

(No Model.)

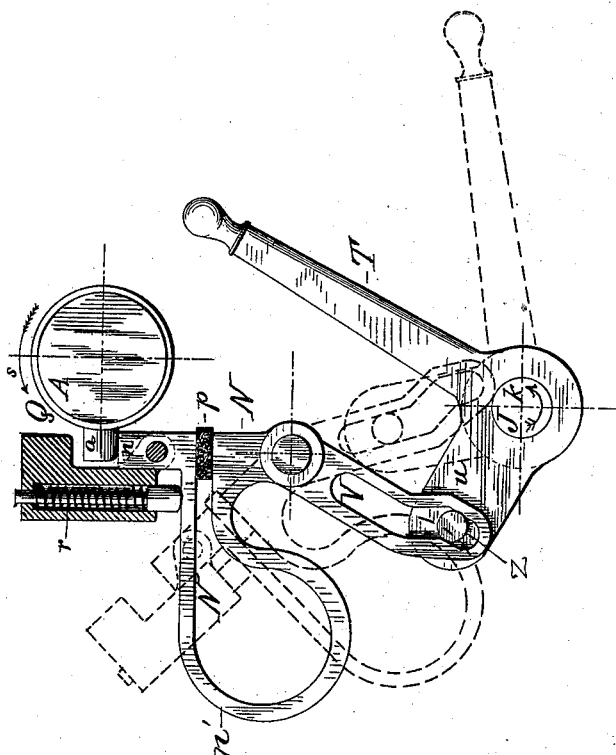
2 Sheets—Sheet 1.

H. J. JOHNSON.

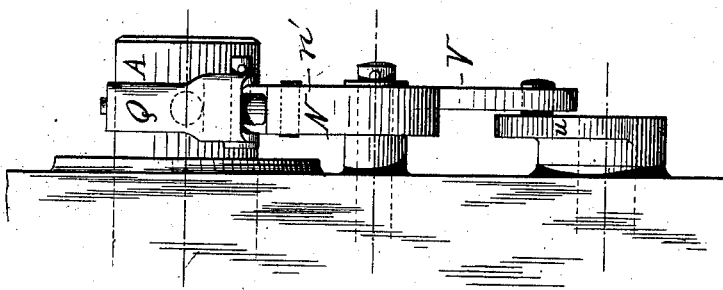
STOP MOTION.

No. 384,040.

Patented June 5, 1888.



1501



புது

WITNESSES:

Alfred Lark,  
Mr. P. Haile,

INVENTOR:

Henry J. Johnson

(No Model.)

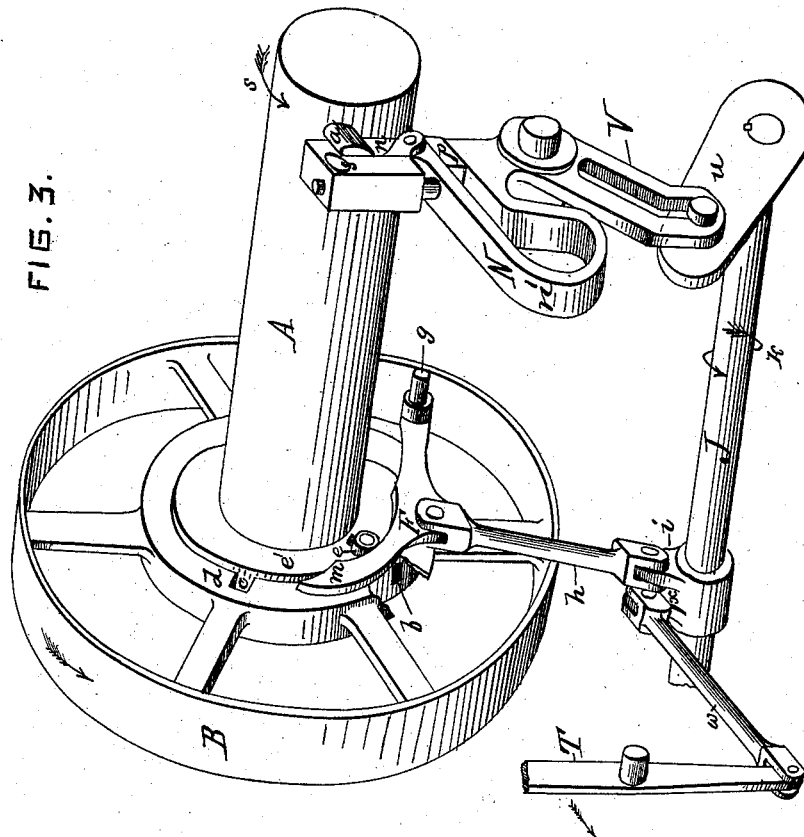
2 Sheets—Sheet 2.

H. J. JOHNSON.

STOP MOTION.

No. 384,040.

Patented June 5, 1888.



WITNESSES:

Alfred M. Locke,  
Mrs P. Haile,

INVENTOR:

Henry J. Johnson.

# UNITED STATES PATENT OFFICE.

HENRY J. JOHNSON, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO PLUMB,  
BURDICT & BARNARD, OF BUFFALO, NEW YORK.

## STOP-MOTION.

SPECIFICATION forming part of Letters Patent No. 384,040, dated June 5, 1888.

Application filed January 30, 1886. Serial No. 190,394. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY JAMES JOHNSON, of the city and county of Providence, and State of Rhode Island, have made an invention of certain new and useful Improvements in Stop-Motions for Stopping the Revolution of Shafts at Predetermined Angular Positions; and I do hereby declare that the following, in connection with the accompanying drawings, is a full, clear, and exact description and specification of the same.

My invention is more particularly applicable to the driving-shafts of bolt-heading machines, which require to be stopped at a certain angular position in the operation of the machine; and the object of the invention is to enable the shaft be stopped and held in the desired position until it is to be restarted, and then to enable the stopping and holding devices to be readily disengaged from the shaft.

To this end my invention consists of certain combinations of mechanical devices, which are recited in the claims at the close of this specification. In order that these combinations may be fully understood, I have represented in the accompanying drawings and will proceed to describe the best modes in which I have thus far embodied the invention for practical use.

Figure 1 of said drawings represents the stop mechanism as seen endwise of the shaft. Fig. 2 is a side view of the same. Fig. 3 is a perspective view of the stop mechanism and clutch mechanism detached from the frame of the machine with which they are used and with the hand-lever modified.

The driving-shaft A of the machine to which the stop mechanism is applied may be driven in any convenient manner—as, for example, by means of a belt-pulley, B, to which a driving-belt is applied, and this belt-pulley or its substitute is combined with the driving-shaft by means of a clutch consisting of a pin (not shown) sliding in a socket, b, in a part, e', attached to the driving-shaft and the clutch-ring d of the driving-pulley, provided with slots c to receive the clutch-pin. In order that the disconnection may be readily effected, I prefer to fit the clutch-pin with a friction-roll, e, and to use a shipper, F, which has for its pivot a

stud, g, secured to a portion of the bed or frame of the machine. Not shown in the drawings.) The shipper is connected by a link, h, with the arm i of a rock-shaft, J, so that when the rock-shaft is turned in the direction indicated by the arrow k the inclined end m of the shipper is placed within the track of the friction-roll e of the clutch-pin, and the latter, bearing upon the inclined end of the shipper, is moved toward the driving-shaft, thereby withdrawing it (the clutch-pin) from engagement with the clutch-ring d of the driving-pulley and disconnecting the driving-shaft from the driving-pulley. When, on the other hand, the rock-shaft J is moved in the reverse direction to that indicated by the arrow k, the shipper F is withdrawn from the friction-wheel of the clutch-pin, and that pin is left free to re-engage with the slot of the pulley when the revolution of the pulley brings the slot opposite the end of the clutch-pin. The re-engagement is then effected by a spring (not shown) operating upon the clutch-pin. The clutch-pin and shipper, above described, constitute the means which I prefer to use to disconnect the driving-shaft from the driving-pulley or its substitute.

In order that the driving-shaft, when disconnected from the driving-pulley, may have its revolution stopped, it is fitted with a stop-pin, a, and the following means for stopping the revolution of the shaft and its stop-pin is provided: A spring-stop, N, consisting of the bumper n and the spring n', is pivoted to the frame of the machine, so that the spring-stop may either be placed in the position represented in continuous lines in Fig. 1, with its bumper n in the path of the stop-pin a of the driving-shaft, or may be placed in the position represented in dotted lines in Fig. 1, when its bumper n is out of the way of the stop-pin of the driving-shaft. The contact of the stop-pin a with the bumper n of the spring-stop, when in the former position, stops the revolution of the shaft, and the jar that would be incident to the striking of one part of the spring-stop against another part of it may be prevented by a cushion consisting, preferably, of a block of vulcanized rubber, p, which is inserted between the two parts. In order that the shaft,

when stopped, may be held from material recoil or from being turned backward, the following means of holding the shaft and stop-pin is provided: A jaw, Q, is pivoted to the spring-stop N, and is held in the proper position relatively thereto by means of a spring, *r*. The spring permits the holding-jaw to yield to the pressure of the stop-pin *a* when advancing against the holding-jaw in the direction of the arrow *s*, but causes the holding-jaw to close over the stop-pin as the latter passes the jaw, so that any material recoil of the stop-pin and shaft is prevented, and the shaft is held at rest until the spring-stop N is withdrawn from the stop-pin. As the holding-jaw Q is carried by or connected with the stop-bumper *n*, the two may be simultaneously moved into and out of their respective positions for operating upon the shaft A, and as the stop-bumper and the holding-jaw are both combined with the same spring *n'*, that spring may operate with either device, as the operation of the mechanism requires.

In order that the spring-stop N and holding-jaw Q may be readily placed in position for stopping the driving-shaft and may be readily withdrawn or disengaged, they are connected with a lever-handle, T, which may be arranged in different ways—as, for example, in the manner represented in Fig. 1, or in the manner represented in Fig. 3.

The connection may be conveniently made by means of a crank-arm, *u*, connected with the lever-handle, and a slotted arm, V, connected with the spring-stop, and a locking device is provided, so that when the holding-jaw and the stop-bumper are placed by the attendant in their positions for operating upon the shaft the attendant is relieved of the labor and attention required to hold them in those positions, and is free to employ both hands and to give his attention to other work. The form in which this locking device is preferably constructed is shown in the drawings, and consists in a skewed notch, *z*, at the end of the slot of the slotted arm V, this notch being inclined to the circular curve in which the crank-pin of the crank-arm *u* moves, so that pressure upon the arm V tends to force the crank-pin toward the end of the slot. The positions which the lever-handle, crank-arm, locking-notch, spring-stop, and holding-jaw will occupy when the driving-shaft is stopped, and when it is permitted to revolve, are represented, respectively, in continuous lines and in dotted lines in Fig. 1.

In order that the stop mechanism and clutch-pin may be operated simultaneously, the crank-arm *u* may be connected with the rock-shaft J for operating the shipper F, as repre-

sented in Fig. 3, so that the means for disconnecting the driving-shaft from the driving-pulley or its substitute and the means for stopping and holding said shaft are combined by said rock-shaft. In this case the lever-handle may be pivoted to a stud in the bed or frame of the machine, and the turning of the rock-shaft J by the hand-lever V simultaneously places the shipper F in the position to disengage the clutch-pin, and places the spring-stop and holding-jaw in the positions to stop and hold the driving-shaft. In Fig. 3 the lever-handle T is connected with the rock-shaft J by means of a link, *w*, and arm *x*; but the lever-handle may be connected with the rock-shaft otherwise—as, for example, by securing it to the crank-arm *u* of the stop mechanism, as represented in Fig. 1.

Having thus described the best mode in which I have embodied my invention, I declare that I do not claim in this patent the combination of the stop mechanism and the clutch mechanism; nor, broadly, the combination of a shaft and its stop pin or lug, with means of stopping its revolution and means of holding it from recoil, as I am aware that such combinations were not new at the date of my application for this patent.

I claim as my invention—

1. The combination, substantially as set forth, with a revolving shaft, of the spring-stop and the holding-jaw carried by said stop.
2. The combination, substantially as set forth, of the stop-bumper by which the revolution of the driving-shaft is stopped, and the holding-jaw, both mounted on the same spring.
3. The combination, substantially as set forth, of a stop-bumper by which the revolution of the driving-shaft is stopped, with the lever by which said bumper is moved, and a locking device one part of which is connected with the stop device and the other part connected with said lever, by which the stop-bumper is held in its operative position when moved thereto by said lever.
4. The combination, substantially as set forth, of the stop device and the holding-jaw, with a lever by means of which both are moved, and with a locking device one part of which is connected with the stop device and the other connected with said lever, by means of which the stop device and holding-jaw are held in their operative positions when moved thereto by said lever.

In witness whereof I have hereto set my hand this 23d day of January, A. D. 1886.

HENRY J. JOHNSON.

Witnesses:

THEO. W. PHILLIPS,  
WM. R. HAILE.