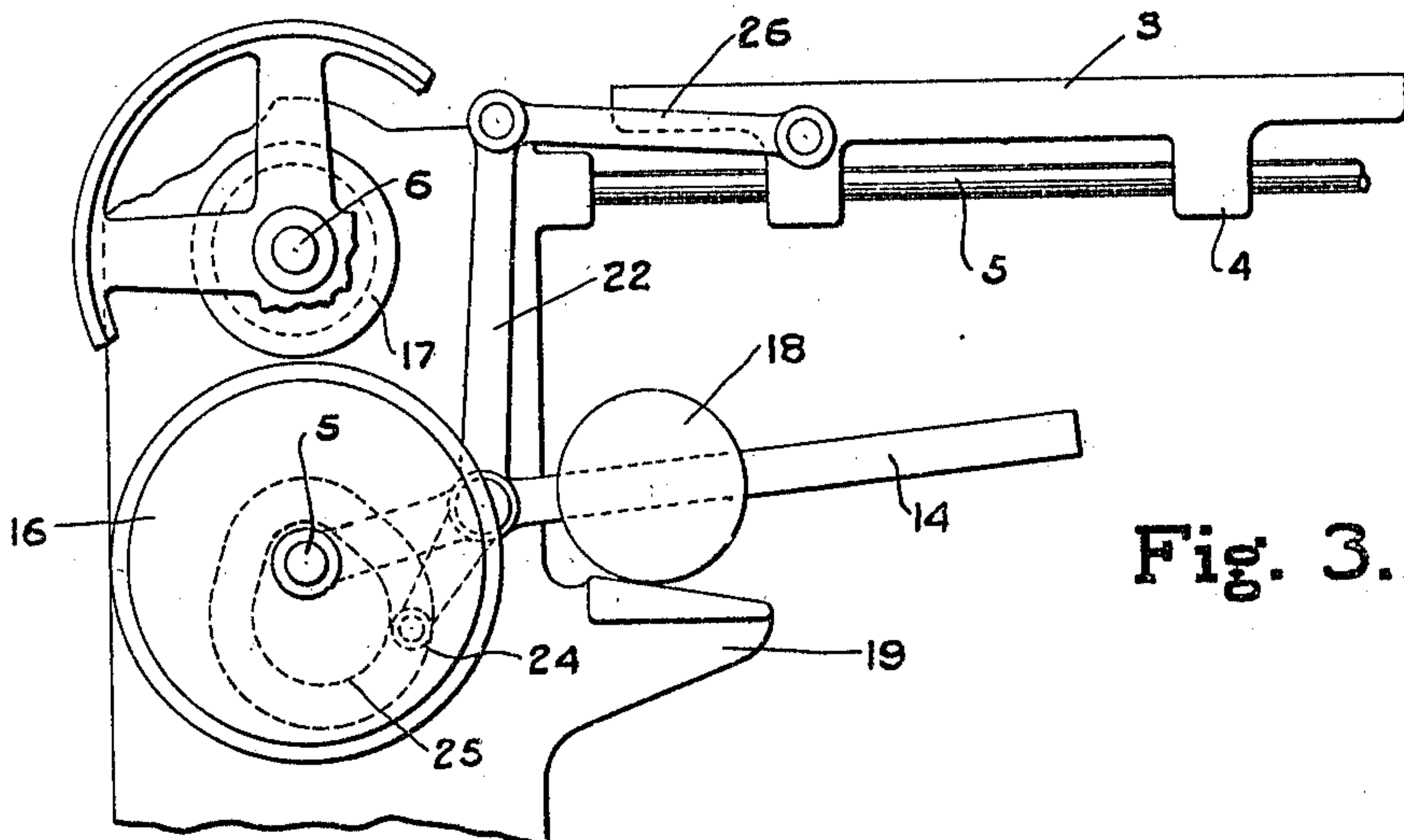
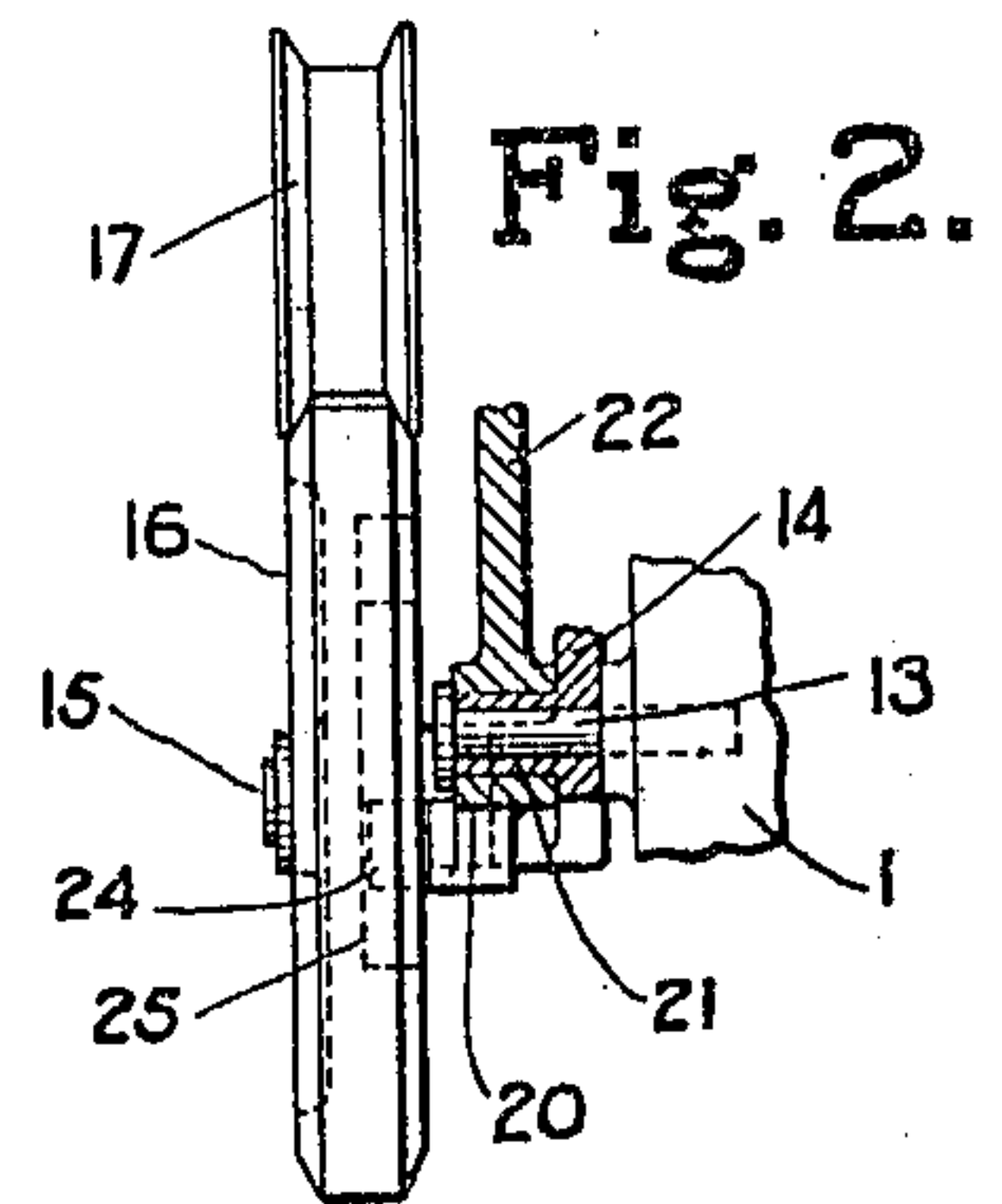
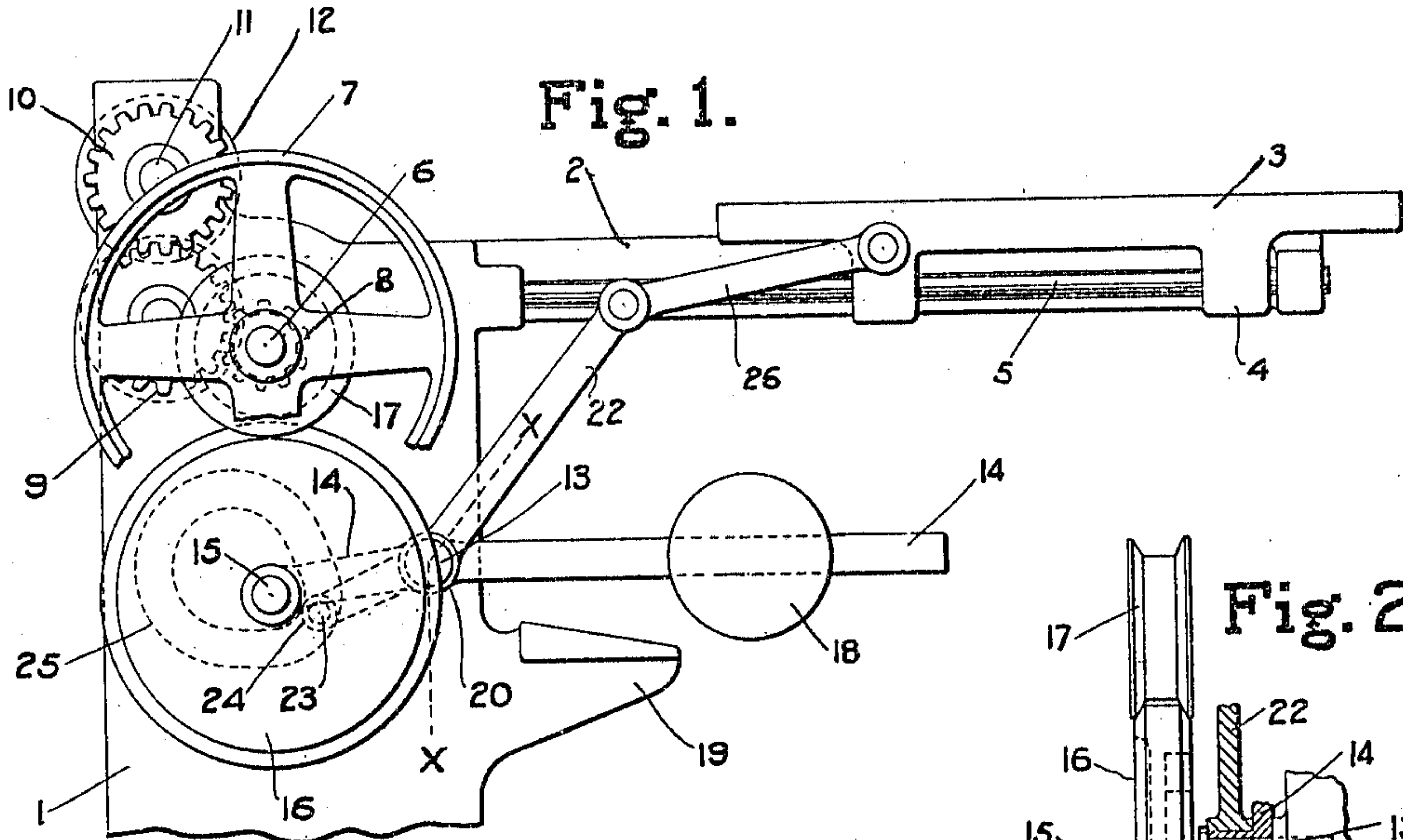


C. W. GRAHAM.
FEEDING MECHANISM.
APPLICATION FILED JUNE 26, 1905.

955,866.

Patented Apr. 26, 1910.



WITNESSES:

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FEEDING MECHANISM.

955,866.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed June 26, 1905. Serial No. 267,052.

To all whom it may concern:

Be it known that I, CHARLES W. GRAHAM, residing at Rome, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Feeding Mechanism, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to feeding mechanism.

One of the objects thereof is to provide feeding means of durable and inexpensive construction, simple action and ready manipulation.

Another object is to provide means of the above type adapted to act efficiently, either automatically or by hand, and to be readily changed for use from one to the other of these methods of feed.

Another object is to provide simple and practical means for varying the power or speed of the feeding mechanism.

Another object is to provide means of the type last above-mentioned which shall be independent of the power or speed of the machine.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the mechanism hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein is shown one of various possible embodiments of my invention, Figure 1 is an elevation of the same partially broken away so as to disclose the mechanism more clearly. Fig. 2 is an end elevation, partially in section, along the line $x-x$ of Fig. 1. Fig. 3 is a side elevation of parts shown in Fig. 1, the same appearing in another position.

Similar reference characters refer to similar parts throughout the several views.

As conducing to a better understanding of certain features of my invention, it may first be noted that, in mechanism of the general type with which this invention deals, unless means be provided for quickly and conveniently throwing off the power, there is a greater or less likelihood of personal injury to the operator of the machine, or of waste

of material owing to the same not being properly acted on thereby. It may also here be noted that unless means are provided to permit a free hand feed, when desired to meet certain conditions of work, the breadth of utility of the same is considerably diminished. Another fact of interest at this point is that I have found that it is often desirable that the feeding mechanism be operated only at the desired times and with the desired speed and yet the operator be relieved of the severe manual labor attendant upon the hand feed. The above defects are eliminated and the above and other advantages attained in constructions of the nature of that hereinafter described.

Referring now to Fig. 1 of the drawings, there is shown a frame 1 having an extension or bed 2 upon which is adapted to slide a carriage 3, the same being guided in such movement by means of sleeves 4 formed thereon and adapted to reciprocate upon a guide rod 5. Journaled within frame 1 is a shaft 6 having fixed thereon a driving pulley 7 adapted to be driven from any desired source of power. Upon shaft 6 is fixed a pinion 8 adapted to drive through an idle gear 9 and a gear 10 a shaft 11 upon which are preferably positioned cutters 12. The details of the latter mechanism are not herein shown, as they form in themselves no part of the present invention, it being sufficient merely that the material in this illustrative embodiment be adapted to be fed toward them upon the bed 2 by means of the frame or carriage 3.

Upon a pin 13 formed on or secured to the frame 1 is mounted a lever 14, upon the free end of which is journaled by a stud 15 a cam 16. This cam is provided with an outer surface adapted to co-act with and frictionally engage a driving wheel 17 upon the shaft 6. In this illustrative embodiment, the face of wheel 17 is recessed so as to embrace the corresponding portions of cam 16 and thus transmit power thereto at a rate depending in part upon the force with which these parts are pressed into engagement. The free end of lever 14 extends for a considerable distance adjacent the carriage 3 and is provided with a slidable weight 18 by the adjustment of the position of which, the pressure with which the wheel 17 and the cam 16 engage one another may be varied.

Upon the frame of the machine is positioned a support 19 having an inclined upper surface and adapted, upon the weight 18 being pushed against the same, to raise this part and to force the wheel 17 and cam 16 out of engagement one with another. Likewise, mounted upon pin 13, as by sleeve 20, resting upon the hub 21 of lever 14, is a lever 22, provided with a pin 23 and roller 24 adapted to rest within the groove 25 in cam 16. The remaining end of this lever extends upwardly toward the carriage 3 with which it is connected, as by link 26.

The operation of the above described embodiment of my invention is substantially as follows: Assuming that material of a proper character be placed on the carriage or feeding frame 3 and that it be desired that the same be fed automatically toward the cutters 12, or other tools which are to act thereon, the weight 18 is moved along the lever 14 to the outer portion thereof so as to move the cam 16 into forcible engagement with the friction wheel 17. In this manner, the cam is driven by the friction wheel 17 and the pin 23 is forced toward and away from the stud 15 upon which the cam is mounted, the lever 22 being thus rocked about the pin 13 and the carriage reciprocated upon the bed. If, however, it be desired that a "delinquent feed" be employed, by which is meant a feed in which, although power is used in the feeding action, nevertheless the same is of such slight magnitude as to permit the parts fed to be manually-retarded, the weight 18 is slid along the lever 14 to such a point as to reduce the pressure of the engagement of the cam 16 with the friction wheel 17 to the desired value. If for any reason, as when it is desired to employ a purely manual feed or to throw out the power quickly, the weight 18, which is conveniently positioned with reference to the carriage, is thrown toward the pin 13 and by reason of the inclined conformation of the upper surface of support 19, the weight is positively raised and the cam 16 thrown out of engagement with the friction wheel 17, as shown in Fig. 3 of the drawings.

It will thus be seen that I have provided means well adapted to accomplish the several objects of my invention and attain, among others, the advantages hereinbefore specified.

The entire mechanism is of simple, durable and inexpensive construction, and, on account of this simplicity and durability, its action is of a highly reliable character.

It will also be seen that the quickness and convenience with which the power or speed of the feed may be varied without affecting the machine is a highly advantageous feature. The ease with which the feed may be changed from manual to automatic will also be clearly apparent and the many advan-

tages thereof obvious to those skilled in the art with which this invention deals.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention could be made without departing from the scope thereof, I intend that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

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

1. In feeding mechanism, in combination, a source of power, a feeding member adapted to be reciprocated, means for reciprocating said feeding member comprising a pair of frictionally engaging members interposed between said source of power and said feeding member through which power is frictionally transmitted during the operation of the mechanism, means for connecting one of said frictionally engaging members with said feeding member, and means comprising a slidable member for adjusting the friction between said frictionally engaging members and maintaining the same constant at any desired degree.

2. In feeding mechanism, in combination, a source of power, a feeding member adapted to be driven therefrom, a pair of frictionally engaging members interposed between said source of power and said feeding member through which power is continuously transmitted during the operation of the mechanism, means for connecting one of said frictionally engaging members with said feeding member, and means adapted to force said frictionally engaging member into engagement, said means comprising a lever having a free end, and a weight slidably mounted thereon adapted to vary the friction between said members and maintain the same constant at any desired degree.

3. In feeding mechanism, in combination, a source of power, a member adapted to be driven therefrom, a pair of frictionally-engaging members interposed between said source of power and said driven member through which the power is transmitted, a weight operatively connected with one of said frictionally-engaging members adapted to force the same into engagement with the other thereof, and means adapted to vary the effect of said weight, said varying means being positioned adjacent said driven member.

4. In feeding mechanism, in combination, a source of power, a member adapted to be driven therefrom, a pair of frictionally-engaging members interposed between said source of power and said driven member through which the power is transmitted, means adapted upon movement to vary the

friction between said frictionally-engaging members, said means comprising a lever and a weight slidably mounted thereon, and means adapted upon movement of said weight to a predetermined point to render the same inoperative.

5. In feeding mechanism, in combination, a source of power, a member adapted to be driven therefrom, a pair of frictionally-engaging members interposed between said source of power and said driven member through which the power is transmitted, means comprising a weight operatively connected to one of said frictionally-engaging members adapted to force the same into engagement with the other thereof, said means being adapted upon the position of said weight being changed to vary the force with which said frictionally-engaging members engage, and means adapted upon a predetermined movement of said weight to render the same inoperative.

6. In feeding mechanism, in combination, a source of power, a member adapted to be driven therefrom, a pair of frictionally-engaging members interposed between said source of power and said driven member through which the power is transmitted, a movable weight operatively connected to one of said frictionally-engaging members adapted to force the same toward the other thereof with a pressure dependent upon the position of said weight, and a support positioned within the path of travel of said weight adapted upon said weight being moved thereon to render the same inoperative.

7. In feeding mechanism, in combination, a source of power, a member adapted to be driven therefrom, a pair of frictionally-engaging members interposed between said source of power and said driven member through which the power is transmitted, a slidable weight operatively connected to one of said frictionally-engaging members adapted to force the same toward the other thereof with a pressure dependent upon the position of said weight, a cam upon one of said frictionally-engaging members, a lever adapted to co-act with said cam, and a connection between the remaining end of said lever and said driven member.

8. In feeding mechanism, in combination, a source of power, a member adapted to be driven therefrom, a pair of frictionally-engaging members interposed between said source of power and said driven member through which the power is transmitted, a lever connected with one of said frictionally-engaging members, a weight slidably mounted upon said lever tending to force said member into engagement with the other thereof, a cam upon said first-mentioned frictionally-engaging member, a pivoted lever having one end co-acting with said cam

and the other end connected with said driven member, and means adapted to guide said driven member in a substantially rectilinear direction.

9. In feeding mechanism, in combination, a source of power, a member adapted to be driven therefrom, a pair of frictionally-engaging members interposed between said source of power and said driven member through which the power is transmitted, one of said members being pivotally mounted and adapted to swing with reference to the other thereof, means adapted to swing said member and vary the pressure with which said first member engages said second member, a cam upon said first-mentioned frictionally-engaging member and an operative connection between said cam and said driven member.

10. In feeding mechanism, in combination, a source of power, a member adapted to be driven therefrom, a pair of frictionally-engaging members interposed between said source of power and said driven member through which the power is transmitted, one of said members being pivotally mounted and adapted to swing with reference to the other thereof, means adapted to swing said member and vary the pressure with which said first member engages said second member, a cam upon said first-mentioned frictionally-engaging member and an operative connection between said cam and said driven member, said pressure-varying means being positioned adjacent said driven member.

11. In feeding mechanism, in combination, a pair of levers, a cam journaled upon the free end of one of the same, means co-acting with said cam upon the adjacent free end of the other thereof, a source of power adapted to drive said cam, and a driven member operatively connected to the remaining end of said second lever.

12. In feeding mechanism, in combination, a pair of levers, a cam journaled upon the free end of one of the same, means co-acting with said cam upon the adjacent free end of the other thereof, a source of power adapted to drive said cam, and a driven member operatively connected to the remaining end of said second lever, said levers being pivoted at a common point.

13. In feeding mechanism, in combination, a pair of levers, a cam journaled upon the free end of one of the same, means co-acting with said cam upon the adjacent free end of the other thereof, a source of power, means driven from said source of power adapted frictionally to engage and to drive said cam, and a driven member operatively connected to the remaining end of said second lever.

14. In feeding mechanism, in combination, a pair of levers, a cam journaled upon

the free end of one of said levers, means co-
 acting with said cam upon the adjacent free
 end of the other thereof, a source of power,
 means driven from said source of power
 5 adapted frictionally to engage and to drive
 said cam, and a driven member operatively
 connected to the remaining end of said
 second lever, said first lever having a fixed
 pivotal point and said cam being adapted to
 10 move with relation to said frictionally-en-
 gaging member.

15. In feeding mechanism, in combina-
 tion, a pair of levers, a cam journaled upon
 the free end of one of said levers, means co-
 15 acting with said cam upon the adjacent free
 end of the other thereof, a source of power
 adapted frictionally to engage and to drive
 said cam, means adapted to vary the fric-
 tion between said cam and said frictionally-
 20 engaging member, and a driven member
 operatively connected to the remaining end
 of said second lever.

16. In feeding mechanism, in combina-
 tion, a pair of levers, a cam journaled upon
 25 the free end of one of said levers, means co-
 acting with said cam upon the adjacent free
 end of the other thereof, a source of power
 adapted frictionally to engage and to drive
 said cam, means adapted to vary the friction
 30 between said cam and said frictionally-en-
 gaging member, and a driven member opera-
 tively connected to the remaining end of said
 second lever, said levers having a common
 pivotal point.

35 17. In feeding mechanism, in combina-
 tion, a pair of levers, a cam journaled upon
 the free end of one of said levers, means co-
 acting with said cam upon the adjacent free
 end of the other thereof, a source of power
 40 adapted to drive said cam, a driven member
 operatively connected to the remaining free
 end of said second lever, and a weight
 mounted upon the remaining free end of
 said first lever.

45 18. In feeding mechanism, in combina-
 tion, a pair of levers, a cam journaled upon
 the free end of one of said levers, means co-
 acting with said cam upon the adjacent free
 end of the other thereof, a source of power
 50 adapted to drive said cam, a driven member
 operatively connected to the remaining free

end of said second lever, a weight slidably
 mounted upon the remaining free end of
 said first lever.

19. In feeding mechanism, in combina- 55
 tion, a pair of levers, a cam journaled upon
 the free end of one of said levers, means co-
 acting with said cam upon the adjacent free
 end of the other thereof, a source of power
 adapted to drive said cam, a driven member 60
 operatively connected to the remaining free
 end of said second lever, a weight slidably
 mounted upon the remaining free end of
 said first lever, said levers being pivoted at
 a common point. 65

20. In feeding mechanism, in combina-
 tion, a pair of levers, a cam journaled upon
 the free end of one of said levers, means co-
 acting with said cam upon the adjacent free
 end of the other thereof, a source of power 70
 adapted to drive said cam, a driven member
 operatively connected to the remaining free
 end of said second lever, a weight slidably
 mounted upon the remaining free end of
 said first lever, said levers being pivoted at a 75
 common point, and a rest adapted to sup-
 port said weight and render the same inop-
 erative upon the same being moved to a pre-
 determined point.

21. In feeding mechanism, in combina- 80
 tion, a source of power, a reciprocating
 member adapted to be driven therefrom, a
 pair of frictionally-engaging members inter-
 posed between said source of power and said
 driven member and adapted to transmit 85
 power from one to the other thereof to re-
 ciprocate said driven member, one of said
 frictionally-engaging members being pivot-
 ally mounted and adapted to swing relative
 to the other thereof, and a slidable weight 90
 operatively connected with said swinging
 member and adapted to vary the pressure
 with which it engages the other of said fric-
 tionally-engaging members in accordance
 with the position of the weight. 95

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

CHARLES W. GRAHAM.

Witnesses:

A. C. KESSINGER,
 JOHN J. NORTON.