A. FRANKEL.

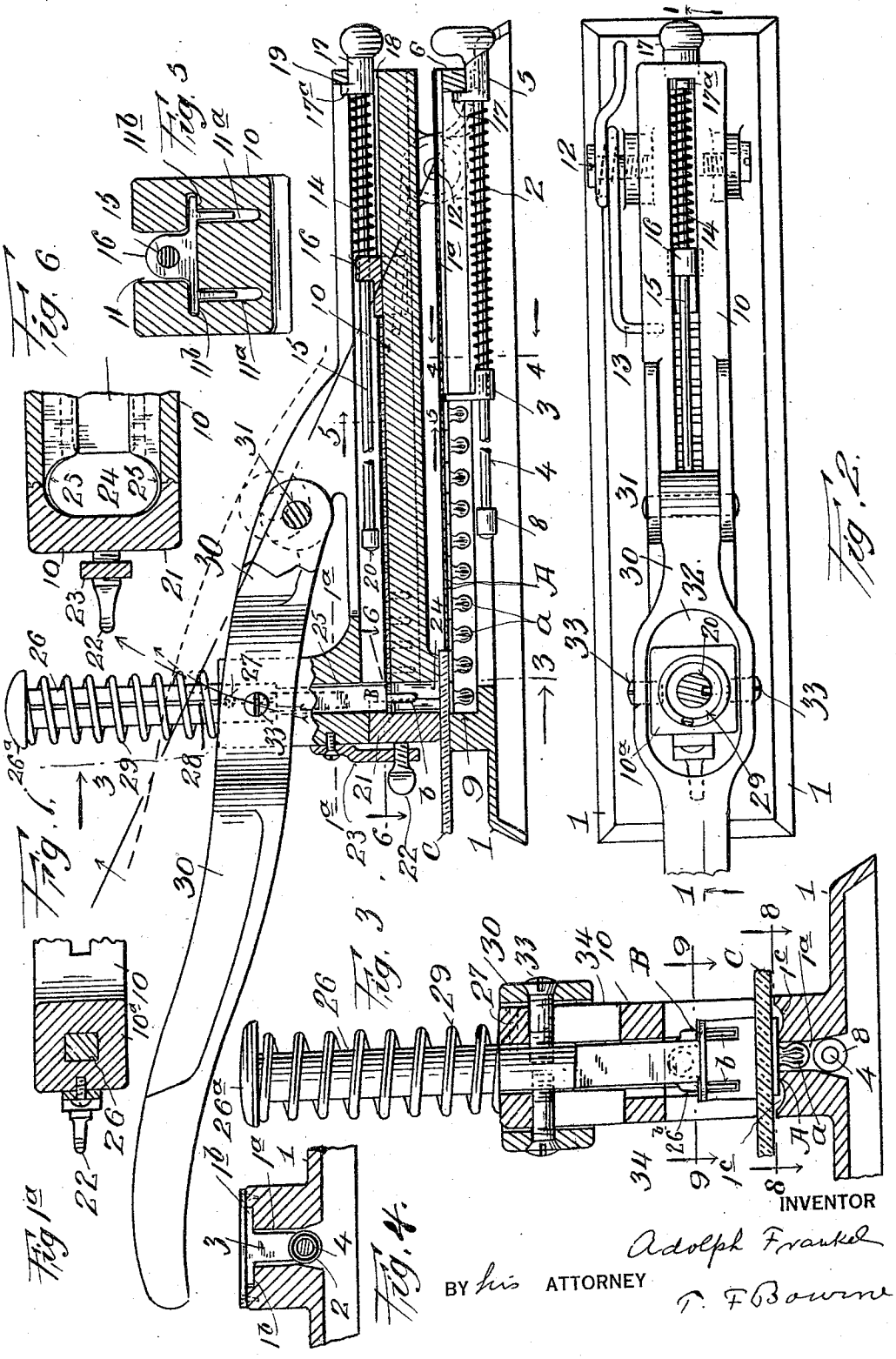
MACHINE FOR SETTING SNAP FASTENERS.

APPLICATION FILED MAR. 18, 1921.

1,415,330.

Patented May 9, 1922.

2 SHEETS—SHEET 1.



INVENTOR

Adolph Frankel

BY his ATTORNEY

T. F. Bowers

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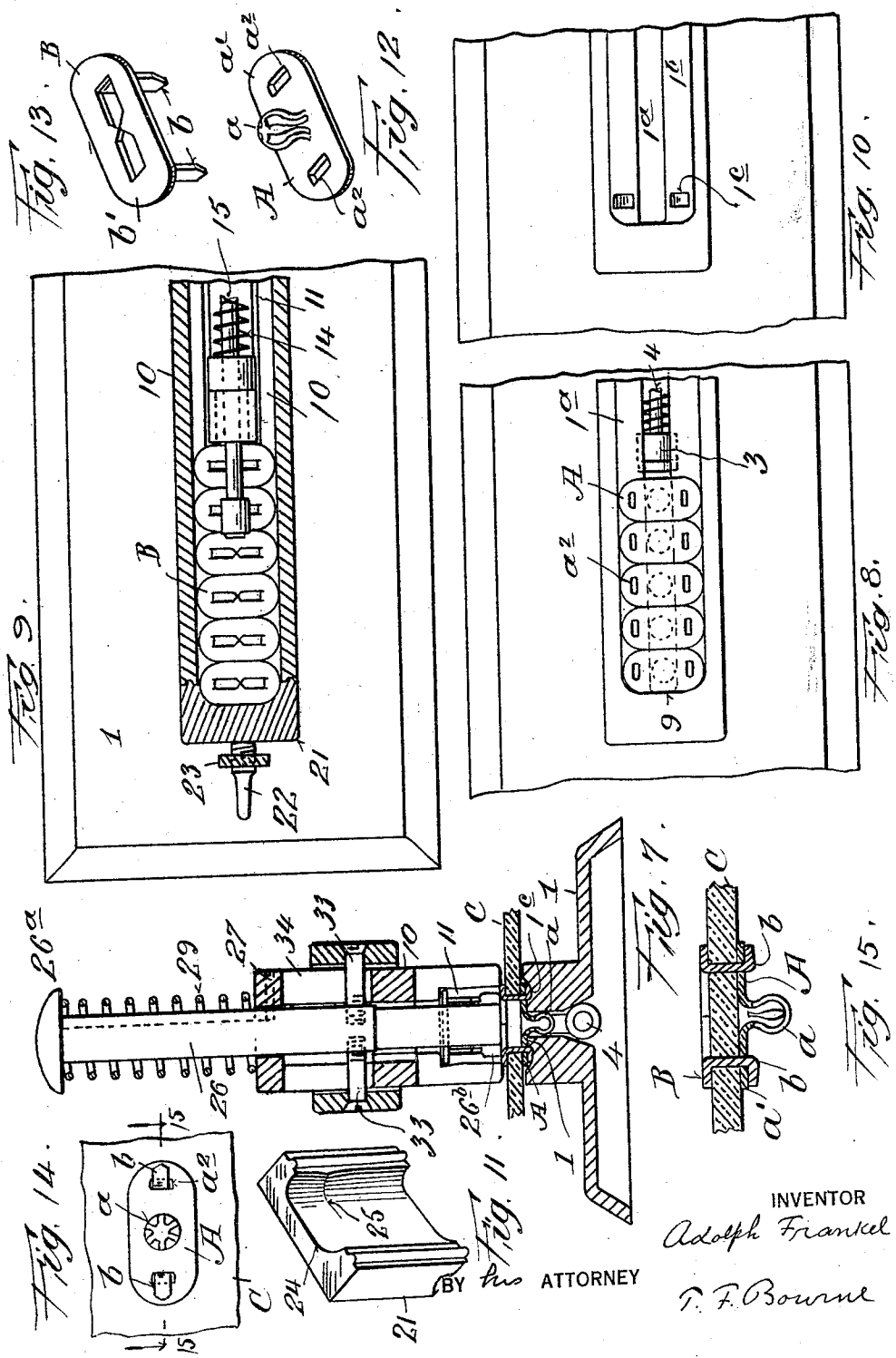
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INVENTOR

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UNITED STATES PATENT OFFICE.

ADOLPH FRANKEL, OF NEW YORK, N. Y.

MACHINE FOR SETTING SNAP FASTENERS.

1,415,330. Specification of Letters Patent. Patented May 9, 1922.

Application filed March 18, 1921. Serial No. 453,303.

To all whom it may concern:

Be it known that I, ADOLPH FRANKEL, a citizen of the United States, and resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Machines for Setting Snap Fasteners, of which the following is a specification.

The object of my invention is to provide means to assemble complemental members of snap fasteners upon cloth or other desired material, to cause the prongs of one member to pass through the material and through the other member and to be clenched against said member.

My invention comprises a machine having spaced guideways for the members of the snap fastener, means to separately propel said members along said guideways, and means to cause the prongs of one member to pass through the other member and to be clenched against the latter member upon the operation of a plunger.

My invention also comprises novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein—

Fig. 1 is a longitudinal section on line 1, 1 in Fig. 2; Fig. 1ª is a detail section on line 1ª, 1ª, in Fig. 1; Fig. 2 is a plan view of Fig. 3; Fig. 3 is a vertical section on line 3, 3 in Fig. 1; Figs. 4, 5 and 6 are sections on lines 4, 4,—5, 5, and 6, 6, respectively, of Fig. 1; Fig. 7 is a view substantially similar to Fig. 3, showing the parts in assembling position; Figs. 8 and 9 are detail horizontal sections substantially on the lines 8, 8, and 9, 9, respectively, in Fig. 3; Fig. 10 is a detail view substantially similar to Fig. 8, parts being omitted; Fig. 11 is a fragmentary perspective view of part of the guiding means for the pronged member of the snap fastener; Figs. 12 and 13 are perspective views of the members of the snap fastener; Fig. 14 is a detail view illustrating the assembled fastener members, and Fig. 15 is a section on line 15, 15 in Fig. 14.

Similar characters of reference indicate corresponding parts in the several views.

Numeral 1 indicates the base of the machine which has a longitudinal guideway 1ª to guide the members A of the snap fastener. The guideway 1ª has a central open portion for the passage of the projections *a* of members A and recessed portions 1ᵇ upon which the base parts *a'* of said members are guided. The members A are placed in the guideway 1ª with the projections *a* depending and said members are fed in series by means of a spring 2 that pushes a slide member 3 along a guide-rod 4 detachably mounted in the base (Fig. 1). Rod 4 has a head 5 fitted in an opening 6 in the base, said head being provided with a projection 7 to bear against the base to lock the rod in position against the pressure of spring 2. By rotating the head 5 the rod and the spring with the slide 3 may be removed and released when the supply of members A are to be fitted to the guideway 1ª. A stop 8 on rod 4 limits the movement of slide 3. At the inner end of guideway 1ª the recessed parts 1ᵇ are formed curved at 1ᶜ, in the nature of an anvil, to cause clenching of the prongs *b* of the staple-like clamp members B of the snap fastener (Fig. 3). The prongs *b* may be stamped from the metal of the members B. Members A have slots or openings a^2 through which the prongs *b* are passed to be clenched against the base portion of said members (Fig. 15). The member A to be fastened to the cloth or other article C is stopped in assembling position by an abutment 9 at the adjacent end of guideway 1ª (Figs. 1 and 8).

Above guideway 1ª is an arm or member 10 having a longitudinal guideway 11 to receive the fastener members B with their prongs *b* adapted to travel in slots 11ª of said guideway with the base portions *b'* of said members resting upon the ledges 11ᵇ of the guideway, (Fig. 5). The arm 10 is shown pivotally supported at 12 upon base 1, and may be normally raised from the base by a spring 13 shown coiled upon pivot 12 and bearing at one end against the base and at the other end against arm 10. The members B are fed forwardly by means of a spring 14 shown coiled around a rod 15 located in guideway 11 and having a slide 16 pressed by the spring against a row or series of members B in the guideway. Rod 15 is shown provided with a head 17 having a projection 17ª, which head operates in an opening 18 at the end of guideway 11 and may be withdrawn by rotating said head,

the projection 17^a retaining the rod in place in the guideway by abutting against a stop 19 at the end of the guideway, (Fig. 1). A head 20 on rod 15 limits movement of slide 16. The end-most member B (Fig. 1) abuts against a stop 21 carried by arm 10 to cause registering of the prongs b of member B with the slots a^2 of member A beneath the endmost member B. The stop 21 is shown made adjustable whereby the prongs b may be caused to properly register with the slots a^2 of member A. The stop 21 is shown retained in position by a screw 22 meshing in a threaded hole in a support 23 on arm 10 (Fig. 1). The abutment or stop 21 is recessed vertically in opposition to a corresponding recessed end of arm 10 providing a vertical passage 24 for members B (Figs. 1 and 6). The upper portion of the inner surface of abutment 21 and the corresponding surface of recess 24 at the end of arm 10 are made slightly indented at 25 to provide a ledge upon which the end portions of the members B will hang to be pushed toward the members A beneath the same (Figs. 6 and 11). Arm 10 is provided with a vertical guideway 25 receiving a plunger 26. A projection 27 on the arm 10 is slidable in a guideway 28 in plunger 26, whereby plunger 26 is slidably retained from rotating. A spring 29 shown coiled around plunger 26, bearing at one end against head 26^a on plunger 26 and at the other end against arm 10, serves normally to raise the plunger, the projection 27 limiting upward movement of the plunger by engaging the metal at the lower end of guideway 28 (Fig. 3). The lower end of the plunger is adapted to engage members B to push them toward members A through the fabric C, the lower end of plunger 26 being shown enlarged at 26^b to bear upon members B over their prongs b. A lever 30 is shown pivoted on member 10 at 31 and provided with an opening 32 receiving up-right portion 10^a of arm 10, said lever having projections or screws 33 operating in slots 34 in said member and engaging plunger 26. The upward movement of the plunger is limited by the screws 33 engaging the metal at the upper ends of slots 34, and the downward movement of the lever pushes the plunger to drive members B through fabric C and members A, and clench prongs b.

When my improved machine is to be used a supply of members A, B, is placed in the respective guideways 1^a, 11^a, with the slides 16 and 3 pushing said members to be stopped at the abutments 9 and 21 respectively. Arm 10 is raised and the fabric or the like is placed upon the base 1 in the required position over the member A at abutment 9. Arm 10 is then lowered to rest upon the fabric and lever 30 is depressed, causing plunger 26 to descend to push the endmost member B from guideway 24, to cause its prongs b to pierce the fabric C and to pass through the slots a^2 of member A, the anvils 1^c causing the prongs b to be clenched against the base portion of member A to clamp the fabric between the members A, B, of the fastener, (Figs. 7, 14, and 15). Member 10 will be raised to permit withdrawal of fabric C having the snap fastener member attached.

My invention provides a simple and efficient machine for expeditiously and cheaply attaching snap fasteners of the class specified to fabric. While I have illustrated the member A as one member of a snap fastener it will be understood that the member B may be used for attaching a different fastener member to the fabric. The member A may be considered the male member of the fastener adapted to cooperate with a corresponding complemental female member. Snap fasteners such as herein illustrated are shown in my U. S. Letters Patent No. 1,391,250, granted September 20, 1921, which are adapted to be attached to fabric by means of my improvements herein set forth.

While I have referred to the particular character of fastener members to be assembled on fabric it will be understood that my invention may be used to assemble members other than the particular snap fastener referred to, and that the details of construction set forth may be varied within the scope of the appended claims without departing from the spirit of my invention.

Having now described my invention, what I claim is:—

1. The combination of a base having a longitudinal guideway, means tending constantly to feed a plurality of members in the guideway, an arm over the base having a longitudinal guideway opposed to the first named guideway, means to feed members in the second named guideway, said arm and base being movable relatively one to another to receive fabric therebetween, abutments at the ends of said guideways to retain members over one another, and a plunger operative relatively to said guideways to push members from the second named guideway to members in the other guideway through the interposed fabric.

2. The combination of a base having a longitudinal guideway, means to feed a plurality of members along the guideway, an arm over the base having a guideway opposed to the first named guideway, means to feed members in the second named guideway, said arm and base being movable relatively one to another to receive fabric therebetween, and a plunger operative relatively to said guideways to push members from the second named guideway to members in the other guideway through the interposed fabric, the base having anvil means coincident

with and at the end of its guideway to cause clenching of prongs from the second named members.

3. The combination of a base having a guideway, means to feed members in the guideway, an arm over the base having a guideway opposed to the first named guideway, means to feed members in the second named guideway, said arm and base being movable relatively one to another to receive fabric therebetween, and a plunger operative relatively to said guideways to push members from the second named guideway to members in the other guideway through the interposed fabric, said arm having an adjustable abutment to oppose the members in the guideway of said arm.

4. The combination of a base having a longitudinal guideway, a slide to push members through the guideway, a guiding rod for said slide, a spring to operate the slide, an arm movably carried on the base and having a guideway opposed to the first named guideway, a slide in the second named guideway to feed members therein over the first named members, guiding means for said slide, a spring to push said slide, abutments for members at corresponding delivery ends of said guideways, and a plunger adapted to push members from the second named guideway to force the prongs of said members through fabric and through slots in the first named members, said arm having means to guide said plunger.

5. The combination of a base having a longitudinal guideway to receive members, means to feed a plurality of members constantly through said guideway, an arm movably carried by said base and having a longitudinal guideway opposed to and parallel with the first named guideway, means to feed members through the second named guideway, abutments at the delivery ends of said guideways, and a plunger to push members from the second named guideway toward the first named members, said arm having means to guide said plunger in position to obstruct the feeding of said members in the second named guideway when the plunger is depressed.

6. The combination of a base having a longitudinal guideway to receive members, resilient means tending constantly to feed members through said guideway, an arm movably carried by said base and having a longitudinal guideway opposed to and parallel with the first named guideway, means to feed members constantly through the second named guideway, abutments at the delivery ends of said guideways, to resist feeding of said members to register the endmost members in the guideways, a plunger to push members from the second named guideway toward the first named members, said arm having means to guide said plunger, anvil means at the end of the first named guideway, and a spring cooperative between said base and arm to normally raise the latter from the base, the plunger being over the anvil means to clench staples thereon.

7. The combination of a base having a longitudinal guideway to receive members, means to feed members through said guideway, an arm movably carried by said base and having a longitudinal guideway opposed to and parallel with the first named guideways, means to feed members through the second named guideway, abutments at the delivery ends of said guideways, and a plunger to push members from the second named guideway toward the first named members, said arm having means to guide said plunger and having a recess at the delivery end of the second named guideway provided with ledges to temporarily support members fed from the guideway beneath the plunger.

Signed at New York city, in the county of New York, and State of New York, this 15th day of March, A. D. 1921.

ADOLPH FRANKEL.