Aug. 20, 1963 S. M. WEISSMAN 3,101,047

STAMPING DEVICE

Filed April 14, 1961

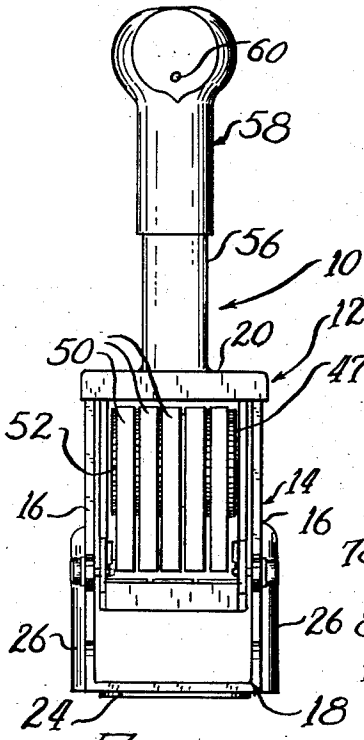


Fig 1

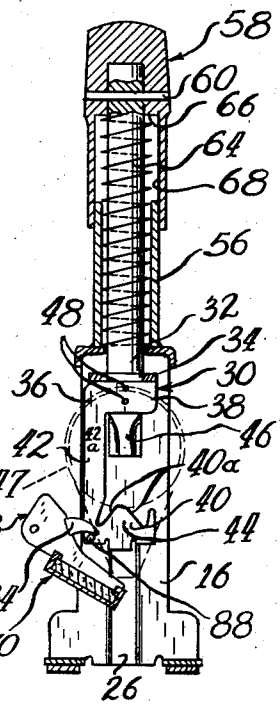


Fig 2

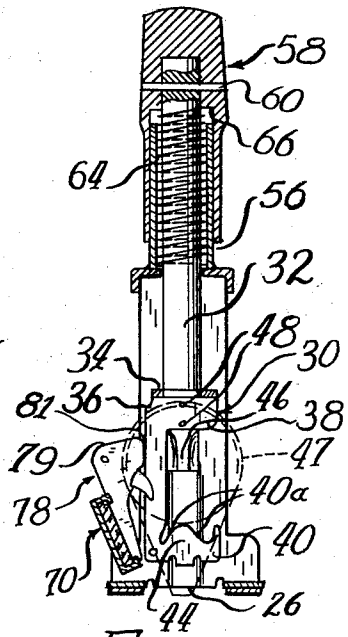


Fig 3

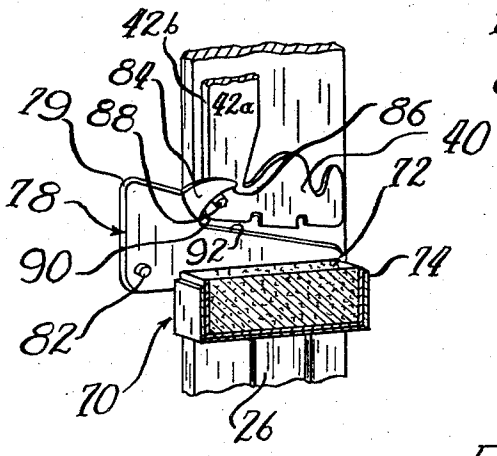


Fig 4

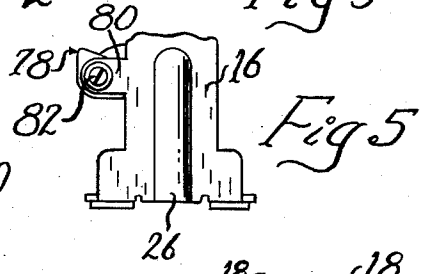


Fig 5

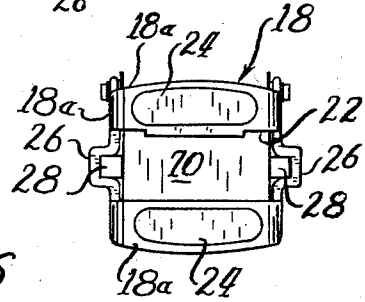


Fig 6

INVENTOR.

Samuel M. Weissman

BY

Olson, Mecklenburger, von Holst,

Pendleton & Neuman Attys

United States Patent Office

3,101,047

Patented Aug. 20, 1963

3,101,047

STAMPING DEVICE

Samuel M. Weissman, Chicago, Ill., assignor to Bankers & Merchants, Inc., Chicago, Ill., a corporation of Illinois

Filed Apr. 14, 1961, Ser. No. 103,076
5 Claims. (Cl. 101—103)

This invention relates to a novel marking device and more particularly pertains to a self-inking stamp which dispenses with the need of a separate inking pad spring, thereby providing a stamp construction which is more trouble-free in operation and less expensive to manufacture than other known self-inking stamp constructions.

In my copending application Serial No. 820,676, now Patent No. 2,983,219, a marking device is disclosed which utilizes a novel construction whereby a number of interchangeable printing units may be employed with a frictionally engaging, reciprocally movable holder member. A frame and actuating handle are also employed for regulating and effecting the reciprocal movement of said holder and printing unit.

In self-inking marking devices known in the art, an inking pad and holder pivotally mounted on a portion of the frame means are cammed from the path of the printing unit in the course of the downward movement thereof. In these known constructions a conventional coil spring engages the inking pad holder and is employed for urging the inking pad holder and pad into a substantially horiontal position against the distal end of the printing unit when said unit has returned to the upper inoperative position of its reciprocal movement.

Self-inking devices possess more components and, accordingly, are more expensive to manufacuture. In addition, cleaning and servicing of such devices are generally recognized as more difficult to carry out. A reduction of the number of components in stamps of this type, therefore, will not only lessen the cost of manufacture but, in addition, reduce the chances for malfunctioning.

It is an object of this invention, therefore, to provide a novel self-inking stamp construction employing an inking pad and holder therefor which is cammed into both operative and inoperative positions of use by the printing unit holder. Thus, the need of a coil spring or other resilient means usually employed for urging the inking pad against the printing unit is eliminated.

It is another object of this invention to provide a novel self-inking stamp construction in which the inking pad and holder therefor may be readily replaced or serviced.

It is a further object of this invention to provide a self-inking stamp construction in which uniform operation is assured for an indefinite period of time as a result of the mechanical camming actions effected by means of the cams and cam actuating portions of the provided stamp.

The above and other objects of this invention will become more apparent from the following detailed description when read in the light of the accompanying drawing and appended claims.

In one embodiment of this invention a self-inking stamp construction is provided comprising a frame in which a stamping or printing unit secured to a holder therefor is reciprocally movable. The stamping unit and holder are biased into an upper inoperative position by means of a coil spring disposed in a hollow handle portion of said frame which urges an actuating handle pinned to an upper portion of said holder in an upwardly direction.

An inking pad holder is pivotally mounted on projecting lug portions of said stamp frame. When the stamping unit and holder are in their upper inoperative position, the inking pad secured to said holder is urged into engagement with the lower distal portion of said stamping

unit. The latter engagement is effected by means of at least one projecting cam arm connected to the inking pad which is in turn engaged by a projecting pin secured to said stamping unit holder as the stamping unit is biased into its uppermost inoperative position.

On the downstroke of the stamping unit, opposed distal portions of said holder engage opposed cam surfaces integrally formed with opposed lateral edges of the holder for said inking pad. As a result of this latter engagement, the inking pad and holder are pivotally cammed from the path of said stamping unit. The projecting cam arms connected to said inking pad holder may frictionally engage inner surface portions of said stamping unit holder so as to be slidably and pivotally movable relative thereto as will hereinafter be explained in greater detail.

For a more complete understanding of this invention, reference will now be made to the drawing wherein:

FIGURE 1 is a front elevational view of a marking device constructed in accordance with the teaching of this invention;

FIG. 2 is a transverse sectional view partly in elevation, the printing unit being illustrated in dotted lines in FIG. 2 in the course of moving upwardly into an inoperative position;

FIG. 3 is a view similar to FIG. 2 illustrating the stamping device in its normal stamping position;

FIG. 4 is an enlarged fragmentary view partly in section illustrating the engagement between a projecting cam arm of an inking pad holder and actuating pin means for said arm;

FIG. 5 is a fragmentary side elevational view of a lower portion of the illustrated stamping device; and

FIG. 6 is a bottom plan view of the illustrated stamping device.

Stamping Device Holder and Frame

Referring now more particularly to FIG. 1, a self-inking marking device **10** is illustrated comprising a frame **12** having a lower cage portion **14**. The cage **14** comprises opposed side wall portions **16**, base portion **18** and an upper transverse plate portion **20** connecting the two wall portions **16**. It will be noted from FIG. 6 that base portion **18** is divided into two spaced transverse portions **18***a*, which define an interposed opening **22**. Strips of rubber **24** or other equivalent non-skid material are secured to the bottom surface portions of base portions **18***a* to assure desired fixed positioning of the stamping device **10** in the normal course of use thereof.

As will be more clearly seen from FIGS. 5 and 6, outwardly disposed grooves **26** are disposed in substantially the central portion of each side wall **16** of cage portion **14** of the stamp **10**. It is the function of the grooves **26** to guide lower laterally projecting lug portions **28** of a stamping unit holder **30**. The engagement between lugs **28** and grooves **26** is more clearly seen from FIG. 6.

As will be noted more clearly from FIGS. 2 and 3, stamping unit holder **30** comprises an upper elongate rod or tubular portion **32** which is secured to a transverse plate **34** which is, in turn, formed integrally with side arm portions **36** of C-shaped configuration, only one being seen in the sectional views of FIGS. 2 and 3. Each side arm **36** comprises two spaced end pieces **38** and **40**, which are interconnected along one side thereof by elongate arm portion **42**. Lower end portion **40** of each side arm **36** possesses two diverging recesses **40***a* having an outwardly canted protuberance **44** formed therebetween. Secured to the upper end piece **38** of side element **36** of holder **30** is a resilient locking member **46** which, as will be noted from FIGS. 2 and 3, may be retained and secured to end piece **38** by means of rivets **48** or other equivalent means.

It is the function of holder **30** to releasably engage a printing or stamping unit **47**, illustrated in front elevation in FIG. 1 and in dotted lines in FIGS. 2 and 3. The latter unit comprises a detachable printing means composed of endless marking bands **50** which are rotatably mounted on wheels **52** so that desired type disposed on the various bands may be arranged in desired sequence over a lowermost backing element which will project through opening **22** in base **18** of the stamp when the stamping unit is in the lowermost position of use, illustrated in dotted lines in FIG. 3.

Lower portions of the stamping unit are retained to holder **30** by mounting the same between the opposed outwardly canted, oblique portions **44** of lower end pieces **40** of the holder side elements **36**. Upper portions of the stamping unit are frictionally locked between inwardly projecting portions of resilient members **46** secured to the upper end pieces **38** of the holder element **30**. Inasmuch as the stamping unit comprises no part of this invention, it is not illustrated in detail. Details of the stamping unit construction and its manner of engagement to the illustrated holder **30** may be found in my copending application Serial No. 820,676, now Patent No. 2,983,219.

Fixedly mounted atop transverse plate **20** of the cage **14** is the frame hollow guide handle **56**. Upper portion **32** of stamping unit holder **30** is telescopically received within hollow portion **56** and a manually actuated handle **58** of larger diametric dimensions than hollow handle portion **56** is pinned by means of pin **60**, or otherwise suitably locked to an upper terminal portion of holder handle **32**. Because of its large diametric dimensions, handle portion **58** may be telescopically movable downwardly over hollow handle portion **56** of the stamp frame portion **12** in the manner illustrated in FIG. 3.

Manual actuation of actuating handle **58**, therefore, comprises the manner whereby stamping unit **47** and holder **30** are downwardly moved into the operative stamping position of FIG. 3. In the course of manually actuating the stamping unit **47**, the resistance of coil expansion spring **64** must be overcome. As will be noted from FIGS. 2 and 3, the latter spring abuts against surface **66** of actuating handle **58** defining one end limit of recess **68** disposed within handle **58**, and abuts against transverse plate member **20** of cage portion **14** of marking device **10** in the manner illustrated in FIGS. 2 and 3. As a result of the normal expanding action of coil spring **64**, therefore, actuating handle **58**, stamping unit holder **30** and the stamping unit **47** detachably secured to holder **30** are normally urged into the upper inoperative position illustrated in FIG. 1. The above-described stamping unit construction is well known in the art.

Stamping Device Inking Pad and Holder Assembly

Since marking device **10** is of the self-inking type, it employs an inking pad holder **70** in which an inking pad **72** mounted in a flexible container **74** is frictionally locked. Pad **72** and confining wall portions of container **74**, which may be of a thin gauge metal, may be removed from holder **70** by inwardly flexing the thin wall portions, whereby the same may be released from frictional engagement with inner wall surface portions of the ink pad holder.

The inking pad holder **70** is integrally formed at opposed lateral end limits with parallel members **78**, which are of general triangular configuration. The inking assembly consisting of parallel members **78**, ink pad holder **70**, container **74** and inking pad **72** is pivotally mounted on opposed transversely aligned projecting members **80** formed integrally with side wall portions **16** of the marking device **10**, as is more clearly seen in FIG. 5. It will be noted from the latter figure that screws **82** which threadedly engage tapped projections **80**, supportingly engage opposed corner portions of the parallel vertical members **78** formed integrally with the inking pad holder **70**. To facilitate pivotal movement of the inking pad and holder assembly, terminal portions of screws **82** may have the threads thereon removed.

It will be noted from the enlarged fragmentary view of FIG. 4 that each of the opposed parallel triangular members **78** possesses an offset arm portion or tongue **84** having an arcuate cam surface **86** defining one longitudinal edge thereof. The latter edge surface is engaged by a pin **88** mounted in a lower corner portion of each of the opposed lower end pieces **40** of the marking unit holder **30**. It is the function of opposed pins **88** on each piece **40** to engage edge surfaces **86** of the inwardly projecting cam arms **84** as the marking unit holder and marking unit approach the uppermost inoperative position illustrated in FIG. 1. FIG. 2 illustrates the marking unit **47** and holder **30** in the course of the terminal portion of its upward movement. It will be noted that pin **88** of holder interconnecting arm **42** is illustrated in engagement with cam arm **84** in this latter figure.

When stamping unit **47** is at the upper end limit of its movement, inking pad **72** has been indirectly actuated and urged by pin **88** into engagement with the lowermost distal portion of the marking unit then in use. Thus, automatically with the spring-urged movement, effected by spring **64**, of the marking unit and marking unit holder into the uppermost inoperative position, the inking pad and inking pad holder assembly will be pivotally moved by virtue of engagement of pins **88** with cam arms **84** into the position illustrated in FIG. 4.

It is preferred that outer surface portions of each projecting cam arm or tongue **84** be in frictional engagement with adjacent surface portions of vertical arms **42** of each marking unit holder. In FIG. 4, surface portion **42***a* of arm **42** indicates the surface normally frictionally and slidably engaging inner surface of cam arm **84** in the normal course of stamping device use. As a result of this frictional engagement, pivotal movement of the inking pad and inking pad holder assembly will be facilitated inasmuch as the latter assembly will tend to move in a smooth uniform manner with the holder member **30**, i.e., with inner elongate surface portion **42***a* of each holder arm portion **42**.

In the course of moving the marking unit **47** and holder **32** into the operative stamping position of FIG. 3 by actuating handle **58** so as to compress coil spring **64**, the inking pad and inking pad holder assembly is pivotally moved out of the path of the descending stamping unit and holder. Means effecting the pivotal movement comprises a lower surface portion **90** of holder **30**, more clearly seen in FIG. 4, which underlies the juncture of the vertical arm **42** and lower element **40** of the marking unit holder **30**.

Pivotal movement of the inking pad and holder assembly from the path of the marking unit is also assisted by pivotal action of cam arms **84** which frictionally engage arms **42**, as above indicated. It will be seen from FIG. 4 that as the holder **30** descends (together with the engaged marking unit **47** not illustrated in FIG. 4), edge surface portion **90** will engage elongate, downwardly slanting edge surface **92** of vertical member **78** formed integrally with inking pad holder **70**. FIG. 3 illustrates the inking pad and inking pad holder assembly at the end limit of its downward pivotal movement.

Edge surface **92** of each of the opposed parallel vertical members **78** comprises a cam surface along which opposed lower edge surface portions **90** of the marking unit holder **30** slidably move. As a result of the slidable, frictional engagement between projecting cam arms **84** and engaged longitudinal surface portions **42***a* of vertical arms **42** of the marking unit holder **30**, the pivotal movement of the inking pad and inking pad holder from the path of the descending marking unit will be smooth and not allow a loosely pivoting inking pad and holder assembly when the latter assembly is in the position of FIG. 3.

The end limit of the inking pad and holder pivotal

movement illustrated in FIG. 3 occurs when hump portion 79 of each triangular portion 78 formed integrally with inking pad holder 70 engages outer edge surface portion 42*b* (see FIG. 4) of arm portion 42 of the holder at 81. The latter engagement, while limiting the outermost pivotal movement of the inking pad and holder, allows the marking unit and holder to continue to move downwardly as the hump slidably engages edge surfaces 42*b* until the lower distal end of the marking unit engages an article to be stamped.

It is seen, therefore, that when the illustrated stamping device is manually actuated so as to assume the position of FIG. 3, the inking pad and inking pad holder assembly is pivotally moved from the path of the descending marking unit 47 as a result of the slidable engagement between opposed lower edge surface portions 90 of the marking unit holder and the cam edge surfaces 92 of the opposed vertical triangular members 78 formed integrally with the inking pad holder. When spring 64 is allowed to come into play to return the marking unit holder and marking unit into the vertical position, opposed pins 88 mounted on vertical arm portions 42 of the marking unit holder will engage inwardly projecting cam arms 84 and urge the inking pad into engagement with the lower end limit of the marking unit in the manner illustrated in FIGS. 1 and 2. This latter movement will also be assisted by the frictional slidable engagement between cam arms 84 and surfaces 42*a* of holders 30.

The construction provided enables the inking pad and inking pad assembly to be properly removed from the path of the descending marking unit in the normal stamping operation without the use of springs. Also, the provided construction enables the inking pad and inking pad holder assembly to be desirably pivotally moved into the horizontal position of FIG. 4 without the direct use of a spring or other resilient means. The novel arrangement of cam surfaces and cam actuating portions of the marking unit holder above described enables the inking pad to be properly disposed relative to the marking unit at all times. It is apparent from the drawings in the above description that the means utilized for regulating the disposition of the inking pad and holder are extremely simple in construction and, accordingly, enables servicing or replacement of parts to be effected in a minimum amount of time with a minimum amount of effort. Screws 82 may be readily removed from engagement with projecting members 80 of the stamp frame whereupon the inking pad and holder may be serviced or replaced, after which a new or serviced assembly may be readily put into operating condition.

It is apparent certain modifications may be made in the above-described apparatus which will not remove the same from the scope of this invention. It is intended, therefore, that the above-described invention be limited only by the scope of the appended claims.

I claim:

1. In a marking device having a frame means, reciprocally movable holder means movable between a position of use and a non-operative position guided in the course of movement thereof by said frame means, marking means supportably mounted in said holder means, manually operable actuating means connected to said holder means for moving said marking means into an operative position of use, means connected to said actuating means for biasing said marking means into a non-operative position, the improvement comprising inking means pivotally mounted on said frame means, cam surface means mounted on said inking means and disposed in the path of said holder means when said marking means is moving into an operative position of use whereby said holder means engages said cam surface means, pivotally moving said inking means from the path of said holder and marking means during a portion of said holder means movement; projecting tongue means connected to said inking means adapted to engage a parallel surface portion of said holder means in face-to-face, frictional engagement whereby said inking means may pivotally move relative to said holder means upon initial movement of said holder means and prior to engagement of said holder means with said cam surface means of said inking means.

2. The combination of claim 1 in combination with a projecting pin means secured to an inner surface portion of said holder means engageable with said tongue means when said holder means and marking means approach the non-operative position whereby said inking means is urged into engagement with said marking means in the non-operative position thereof.

3. In a marking device having a frame means, reciprocally movable holder means movable between a position of use and a non-operative position guided in the course of movement thereof by said frame means, marking means supportably mounted in said holder means, manually operable actuating means connected to said holder means for moving said marking means into an operative position of use, means connected to said actuating means for biasing said marking means supported by said holder means into a non-operative position, and inking means pivotally mounted about a fixed axis on said frame means, the improvement comprising at least one projecting tongue means connected to said inking means and adapted to frictionally engage a parallel inner surface portion of said holder means in face-to-face engagement whereby said inking means may be initially pivoted away from the path of said marking means as said marking means initially moves into the operative position, and projecting pin means secured to at least one inner surface portion of said holder means engageable with said projecting tongue means when said holder means and marking means approach the non-operative position whereby said inking means is urged into engagement with said marking means in the non-operative position thereof.

4. In a marking device, the combination comprising frame means, reciprocally movable marking means, holder means for said marking means engageable therewith and guided in the course of said marking means reciprocal movement by said frame means, manually operable actuating means connected to said holder means for moving said marking means engaged by said holder means into an operative position of use, means connected to said actuating means for biasing said marking means engaged by said holder means into a non-operative position, inking means engageable with said marking means when said latter means is in said non-operative position, pivotally mounted on said frame means; cam surface means mounted on said inking means and disposed in the path of said holder means when said marking means is moving into an operative position of use whereby said holder means engages said cam surface means, pivotally moving said inking means from the path of said holder and marking means; and at least one projecting tongue means secured to said inking means continuously frictionally engaging a parallel surface portion of said holder means in the course of said inking means pivotal movement, said tongue means being in face-to-face engagement with said holder means surface portion whereby reciprocal movement of said holder means concomitantly effects pivotal movement of said inking means prior to engagement of said holder means with said inking means.

5. In a marking device having a frame means, reciprocally movable holder means movable between a position of use and an inoperative position guided in the course of movement thereof by said frame means, marking means supportably mounted in said holder means, manually operable actuating means connected to said holder for moving said marking means into an operative position of use, means connected to said actuating means for biasing said marking means connected to said actuating means into a non-operative position, the improvement comprising inking means pivotally mounted on said frame means, said inking means having a cam means adapted to engage

a portion of said holder means and be pivotally moved from the path of said marking means in the course of the movement thereof into the operative position, a portion of said cam means being adapted to slidably engage said reciprocally movable holder means after said inking means has pivoted from the path of said marking means following the pivotal movement of said inking means from the path of said marking means and during a terminal portion of the holder means movement into the operative position; projecting tongue means fixedly positioned on said inking means, and pin means connected to said holder means engageable with said projecting tongue means when said holder means and marking means approach the non-operative position whereby said inking means is urged into engagement with said marking means in the non-operative position thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

199,295	Keeler	Jan. 15, 1878
1,230,391	Folger et al.	June 19, 1917
1,590,905	Rettmer	June 29, 1926
1,850,880	Huntzicker	Mar. 22, 1932
2,075,169	Brown	Mar. 30, 1937

FOREIGN PATENTS

381,383	Great Britain	Oct. 6, 1932