F. BAUER.

STOP DEVICE.

APPLICATION FILED NOV. 9, 1917.

1,339,052. Patented May 4, 1920.

Fig. 1.

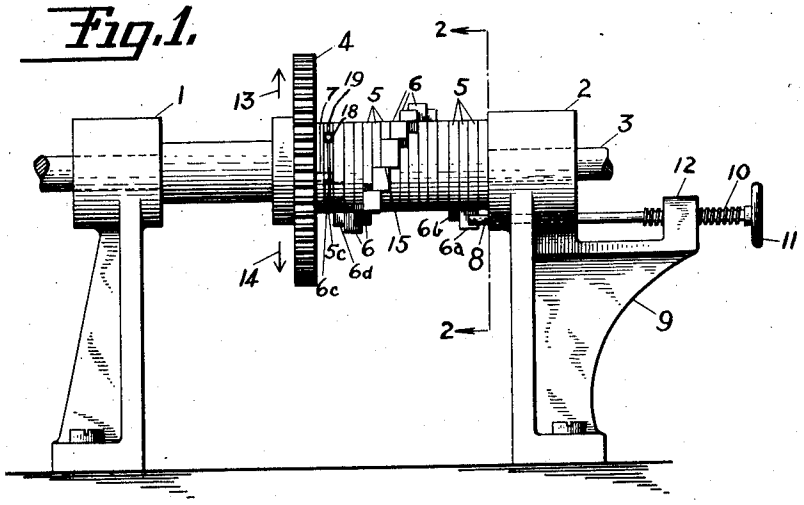
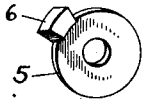


Fig. 3.



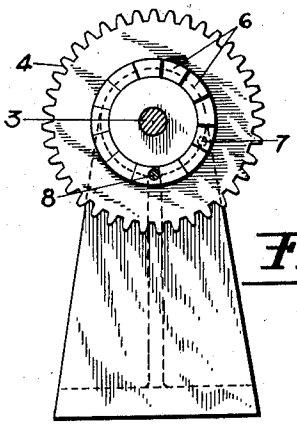


Fig. 2.

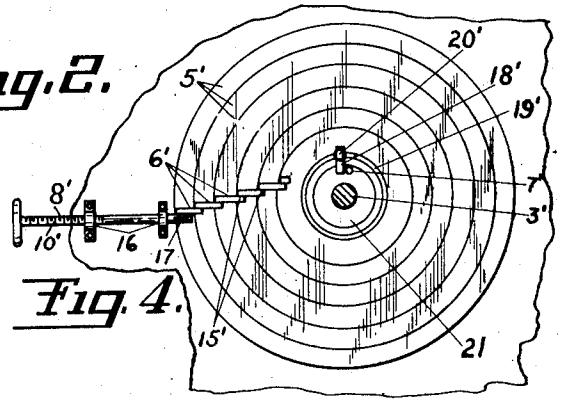
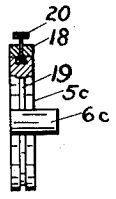


Fig. 4.

Fig. 5.



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STOP DEVICE.

1,339,052. Specification of Letters Patent. Patented May 4, 1920.

Application filed November 9, 1917. Serial No. 201,054.

To all whom it may concern:

Be it known that I, FRANZ BAUER, a citizen of the United States of America, residing at 602 Prospect avenue, Ridgewood, Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Stop Devices, of which the following is a specification.

This invention relates to stop mechanisms, and has for its object, the provision of means for stopping machines or rotating parts of machines after a predetermined number of turns. Another object is to provide such means as will cause a positive stop at the desired point, that is, which will not cause the member being stopped to stop slightly before or after the desired point. A further object is to provide means which will not cause the parts affected to bind.

Referring to the drawings in which are shown what I now consider to be the preferred forms of my invention:

Figure 1 is a side elevation of the stopping mechanism.

Fig. 2 is a section taken on line 2—2 Fig. 1.

Fig. 3 is a detail, showing one of the stop units.

Fig. 4 is a modified form of the invention wherein the parts are confined as nearly as practicable to a flat surface, and Fig. 5 is a detail illustrating a part of the adjusting means of the mechanism shown in Fig. 1.

In Fig. 1, 1 and 2 represent bearings for shaft 3. Gear 4 on shaft 3 represents the member to be stopped after a predetermined number of revolutions thereof. Members 5 revolubly mounted on shaft 3 are each provided with a projection or lug 6. Each lug 6 is designed to engage the lug on the next preceding member 5 as shown at 15. Any suitable means, such as a pin 7 in gear 4 may be provided to engage the lug on the last of the several members 5. Means such as a rod 8 projecting from a stationary part 9 may be provided to engage the lug on another of said members 5.

Rod 8 may be made longitudinally adjustable through the stationary part 9, so as to engage any desired lug 6. For this purpose I have shown rod 8 as threaded at 10 for screwing through projection 12 on the stationary part 9. A knob 11 on rod 8 may be provided for the turning of said rod.

The manner in which this form of the invention operates is as follows: As shown in Fig. 1 the first of the lugs 6 is resting against rod 8 at 6^a; the second at 6^b rests against the first, and all of the others in succession rest against the next preceding one, while the pin 7 may rest against the last one at 6^c. It will be seen then that gear wheel 4 cannot turn in the direction of arrow 13. In other words, presuming the said wheel to have been turning in the direction of arrow 13, it is now in the stopped position. On the other hand, suppose gear wheel 4 to be in position ready for operation in the direction of arrow 14. It will readily be seen that the turning of said wheel will carry pin 7 around so that the pin will engage lug 6^c on the opposite side to that shown in the present position. Lug 6^c on member 5^c pivoted on shaft 3 will then be carried around so that it will in turn engage lug 6^d on the opposite side to that shown in Fig. 1. The wheel will continue to turn until lug 6^b engages and carries lug 6^a around and said lug 6^a engages stop rod 8 on the opposite side to that shown in Fig. 1, whereupon said wheel will be caused to stop.

In order to stop the gear wheel 4 sooner, knob 11 may be turned to screw stop rod 8 farther in so as to engage any desired lug.

For finer adjustments, I have shown a separate stop 18 in a groove 19 in member 5^c (see Fig. 5). This stop may be moved through the said groove and secured by means of a set screw 20. The pin 7 in the gear wheel 4 will engage the stop 18, and be stopped thereby. Thus it will be seen that by adjusting stop rod 8 and stop 18, the wheel 4 may be caused to stop after turning any number of revolutions and fractions thereof.

In Fig. 4 I have shown a modification of the device, which may be used where it is most convenient to place it in a flat space.

In this form 3′ represents a shaft. A small pulley wheel 21 or the like, may be secured to said shaft. A plurality of rings 5′ may be arranged one without the other, in the same plane, as shown; the innermost of said rings being placed over the pulley wheel 21 for rotation thereon, while each succeeding ring may rotate on the preceding one. A lug 6′ is fixed on each of rings 5′. Each of these lugs projects sufficiently to engage the next preceding one as shown at 15′. A rod 8′ extending from a fixed position at

16 may serve to engage one of the lugs as shown at 17. Threads 10′ render rod 8′ adjustable as in the case of rod 8 in Fig. 1. A pin 7′ in pulley wheel 21 adapted to engage a stop 18′ slidably placed in a groove 19′ in the innermost of rings 5′, may serve to stop the rotation of shaft 3′. The stop 18′ may be secured in any part of groove 19′ by means of a set screw 20′, for varying the stopping point of the shaft 3; while the stop rod 8′ may be adjusted so as to engage any of the several lugs 6′.

The operation of this form of the invention is similar to that shown in Fig. 1. The pulley wheel 21 carries pin 7′ around; the said pin engages stop 18′ and carries the innermost of rings 5′ around; each lug engages the adjacent lug and the shaft 3′ continues to turn until one of the lugs engages the stop rod 8′. It is of course obvious that in both forms of the invention each ring is capable of slightly less than a complete revolution so that the number of complete revolutions permissible is somewhat less than the number of rings, dependent upon the thickness of the lugs employed.

In accordance with the provisions of the patent statutes, I have herein described the principle of operation of my invention, together with the apparatus, which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is only illustrative and that the invention can be carried out by other means. Also, while it is designed to use the various features and elements in the combination and relations described, some of these may be altered and others omitted and some of the features of each modification may be embodied in the others without interfering with the more general results outlined, and the invention extends to such use.

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

1. A plurality of rotatable members; adjustable means for stopping one of said members; separate means responsive to said stopping, for stopping the others of said members successively, after each member has moved a predetermined degree farther than the preceding member; an additional rotatable member; and adjustable means for causing one of said first mentioned members to engage and stop said additional member.

2. The combination with a shaft, of a plurality of rings; projections on said rings, each of said projections being adapted to engage a projection on an adjacent ring; means for connecting one of said rings to said shaft, and adjustable means for stopping any one of said other rings at will.

3. The combination with a shaft, of a plurality of rings; projections on said rings, each of said projections being adapted to engage a projection on an adjacent ring; adjustable means for connecting one of said rings to said shaft, and adjustable means for stopping any one of said other rings at will.

4. In a variable stop mechanism, a rotatable element, a plurality of rotatable members, adjacent said element, means for causing said element to engage one of said members; separate means for causing each of said members to engage the adjacent member after each has turned a predetermined angle farther than the preceding one, and adjustable means for stopping any one of said members for controlling the angular distance turned by said element.

5. In a variable stop mechanism, a plurality of rotatable members; means for stopping one of said members; separate means for causing each of said members to engage the adjacent member after each has turned substantially a revolution farther than the preceding one, a rotatable element, and adjustable means for causing said element to engage one of said members for stopping said element after the same has turned any predetermined fraction of a revolution farther than said last mentioned member.

6. In a variable stop mechanism, a plurality of rotatable members; adjustable means for stopping any one of said members; means for causing others of said members to stop successively in response to said first stopping; a movable element adjacent said members and adjustable means, for causing said element to engage one of said members, for stopping said element.

In testimony whereof I have affixed my signature.

FRANZ BAUER.