

(No Model.)

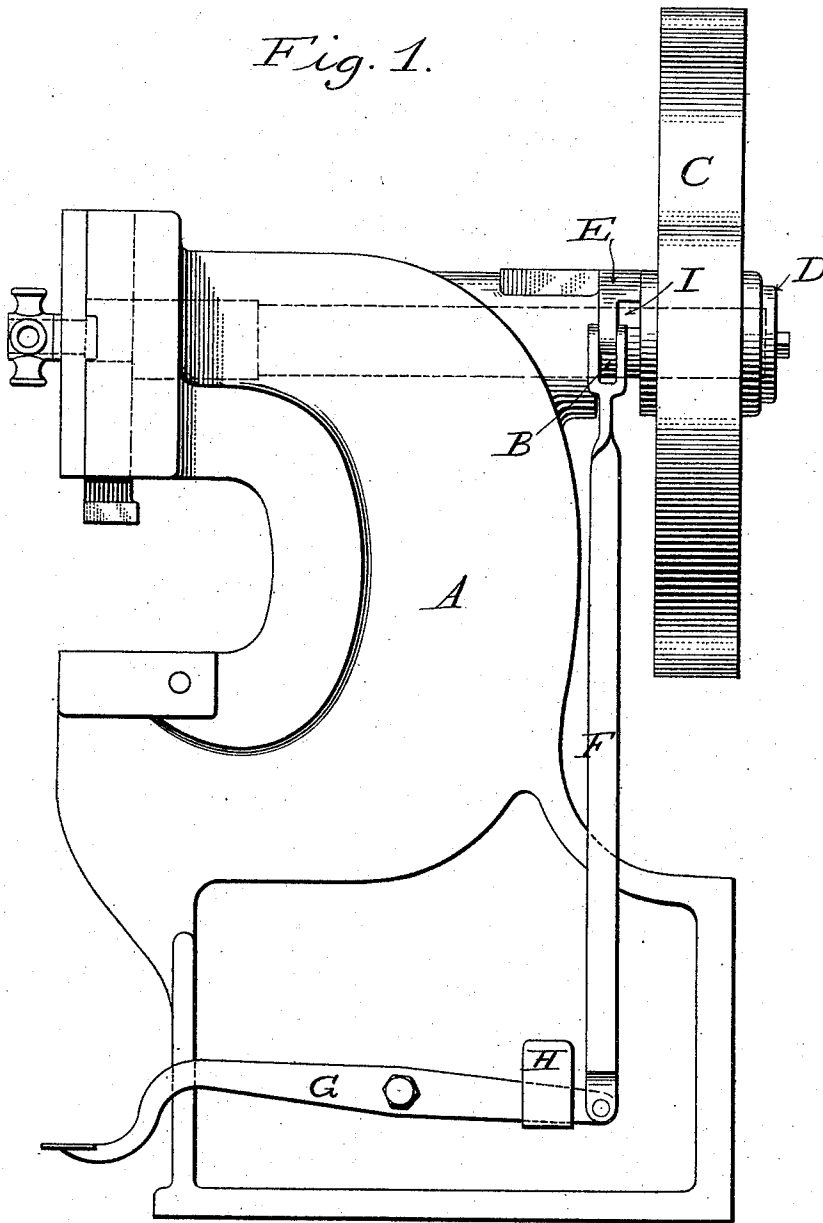
2 Sheets—Sheet 1.

C. F. HUNT.
CLUTCH AND STOP.

No. 537,534.

Patented Apr. 16, 1895.

Fig. 1.



Charles F. Hunt

Inventor

Witnesses

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2 Sheets—Sheet 2.

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Fig. 2.

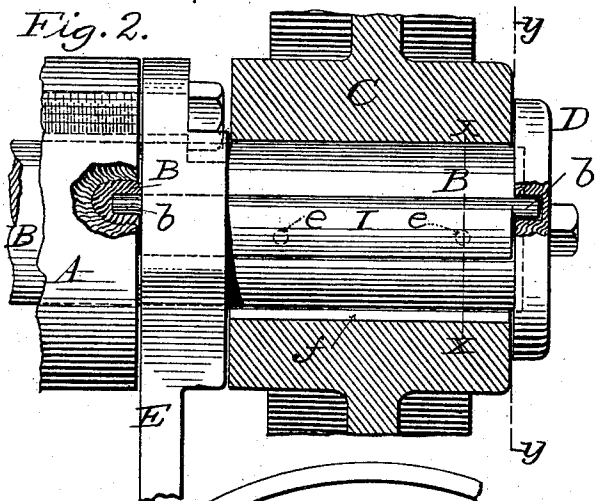


Fig. 3.
on x-x

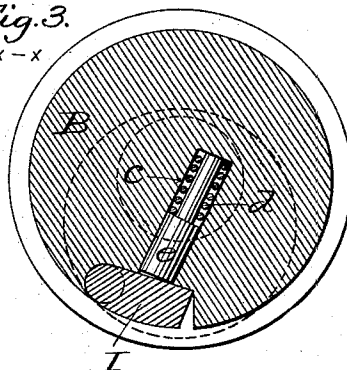


Fig. 4.
on y-y

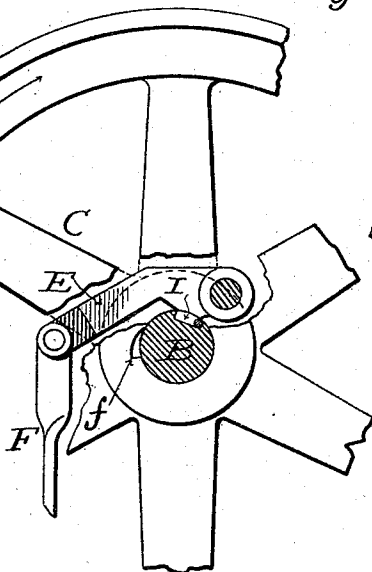


Fig. 5.
on y-y

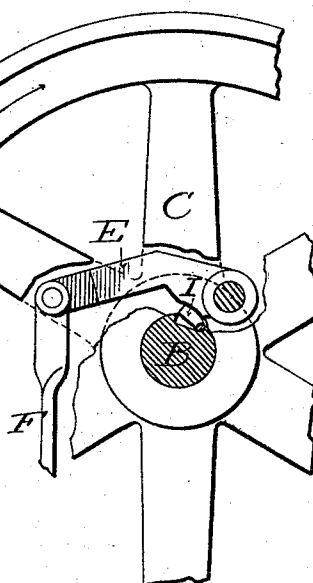


Fig. 6.

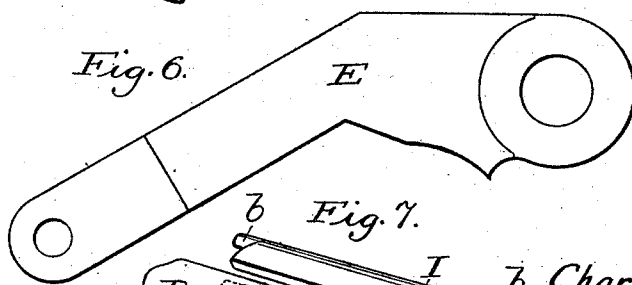
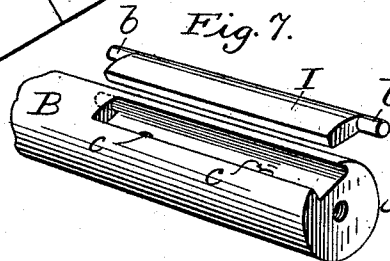


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES FRANCIS HUNT, OF MOLINE, ILLINOIS, ASSIGNOR TO THE
WILLIAMS, WHITE & COMPANY, OF SAME PLACE.

CLUTCH AND STOP.

SPECIFICATION forming part of Letters Patent No. 537,534, dated April 16, 1895.

Application filed December 26, 1894. Serial No. 533,008. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FRANCIS HUNT, a citizen of the United States, residing at Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Clutches and Stops, of which the following is a specification.

My invention relates to a novel clutch for connecting a shaft with a wheel, and also in means whereby said clutch is enabled to act as an automatic stop for the driven or rotated member.

The invention is applicable to many classes of machinery, particularly punching and shearing presses, in which it is desired to give to the shaft an intermittent rotation while allowing the driving wheel to rotate continuously.

For the purposes of illustration I have shown my invention as applied to a punching and shearing press, but of course do not limit myself to such machine.

In the drawings,—Figure 1 is a side elevation of a press with my improvements applied; Fig. 2, a view, partly in section, of one end of the main shaft; Fig. 3, a transverse sectional view of the shaft and its key on the line $x-x$ of Fig. 2; Figs. 4 and 5, sectional views on the line $y-y$, with the wheel partly broken away showing the parts in different positions; Fig. 6, a side face view of the operating lever, and Fig. 7, a perspective view of the end of the shaft and its key.

A indicates the main frame of a punching press, and B indicates a shaft journaled in suitable bearings in the upper part of said main frame,—the said shaft being provided at its front or forward end with an eccentric, as is usual in this class of machines. The rear end of the shaft projects beyond the rear portion of the main frame as shown in Fig. 1, and upon this projecting end is mounted loosely a band wheel C, which is prevented from moving lengthwise of the shaft by means of a collar D secured to the outer end of the shaft and a lever E pivoted to the frame and extending between the rear end of the main frame and the inner face of the wheel or its hub, as clearly shown in Fig. 1. This lever is connected by means of a link or pitman F with a lever G pivoted to the side of the main

frame, as shown in Fig. 1; said lever G being provided with a weight H, or with a spring, for a purpose presently explained.

The shaft B is grooved longitudinally to receive a key I, whose outer face is curved on the arc of a circle and concentric with the shaft, as shown in Figs. 3, 4, 5 and 7. The rear edge of the key and the corresponding wall of the groove in the shaft are made rounding so as to permit the key or feather to oscillate and at the same time have a firm bearing throughout its length in its seat in the shaft. The key is provided at each end with cylindrical journals b , one of which is mounted in the washer applied to the end of the shaft, while the other is seated in a cylindrical hole or socket in the axle. It will be noticed upon reference to Fig. 1 that the key is of a length greater than that of the hub of the wheel, and that the key projects beyond the inner face of the latter. In other words, the inner face of the key projects into the space between the wheel and the rear part of the main frame of the machine, so that it may be acted upon by the lever E. The shaft is further provided with transverse sockets c in which are mounted the coiled springs d and the plugs or blocks e , the construction and arrangement being such that the springs acting through the blocks, tend to throw the outer or free edge of the key outward beyond the periphery of the shaft in order that it may engage the shoulder f formed in the hub of the wheel.

When the parts are in the position shown in Fig. 1, the lever E is held down upon the key by means of the weight H, and the key is thereby held into its seat in the shaft, thus permitting the wheel to rotate continuously without effecting an engagement with and rotation of the shaft. It is of course to be understood that the weight or its equivalent, the spring, shall exert force or pressure upon the lever E in excess of the force exerted by the springs upon the under side of the key. If the operator now places his foot upon the lever G and, overcoming the weight, raises the lever E, the springs d rock the key upon its pivots or journals and throw its edge outward into a position where it will be engaged by the shoulder formed in the hub of the

wheel. The wheel thereupon becomes locked to the shaft, and it will remain in engagement with the shaft and rotate the latter so long as the lever E is held up off the key.

5 As soon as the operator removes his foot from the treadle, the lever will act upon the key, overcome the resistance of the key springs, and force the key into its seat in the shaft, thereby disconnecting the wheel and the shaft.

10 It will be noticed upon reference to Fig. 2 that the wheel has an extended bearing face along the edge of the key when the parts are in engagement, and that the thrust or strain is transmitted directly to the rounded back
15 face of the key and the correspondingly rounded face of the socket or key-seat.

In the construction shown in the drawings it is obvious that the shaft and wheel will be disconnected when the key reaches the upper
20 side of the shaft, so that if the operator removes his foot from the treadle after clutching the wheel and shaft together, the said wheel and shaft will be automatically disconnected through or by means of the lever E,
25 when the shaft reaches the position shown in Fig. 2. From this it will be seen that the point in the rotation of the shaft at which the wheel and shaft are or may be disconnected and the shaft allowed to come to rest, can be
30 varied as desired by changing the position of the lever E and causing it to disconnect the wheel and shaft at any other point than at the upper side.

Having thus described my invention, what
35 I claim is—

1. In combination with a main frame; a longitudinally grooved shaft B; a wheel C thereon provided with an internal shoulder *f*; a disk D secured to the shaft; a key I journaled at one end in the disk and at the other
40 end in the shaft, and also seated in the groove in the shaft so that it may rock or tip to project beyond the shaft to engage the wheel; means bearing directly upon the body of the
45 key for holding the latter in its seat, and springs tending to throw the key out to be engaged by the wheel.

2. In combination with a main frame; a longitudinally grooved shaft B; a wheel C thereon provided with an internal shoulder *f*; a
50 disk D secured to the shaft; a key I journaled at one end in the disk and at the other end in the shaft, and also seated in the groove in the shaft so that it may rock or tip to project beyond the shaft to engage the wheel; springs
55 tending to throw the key out to engage the wheel; and a lever pivoted to the main frame between said frame and the wheel to bear upon the key.

3. In combination with a main frame; a
60 shaft B provided with a longitudinal groove and with a cylindrical socket at one end of said groove; a disk secured to the end of the shaft and provided with a corresponding cylindrical socket; a key provided with cylindrical end journals fitting in the sockets
65 formed in the shafts and the collar, and also resting at its rear edge in the groove in the shaft; a wheel mounted loosely upon the shaft and provided with an internal shoulder *f*;
70 springs tending to throw the key outward to be engaged by the wheel; and means for holding the key in its seat; the main body of said key projecting beyond the side of the wheel to receive the holding means.

4. In combination with a main frame; a longitudinally grooved shaft B; a wheel C thereon provided with an internal shoulder *f*; a key I journaled at one end in the shaft and also
80 seated in the groove in the shaft so that it may rock or tip to project beyond the shaft to engage the wheel; means bearing directly upon the body of the key, tending to hold the latter in its seat; and springs tending to
85 throw the key out beyond the periphery of the shaft to be engaged by the wheel.

In witness whereof I hereunto set my hand in the presence of two witnesses.

CHARLES FRANCIS HUNT.

Witnesses:

HARRY AINSWORTH,
JNO. J. WILLIAMS.