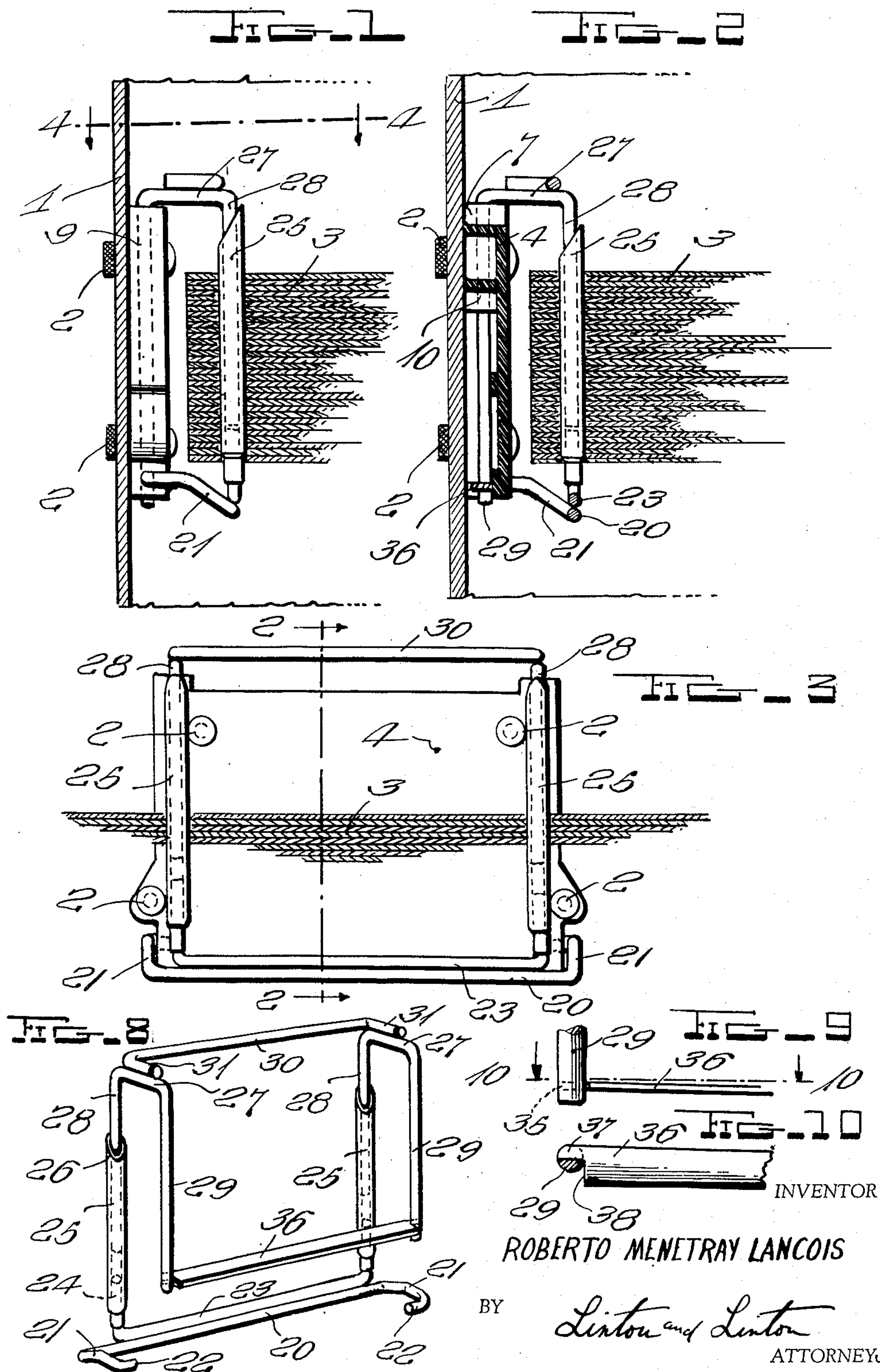


R. M. LANCOIS

LOOSE-LEAF BINDING DEVICE.

Filed Feb. 26, 1951

2 Sheets--Sheet 1



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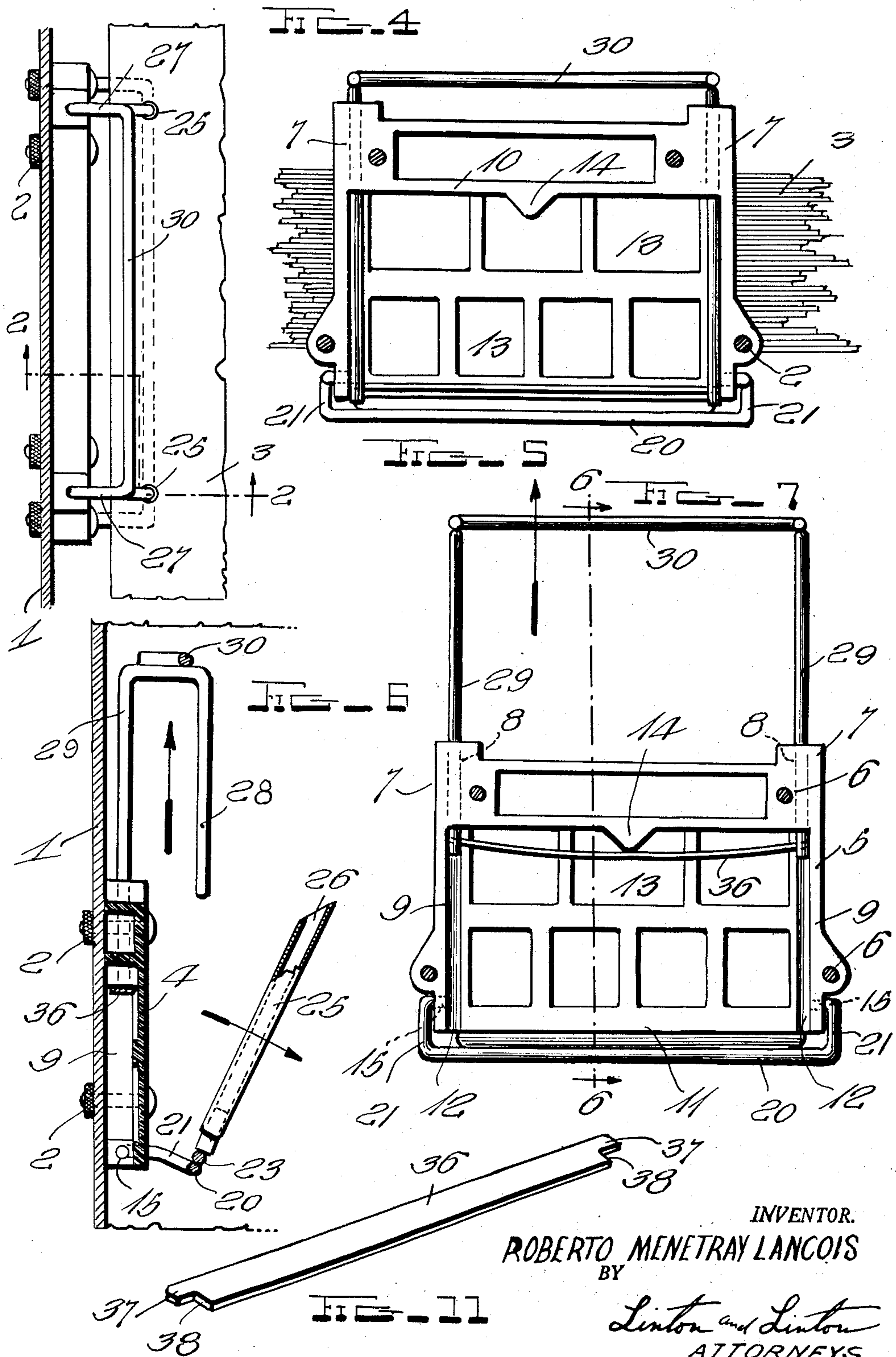
R. M. LANCOIS

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2 Sheets-Sheet 2



INVENTOR.

ROBERTO MENETRAY LANCOIS
BY

Linton and Linton
ATTORNEYS

UNITED STATES PATENT OFFICE

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LOOSE-LEAF BINDING DEVICE

Roberto Menetray Lançois, Barcelona, Spain

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4 Claims. (Cl. 129—8)

I

The present invention relates to binders for holding loose leaves of paper, cardboard or the like and more particularly is directed to a loose leaf retaining device to be mounted within the binder and which is readily releasable for removing or adding additional leaves. The principal object of the present invention is to provide a releasable loose leaf retaining device which will retain a large number of leaves by employing the entire space between the two covers of a loose leaf binder and which device is quickly and easily releasable for adding and removing the leaves.

This application is a continuation in part of applicant's co-pending application Serial No. 177,083 filed August 1, 1950.

A further object of the invention is to provide a loose leaf retaining device for holding a large number of leaves with one leaf directly upon the other and which device is readily releasable, but cannot be accidentally released other than through the direct effort of an operator thereof.

A still further object of the invention is to provide a novel spring arrangement which tends to retain the elements of the loose leaf retaining device together for preventing the loss of the leaves therefrom until the device is released by an operator.

Further objects of the invention will be in part obvious and in part pointed out in the following detailed description of the accompanying drawing wherein:

Fig. 1 is a side elevation of the loose leaf retaining device according to the present invention affixed to a binder and retaining a plurality of leaves;

Fig. 2 is a cross sectional view taken in the same direction as Fig. 1 and upon lines 2—2 of Fig. 3;

Fig. 3 is a top elevation of the loose leaf retaining device;

Fig. 4 is a side elevation of the loose leaf retaining device taken on line 4—4 of Fig. 1;

Fig. 5 is a bottom view of the present device with the leaf retaining elements in their closed position;

Fig. 6 is a cross sectional view taken on line 6—6 of Fig. 7;

Fig. 7 is a similar view as Fig. 5, but with the leaf retaining elements in their extended or open position;

Fig. 8 is a detailed view showing the leaf retaining elements apart from the supporting base;

Fig. 9 is an enlarged detailed view showing a spring bar connected to one of the leaf retaining elements;

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Fig. 10 is taken on line 10—10 of Fig. 9; and, Fig. 11 is an enlarged elevation of the spring bar.

Referring now more particularly to the accompanying drawings wherein like and corresponding parts are designated by similar reference characters, numeral 1 refers to the central back of a conventional loose leaf binder of the type generally produced from stiff cardboard, leather or fiberboard to which the present leaf retaining device is attached by a plurality of rivets 2 or the like with a plurality of superimposed loose leaves 3 retained by the device.

The loose leaf retaining device consists of a rectangular base block having a relatively flat top 4 through which extends a plurality of openings 6 for the passage of the rivets 2. Extending downwardly from the front corner of top 4 is a pair of solid sections 7 through which extend parallel bores 8. A pair of parallel side walls 9 extend along the sides of top 4 from the sections 7 and an intermediate wall 10 extends between said side walls 9 and with the same defines an open end rectangular recess 11 in the bottom of the base block. Said bores 8 extend from the front of the base block to the recess 11 and a pair of parallel grooves 12 extend contiguously from said bores 8 across the bottom face of top 4. Said bottom face of top 4 is strengthened by a plurality of ribs forming recesses 13. Said lateral wall 10 has a wedge-shaped stop 14 extending from the side thereof into the recess 11.

Side walls 9 further have a pair of openings 15 formed therethrough near the rear of the base block. A rod 20 having oppositely extending J-shaped end portions 21 has each of the free ends 22 pivotally mounted within one of said openings 15. A U-shaped rod 23 is fixedly attached to rod 20 by welding, soldering or the like and the arms 24 thereof are each inserted within a tube 25 and fastened thereto. As shown in Fig. 6, the tube 25 is thereby pivotally connected to the base block and extends parallel to said bores 8 and thus forms one section of the loose leaf retaining elements.

A pair of U-shaped rods 27 each have a straight arm 29 thereof slidable within one of said bores 8 and into the recess 11. The second arm 28 of each U-shaped rod slides with said arm 29 but into the bore 26 of tube 25. The pair of U-shaped rods are maintained parallel and connected by a further U-shaped rod 30 whose arms 31 are affixed by soldering, welding or the like to the bases 27.

The free ends of arms 29 within recess 11 each

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have a lateral slot 35 formed therein and facing their respective groove 12. A rectangular elongated spring bar 36 extends across said recess 11 with each of its end tongues 37 extending in one of said slots 35. Tongues 37 are in sliding contact with the bottom face of base top 4 and are thus retained in said slots 35 causing bar 36 to move with said arms 29 upon the sliding thereof. Said bar 36 is made from a resilient material such as steel, plastic or the like and is of a width substantially equivalent to the depth of walls 9 and 10.

The base block may be suitably molded from plastic or stamped from metals or other stiff materials, while the rods 20, 23, 27, 30 are preferably of a metal, but may also be formed from relatively stiff materials.

The present loose leaf retaining device is affixed to the center back section 1 of a loose leaf binder by rivets 2 extending through openings 6. For the purpose of adding or taking away leaves, rod 27 is slid from the base block pulling arm 29 through bores 8 and arm 28 from bore 26. The movement of arms 29 continues until bar 36 contacts stop 14 whereby it is necessary to pull against the resiliency of said bar 36 for completely withdrawing arm 28 from tube 25. Stop 14 is positioned for contacting bar 36 just before arm 28 is withdrawn from tube 25 for preventing the accidental withdrawal therefrom. The retaining device is then in the position shown in Figs. 6 and 7, whereupon the leaves may be impaled upon the tubes 25 as shown in Figs. 1 and 2. Tube 25 can then be pivoted towards top 4 of the base block and arm 28 inserted within the bore 26 thereby releasing bar 36 from stop 14 and locking the leaves in place. Rod 27 is continued inwardly until in the position of Figs. 1 and 2 and 4 whereupon the binder can be closed by closing the covers on each side of the central back as the length of the rods 27, 20 and 25 when in their closed position is substantially equivalent of the width of the central back of the loose leaf binder.

The arms 29 sliding through bores 8 are caused to bear downwardly towards the grooves 12 thereby retaining the tongues 37 between the slots 35 and the bottom face of said top 4 allowing the bar 36 to slide within the recess, but firmly attached to the arms 29.

The present invention is capable of considerable modification and such changes thereto as come within the scope of the appended claims are deemed to be a part of the invention.

I claim:

1. A releasable loose leaf retaining device for use in combination with loose leaf binders comprising a base block formed for being mounted with its bottom face against the interior of the back of the loose leaf binder, said block having a pair of bores formed in one side thereon, said block further having a recess formed in the bottom face thereof, a pair of tubular arms pivotally connected to said base, a pair of connected U-shaped rods each having an arm thereof slidably mounted through one of said bores into said block recess, the second arm of each of said U-shaped rods being detachably mounted in one of said tubular arms, resilient means connecting said arms of said U-shaped rods within said block recess for preventing the withdrawal of said arms from within their respective bore and a stop positioned in said base recess for being contacted by said resilient means just prior to the separation of said second arms from said tubular arms

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and thereby tending to restrain the complete withdrawal of said second arms from said tubular arms.

2. A releasable loose leaf retaining device for use in combination with loose leaf binders comprising a substantially flat rectangular base block formed for being mounted with its bottom face against the interior of the back of the loose leaf binder, said block having a pair of parallel bores formed therein each at an opposite end of one side of said block, said block having a recess formed in the bottom face thereof with said bores opening thereinto, a pair of U-shaped rods each having an arm slidably mounted through one of said block bores and extending into said block recess, a pair of tubular arms extending parallel to said block bores and being pivotally connected to said block, the second arm of each of said U-shaped rods being slidable longitudinally within and detachable from one of said tubular arms and resilient means connecting said arms of said U-shaped rods within said block recess for preventing the withdrawal of said arms from within their respective bore and a stop positioned in said base recess for being contacted by said resilient means just prior to the separation of said second arms from said tubular arms and thereby tending to restrain the complete withdrawal of said second arms from said tubular arms.

3. A releasable loose leaf retaining device for use in combination with loose leaf binders comprising a substantially flat rectangular base block having a recess provided in the bottom thereof and formed for being mounted with said bottom against the interior of the back of the loose leaf binder, said block also having a pair of substantially parallel bores formed therein extending from one side thereof to said recess, a pair of U-shaped rods each having one arm slidable in one of said bores and extending into said recess, a pair of tubular arms pivotally connected to said block and each having one of the second arms of said rods slidable and detachably positioned therein, and a resilient elongated bar connected to the ends of and extending between said arms within said recess for preventing the withdrawal of said arms from said bores, and a stop formed in said recess positioned for being contacted by said resilient bar when the end portion of said second arms are within the open end portion of said tubular arms during the outward movement of said rods for tending to restrain the separation of said arms.

4. A releasable loose leaf retaining device as claimed in claim 1 wherein each arm within the block recess has a lateral slot formed therein facing the top face of said recess, and said resilient bar has a tongue formed at each end with each tongue positioned within one of said slots and extending between said bar and the top face of said recess for being retained in its respective slot by contact with the face of said recess.

ROBERTO MENETRAY LANÇOIS.

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