(No Model.) 2 Sheets—Sheet 1.

J. OVERHOLSER.

GOVERNOR ATTACHMENT FOR SEPARATORS.

No. 515,358. Patented Feb. 27, 1894.

Fig. 1.

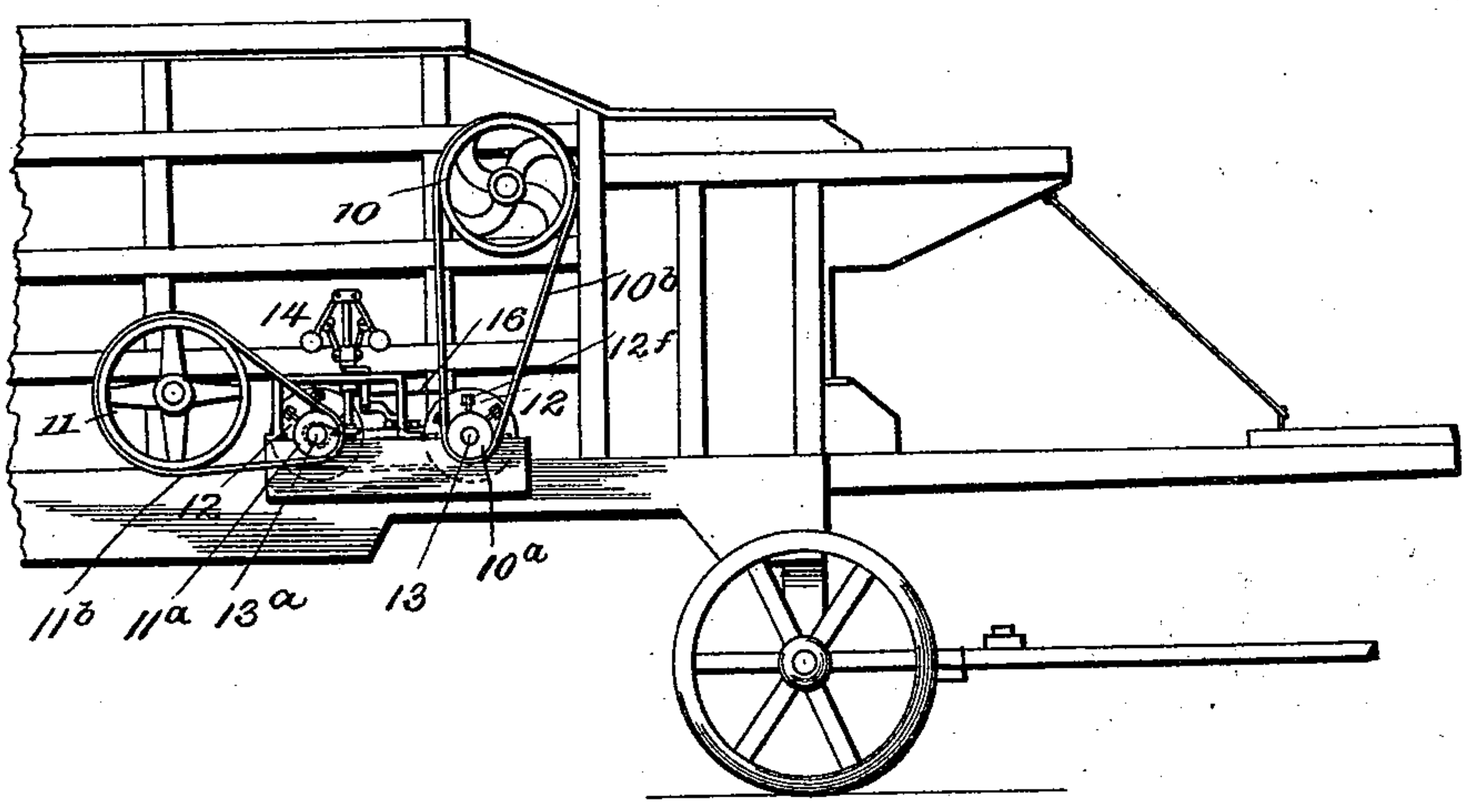
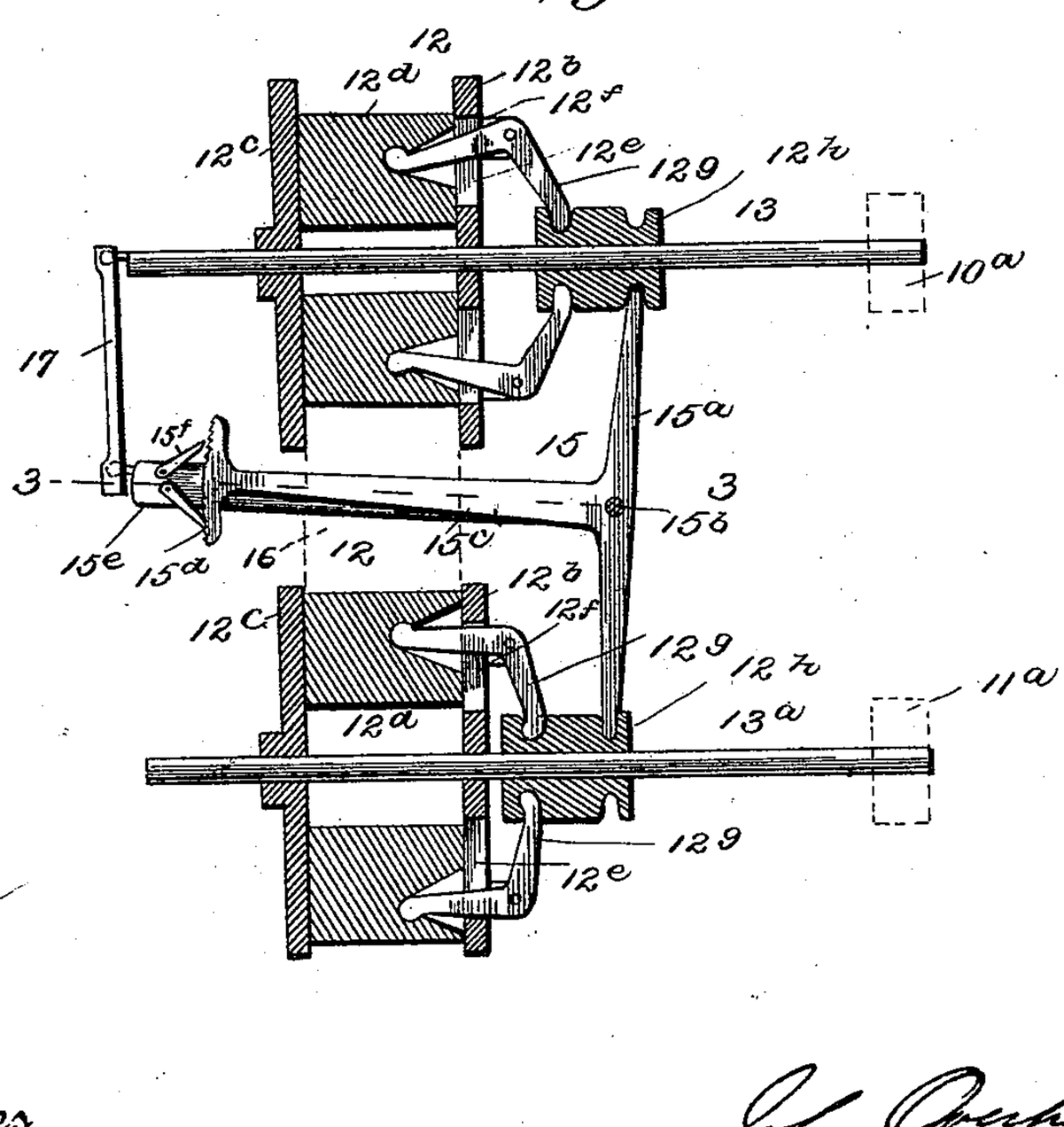


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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GOVERNOR ATTACHMENT FOR SEPARATORS.

No. 515,358. Patented Feb. 27, 1894.

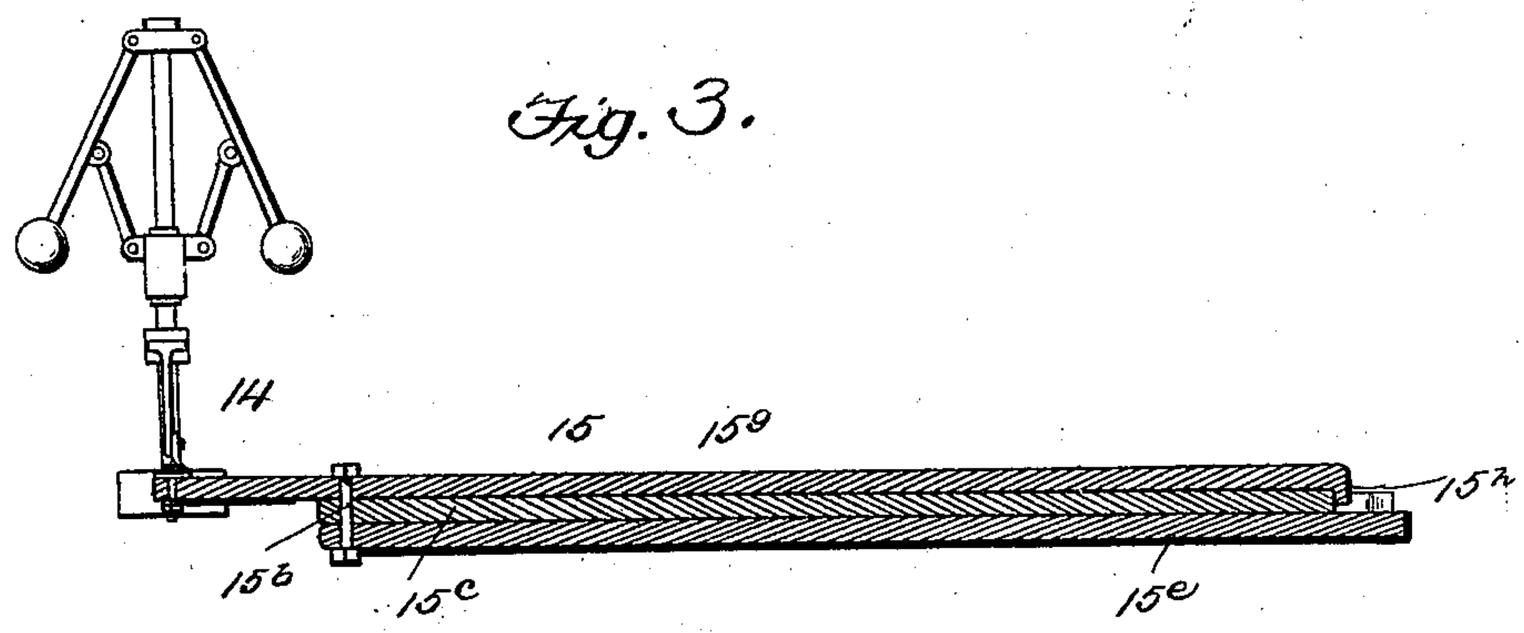

Fig. 3.

Fig. 4.

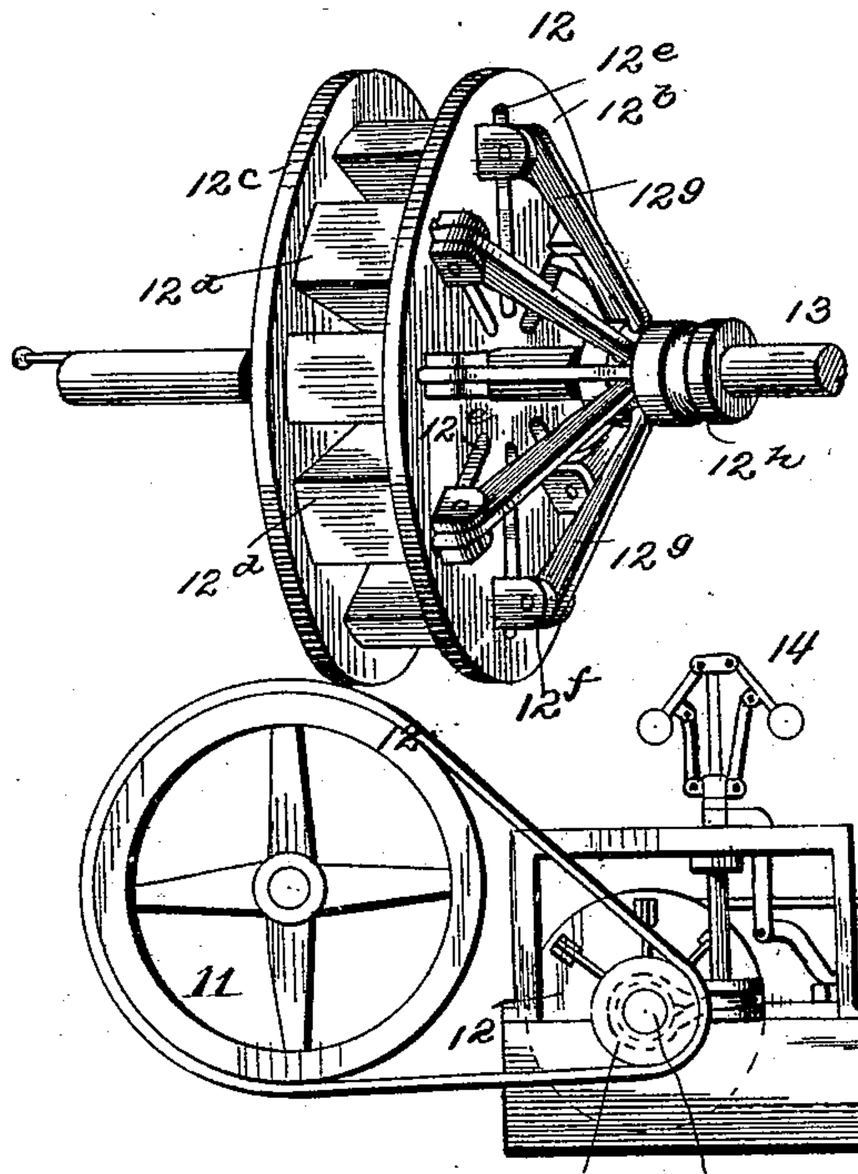

Fig. 5.

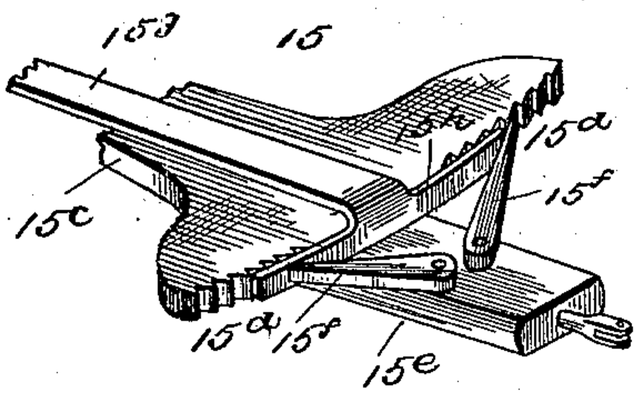

Fig. 6.

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GOVERNOR ATTACHMENT FOR SEPARATORS.

SPECIFICATION forming part of Letters Patent No. 515,358, dated February 27, 1894.

Application filed June 29, 1892. Serial No. 438,430. (No model.)

To all whom it may concern:

Be it known that I, JOHN OVERHOLSER, of Cottage Grove, in the county of Lane and State of Oregon, have invented certain new and useful Improvements in Governor Attachments for Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates particularly to an automatic regulator attachment for grain separators and the object of my invention is to provide a simple device which will secure a uniformity of motion, at all times, among the various parts of the separator and a further object of my invention is to provide a device of this character that can be quickly and easily attached to separators now in use.

With these objects in view, my invention consists essentially of a pair of expansible and contractible pulleys, connected by an endless belt, a governor and intermediate connections between the pulleys and governor for automatically and simultaneously operating the pulleys, to regulate the speed.

My invention consists further in providing certain details of construction and combination of parts whereby these objects are accomplished, as will be more fully explained hereinafter and pointed out in the claims.

In the accompanying drawings:—Figure 1 is a view showing the manner of applying my automatic regulator to a separator. Fig 2 is a top-plan view of the improved device, the expansible pulley being shown in section and the governor omitted. Fig. 3 is a vertical sectional view on the plane of line 3—3, of Fig. 2, illustrating the connection between the governor and regulator, the pulleys being omitted. Fig. 4 is a detail view of one of the expanding pulleys. Fig. 5 shows other details of construction. Fig. 6 shows on an enlarged scale the essential features of Fig. 1.

Referring to the drawings, 10 indicates the pulley upon the end of beater shaft, and 11 the pulley for driving the fan. Between these pulleys I interpose my improved automatic regulator consisting of the expanding pulleys 12, 12, the governor 14, and automatic governor attachment 15, arranged between said pulleys, and the endless belt 16, connecting these pulleys. The pulleys 12, 12, are mounted upon the horizontal shafts 13 and 13^a and are each composed of the disks 12^b and 12^c and the series of expansible sections 12^d arranged between the disks. The disks 12^b are each formed with a series of radial slots 12^e and upon the outer faces of the disks, upon opposite sides of the slots are produced the parallel lugs or ears 12^f. Bell crank levers 12^g are pivoted between these lugs or ears, their inner ends being passed through the slots and connected with their respective sections 12^d while the outer ends are connected with the sliding collars 12^h mounted upon the shafts 13 and 13^a. By this construction it will be seen that as the collars 12^h are slid to and from the disks 12^b the sections will be expanded or contracted, increasing or diminishing the diameter of the pulleys. A pulley 10^a is mounted upon the outer end of the shafts 13 and a pulley 11^a is mounted upon the outer end of shaft 13^a; endless belts 10^b and 11^b connecting said pulleys with the beater and fan pulleys respectively. The endless belt 16 connects the expansible pulley 12 thus establishing a connection between the beater and fan shafts.

The expansible and contractible pulleys are employed for the purpose of securing uniformity of speed, said pulleys being expanded or contracted as becomes necessary to maintain the predetermined speed by means of the governor 14, one pulley being contracted as the other is expanded in order to utilize less shift from the governor and also to keep the belt 16 taut. Now for the purpose of establishing a connection between the pulleys and governor and also for moving the pulleys simultaneously, I provide an improved governor attachment 15 which consists of a horizontal lever 15^a pivoted centrally upon a vertical shaft 15^b the opposite ends of the lever being connected with the sliding collars 12^h of the pulleys 12. The lever 15^a is provided with a rearwardly projecting arm 15^c having a T-shaped head the outer edges of which are formed with oppositely disposed ratchet teeth

15[d] as clearly shown. A horizontal rod or bar 15[e] is secured upon the shaft 15[b] beneath the arm 15[c], and carries upon its upper face near its rear end, oppositely disposed pawls 15[f] adapted to engage the ratchet teeth upon the rear end of the arm 15[c]. Above this arm and upon the vertical shaft is pivoted a shifting lever 15[g] connected at its forward end with the governor as shown and at its rear end is provided with a cross-bar or finger 15[h] adapted to rest normally between the pawls and ratchet teeth holding the pawls out of engagement. A pitman rod 17 connects the rear ends of the shaft 13 and pawl carrying rod 15[c], wrist pins being employed to effect the connections and vibrate the said arm while the shaft 13 is in revolution. A cross-belt connects the shaft 13[a] and governor shaft.

The parts being arranged in their normal positions, the operation of my device is as follows:—The power is applied to the beater pulley 10 and communicated to the pulley 10[a] upon the end of shaft 13 by belt 10[b]. The belt 16 then transmits the power to the expansible pulley upon the shaft 13[a] and from said shaft it is transmitted to the fan shaft by means of pulley 11[a] and belt 11[b]. The shaft 13[a] and governor shaft being connected by means of a cross-belt, any irregularity in the revolution of the shaft 13[a] will be communicated to the governor, which, in turn will act to move the shifting lever 15[g] either to the right or left throwing one pawl out of engagement with the ratchet and allowing the other to engage the adjacent teeth. The constant vibration of the pawl carrying arm in connection with the pawls will operate to move the lever arm either to the right or left as the case may be, and thus cause the operating lever to expand one of the pulleys and simultaneously contract the other. Should the shaft 13[a] be running too slow it is obvious that the governor and attachment will be operated to contract the pulley on that shaft and expand the pulley on the shaft 13. Should the shaft 13[a] be running too fast the opposite operation of course takes place, thus reducing the speed.

From the above it will be seen that I provide an expansible pulley that can be quickly and easily operated as desired and also means for regulating said pulley simultaneously and automatically, thereby securing a uniformity of speed between the fan and shoe operating shafts; the shoe being preferably driven from the fan shaft, and it will be seen that as the fan shaft is regulated, the shoe shaft will be regulated accordingly. When the shoe, however, is operated independent of the fan, my improved regulator is then interposed between the shoe and its source of power.

I claim as my invention—

1. In a regulator of the class described, the combination with the expansible and contractible pulleys and endless belt, of a lever pivoted between the pulleys and connected therewith to expand and contract the same, a governor, and mechanical connections between the lever and governor, substantially as and for the purpose described.

2. In a regulator of the class described, the combination with the expansible and contractible pulleys and endless belt, of a lever pivoted between the pulleys and connected therewith, a vibratory rod or bar adapted to operate said lever, a shifting lever adapted to regulate said arm, and the governor connected with said shifting lever, substantially as and for the purpose described.

3. The combination with the expanding pulleys and shafts upon which they are mounted, of the endless belt connecting the pulleys, the operating lever pivoted between the pulleys and connected therewith, the vibrating rod or bar adapted to engage said lever, the pitman rod connecting one of the shafts and said arm, the governor connected with the other shaft, and a shifting lever connected with the governor and adapted to regulate the engagement of the vibratory arm, substantially as shown and described.

4. The combination with the expansible pulleys and shafts, of the endless belt, the operating lever having one arm provided with ratchet teeth, the vibratory rod or bar carrying pawls adapted to engage said teeth, the pitman rod connecting said arm and one shaft, the shifting lever having a cross-bar or finger, and the governor connected with said lever and also with the other shaft, substantially as shown and described.

5. The combination with the expansible pulleys and shafts, of the endless belt, the sliding collars, the operating levers connected with the collars and carrying an arm having ratchet teeth, of a vibratory pawl-carrying rod or bar, the pitman rod attached to said arm, the shifting lever having a cross-bar or finger, and the governor connected with said lever and with a shaft, substantially as shown and described.

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

JOHN OVERHOLSER.

Witnesses:
J. S. MEDLEY,
GEO. MCQUEEN.