



# UNITED STATES PATENT OFFICE.

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## JOINT FOR SHEARS.

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*To all whom it may concern:*

Be it known that I, ALFRED JACOB KRANK, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Joints for Shears, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in joints for shears, scissors, and similar implements.

The object of my invention is to provide means for uniting the blades of the shears, or similar instruments, so that they may be readily taken apart, when desired, for the purpose of cleaning or sharpening them, yet will always be held in close contact when together.

Another object of my invention is to provide means for keeping the edges of the blades in close contact throughout their entire lengths during the cutting operation.

My invention consists of such features, details and combinations of parts as will be described, first, in connection with the accompanying drawings, and then particularly pointed out in the claims.

In the drawings—Figure 1 is a plan view of one form of shears embodying my invention, the blades being in their closed position. Fig. 2 is a similar view, taken from the opposite side. Fig. 3 is a view similar to Fig. 1, but showing the blades in their open position. Fig. 4 is a section on the line 4—4, Fig. 1. Fig. 5 is a section on the line 5—5, Fig. 4. Fig. 6 is a perspective view of the spring plate. Fig. 7 is a bottom plan view of the same. Fig. 8 is a detail view of the pins and blocks, taken apart. Figs. 9 and 10 are detail views of portions of the blades, showing the slots. Fig. 11 is a side elevation of one form of pin.

Referring to the drawings, A is one blade provided with an arc-shaped or segmental slot, *a*, and with a pin-hole, *a'*, located forward of the slot, *a*. B is the other blade, also provided with a segmental or arc-shaped slot, *b*, and with a screw-threaded hole, *b'*, the latter being in the rear of the slot, *b*.

Into the slot, *a*, of the blade, A, is placed a segmental cam-block, C, of such size as to slide freely in its slot, and having a pin-hole, *c*, through which is passed a pin, E, which has a screw-head, *e*, and a threaded end, *e'*, screwed into the threaded hole, *b'*, of the blade, B. Into the slot, *b*, of the blade, B, is placed a fulcrum-block, F, also segmental in shape and provided with a pin-hole, *f*, through which is passed a fulcrum-pin, G, having a head, *g*, its other end being provided with a series of notches, *g'*, the pin, G, passing through the hole, *a'*, in the blade, A, and having its notched end projecting beyond the said blade, A. Between the head, *g*, and the blade, B, is placed a washer, H, as will be plain from the drawings.

I is a spring plate, preferably of the form shown in the drawings, being provided with a central opening, *i*, which, instead of being drilled through the plate at right angles, is inclined upward and toward the rear end of the plate, as shown in Figs. 4 and 6. A tongue, *i'*, is stamped up from the plate, the end being sharpened, as shown. The front end of the plate is recessed on its under side, at *i<sup>2</sup>*, while the rear end has a downward curve, as shown at *i<sup>3</sup>*.

The spring plate is placed over the pin, G, the notched end, *g'*, of the latter, entering the hole, *i*, and the sharpened end of the tongue, *i'*, entering one of the notches in the pin, G, while the opposite inner edge of the pin-hole enters the other notch, the recessed end, *i<sup>2</sup>*, resting upon the outer side of the blade, A, while the curved end, *i<sup>3</sup>*, bears upon the handle-portion of the blade, A, the elasticity of the plate thereby clamping the fulcrum-pin tightly, and tending to hold the blades in close contact throughout their entire length. As the spring-tongue, *i'*, projects above the plane of the spring plate, I, the said spring tongue engages a notch above the plane of said spring plate and thereby tends to force the notched end of the pin toward the handles of the shears, whereby the forward edge of the pin-head, *g*, is forced tightly against the blade, B, forward of the pivotal point, thus keeping the cutting edge of the said blade, B, in close contact with the blade, A.

To separate the blades, it is only necessary

to turn the spring-plate, I, at right angles to the length of the blade, A, when, the ends being no longer in contact with the blade, the plate may be removed and the fulcrum-pin taken out.

By drilling the hole in the spring-plate at an incline instead of straight, the pin, G, is held firmly by the spring plate, and all wear of the blades, by moving in contact with each other, is taken up by the pressure of the spring.

The pin, G, may be provided with a series of pairs of notches, as shown in Fig. 11, whereby the tension of the spring plate, I, may be adjusted, by engaging it with any desired pair of the notches, as  $g'$ ,  $g^2$ , or  $g^3$ , Fig. 11. By this construction, the range of usefulness of the spring plate, in its function of taking up the wear, is increased.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a pair of blades, and a pin passing through both blades and provided with a head at one end and notches at the other, of a spring-plate engaging one of the notches and provided with a spring tongue engaging another notch above the plane of the spring plate, substantially as set forth.

2. The combination, with a pair of blades, and a pin passing through both blades and provided with a head at one end and notches at the other, of a spring plate having a hole drilled through it at an angle to its face, through which the pin passes, the spring plate being also provided with a spring tongue pro-

jecting above the plane of the spring plate, substantially as set forth.

3. The combination, with a pair of blades, and a pin passing through the openings in both blades and provided with a head at one end and a pair of notches at the other end, of a spring plate resting on one of the blades and provided with a spring tongue projecting above the plane of the spring plate, the said spring tongue engaging one of the notches in the pin, the other notch in said pin being engaged by the lower opposite inner edge of the pin hole in the spring plate, substantially as set forth.

4. The combination, with a pair of blades, each having a curved slot and a pin hole, a segmental block for each slot, each block being loosely movable in its slot, and a pin passing through each block, one pin being screwed into the pin-hole of one blade, and the other pin projecting through the pin hole in the other blade, and provided with notches, of a spring plate resting on one of the blades and having a spring tongue, the spring tongue engaging one of the notches in the pin, the other notch being engaged by the lower opposite inner edge of the pin-hole in the spring plate through which the notched pin passes, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED JACOB KRANK.

Witnesses:

F. O. HAMMER,  
ALBERT A. E. HAMMER.