

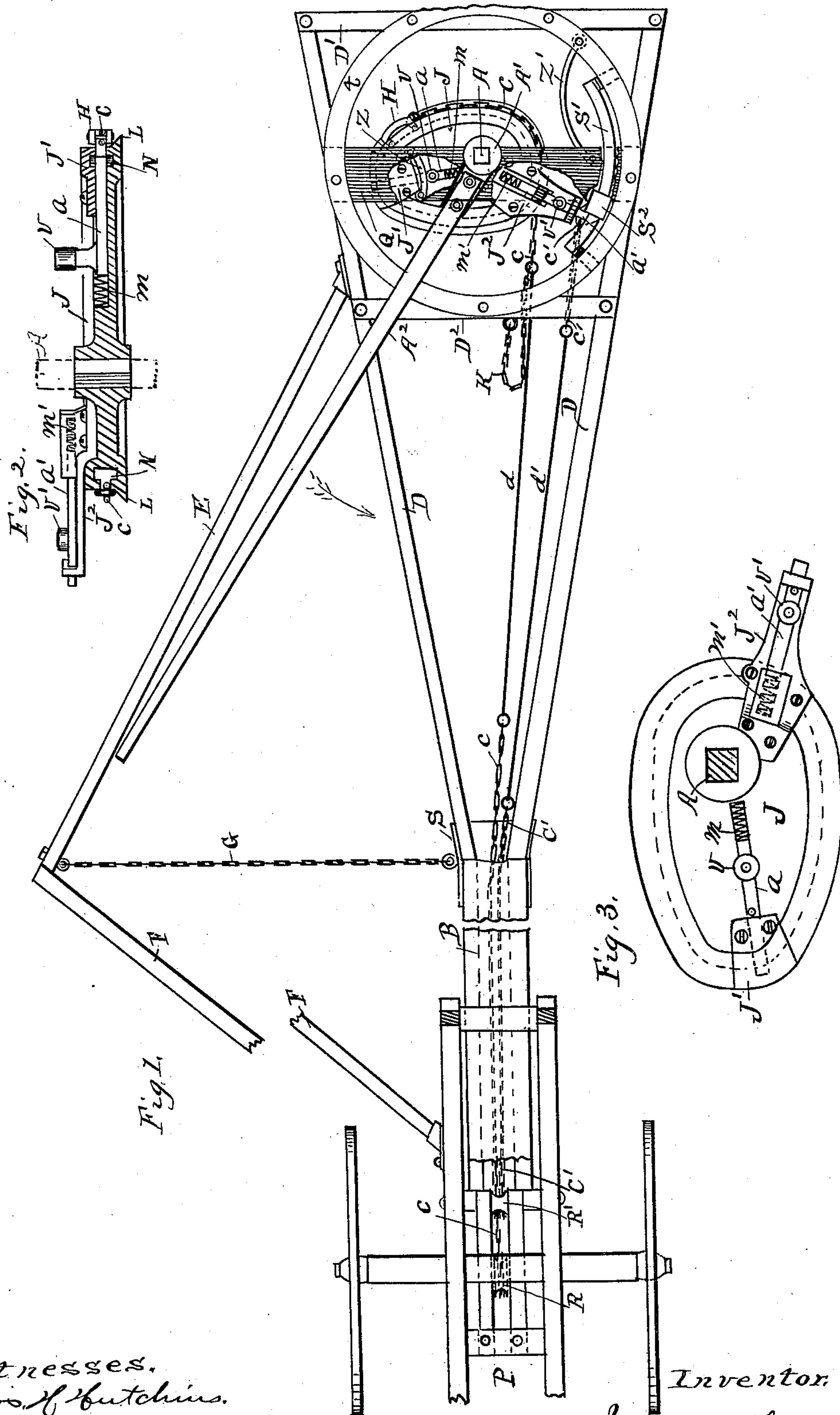
(No Model.)

2 Sheets—Sheet 1.

J. A. SPENCER.
HORSE POWER.

No. 359,475.

Patented Mar. 15, 1887.



Witnesses,
Thos. H. Hutchins.
Wm. J. Hutchins.

Inventor:
Julius A. Spencer

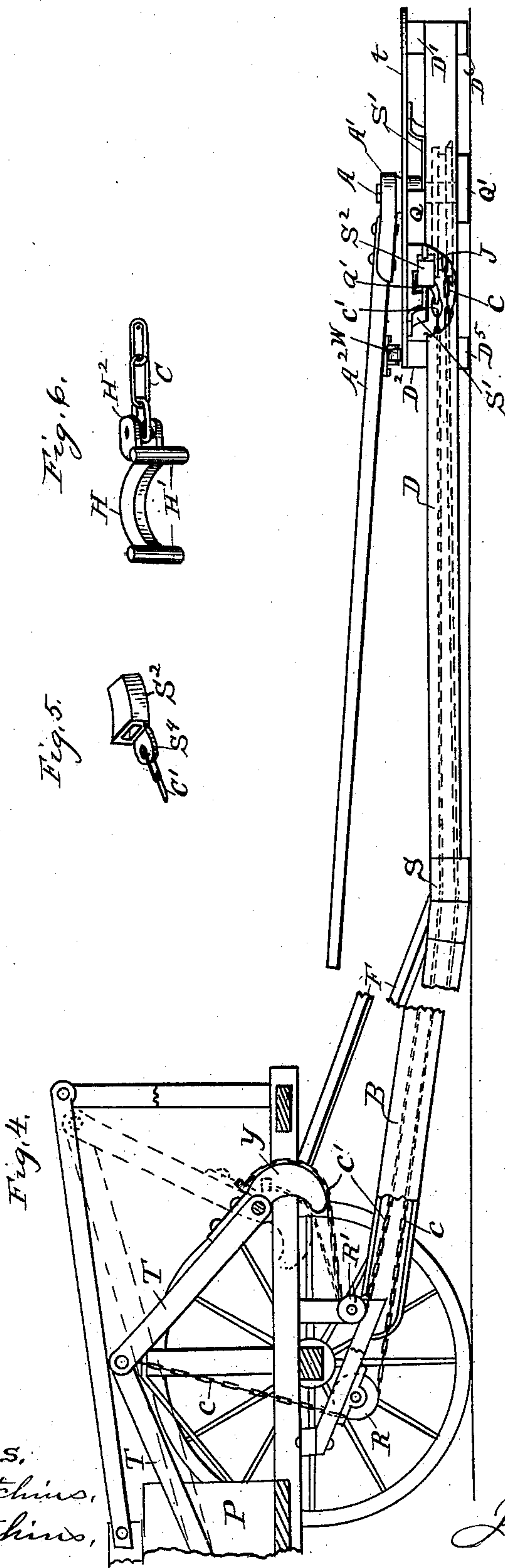
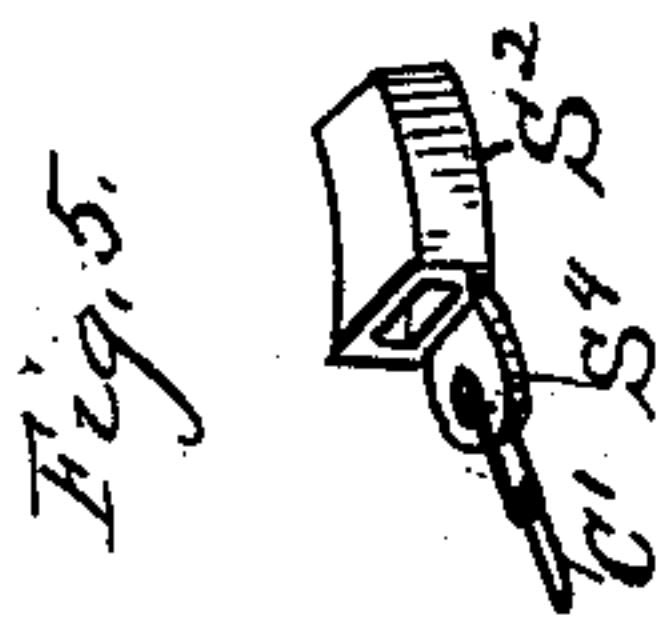
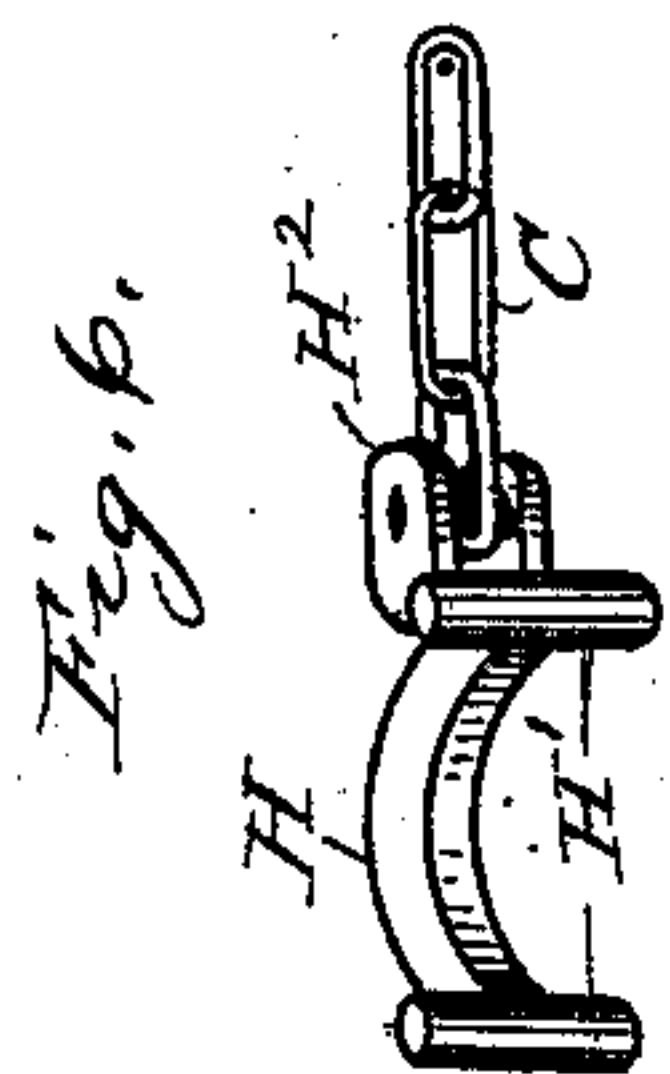
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UNITED STATES PATENT OFFICE.

JULIUS A. SPENCER, OF DWIGHT, ILLINOIS.

HORSE-POWER.

SPECIFICATION forming part of Letters Patent No. 359,475, dated March 15, 1887.

Application filed December 4, 1886. Serial No. 220,733. (No model.)

To all whom it may concern:

Be it known that I, JULIUS A. SPENCER, a citizen of the United States of America, residing at Dwight, in the county of Livingston and State of Illinois, have invented certain new and useful Improvements in Horse-Powers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain improvements in horse-powers for operating the toggle-joint of a baling-press, the construction and operation of which are fully set forth and explained in the following specification and claims, reference being had to the accompanying drawings, and the letters and figures of reference thereon, making a part of this specification, in which—

Figure 1 is a top plan view of the horse-power as it would appear connected with a toggle-joint baling-press, having parts broken away to more clearly show its working parts. Fig. 2 is a central vertical section of the cam attached to the sweep of the power. Fig. 3 is a top plan view of the sweep-cam detached from the remaining parts of the power. Fig. 4 is a side elevation of the power, having parts broken away to see its interior parts, and showing it placed with relation to a toggle-joint baling-press. Fig. 5 is a perspective of one of the slides of the power to show its form and the manner of attaching it to the chain for opening the toggle of the baling-press to fold said toggle, and Fig. 6 is a perspective view of one of the slides of the power for operating in the peripheral groove of the sweep-cam to which the chain for straightening the toggle of the baling-press is attached.

Referring to the drawings, D D are the two side beams of the frame of the power, arranged so their front ends, near the baling-press P, are near together and secured to the shoe S, and so the two chains C C' may pass between them. The rear extending ends of said beams diverge from each other, and are connected by means of the cross-beams D' D² D⁵ D⁶ Q Q', as shown in Figs. 1 and 4.

t is a circle arranged on the power concentrically with the shaft A of cam J for strengthening the frame and for attaching parts of the power to.

J is a cam secured to upright shaft A, to which the sweep A² is attached through the medium of hub A', which shaft is stepped in beam Q' and boxed to beam Q.

The power is intended to connect with the baling-press P by means of the box B, forming a throat for the chains C C' to operate in, and by means of braces E E and brace-chain G, as shown in Fig. 1, or in any other suitable manner.

The cam J is elongated, as shown in Figs. 1 and 3, for the purpose hereinafter stated, and is provided with a peripheral groove T-shaped in cross-section, as shown at N, Fig. 2, for the reception of the slide H, as shown in said figure, its lugs H' standing vertically therein within the upturned and depending flanges thereof, and its body portion extending outward and curved in form to permit it to pass around the short curves of the cam J.

J' is a removable plate, covering an opening in the cam J, so said slide H can be readily inserted in said groove. Chain C, having the central link d, connects said slide H with the elbow of the toggle T T of the baling-press.

S² is a slide arranged on the guide S'. Chain C', having the central link, d', connects said slide with cam Y on the lower end of the toggle T of the baling-press, as shown in Fig. 4.

a and a' are spring-catches arranged in guides in the upper side of cam J and arm J², respectively, in the position shown in Figs. 1, 2, and 3. Said arm is secured to cam J, and is for the purpose of reaching from said cam J to support said catch a' so it will engage slide S², as shown in Fig. 1, catch a being arranged so it will engage with slide H.

Z and Z' are stationary cams secured to the power-frame, as shown in Fig. 1, and are for the purpose of engaging, respectively, the friction-rollers V and V', studded on said spring-catches, for the purpose of withdrawing them from their engagement, respectively, with the slides H and S². The arm J², on which catch a' is arranged, holds said catch beyond cam Z, so it will not engage therewith, and roller v of catch a, being nearer shaft A, will not engage with cam Z'.

The chain C winds and unwinds from the periphery of cam J, as shown in Fig. 1, and the extending flange L of said cam (shown in Fig.

2) guides said chain and causes it to wind up on said cam, as shown, so one side of its horizontal links enter said groove and the vertical links lie against the periphery of said cam on either side of its groove, as shown in Fig. 2.

It is intended to attach a team to the sweep A^2 and cause them to travel in one direction continuously, as indicated by the arrow in Fig. 1, which will rotate cam J continuously in one direction to reciprocate the two chains CC' to fold and straighten the toggle T. When the said cam rotates, the spring-catch a will engage with slide H by means of being held out so it will be presented in groove N by spring M, as shown in Fig. 2, and carry said slide around with cam J, so the chain C will be wound on the cam J, as shown in Fig. 1, which will straighten the toggle T to reciprocate a follower that may be attached to it for compressing the bale. When the toggle is thus straightened, the cam J has rotated so the friction-roller V on catch a will engage with stationary cam Z and cause said catch to be withdrawn from its contact with slide H, so said slide may be drawn backward by the toggle as it is folded by the opposite chain. In Fig. 1 catch a is shown as just having been thus released from slide H, and said slide H is in the act of moving backward in the groove in the periphery of said cam. Immediately after said slide H is thus released catch a' engages with slide S^2 on guide S' , as shown in Fig. 1, and moves it along on said guide, while slide H moves backward, causing chain C' to elevate the joint of said toggle, as shown in Fig. 4, and when that is accomplished friction-roller V', studded on catch a' , will engage with stationary cam Z' and cause catch a' to be disengaged from slide S^2 , so it can return, when the movement of the chains is reversed, by means of catch a again engaging slide H, so that a continuous rotary motion of cam J will cause said chains to be reciprocated, as stated, and the toggle to be folded and straightened.

The parts are so arranged that a short interval of time will elapse between the folding and straightening of the toggle to permit the bale-chamber to be fed. As more power is necessary at first to start the folding of the toggle than when partly folded, the cam Y, attached to the lower part of one of the toggle-arms to which chain C' attaches, is set eccentrically with its axis, so that the chain has greater leverage at the commencement of said operation, and so the draft on said chain is equalized by the form of said cam. The form of cam J is such that the increased power required to straighten the toggle as the said toggle is nearing its point of straightening and the bale within the baling-press chamber is becoming more compact is obtained by chain C being at that time wound on cam J at its side nearest shaft A, which equalizes the draft of sweep A^2 by the increased leverage thus gained.

In connecting the chains C and C' with the

toggle T they pass, respectively, under pulleys R R', which are arranged in the frame of the baling-press, as shown in Fig. 4, in such manner that chain C, when operated, will pull directly down on the elbow of the toggle T, and when chain C' is operated will pull down and backward one eccentric cam Y of the said toggle, and thus each chain will alternately operate said toggle, as stated.

There are instances when the power is in operation working the toggle of a baling-press, when elastic material is being baled, that the toggle will be caused to fold quickly immediately after being started to fold by means of the elastic pressure against the follower of the baling-press to which the toggle is attached, and will in such instances draw quickly on chain C, and thus cause slide H to rapidly move backward in the peripheral groove of cam J; and to prevent a sudden jerk of said chain on cam J at such times chain K (shown in Fig. 1) is used, connecting chain C with cross-beam D^2 of the power, and it is of proper length to arrest the motions of chain C when the slide H has completed its backward circuit, and will lie slack, as shown in said figure, when said chain is winding on cam J. In addition to giving general strength to the power-frame, the circle t forms a track upon which wheel W of sweep A^2 travels, as shown in Fig. 4, and thereby supports the sweep on its circuit, thus releasing shaft A from side draft from the weight of said sweep.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. In a horse-power, a cam-wheel arranged to rotate continuously in one direction, having a peripheral groove provided with a slide secured to a chain connecting it with the toggle of a baling-press for straightening said toggle, in combination with a slide attached to an adjacent stationary guide and secured to a chain for folding said toggle, and means for engaging and releasing said chains, substantially as set forth.

2. The combination of the frame, constructed substantially as specified, with the cam J, having the peripheral groove N, the sweep A^2 , catches a , a' , H, and S^2 , stationary cams Z and Z', guide S' , and chains C C', as and for the purpose set forth.

3. In the horse-power shown and described, the cam J, connected with the sweep A^2 and having a peripheral groove, in combination with slide H, arranged in said groove, spring-catch a , for engaging and releasing said catch, slide S^2 , and spring-catch a' , for engaging and releasing said slide S^2 , stationary cams Z and Z', chains C and C', and toggles T of a baling-press, as and for the purpose set forth.

4. In combination with the toggle of a baling-press, a horse-power operatively connected to the toggle of said baling-press by means of chains secured to slides of said power, whereby they are caused to reciprocate by means of

said slides being alternately engaged and carried with the operative parts of said power and released, in the manner substantially as specified.

5 5. In the horse-power shown and described, and in combination with sweep A^2 , slide H, chain C, and spring-catch a , the cam J, having the T-shaped peripheral groove N and inclined peripheral flange L, substantially as and
10 for the purpose set forth.

6. In the horse-power shown and described, and in combination with cam J, the spring-catch a' , and slide S^2 , the guide S' , secured to the frame of the power and arranged to support and guide said slide S^2 in such manner as
15 to be engaged and operated by catch a' , substantially as and for the purpose set forth.

7. In the horse-power described, the cam J, having arranged therein the spring-catch a ,
20 carrying a wrist-roller and arranged to engage and move with said cam, the peripheral slide H, to cause chain C to wind on said cam, and having the arm J^2 secured thereto, and supporting spring-catch a' , carrying a wrist-roller

and arranged to engage slide S^2 , to draw on 25 chain C' , in combination with guide S' , for supporting slide S^2 , and the stationary cams Z and Z' , for respectively engaging said wrist-rollers to cause said catches a and a' to release said slides H and S^2 , in the manner substan- 30 tially as and for the purpose set forth.

8. In the horse-power shown and described, cam J, the catch H, having its body curved, as set forth, adapting it to pass around the short curves of cam J, about which it slides, and 35 having means for connecting it with chain C, all combined in the manner substantially as and for the purpose set forth.

9. In the horse-power shown and described, and in combination with sweep A^2 , cam J, and 40 the toggle of a baling-press, the slide H, spring-catch a , stationary cam Z, and chains C and K, substantially as and for the purpose specified.

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