

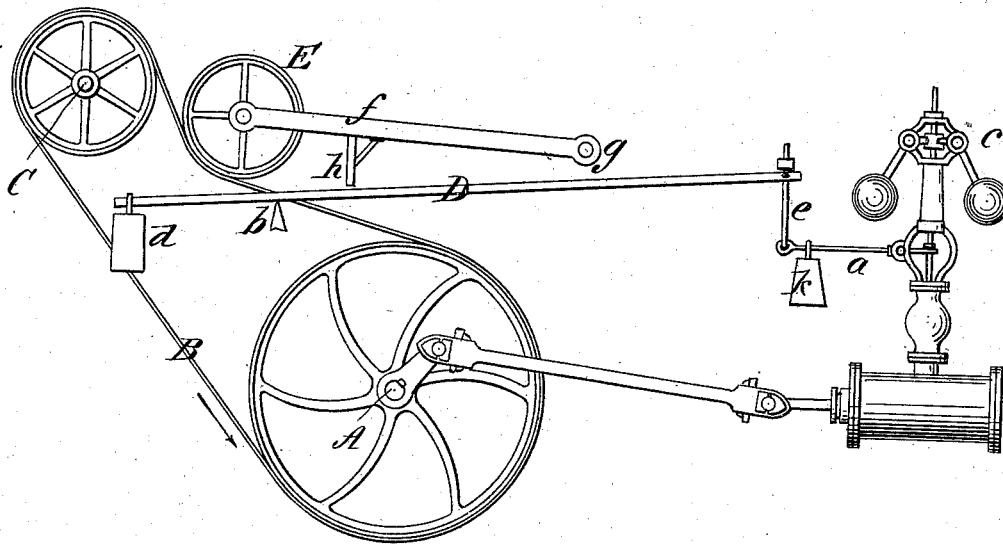
(No Model.)

H. A. CRUTTENDEN.

SPEED REGULATOR FOR MACHINERY.

No. 263,120.

Patented Aug. 22, 1882.



**WITNESSES :**

Donn Twitchell.  
C Sedgwick

**INVENTOR:**

*A. A. Bruttenden*  
BY *Munn & Co*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

HERBERT A. CRUTTENDEN, OF SMELTZER, PENNSYLVANIA.

## SPEED-REGULATOR FOR MACHINERY.

SPECIFICATION forming part of Letters Patent No. 263,120, dated August 22, 1882.

Application filed June 22, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, HERBERT A. CRUTTENDEN, of Smeltzer, in the county of Elk and State of Pennsylvania, have invented a new and Improved Speed - Regulator for Machinery, of which the following is a full, clear, and exact description.

The object of my invention is to regulate the speed and power of machinery according to the work being done, so as to obtain an instant supply of steam at the moment the work is put upon the machine. For instance, in saw-mills, while the saw is making a cut more steam is required, and by the ordinary governor to give the additional steam the machinery must first slow down, and in all cases before additional steam is furnished for the extra power needed (which in any case is only obtained by a loss of speed) the cut is partly completed, and it is finished with a reduced speed of the engine, and as soon as the work is thrown off the machinery starts off at high speed before the governor has time to act to cut off the steam.

The nature of my said invention consists in the regulation of the speed through the medium of the driving-belt, for which purpose I combine with the ordinary governor a regulator that is operated by the belt, as herein-after described and claimed, reference being had to the accompanying drawing, wherein my improved speed-regulator is shown by a side elevation.

Let A represent the driving-shaft carrying the pulley from which a belt, B, passes to the pulley on the shaft C, that is to be driven.

*c* is the ordinary centrifugal governor of the engine, provided with the balancing-lever *a* and weight, as usual.

D is a lever, pivoted at *b*, provided with adjustable weight *d* at its outer end, and connected at its inner end to the governor-lever by a rod, *e*, upon which it has a free movement up and down.

E is a stress or tightening pulley hung on an arm, *f*, pivoted at *g*—a point between the shaft C and the governor—which arm is provided with a projection, *h*, that is in contact, or nearly so, with the lever D.

In operation, supposing the belt to move in the direction of the arrow and the work to be

suddenly thrown on the driven shaft C, the belt will immediately slacken at the side upon which the stress-pulley E rests, and the slackening of the belt will cause the pulley to fall, and the projection on its arm, coming in contact with the lever D, will press down the end of the lever along rod *e*, that is connected to the governor, thereby relieving the governor-balls of the weight at the outer end of the lever D, so that the balls will immediately fall, and the governor-stem opening the steam-valve, additional steam will be instantly admitted to the engine-cylinder. The additional steam that is required is thus instantly supplied at the moment the work is thrown upon the machinery. When the work is thrown off the belt will again raise the pulley E, and the lever D being thus relieved, its counterbalance-weight acts to assist in raising the governor-balls, the steam is cut off, and the engine checked.

I do not limit myself to the especial arrangement of the parts as described, and other connections may be made for utilizing the slackening of the belt to assist the movement of the governor.

It will be understood that while the lever D is depressed the rod *e* is free to move in the end of lever D, so that the governor can act independently while the machinery is under extra stress, and while the machinery is not under extra stress the weight *d* balances the lever D and weight *k*, so that the governor can operate to close the valve, as there is no collar on the governor-stem under the end of the lever *a*, and the weight *d* is to be so positioned upon the lever D that when the engine is running at normal speed the inner end of lever *a* will stand on the governor-stem a little below the collar on said stem, whereby the governor is free to act independently as long as the engine does not slow to such an extent as to bring the hereinbefore-described regulating device into operation.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The speed - regulator consisting of the stress or tightening pulley applied to the driving-belt, and acting in conjunction with the governor of the engine, for assisting the move-

ment of the balls, substantially as shown and described.

2. In speed-regulators, the combination of the pulley E, hung on arm *f*, driving-belt B, the weighted lever D, and the governor, substantially as described, for operation as set forth.

3. In speed-governors, the combination of

the weighted counterbalanced lever D with the tightening-pulley E and balance-lever of the governor, substantially as described.

HERBERT A. CRUTTENDEN.

Witnesses:

GEORGE FRINK,  
JACOB HOOK.