

(No Model.)

C. F. VARNEY.
AUTOMATIC SASH LOCK.

No. 462,183.

Patented Oct. 27, 1891.

Fig. I.

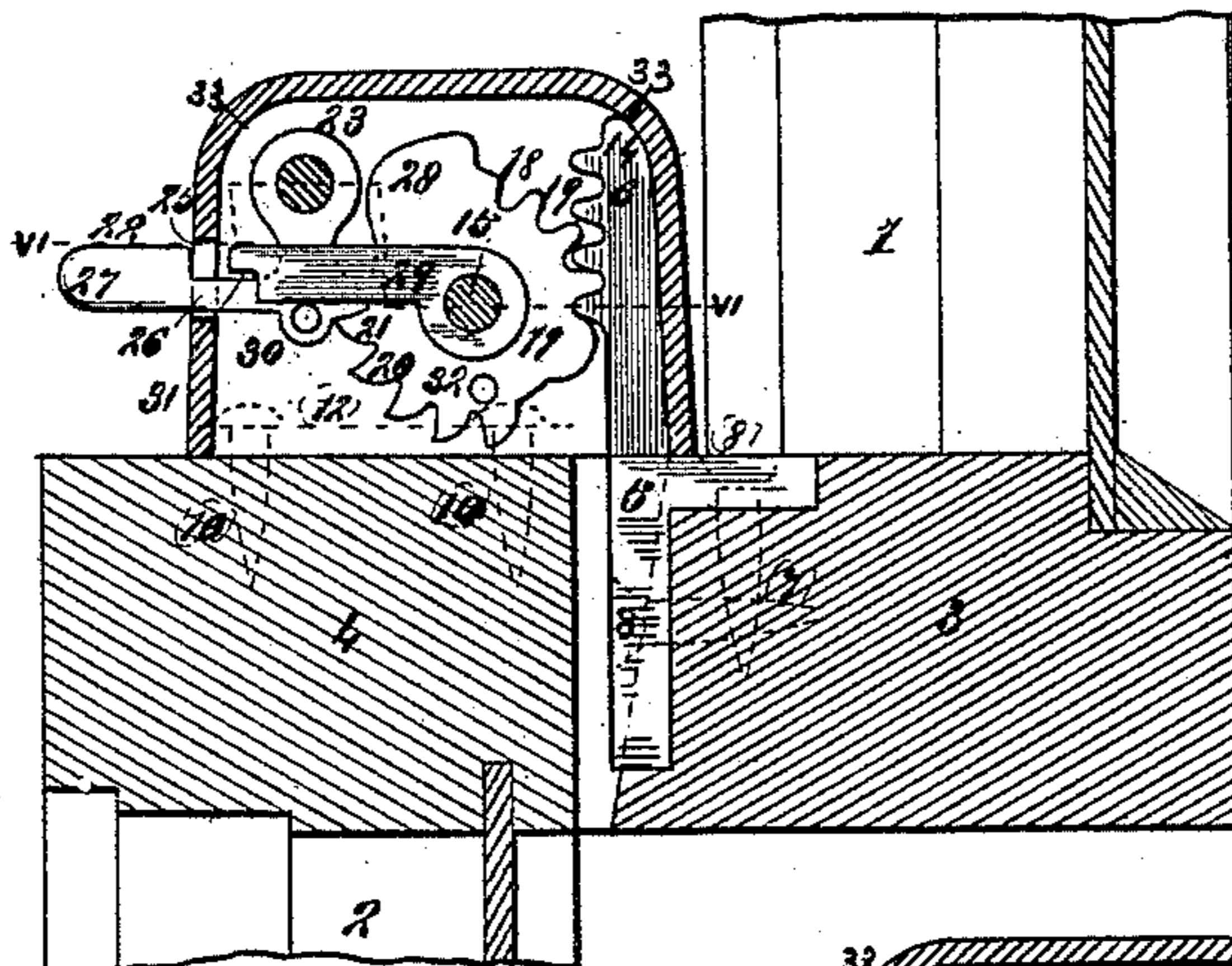


Fig. II.

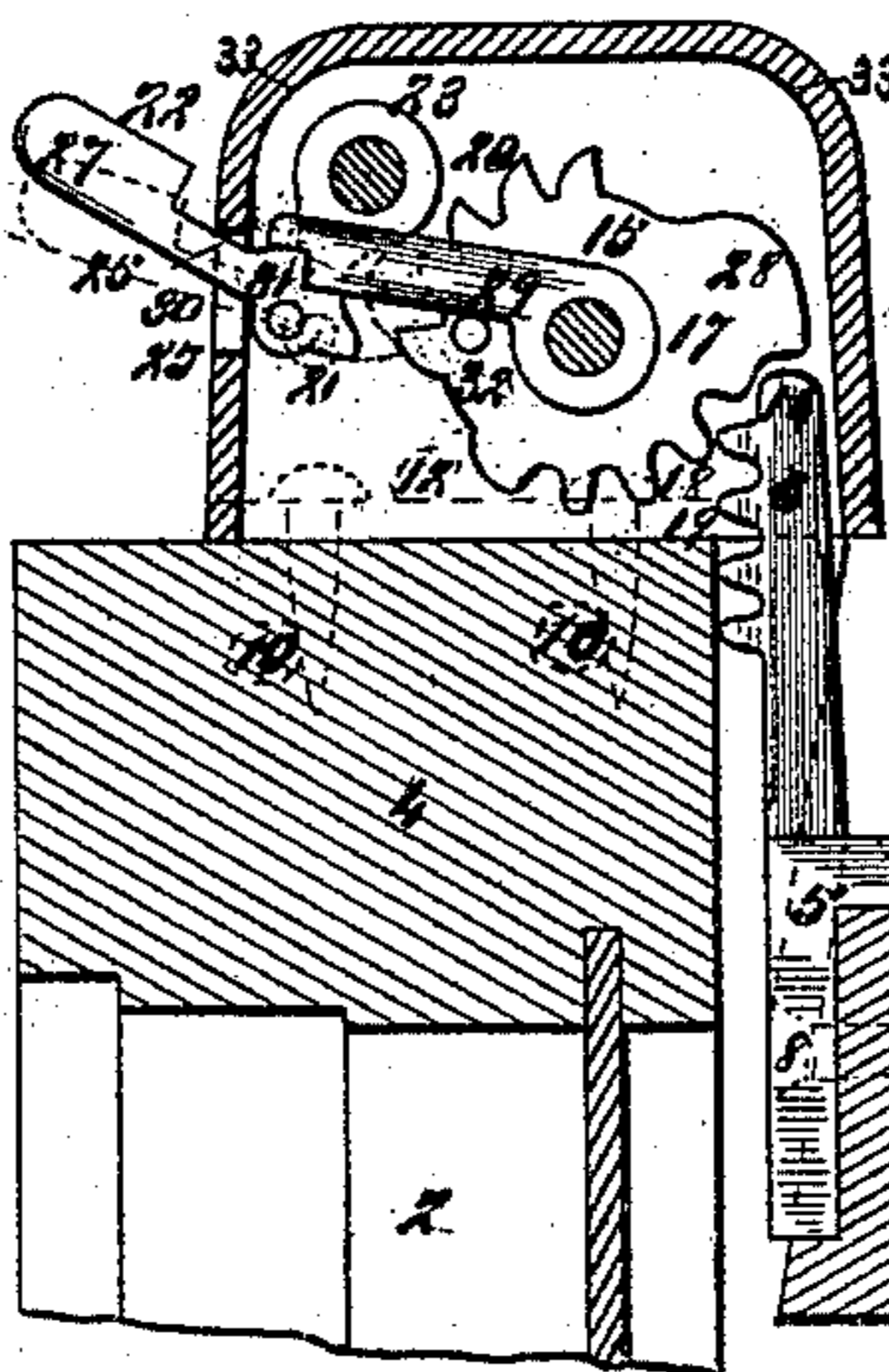
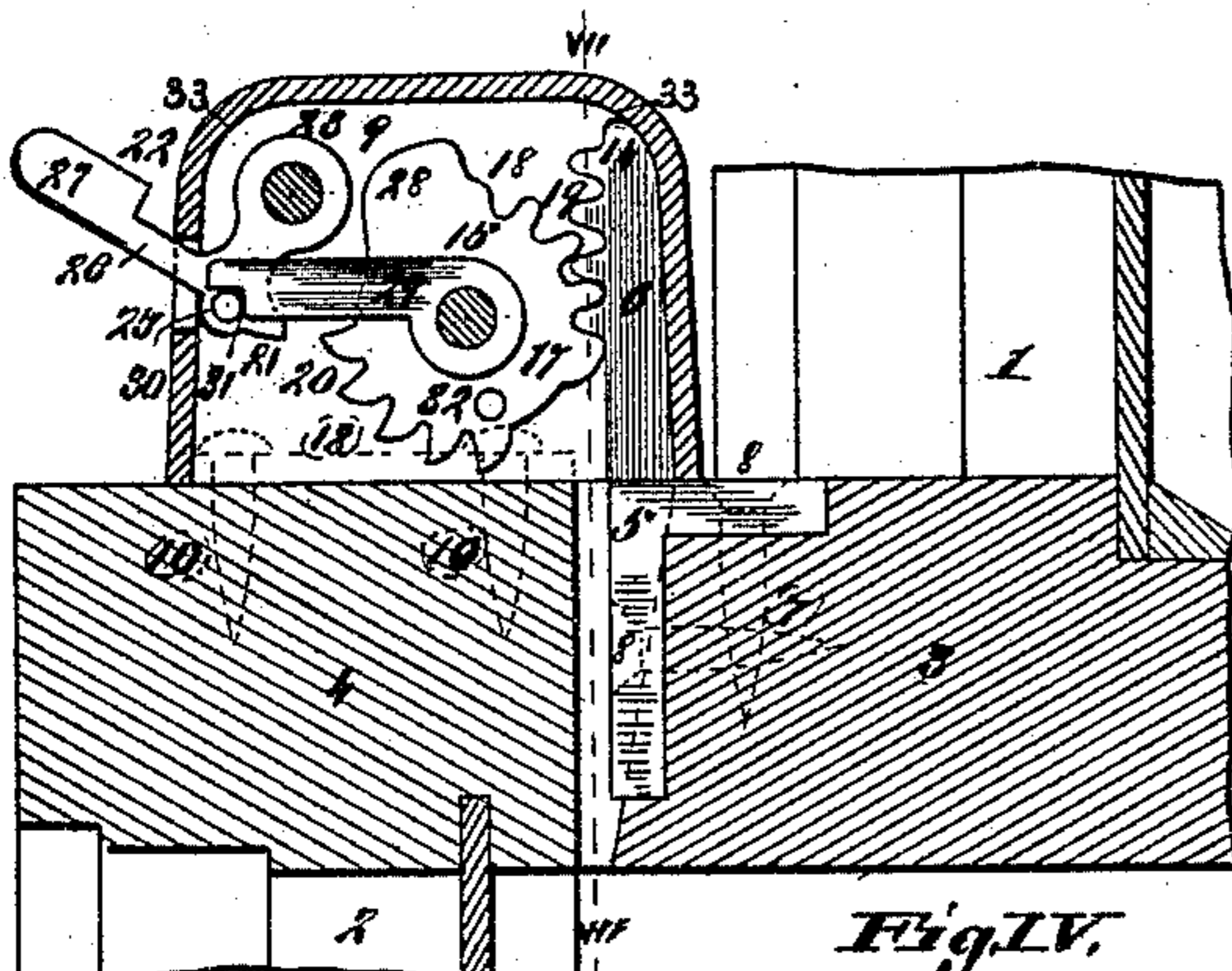


Fig. III.

Fig. IV.

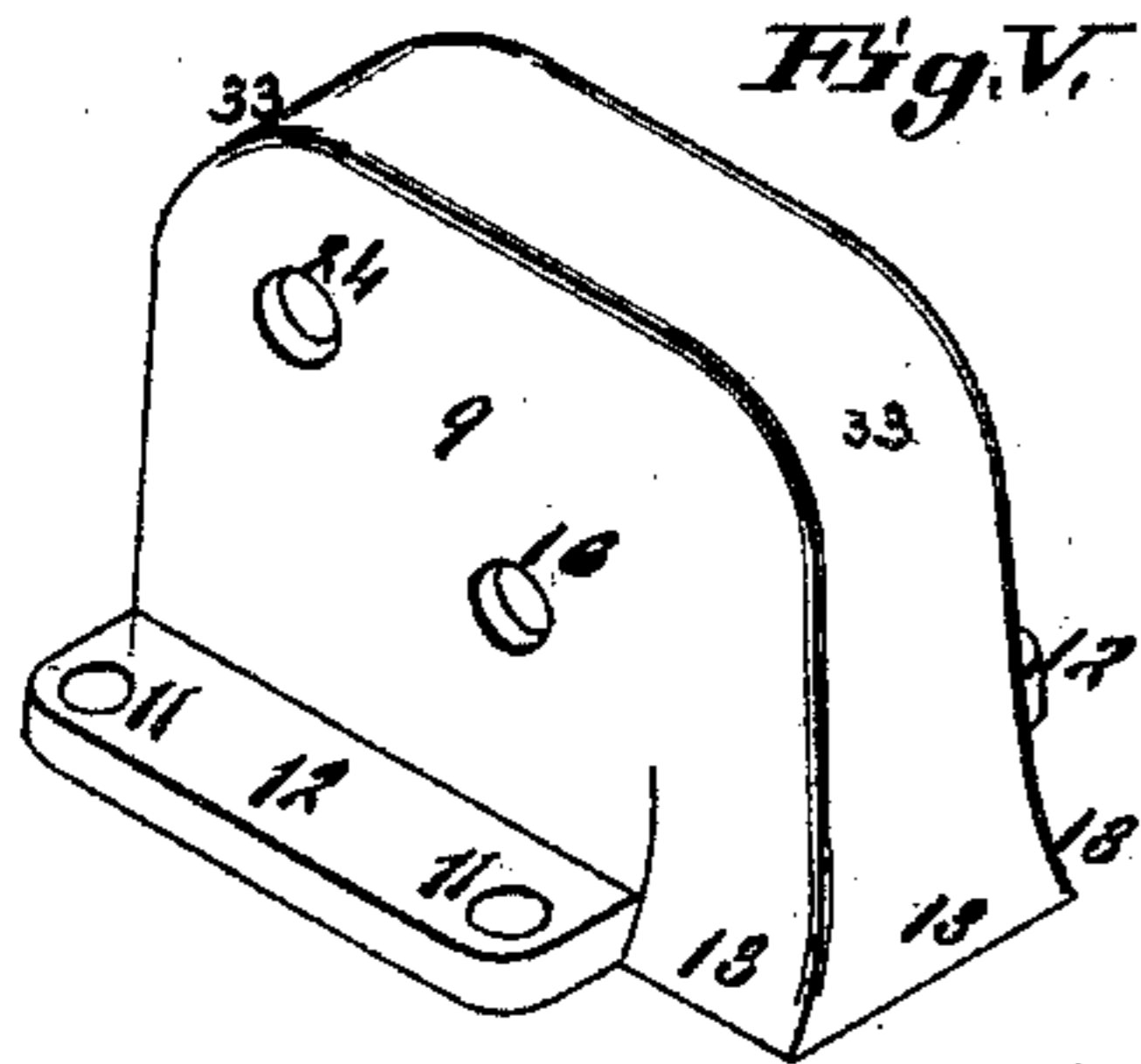


Fig. V.

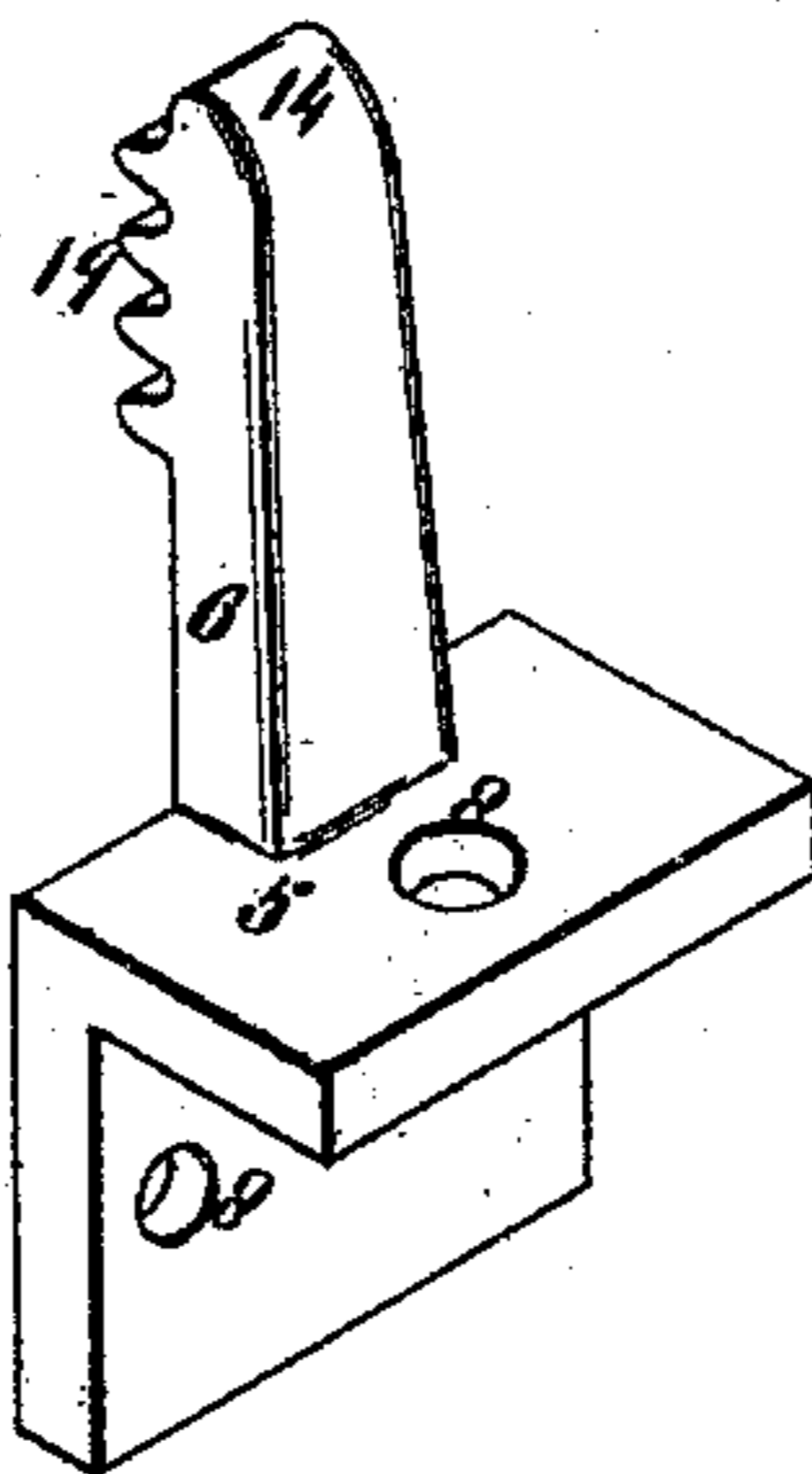
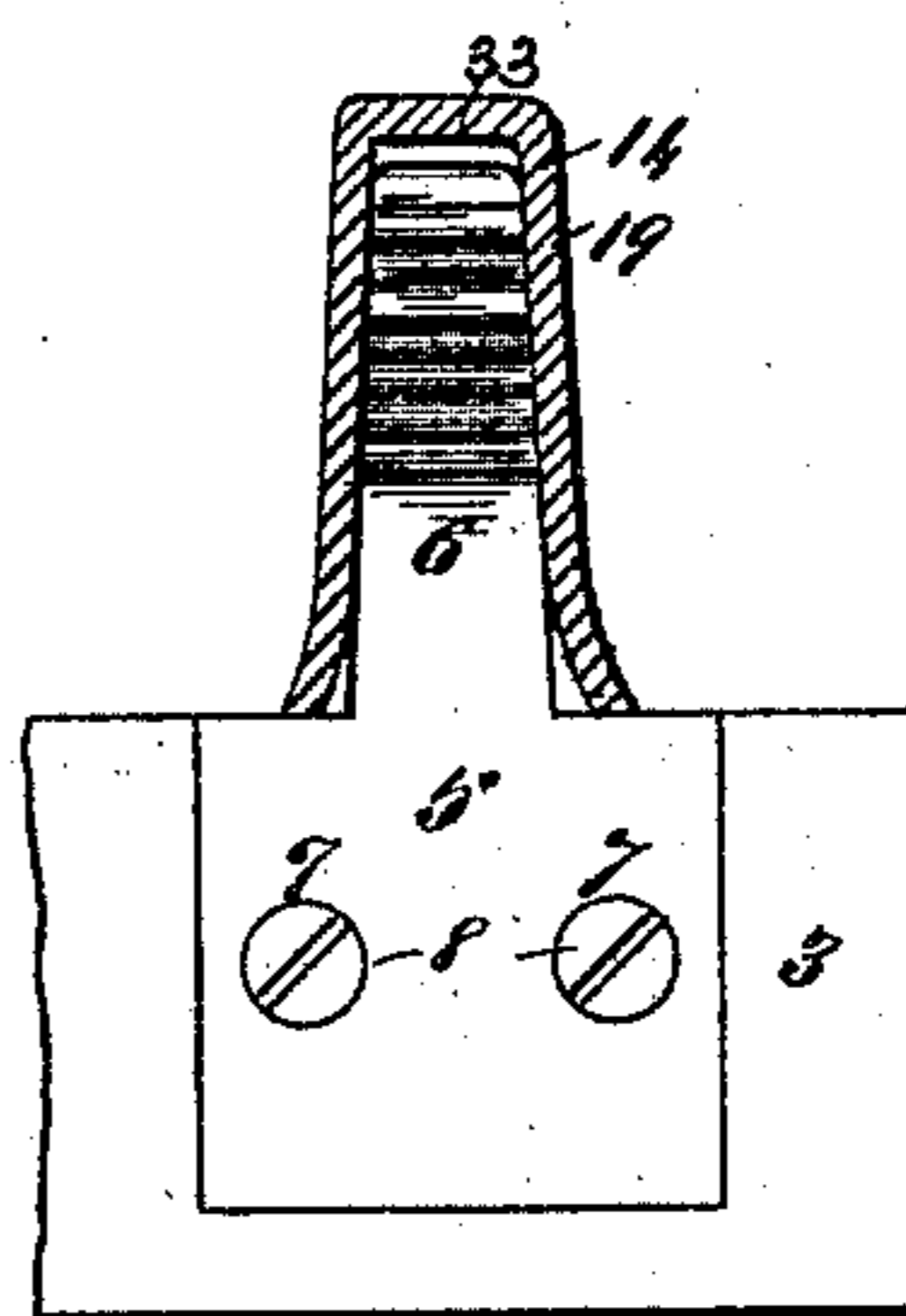
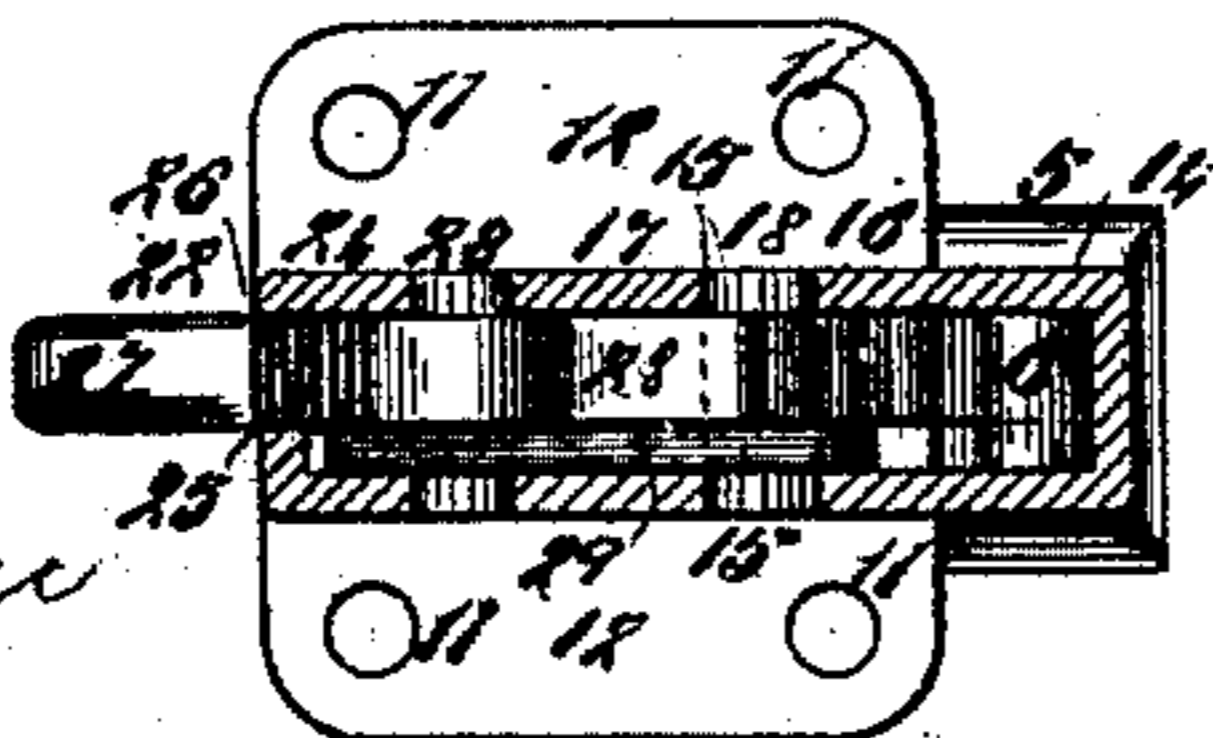


Fig. VI.

Fig. VII.



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UNITED STATES PATENT OFFICE.

CHARLES F. VARNEY, OF ST. LOUIS, MISSOURI.

AUTOMATIC SASH-LOCK.

SPECIFICATION forming part of Letters Patent No. 462,183, dated October 27, 1891.

Application filed May 29, 1891. Serial No. 394,547. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. VARNEY, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Automatic Sash Tumbler-Locks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 This invention relates to an eccentrically-gear-
ed tumbler-lock for sash that automatically locks itself on the descent of the sash and which lock is released by the elevation of a bell-
crank trip-lever; and the invention consists
15 in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a vertical section and shows a detail of the sash closed. It also shows the geared tumbler in its locked position and the
20 beak of the bell-crank trip-lever interlocked on its surmounting seat on the upper spur-cog of said geared tumbler. Fig. II is a like view and shows the bell-crank lever elevated and its locking-beak tripped from its spur-
25 seat, thus releasing the lock, the said lever being itself arrested in its inoperative position by the engagement of its laterally-projecting catch-pin in the terminal notch of the rider-arm. Fig. III is a like view and shows
30 the lower sash partially elevated, having been unlocked, as shown in Fig. II, the said elevating movement having thrown round the eccentric tumbler by its geared action on the vertical rack until the eccentric-weighted
35 head of said tumbler is arrested from further revolution by the stay-pin that projects from the side of said tumbler coming in contact with the rider-arm, the said arm being slightly elevated in consequence, thereby releasing
40 the catch-pin of the bell-crank lever, which lever then drops from the position shown in full lines to that shown in broken lines. Fig. IV is an enlarged perspective view of the vertical rack, which is secured to the meeting-
45 rail of the upper sash. Fig. V is a perspective view of the lock case or hood that is made to cover the eccentrically-gear-
ed tumbler-lock, and when the sash is closed covers the vertical rack with which said geared lock engages.
50 Fig. VI is a section taken on the stagger line VI VI, and shows the eccentrically-gear-
ed tumbler, the vertical rack with which it engages,

the bell-crank trip-lever, and the rider-arm; and Fig. VII is a vertical section taken on line VII VII, Fig. II, and shows the vertical-
55 geared rack secured to the meeting-rail of the upper sash, and the flaring lock-case for a hood secured to the meeting rail of the lower sash, the flaring sides of which hood are made to secure the initial embrace of the
60 bevel summit of the vertical rack to guide it to its seat in said hood, where it, after closer embrace, as said rack enters the flared portion of the hood, draws the meeting-rails
65 tightly together.

Referring to the drawings, 1 represents the upper and 2 the lower sash; 3, the meeting-rail of the upper sash, and 4 the meeting-rail of the lower sash.

5 is the angled-flanged base, which is integrally surmounted by the vertically-gear-
70 ed rack-pedestal 6. Said base is firmly secured to the meeting-rail of the upper sash by the screws 7, which are seated in perforations 8 in said base-flanged angle-plate and engage
75 in said meeting-rail.

9 represents the lock case or hood that incloses the geared-tumbler-lock works, with the exception of the projecting end of the trip-lever. The said lock case or hood is se-
80 cured to the top of the meeting-rail of the lower sash by the screws 10, that are seated in the perforations 11 in the side attachment flanges 12 of said hood and engage in said meeting-rail. It will be seen that the base of
85 the hood 9, at the end that embraces and incloses the vertical rack 6 when the sash is closed, is made with a flaring base 13, which serves the purpose when said sash becomes
90 shrunk and its joints loose from age, to always secure its initial clutch of the top of the vertical rack-pedestal 6, whose summit 14 is for the same reason beveled to facilitate said attachment when the sash is being closed. It will also be seen that as said rack-pedestal
95 increases in size from summit to base (as well as its inclosing hood) the tightening joint action of said rack-pedestal and hood draws the meeting-rails of the two sashes
100 tightly together to prevent draft from passing through the same.

15 represent the tumbler-shaft, which is mounted in the perforate bearings 16 in the lock case or hood, and on which shaft the

geared tumbler-eccentric 17 is loosely mounted. The forward cogs 18 of said tumbler-eccentric engage with the cogs 19 of the vertical rack 6 to effect the partial rotation back and forth of said eccentric. 20 represent spur-cogs on the rear periphery of said tumbler-eccentric, with which spur-gear the beak 21 of the bell-crank trip-lever 22 engages, as shown in Fig. I, when the sash is locked, and said beak locks on top of the upper spur-cog. The said bell-crank trip-lever is pivotally mounted on the shaft 23, which shaft is mounted in the perforate bearings 24 in the aforesaid lock case or hood 9. The outer end of said trip-lever projects through the slotway 25 in the rear of the hood, the said lever having a reduced stem 26 to the extent to which it works in said slotway, and a trigger extension 27 by an upward pressure on which the lever is tripped and the sash unlocked. 28 is an eccentric extension of the geared tumbler, which serves as an overbalance-weight to aid the throw of said tumbler-eccentric. 29 represents a rider-arm that is also mounted on the shaft 15 alongside the geared tumbler-eccentric. The said arm rides on the stay-pin 30, that projects laterally from one side of the bell-crank lever when the tumbler-eccentric is in its locking position, as shown in Fig. I. When, however, the trigger 27 of said lever is tripped up, as shown in Fig. II, thus withdrawing the beak 21 from the spur-gear of the eccentric, said stay-pin enters the notch 31 at the end of said rider-arm, and the bell-crank lever is thus held from dropping back into its previous position in which its beak 21 engages with the spur-gear to lock the geared eccentric.

32 represents a trip-pin that projects laterally from the side of the tumbler-eccentric at near the base of its spur-gear, which trip-pin, as shown in Fig. III, when the eccentric tumbles, throws up the rider-arm and releases the bell-crank lever from its engagement by the stay-pin 30 in the notch 31 of the rider-arm, so that said bell-crank lever then drops loose and ready for future service.

The operation of the device is as follows: When the sash is closed, (unless the bell-crank trip-lever has been thrown up by hand to release the lock, as in Fig. II,) the geared tumbler-lock and its coadjutory elements will always retain their locked position, as shown in Fig. I, the forward cogs 18 of the geared tumbler-eccentric 17 maintaining their locked engagement with the cogs 19 of the vertical rack, the tumbler-eccentric being attached to the lower sash and the vertical rack to the upper sash, thus locking the two sashes together, the said locked position being enforced by the beak 21 of the bell-crank trip-lever 22, which is, while in the locked position, seated on the upper rear spur-cog 20 of said eccentric, which it thus holds from tumbling. The lock of the sash in its closed position is thus effectively maintained. (See Fig. I.) When it is required to unlock the

sash, the projecting trigger end 27 of the bell-crank trip-lever 22 is merely tripped up, which withdraws its locking-beak 21 from its locking-seat on the spur-cog of the tumbler-eccentric, as shown in Fig. II. The stay-pin 30, that projects laterally from said bell-crank lever, which is seen in Fig. I, supporting the rider-arm 29, is by said tripping operation drawn forward and engages in the notch 31, said rider-arm dropping slightly as said stay-pin enters said notch. The bell-crank trip-lever is thus held from falling back until after the geared eccentric has tumbled, the sash still being closed, but unlocked. When the sash is opened by either raising the lower sash or lowering the upper one, as shown in Fig. III, the cogs 19 of the vertical rack, acting on the forward cogs 18 of the tumbler-eccentric 17, causes said eccentric to tumble or turn into the position shown in Fig. III, the overbalance weighted eccentric 28 helping to precipitate the tumble. Now it will be seen that when said eccentric turns or tumbles, the trip-pin 32, that projects from its side, comes in contact with the rider-arm 29 and elevates it sufficiently to release the stay-pin 30 from its retention-seat in the notch 31 of the rider-arm, when the bell-crank lever immediately falls from the position shown in full lines in said Fig. III to that shown in broken lines in the same figure, in which its beak 21 rests against the under side of the lower spur-cog, in which positions both the bell-crank lever and the tumbler-eccentric are maintained until the reclosing of the sash. The sash can be opened to any extent after the tumbler-eccentric has become disconnected from the vertical rack without changing the respective positions of the locking elements within the locking-case. When, however, the sash is again to be closed by lowering the lower sash or raising the upper sash, as the case may be, in accordance with which one at the time being is opened when at the final close the cogs 19 of the vertical rack come into contact with the cogs 18 of the tumbler-eccentric, the said eccentric is automatically reinstated in its locked position, (shown in Fig. I,) and as the eccentric retrogrades into said locked position the beak 21 of the bell-crank trip-lever jumps the spur-cogs, over which it rides (the curved rear sides of said cogs facilitating said overriding) until in its locked position it regains its seat on the forward side of the upper spur-cog, and the stay-pin 30 regains its initial position supporting the rider-arm, as shown in Fig. I. It will also be seen that the base of the hood or lock-case is made flaring and it has a bevel top 33; also the top of the pedestal-rack is beveled, so that not only is the initial connection of said parts facilitated, but also as the geared connection is consummated and the sash is fully closed the meeting-rails of the upper and lower sash are thus drawn tightly together, so as to avoid draft between the same.

The tight advancing nip of the flaring lock-

case or hood secured to the one sash on the bevel-ended vertical rack secured to the other sash, while of advantage in new windows for tightening their meeting joints is of still more special advantage with old shrunk window-frames for reducing the draft prevalent between the joints of said frames. The said tight nip also serves as an anti-rattler to prevent the rattler-shaking of the sash in new windows or old. Now it will also be seen that the active end of the rider-arm 29 is always retained by the stay-pin 30 below and the shaft 23 above, (on which shaft the bell-crank trip-lever works,) between said two points; also the tumbler-eccentric is restrained from tumbling past its working position on either hand, being stayed from extreme forward progression by the trip-pin 32 coming in contact with said rider-arm and said rider-arm with said shaft 23 and will be stopped from an extreme backward throw past its working position by the overbalance-weight eccentric coming in contact with the shaft 23 of the bell-crank lever, so that in either case said eccentric is held in suitable position for the next operation; otherwise it could not be automatic.

In conclusion, it will again be seen that the eccentric 17 will lock at any point of its geared connection with the geared rack 6. Thus, if it is desired to leave the sash ajar or slightly open for ventilation, or even if unintentionally the sash is neglected to be entirely closed, in either case the eccentric will be automatically locked.

I claim as my invention—

1. In an automatic sash-lock, the combination of the geared rack 6, secured to one sash, the geared tumbler-eccentric 17, secured to the other sash and having the forward cog-gear 18, which engages with said rack 6, the spur-gear 20, projecting from the rear of said tumbler eccentric, the bell-crank trip-lever 22, and the projecting beak 21 of said lever, which is adapted to engage with the spur-gear 20 of said eccentric to lock the same, substantially as and for the purpose set forth.

2. In an automatic sash-lock, the combination of the geared rack 6, secured to one sash, the geared tumbler-eccentric 17, secured to the other sash, the shaft 15, on which said eccentric is mounted, the cog-gear 18, that projects from the forward side of said eccentric, the spur-cogs 20, that project from its rear side, and the overbalance-eccentric 28,

that projects from its upper side, said rack having the cog-gear 19, that engages when locked with the forward cog-gear 18 of the eccentric, the pivoted bell-crank trip-lever 22, the said lever having a projecting beak 21, that engages with said spur-cogs 20 to secure the engagement of the lock, said lever having the projecting trigger 27, the stay-pin 30, that projects laterally from said trip-lever, the rider-arm 29, mounted on said shaft 15 and resting in locking position on said stay-pin 30, the said arm provided with the notch 31, into which said stay-pin creeps when said trigger is tripped up, and the trip-pin 32, projecting laterally from the tumbler-eccentric, substantially as and for the purpose set forth.

3. In an automatic sash-lock, the combination of the bevel-pointed and geared pedestal-rack 6, secured to one sash, the geared tumbler-locking eccentric 17, secured to the other sash, the bell-crank trip-lever 22, that engages with said geared eccentric to enforce the retention of its lock, the rider-arm 29, the trip-pin 32, the stay-pin 30, and the lock-case 9, having the flaring base 13 and bevel top 33, that engages with the bevel-pointed pedestal-rack 6 to tighten the joint of the meeting-rails, substantially as and for the purpose set forth.

4. In an automatic sash-lock, the combination of the bevel-pointed and gear-cogged pedestal 6, the lock case or hood 9, the said case provided with the flaring base 13 and bevel top 33, that secures its initial engagement of said pedestal 6 and ultimate clamp, the shaft 15, mounted in said case, the tumbler-eccentric 17, mounted on said shaft, the said eccentric having the forward cogs 18, the rear spur-cogs 20, and the overbalance-weight 28, the shaft 23, mounted in said lock-case, the bell-crank trip-lever 22, mounted on said shaft, the said lever having the projecting trigger 27 and the laterally-projecting stay-pin 30, the rider-arm 29, mounted on said shaft 15 and resting on said stay-pin 30, and the trip-pin 32, that projects laterally from the tumbler-eccentric, and which pin, when the eccentric turns as the sash opens, trips up the rider-arm to release the trip-trigger lever, substantially as and for the purpose set forth.

CHARLES F. VARNEY.

In presence of—

BENJN. A. KNIGHT,
SAML. KNIGHT.