

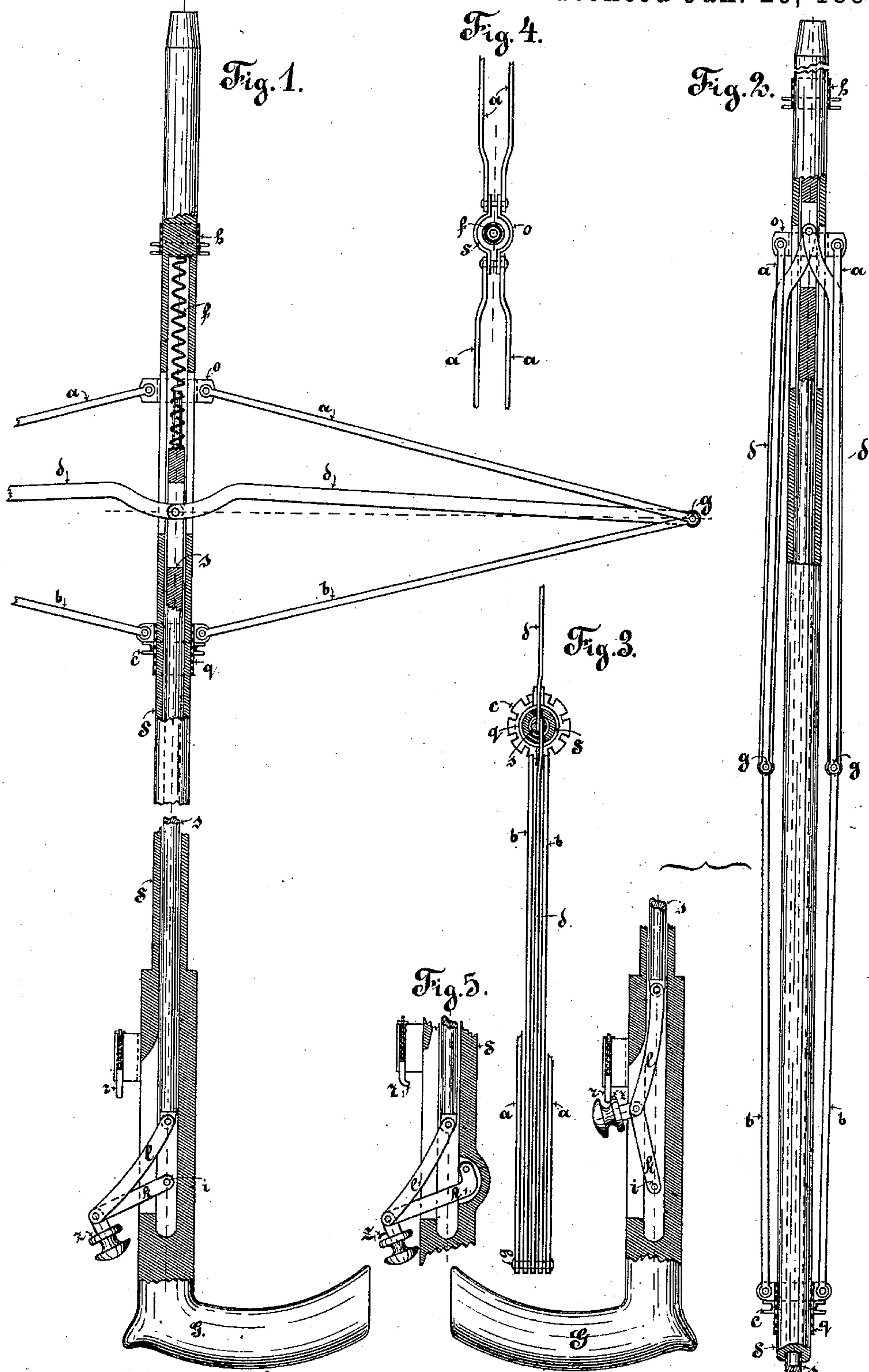
(No Model.)

C. A. M. KREMER.

UMBRELLA, &c.

No. 356,479.

Patented Jan. 25, 1887.



Witnesses - J. Wether  
C. Melhuish

Inventor - Cam. Kremer  
By H. H. Hudson atty



# UNITED STATES PATENT OFFICE.

CARL ALBERT MAX KREMER, OF LEIPSIC, SAXONY, GERMANY.

## UMBRELLA, &c.

SPECIFICATION forming part of Letters Patent No. 356,479, dated January 25, 1887.

Application filed May 25, 1885. Serial No. 166,582. (No model.) Patented in Germany December 28, 1884, No. 34,061; in Belgium April 11, 1885, No. 68,492; in Italy April 15, 1885, No. 18,205; in England April 24, 1885, No. 5,125; in France June 13, 1885, No. 169,536; and in Austria-Hungary July 16, 1885, No. 15,063 and No. 37,187.

*To all whom it may concern:*

Be it known that I, CARL ALBERT MAX KREMER, of Leipsic, in the Kingdom of Saxony, Germany, have invented a new and useful Improvement in Umbrellas and Parasols, (for which I have obtained patents as follows: Germany, No. 34,061, dated December 28, 1884; Great Britain, No. 5,125, of April 24, 1885; Austria-Hungary, No. 15,063 and No. 37,187, of July 16, 1885; France, No. 169,536, of June 13, 1885; Belgium, No. 68,492, of April 11, 1885; Italy, No. 18,205, of April 15, 1885,) of which the following is a specification.

In the accompanying drawings the umbrella-stick embodying the present invention is represented in Figures 1 to 5, Fig. 1 being a longitudinal section (partly broken off) showing the mechanism in the extended position, while Fig. 2 shows the mechanism closed. The remaining figures illustrate details.

The contrivance can be applied to any umbrella, which can then be held opened or shut with one hand, and also secured when open or shut.

The mechanism consists, principally, of the rods *a* and *b* and the bent bar *d*, one extremity of the rod *a* being hinged onto a ring, *o*, fixed to the stick, and the corresponding extremity of *b* to a ring, *q*, sliding on the stick. The other extremities of *a* and *b*, as well as the extremities of the bar *d*, are pivoted together. Moreover, the mechanism comprises the spindle *s*, sliding inside the hollow umbrella-stick *S*, and connected at one end with the bar *d* and the spiral spring *f*, at the other with the link *e* and the lever *k*.

As shown by Fig. 1, the rods *a* and *b* form a quadrilateral stretched by the bar *d*, which represents a diagonal of the same. The quadrilateral can be made to lie flat along the stick by pushing the spindle *s* against the crown-ring or top notch, *h*, the bent ends of the bar *d* following this movement, while the slide *q* is moved downward toward the handle *G*, as shown in Fig. 2. The spindle *s* is moved by turning the lever *k* around the pin *i*, fixed to the handle of the stick.

An umbrella provided with such a stick, if held with the point downward, can be opened

with one hand by means of its own weight, aided by the spiral spring *f*, and by drawing the spindle *s* toward the handle *G* by means of the lever *k*. When the umbrella is thus open, the struts or ties *a b* form the quadrilateral shown in Fig. 1, and it is secured in this position by drawing the ends of the bar *d*, connected with the spindle *s*, slightly toward the handle *G* by means of the lever *k*. The umbrella is released from this position for the purpose of being closed by pushing back the ends of the bar *d*, and the umbrella is also closed, when its point is held upward, by its own weight, and by pushing the spindle *s* toward the top notch, *h*, by means of the lever *k*. When the umbrella is being closed, the helical spring *f*, which tends to open the umbrella, is compressed. When closed, the umbrella is secured by pushing the lever *k* so far into the handle *G* that the elastic pin *r*, guided on the handle *G* and actuated by a spring, projects into the groove in front of the rim *z* of the button on the lever *k*, as shown in Fig. 2, whereby the lever *k* is secured and the umbrella kept closed. Lastly, Fig. 5 shows a lever, *k'*, which is a slight modification of *k*, and also a second contrivance for securing the umbrella when closed, consisting of the hook *z'* on the lever *k'*, and the bent pin *r'*, actuated by a spring. In this case the umbrella when closed is secured, in the same way as already described, by pressing the lever *k'* into the handle *G*, so that the hook *z'* catches under the pin *r'*, and the frame is released by withdrawing the lever *k'* at the proper time, whereby the hook is disengaged from the pin.

What I claim is—

1. An appliance for automatically opening and closing umbrellas, comprising an axially-perforated umbrella-stick, *S*, a movable spindle, *s*, situated in the interior of the umbrella-stick, a spring, *f*, adapted to press the spindle downward, rods *a a b b*, connected so as to form a variable quadrilateral, the inner ends of the upper rods being rigidly connected with the stick, while the inner ends of the lower rods, *b b*, are connected with the movable sleeve or runner holding the stretchers of the umbrella-frame, a pair of rods, *d*, hinged in the

center to the spindle *s* and forming a diagonal of the said quadrilateral, an operating-lever, *k*, hinged to the lower part of the stick, and a link, *l*, connecting the lower end of the spindle *s* with the outer end of the lever *k*, substantially as described.

2. The contrivance for operating the mechanism and for securing the umbrella when closed, comprising a spring-pressed pin guided  
10 on the umbrella-stick and a button hinged to

the joint of the operating-lever and link and adapted to form a catch for the said pin, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses. 15

CARL ALBERT MAX KREMER.

Witnesses:

ERNST LUDWIG BÖSEL,  
JULIUS MORGNER.