

No. 614,794.

Patented Nov. 22, 1898.

W. I. CRAWFORD.
CIRCUIT BREAKER.

(Application filed Aug. 23, 1897.)

(No Model.)

Fig. I,

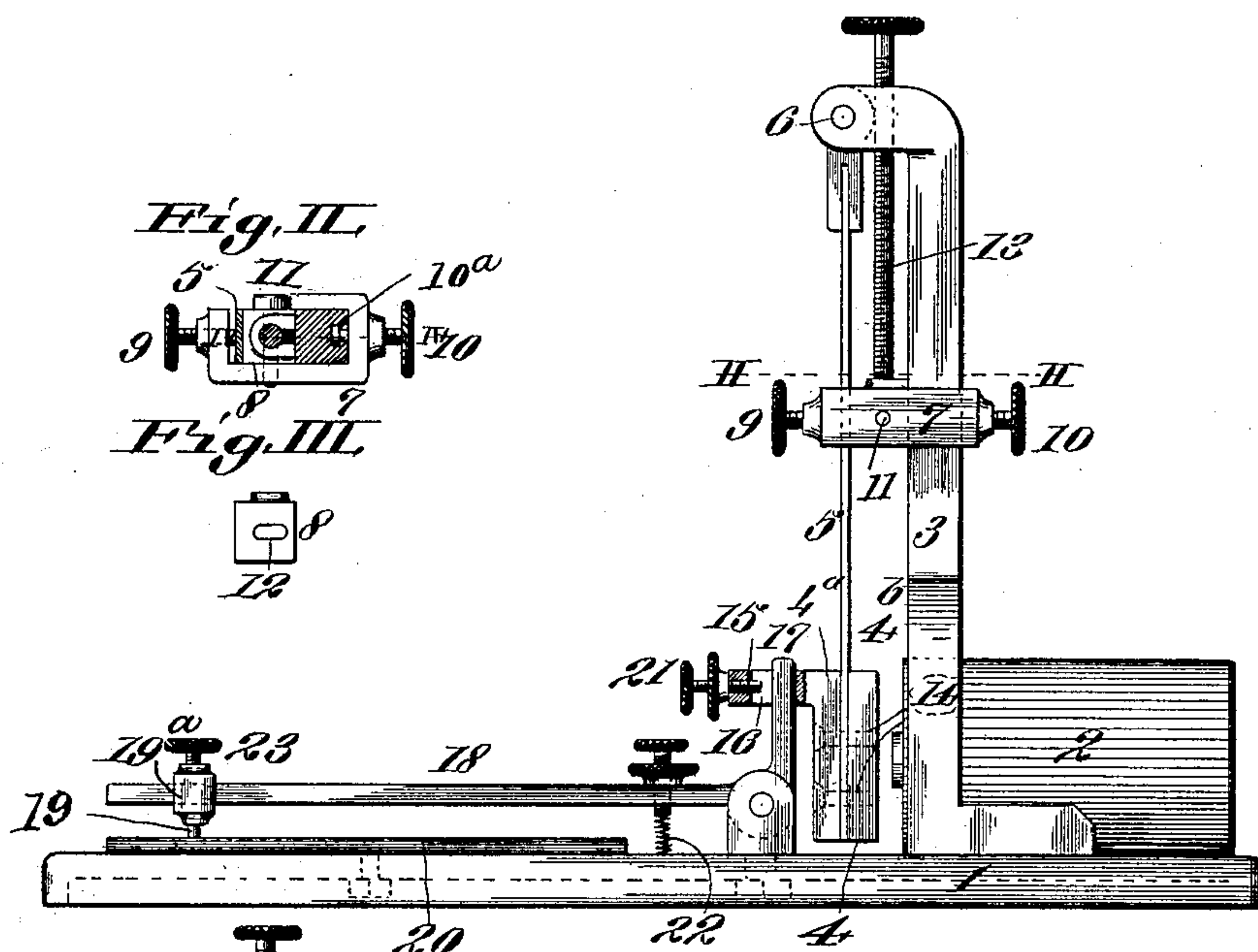


Fig. II,

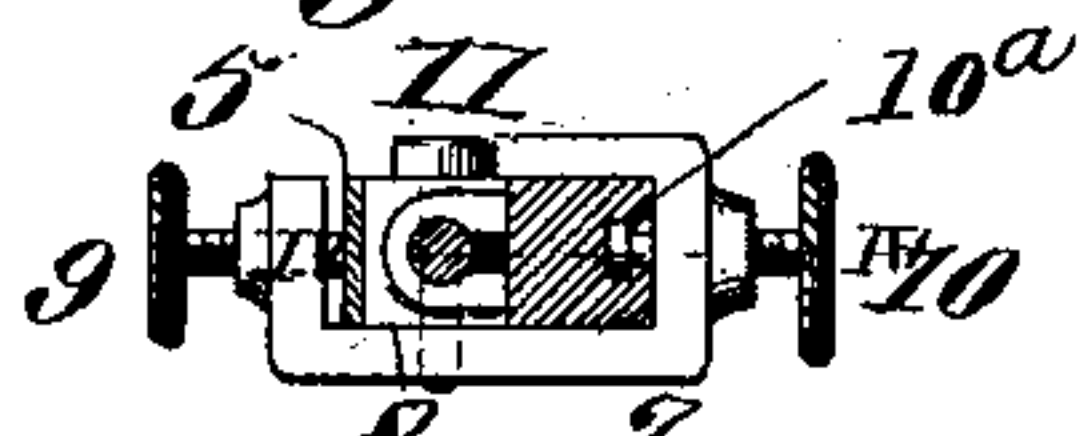


Fig. III,



Fig. V,

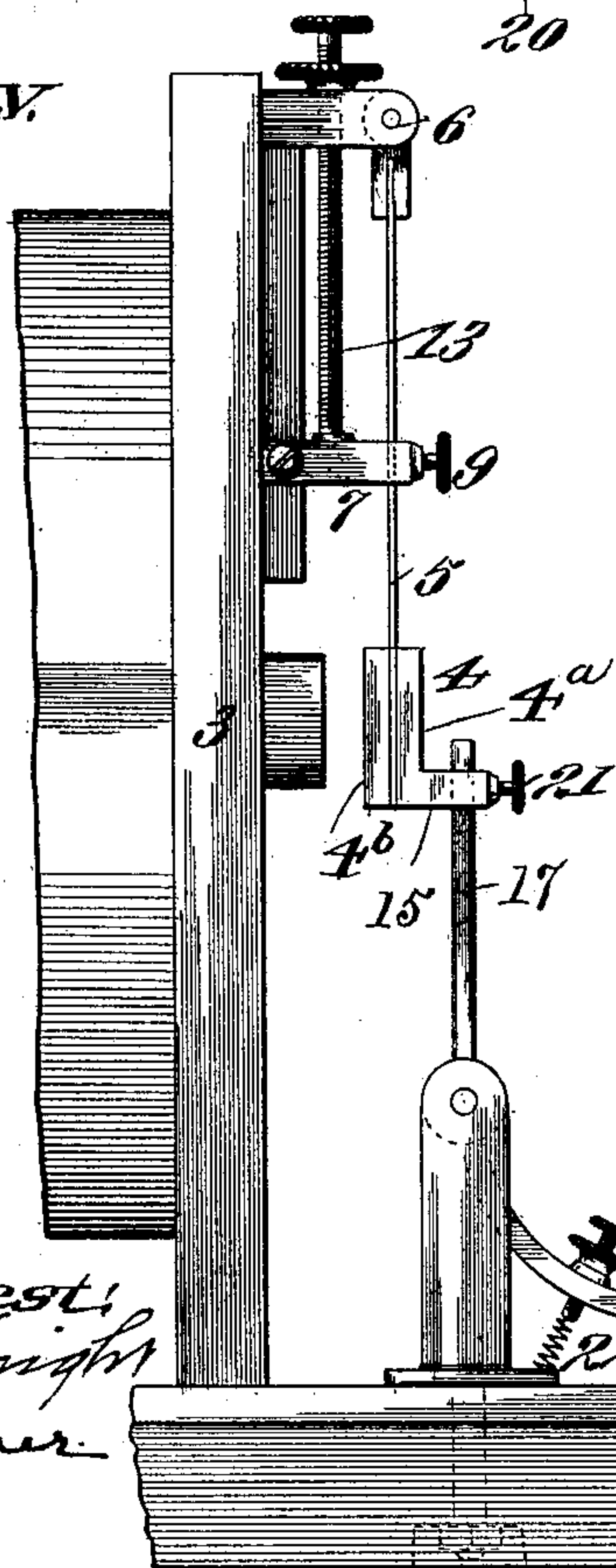
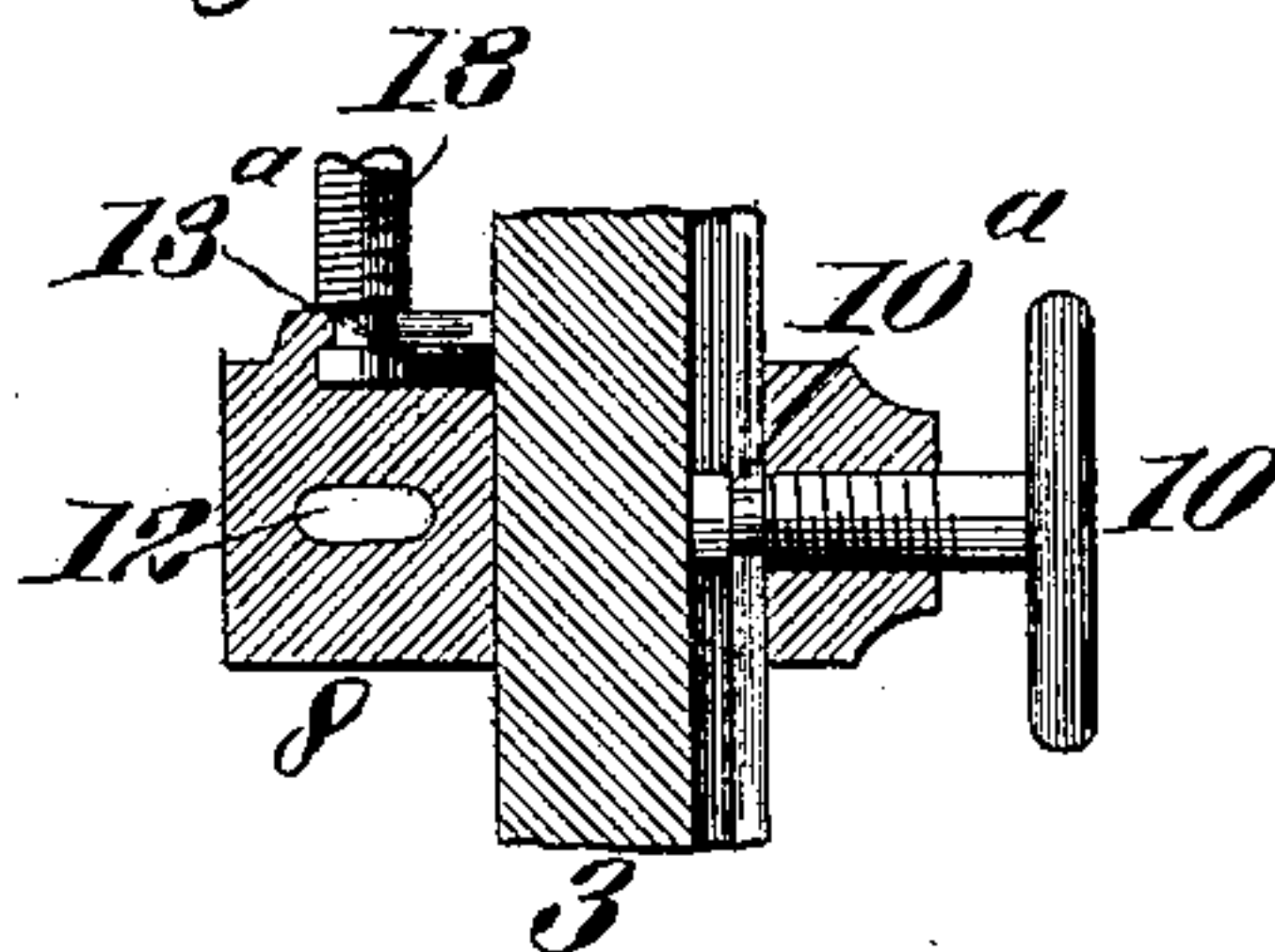


Fig. IV,



Attest:
E. O. Knight
S. Stoner

Inventor:

Wm I Crawford

By *Wm I Crawford*
attys

UNITED STATES PATENT OFFICE.

WILLIAM I. CRAWFORD, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF
TO ABRAHAM COOK, OF SAME PLACE.

CIRCUIT-BREAKER.

SPECIFICATION forming part of Letters Patent No. 614,794, dated November 22, 1898.

Application filed August 23, 1897. Serial No. 649,286. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM I. CRAWFORD, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have
5 invented a certain new and useful Improvement in Circuit-Breakers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

10 The objects of my invention are to produce a circuit-breaker that will be quick and positive in its action, which is readily adjustable in its various parts, and in which the circuit is very suddenly broken, so that the "spark-
15 ing" is reduced to a minimum.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, Figure I is a side
20 elevation of my improved circuit-breaker. Fig. II is a transverse section taken on line II II, Fig. I. Fig. III is a side view of the screw-seat block removed. Fig. IV is an enlarged section taken on line IV IV, Fig. II.
25 Fig. V is a side view showing my invention applied in a different form.

1 represents a suitable base, upon which are
30 mounted the magnet 2 and a standard 3, that suspends the armature 4. The stem 5 of the armature consists of a spring-plate hinged at 6 to the standard.

It is desirable to have the armature so
formed and arranged that its vibration may be regulated and changed, and this I accomplish
35 by means of a clamp 7, that embraces the standard 3, and also a block 8 and the stem 5, the block being located between the standard and the stem and the parts being bound together by set-screws 9 and 10, and the block
40 being further held to the clamp by a screw 11, that fits in a slot 12 in the block. The end of the set-screw 10 is headed into the standard, as shown at 10^a, Fig. IV, so that the clamp will be held to the standard by the set-
45 screw, even should the block 8 be moved away from the standard.

13 represents an adjusting-screw that is threaded in the upper end of the standard and the lower end of which has a headed con-
50 nection 13^a with the block 8. By loosening

on the set-screw 10 the clamp 7 may be ad-
justed up or down by the adjusting-screw 13,
and thus the length of the vibrating part of
the stem 5 is changed at will to make the
movement of the head of the armature slower 55
or faster to suit the class of work being done.
The distance of the armature from the mag-
net may be changed by adjusting the block 8
and the set-screw 9. The head of the arma-
ture is composed of two pieces 4^a and 4^b, 60
clamped to the lower end of the stem 5 by
means of screws 14. (Shown by dotted lines,
Fig. I.) The head can thus be readily renewed
when necessary. The head is provided with a
projection 15, having a slot 16 to receive the 65
end 17 of a contact-arm 18. The opening or
slot 16 is longer than the thickness of the con-
tact-arm, as shown in Fig. I, thus providing
for movement of the armature before it has to
impart movement to the contact-arm. This 70
permits of the use of the momentum of the
armature being utilized to move the contact-
arm, so that the movement of the latter is
quick and positive, thus reducing to a mini-
mum the heating and burning of the contact- 75
point 19 and of the contact-plate 20 due to arcs
being formed between these two parts. The
amount of movement of the armature before
the contact-arm is moved may be regulated
by a set-screw 21. 80

22 represents an adjustable spring for re-
storing the contact-arm to its normal position
after it has been moved by the armature.
The contact-point 19 is formed and a weight
19^a is held on the arm by means of a set-screw 85
23, so that it may be adjusted on the arm to
change the point of bearing between the con-
tact-point and the plate 20 when it is desired
to do so, and by shifting the weight the arm
may be made more or less quick in its action. 90

In Fig. V, I have shown my invention ap-
plied directly to an induction-coil, and I have
marked the parts in this figure with the same
numerals as designate them in the other fig-
ures. 95

I claim as my invention—

1. In a circuit-breaker, the combination of
an armature, a vertical stem whereby the ar-
mature is suspended, a standard to which the
stem of the armature is secured, so as to swing 100

from its upper end, and an adjustable clamp for connecting the stem of the armature to the standard between the head of the armature and the point where it is secured to the standard, substantially as set forth.

2. In a circuit-breaker, the combination of a standard, an armature, a clamp 7 for connecting the stem of the armature to the standard, an adjusting-screw 13 for adjusting the clamp along the standard to change the length of the vibrating part of the stem, and an adjustable block 8, substantially as set forth.

3. In a circuit-breaker, the combination of a standard, an armature, a clamp for connecting the stem of the armature to the standard, a set-screw 10 having a headed con-

nection with the standard, and an adjusting-screw 13 having a headed connection with the clamp, substantially as set forth.

4. In a circuit-breaker; the combination of a contact-arm, an armature having a projection provided with an elongated slot in which the end of the contact-arm is inserted and which permits of the movement of the armature before the contact-arm is moved, and a set-screw whereby the amount of movement of the armature is regulated before the contact-arm is moved, substantially as described.

WILLIAM I. CRAWFORD.

In presence of—

E. S. KNIGHT,

STANLEY STONER.