May 27, 1952 O. PETERMANN ET AL 2,598,438

TYPE LOCKING MEANS IN MARKING MACHINES

Filed Feb. 26, 1946 5 Sheets-Sheet 1

Fig 15

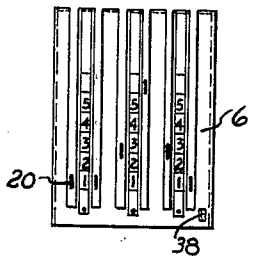


Fig 1

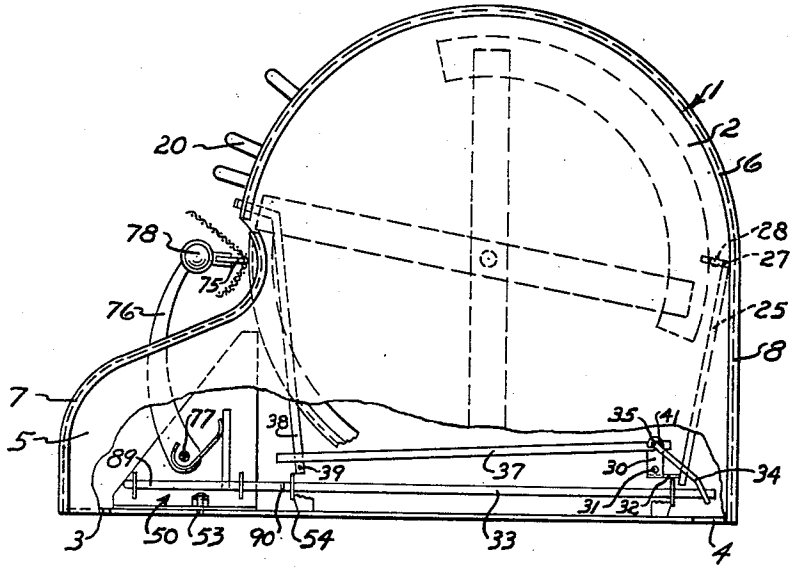


Fig 2

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May 27, 1952 O. PETERMANN ET AL 2,598,438

TYPE LOCKING MEANS IN MARKING MACHINES

Filed Feb. 26, 1946 5 Sheets-Sheet 2

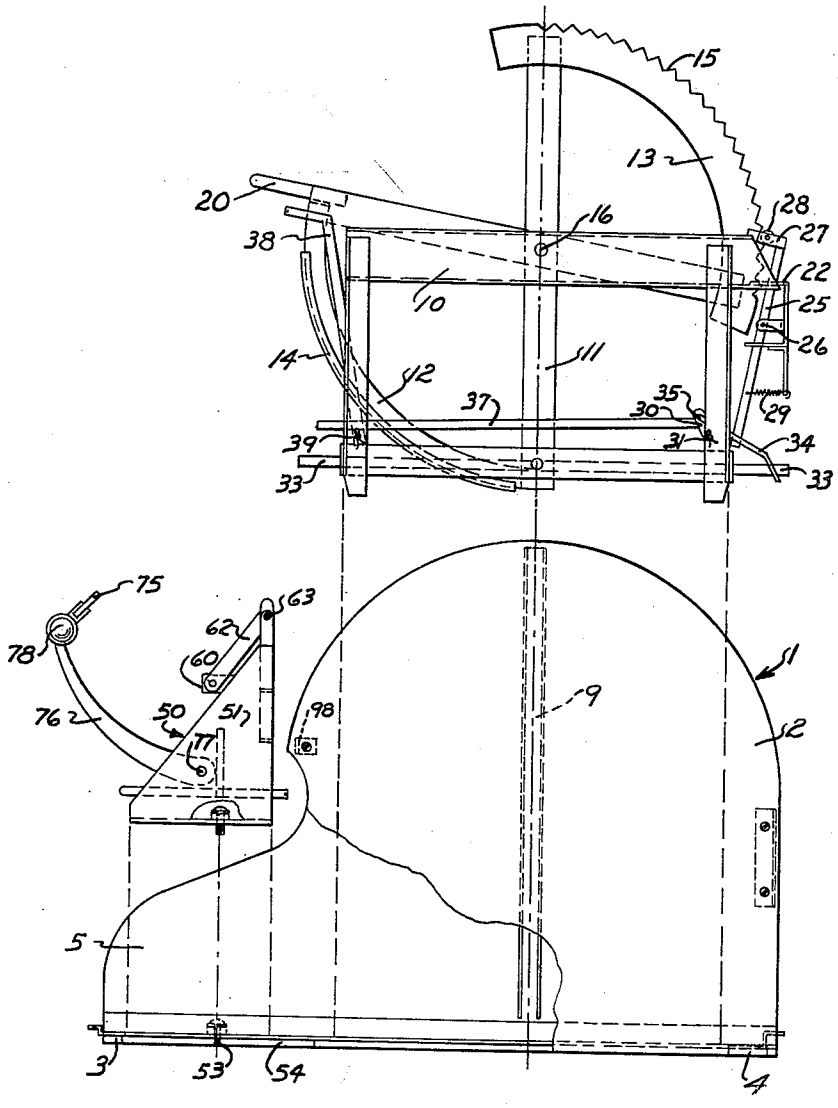


Fig 3

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May 27, 1952 O. PETERMANN ET AL 2,598,438

TYPE LOCKING MEANS IN MARKING MACHINES

Filed Feb. 26, 1946 5 Sheets-Sheet 3

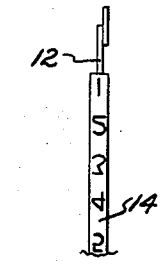


Fig 6

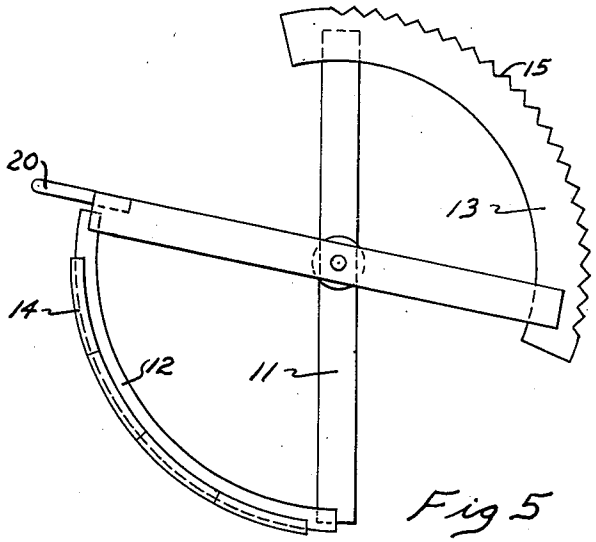


Fig 5

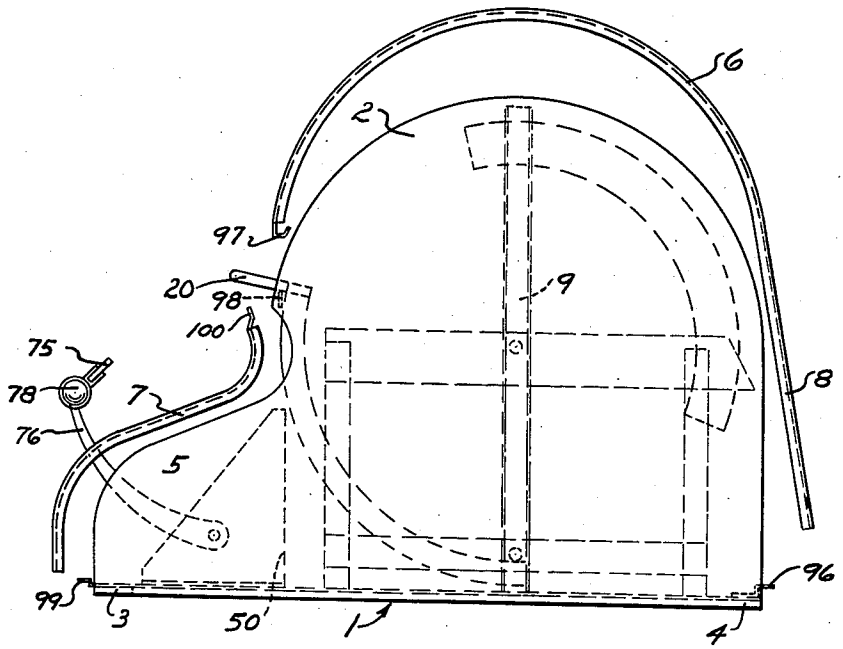


Fig 4

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May 27, 1952 O. PETERMANN ET AL 2,598,438

TYPE LOCKING MEANS IN MARKING MACHINES

Filed Feb. 26, 1946

5 Sheets-Sheet 4

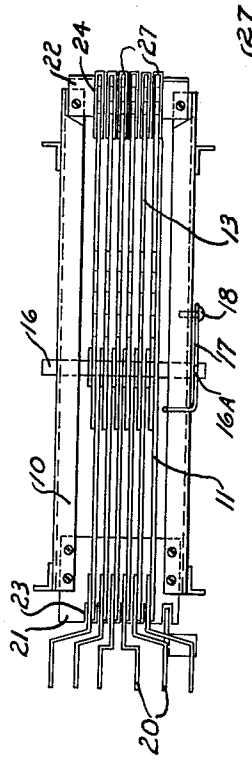


Fig 9

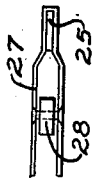


Fig 17

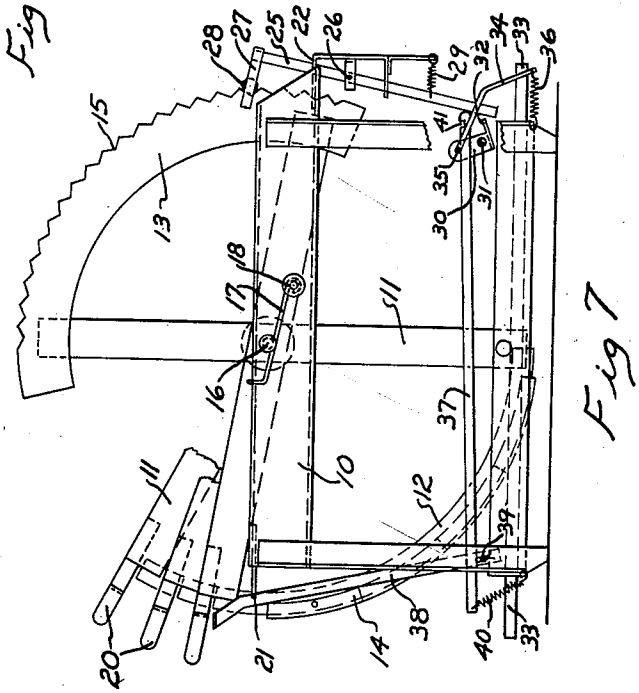


Fig 7

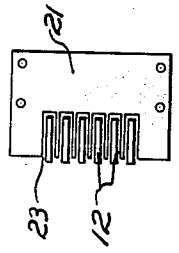


Fig 16

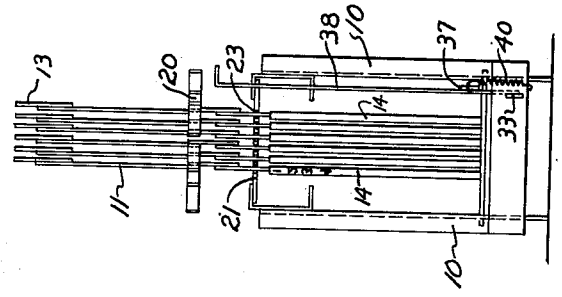


Fig 8

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May 27, 1952 O. PETERMANN ET AL 2,598,438

TYPE LOCKING MEANS IN MARKING MACHINES

Filed Feb. 26, 1946 5 Sheets-Sheet 5

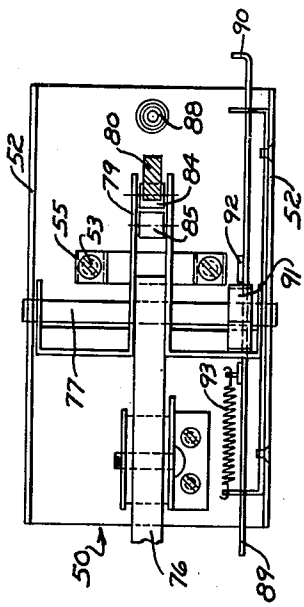


Fig 12

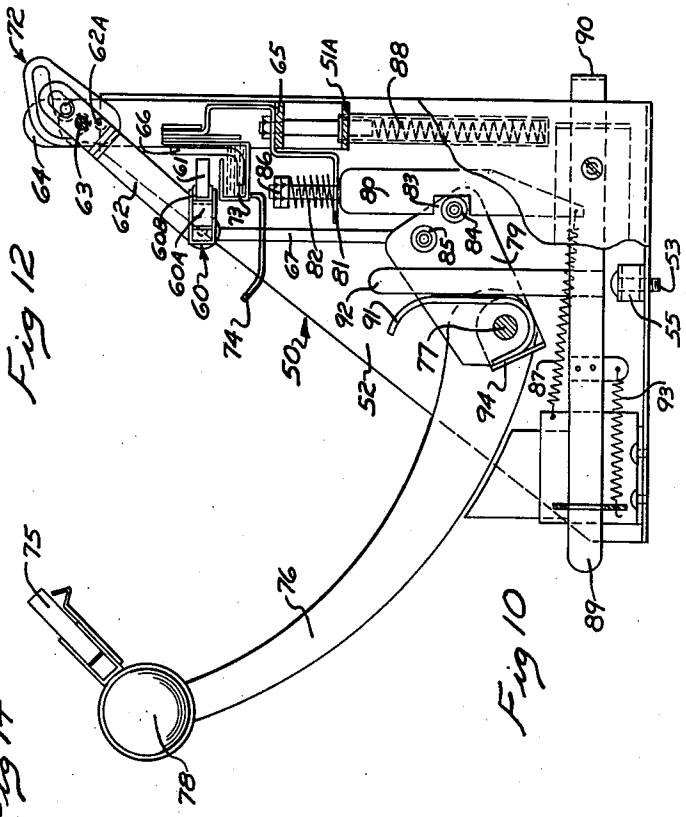


Fig 10

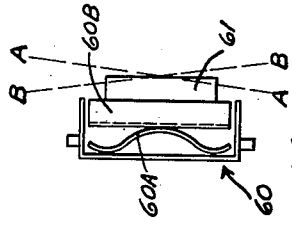


Fig 14

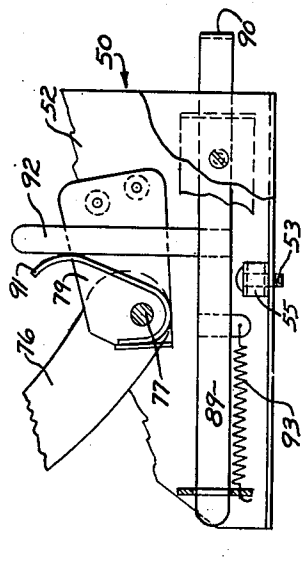


Fig 13

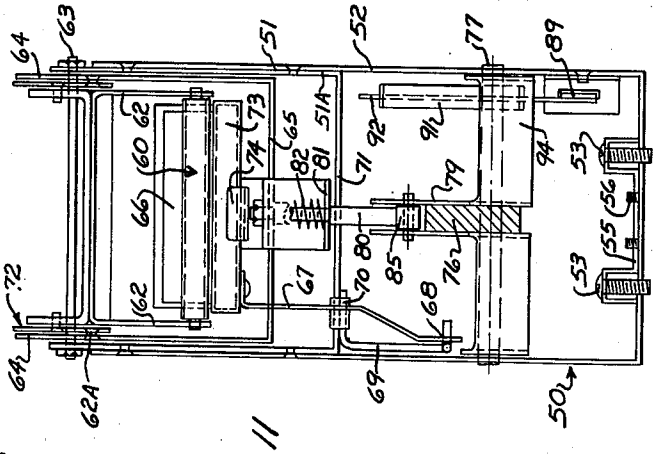


Fig 11

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Patented May 27, 1952

2,598,438

UNITED STATES PATENT OFFICE

2,598,438

TYPE LOCKING MEANS IN MARKING MACHINES

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Application February 26, 1946, Serial No. 650,216

3 Claims. (Cl. 101—110)

1

This invention relates to marking machines of the type for applying identification symbols or characters, as numbers, letters or combinations thereof, to articles, such as articles to be laundry-cleaned or dry-cleaned, and has for its object a marking machine embodying type wheels, and inking and printing mechanism, the latter operating to apply ink to the type heads at the printing line and to print the symbols, numbers or letters, etc. in the type at the printing line, on the article, upon each operation of the operating member for the inking and printing mechanism. More particularly, it has for its object the mounting of the type wheels, and mechanism for locking them in their set position as a unit in the casing, so that they are removable and replaceable as a unit, and the mounting of the inking and printing mechanism independently of the type wheel unit, so that the inking and printing mechanism can be removed and replaced without disturbing the type wheel unit, or each unit is removable from and replaceable in the casing without disturbing or being unfastened from or fastened to the other unit.

The invention further has for its object mechanism for locking the type wheels with predetermined type at the printing line, and operable by the operating member of the inking and printing mechanism through connections, which are separable when the type wheel carriage or frame and/or the carriage or frame for the inking and printing mechanism is removed, all whereby the parts of the two units are made quickly and readily accessible for cleaning, repairing, etc., and quickly replaceable.

The invention further has for its object a type wheel mechanism by which the type wheels are firmly held against misalinement in any adjusted position during the printing operation, that is, with a certain type at the printing line, and also means operable at will for releasing the printing wheels when it is desired to set a new symbol or combination of characters at the printing line in the wheels, the releasing means including parts carried by the casing or cover therefor and for the type wheel frame or carriage.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings, in which like characters designate corresponding parts in all the views.

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Figures 1 and 2 are side elevations of this machine, partly broken away, showing respectively the printing mechanism and also the locking mechanism in their positions assumed at the start of a printing operation and at the same time when the printing is being performed, the locking mechanism being also shown, as in its position at the start of the first printing operation and just prior to the printing operation, the last position being also that occupied by the locking mechanism during repeated printings from the same type at the printing line.

Figure 3 is a side elevation showing the unit consisting of the printing wheels, its frame and associated parts as removed therefrom, and also the unit consisting of the inking and printing mechanism being removed from the casing.

Figure 4 is an elevation showing the covers for the casing as displaced preliminarily to removing the type wheel and the inking and printing mechanism units.

Figure 5 is a side elevation of one of the printing wheels.

Figure 6 is a fragmentary edge view thereof.

Figures 7, 8 and 9 are, respectively, side and front elevations and plan view of the type wheel unit.

Figures 10, 11 and 12 are, respectively, enlarged side and front elevations and plan view of the inking and printing mechanism unit.

Figure 13 is a fragmentary elevation of parts seen in Figure 10.

Figure 14 is a detail view of the inking head showing the equalizing action thereof.

Figure 15 (Sheet 1) is a fragmentary face view of one of the covers of the casing.

Figures 16 and 17 are, respectively, enlarged plan views of one of the holding or guide members for the margins of the type wheels and illustrative of both; and of one of the heads or yokes of the type wheel locking means.

This invention comprises a casing in which are mounted two units which are removable from and replaceable in the casing independently of each other, and in which the mechanism of one unit coacts with the mechanism of the other unit, one unit including type wheels mounted on a suitable carriage, and locking mechanism for holding the type wheels in any position in which they are set by hand or by the operator, and the other unit including an operating member which, during its operation, sets the locking mechanism for the type wheels to hold the type wheels firmly in set position and with their type in alinement at the print-

ing line, the locking mechanism remaining in locked position during repeated operations with the same set of type wheels, and operator-operated means for releasing the type wheels and permitting a new setting thereof, this means including a part on the type wheel frame and a part carried by the casing or the cover therefor, from which the part on the type wheel frame is separable during removal of the type wheel unit.

The casing 1 is of relatively narrow width and consists of side walls 2 spaced apart and connected together at their bottom edges at the front and rear thereof by cross plates 3, 4. The major part of the casing or side plates 2 are part cylindrical as semi-cylindrical at their upper edges and, being spaced apart, provide the casing with an open top. The side plates have forwardly extending portions 5 below the horizontal diameter of the semi-cylindrical portion and in front thereof. The front portion of the casing is also open at its top, as the side plates 2 are spaced apart. The casing also includes covers 6 and 7 for the major part, and for the forwardly extending portions 5 thereof, the cover 6 having an arcuate front top portion and an upright rear portion 8. One of the side plates 2 is formed with an upright diametrically extending channel 9 (Figure 4) which serves to reinforce it and also as a guide for the type wheel carriage frame, as will be presently pointed out.

Referring particularly to Figures 3, 7, 8 and 9, 10 designates the frame of the type wheel unit, this being skeleton in form and of any suitable construction, it being preferably fabricated from metal strips welded together. 11 designates the type wheels. As seen in Figure 5, each is composed of diametrically located segments 12 and 13, the segments 12 carrying the type 14 on their peripheries and the segments 13 being provided with peripheral notches or serrations 15 having inclined or cam-shaped bottoms forming part of locking mechanism to be described. The type wheels are skeleton in form and the segments are carried by diametrically extending spokes intersecting at the axes of the segments. The type wheels are mounted in the frame 10 on a shaft 16 common to all of them, this shaft extending through openings in the horizontal upper bars of the frame 10. The shaft 16 is held in position or from axial displacement by a spring key 17 anchored at 18 to the frame 10, and extended crosswise or tangentially of one end of the shaft 16 outside of the frame 10, and being located in a groove 16A therein, the spring being biased to press into the groove. This mounting provides a particularly easy way for assembling and removing and replacing the type wheels. The opposite end of the shaft 16 projects beyond the side face of the frame 10 into the channel bar 9 and moves along the channel during the removal and replacement of the type wheel unit.

The segments of each type wheel are so located as to counterbalance each other (Figures 3 and 5), so that the type wheels are held by the locking means in their adjusted position with a minimum of spring pressure, and are also easily shiftable about axes to set different type at the printing line without counterbalancing springs. The type wheels are also provided with radially extending finger-pieces 20, one for each, extending through slots in the cover plate 6 (Figure 15). The strips or lands between the slots are provided with scales indicating the character or type at the printing line when the finger-piece is in line therewith. The type wheels are fabricated from sheet metal strips arranged edgewise, and the type themselves are provided on type segments 14 U-shaped in cross section and secured to the segment 12 by being arranged astride thereof, as seen in Figures 5 and 6. The frame 10 slidably fits between the side walls of the casing 1. The type wheels are held firmly against lateral displacement or held so that the type at the printing line is held from getting out of alinement, by guides arranged diametrically opposite each other on the top horizontal bar of the frame 10 and coact with the segments 12, 13.

The holding means, as seen in Figures 7, 8, 9 and 16, comprises members 21 and 22 forming cross bars of the frame 10 at the front and rear end thereof, these plates being formed with slots 23 and 24 into which the inner edges of the segments 12 and the outer edges of the segments 13 extend respectively, so that they resemble combs. The locking means for firmly locking the segments from rocking or circumferential movement, when in their set position, and also stabilizing them from lateral chucking or shifting movement when the segments are in the slots 23, 24 of the members 21, 22, as here shown, includes supporting arms, as levers 25, one for each type wheel pivoted at 26 to the frame 10 at the rear thereof and carrying at their upper ends bifurcated heads or yokes 27 (Figure 17) astride the segments 13 respectively and engaging the opposite faces of said segments, and a follower or shoulder as a roller 28 carried between the bifurcations of each head 27 and coacting with the notches or serrations 15 of the rack 13. The levers are acted upon by springs 29 which permit the rollers to ratchet along the rack 13 during the setting of the type wheels when the levers are not locked or restrained from movement, as will be presently described. The levers are locked from movement by means operated by the printing mechanism during each printing operation thereof, so that when the printing mechanism is first operated, the levers 25 are locked from pivotal movement with the rollers 28 seated in notches 15 in the segments 13.

The means for locking the levers from movement, as here shown, consists of a pivotal universal bar 30 (Figures 1, 2, 7, 8 and 9), this being pivoted at 31 to the frame 10, which extends transversely of the lower ends of the levers and has a leaf 32 common to all the levers. The edge of the leaf 32 is normally spaced from the levers, permitting them to have a ratcheting movement. The universal bar 30 is, however, moved on its pivot 31 to carry the edge of the leaf against the levers, and thus lock them from movement, by a push bar 33 extending forwardly and rearwardly of the frame 10 and carried thereby and having an arm 34 rigid therewith connected and pivoted at 35 to the universal bar 30. This push bar 33 is operated rearwardly against the action of a spring 36 (Figure 7) by the printing mechanism, as will be hereinafter described, and when pushed rearwardly, obviously will rock the universal bar into engagement with the lower ends of the levers 25 to hold the levers from rocking movement. The universal bar is held in its operated position by a latch 37 including a bar extending lengthwise of the frame 10, this being one arm of an angle lever, the other arm 38 of which is pivoted at 39 to the frame and is extended upward for release operation by hand. The movement of the angle lever 38 is against the action of a re-

turning spring 40. The rear end of the bar or arm 37 is provided with a notch 41 for receiving a portion of the pivot 35 for latching into engagement therewith. The arm 34 is here shown as a small rod or wire, hooked at its upper end into an opening in the universal bar 30. The hooked end 35 or pivot forms the shoulder for moving into the notch 41, and hence locks the universal bar in its operated position. This movement is against the biasing of the spring 40. To release the lock so that the type wheels may be operated or re-set, the upper end of the arm 38 of the angle lever is pressed rearward to the right, moving the angle lever about its pivot 49, thus swinging the arm 37 downward and dislodging the notch 41 from the pivot 35. This releases the universal bar 30 and permits its spring 36 to react. The upward extending arm 38 of the angle lever has a forward extending finger piece at its upper end exposed in Figure 15 on the face of the cover plate 6 for manual release operation.

The inking and printing mechanism unit 50 (Figures 1, 2, 3, 10, 11 and 12) includes a carriage 51 located in the forwardly extending portion of the casing 1, and is assembled in and removable from the casing through the open top or front end thereof when the cover 7 is removed, as seen in Figure 3. The construction per se of the mechanism of this unit forms no part of this invention, except as it is correlated with the type wheel unit and associated parts, but constitutes the subject matter of the application of Myron E. Wells, Serial Number 604,824, filed July 13, 1945, now having Patent No. 2,443,939 patented June 22, 1948.

The frame 51 of the unit is folded up from sheet metal to include a bottom and upright side walls 52, the frame being secured in the forwardly-extending portion of the casing, so as to be easily removable, it being here shown as secured in position by one or more screws 53, best seen in Figures 10, 11 and 12, extending through the bottom of the frame and threading into a transverse bottom plate 54 (Figure 3) of the casing 1. As here shown, the screws 53 extend through a reinforcing plate 55 (Figure 11) which is secured to the bottom plate of the casing in any suitable manner, as by screws 56.

The inking mechanism includes an ink applying member or pad normally pressing against an ink supply pad away from the printing line and transferable therefrom to press against the type at the printing line, apply ink thereto, and then move out of the way of the printing hammer or platen against which the work is held during the movement of the hammer to carry the work against the type at the printing line. These operations of the ink applying member is effected by the operating member of the printing mechanism, which carries the hammer or platen.

60 designates the ink applying member, which is here shown as a head carrying a paid 61, the head being pivotally carried by rock arms 62 pivoted at 63 upon a stationary transverse rod mounted between bars 51A fixed to the side plates 52 of the frame 51. The head 60 is carried at the free ends of the rocker arms 62. 64 are upright sides of a vertically movable carriage 65 suitably guided between the side walls of the frame 51 or the bars 51A, the head 60 being pivotally mounted between the rock arms 62 and being normally arranged in horizontal position pressing against an ink supply pad 66 and maintained in this horizontal position during the swinging of the rock arms 62 from starting position upwardly when the pad 61 is pressed against the type at the printing line, the rock arms 62 having a movement from the inclined position shown in Figure 10 into an inclined position slightly beyond a vertical line, when the pad 61 is pressed against the type at the printing line, that is, in the position shown in Figure 2. It is so held in horizontal position by a link 67 (Figures 10 and 11) rigid with the head 60 at its upper end and pivoted at its lower end at 68 to one end of a rock arm 69, which in turn is pivoted at 70 to a cross bar 71 of the frame 51, the arm 67 and the arms 62 having a parallelogram action, so as to maintain the ink applying head 60 in horizonal position during its movement. The motion is applied to the arms 62 to swing them during the downward movement of the carriage 65 through cam mechanism designated generally 72, the specific construction of which forms no part of this invention, and any other mechanism may be substituted therefor to translate the downward movement of the carriage 65 to the arms 62 to swing the arm upwardly and carry the printing heads 60 therewith against the type at the printing line. The cams 72 are levers pivoted at 62A to the upright side bars of the vertically movable frame 65 and coact with pins on the arms 62. The cams merely convert the vertical movement into a crankpin movement to rock the arms 62. The ink pad 66 is mounted in a suitable reservoir or ink well 73 removably supported on the frame 51, it having a suitable handle 74 to facilitate the removal thereof.

The printing mechanism includes the platen or hammer 75 carried by an operating arm 76 pivoted at 77 in the frame 51 and extending through a slot in the cover 7, the arm 76 having handles 78 extending on opposite sides of the head. This platen may be of any suitable construction. The motion of the operating member or rock arm 76 is transferred to the inking carriage 65 through bifurcated lever arms 79 rigid with the lever 76, a pull link 80 connected to the carriage 65 or a lug 81 thereon, through yielding means, as a spring 82, the function of which will presently appear. This pull link 80 has a notch 83 therein with which coacts a follower or roller 84 mounted between the bifurcations of the lever arm 79. Also, a knock-off shoulder or roller 85 is mounted between these arms 79. The spring 82 is located between the upper side of the lug 81 and nuts or shoulders 86 on the upper end of a stem on the pull link 80, the nuts being adjustable to vary the loading of the spring 82. The article or cloth to be marked is stretched across the face of the platen 75 and so held by the hands grasping the handles 78. When the lever 76 is moved forwardly, to the right (Figure 10), the roller 84 in the notch pulls down the carriage 65 and this movement of the carriage, because of the parallogram action of the arms 62, 69 and connecting link 67 (Figure 11) cause the head 60 carrying the ink applying pad 61 to move upwardly with the outer ends of the arms 62 and maintain horizontal position and finally press against the type at the printing line to apply ink thereto. In the meantime, the platen 75 is but part way toward printing position. The knock-off shoulder or roller 84 presses against the pull link 80, and as the motion is transferred through the spring 82, the pad 61 is pressed with something of a yielding action against the type. As the arm 76 moves further when the pad 61 is pressed against the type at the printing line, the knock-off shoulder or roller 85 engages the front edge of the link

80, moves it pivotally, this being permitted because of the loose fit of the stem of the link 80 in the hole in the lug 81 through which the stem extends and swings the pull link 80 rearwardly to dislodge it from the shoulder or roller 84, the swinging movement of the link 80 being against the action of a returning spring 87. The downward shifting of the carriage 65 is against a returning compression spring 88. Thus, when the rod 80 is unlatched from the roller 84, the spring 88 re-acts and returns all parts of the inking mechanism to their starting positions, this being just prior to the time that the platen or hammer 75 is ready to bring the work against the inked type at the printing line. The action of this printing mechanism is the same as that in the application of Myron E. Wells, Serial Number 604,824, filed July 13, 1945 referred to hereinabove, and the specific construction forms no part of this invention.

The type wheel lock mechanism or the push rod 33 thereof is operated during the forward movement of the operating member or rock arm 76. The motion of this rock arm 76 is transferred to the rod 33 through a slide bar 89 slidably mounted in the carriage 51 and having its rear or right hand end 90 arranged to thrust against the front or left end of the lock push rod 33. The motion of the operating arm 76 is transferred to the slide bar 89 through a leaf spring 91 mounted on the lever 76 about the axis thereof to rock therewith and pressing against an arm 92 on the slide bar 89. The movement of the bar 89 is against the action of a returning spring 93. The spring 91 is here shown as anchored to the intermediate part of a yoke 94 on the lever 76, the arms of which are mounted on the pivot 77.

The inking head 60 is, as seen in Figures 10 and 14, composed of a boxlike body and an inking member 61 slidably mounted therein and so mounted as to have a yielding rocking or compensating action, when it presses against the type at the printing line, as indicated by the angular arms A—A and B—B (Figure 14). As here shown, the rocking or compensating movement is provided by a bow spring 60A in the body of the head 60, the apex of the spring pressing against the central part of the inner edge of the member 60B and the ends of the spring pressing against the bottom of the recess in the head 60. This compensating action results in a uniform inking of the type 14.

The covers 6 and 7 are preferably held in position without the use of fastening members or screws, and as here shown in Figure 4, the cover 6 latches behind a shoulder 96 at its rear lower end, the shoulder being mounted on the bottom cross plate 4 of the casing. The cover is provided with hooks 97 at its front end which hook under a cross bar 98 at the front end of the semicircular top edge of the major portion of the casing. The resiliency of the cover 6 permits sufficient play to permit the hooks to engage the cross bar 96 with a snap action, after the front end is hooked at 98. Likewise, the cover 7 may be snap-catched into position at its lower end behind the shoulder 99 at its lower end and by hooks or tangs 100 at its upper end for latching behind the cross bar 98.

The two units, that is, the type wheel unit and its associated parts, and the inking and printing unit may be readily removed for cleaning, etc. and readily replaced by removing the covers and merely lifting the units out of position, it being only necessary to remove the fastening screws 53 to remove the inking and printing unit 50. They can be so removed, because there is no interlocking between the mechanisms of these two units, as the slide bar 89 of the inking and printing mechanism merely thrust against the push bar 33 of the locking mechanism of the type wheel.

Also, owing to the guiding of the type wheels at diametrically opposite points at 21, 22 and the construction of the yokes astride the segments 15, the type wheels are firmly held against looseness when in their set positions, so that the type at the printing line are held in alinement. Hence, the printing on the cloth articles is clean-cut or not smeared as otherwise it would be if this type at the printing line could shift even a trifle.

What we claim is:

1. In a marking machine, a casing, type mechanism including type wheels shiftable about their axes to bring different type to the printing line and comprising counter-balanced segments, spindles on which the wheels are mounted side by side and freely movable about the same, the type being mounted on one segment of each wheel, means coacting with the type carrying segments near the peripheries of the type wheels for holding the type wheels lateral from movement, said means coacting with opposite side faces of each of the type carrying segments, and releasable locking means coacting with the other segments for holding the type wheels in their set position with a predetermined type at the printing line, the said other segments being formed with a series of peripheral notches and the locking means including bifurcated heads astride the notched segments respectively and coacting with opposite faces thereof, a follower carried by each head between the bifurcations thereof and coacting with the notched segment of the companion type wheel, and means for pressing the heads radially relative to the type wheels.

2. In a marking machine, a casing, a frame, printing mechanism including type wheels shiftable to bring different type in printing position, a spindle mounted in the frame, the type wheels being mounted side by side on the spindle and movable freely about the same, the type wheels including diametrically opposite segments substantially counterbalancing each other, type carried by one segment and the other segment having a notched periphery, means for holding the wheels from movement about the spindle and thereby holding them in set position with a predetermined number in printing position, the holding means including a spring-pressed lever for each type wheel, a bifurcated head on each lever extending astride the adjacent type wheel and coacting with opposite side faces of the notched segment thereof and a follower carried by each head between the bifurcations thereof and coacting with the notched segment of the companion type wheel.

3. In a marking machine, a casing, type mechanism including type wheels shiftable about their axes to bring different type to the printing line, a spindle on which the type wheels are loosely mounted, stationary guide and holding members located on diametrically opposite sides of the type wheels and extending between the type wheels and coacting with the side faces thereof to hold the type wheels from undue axial movement on the spindle on which they are loosely mounted, and releasable locking means for holding the type wheels in set portion, said locking means thrusting radially against the peripheries of the type

wheels diametrically opposite the printing line to hold the type wheels firm independently of the spindle during the printing operation, said locking means including spring pressed levers, one for each wheel, bifurcated heads carried by the levers and arranged astride the companion wheels and having means between the bifurcations engaging in peripheral notches in the peripheries of the wheels.

OTTO PETERMANN.
FRANK KOSMER.

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749,577	Ocumpaugh	Jan. 12, 1904
803,298	Miller	Oct. 31, 1905
908,673	Hume	Jan. 5, 1909
907,577	Diehl	Dec. 22, 1908
1,059,657	Canine	Apr. 22, 1913
1,143,540	Helling	June 15, 1915
1,196,114	Hume	Aug. 29, 1916
1,232,990	Solenberger	July 10, 1917
1,435,378	Canine	Nov. 14, 1922
1,497,347	Plant	June 10, 1922
1,556,168	Smith	Oct. 6, 1925
1,705,272	Sundstrand	Mar. 12, 1929
2,029,128	Schonfelder	Jan. 28, 1936
2,136,461	Petty	Nov. 15, 1938
2,251,354	Gettman	Aug. 5, 1941
2,435,434	Kosmer	Feb. 3, 1948