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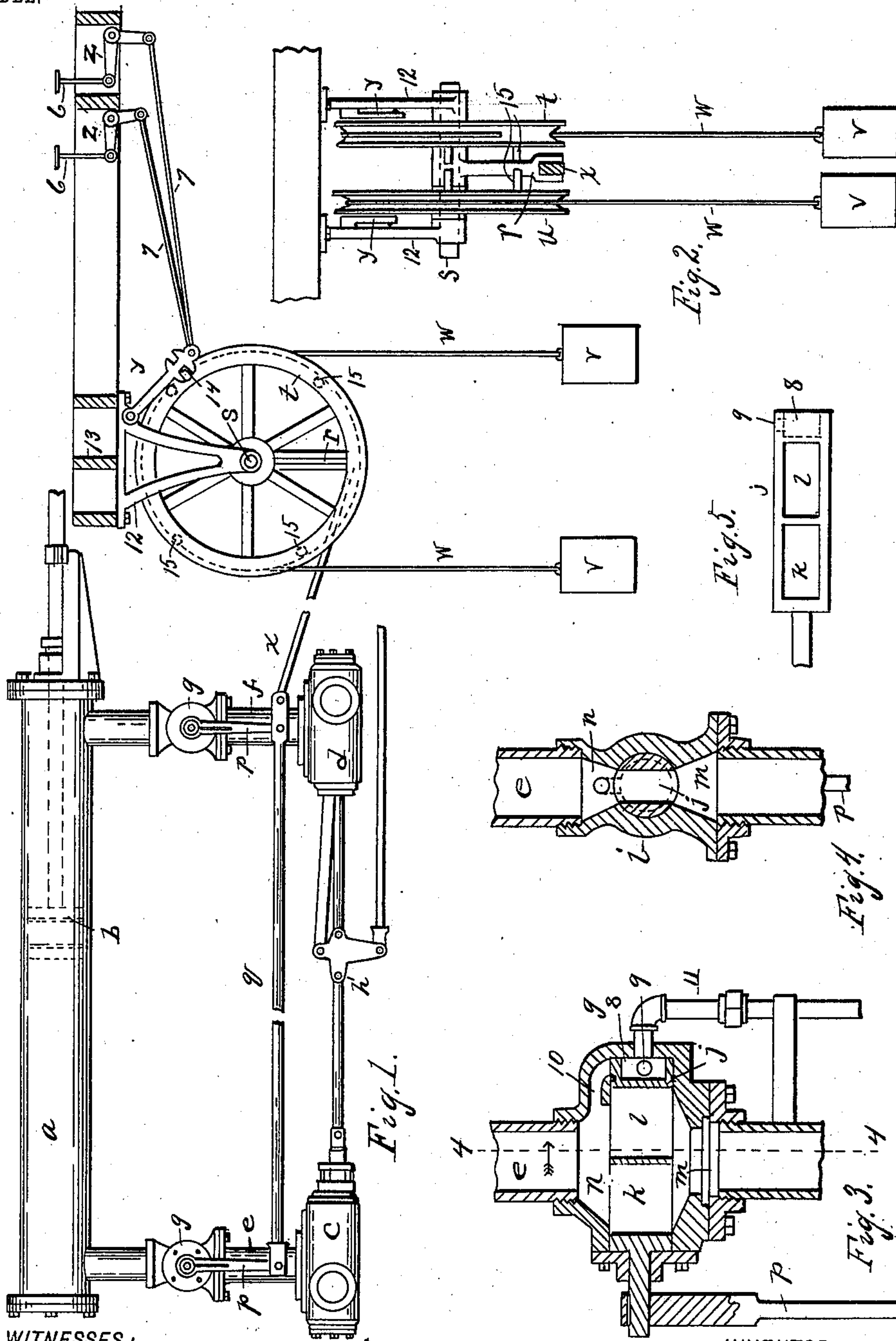
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EMERGENCY STOP VALVE FOR STOPPING RUNAWAY CARRIAGES IN
SAWMILLS.

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NO MODEL.



WITNESSES:

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EMERGENCY STOP-VALVE FOR STOPPING RUNAWAY CARRIAGES IN SAWMILLS.

SPECIFICATION forming part of Letters Patent No. 762,991, dated June 21, 1904.

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To all whom it may concern:

Be it known that I, DANIEL R. EDWARDS, a citizen of the United States, residing at Orange, county of Orange, State of Texas, have
 5 invented a certain new and useful Improvement in Emergency Stop-Valves to Stop Runaway Carriages in Sawmills, of which the following is a specification, reference being had to the accompanying drawings, which form
 10 a part of this specification.

My invention is designed to provide a new and useful improvement in mechanism for stopping a runaway carriage in a sawmill, where the carriage is moved back and forth
 15 by a piston in a long cylinder.

My invention consists of the construction, combination, and arrangement of devices hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

20 Figure 1 is a view in side elevation, showing parts in vertical section. Fig. 2 is a view in end elevation, showing features of the controlling mechanism. Fig. 3 is a detail view, in vertical section, through my improved
 25 valve. Fig. 4 is a similar view on the line 4-4, Fig. 3. Fig. 5 is a detail view of the cylindrical valve *j* in elevation.

I accomplish the purpose of my invention by placing a rotary valve in each of the pipes
 30 that commonly carry steam to and from a steam-feed cylinder and locating my valves between the sawyers-valves commonly employed and the steam-feed cylinder, the valves embodying my invention having an opening
 35 through the body of the valve and valve-case, permitting the steam to pass freely in and out of the steam-feed cylinder when the corresponding valves are opened, but shutting off communications between the steam-feed cylinder
 40 through the sawyers-valves when my improved valves are closed. The closing of my improved valves, however, would not successfully stop the runaway carriage, and I therefore have arranged the valves so that
 45 live steam may pass into the steam-feed cylinder through the extension of the valve and valve-case, forming a steam-chest in the end of the valve, a port being drilled in the extension of the valve, a by-pass or port being

formed also in the valve-case, steam being supplied to the steam-chest through a pipe tapped into the valve-case, and the pipe employed to furnish steam to the sawyers-valves.

My invention contemplates the employment of two valves made to close the communications of the sawyers-valves with the steam-cylinder, the said valves being actuated by an arm oscillatory in either direction from the central point, the valves having the hole or port drilled in the extension of the valve
 60 either to the right or left of the center line, so that when open live steam will be allowed to pass into the corresponding end of the steam-cylinder when the corresponding valves are closed. It is obviously not practical to admit
 65 live steam to both ends of the steam-cylinder at the same time, therefore necessitating operating my improved valves either way from a central position.

The employment of my improved valves
 70 and locating them in the positions above described I believe to be novel.

I carry out my invention as follows:

Referring to the drawings, *a* represents a steam-feed cylinder, and *b* the piston in said
 75 cylinder. The sawyers-valves commonly employed are indicated at *c* and *d* and may be of any ordinary construction. Pipes connecting the sawyers-valves with the steam-feed cylinder are indicated at *e* and *f* and into which
 80 pipes my improved valves *g g* are interposed. The ordinary mechanism connected with the sawyers-valves is indicated at *h*.

Figs. 3 and 4 illustrate the particular construction of my improved valves, the two valves
 85 employed being of similar construction and each consisting, essentially, of a valve-case *i*, in which is engaged a rotatable cylindrical valve *j*, constructed with ports *k* and *l*, communicable with ports *m* and *n* on opposite
 90 sides of the valve-case, with which communicates the adjacent ends of the pipes *e*, into which the valve is interposed. The cylindrical valves *j* are each operated by an arm *p*, whereby the valve is opened and closed as the
 95 arms are oscillated. The two arms are connected by a rod *q*, so as to be simultaneously actuated. Said arms are also connected with

a swinging arm *r*, mounted upon a shaft *s*, between pulleys or wheels *t u*, carrying corresponding weights *v v*, supported upon cables or cords *w w*, engaged upon the peripheries of said pulleys or wheels. The arm *r* is connected with the arms *p p* by a suitable connection *x*. The weights *v v* are hung from opposite sides of the wheels by the cables or cords *w w*, the arrangement being such as to enable the operator to control the valves *g g* either way from a central position. The wheels are held normally from turning by means of latches or pawls *y*. Bell-cranks *z z*, provided with foot-trips, (indicated by the numerals 6 6,) are connected, as by rods 7 7, with the corresponding pawls *y*, whereby either of the pawls or latches may be raised to allow the corresponding wheels to turn. It will be evident that steam is admitted to the steam-cylinder *a* through the steam-pipes *e f*, into which my improved valves *g g* are interposed.

My cylindrical valve *j* is provided with an extension at one end thereof, forming a steam-chest 8 in the end of the valve, said steam-chest provided with a port 9, communicable with a by-pass 10 in the adjacent end of the valve-case, whereby live steam may pass into the steam-feed cylinder from the steam-chest 8 when the corresponding valve is closed. Live steam is led into the steam-chest 8 through a corresponding pipe 11. The arrangement of valves in the steam-pipes *e f* between the sawyers-valves and the steam-feed cylinder *a*, whereby steam may be shut off from passing through the ports *k l* of the valve *j* and whereby steam may be passed through the steam-chest 8 and by-pass 10, the steam-chest 8 being a separate part of the valve *j*, is believed to be novel and never to have been used for the purpose above described prior to my invention thereof.

The shaft *s* is supported in place by hangers 12 12, which may be fastened to the timbers 13 of the mill. The bell-cranks *z z* are also fastened to suitable timbers of the mill, as shown. The wheels *t u* are mounted loosely upon the shaft *s*, and the arm *r* is placed on the shaft therebetween. The wheels are preferably constructed with lugs 14 on the outside thereof to engage the latches or pawls *y*. On the inner side said wheels are formed with lugs (indicated at 15) so arranged that one of said lugs will come in contact with the arm *r* when the corresponding wheel is released and allowed to turn. The lugs 15 are placed on each wheel a suitable distance apart, equal to the desired travel of the arms *p p* of the corresponding valves, in order to close the cylindrical valves *j*. This arrangement permits the valves to be closed in either a right or left hand direction by means of the wheels *t u*, which could not be done if the lugs 15 were differently arranged.

In operation the piston *b* in the steam-feed

cylinder *a* is moving, we will suppose, to the left. In this case the corresponding foot-trip 6 is pressed, raising the corresponding latch *y*, permitting the corresponding wheel to turn and one of its lugs 15 to come into contact with the arm *r*, actuating said arm and carrying the arm against the corresponding lug on the opposite wheel, whereby the arm *r* stops and the corresponding arms *p p* of the valves are also actuated. This operation closes both of the valves *g g* or, in other words, both of the cylindrical valves *j* comprised in the valves *g g*, thereby shutting off all chance for steam to enter and leave the steam-feed cylinder through the sawyers-valves. The same movement, however, opens the corresponding port 9 in the extension of the valves *j* communicating into the by-pass 10, whereby live steam may enter the steam-feed cylinder through the pipe 11. The steam thus admitted forms a cushion to the piston, and the piston and the carriage will stop. The pipes 11 may be connected with any suitable source of live-steam supply. As the live steam continues to enter the steam-feed cylinder through the by-pass 10 in the valve *j*, it follows that the piston will move to the right in the instance above supposed until stopped by the steam that was in that end of the feed-cylinder when the valves *g g* were closed, commonly leaving the piston midway of the steam-feed cylinder and the carriage midway of its travel. The piston and the carriage will both remain in this position until the corresponding wheel, which has just been operated, returns to its normal position. Should it, on the other hand, be desired to stop the piston *b* in the cylinder *a* and the carriage when going to the right, the other foot-lever 6 would be pressed to release its pawl from the corresponding wheel, permitting said wheel to turn and bring its corresponding lug 15 against the arm *r*, carrying the arm against a lug upon the opposite wheel, whereby the arm is stopped. The cylindrical valves *j j* will then be closed and live steam will enter the cylinder through the corresponding pipe 11, forming a cushion to the piston, whereby the piston and the carriage will be stopped commonly midway of their travel and remain there until the wheel just actuated is moved back to its normal position. When either of the wheels are returned to normal position, it will be evident that the arm *r* will be returned to a central position, in which position sawing can be resumed. The arrangement of the weighted wheels to move the arm *r* either way from a central position is believed to be novel.

The pipes 11 may be connected with the pipe that supplies steam to the sawyers-valves, said pipes not shown herewith. Both the valves *j* are supplied with live steam in their steam-chests 8, and steam passes through only one by-pass at each closing of the two valves.

In other words, both valves *j* close, but only one admits live steam to the steam-feed cylinder *a* at a time.

What I claim as my invention is—

5 1. The combination with a steam-feed cylinder, of sawyers-valves, steam-pipes connecting the sawyers-valves with opposite ends of said cylinder, and a valve interposed in each of said steam-pipes between the sawyers-
10 valves and the steam-cylinder, the interposed valves arranged to cut off steam communication one at a time between the sawyers-valves and the steam-feed cylinder.

2. The combination with a steam-feed cylinder, sawyers-valves, and steam-pipes connecting the sawyers-valves with said cylinder, of a valve interposed in each of said pipes between the sawyers-valves and the steam-cylinder, the interposed valves arranged to cut
15 off steam communication between the sawyers-valves and the steam-feed cylinder, said interposed valves constructed to permit the passage of live steam into the steam-feed cylinder when the steam communication between
20 the sawyers-valves and said cylinder is closed.

3. The combination with a steam-feed cylinder, sawyers-valves, and steam-pipes connecting the sawyers-valves with said cylinder, of a valve interposed in each of said pipes between the sawyers-valves and the steam-cylinder, the interposed valves arranged to cut
25 off steam communication between the sawyers-valves and the steam-feed cylinder, each of the interposed valves comprising a valve-case constructed with a by-pass, and a cylindrical ported valve provided with a steam-chest at one end thereof to communicate with
30 the by-pass when the body of the valve is in closed position, to permit live steam to pass into the steam-feed cylinder, when the communication between the corresponding sawyers-valves and the steam-feed cylinder is closed.

4. The combination with a steam-feed cylinder, sawyers-valves, and steam-pipes connecting the sawyers-valves with said cylinder, of a valve interposed in each of said pipes between the sawyers-valves and the steam-cylinder, the interposed valves arranged to cut
35 off steam communication between the sawyers-valves and the steam-feed cylinder, and means whereby the interposed valves may be closed in either direction from a central position.

5. The combination with a steam-feed cylinder, sawyers-valves, and steam-pipes connecting the sawyers-valves with said cylinder, of a valve interposed in each of said pipes between the sawyers-valves and the steam-cylinder, the interposed valves arranged to cut
40 off steam communication between the sawyers-valves and the steam-feed cylinder,

weighted wheels to actuate the interposed valves and means to permit the turning of either of the wheels at the will of the operator. 65

6. The combination with a steam-feed cylinder, sawyers-valves, and steam-pipes connecting the sawyers-valves with said cylinder, of a valve interposed in each of said pipes between the sawyers-valves and the steam-cylinder, the interposed valves arranged to cut
65 off steam communication between the sawyers-valves and the steam-feed cylinder, means to connect said interposed valves, weighted wheels, an arm between the wheels and actuated thereby to actuate the interposed valves, and means at the control of the operator to govern the operation of said wheels. 75

7. The combination with a steam-feed cylinder, sawyers-valves, and steam-pipes connecting the sawyers-valves with said cylinder, of a valve interposed in each of said pipes between the sawyers-valves and the steam-cylinder, the interposed valves arranged to cut
75 off steam communication between the sawyers-valves and the steam-feed cylinder, an oscillatory arm to actuate the interposed valves, wheels to actuate said arm, and a weight having a cable connection with each of said wheels, said weights secured to the wheels
80 from opposite sides of the wheels whereby one of the wheels when released will turn to the right and the other to the left. 85

8. The combination with a steam-feed cylinder, of sawyers-valves, steam-pipes connecting the sawyers-valves with opposite ends of said cylinder, and a valve interposed in each of said pipes between the sawyers-valves and the steam-cylinder, the interposed valve
85 arranged to cut off steam communication one at a time between the sawyers-valves and the steam-feed cylinder, mechanism to actuate the interposed valves and means to control said mechanism at the will of the operator whereby the interposed valves may be actuated in
90 either direction. 95

9. The combination with a steam-feed cylinder, of sawyers-valves, steam-pipes connecting the sawyers-valves with opposite ends of said cylinder, and a valve interposed in each of said pipes between the sawyers-valves and the steam-cylinder, the interposed valve
95 arranged to cut off steam communication one at a time between the sawyers-valves and the steam-feed cylinder, and means to actuate the interposed valves in either direction from a central point at the will of the operator. 100

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

DANIEL R. EDWARDS.

Witnesses:

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