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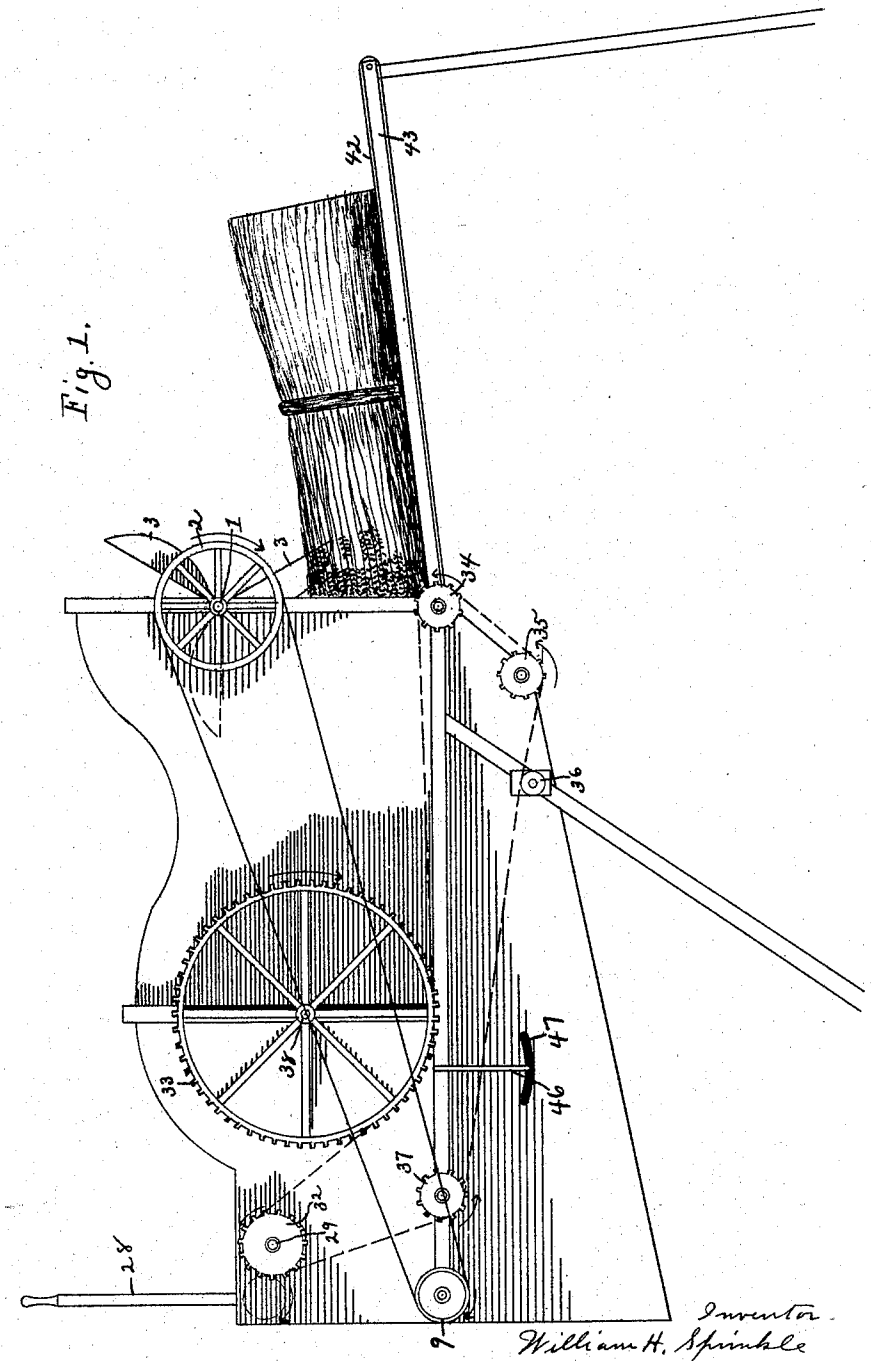
W. H. SPRINKLE.

BAND CUTTER AND FEEDER.

No. 570,514. Patented Nov. 3, 1896.

Fig. 1.



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(No Model.) 4 Sheets—Sheet 2.

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BAND CUTTER AND FEEDER.

No. 570,514. Patented Nov. 3, 1896.

Fig. 2.

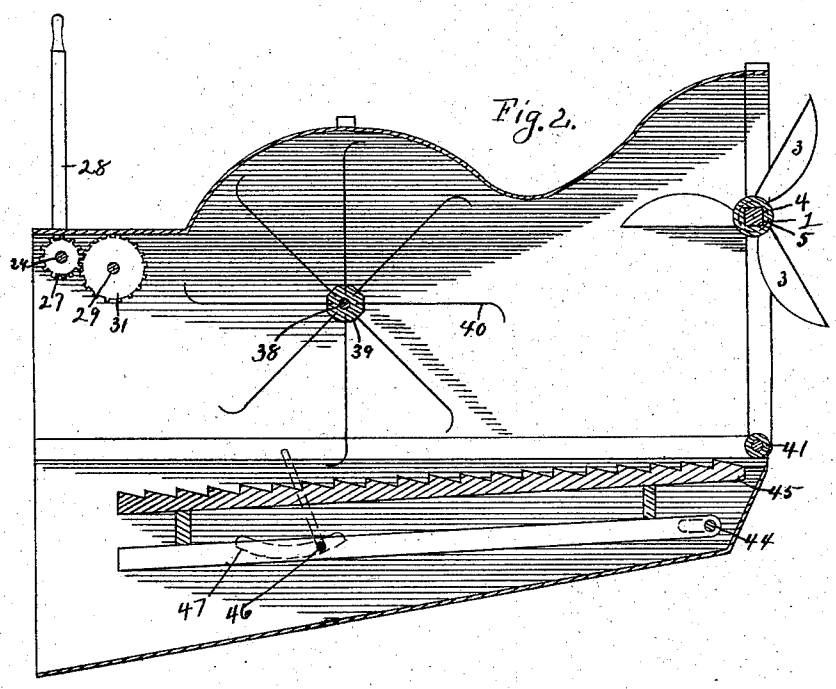
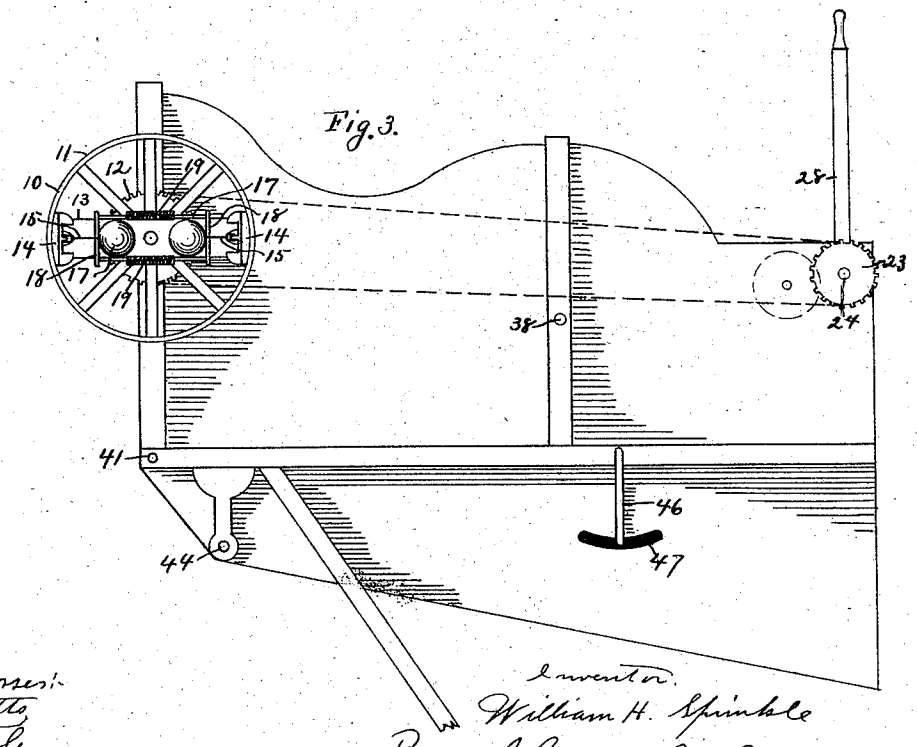


Fig. 3.



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BAND CUTTER AND FEEDER.

No. 570,514. Patented Nov. 3, 1896.

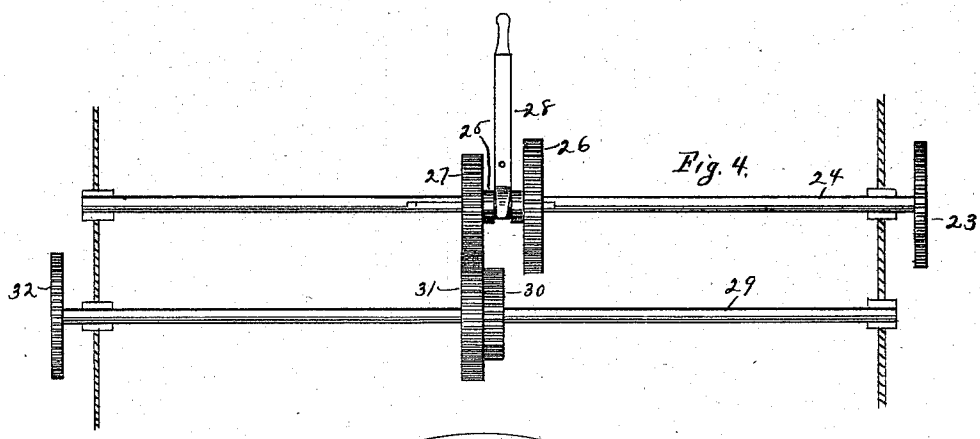

Fig. 4.

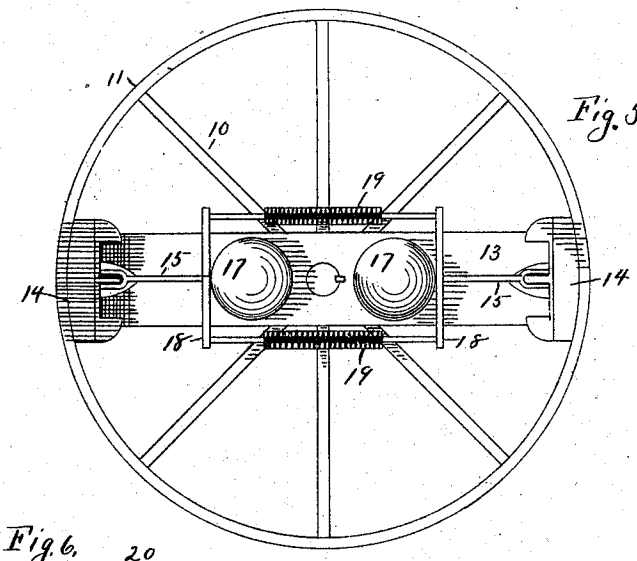

Fig. 5.

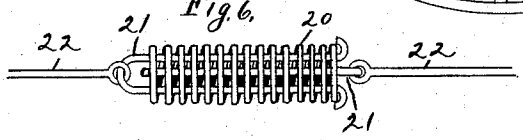

Fig. 6.

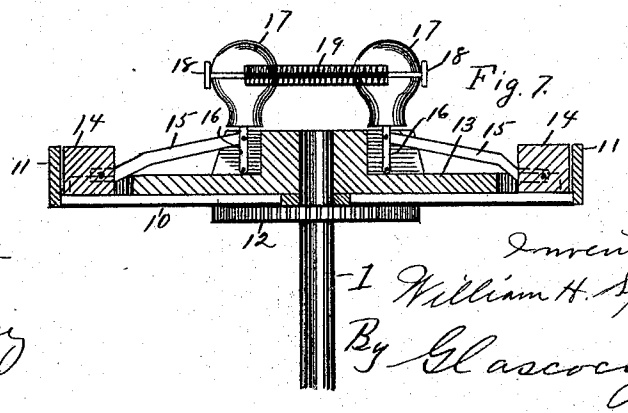

Fig. 7.

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BAND CUTTER AND FEEDER.

No. 570,514 Patented Nov. 3, 1896.

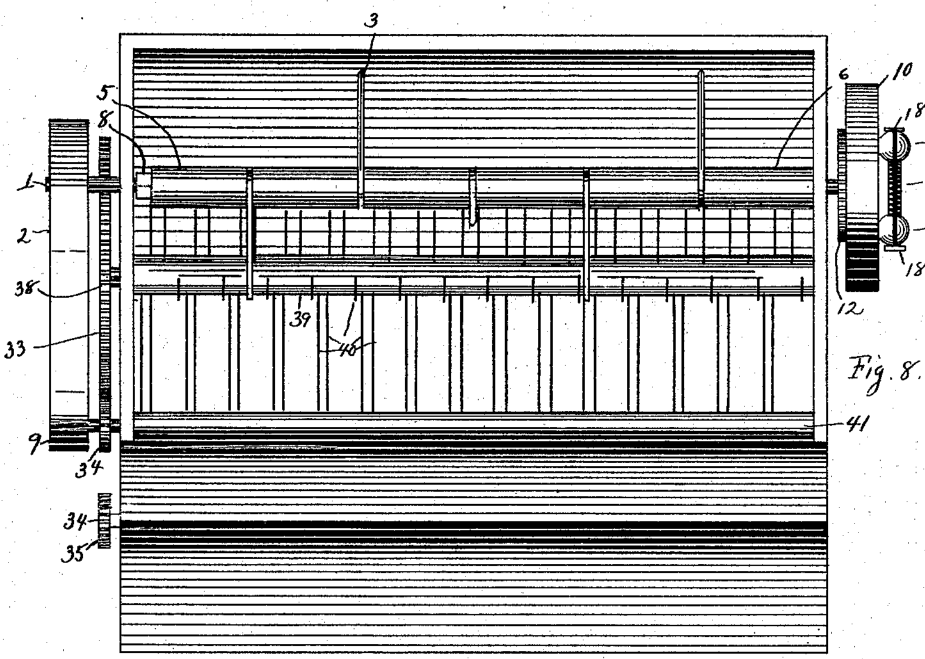


Fig. 8.

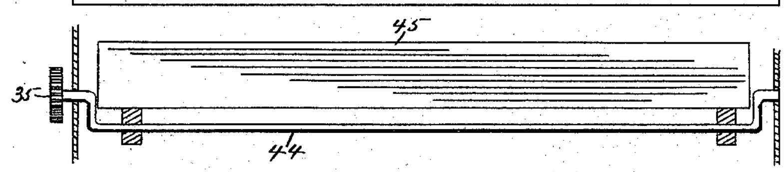


Fig. 9.

Fig. 10

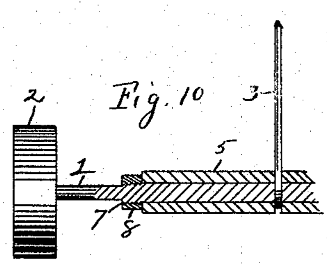
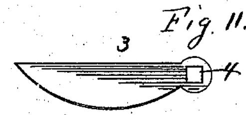


Fig. 11.



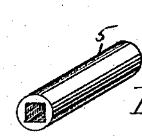


Fig. 12.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM H. SPRINKLE, OF LINCOLN, INDIANA.

BAND-CUTTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 570,514, dated November 3, 1896.

Application filed December 26, 1895. Serial No. 573,326. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. SPRINKLE, a citizen of the United States, residing at Lincoln, in the county of Cass and State of Indiana, have invented a certain new, useful, and valuable Improvement in Band-Cutters and Feeders, of which the following is a full, clear, and exact description.

My invention has relation to band-cutter and feeder attachments for threshing-machines; and it consists in the novel construction and arrangement of its parts, as hereinafter described.

In the accompanying drawings, Figure 1 is a view of the right-hand side of the cutter and feeder. Fig. 2 is a longitudinal section view of the same. Fig. 3 is a view of the left-hand side of the same. Fig. 4 is a top view of a feed-regulating mechanism. Fig. 5 is a side view of a governor. Fig. 6 is a detail view of a spring used on the governor. Fig. 7 is a sectional view of the governor. Fig. 8 is a front end view of the cutter and feeder. Fig. 9 is a front view of an agitator-operating mechanism. Figs. 10, 11, and 12 are detail views of parts that will be explained hereinafter.

The front part of the attachment is provided with a shaft 1, on the right-hand end of which is fixed the pulley-wheel 2. The intermediate portion of the said shaft 1 is squared, and said intermediate portion carries a number of cutting-blades 3 3, (see Fig. 11,) the square perforation 4 passing over the squared portion of the said shaft. The washers 5 5 (see Fig. 12) are arranged on the shaft between the blades 3 3, said washers having a square longitudinal perforation. The washer 6 (see Fig. 8) is shrunk on the shaft 1, while the remaining washers and the cutting-blades are adapted to be removed from the shaft. Near the right-hand end of the shaft 1 and at the end of the squared portion of the same the thread 7 (see Fig. 10) is located. The nut 8 is adapted to be screwed on said thread and push against the end of the adjoining washer, and thus the washers and cutting-blades are securely held in place. The shaft 1 is adapted to be revolved by power suitably transmitted from the pulley 9, which may be located on the thresher proper.

The left-hand end of the shaft has loosely mounted on it the wheel 10, said wheel having a broad outwardly-extending rim 11. (See Fig. 7.) To the inner sides of the spokes of said wheel 10 the sprocket-wheel 12 is secured. The center of the said sprocket-wheel 12 surrounds the shaft 1. The plate 13 is rigidly secured at its center to the extreme end of the shaft 1. The outer sides of the spokes of the wheel 10 are in close proximity to the under side of the plate 13. The outer ends of the plate terminate near the inner periphery of the rim 11. The outer ends of the said plate 13 are bifurcated, as shown in Figs. 5 and 7.

The sliding blocks 14 14 are mounted one at each of the ends of the plate 13. The outer edges of the said blocks conform in shape to the inner periphery of the rim 11. The blocks 14 14 are connected by the arms 15 15 with the shanks 16 16 of the weights 17 17. (See Fig. 7.) The lower ends of the shanks of the weights 17 17 are pivoted in the plate 13. The weights 17 17 are arranged opposite each other, one on each side of the shaft 1. A bar 18 is attached to the back of each weight 17. The ends of the said bars are connected by the spring connections 19 19. Said spring connections consist of a spiral spring 20, (see Fig. 6,) with the hooked rods 21 21 passing through the center of the spiral from the opposite ends and hooking around the ends of the spiral, the outer extensions of the said hooked rods being connected by the rods 22 22 with the bars 18.

The sprocket-wheel 12 is suitably connected with a sprocket-wheel 23, (see Figs. 3 and 4,) which is fixed on the shaft 24. Said shaft 24 is journaled at or near each end in the sides of the attachment. Said shaft at an intermediate point is provided with a collar 25, which is adapted to slide laterally on said shaft. Said collar has rigidly fixed to it the two gear-wheels 26 and 27, the wheel 26 being larger in diameter than the wheel 27. A lever 28 is connected at its lower end with the collar 25, and by manipulating the said lever to the right or left the position of the collar

25 and its attachments may be changed on the shaft 24. A second shaft 29 is similarly journaled in the attachment. Said shaft 29 is also provided with two gear-wheels 30 and 31. The wheels 30 and 31 are placed rigidly on the shaft 29 and they are close to each other. The wheel 30 is less in diameter than the wheel 31, and the wheel 30 is adapted to mesh with the wheel 26, while the wheel 31 is adapted to mesh with the wheel 27. However, but two of the said four wheels can mesh at one time. The right-hand end of the shaft 29 is provided with the sprocket-wheel 32. A sprocket-chain (indicated by dotted lines in Fig. 1) passes around the wheel 32, under the sprocket-wheel 33, operating the same, and around the sprocket-wheels 34 and 35, operating them, then over the adjusting-pulley 36, and then around the sprocket-wheel 37 to the wheel 32.

The sprocket-wheel 33 is fixed on the shaft 38, (see Fig. 2,) that passes laterally across the attachment behind the shaft 1. Said shaft is provided with a wooden or other suitable covering 39, in which are embedded the inner ends of the fingers 40 40. The outer ends of the fingers are curved toward the direction of the motion of the shaft.

The sprocket-wheel 34 is fixed to the shaft of the roller 41. Said roller extends across the lower side of the mouth of the attachment, and around the said roller passes the belt 42, (see Fig. 1,) the said belt at the other end passing a roller in the far edge of the table 43.

The sprocket-wheel 35 is fixed to the end of the crank-shaft 44. (See Figs. 2 and 9.) The said crank-shaft supports one end of the agitator 45. The other end of the agitator is supported by the U-shaped rod 46, which is pivoted at each end in the outer sides of the attachment and passes through the curved elongated perforations 47 47 and under the agitator and supporting the same at one end.

The pulley 36 can be adjusted perpendicularly, and thus any slack that may happen in the sprocket-chain can be taken up.

In operation the device works as follows: The bundle of grain is placed on the belt 42, as shown in Fig. 1. The said belt will carry the bundle toward the cutters 3. The said cutters will cut the band binding the bundle and the grain falls apart and is passed upon the agitator 45. Said agitator being operated by the crank-arm 44 has an undulating or rolling motion at one end and a swinging or throwing motion at the other. This motion tends to evenly distribute the grain over the upper surface of the agitator. The teeth in the upper surface of the agitator tend to pass the grain toward the thresher. The fingers 40 also come in contact with the grain as it rests on the agitator, and said fingers also help to pass the grain toward the thresher. When the shaft 1 first begins to revolve, the wheels 10 and 12 do not revolve with it; but the plate 13 and its attachments does revolve. As the rate of revolution is increased the centrifugal force throws the weights 17 17 apart and the arms 15 15 push the blocks 14 14 against the inner periphery of the rim 11, and thus the plate 13 is made fast with the wheel 10, and this causes the wheels 10 and 12 to revolve. When the wheel 12 begins to revolve, the sprocket-wheel 23 and the shaft 24 is revolved, and this in turn operates the shafts 29, 38, 41, and 44. Thus the feeding apparatus is not operated until the machinery is well started. The feeding apparatus is the first to stop. When a slack is made, the spring connections 19 19 draw the weights 17 17 together, and this in turn draws the blocks 14 14 away from the inner periphery of the rim 11, and thus the feeding apparatus is stopped, while the shaft 1 may still be revolving.

It is sometimes desirable to change the rate at which the feeding apparatus is feeding the grain to the thresher. For instance, with dry grain it can be fed much faster than when the grain is wet. Fig. 4 shows the mechanism by which the rate of the feeding can be changed. As the wheels are engaged, as shown, the apparatus is at its low rate of speed, but by pushing the upper end of the lever 28 to the right the gear-wheel 26 will be brought in contact with the gear-wheel 30, and then the feeding apparatus will be at its high rate of speed.

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

1. A band-cutter and feeder consisting of a revolving shaft, suitable cutting-blades mounted on said shaft, a wheel loosely mounted on said shaft, a gripping device mounted on said shaft, said gripping device consisting of a plate, laterally-sliding blocks mounted on said plate, weights pivoted to said plate and extending in the same general direction as the shaft said weights being connected to the blocks, spring connections connecting together the weights, said weights adapted to be spread by centrifugal force and press the said blocks against the wheel, the last-said wheel adapted to transmit motion.

2. In a band-cutter and feeder having a wheel loosely mounted on a shaft, a gripping device mounted on said shaft, said gripping device consisting of a plate, laterally-sliding blocks mounted on said plate, weights pivoted on said plate and being connected to the blocks, bars secured to the weights said bars extending laterally beyond the sides of the weights, spring connections directly connecting said bars together, said weights adapted to be spread by centrifugal force and press the said blocks against the wheel, the last-said wheel adapted to transmit motion.

3. In a band-cutter and feeder having a wheel loosely mounted on a shaft, a gripping

device mounted on said shaft, said gripping device consisting of a plate, weights pivoted on said plate and being connected to the blocks, bars secured behind the weights, said bars extending laterally beyond the sides of the weights, spring connections directly connecting said bars together, said weights adapted to be spread by centrifugal force and press the said blocks against the wheel, the last-said wheel adapted to transmit motion.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. SPRINKLE.

Witnesses:
ELIJAH ELKIN,
J. B. WILLS.