No. 666,402. Patented Jan. 22, 1901.

W. E. WILLIAMS.

CLIP FEEDING MECHANISM FOR WIRE FENCE MACHINES.

(Application filed Oct. 5, 1900.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1.

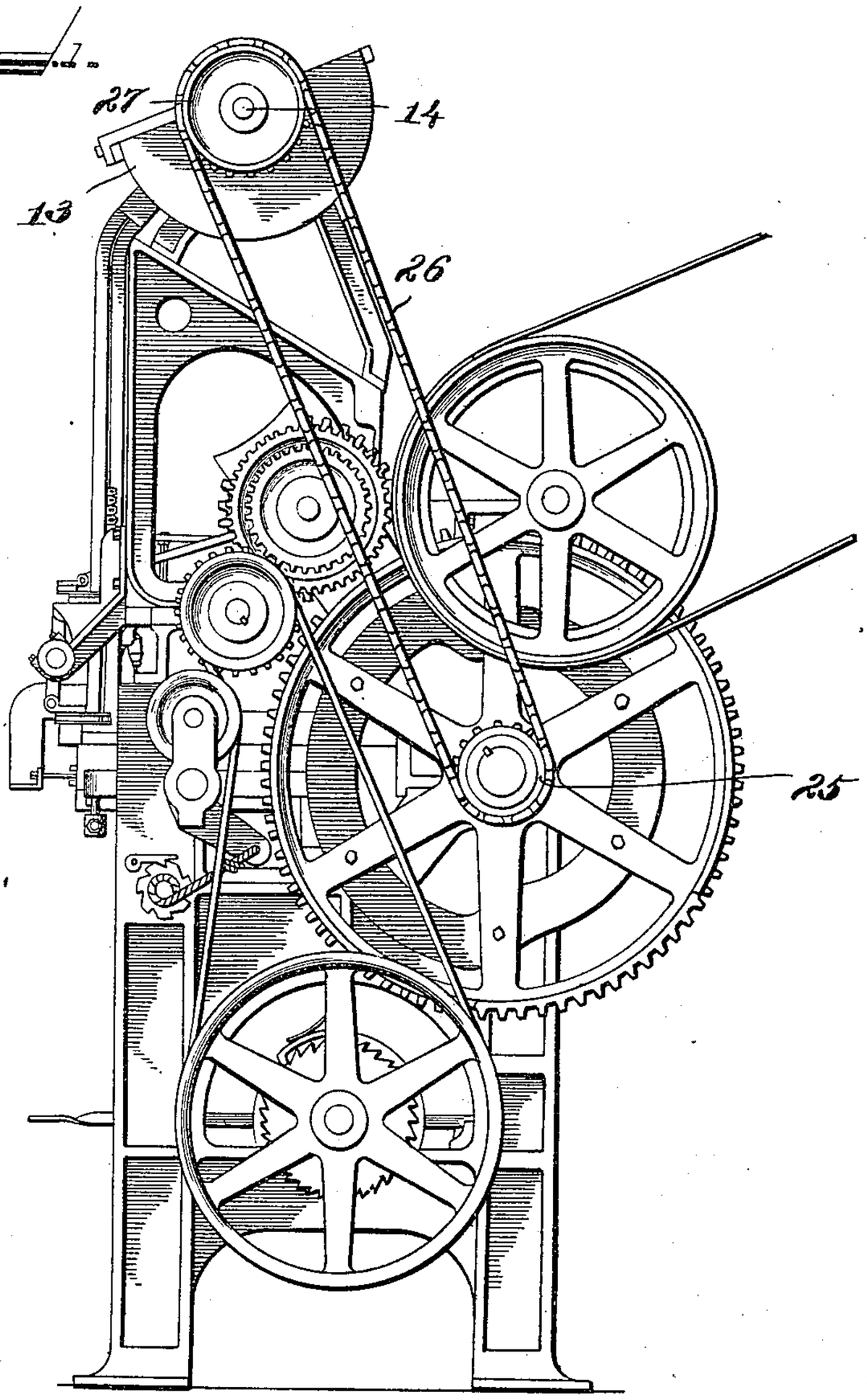

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Fig. 2.

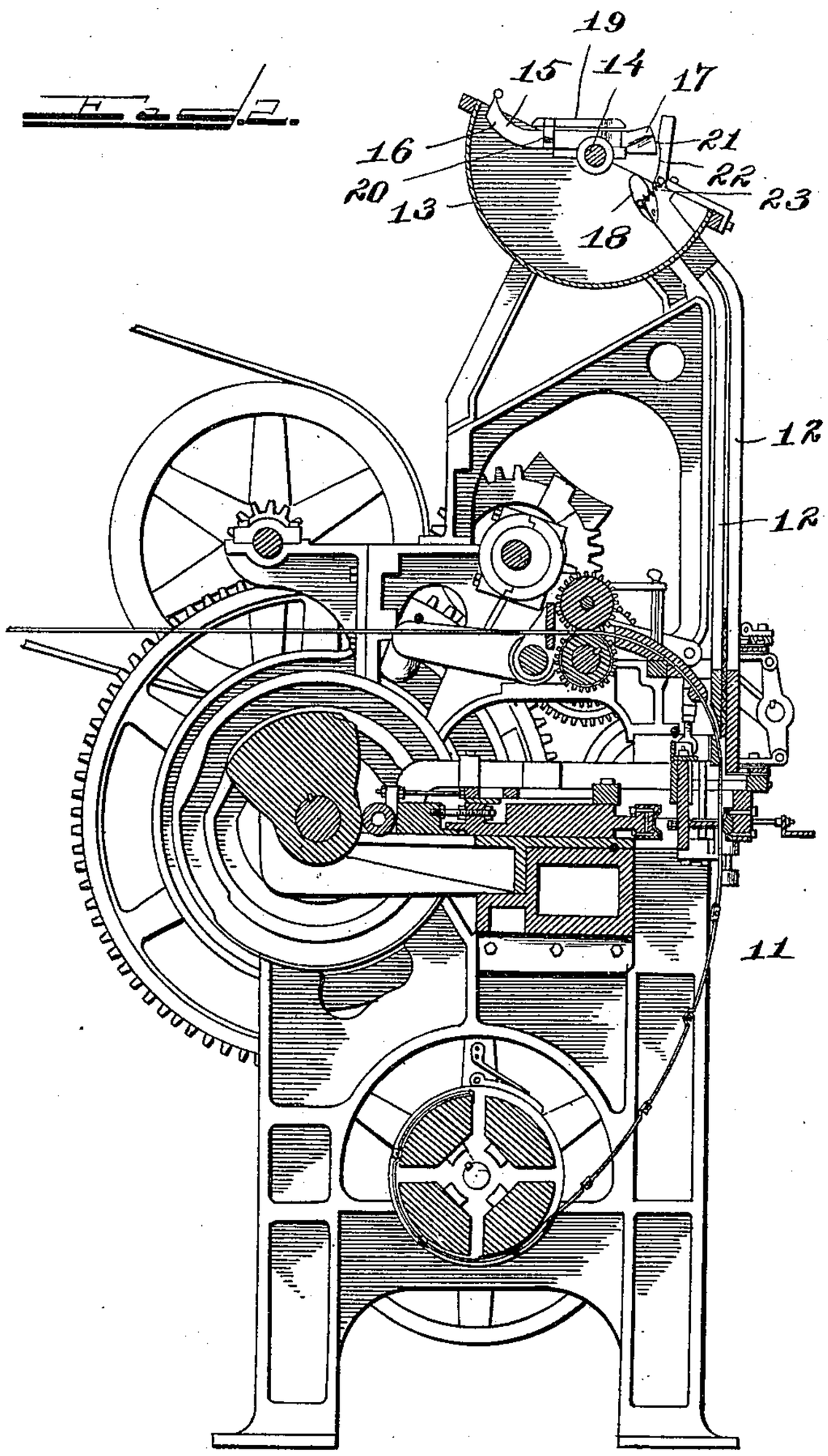

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Fig. 3.

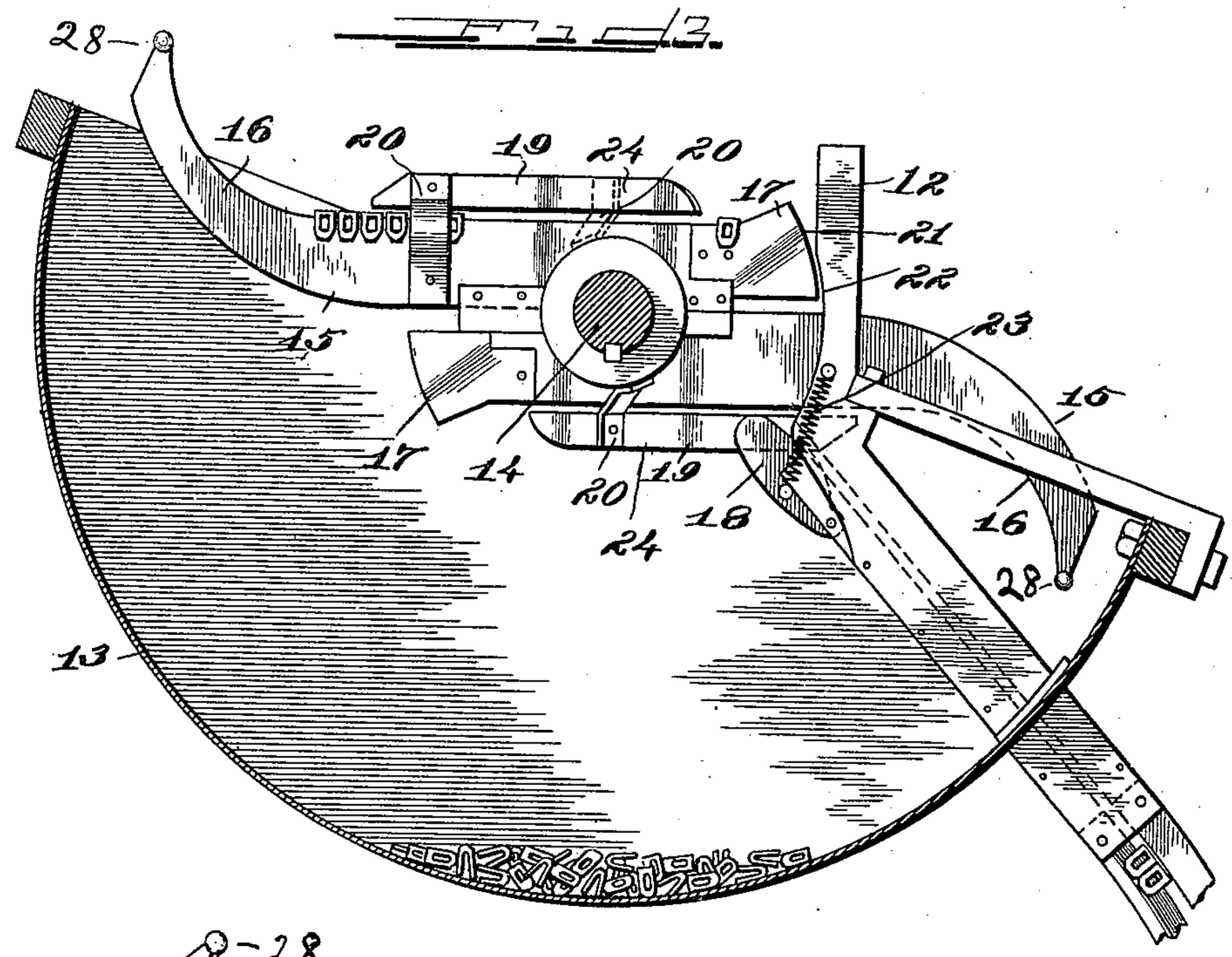


Fig. 4.

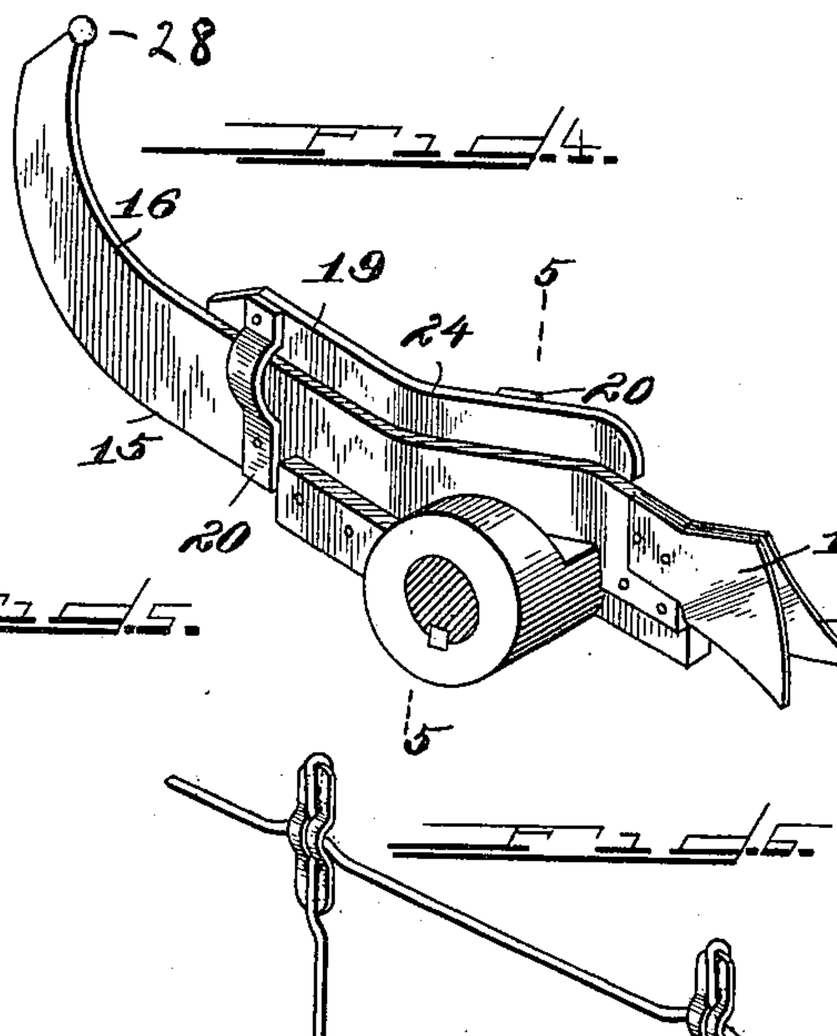


Fig. 5.

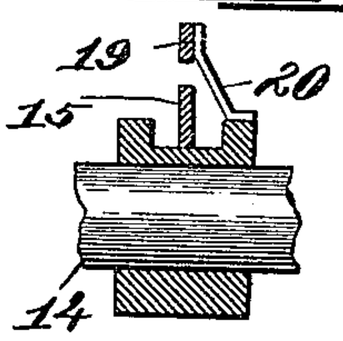
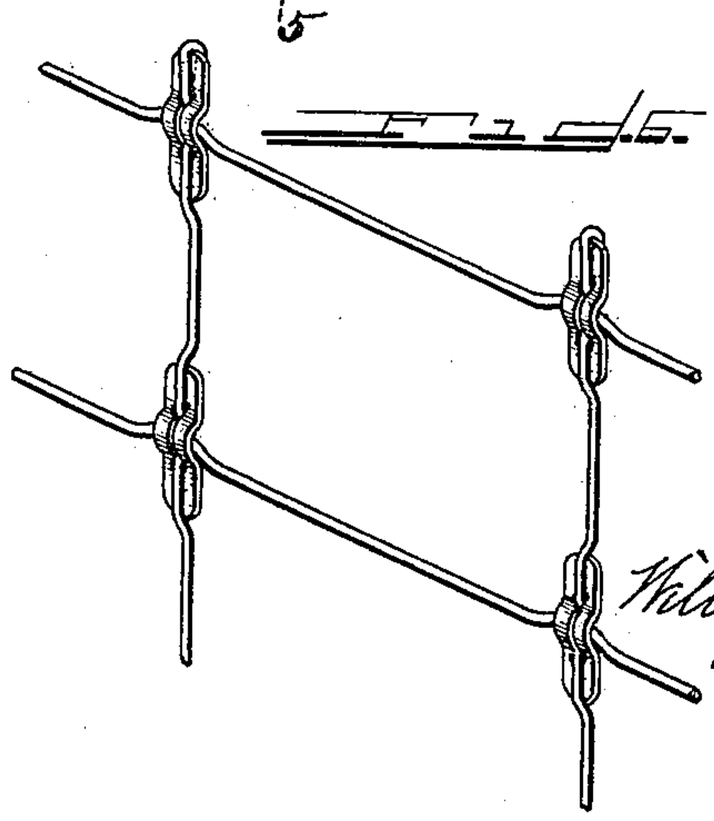


Fig. 6.



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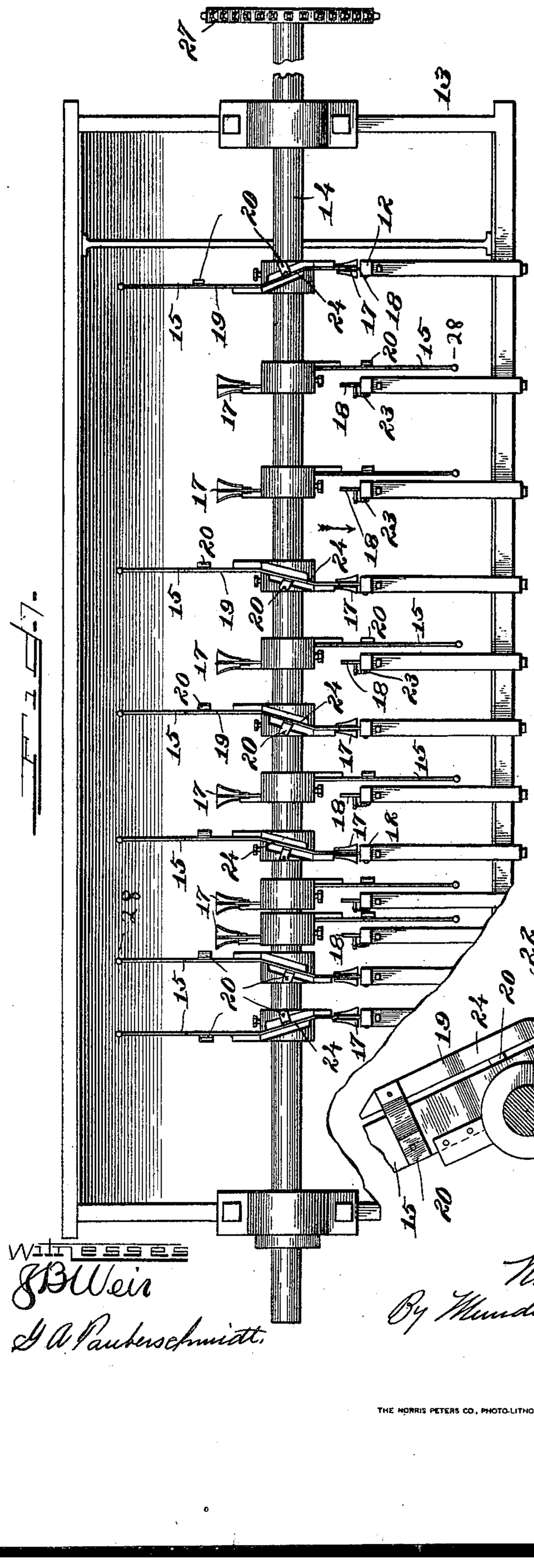

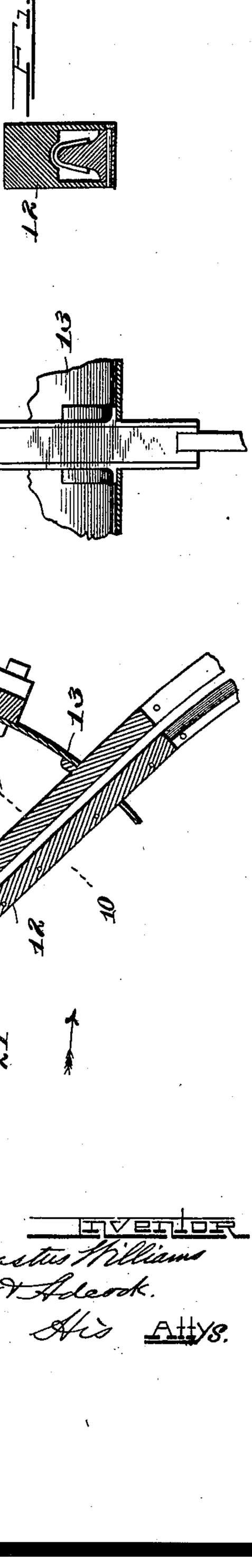

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UNITED STATES PATENT OFFICE.

WILLIAM ERASTUS WILLIAMS, OF CHICAGO, ILLINOIS.

CLIP-FEEDING MECHANISM FOR WIRE-FENCE MACHINES.

SPECIFICATION forming part of Letters Patent No. 666,402, dated January 22, 1901.

Application filed October 5, 1900. Serial No. 32,087. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ERASTUS WILLIAMS, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Clip-Feeding Mechanisms for Wire-Fence Machines, of which the following is a specification.

My invention relates to improvements in mechanism or devices for automatically feeding metal clips, and more particularly to improvements in mechanism for feeding U-shaped metal clips, in machines for manufacturing woven or stay wire fencing.

The object of my invention is to provide a metal-clip-feed mechanism of a simple, efficient, and durable construction which will operate with certainty and reliability to feed or supply the clips in proper position as required to the clip-feed chutes of the woven or stay wire fence machine without danger of clogging or missing, the same being very important and essential in order to manufacture the fencing either perfectly or with the required rapidity and cheapness.

With this end or object in view my invention consists in the combination, with the clip-feed chute or chutes, of a woven or stay wire fence machine, of a clip-feed hopper in which the U-shaped clips are placed promiscuously and in quantities, and a clip-gathering arm revolving in the hopper and operating to gather or collect clips in, onto, or astride the same and in proper position for entering the clip-feed chutes of the machine, and which gathering-arms each as it revolves forms when in proper position a movable extension or continuation, as it were, of the clip-feed chute, so that the clips may feed or slide from it into or onto the clip-feed chute.

My invention also consists in the novel construction and combinations of parts and devices herein shown and described, and specified in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is an end elevation of a woven or stay wire clip fence machine provided with a clip-feed mechanism embodying my invention. Fig. 2 is a vertical sectional elevation of the same. Fig. 3 is an enlarged detail vertical section of the clip-feed mechanism. Fig. 4 is a perspective view of the revolving gathering-arm. Fig. 5 is a detail section on line 5 5 of Fig. 4. Fig. 6 is a perspective view of the woven-wire clip fence as manufactured by the machine. Fig. 7 is a plan view of the clip-feed hopper. Fig. 8 is a sectional detail view showing the gathering-arm and the clip-feed chute of the machine. Fig. 9 is a detail view looking in the direction of the arrow in Fig. 8, and Fig. 10 is a section on line 10 10 of Fig. 8.

In the drawings, 11 represents a woven-wire or stay-wire clip fence manufacturing machine to which my improved automatic clip-feeding mechanism is applied. Said fence-machine is or may be of any suitable construction known to those skilled in the art. It may, however, preferably be substantially of the construction shown and described in my United States Letters Patent No. 610,217, dated September 6, 1898, and I have therefore in the drawings partially illustrated or indicated a woven-wire or stay-wire clip fence machine of that particular construction.

12 12 represent the clip-feed chutes or passage-ways down or along which the clips pass into the woven-wire clip fence machine. 13 is the clip-feed hopper, in which the clips are placed promiscuously and in quantities. This hopper is preferably substantially semicylindrical in cross-section.

14 is the shaft upon which the clip-gathering arms 15 are mounted or secured, the shaft being journaled in suitable bearings on the frame of the machine and extending axially through the semicylindric hopper, so that the free ends of the clip-gathering arms 15 may sweep near the inner surface of the hopper.

The machine is provided with one clip-gathering arm 15 for each of the clip-chutes 12 of the fence-machine, and the same are preferably arranged alternately or some in different radial planes from the others, so that they will not all engage the clips or sweep the hopper at the same time.

Each of the clip-gathering arms 15 is narrow and blade-shaped to adapt it to receive the U-shaped clips astride the same and permit the clips to slide along the same and be discharged therefrom by gravity.

Each of the clip-gathering arms 15 is pref-

erably given a curve 16 at its free or clip-receiving end and is also preferably provided with a slotted extension 17 at its rear or clip-discharging end. This double or slotted form of the extension enables the gathering-arm to lap or fit astride the movable member or extension 18 of the clip-feed chute 12. To insure proper registry of the double or slotted extension 17 of the gathering-arm with the member or extension 18 as the chute-gathering arm revolves, each wing of the slotted extension is made flaring, as will be readily understood from Fig. 4 of the drawings. Each of the gathering-arms 15 is also preferably provided with a guide 19, secured thereto by straps 20, which while readily permitting the clips to pass singly under it prevents their doubling up one on top of another. The rear end or slotted extension 17 of the gathering-arm is preferably furnished with a curved extremity 21, concentric with the shaft around which it revolves, and the clip-chute 12 is preferably provided with a curved guard 22, which prevents the clips sliding off the rear end of the gathering-arm until said gathering-arm is brought into registry with the clip-feed chute 12. The movable or yielding member or extension 18 of the clip-feed chute 12 is preferably hinged to the clip-feed chute 12 and held movably in position by a spring 23, and the spring 23 is preferably in a separate piece from the extension 18. This yielding member, extension, or part 18 of the feed-chute 12 at the upper end thereof permits the revolving clip-gathering arm 15 to pass the end of the feed-chute 12 without danger of obstruction or breakage by reason of clips in the feed-chute projecting beyond the rigid end thereof when the chute is full of clips. By this means whenever the feed-chute 12 is full of clips and a clip is projecting beyond its rigid portion and resting in or on the yielding member or part 18 said part 18 is simply moved out of the way by the gathering-arm 15 as it revolves. The gathering-arm 15 is provided with an inclined offset or bend 24 between its free or clip-gathering end and its rear or clip-discharging end, so that the rear end may register, as required, with the clip-feed chute 12, while the clip-gathering end of the arm can freely pass the clip-feed chute without striking or engaging the same. The hopper 13 should not be filled sufficiently full of clips as to cause the discharging end of the arm to engage the clips.

The shaft 14 preferably revolves continuously and is or may be driven by a sprocket-wheel 25 on the fence-machine through the chain or belt 26 and sprocket-wheel 27 on the shaft 14.

The clip-gathering arms are furnished each with an enlargement 28 at its extremity to prevent the same entering the openings in the clips.

The clip-gathering arms are preferably given a revolving movement in the hopper, as this is the better way to bring them alternately into position to gather or receive the clips lying promiscuously in the hopper and keep them in position to cause the clip to slide off the same or be discharged therefrom in or onto the clip-feed chute.

I claim—

1. The combination with a clip-feed chute, of a clip-feed hopper and a narrow blade-shaped clip-gathering arm revolving in the hopper astride which the clips fit and along which they may slide, substantially as specified.

2. The combination with a clip-feed chute, of a clip-feed hopper and a clip-gathering arm revolving in the hopper, said gathering-arm having an offset or bend between its clip-receiving and clip-discharging ends to cause its clip-discharging end to register with the chute and its clip-receiving end to pass the chute as the arm revolves, substantially as specified.

3. The combination with a clip-feed chute, of a clip-feed hopper and a clip-gathering arm revolving in the hopper, said clip-feed chute having a movable or yielding member or extension at its upper or receiving end, substantially as specified.

4. The combination with a clip-feed chute, of a clip-feed hopper and a narrow blade-shaped clip-gathering arm revolving in the hopper astride which the clips fit and along which they may slide, said clip-feed chute having a guard at its upper end to prevent the clips passing off the clip-gathering arm until its clip-discharging end is brought into registry with the clip-feed chute, substantially as specified.

5. The combination with a clip-feed chute, of a clip-feed hopper and a narrow blade-shaped clip-gathering arm revolving in the hopper astride which the clips fit and along which they may slide, said clip-gathering arm being provided with a guide to prevent the clips doubling up or one on top of another, substantially as specified.

6. The combination with a clip-feed hopper, of a series of narrow blade-shaped clip-gathering arms mounted in different radial positions on a revolving shaft astride which the clips fit and along which they may slide, substantially as specified.

7. The combination with a clip-feed chute, of a clip-feed hopper and a clip-gathering arm revolving in the hopper, said clip-feed chute and gathering-arm at its clip-discharging end having lapping portions or extensions, substantially as specified.

8. The combination with a clip-feed chute, of a clip-feed hopper and a gathering-arm revolving in the hopper, the discharging end of said gathering-arm having a doubled or slotted portion, and the clip-feed chute having a movable or yielding member or extension, substantially as specified.

9. The combination with a clip-feed chute, of a clip-feed hopper and a gathering-arm re-

volving in the hopper, said gathering-arm having an enlargement at its extremity to prevent its entering the apertures of the clips, substantially as specified.

10. The combination with a clip-feed chute, of a clip-feed hopper and a gathering-arm revolving in the hopper, said clip-feed chute having a hinged member or extension 18, furnished with a spring 23 for holding it in its normal position, substantially as specified.

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