No. 897,485. PATENTED SEPT. 1, 1908.

A. PICKEN.

COUNTING AND CANCELING APPARATUS.

APPLICATION FILED APR. 17, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

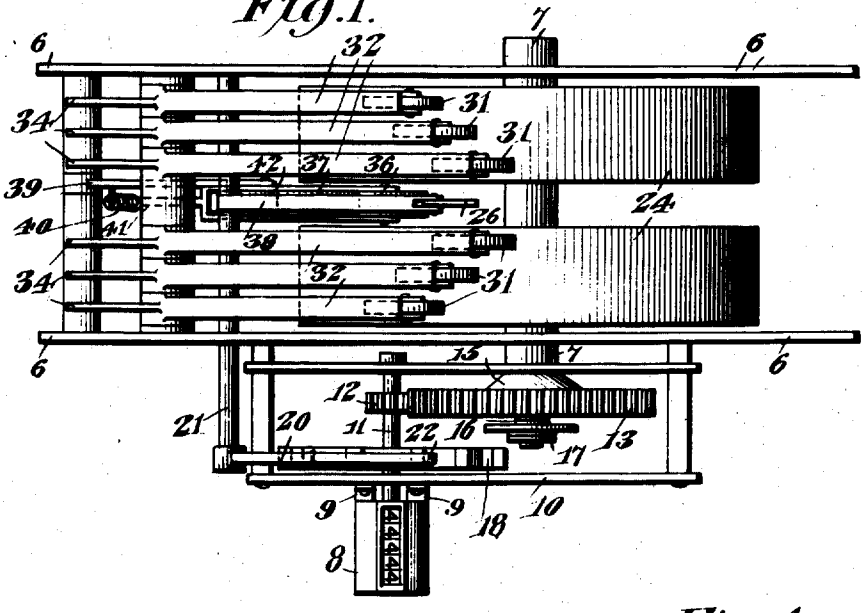


Fig. 4.

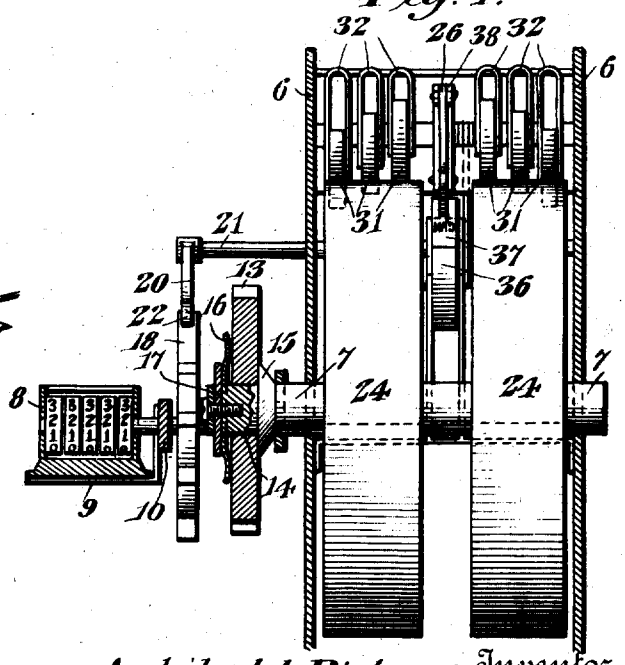
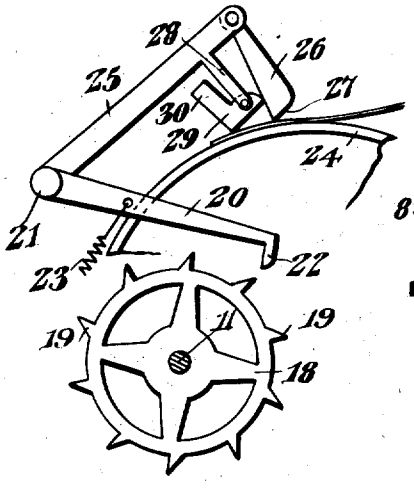


Fig. 5.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

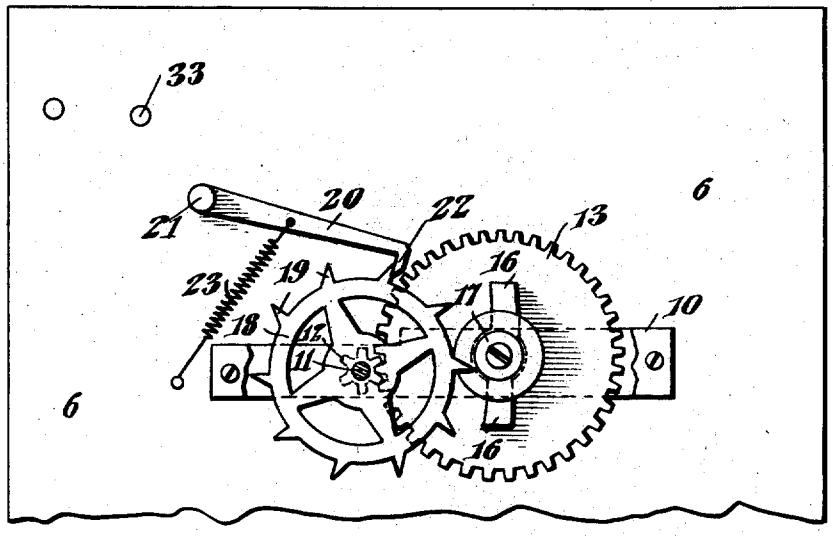
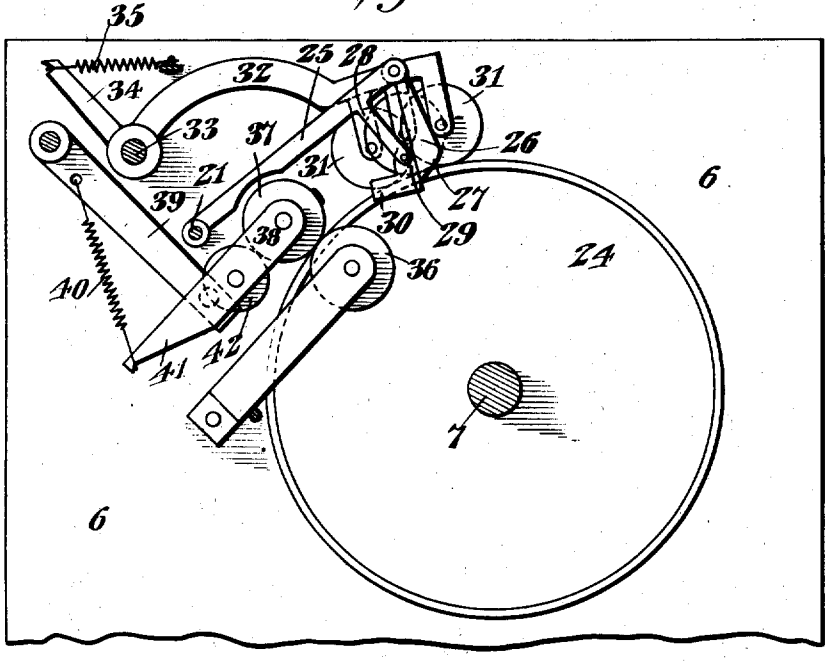


Fig. 3.



Witnesses

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COUNTING AND CANCELING APPARATUS.

No. 897,485. Specification of Letters Patent. Patented Sept. 1, 1908.

Application filed April 17, 1906. Serial No. 312,173.

To all whom it may concern:

Be it known that I, ARCHIBALD PICKEN, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented a new and useful Counting and Canceling Apparatus, of which the following is a specification.

The present invention relates to improvements in counting mechanism and canceling means, and while particularly useful in counting railroad mileage tickets, it will be evident that said invention is not limited to such use, but may be employed for a variety of purposes.

The primary object is to provide novel, simple and accurate mechanism, whereby when an article to be counted is placed in the mechanism, the register will be automatically thrown into operation, and said operation will be automatically controlled and determined by such article.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a top plan view of the mechanism. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical sectional view. Fig. 4 is a vertical cross sectional view. Fig. 5 is a detail view illustrating the relation of the parts when the register is being operated.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment disclosed, a suitable support for the mechanism is employed, and while this support may be of any desired character, that illustrated has been found to be entirely satisfactory. Two spaced side plates 6 are provided, and journaled therein is a driving shaft 7, which may be of any suitable character, and is operated from any desirable source of power. This shaft constitutes driving means for a register 8 of any suitable character, said register being mounted on a bracket 9 that is secured by a suitable frame 10 to one of the supporting plates 6. The register is provided with a shaft 11 carrying a pinion 12 that is in mesh with a gear wheel 13 loosely journaled, as shown at 14 on the projecting end of the driving shaft 7. The gear wheel constitutes in effect one member of a friction clutch, the other member consisting of an abutment 15, against which it is yieldingly pressed by a friction spring 16 secured as shown at 17 to the end of the shaft. It will thus be evident that if the shaft 7 is rotated, the register being geared thereto, will be operated, inasmuch as the friction between the member 15 and the gear wheel or member 13 is sufficient to normally hold said gear wheel against movement on the shaft when there is no great resistance to the movement of the wheel. Normally, however, the register is secured against movement, in which case, the gear wheel 13 will be stationary and the driving shaft 7 will rotate therein. The register is held by brake mechanism, consisting of a wheel 18 fixed to the shaft 11 and having peripheral teeth 19. A brake is provided that is in the form of an arm 20, one end of which is carried by a shaft 21 journaled in the side plates. The other end carries a dog or tooth 22 that is movable into and out of coöperation with the teeth 19. A spring 23 normally holds said teeth in such coaction.

The driving shaft 7 constitutes a support and driving means for a carrier or measuring drum comprising spaced sections 24 carried by said shaft and located between the plates 6. This drum therefore will rotate continuously, regardless of the operation of the register. A controlling arm 25, fixed to the shaft 21, which carries the arm 20, is disposed in line with the space between the drum sections 24, and said arm 25, has pivoted on its free end, a depending dog 26, which normally has its lower end located in the space between the drum sections, as shown in Figs. 3 and 4, said lower end being rearwardly and downwardly beveled, as illustrated at 27. The arm also carries a depending finger 28 on which is pivotally mounted a trip 29, the upper end of which engages the rear side of the dog 26, the lower end having an offset counterbalancing weighted portion 30. When the dog 26 is in its lowermost position, as shown in Figs. 3 and 4, the tooth 22 of the brake arm 20 is in coaction with the teeth 19 of the brake wheel 18. Consequently the register will be locked against movement, but if the dog 26 is raised, the arm 25 will be swung, thereby swinging the arm 20 and carrying the tooth out of coaction with the wheel so that the register will then be operated.

A plurality of bearing rollers 31 operate on the periphery of the drum sections 24 and are preferably journaled on the free ends of arms 32 pivotally mounted as shown at 33, and

having upstanding fingers 34 to which are connected springs 35. These springs yieldingly urge the arms downwardly, and consequently yieldingly maintain the rollers 31 in coaction with the periphery of the drum. It will be evident that any number of rollers may be employed, as desired. The said rollers serve to maintain the article being measured in contact with the periphery of the drum.

Canceling means is also preferably, though not necessarily associated with the mechanism above described. As shown, a pair of rollers 36 and 37 are employed that are in peripheral contact, and have their contacting portions in alinement with the periphery of the drum. One of these rollers is pivotally located in the space between the drum sections, the other is mounted on an arm 38 outside said drum. The arm, as shown, is pivoted to a supporting arm 39, and a spring 40 connects the rearward extension 41 of said arm 38 with the upper portion of the supporting arm 39. The roller 37, preferably carries suitable canceling means, as for instance, a stamp. While this stamp may be of any desired character, there is shown in the drawings, as an example, the letters "CAN.", indicating canceled. An inking roller 42 is journaled on the arm 38 in rear of the roller 37, and the type will engage said inking roller upon the rotation of the roller 37, as will be evident.

In practice, the number of teeth of the wheel 18 is preferably ten, so that one revolution of this wheel records ten units on the register. Thus, each tooth of said wheel that passes the tooth 22 of the brake arm 20 permits the movement of the register one unit. The circumferential periphery of the drum 24 represents a standard of measurement divided into a number of parts, each one of these parts being expressed in the operation of the machine by one tooth of the wheel 18 passing the tooth 22. For instance, if the drum is rotated so far that twelve of the number of parts into which it is divided pass a given point, twelve teeth of the wheel 18 will pass the tooth 22 of the arm 20, providing of course that said tooth is out of coaction with the teeth and the register wheels will be moved twelve units. Then if the drum 24 is again rotated so far that twenty-five of the number of parts into which it is divided pass such given point, twenty-five teeth on the wheel 18 will pass the tooth 22 and the register will have been moved thirty-seven units. Assuming therefore that the driving shaft 7 is in operation by suitable motive power applied thereto and the tooth 22 is in coaction with the wheel 18, the register will be stationary, while the drum 24 and the rollers 31 will revolve continuously. If now an article to be counted and canceled as for example, a railroad mileage slip (a length of ticket composed of a number of connected coupons of equal length), is presented to the revolving drum, as the end of said strip passes beneath the rollers 31, it will be held snugly against the periphery of the drum. As a result, the slip will be carried forward against the inclined lower end of the swinging dog 26, which is in the position illustrated in Fig. 3. The dog will thereupon be moved upwardly, carrying with it, the arm 25, the arm 20, and withdrawing the tooth 22 from engagement with the wheel 18. The latter being now free to revolve, the register will be operated, through the interposed gearing, from the shaft 7, and said register will continue to operate as long as the strip or ticket that is being counted keeps the arms 25 and 20 raised. Therefore the register will record the number of coupons, representing miles the ticket contains. As already stated, the ticket raises the dog 26, and it will be noted that immediately afterwards will strike the lower end of the trip 29, swinging said trip and causing the dog 26 to move forwardly into an advanced position. When the end of the ticket passes from beneath the dog, the arms of their own weight, assisted by the spring 23 will again fall, carrying the tooth 22 into coöperation with the tooth 19, again locking the register. The reason for moving the dog 26 into the advanced position is to allow it to drop from the rear end of the traveling ticket that is being counted sooner than it otherwise would, so as to insure the tooth 22 dropping into position in front of one of the teeth 19 of the wheel 18, for owing to the speed at which the apparatus runs, there might be danger of a tooth passing before the arms could drop, in which case, the register would record one more unit than the strip of ticket contains, making the mechanism inaccurate. It will be evident, however, that by this means, any chance of overthrow is prevented, and the space between the teeth 19 of the wheel 18 permits the advanced movement of the lock or brake mechanism.

The canceling of the ticket is done on its journey between the rollers 36 and 37. The characters on the peripheral surface of the former are printed upon said ticket.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a machine of the character set forth,

the combination with a register, of operating means therefor, a brake for preventing the actuation of the register by the operating means, and means controlled by an article to be registered for moving the brake to permit the operating means to actuate the register.

2. In a machine of the character set forth, the combination with a register, of operating means therefor, a brake for holding the register against movement, and means operated by an article to be registered for moving the brake to an inoperative position with respect to said register.

3. In a machine of the character set forth, the combination with a register, of operating means therefor, a brake wheel movable with the register, a brake movable into and out of coaction with the wheel, and means controlled by the article to be registered for moving the brake.

4. In a machine of the character set forth, the combination with a register, of operating means therefor, a toothed brake wheel movable with the register, a brake latch movable into and out of coaction with the teeth of the wheel, and means controlled by the article to be registered for moving the latch out of coaction with the teeth of the wheel.

5. In a machine of the character set forth, the combination with a register, of means for operating the register, a toothed brake wheel connected to the register, a swinging brake arm having a tooth movable into and out of coaction with the teeth of the wheel, and means actuated by the article to be registered and connected to the arm for swinging the same.

6. In a machine of the character set forth, the combination with a register, of an article carrying device, operating means for simultaneously moving the register and carrying device, and means for controlling the movement of the register by the operating means, said controlling means including an actuating element movable toward and from the carrying device and actuated by an article passed between the two.

7. In a machine of the character set forth, the combination with a register, of a movable carrying device, operating means connected to the register and to the carrying device for simultaneously driving them and means actuated by an article associated with the carrying device and separate from said operating means for controlling the movement of the register by the operating means.

8. In a machine of the character set forth, the combination with a register, of operating means therefor, a carrier drum rotated by the register operating means, and a coacting roller, said drum and roller being relatively movable toward and from each other to permit the passage of an article between them, and means operated upon the relative movement of the drum and roller by the insertion of an article between them for controlling the movement of the register by the operating means.

9. In a machine of the character set forth, the combination with a register, of operating means therefor, a brake for holding the register against movement, a movable carrying device, and controlling means for the brake actuated by an article placed upon the carrying device.

10. In a machine of the character set forth, the combination with a register, of operating means therefor, mechanism for preventing the actuation of the register by the operating means, a carrying drum continuously rotated by the register operating means, and a controlling arm for the mechanism connected to the mechanism and movable toward and from the drum, said arm being actuated by an article placed between the drum and arm.

11. In a machine of the character set forth, the combination with a register, of operating means therefor, a brake wheel connected to the register, a brake movable into and out of coaction with the wheel, and an actuating arm for the brake having a portion disposed in the path of movement of an article placed upon the drum.

12. In a machine of the character set forth, the combination with a register, of operating means therefor, a carrying device, controlling means for the register including a member movably associated with the carrying device, and movable from and to a set position, said member being actuated by an article placed upon the carrying device, and means for automatically changing the position of the member after its actuation by the article.

13. In a machine of the character set forth, the combination with a register, of operating means therefor, a carrying device, means for controlling the operation of the register including a swinging arm, a dog pivoted on the arm and actuated by an article placed upon the carrying device, and means for automatically swinging the dog on the arm after the actuation of said dog by the article.

14. In a machine of the character set forth, the combination with a register, of means for operating the same, a brake for holding the register against movement by the operating means, an article carrying drum comprising spaced sections, an actuating arm for the brake, a dog pivoted on the arm and operating between the drum sections, and a trip also pivoted on the arm and operating between the drum sections, said trip engaging the dog to effect the swinging movement thereof.

15. In a machine of the character set forth, the combination with a register, of operating means therefor, a brake for holding the register against movement by the operating means, a rotary article carrying drum, comprising spaced sections, and a controlling arm for the

brake having a portion that operates between the sections.

16. In a machine of the character set forth, the combination with a register, of operating means therefor, relatively rotatable frictionally engaged devices constituting driving connections between the operating means and register, and mechanism controlled by the article to be registered for preventing the movement of the register by said operating means and thereby causing the relative rotation of the devices.

17. In a machine of the character set forth, the combination with a register, of operating means therefor, a clutch connection between the operating means and register, said clutch connection comprising relatively rotatable constantly engaged members, and mechanism controlled by the article to be registered for holding one member against movement while permitting the rotation of the other to prevent the movement of the register by said operating means.

18. In a machine of the character set forth, the combination with a register, of operating means therefor, a clutch connection between the means and register comprising relatively movable frictional engaged members, and means controlled by the article to be registered for normally holding one of the members against movement to prevent the actuation of said register by the operating means.

19. In a machine of the character set forth, the combination with a register, of operating means therefor, a clutch connection between the operating means and register comprising frictionally engaged relatively rotatable members, and a brake for holding one of the members against movement to prevent the operation of the register by said means.

20. In a machine of the character set forth, the combination with a register, of operating means therefor, a clutch connection between the operating means and register comprising relatively rotatable frictionally engaged members, a toothed brake wheel connected to the register, a brake latch movable into and out of coaction with the wheel to hold it and thereby the register and one of the friction members against movement, and operating means for the brake latch, said means being actuated by an article to be registered.

21. In a machine of the character set forth, the combination with driving means, of an article carrying device connected thereto and driven thereby, a register also operated by the driving means independently of the carrying device, and means associated with said carrying cevice and operated by an article placed thereon for controlling the operation of the register.

22. In a machine of the character set forth, the combination with a driving shaft, of a carrying drum, connected thereto and driven thereby, a register connected to and operated by the shaft independently of the drum, and means associated with the drum and operated by an article placed thereagainst for controlling the operation of the register.

23. In a machine of the character set forth, the combination with a rotatable drum, of a shaft therefor, a gear wheel, a frictional connection between the wheel and shaft, a toothed wheel geared to said gear wheel, a register connected with said toothed wheel, a brake movable into and out of coaction with the wheel, and means for actuating the brake.

24. In a machine of the character set forth, the combination with a gear wheel, of a rotatable measuring drum comprising spaced sections and having a peripheral circumference equal in length to a predetermined number of units corresponding to the number of teeth on said gear wheel, a shaft for said wheel associated with the drum, a toothed wheel geared to said gear wheel, a register connected with said toothed wheel, a brake arm carrying a dog that is movable into and out of coöperation with the toothed wheel, and means for actuating the arm.

25. In a machine of the character set forth, the combination with a measuring drum, of a shaft for said drum, a gear wheel loosely mounted upon said shaft, friction means that allows said gear wheel to be held stationary upon the shaft, and causes said wheel to rotate with the shaft when not held, a toothed wheel geared to the gear wheel, a register connected with the toothed wheel, a brake arm carrying a dog that is movable into and out of coöperation with the toothed wheel, and means for actuating the arm.

26. In a machine of the character set forth, the combination with a rotatable drum, of a shaft connected thereto, a gear wheel loosely mounted upon said shaft, and means for frictionally securing the wheel to the shaft, a toothed wheel geared to the gear wheel, a register connected with said toothed wheel, a brake arm carrying a dog that is movable into and out of coaction with the toothed wheel, and means associated with the drum for actuating the arm.

27. In a machine of the character set forth, the combination with a revoluble drum, of a shaft therefor, a gear wheel mounted on said shaft, means for frictionally securing the wheel to the shaft, a toothed wheel geared to said gear wheel, a register connected with the toothed wheel, a brake arm carrying a dog or tooth that is movable into and out of cooperation with the toothed wheel, a controlling arm operating the brake arm in one direction to release the toothed wheel, a swinging device carried by the controlling arm and coöperating with the drum, and a counterbalanced trip pivotally situated behind and against said device.

28. In a machine of the character set forth,

the combination with a revoluble drum, of a shaft connected to said drum, a gear wheel mounted upon said shaft, a toothed wheel geared to the gear wheel, a brake latch for stopping the gear wheel, a controlling arm connected to the latch, a downwardly hanging dog pivoted to the controlling arm, and a counterbalanced trip pivotally situated behind said dog and projecting partly below the same, said pivoted trip being so arranged that when its lower end is forced in a direction away from the hanging dog, its upper part will press against the same and cause it to swing outwardly and occupy a position in advance of its former or original position and to remain in such position until released by said pivoted trip, whereupon it will fall back to its said former or original position.

29. In a machine of the character set forth, the combination with a revoluble drum comprising spaced sections, of a plurality of pressure rollers coöperating therewith, springs for yieldingly maintaining the rollers in contact with the periphery of the drum, forming means for carrying an article of suitable shape upon the periphery of said drum, a shaft connected with said drum, a toothed wheel geared to said shaft, a latch movable into engagement with the toothed wheel to hold the same, and means for actuating the latch.

30. In a machine of the character set forth, the combination with a revoluble drum, comprising spaced sections, of canceling rollers acting in peripheral conjunction with each other, one of said rollers being located in the space between the sections, the other being pivoted without the same, canceling means carried by one of the rollers, and registering mechanism associated with the drum.

31. In a machine of the character set forth, the combination with a driving shaft, of a carrying drum mounted thereon, a register, a friction clutch connecting the register and shaft and comprising relatively rotatable members, one of which is connected to the shaft, the other being connected to the register, a brake wheel connected to the register, a swinging brake latch movable into and out of coaction with the wheel, a drum operated by the driving shaft and comprising spaced sections, and means for swinging the latch, said means including an arm connected to said latch and having devices that operate between the sections of the drum.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARCHIBALD PICKEN.

Witnesses:

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