8, on Fig. 5.

The mechanism of this machine is mounted partly in the base frame, 1, and partly in a housing, 2, carried by said base frame, 1, and extending over it to form a clearance space or throat-way, 3, to accommodate the check or draft which is to be operated upon by the machine. The printing couple comprise a corrugated platen member, 4, carried in one end of the platen lever, 5, which is fulcrumed in the base frame, 1, (as indicated in Fig. 2) and a type wheel or drum, 6, which is rotatively mounted in the housing, 2, as best shown in Fig. 5. The base frame, 1, carries a work table, 7, apertured at 7^a, to permit the platen, 4, to be moved up through the aperture, 7^a, under the check for coöperation with the type wheel, 6. The type wheel, 6, is formed with characters, 6^a, constituting words extending over the face of the wheel in directions parallel to its axis, each word occupying a separate position on the wheel for separate and selective registration with the platen member, 4. As indicated in Fig. 4, the face of the type characters, 6^a, is serrated or corrugated and the coöperating face of the platen, 4, is correspondingly corrugated so that the paper of the check or draft operated upon by the machine will not only be printed but will be somewhat corrugated, and the fiber of the paper will be sufficiently broken to permit the printing ink to soak into the broken edges so as to effectively dye the paper through and through.

Associated with the type wheel, 6, but mounted outside the housing, 2, is an adjusting wheel or knob, 8, carrying on its periphery, 8^a, a series of characters corresponding respectively to the words on the type wheel, and coöperating with the stationary index finger, 9. For convenience, the adjusting knob, 8, is not co-axial with the type wheel, 6, but is mounted on a parallel axis and connected with the type wheel, 6, by spur gears, 8^b and 6^b, which are of equal size so that one rotation of the adjusting knob, 8, causes exactly one rotation of the type wheel, 6. Thus it will be understood that at any given position of the type wheel, 6, the character on the periphery, 8^a, of the adjusting knob standing in registration with the index, 9, indicates the word which is positioned to coöperate with the platen member, 4, for printing.

On one end of the wheel or drum, 6, there is formed rigid with it, a disk having a series of teeth, 10, which are sharply pointed and spaced apart by intervening notches at angular distances from point to point of the teeth corresponding to the distances between successive lines of type, 6^a, on the face of the drum, and at any given position, the drum, 6, is held in approximate adjustment for printing by means of a flat spring member, 11, carried by the housing, 2, and having a bent portion, 11^a, adapted to engage

between any pair of teeth, 10, as a centering device. The spring, 11, yieldingly resists rotative movement of the drum, 6, and thus assists the operator in bringing the drum approximately to its correct position for printing as he adjusts it by turning the knob, 8, to bring the desired character at 8^a, into registration with the index, 9.

After the check or draft has been inserted in the throat-way, 3, and the type wheel, 6, has been adjusted for printing the desired word, the platen member, 4, is moved up for coöperation with the type wheel, 6, by depression of a hand lever, 12, fulcrumed on the casing, 2, and actuating the platen lever, 5, through a thrust link, 13, clearly shown in Fig. 5. Since the corrugations of the type faces at 6^a, and also of the platen member, 4, are slightly oblique or spiral with respect to the drum, 6, it is important that the registration between the type, 6^a, and the platen member, 4, be quite accurate and also safe from disturbance during the printing action. To insure this, the pointed teeth, 10, are squared down to form approximately parallel-sided notches between each pair of teeth, and a locking dog, 14, having a tip or point, 14^a, fitting these notches, is pivotally mounted in the housing, 2, on a fulcrum pin, 15. A laterally-projecting lug or pin, 16, on the thrust link, 13, extends normally just under a hook or lug, 14^b, on an arm, 14^c, of the dog, 14, so that when the hand lever, 12, is in its upper position and the printing members, 4 and 6^a, are separated, the pin, 16, serves to hold the dog, 14, out of engagement with the drum, 6; but as soon as the hand lever, 12, is depressed, the downward movement of the link, 13, carrying with it the pin, 16, permits the dog, 14, to be moved by its controlling spring, 17, to a position in which its point, 14^a, engages between the teeth, 10, as shown in Fig. 6, considerably before the downward movement of the lever, 12, is completed and before the engagement of the platen, 4, with the type wheel, 6. If the wheel, 6, is not quite accurately adjusted by the centering spring, 11, the beveled point, 14^a, of the dog, 14, will correct the adjustment as it enters the notch between the teeth, 10, and then entering more deeply into the notch will positively lock the type wheel, 6, against rotation. After this the downward movement of the link, 13, continues for a distance indicated in Fig. 6 by the distance between the lug, 14^b, and the pin, 16. Pressure upon the lever, 12, being relieved after the completion of the printing stroke, a heavy retracting spring, 18, returns the parts to their initial position shown in Fig. 5.

During this return movement of the parts, the paper which has just been operated upon is fed over the table, 7, in a direction parallel to the axis of the type wheel, 6. The feeding movement is effected by means of a pair of rigidly connected feed wheels, 19, having knurled or otherwise roughened surfaces against which the paper is held by a spring-pressed idler roller, 20, shown in Fig. 4. The wheels, 19, are rigidly mounted on one end of a shaft, 21, journaled in bearings, 1^a and 1^b, formed integrally with the frame, 1, and said shaft, 21, carries at its opposite end a ratchet wheel, 22. A plate, 23, pivotally mounted on the shaft, 21, alongside the ratchet wheel, 22, carries a pawl or feed dog, 24, adapted to engage the ratchet teeth; said plate, 23, is pivotally coupled to the lower end of a reciprocating member, 25, carried in a slide bearing at 26, and formed at its lower end with a slotted foot, 25^a, engaging in its slot a crank pin, 23^a, on the plate, 23. As the words constituting the different lines of type, 6^a, on the type drum, 6, are of various lengths, it is desirable that the paper shall be fed various distances, corresponding in each instance to the length of the word which has just been printed by the printing couple. To accomplish this there is shown on the end of the printing drum, 6, a spacing cam, 27, formed with an irregular periphery composed of a series of shoulders corresponding in number to the words or lines of type, 6^a, carried by the drum, 6, and corresponding in radial position to the length of said lines respectively. A spacing dog, 28, is loosely carried on the same fulcrum pin which carries the dog, 14, and is provided with a spring, 29, tending to pull it into engagement with the periphery of the cam, 27. The dog, 28, is in the form of a bell crank having a yoke, 28^a, engaging the fulcrum pin, 15, and an arm, 28^b, which carries the crank pin, 28^c, engaging a slot in the head, 25^b, of the vertically reciprocating member, 25. A control pin, 30, projecting laterally from the thrust link, 13, engages the upper end of a slot, 28^d, in the arm, 28^b, of the bell crank dog, 28, thus blocking the movement of the dog until the link, 13, moves downward as the actuating lever, 12, is depressed. As soon as this occurs, the dog, 28, swings about the fulcrum pin, 15, following the controlling pin, 30, under the influence of its spring, 29, which provides the force for moving downward the reciprocating member, 25. This movement continues under the pull of the spring, 29, until it is arrested by contact of the dog, 28, with the irregular periphery of the spacing cam, 27, at a point whose radius corresponds to the length of the type line, 6^a, which stands in position for coöperating with the platen, 4; and since the downward movement of the member, 25, serves to rock the plate, 23, in direction for retracting the ratchet pawl, 24, preparatory to its feeding stroke, the limiting of this movement by the cam, 27, determines the number of teeth over which the pawl, 24, is

moved from its normal position, thus determining the working stroke of the pawl and the distance through which the ratchet wheel, 22, and feed wheels, 19, will be rotated when the pawl returns to its normal position. It will be understood that the arrest of the dog, 28, and its connected parts by means of the cam, 27, does not arrest the movement of the thrust link, 13, and platen lever, 5, to which it is connected, but that such movement continues until the platen, 4, engages the type line, 6^a, on the drum, 6; the retraction of the parts, as previously indicated, is effected by the heavy spring, 18, and as an incident of such retraction the pin, 30, on the link, 13, by engaging the upper end of the slot, 28^d, positively lifts the member, 25, and with it the plate, 23, carrying the ratchet pawl, 24, thus effecting a measured rotation of the feed wheels, 19, for advancing the paper by the proper amount.

For inking the type, 6^a, of the printing drum, 6, there are provided two inking rollers, 31, of suitably absorbent material and journaled in arms, 32, which are pivotally supported at 32^a, on cover plates, 33; and springs, 34, at the pivot, 32^a, serve to maintain yielding engagement of the ink rollers, 31, with the face of the type wheel. Each of the cover plates, 33, overlies the outer surface of the housing, 2, but is provided at one end with clips, 33^a, engaging the inner surface of said housing. The reaction of the spring 34, by tending to force off the cover plate, 33, at the end carrying the clips, 33^a, renders the opposite end of each cover plate a fulcrum which bears strongly against the outer surface of the housing, 2, serving automatically to hold the cover plate in position without any additional securement. For convenience of removal, each cover, 33, is provided with a knob, 33^b, and an ink pad or reservoir, 35, in the form of a small drawer carried in the base, 1, is always at hand for ready reinking of the rollers, 31, as required.

For convenience of assembling, most of the moving parts are arranged to be carried on the base frame, 1. For this purpose the frame is shown having a lug, 1^x, terminating with uprights, 1^c, positioned to carry the fulcrum pin, 15, and the pin 36, to which the springs, 17 and 29, are hitched said pin, 36, being engaged at its opposite ends in the opposite lugs, 1^x, as seen in Fig. 3, but by reference to Fig. 6 it will be seen that these uprights, 1^c, do not extend directly down to the base portion of the frame, 1, but are projected up from the lugs, 1^x, which extend forwardly from their points of origin on the base to reach the vertical plane of the pins, 15 and 36, for the purpose of giving the maximum depth of throat-way at 3. An additional upright, 1^d, near the rear of the frame, 1, is provided at its upper end with a lug, 1^e, to which the heavy retracting spring, 18, is hitched. The type wheel, 6, and its adjusting knob, 8, are journaled in the housing, 2, and the actuating lever, 12, is fulcrumed in suitable lugs, 2^a, at the rear of the housing. With these parts properly mounted, and with the remaining parts in place on the base frame, 1, the frame, 1, and the housing, 2, are put together, the thrust link, 13, passing through a slot, 2^b, in position for connection with the lever, 12, at the pivot, 12^a. The rear of the housing, 2, rests upon the bosses, 1^f, and it is held in place in its position by large screws, 1^g, passing upward through said bosses. For additional support, the cross-pin, 36, is made hollow and its ends are threaded to receive suitable screws, 37, passing through the side-walls of the housing, 2, in position to register with the tubular pin, 36. Thus a rigid connection between the housing and the base frame is afforded at a point over the throat-way, 3, so that in spite of the depth of the throat-way, there is no sacrifice in rigidity of the machine.

Since the type, 6^a, on the drum, 6, are some little distance above the plane of the table, 7, on which the check or draft will normally lie, it is evident that the paper must be carried upward against the type wheel by the movement of the platen member, 4. To prevent smearing of the paper by the lines of type adjacent to the line in action, a shield, 38, is provided, but its aperture, 38^a, is made considerably wider than a single line of type, and is provided with downwardly-bent edges at 38^b, so that the paper will be carried up in an easy curve instead of being punched through a smaller aperture by the action of the platen, 4; thus the paper is protected against smearing without being unduly distorted in the printing operation.

For initially positioning the check to bring the printing at the proper line on the paper, and also for assisting in its guidance through the machine, there is provided an adjustable guide, 39, which is a T-shaped member having a guide arm 39^a extending transversely of the machine, that is, substantially parallel to the axis of the type wheel, 6, and having also a mounting arm, 39^b, which is carried in a groove, 1^k, formed in the base frame, 1, at one side of one of the bosses, 1^f. (See Fig. 2). Above the groove, 1^k, a clamping wheel, 40, is eccentrically mounted on a pivot, 41, supported by being screwed into a boss which projects from the side of the housing, 2, above the boss, 1^f, as shown in Fig. 1, and also in Fig. 3, and the surface of this wheel, 40, is preferably knurled so as to be readily engageable by hand. The eccentricity of the wheel with respect to its pivot, 41, is such that at one position in its rotation its periphery is separated from the

top surface of the arm, 39[b], of the guide member, so that said member is freely adjustable backward or forward as may be desired, and as soon as it has been positioned, it may be clamped in such position by simply rotating the wheel, 40, into wedging contact with said arm 39[b], of the guide. As shown, this arm is formed with a tail-piece, 39[c], which prevents removal of the guide member by forward movement in its groove, 1[k], and as the transverse arm, 39[a], serves a similar purpose when the guide is moved in the opposite direction, there is no danger of its becoming lost, even when not clamped firmly in adjustment by the eccentric locking wheel, 40. On the same side of the housing, 2, which carries the locking wheel, 40, for the guide, 39, there is shown an index, 42, which is positioned just forward of the vertical plane of the axis of the type wheel, 6, so as to register with the usual ruled line on a check or draft when the paper is properly positioned for printing the embossed characters along such lines, so that by inserting the check and registering the ruled line with its index, 42, the gage or guide, 39, can be properly adjusted quite promptly.

A suitable connection of the lever, 12, with the link, 13, is preferably made as shown in Figs. 5 and 6 by terminating the link, 13, in an enlargement or knob, 13[a], which is cylindrical throughout more than 180 degrees, and forming in the hand lever, 12, corresponding socket, 12[a], cylindrical throughout more than 180 degrees, adapted to receive the cylindrical terminal of the link by lateral insertion. The two members are then retained in connection by flanges, 13[b], mounted upon opposite sides of the terminal, 13[a], of the lever by means of a rivet, 13[c], which extends through the center of said terminal, 13[a], of the link.

I claim:—

1. A printing machine comprising a base frame, a work-table thereon; a printing member mounted over the work-table; a fixed housing for said printing member positioned over the work-table and spaced above it to form a work-receiving throat-way, said housing being attached to the rear portion of the base frame, and said frame having lugs extending forwardly from the vertical plane of said attachment and overhanging the throat-way, and means engaging the lugs with a part of the housing over said throat-way.

2. In a printing machine in combination with a printing mechanism and a work-support, a gage for the work having a single stem for mounting it; a guide-way in which said stem is slidably adjustable, and securing means consisting of a circular member eccentrically mounted and having its periphery exposed and knurled, whereby releasing and tightening of the clamp may be effected by one hand of the operator without grasping the clamping device.

3. In combination with a rotatably adjustable type wheel, a platen movable toward and from the type wheel for coöperation therewith in printing; a lever which carries the platen; means acting on the lever to withdraw the platen from the type wheel; operating connections for the lever comprising a link connected thereto; a notched locking element rigid with the type wheel; a locking dog for engaging the locking element; a spring tending to engage the dog with said element, and an abutment on the link and an abutment on the dog which are brought into encounter in the direction for withdrawing the dog in the movement of the lever for carrying the platen out of printing position.

4. In combination with a rotatably adjustable type wheel, a platen movable toward and from the type wheel for coöperation therewith in printing; a lever which carries the platen; operating connections for the lever comprising a link connected to the lever; a notched locking element rigid with the type wheel; a locking dog for engaging said element; a spring tending to engage the dog with the locking element, and abutments on the link and dog respectively, positioned for engagement in the movement of the platen out of printing position for stopping the dog out of engagement with the locking element.

5. In combination with a rotatively adjustable type wheel, a platen member movable toward and from the type wheel for cooperation therewith in printing; a lever which carries the platen; operating connections for the lever comprising a link connected to said lever; a spring re-acting on the lever for holding it normally away from the type wheel; a notched locking disk rigid with the type wheel; a locking dog for engaging said element; a spring tending to engage the dog with the locking element; the link and the dog having abutments which come into encounter in the movement of the link for moving the platen from the type wheel, and whose encounter stops the dog out of engagement with the locking element at the normal position of the platen lever caused by its spring, and means for actuating the platen lever against the resistance of said spring for moving the platen toward the type wheel.

6. In combination with a rotatively adjustable type wheel; a platen movable toward and from the type wheel for printing; a lever which carries the platen; a spring which holds the lever normally retracting the platen from the type wheel; a locking element rigid with the type wheel; a locking dog coöperating with said element; a spring

re-acting for engaging the dog with the locking element; a gage rigid with the type wheel; a gage finger pivoted for coöperation with the gage; a spring re-acting on the gage finger for thrusting it to the gage; means for actuating the platen lever against its spring to move the platen toward the type wheel; means moving with the platen lever for withdrawing the dog from the locking element in the platen-retracting movement of the lever; said means being positioned for withdrawing from the dog to allow the dog-actuating spring to move the dog for engagement with the locking element in the beginning of the opposite movement of the platen lever; means by which said link stops the gage finger out of range of the gage at said normal position of the platen lever, adapted to release said gage finger for movement under the actuation of its spring toward the gage in the initial movement of the platen toward the type wheel; feeding devices, and connections by which they are actuated by the opposite movement of the gage finger in the opposite movement of the platen lever.

7. In a printing machine, mechanism adjustable to print words of different lengths, comprising work-feeding mechanism including a pawl-and-ratchet device; a spring to retract the pawl of said device in preparation for the feeding stroke; a platen for coöperating with the type wheel; a lever which carries the platen; a spring re-acting upon said lever for holding the platen normally removed from the type wheel; operating connection for moving the lever to advance the platen toward the type wheel; a gage rigid with the type wheel; a gage finger spring-pressed toward the gage; a stop carried by the platen-lever-actuating means for limiting the spring-pressed movement of the gage and positioned to be withdrawn from the finger-stopping position in the platen-advancing movement of the platen lever, and adapted to positively actuate said finger in the reverse movement; said gage finger being operatively connected with the pawl both for its retracting and for its driving movement.

8. In a printing machine, mechanism adjustable to print words of different lengths, comprising a type wheel having the type faces of the words extending parallel to its axis; a platen for coöperating with the type wheel in printing; a platen-carrying lever; a spring acting on the platen lever for normally holding the platen away from the type wheel; lever-actuating means to impel the platen toward the type wheel; a locking element rigid with the type wheel; a locking dog coöperating with said element; a gage rigid with the type wheel; a gage finger coöperating with the gage; feed mechanism comprising a pawl-and-ratchet device; operating connections between the gage finger and the pawl of said feeding mechanism for giving the pawl both its strokes; connections between the platen-lever-actuating means and the gage finger, comprising an abutment on said actuating means which in the spring-actuated movement of said lever positively retracts the gage finger from the gage, and lost-motion connections between the lever-actuating means and the locking dog, comprising an abutment on said actuating means which encounters the dog in the spring-actuated movement of the lever for withdrawing the dog, and which withdraws to permit the dog to engage the locking element in the reverse movement of said lever.

9. A printing mechanism comprising a rotatably adjustable type wheel having printing characters arranged on its surface in rows of different lengths extending substantially parallel to the axis of the wheel, a platen member, and actuating means for causing alternate engagement and separation of said platen and type wheel, a feed-controlling cam associated with the type wheel having a series of shoulders disposed about the axis of said wheel at different radial distances therefrom corresponding to the different lengths of the respective rows of printing characters on the wheel; work-feeding mechanism comprising a feedwheel and a ratchet wheel rigidly connected together; a ratchet and an actuating member therefor, and a spacing dog pivotally mounted to swing into engagement with the periphery of said cam and operatively connected with said ratchet actuator, together with a spring tending to move said dog into engagement with said cam; a slot in the dog, and an abutment on the platen-actuating means normally engaging one end of said slot for holding the dog away from the cam when the printing members are separated.

In testimony whereof, I have hereunto set my hand at Chicago, Illinois, this 29th day of January, 1916.

FRED. F. SCHRODER.