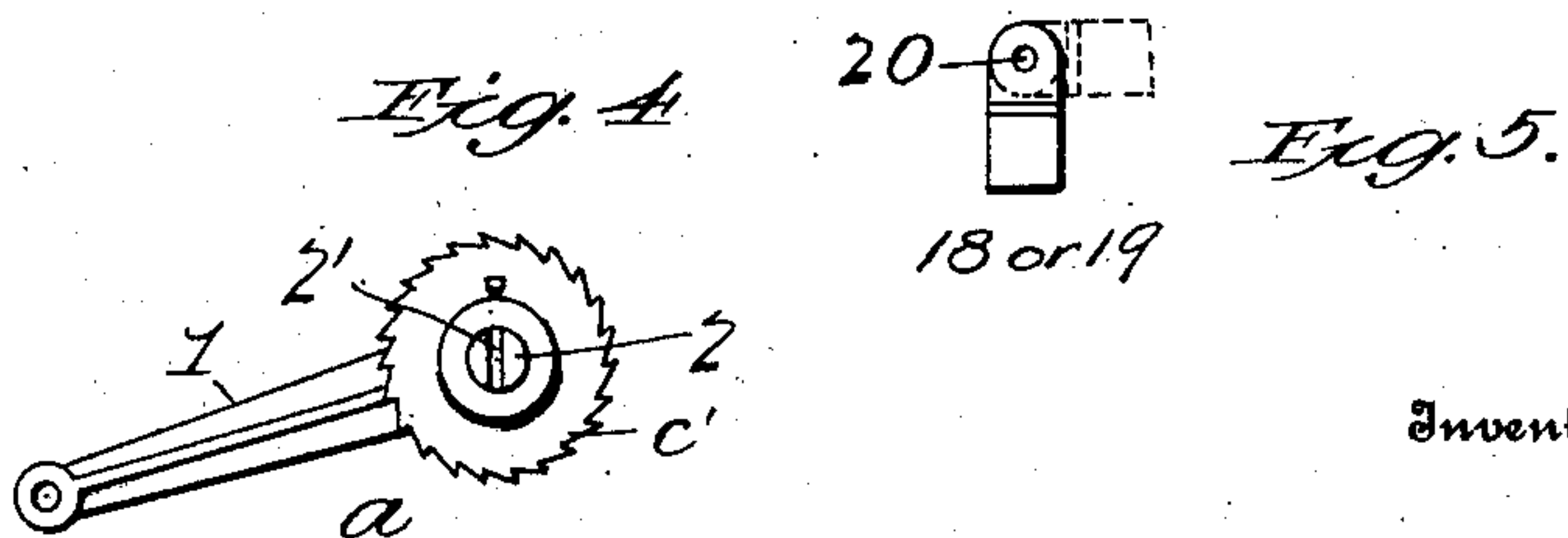
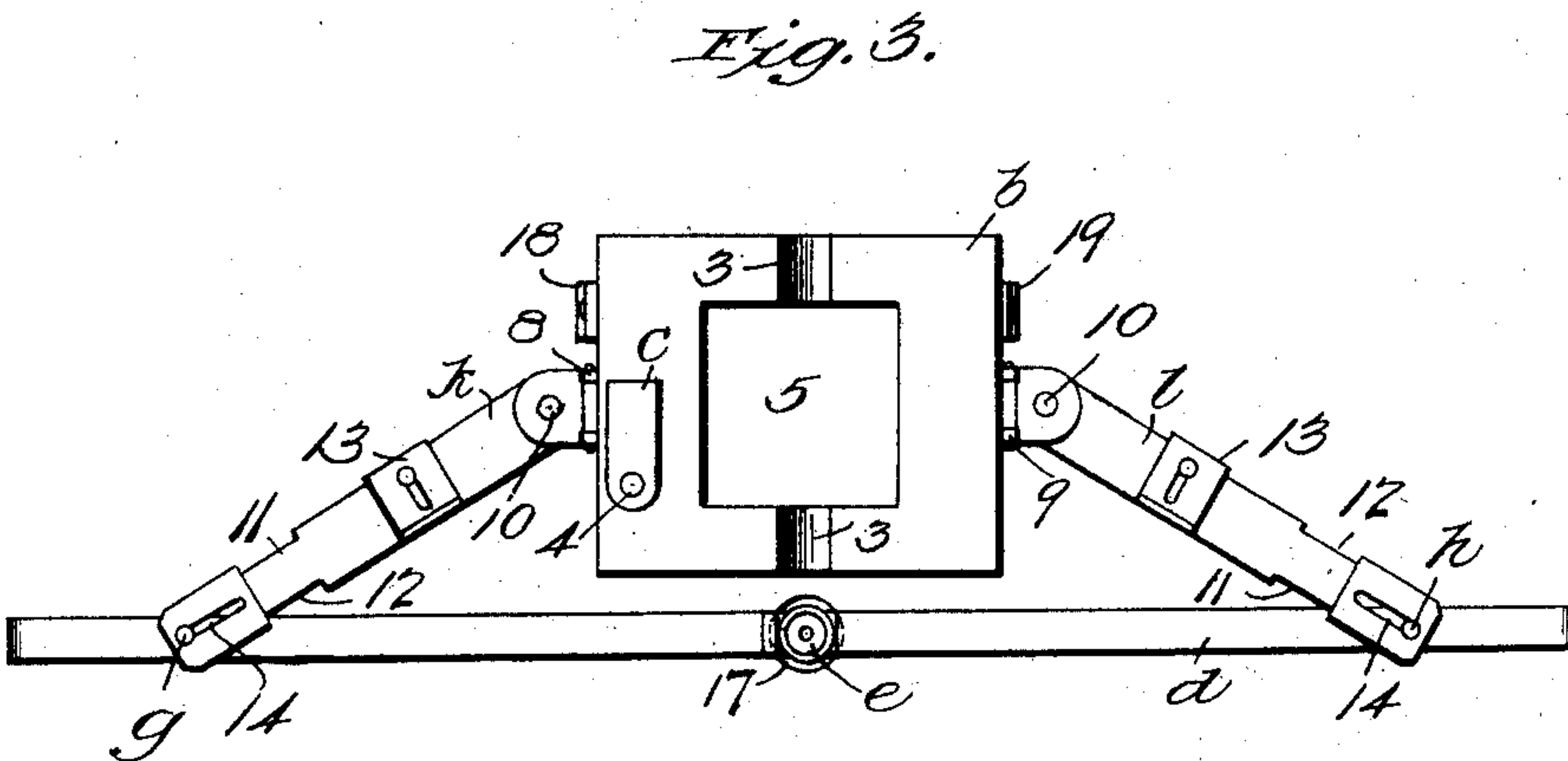
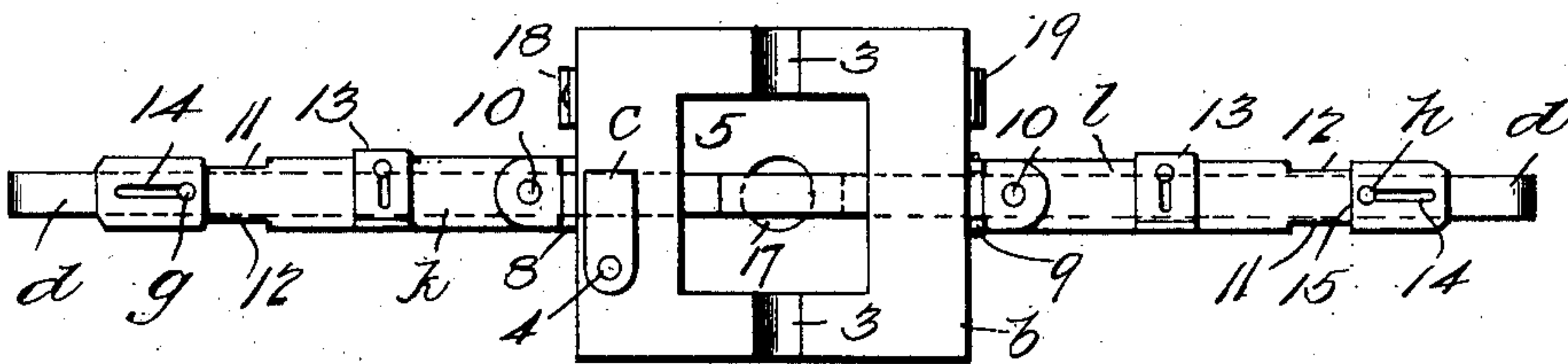
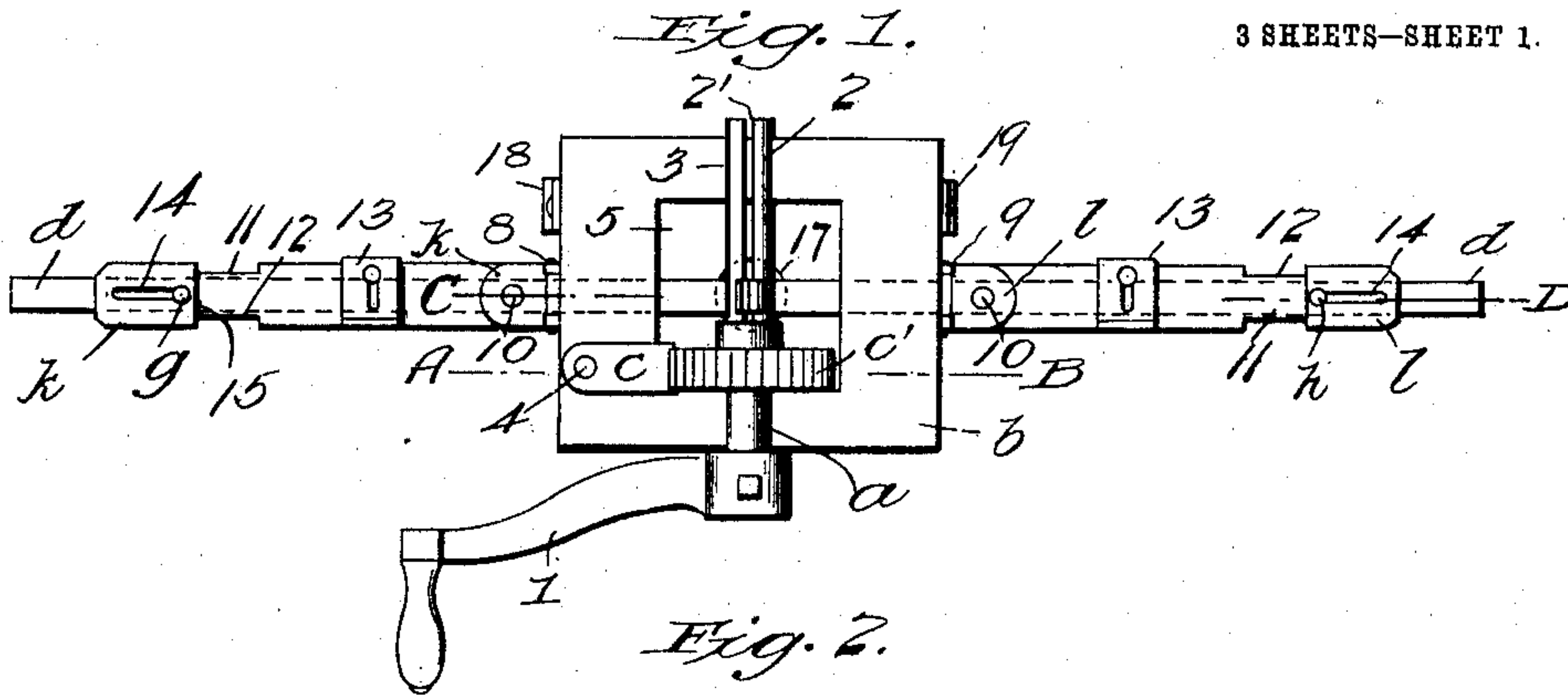


E. M. CLERKE.
BOX SEALING DEVICE.
APPLICATION FILED AUG. 6, 1908.

907,008.

Patented Dec. 15, 1908.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

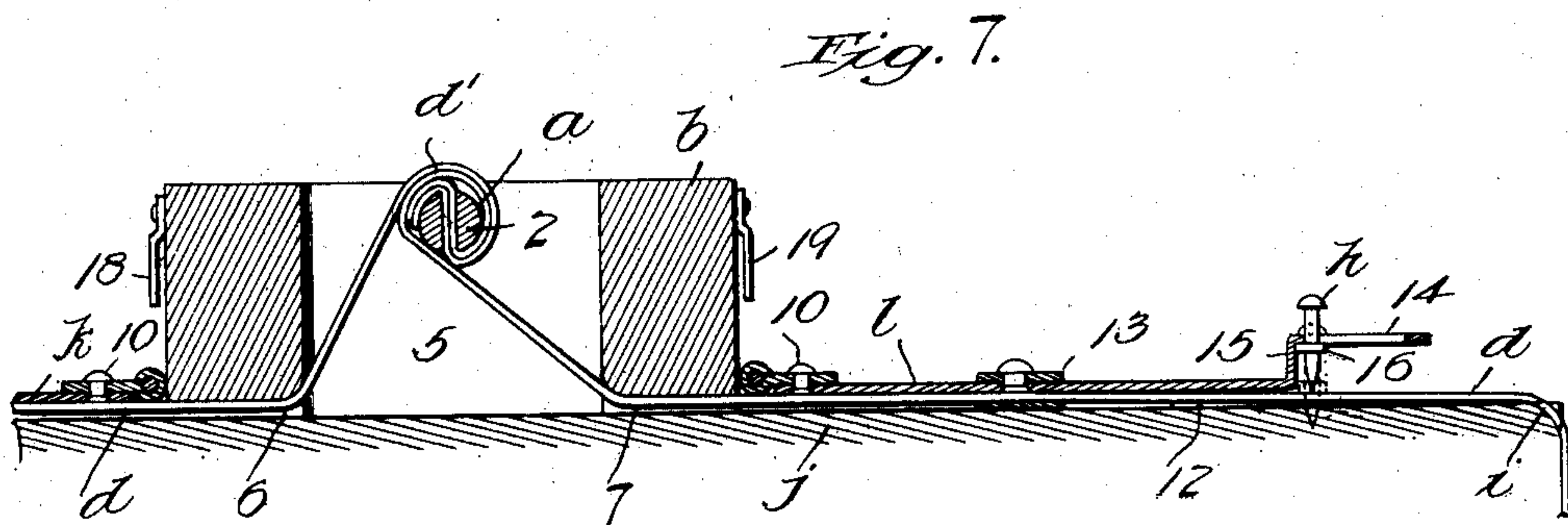
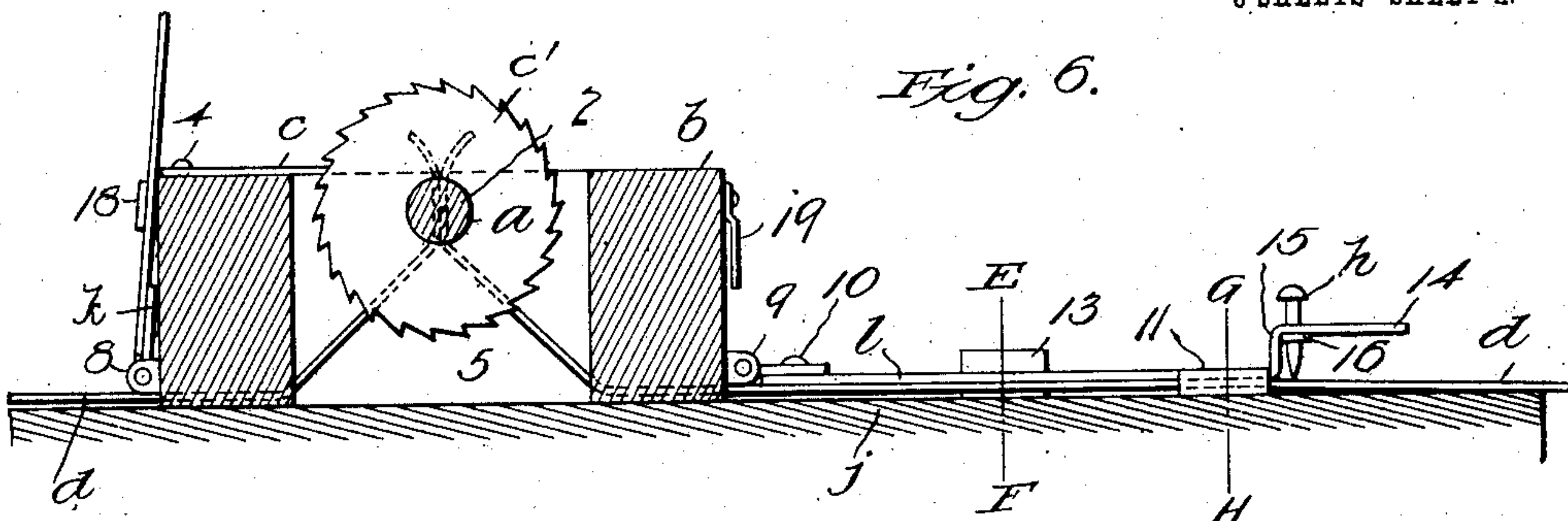


Fig. 8.

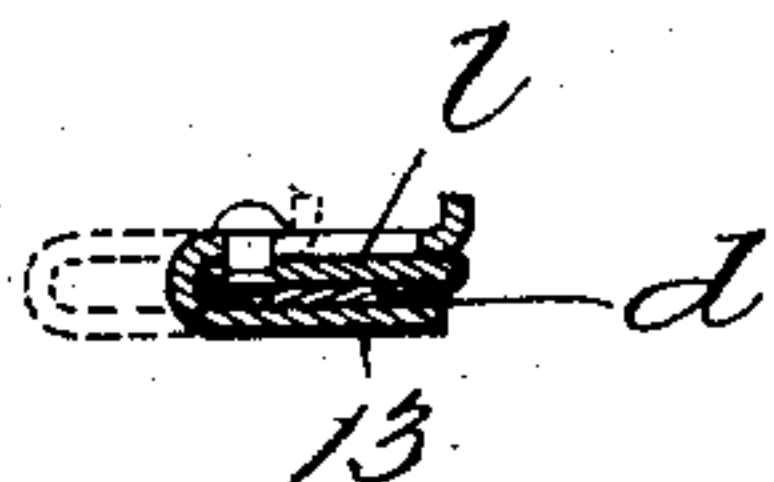


Fig. 9.

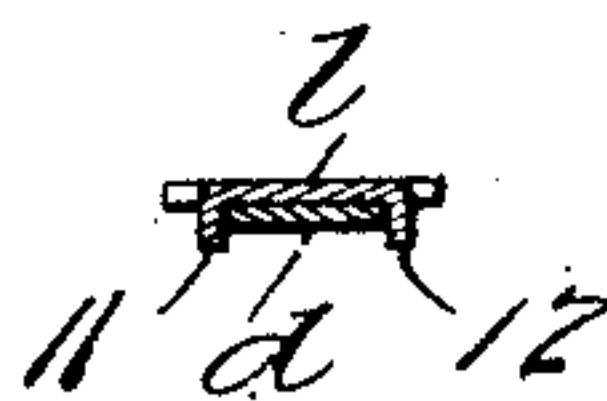
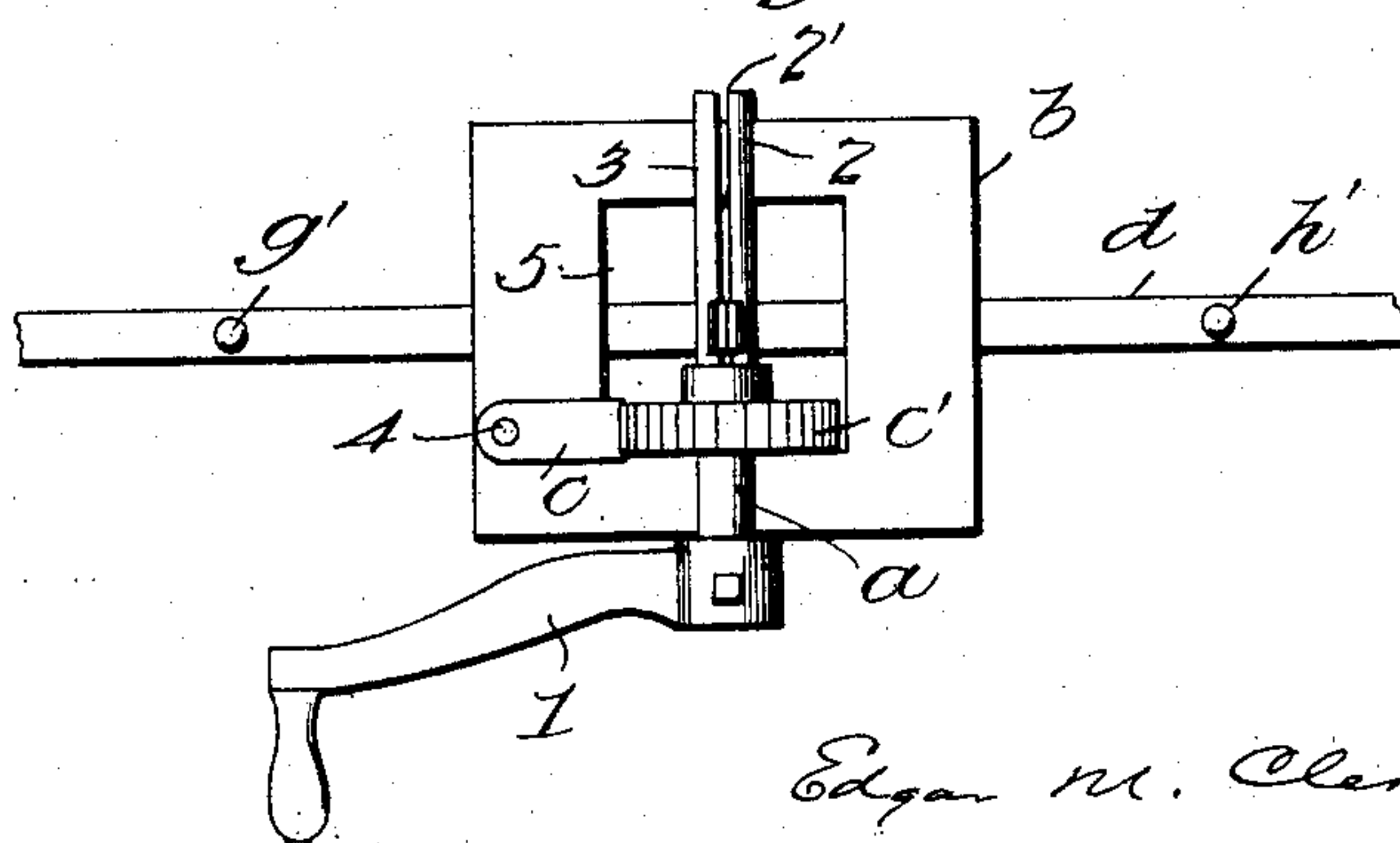


Fig. 10.



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3 SHEETS—SHEET 3.

Fig. 11.

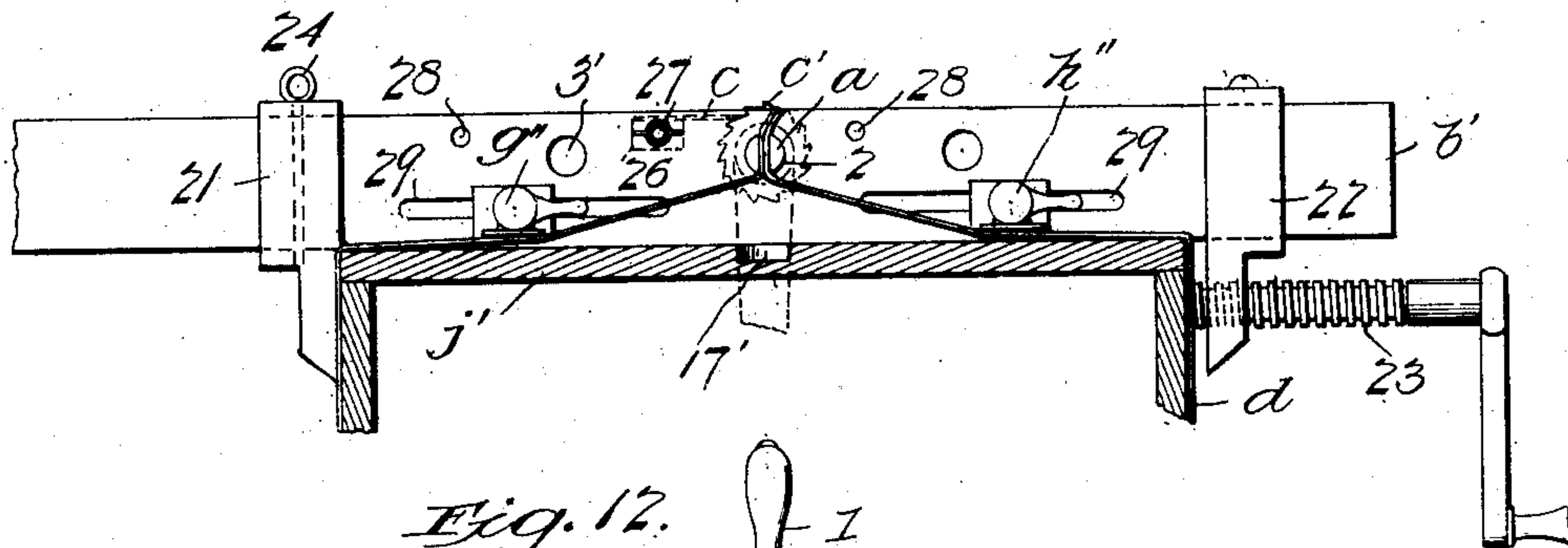


Fig. 12.

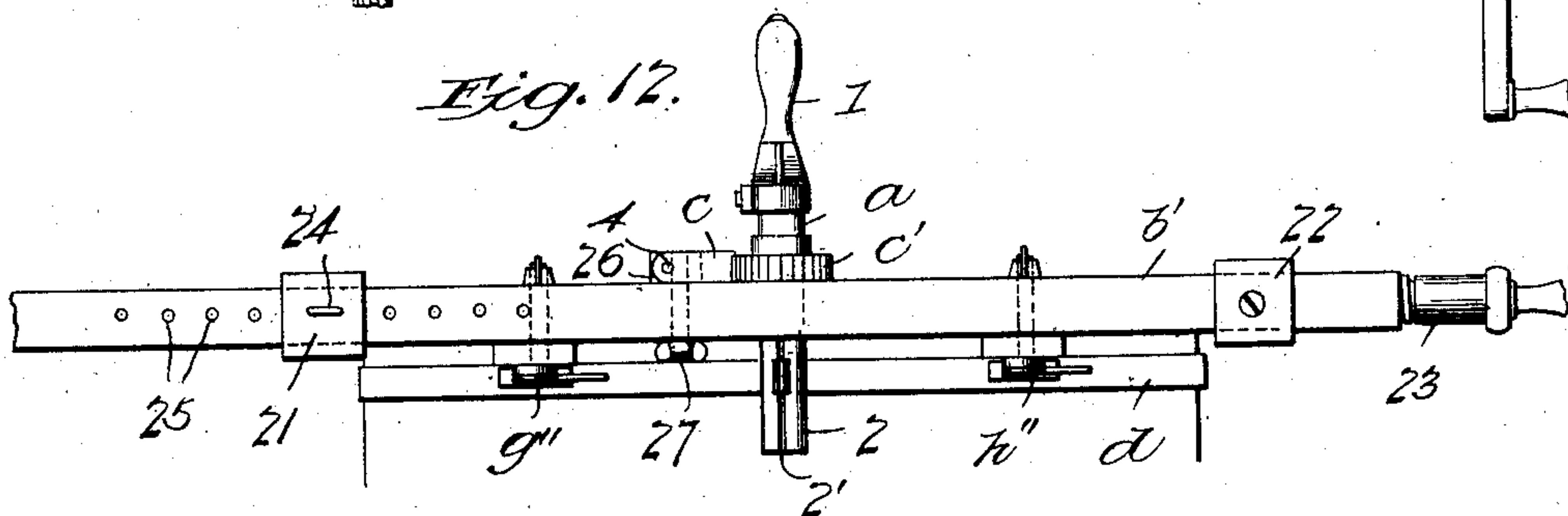


Fig. 13.

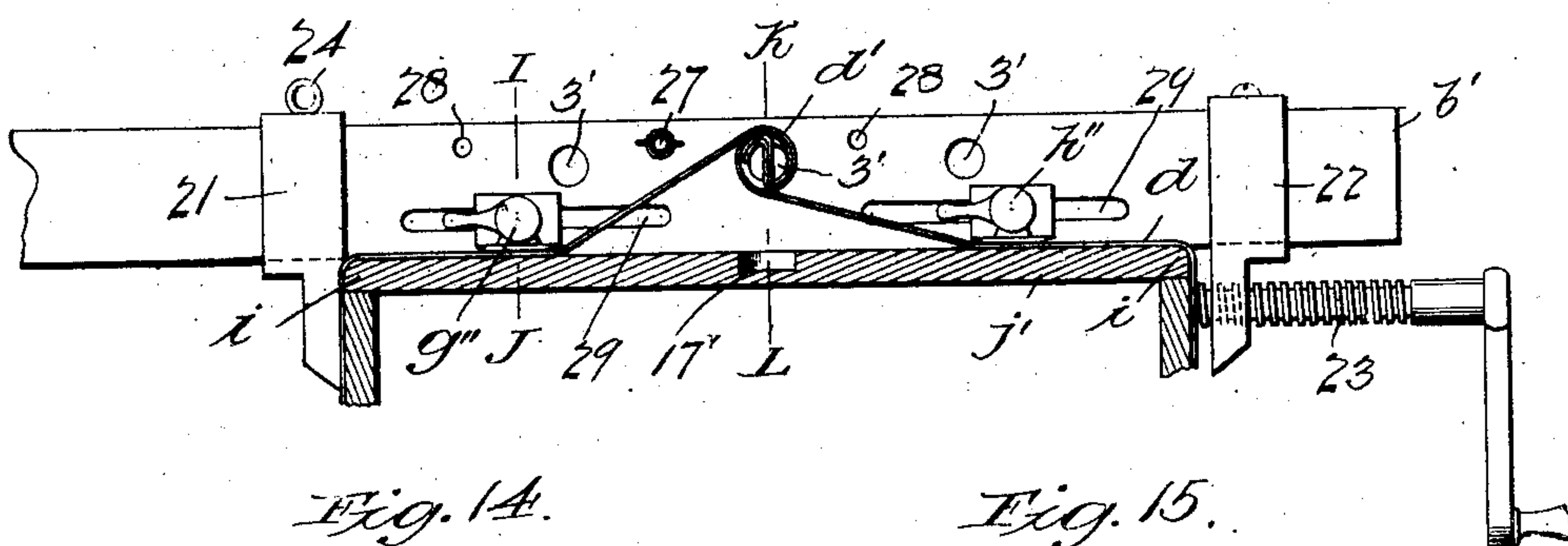


Fig. 14.

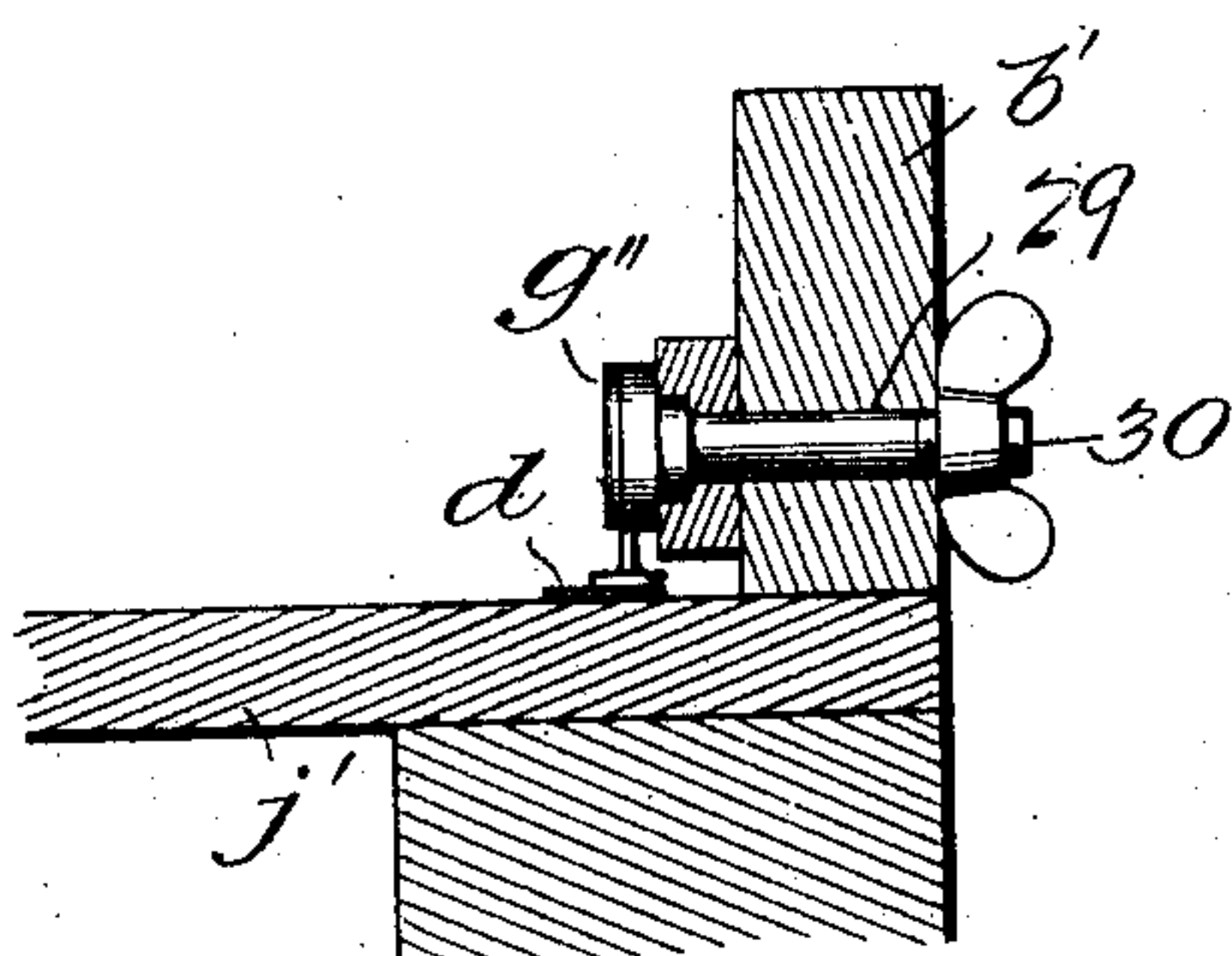
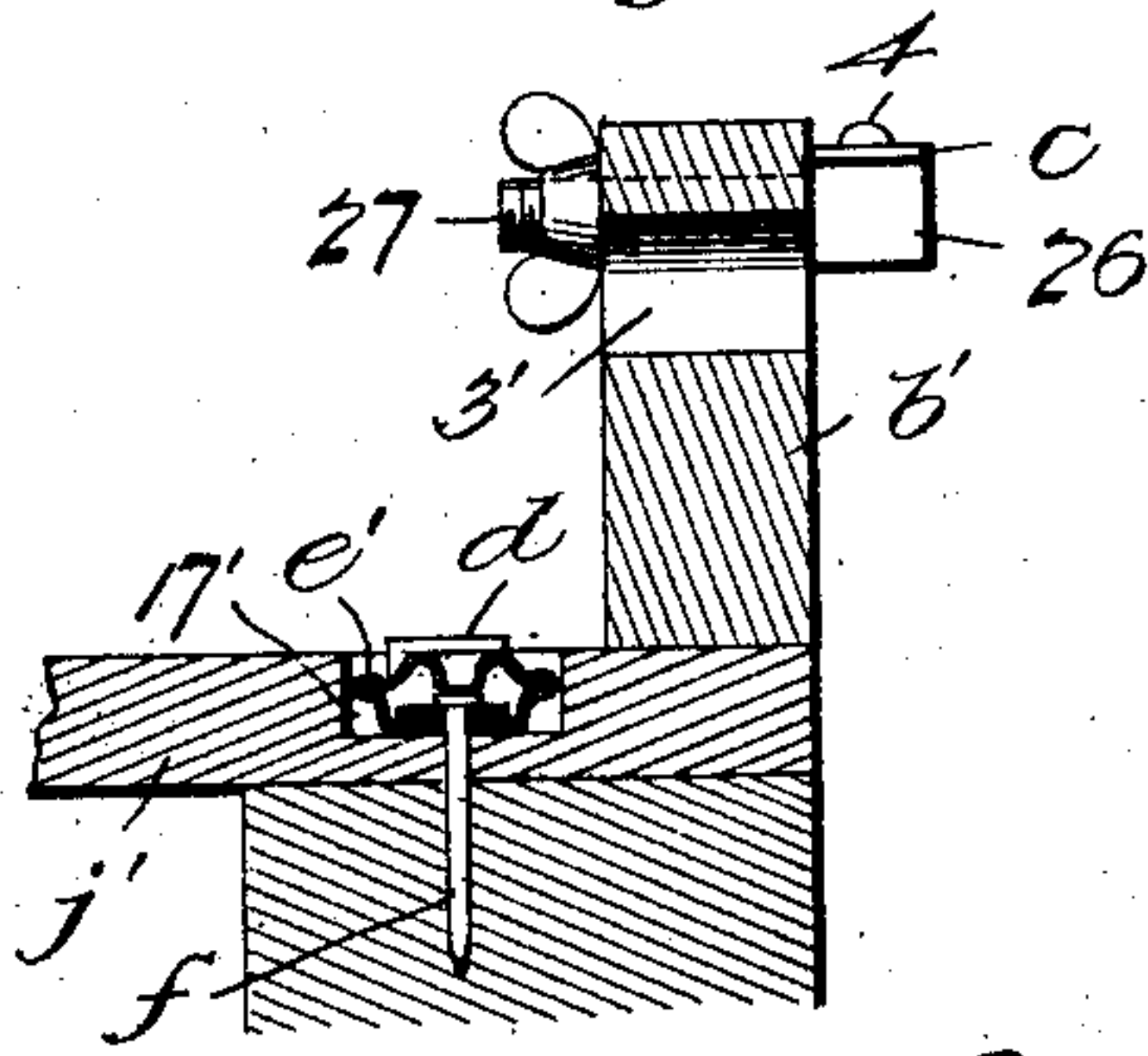


Fig. 15.



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UNITED STATES PATENT OFFICE.

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BOX-SEALING DEVICE.

No. 907,008.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed August 6, 1908. Serial No. 447,239.

To all whom it may concern:

Be it known that I, EDGAR M. CLERKE, a citizen of the United States of America, and a resident of Hillsdale, in the State of New Jersey, have invented a new and useful Improvement in Box-Sealing Devices, of which the following is a specification.

This invention relates primarily to means for securing wooden boxes or packing cases with the aid of metallic box-straps by the seals set forth in United States Letters Patent No. 822577 dated June 5, 1906, Nos. 837788 and 837789, dated December 4, 1906, and No. 847276, dated March 12, 1907, particularly the latter, granted to Edward J. Brooks; but the box sealing devices to which the present invention is confined are applicable as means for tightening box-straps in general, including wire as well as thin hoop-iron.

This invention consists in certain novel combinations of parts hereinafter set forth and claimed, and in a box sealing device embodying the same or any of them.

The leading objects of the invention are to provide for stretching the box strap around the box with sufficient force to embed it in the wood at the corners of the box, and thus to render the nail driven through the seal all that is required to inseparably attach the box strap; and to provide, at the same time, for exposing the ends of the box strap preparatory to applying the seal.

Other objects will be set forth in the general description, which follows.

Three sheets of drawings accompany this specification as parts thereof.

Figure 1 represents a top view of a box sealing device, in operation, embodying all the features of the present invention; Figs. 2 and 3 are top views of the same with the "winch" part removed, further illustrating the operation of the device as hereinafter described; Fig. 4 is a view of the winch detached, with the slotted end of its shaft in the foreground; Fig. 5 is a view of one of the catches hereinafter mentioned, showing it in its two positions by full and dotted lines; Figs. 6 and 7 represent vertical sections on a larger scale on the lines A—B and C—D, Fig. 1, respectively, illustrating by the posi-

tions of the parts and by dotted lines in Fig. 7, the beginning and completion of the strap tightening operation; Figs. 8 and 9 represent cross sections on the lines E—F and G—H, Fig. 6, respectively; Fig. 10 is a top view of the second species of the device on the same scale as Figs. 1—5; Fig. 11 is a front view of a third species of the device; Fig. 12 is a top view of the latter; Fig. 13 is another front view of the same, with its winch removed; and Figs. 14 and 15 represent cross sections on a larger scale on the lines I—J and K—L, respectively.

Like reference characters refer to like parts in all the figures.

Each of the improved box sealing devices is characterized by a rotatable and removable winch part *a*, which may be of one and the same construction in all the species; a "frame" part, *b* or *b'*, which may be and preferably is of one and the same construction (*b*) in the first and second species; and a dog, *c*, which may be of one and the same form in all the species; the latter interacting with a ratchet wheel, *c'*, forming part of said winch *a*. Provision is also made in each of the species for temporarily fastening both ends of the box strap, *d*, preliminary to the removal of the winch *a* and the application of the seal, *e*, Figs. 3 and 15, by driving a nail, *f*, Fig. 15, therethrough, which nail is the permanent and only fastening of the box-strap *d* after it is freed from the temporary fastenings of the respective species, which are represented at *g—h*, *g'—h'* and *g''—h''*, respectively. To render this practicable, the winch *a* is adapted to so tighten the box strap *d* by tension on both of its ends, as to embed the box strap in the corners at least of the wooden box, as represented at *i* in Figs. 7 and 13, so that after its resiliency takes up the small amount of slack that may remain when the box strap is freed from the temporary fastenings *g—h*, *g'—h'* or *g''—h''*, the box strap will be securely held in place on the box, *j* or *j'*, at all points. Said winch *a*, in each of the species, is composed of a hand crank and a slotted shaft, shown respectively at 1 and 2 in Fig. 4 especially, together with the afore-said ratchet wheel *c'*. These parts are integrally or fixedly united with each other; and

the slot, 2', Fig. 4, of the slotted shaft, is an open slot extending through its free end. During the tightening operation, the winch *a* turns in suitable bearings, 3 or 3', in the frame part, *b* or *b'*; and its ratchet wheel *c'* interacts with the contiguously supported dog *c*. The extremities of both ends of the box strap *d* are inserted endwise through the slot 2' in the shaft of the winch *a* preliminary to the tightening operation, and at the conclusion of this operation are in the form of a coil as shown at *d'* in Figs. 7 and 13.

When the box strap *d* is considered sufficiently taut, its respective ends are temporarily secured by said fastenings *g—h*, *g'—h'*, or *g''—h''*; the dog *c* is disengaged from the ratchet wheel *c'* by turning it on its pivot, 4, and the winch *a* is then withdrawn or separated from the frame part *b* or *b'*. In the first and second species, this is done by lifting the winch *a* bodily, and allowing it to turn so as to unwind the coiled ends of the box strap. In the third species the winch *a* is withdrawn endwise; the open-ended slot 2' of the winch shaft permitting it to free itself from the coiled ends of the box strap *d*, which are afterward unwound by the fingers.

In the first species, represented by Figs. 1 to 9 inclusive, the frame part *b* is a substantially rectangular block, which may be either of suitable wood or metal, having a substantially central recess, 5, extending therethrough from top to bottom, and shallow guide notches, 6 and 7, Fig. 7, in its bottom at its respective ends, through which the respective ends of the box strap *d* are drawn; and the bearings 3 of the shaft of the winch *a* are central notches in the top of the frame part *b*. The dog *c* is attached to the top of the frame part *b* by its pivot 4; and both ends of the frame part are provided at or immediately above said guide notches 6 and 7 with pairs of lugs, 8 and 9, between which a pair of strap engaging arms, *k* and *l*, are hinged to the frame part *b* by horizontal pintles or trunnions; the hinged end of each of the arms *k* and *l* being further provided with a hinge joint, 10, having a vertical axis. The arms *k* and *l* are of the construction best shown in Figs. 6 to 9 inclusive, which see. Each arm is constructed with a pair of depending lips, 11 and 12, Fig. 9, to engage the edges of the box strap *d*, and with a sliding clip, 13, which in its effective position, represented in Figs. 1, 2, 6 and 7 and in full lines in Fig. 8, serves to keep the box strap *d* between said depending lips 11 and 12, and thus insures their effectiveness. Each arm is further constructed with a slotted outer end-portion, 14, connected with the body of the guide by a shoulder, 15, so as to maintain an elevated position with reference to the box strap, as in Figs. 6 and 7, and is provided with one of said temporary fastenings

g—h in the form of a sharp pointed punch or "nail", held in place against accidental separation by a headed upper end and a subjacent collar, 16, with sufficient space between to permit the nail *g* or *h* to be driven endwise through the box strap *d*, to temporarily fasten the latter, as in dotted lines in Fig. 7. The fastenings *g—h* are moved to the inner ends of the slots in said slotted portions 14 of the arms *k* and *l* before driving them, and are then driven like ordinary nails through the box-strap *d*, and into the box, which is represented at *j* in Figs. 6 and 7. The winch *a* is then disengaged from the ends of the box strap *d* and separated from the frame part *b* as above described, and the frame part is then moved clear of the box strap as in Fig. 3. In this movement the longitudinal slots in said slotted end portions 14 of the arms *g* and *h* permit the arms to move endwise with reference to the temporary fastenings *g—h* to the necessary extent. The seal *e*, Fig. 3, is next applied to the ends of the box strap *d*, and pressed into the seal inclosing recess 17 in the box *j*, and the strap ends are permanently secured by driving the seal nail *f*. The nail-pulling claw of an ordinary hammer or the like is then introduced beneath the outer end of each of the arms *k* and *l* so as to withdraw the temporary fastenings *g—h*, and the arms may then be turned upward against the frame part as represented at *k* in Fig. 6, and temporarily secured in this position by catches, 18 and 19, on the ends of the frame *b*, so that the whole can be conveniently handled. One of these catches is shown detached by Fig. 5, and the pivot by which it is attached to the frame *b* is represented at 20.

In the second species, represented by Fig. 10, the winch *a*, frame part *b* and dog *c* are identical with those of the first species, above described, and require no further description. In this species, instead of providing the ends of the frame part with arms having temporary fastenings *g—h* permanently attached thereto, a pair of sharp-pointed nails *g'—h'* are driven through the box strap *d* into the box *j* at the end of the strap-tightening operation; and the frame part *b* with its appurtenances, as well as the winch part *a*, is immediately removed to expose the ends of the box strap for the sealing operation.

In the third species, represented by Figs. 11 to 15 inclusive, the frame part *b'* is in the form of a clamp bar, preferably and conveniently rectangular in cross section, provided with a pair of knees, 21, 22, one of which forms the internal screw or nut for a clamping-screw, 23, while the other is movable on the frame-part bar *b'* and attachable thereto in different positions by a removable pin, 24, interacting with any one of a series of vertical holes, 25, in the bar, as required to fit the

frame piece quickly to the box j' which is to be sealed. The winch bearings $3'$ are in the form of a series of holes extending horizontally through the frame-part bar b' so that the winch a may be located advantageously with reference to the desired location of the seal-inclosing recess $17'$ and seal e' . The dog c is attached by its pivot 4 to a support, 26 , movable with reference to the frame-part bar b' so as to be clamped thereto in proper position with reference to the winch bearing $3'$ that is for the time being in use. Its clamp bolt, 27 , extends horizontally through the appropriate hole 28 of a series in the frame-part bar b' , which is further provided with slots, 29 , for the accommodation of clamping screws, 30 , by which the temporary fastenings $g''-h''$ are held in effective position with reference to the winch a in the various positions of the latter, so as to temporarily fasten the box strap d on the respective sides of the winch a as in the first two species. These temporary fastenings $g''-h''$ are in the form of lever operated clamps of known construction, the housings of which are attached to said clamping screws 30 by which the temporary fastenings are attached to the frame part b' . In this arrangement, the frame part b' may remain in position, and the temporary fastenings $g''-h''$ attached thereto may continue to perform their functions until the sealing operation is completed, after which the frame part, b' , with its accessories, including said temporary fastenings $g''-h''$, may be unclamped and removed from the box. The temporary fastenings ($g-h$, $g'-h'$ or $g''-h''$) may obviously be of other known or improved forms; and other like modifications will suggest themselves to those skilled in the art.

Having thus described said improvement, I claim as my invention and desire to patent under this specification:

1. A box sealing device having, in combination, a rotatable and removable winch part, comprising a hand crank, a longitudinally slotted shaft adapted to interact with both ends of a box strap and a ratchet wheel fast on said shaft, a frame part constructed with bearings for said shaft, a dog supported by said frame part and adapted to interact with said ratchet wheel, and means for temporarily fastening the ends of the box strap preliminary to disengaging the winch part and permanently securing and sealing the strap ends.

2. A box sealing device having, in combination, a rotatable and removable winch part, comprising a hand crank, a longitudinally slotted shaft adapted to interact with both ends of a box strap and a ratchet wheel fast on said shaft, a frame part constructed with bearings for said shaft, a dog supported by said frame part and adapted to interact

with said ratchet wheel, oppositely projecting strap engaging arms hinged to said frame part and constructed with offset longitudinally slotted outer ends, and means for temporarily fastening the ends of the box strap preliminary to disengaging the winch part, such means consisting of nails extending vertically through said slotted outer ends and inseparably attached thereto, said frame part and arms being movable on said nails as centers away from the box strap, so as to expose the latter for the completion of the sealing operation.

3. A box sealing device having, in combination, a rotatable and removable winch part, comprising a hand crank, a longitudinally slotted shaft adapted to interact with both ends of a box strap and a ratchet wheel fast on said shaft, a frame part constructed with bearings for said shaft, a dog supported by said frame part and adapted to interact with said ratchet wheel, oppositely projecting strap engaging arms hinged to said frame part and adapted to be turned up against the same when not in use, means for temporarily fastening the ends of the box strap preliminary to disengaging the winch part carried by said arms, and means for fastening the arms in their upturned positions.

4. A box sealing device having, in combination, a rotatable and removable winch part, comprising a hand crank, a longitudinally slotted shaft adapted to interact with both ends of a box strap and a ratchet wheel fast on said shaft, a frame part constructed with bearings for said shaft, a dog supported by said frame part and adapted to interact with said ratchet wheel, oppositely projecting strap engaging arms attached to said frame part and constructed with downturned lips to interact with the edges of the box strap, a laterally slidable clip adapted to hold the box strap in effective relation to said lips, and means carried by said arms for temporarily fastening the ends of the box strap preliminary to disengaging the winch part.

5. A box sealing device having, in combination, a rotatable and removable winch part, comprising a hand crank, a longitudinally slotted shaft adapted to interact with both ends of a box strap and a ratchet wheel fast on said shaft, a frame part constructed with bearings for said shaft, a dog supported by said frame part and adapted to interact with said ratchet wheel, oppositely projecting strap engaging arms attached to said frame part and constructed with offset longitudinally slotted outer ends, and means for temporarily fastening the ends of the box strap preliminary to disengaging the winch part, such means consisting of nails extending vertically through said slotted outer ends and inseparably attached thereto; said frame part and arms being movable on said nails as

centers away from the box strap, so as to expose the latter for the completion of the sealing operation, and said arms being further constructed with downturned projecting
5 lips to engage with the edges of the box strap and provided with means for holding the box strap in effective relation to said lips when the

frame part is in position above the box strap, substantially as hereinbefore specified.

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