

No. 865,786.

PATENTED SEPT. 10, 1907.

J. H. LIPPKE & R. M. BABIN.

LOCK SAFETY PIN.

APPLICATION FILED DEC. 12, 1906.

Fig. 1.

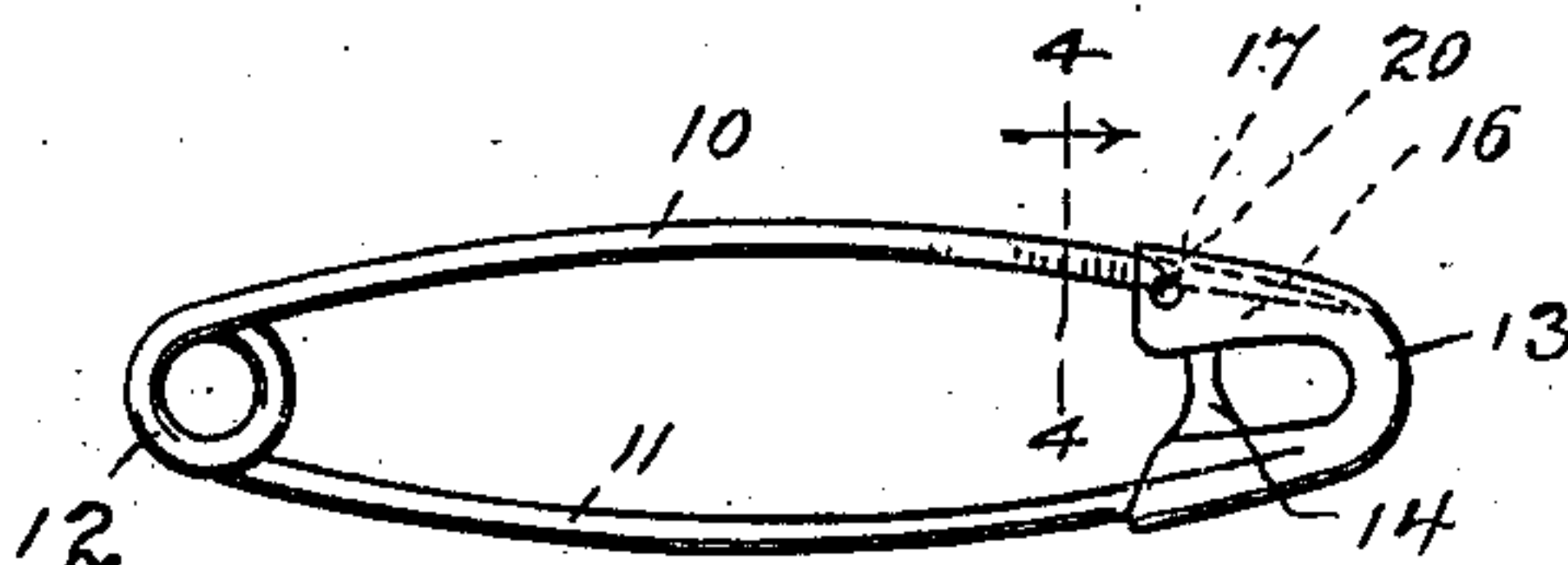


Fig. 2.

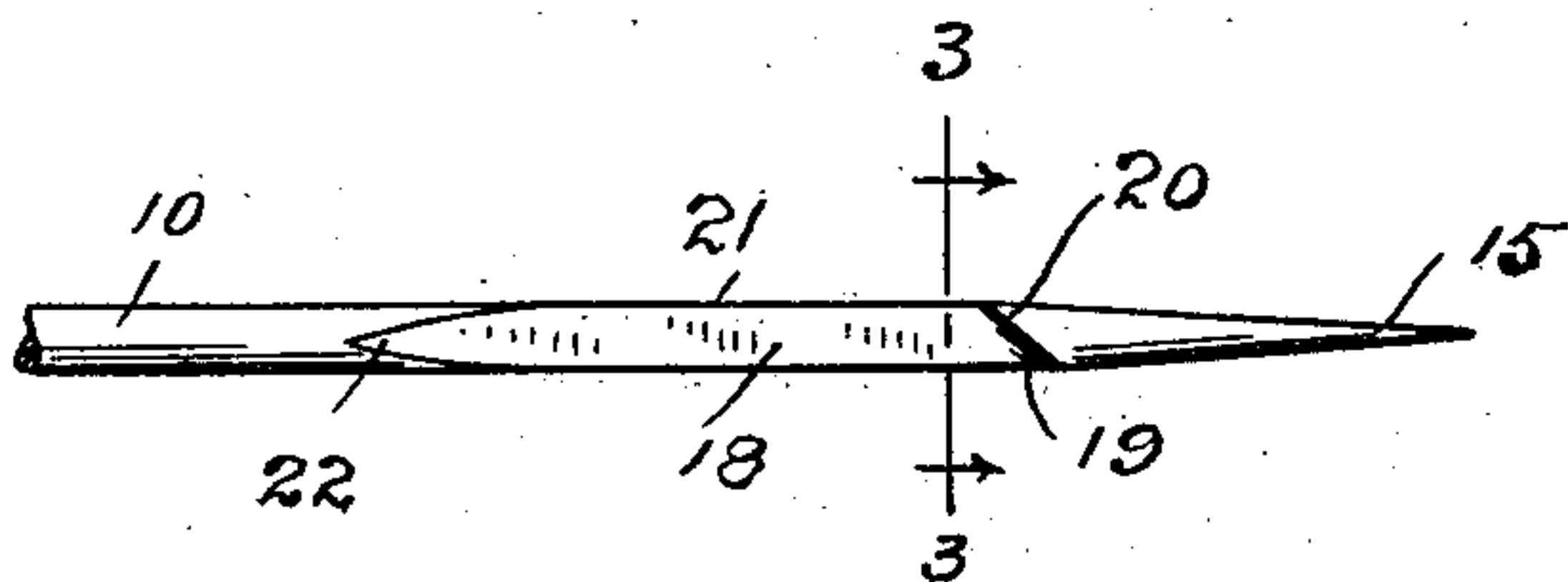


Fig. 3.

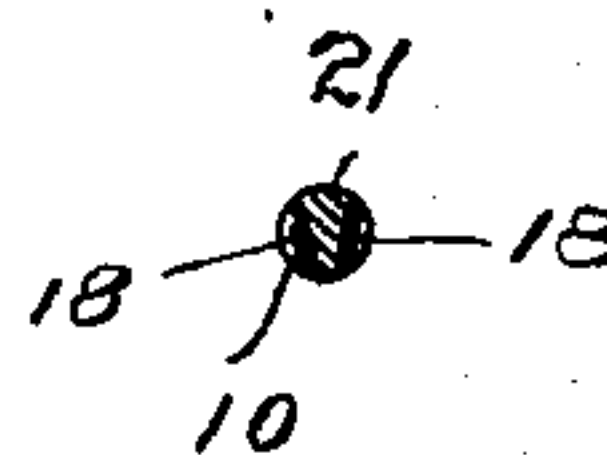
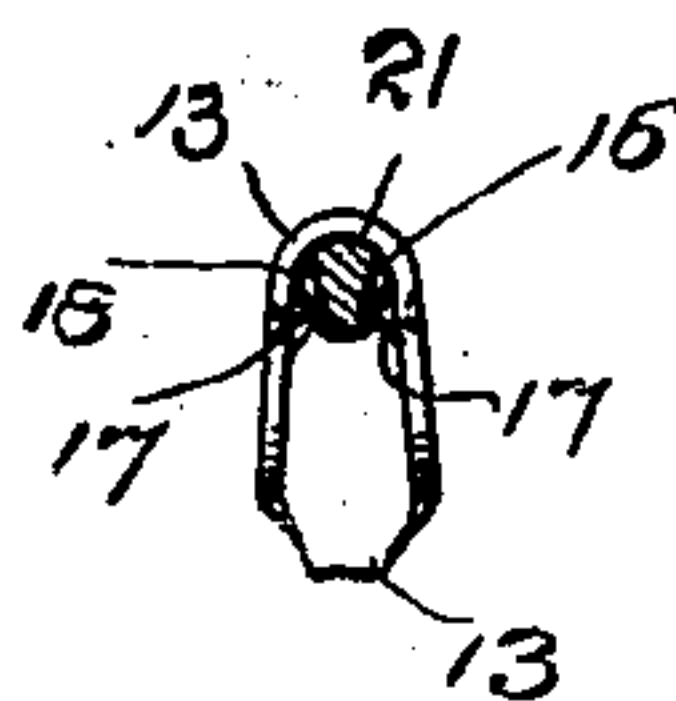


Fig. 4.



WITNESSES

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LOCK SAFETY-PIN.

No. 865,786.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed December 12, 1906. Serial No. 347,494.

To all whom it may concern:

Be it known that we, JOHN H. LIPPKE and ROBERT M. BABIN, citizens of the United States, residing at Waterbury, county of New Haven, and Oakville, county of Litchfield, State of Connecticut, have invented a new and useful Lock Safety-Pin, of which the following is a specification.

This invention has for its object to produce a lock safety pin having a point free from projections, enlargements or roughness to prevent its being passed into or removed from the fabric on which the pin is used, in which the point shall be locked in the engaged position in such a manner that it cannot be disengaged by spreading the arms of the pin apart or by any kind of a pull upon the pin itself or upon the fabric with which it is engaged but can only be removed by springing the pin inward in the ordinary way, and which shall be so simple in construction that the number of operations in producing it shall be reduced to the minimum, thereby reducing the cost of construction to practically that of ordinary plain safety pins, so that our novel lock safety pin may be sold at retail at the price of ordinary plain safety pins.

With these and other objects in view we have devised the novel lock safety pin, of which the following description in connection with the accompanying drawing is a specification, reference characters being used to indicate the several parts:

Figure 1 is an elevation of our novel safety pin with the point in the locked position; Fig. 2 an enlarged detail view of the point; Fig. 3 a section on the line 3—3 in Fig. 2 looking in the direction of the arrows; and Fig. 4 is a section on the line 4—4 in Fig. 1, looking in the direction of the arrow.

Our novel safety pin consists of the usual arms 10 and 11 formed from a single piece of round wire having at approximately its mid-length one or more coils 12 to provide the necessary spring for the arms. At the free end of arm 11 is rigidly secured a shield or guard 13. This shield is made of sheet metal and is of ordinary construction. The shield may or may not be provided with a guide 14 to prevent the point, indicated by 15, from passing laterally through the shield and to assist in placing the point within the locking recess in the shield, indicated by 16.

17 denotes bumps or projections on the inner side of the shield which extend into the locking recess near the rear end thereof. These bumps or projections may be formed in any suitable manner as by swaging inward the metal of the shield on opposite sides of the locking recess.

The essential feature of novelty of our improved lock pin consists in providing arm 10 on opposite sides thereof with forwardly and inwardly inclined and

downwardly and inwardly inclined recesses or depressions 18 having forwardly and downwardly undercut front walls 19, said recesses being preferably formed by swaging. The shape of these recesses will be readily understood from Figs. 2 and 3. The downwardly undercut front wall 19 of each recess forms a rearwardly tapering wedge 20 on each side of and proximate to the point of the pin. The recesses are shallowest at the top and deepest at the bottom, so that arm 10 in cross section through the neck, indicated by 21, shows a downward and inward taper on each side, as clearly shown in Fig. 3. The rear ends of the recesses run out upon the full cross section of the wire as at 22.

The operation will be readily understood from Fig. 1. When the point is passed into the locking recess in the shield the relatively broad upper side of the neck 21 of arm 10 will just pass between bumps 17 and the upper ends of the undercut inclines 19, *i. e.* the rear ends of wedges 20, will lie just in front of the bumps. Any backward pull upon arm 10 or any tendency to spread the arms of the pin apart when the point is lying in the locking recess, will draw the wedges 20 backward, and will lock said wedges between the bumps and the bottom of the locking recess, as is clearly shown in Fig. 1. To disengage the point of the pin from the locking recess when the wedges have been drawn backward, a slight forward movement of the point in connection with an inward movement may be required. Under ordinary circumstances, the usual inward movement of the point of the pin is all that is required to disengage it from the locking recess. As the recesses 18 run out upon arm 10 and as the points of wedges 20 project rearwardly, there is no portion of the pin presenting any appreciable obstruction to prevent the point from being just as easily inserted into a fabric or withdrawn therefrom as the point of an ordinary plain safety pin.

Having thus described our invention, we claim:

1. A safety pin comprising arms one of which is provided with a shield having a locking recess and bumps projecting into said recess near the rear end thereof, and an arm provided with a point and on each side back of the point with a forwardly and inwardly and downwardly and inwardly inclined and forwardly and downwardly undercut recess, whereby rearwardly tapering wedges are formed which when drawn between the bumps and the bottom of the locking recess prevent the disengagement of the point therefrom.

2. A safety pin comprising arms one of which is provided with a shield having a locking recess and bumps projecting into said recess, the other arm being provided with a point and on each side back of the point with a downwardly and inwardly inclined and forwardly and downwardly undercut recess, whereby rearwardly tapering wedges are formed, substantially as described, for the purpose specified.

3. In a safety pin, the combination with an arm provided with a shield, of an arm provided with a point and on each side back of the point with a downwardly and inwardly inclined and forwardly and downwardly undercut
5 recess, whereby rearwardly tapering wedges are formed each side of the rear end of the point.

4. In a safety pin, the combination with an arm provided with a shield, of an arm provided with a point and on each side back of the point with a recess having its
10 forward wall downwardly and forwardly undercut to form a rearwardly tapering wedge, substantially as described, for the purpose specified.

5. A safety pin comprising arms one of which is provided with a shield having inwardly extending bumps, the other arm having a point and back of the point recesses
15 with forwardly and downwardly undercut forward walls whereby rearwardly tapering wedges are formed.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN H. LIPPKE.
ROBERT M. BABIN.

Witnesses:

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JAMES A. HYNES, Jr.