F. WATSON & W. MOULDING.

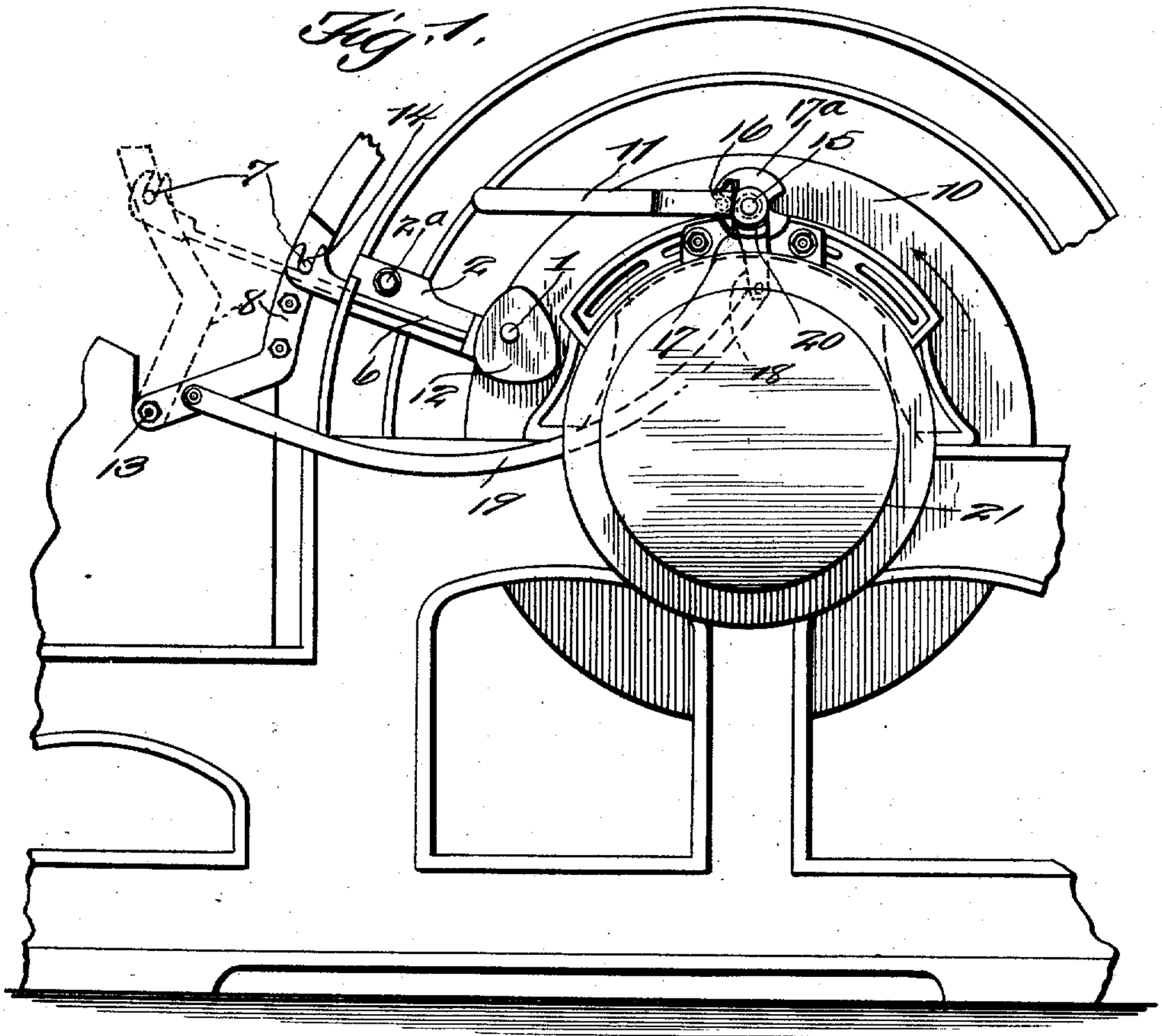
AUTOMATICALLY CONTROLLED SECURING OR LOCKING DEVICE FOR SAFEGUARDING MACHINERY.

APPLICATION FILED FEB. 24, 1908.

998,866. **Patented July 25, 1911.**

2 SHEETS—SHEET 1.

Fig. 1.



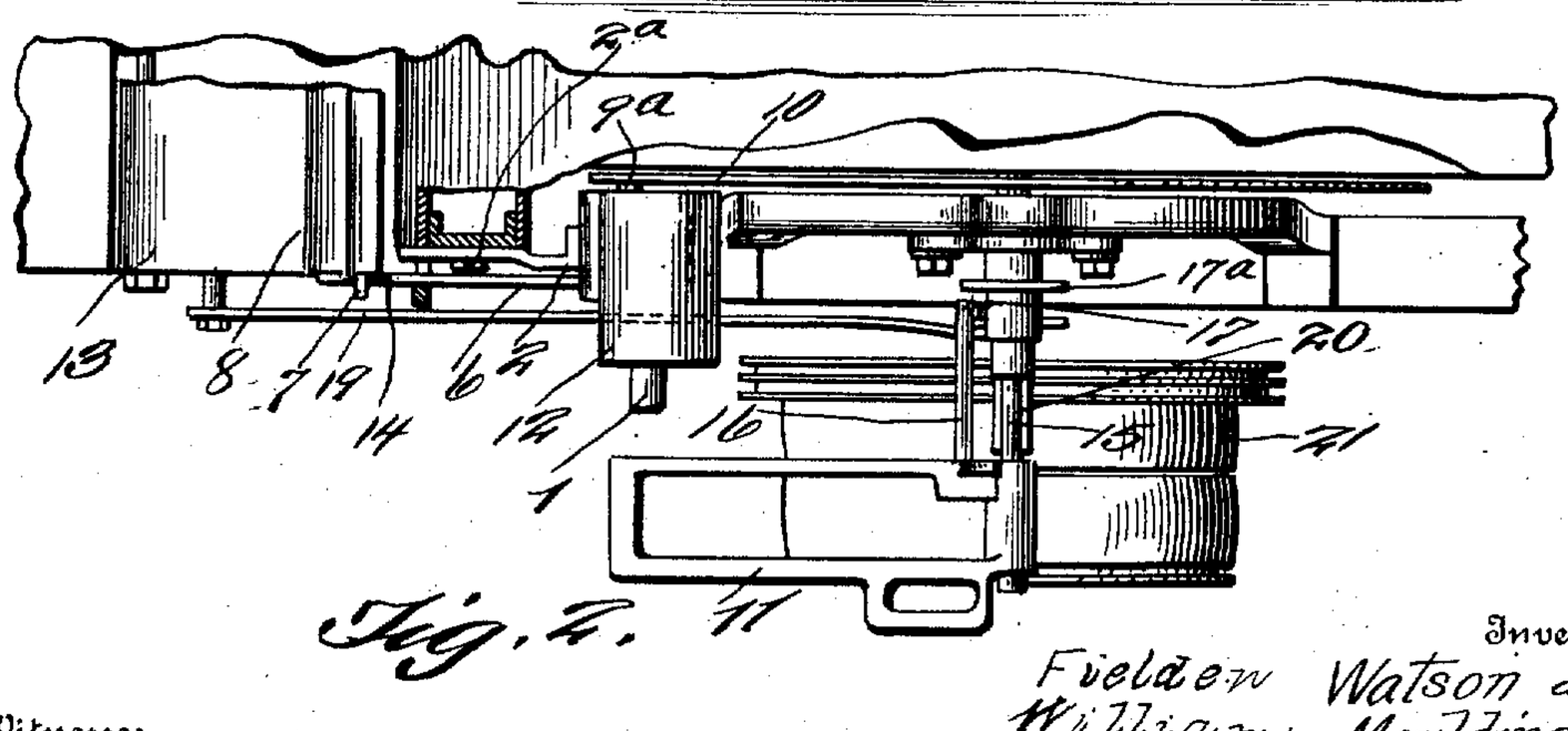


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

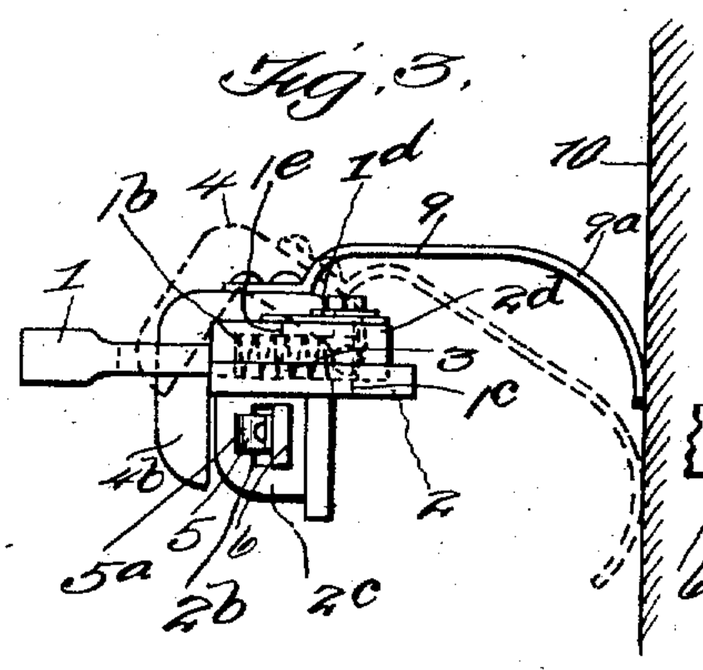


Fig. 4.

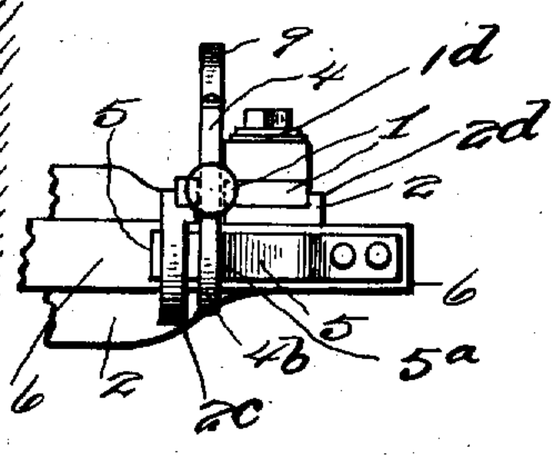


Fig. 6.

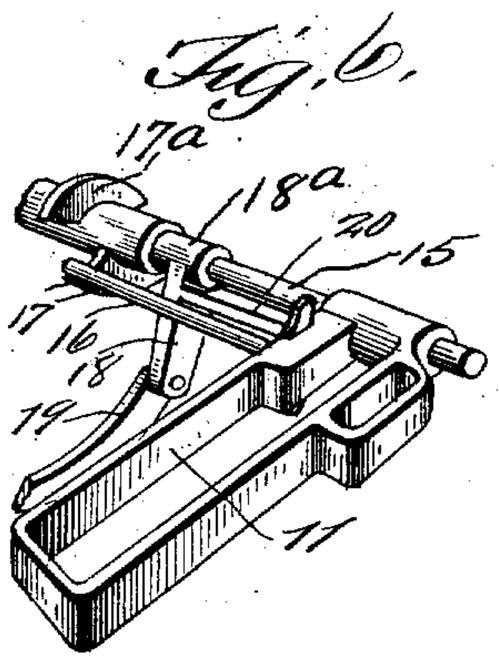


Fig. 10.

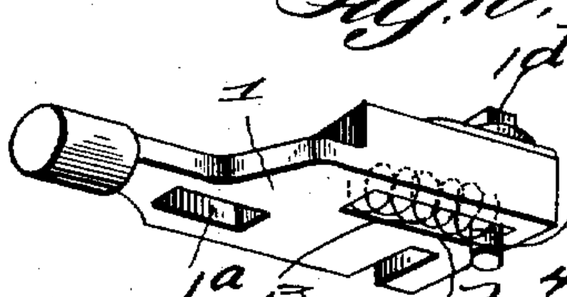


Fig. 5.

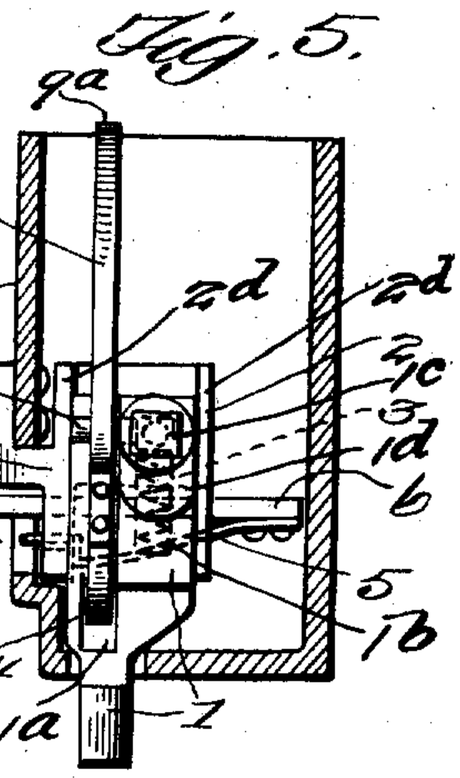


Fig. 11

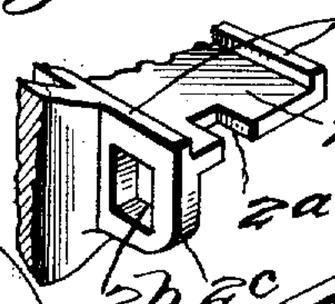


Fig. 14.

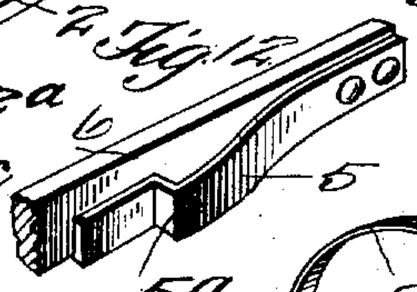


Fig. 7.

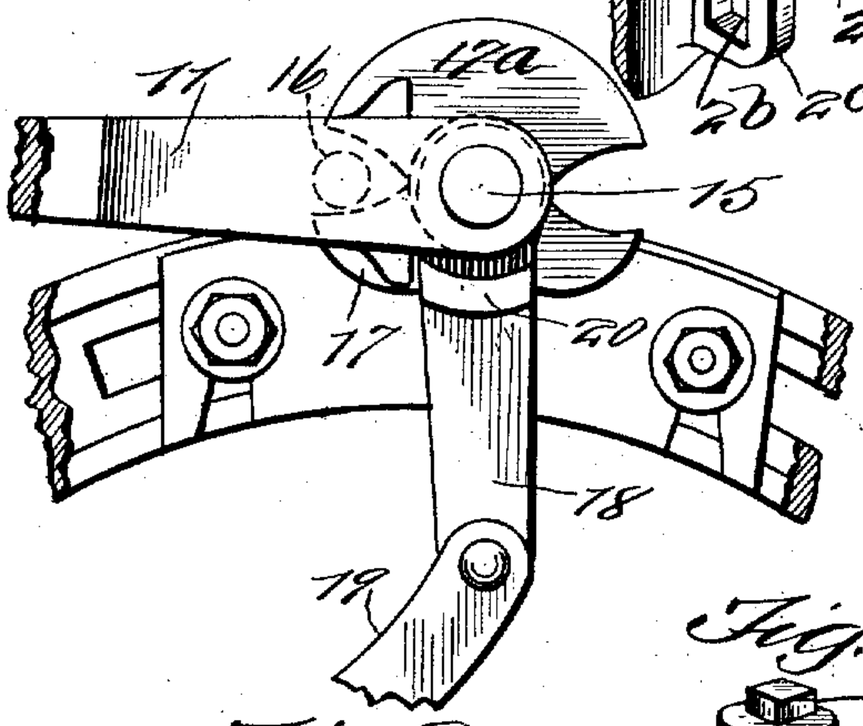


Fig. 8.

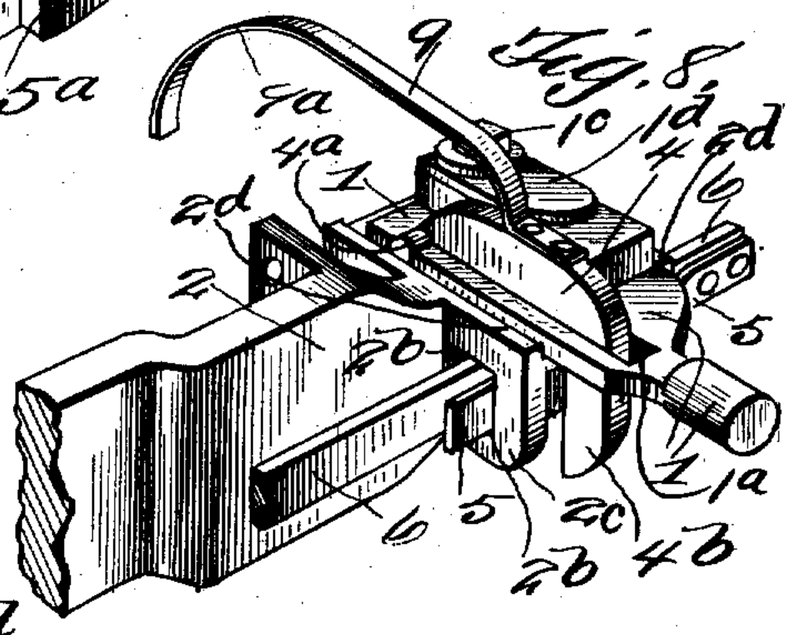


Fig. 13.

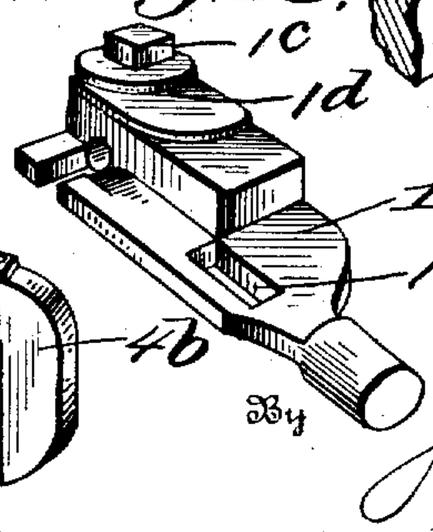
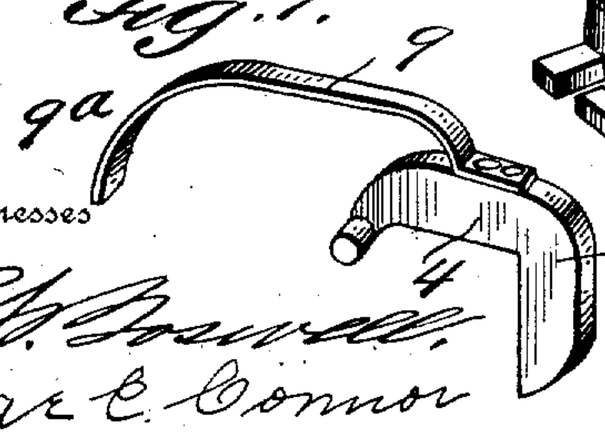


Fig. 9.



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AUTOMATICALLY-CONTROLLED SECURING OR LOCKING DEVICE FOR SAFEGUARDING MACHINERY.

998,866. Specification of Letters Patent. **Patented July 25, 1911.**

Application filed February 24, 1908. Serial No. 417,356.

To all whom it may concern:

Be it known that we, FIELDEN WATSON and WILLIAM MOULDING, subjects of Great Britain, residing at Cswaldtwistle, in the county of Lancaster, England, have invented a new and useful Improvement in Automatically-Controlled Securing or Locking Devices for Safeguarding Machinery, of which the following is a specification.

This invention, generally speaking, belongs to the art of locking devices, and it particularly pertains to a new and useful automatic locking device, especially designed for use upon closures of incasements of starting or change mechanism or machinery.

The invention contemplates for its prime object the provision of an automatically-controlled securing or locking device for use upon safeguarding machinery, at all times and under various conditions, in order that, when the machinery is rotated, changes or adjustments in the moving parts are prohibited, thereby preventing improper operation of all inclosed moving parts.

A further object of the invention resides in improved means whereby the closure of the incasement or cover is locked or secured, and cannot be opened or removed while the machine is in motion.

The invention is applicable to any desired part of the machine, as herein set forth and shown in the drawings; that is to say, to any part or parts it will conveniently operate; but, in the present disclosure and showing, it is applied to the stripping cover of the revolving flat cards.

The invention comprises a push bar having a hinged angular arm adapted to abut against a shouldered spring latch, which may be carried by any starting handle, rod, lever, cover guard or other mechanism; in this instance being shown as being carried by the locking bar.

Figure 1 is a side elevation of the machine, showing the invention applied thereto and coöperating with the flat card. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a side elevation of the mechanism for controlling the closure of the incasement. Fig. 4 is a front elevation of Fig. 3. Fig. 5 is a top plan view of Fig. 3, showing the permanent casing 12 in section. Fig. 6 is a perspective view of the strap fork mechanism, adapted to operate in conjunction with the invention. Fig. 7 is an enlarged elevation of a portion of Fig. 1. Fig. 8 is a perspective view of the structure shown in Fig. 3. Fig. 9 is a perspective view of the angular arm 4 and the spring projection 9. Fig. 10 is a perspective view of the push bar 1. Fig. 11 is a perspective view of a portion of the carrying bracket 2. Fig. 12 is a perspective view of a section of the locking bar 6, showing the shouldered spring latch 5. Fig. 13 is a perspective view of the push bar 1, as shown in Fig. 10, with the exception that the upper portion is more minutely illustrated.

In the drawings: 1 denotes a manually operated push bar, so mounted as to move in a suitable carrying bracket 2, which is suitably secured to the machine by bolts or other means 2^a, as shown in Figs. 1 and 2. This push bar coöperates with a suitable spring 3, in order that it will revert to what may be termed its "outward position" when not held manually to its "inward position."

Hinged or fulcrumed at 4^a and upon the push bar is the angular arm 4, and, when the push bar is manipulated, the said arm will contact or abut against the shouldered spring latch 5, suitably carried by the locking bar 6; that is to say, when the said angular arm is in the position shown in full lines in Fig. 3, and also in Figs. 4, 5 and 8. This arm is provided with a spring projection 9, shown in the drawings as a flat spring having its extremity curved, as indicated by the numeral 9^a. When the push bar 1 is manually operated, the spring projection frictionally contacts, because of its disposition, with the revolving card cylinder 10. The revolving cylinder, in this instance, is the moving member of the machine, and which determines and constitutes the controlling medium. It is only when the movable member is at rest that the angular arm 4 may contact with the shouldered spring latch 5; that is, when the push bar 1 is manipulated, in order to release the locking bar, thereby allowing the closure of the incasement or guard to readily open. The recess 2^a, especially shown in Fig. 11, allows the downwardly projecting portion 4^b, of

the angular arm 4, to move in order to contact with the said shouldered spring latch 5.

The locking bar 6, at one end, is provided with a recess 14, Fig. 2, which engages the lug 7 upon the hinged or pivoted stripping closure 8, which is pivoted at 13 to the frame of the machine, as shown in Figs. 1 and 2. The end portion of the locking bar, that carries the shouldered spring latch, moves through an opening 2^b of the bracket 2, and, when the closure 8 is in the position shown in full lines, Fig. 1, the shoulder 5^a of the said latch engages the downwardly extending portion 2^c of the said bracket, so as to securely hold the closure locked. The downwardly projecting portion 4^b of the arm 4 operates through the opening 1^a of the push bar; that is, when it is oscillated by the revolving card. The push bar is guided upon the bracket 2, by means of the flanges 2^d. The push bar is hollowed out, as shown at 1^b, in which the spring 3 is located. Said spring 3 is disposed between one end of said hollowed out portion and the pin or bolt 1^c, which is threaded into the bracket 2. This pin or bolt 1^c is provided with an enlargement 1^d, which covers the slot 1^e, the purpose of which slot is to allow the push bar to be operated.

Should the push bar be operated, manually or otherwise, while the cylinder or revolving card 10 is in motion, the spring projection 9 will contact with said cylinder or card 10, thereby tilting the angular arm and rendering it impossible to release the locking bar, by the disengagement of the shoulder 5^a of the spring latch 5 and the downwardly extending portion 2^c. When pressure upon the bar 1 is removed, the spring 3 returns to its original position, and the angular arm falls to its normal position. Access may only be had to the push bar, because it is the only proper manually operative part of the device; that is to say, upon the exterior of the casing 12.

When the machinery or cylinder or revolving card is at rest and pressure is applied to the push bar, the spring projection will engage the card 10 (which is not revolving at the time being) and will not, of course, tilt the angular arm. In this respect, the downwardly projecting portion 4^b will operate the shouldered spring latch 5, in order to release the locking bar 6, so that the closure 8 may be opened.

The strap fork 11 is designed to slide upon the carrying rod or bar 15, and the strap fork is held in a horizontal position by the pin 16 bearing upon the edge of the fixed guide or member 17.

The lever 18 radiates from the sleeve 18^a, which is fulcrumed upon the rod or bar 15. The said lever 18 is automatically operated when the closure 8 is opened by means of the rod 19, which is connected to the lever 18 and to the closure 8. Protruding from the lever 18, is an elongated lug 20, which, when the strap fork is over the loose pulley and the closure is opened, is brought into the path of one of the two lugs projecting from opposite sides of the strap-fork, thereby preventing the fork from being moved onto the fast pulley so long as the closure is open.

It is obvious that when the closure is in the position shown in full lines in Fig. 1 it is securely locked by the bar 6, and cannot be liberated without applying pressure upon the bar 1. Pressure upon the bar 1 is only effective when the cylinder or card is stationary. Not until the elongated lug 20 is removed, from the path of the strap fork is it possible to move the belt (not shown) in coöperation with the fast pulley 21. The lug 20 is automatically removed by the closing of the closure 8.

Having thus fully described the invention, what is claimed as new and useful is—

1. In a locking device for closures of incasements, a locking bar to secure the closure against movement, a spring latch carried by said bar, a push bar, an angular arm carried by said push bar for engagement with said latch, and means carried by said angular arm for engagement with a revolving part of the machine, whereby said angular arm is incapable of operation during motion of said revolving part.

2. In combination with a machine incasement and closure, a locking bar to secure said closure against movement, a push bar, an angular arm pivotally carried by said push bar to engage said locking bar and provided with a spring projection to engage a revolving part of the machine to prevent operation of said arm during movement of said revolving part.

3. In combination with the closure of a machine casing, a locking bar to engage and secure said closure against movement, a push bar, an angular arm carried by the push bar to engage and actuate said locking bar, and a spring projection having a curved portion carried by said arm adapted for engagement with a movable part of the machine to prevent operation of said angular arm.

4. In combination with the closure of a machine casing, a carrying rod having a lever journaled thereon, a strap fork journaled on the carrying rod, said lever having a connection with the closure and being operated when the closure is opened, means on said lever adapted to be brought into the path of said strap fork to prevent movement of the latter when said closure is in its open position, locking means to hold said closure against movement, and means to release said locking means when a revolving part of the machine is at rest, said last-named means having means to engage said

revolving part when said revolving part is in motion, to prevent the locking means from being released.

5. In combination with the closure of a machine casing, a push bar having an angular arm movable thereon, a locking bar connected with said closure and designed to secure the same against movement, said angular arm being arranged for engagement with said locking bar to release the same to unlock said closure, and means borne by the angular arm and having a part thereof adapted to engage a revolving part of the machine, whereby said angular arm is rendered inoperative until said revolving part is in a state of quiescence.

6. In combination with a machine cover, a carrying rod, and a strap fork on said carrying rod, means carried by the carrying rod and adapted to be brought into the path of the strap fork to secure the latter against movement, means connecting the first-named means with the cover to operate said first-named means when said cover is opened, a push bar, a locking bar connected with said cover, and means pivoted to the push bar and arranged for engagement with the locking bar, to release the same, said pivoted means having a part thereof adapted to engage a revolving part of the machine, whereby the pivoted means is rendered incapable of releasing said locking bar until said revolving part is in a state of quiescence.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FIELDEN WATSON.
WILLIAM MOULDING.

Witnesses:
ARNOLD ISHERWOOD,
JAMES DRAKE.