(No Model.) 2 Sheets—Sheet 1.

J. A. TAUBERSCHMIDT.

CABLE GRIP.

No. 514,389 Patented Feb. 6, 1894.

Fig. 1.

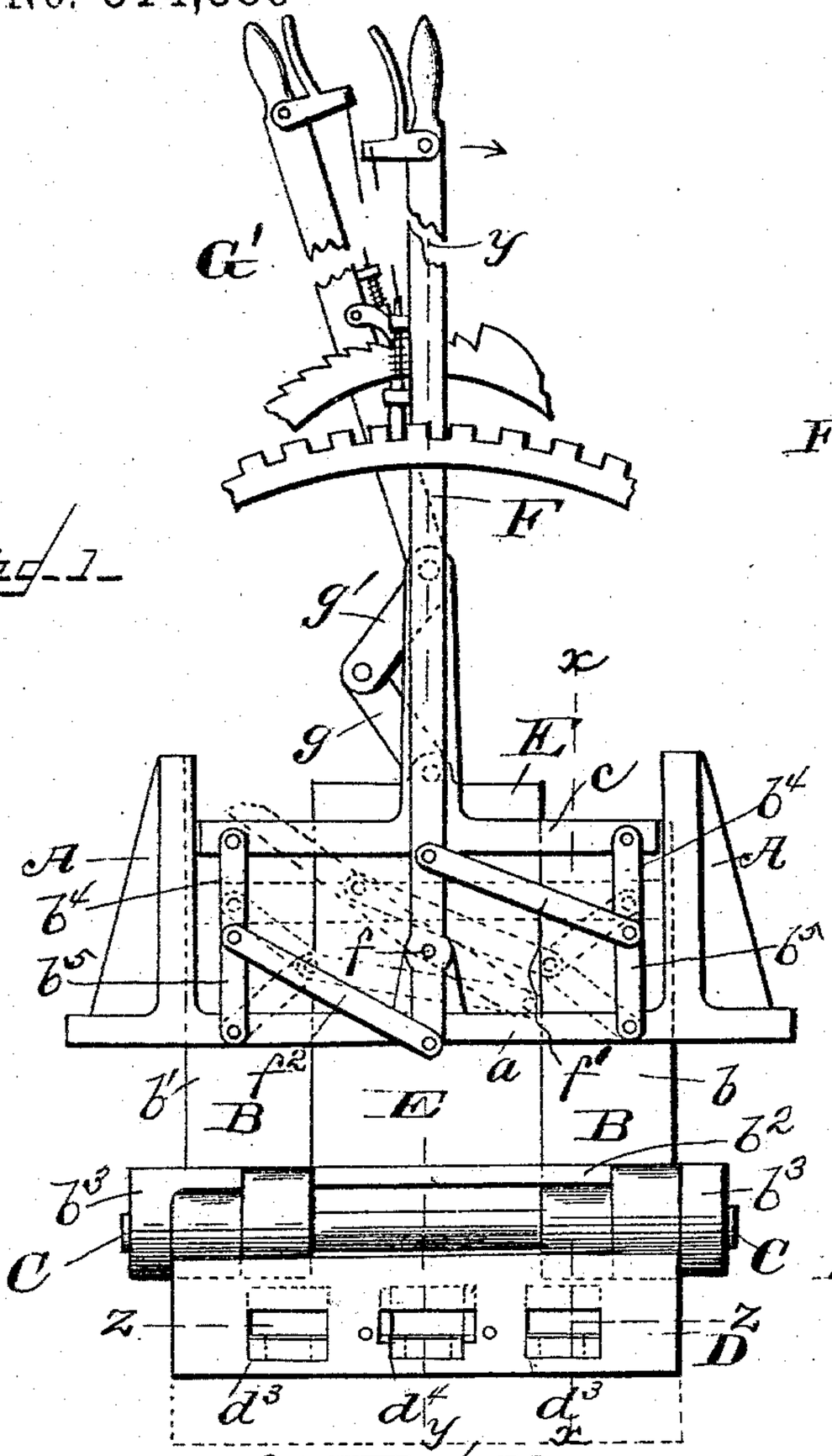


Fig. 2.

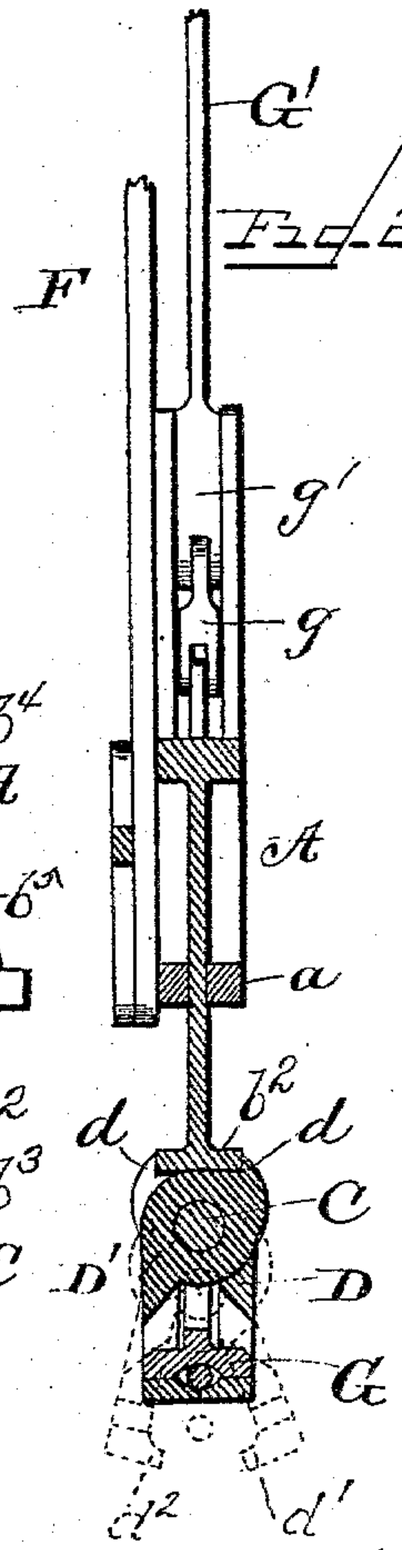


Fig. 3.

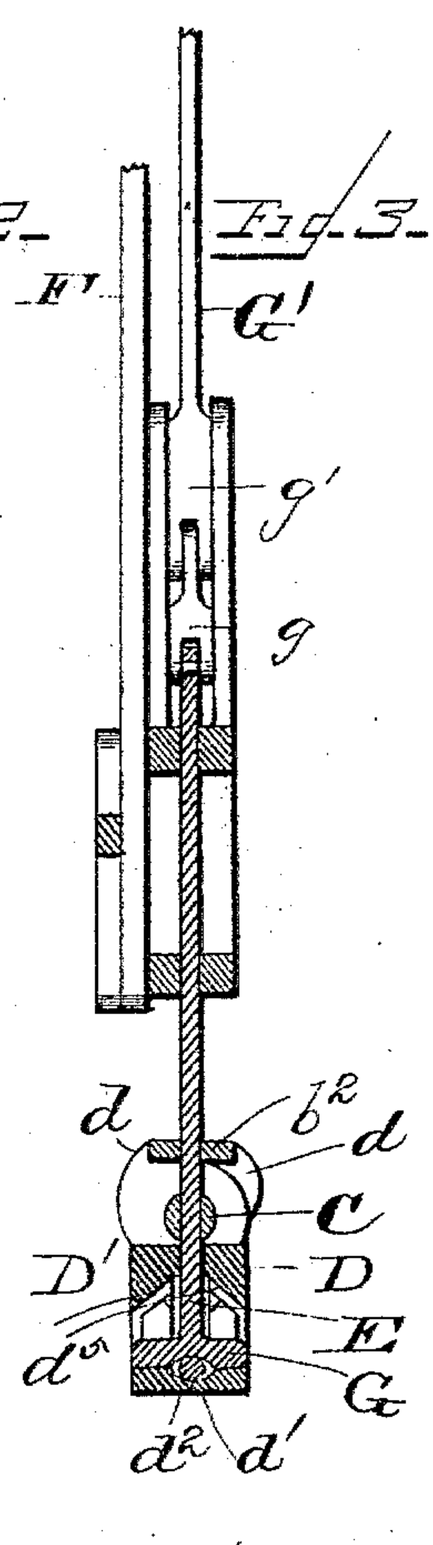


Fig. 11.

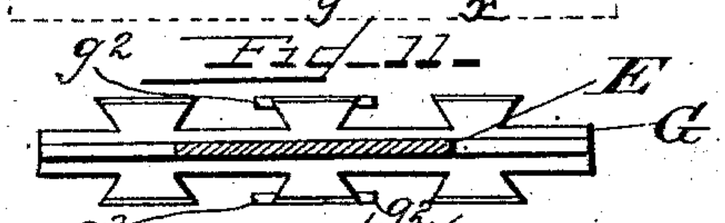


Fig. 4.

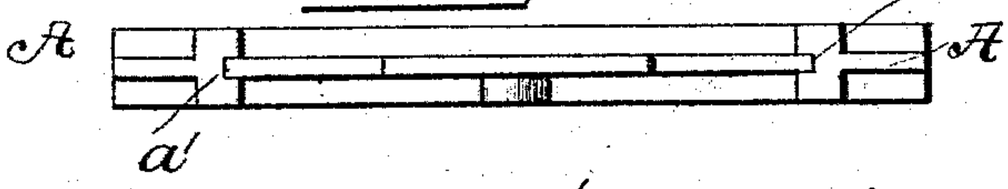


Fig. 5.

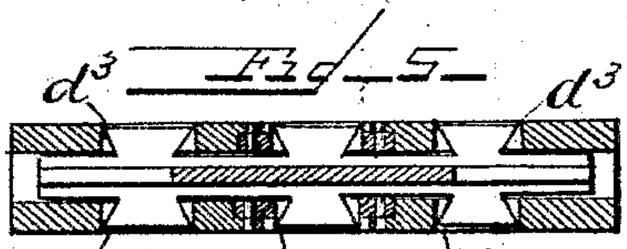


Fig. 8.

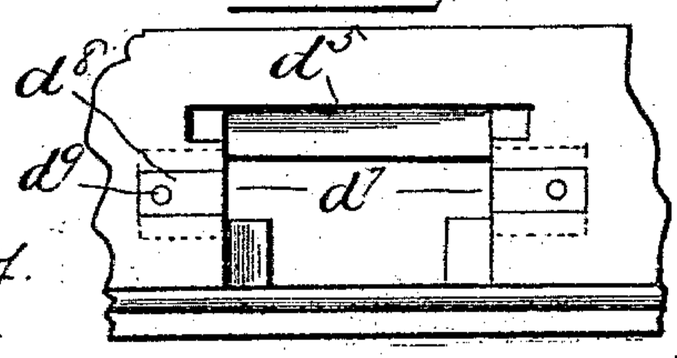


Fig. 6.

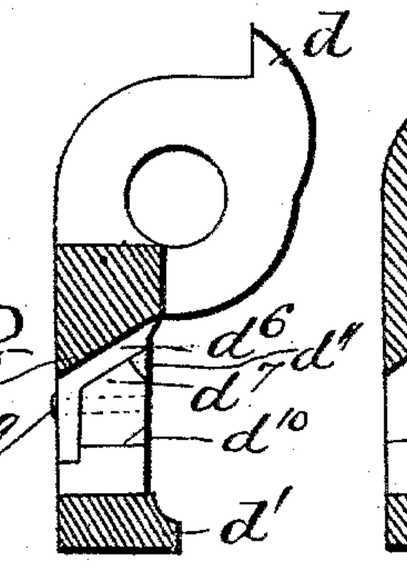
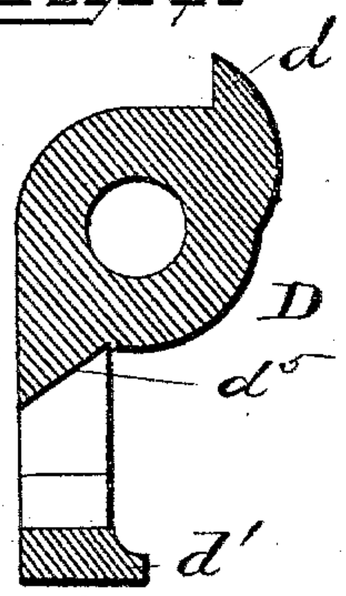


Fig. 7.



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(No Model.) 2 Sheets—Sheet 2.

J. A. TAUBERSCHMIDT.

CABLE GRIP.

No. 514,389. Patented Feb. 6, 1894.

Fig 9

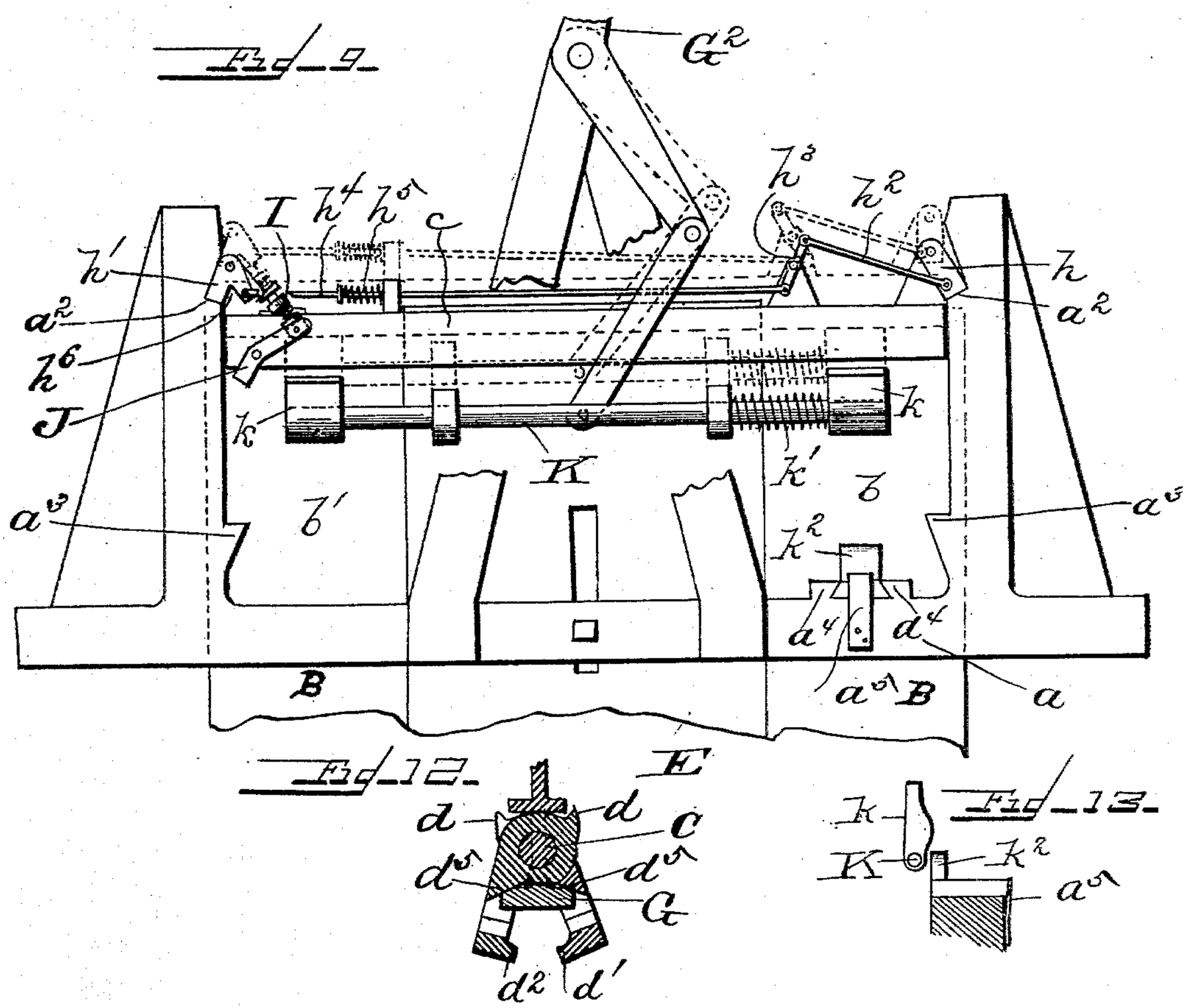
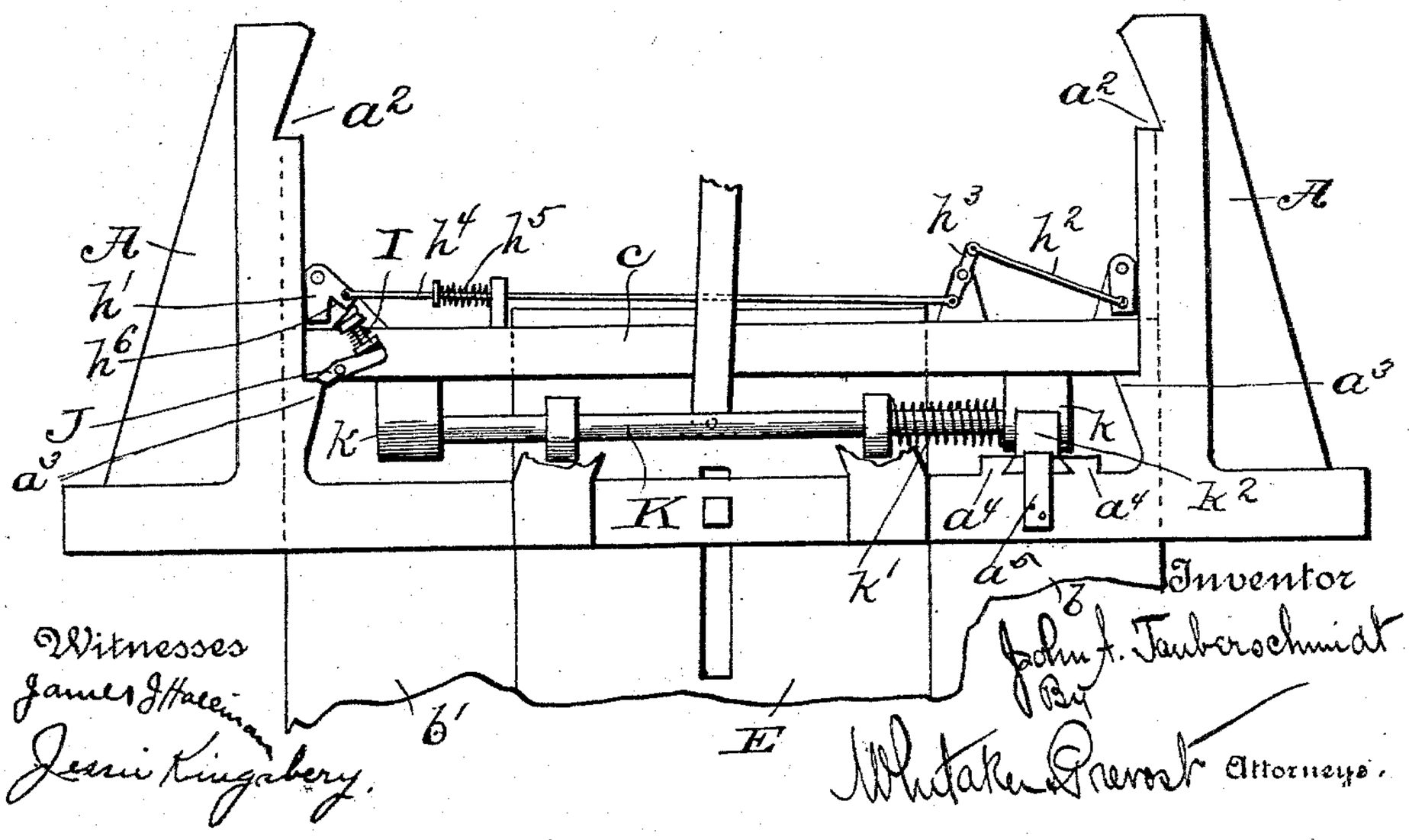


Fig 12.

Fig 13.

Fig 10.



THE NATIONAL LITHOGRAPHING COMPANY.
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN A. TAUBERSCHMIDT, OF WASHINGTON, DISTRICT OF COLUMBIA.

CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 514,389, dated February 6, 1894.

Application filed August 16, 1893. Serial No. 483,298. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. TAUBERSCHMIDT, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Cable-Grips; 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 the class of devices known as cable grips and consists in certain improved constructions and combinations of parts whereby a cheap and efficient grip is produced which can be made to take up and release the cable at any point where it is desirable and practicable to do so.

In the accompanying drawings I have shown the best forms in which I have contemplated embodying my invention and my said invention is fully disclosed in the following description and claims.

In the said drawings, Figure 1 is a side elevation of my improved grip. Fig. 2 is a vertical transverse section on line *x*—*x* in Fig. 1. Fig. 3 is a vertical transverse section on line *y*—*y* Fig. 1. Fig. 4 is a top view with actuating levers and connections removed. Fig. 5 is a horizontal section on line *z*—*z* Fig. 1. Figs. 6 and 7 are sections of the pivoted grip jaws to show details of construction. Fig. 8 is a partial inner side view of one of the pivoted grip jaws. Figs. 9 and 10 are partial side elevations illustrating a modification. Figs. 11, 12 and 13 are details of parts of the mechanism.

In the drawings A is a fixed supporting frame secured in the proper place in the car to which the grip is attached. This frame has a cross bar *a* which is slotted vertically to permit the passage therethrough of certain movable parts of the device.

B is the grip frame. This grip frame is composed of the two thin uprights *b b'* and the cross bar b^2, these parts may be made integral or otherwise as preferred. The cross bar b^2 has depending ears b^3 at each end in which is mounted a bar or shaft C. To this bar or shaft C are pivoted the lower grip jaws D D'. These jaws are provided with shoulders *d* which when the jaws are closed engage the opposite sides of the cross bar b^2 and when the grip is closed upon the cable prevent undue lateral movement of the jaws upon the shaft C.

The two parts of the grip frame *b b'* extend up through the slotted portion of the cross bar *a*, and at their upper ends are united by a bar or cross bars *c*, which are so constructed or connected with the parts *b b'* of the grip frame as to permit the grip slide E to pass freely upward and downward through said parts or between the parts. The outer edges of the parts *b b'* fit into and are guided by guide ways *a'* in the frame A (see Fig. 4). The grip frame is connected to the stationary supporting frame by means of the toggle links b^4 b^5. These links at one side of the grip are connected to a hand lever F above its pivot *f* by a link *f'* and the like links at the other side of the grip are connected to said lever below its pivot by a link f^2. By moving this lever in the direction of the arrow in Fig. 1 the toggle levers will be flexed and the grip frame lowered to its lowest position. The reverse movement of the lever F will straighten the toggle levers and move the grip frame and grip upward to its highest or normal position. The hand lever F is preferably provided with a retaining device to hold it in the position desired.

By reference to Fig. 6 it will be seen that the grip jaw D is provided with an inwardly extending continuous flange *d'*. The opposite jaw D' has a like inwardly extending flange d^2 which when the jaws are closed abuts against the flange *d'* and forms the lower member of the cable clamp or grip. The upper member G of the cable clamp is located between the jaws D D' below the bar C on which the jaws are pivoted and above the flanges *d' d²*. This clamp member G is a part of or secured to the thin upright E which I denominate the grip slide. This grip slide extends upwardly through a slot in the shaft C and through the slot in the cross bar *a* between the uprights *b b'* and also extends upward through the slot in the cross bar *c* in like manner.

To the upper end of the grip slide is pivoted a link *g* which in turn is pivoted to the lower end of a lever G'. This lever below its pivot is provided with a portion *g'* which is at an angle to the main portion and with the link *g* forms a toggle lever for depressing the grip slide. This enables me to press the up-

per member of the clamp downward upon the cable with great force and secure a rigid grasp upon it.

Each of the jaws D D′ is provided with three openings d^3 d^3 and d^4 through the side walls thereof. The upper side of said openings is inclined inwardly and upwardly as shown at d^5 in Figs. 6, 7 and 8. The lower part of these openings is given dove-tail form while the intermediate portion of the openings is of uniform size through the whole thickness of the jaw.

The upper portion of the clamp or grip is of the form shown in Fig. 11. The narrow main body G is provided at each side with three dove-tail projections one for each of the openings in the two jaws and these projections engage said openings in operating the grip. The dove-tail projections of the upper member of the grip are of such a size as to pass freely into the intermediate portion of the openings in the jaws, and when forced downward engage with the dove-tail portions of the openings and lock the jaws rigidly together, while the cable is firmly clamped by the grip. When the upper grip member G is raised above the intermediate portion of the openings the outer edges of the projections engage the inclines d^5 of the openings and force the jaws apart. Gravity or spring action may be relied upon to bring the jaws together when the member G is forced downward, but I prefer to employ a positive means for accomplishing this result. At each end of one or more of the openings in the jaws I make a groove d^6 which follows the incline at the top of the openings and extends downward a short distance parallel with the outside of the jaw. The dovetail projection engaging said opening is in this case provided at its upper outer corners with two projections g^2 which enter these grooves. On raising the member G of the grip the projections may or may not have a function in opening the jaws D D′, but on forcing the member G downward the projections engage the lower cam edge of the groove and force the jaws inward together. When the projections shall have reached the straight vertical part of the groove the dove-tail projections of the member G will be in position to be forced into the dove-tailed portion of the opening and the two will descend together the projections holding the jaws in position until the dove-tailed portions are engaged sufficiently to secure them. The projections g^2 may or may not have any function when the dove-tailed portions are fully interlocked. This construction may be applied to each of the openings in the jaws and the jaws may have as many or as few openings in their sides as may be preferred.

In order to facilitate the separation of the jaws and also provide for removal in case of great wear, I form the lower edge of the groove d^6 by a removable block d^7, the outer face of which is flush with the end wall of the opening. I prefer to fasten this block by providing it with a shank d^8 dove-tailed into the inner wall of the jaw and secured by a screw d^9 passing through from the outside of the jaw. In order to avoid having the screw d^9 sustain the whole force borne by the cam d^7 I provide the shoulders d^{10} and d^{11} against which the cam is seated when in operative position.

The operation will be apparent to every one skilled in the art. When it is desired to take up the cable the lever F will be moved to flex the toggle levers b^4 b^5 and bring the grip frame into the position shown in dotted lines in Fig. 1. Before this movement the jaws should be brought into the position in dotted lines in Fig. 2, by the lever G′. The lever G′ is now moved to depress the grip slide to close the jaws upon the cable and lock them in position. The grip frame is then raised and the car will be started by a further movement of the lever G′ to clamp the cable.

In Figs. 9 and 10, I have shown a construction wherein all the movements of the grip slide and grip frame are produced by the movement of a single lever. In this case the parts are identical with those of the other constructions except the connections of the lever G^2 and their co-acting parts. In this case the grip frame is held when in its elevated position by pawls h h' pivoted upon the grip frame in any preferred manner. In this instance I have shown them pivoted to ears secured to the uprights b b', or cross bar c. These pawls engage ratchet notches a^2 in the frame. The pawl h is connected by link h^2 with the lever h^3 and the opposite end of this lever is connected with the pawl h' by a link h^4 so that the inward or outward movement of one produces a corresponding movement of the other. A spring h^5 is used to throw the pawls outward when permitted to do so. The pawl h' is provided with the notch h^6 and a spring latch I is located so that it will engage this notch when the pawls are moved inward out of the notches a^2. A latch operating lever J is pivoted on the cross bar c and has one end connected with the latch and its opposite end extending downward in position to be engaged and operated by one of the stops a^3 a^3 which receive the cross bar c on the descent of the grip frame and hold it from further downward movement. The grip slide E in this instance is provided with bearings on one side in which is mounted a shaft K. On each end of this shaft is an upwardly extending arm k which is of a length about equal to the length of the movement of the grip slide, so that when the latter is forced to its lowest position the arms k can be turned inwardly under the cross bar c. A spring k' normally serves to hold these arms outward out of position to engage the cross bar. On the cross bar a is placed a block k^2 which is seated and is free to move in guideways a^4 a^4 on the cross bar a. A spring a^5 serves to keep this block in a position closely adjacent to

the slot in the cross bar. When the grip slide is moved downward to close the jaws of the grip the arms *k k* come in contact with this block and as the spring controlling it is more powerful than the spring *k'* the arms are turned inward under the cross bar *c*.

The operation of the device is as follows: Supposing that the parts are in the position shown in Fig. 9 and it is desired to lower the grip to take up the cable. The lever G^2 is moved to raise the grip slide, the bearings of the shaft coming in contact with the cross bar *c* raises the grip frame and the pawl *h'* is forced inward until the latch I engages notch h^6 and holds the pawls in their inward position so that they will not engage the notches a^2 as the operator lowers the grip frame. The grip is now open and is lowered until its jaws extend on both sides of the cable. In this position the cross bar *c* rests on the stops a^3 a^3 and the lever J has been operated to move the latch and release the pawl *h'* pulling both of the retaining pawls in condition to again engage the notches a^2. The lever G^2 is now moved to depress the grip slide and to close and lock the grip jaws. This movement carries the arms *k* down into engagement with the block k^2 and they are forced inward under the cross bar *c;* an upward movement of the grip slide brings the arms *k* in contact with the cross bar *c* and the grip frame is thus raised by the lever G^2 until the pawls *h h'* engage notches a^2 a^2 when the parts are in position to move the car when the lever G^2 is moved to complete its grasp upon the cable. The slight upward movement of the grip slide required to bring the arms *k* into engagement with the cross bar *c* is not sufficient to cause arms *k* to free themselves from the blocks k^2 or to unlock the grip jaws. The upper grip member will however not bear upon the cable with such force as to give movement to the car.

The sides of the standards A against which the pawls *h h'* bear, above the notches a^2 extend farther inwardly than below the notches so that on raising the slide and grip frame the pawls *h h'* are pressed inward far enough to permit the latch to engage the notch in the pawl *h'*. After the release of the latches when the grip frame is in the lowest position the pawls bearing against the sides of the standards A are not forced inward far enough for the latch to engage with the notch and the pawls are thus made to engage the notches in the standards and hold the frame securely.

What I claim, and desire to secure by Letters Patent, is—

1. In a cable grip, the combination with two pivoted and perforated jaws forming the lower grip member, of an upper grip member having lateral integral projections extending outward through the perforations of the pivoted jaws to engage the said jaws exteriorly and lock them, substantially as described.

2. In a cable grip the combination with pivoted jaws forming the lower grip member, of an upper grip member having dovetail lateral projections for locking the jaws together, substantially as described.

3. In a cable grip the combination with pivoted jaws forming the lower grip member said jaws having lateral openings with upper inclined walls, of an upper grip member having lateral locking projections adapted to engage said inclines to open the jaws, substantially as described.

4. In a cable grip the combination with the grip frame, of the jaws pivoted thereto forming the lower grip member, said jaws having upwardly extending projections to engage said frame and hold them in alignment therewith, substantially as described.

5. In a cable grip the combination with the grip frame, and jaws pivoted upon a bar supported in said frame of the the grip slide passing through the said bar, whereby the same is securely held in place, substantially as described.

6. In a cable grip the combination with the pivoted jaws forming the lower member of the grip, said jaws having an opening or openings therein provided with upwardly and inwardly extending inclines and grooves following said inclines, of an upper grip member having lateral locking projections adapted to engage said inclines to open said jaws and provided with projections to engage said grooves to close them, substantially as described.

7. In a cable grip the combination with the pivoted jaw having the cam groove, of the removable cam block and retaining means, substantially as described.

8. In a cable grip the combination with the pivoted jaw having the cam groove, of the cam block having the shank d^8 and the screw d^9, substantially as described.

9. In a cable grip the combination with the pivoted jaw having the cam groove, of the cam block d^7 and shoulders d^{10} and d^{11}, substantially as described.

10. In a cable grip the combination with the grip frame, of the toggle levers b^4 b^4 the lever F and the links connecting the said lever with the toggles, substantially as described.

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

JOHN A. TAUBERSCHMIDT.

Witnesses:

L. P. WHITAKER,

JAMES J. HALLINAN.