

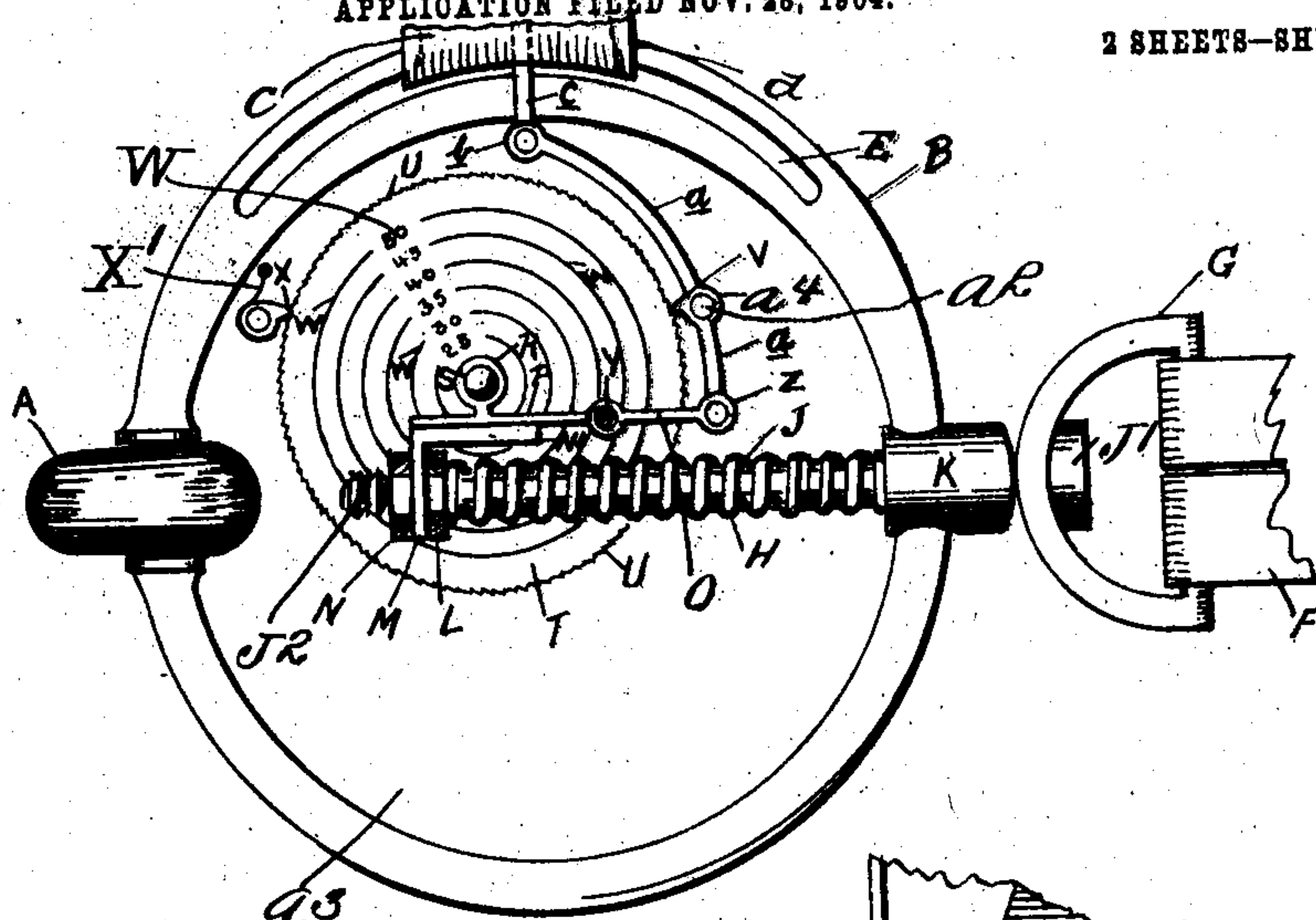
No. 834,843.

PATENTED OCT. 30, 1906.

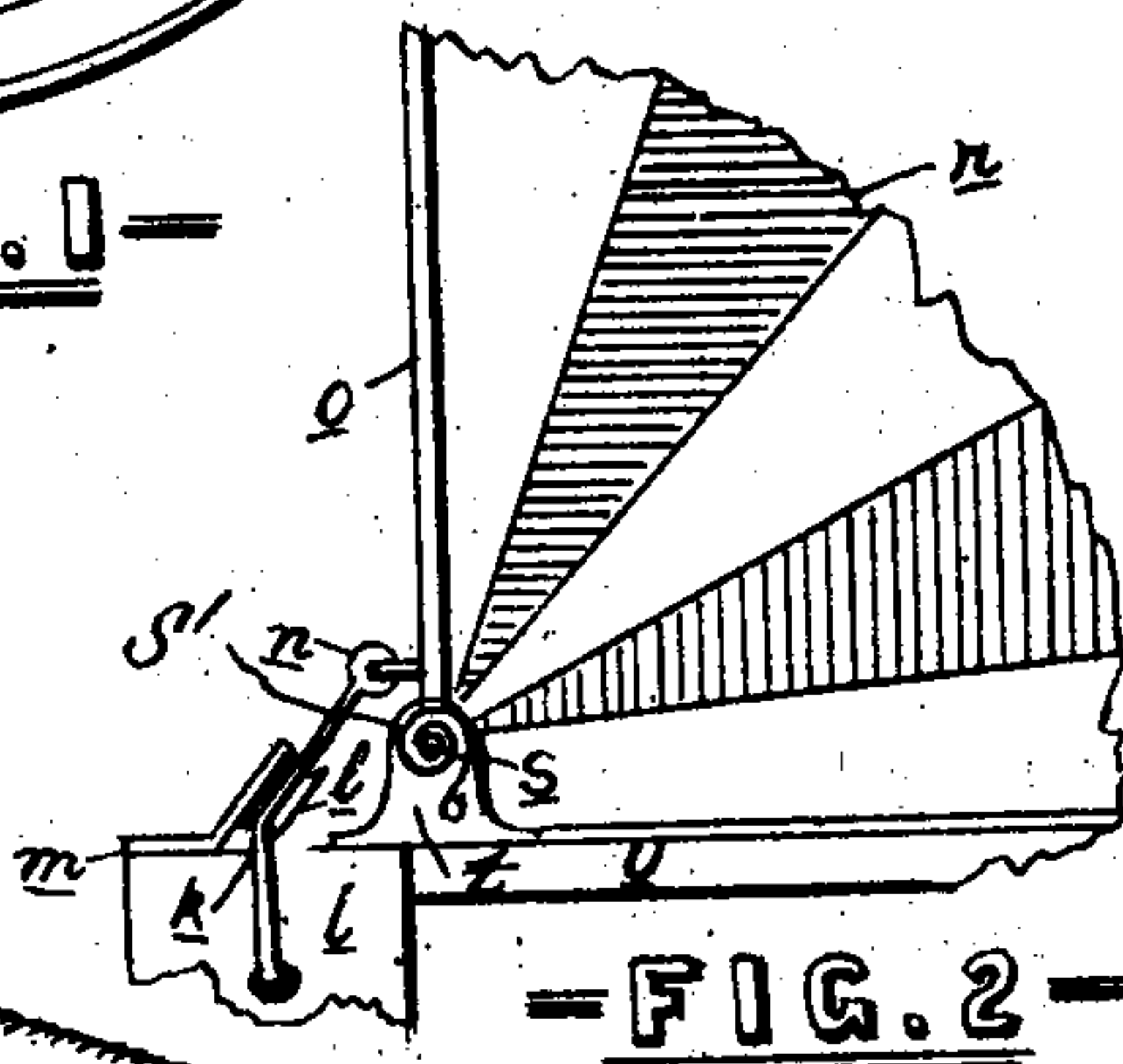
T. B. O'CONNOR.  
ATTACHMENT FOR BITS AND BRIDLES.

APPLICATION FILED NOV. 28, 1904.

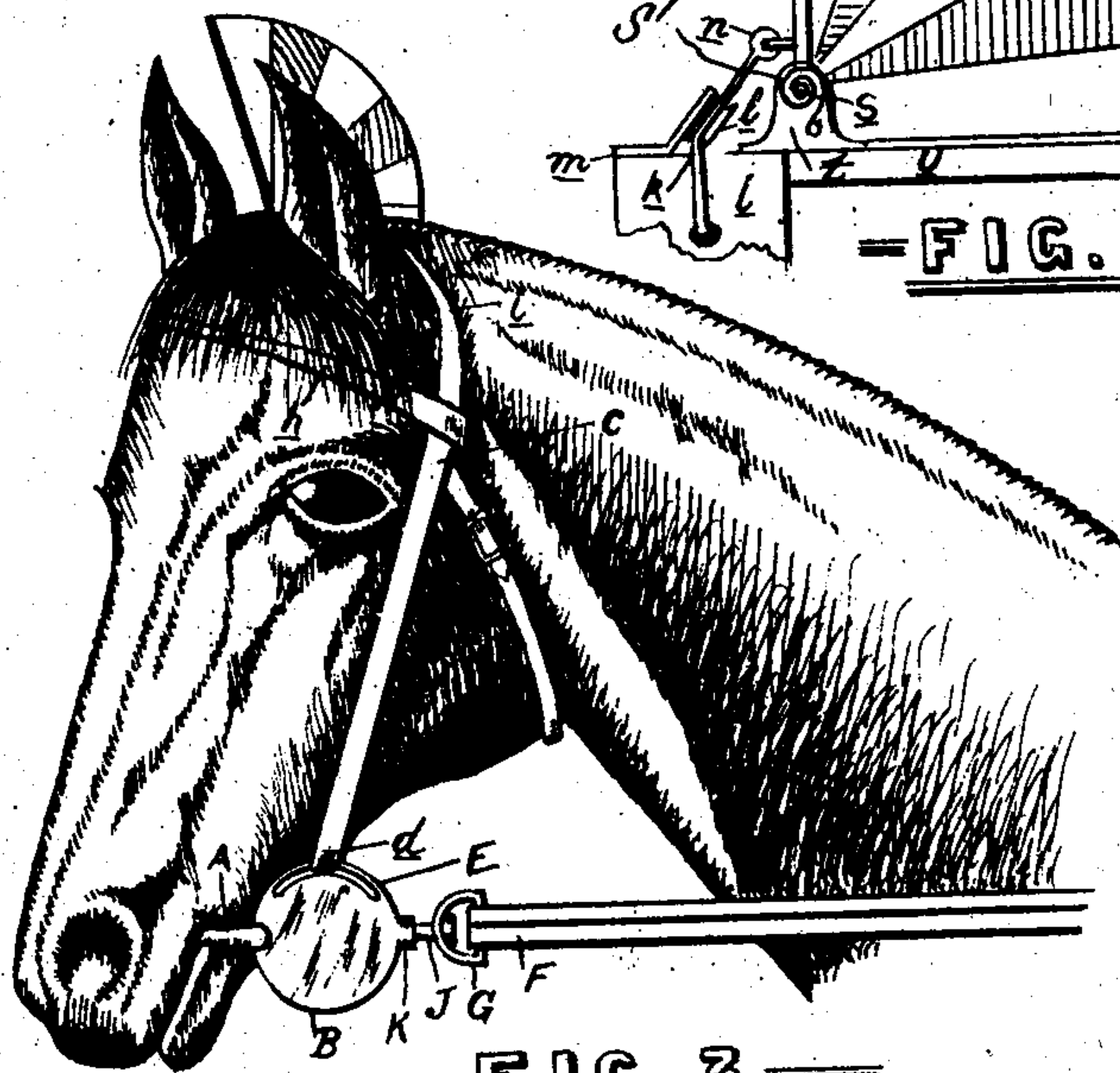
2 SHEETS—SHEET 1.



—FIG. 1—



—FIG. 2—



—FIG. 3—

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*1906*

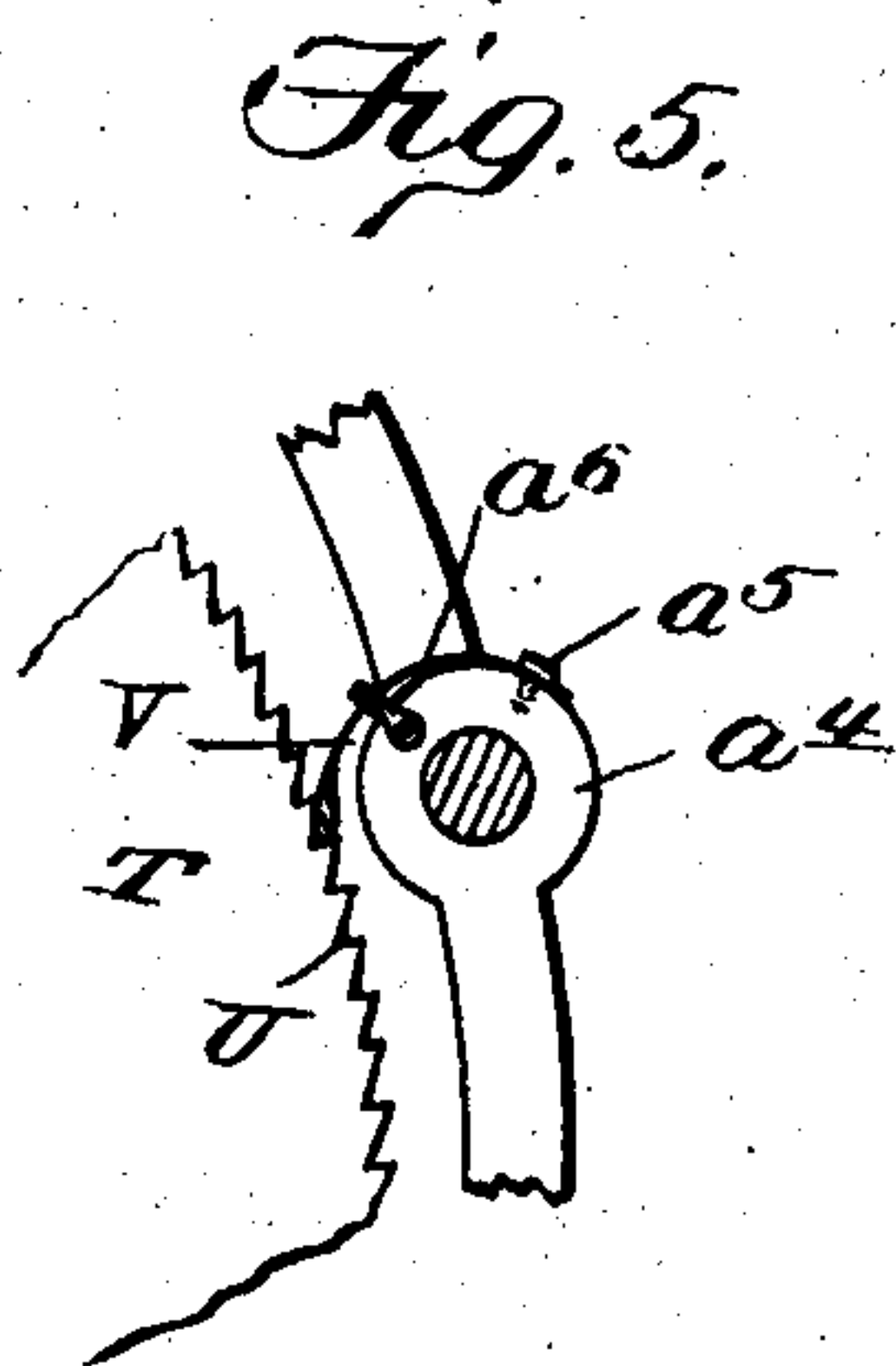
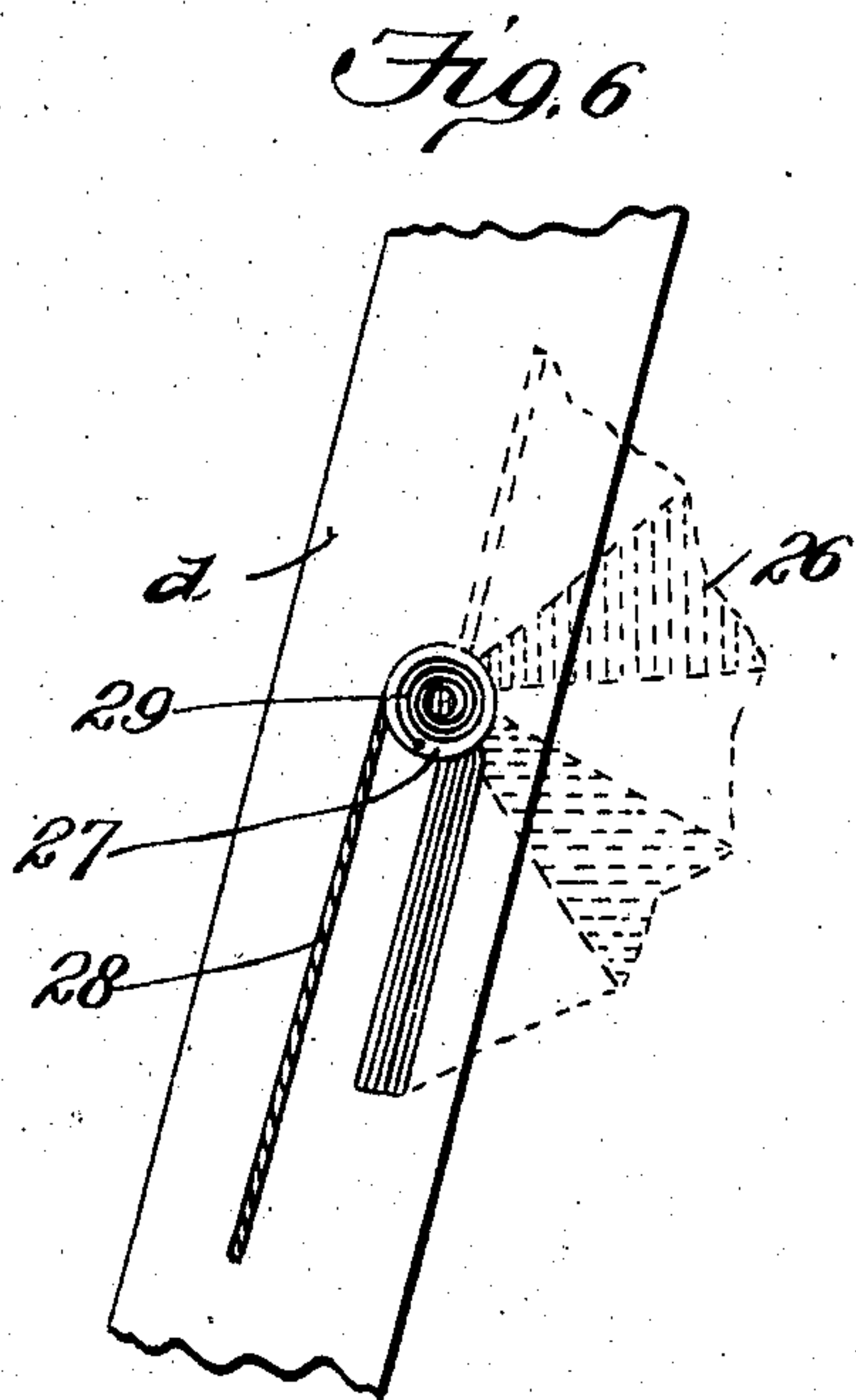
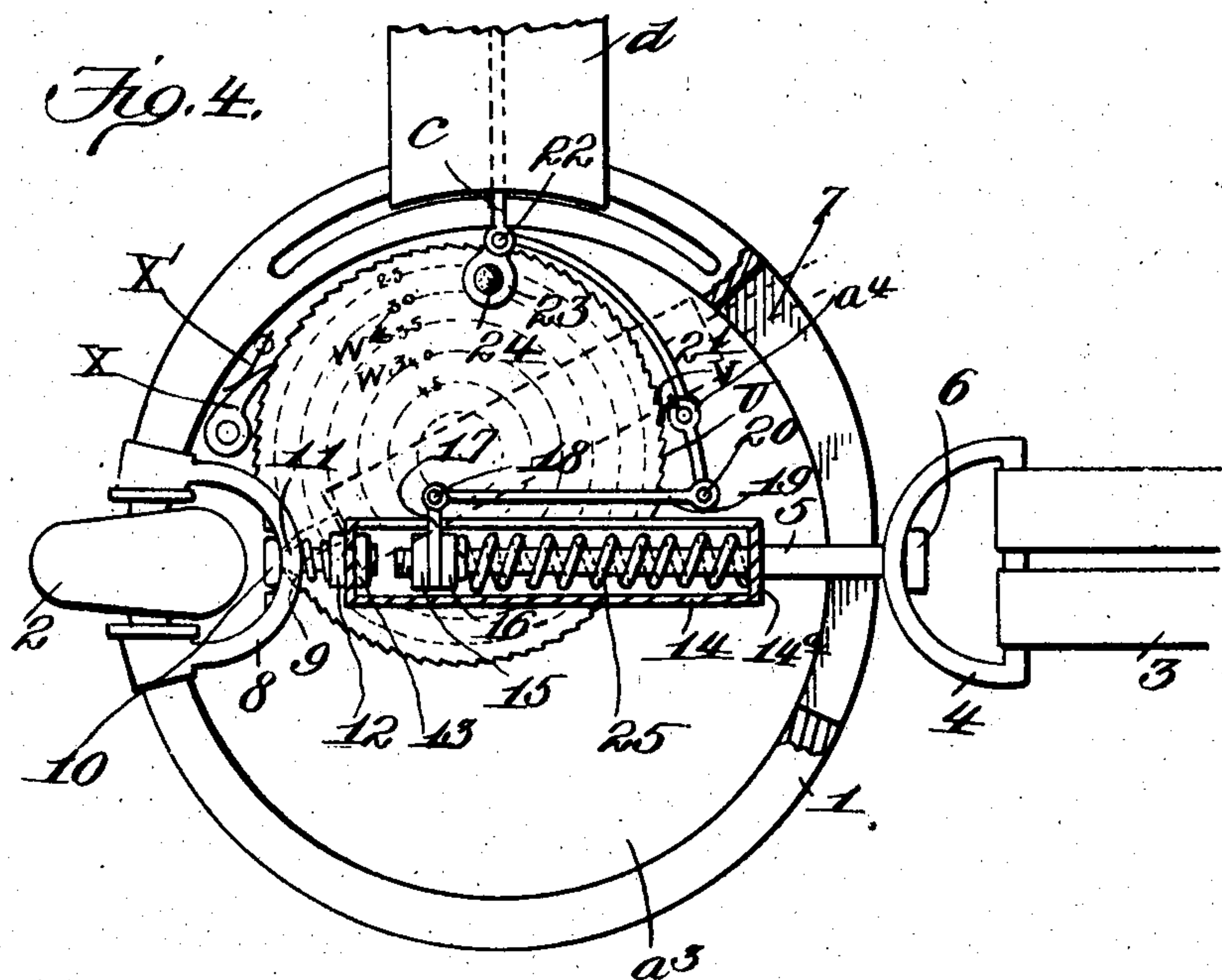
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

TIMOTHY BEEHANE O'CONNOR, OF AUCKLAND, NEW ZEALAND.

## ATTACHMENT FOR BITS AND BRIDLES.

No. 834,843.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed November 28, 1904. Serial No. 234,643.

*To all whom it may concern:*

Be it known that I, TIMOTHY BEEHANE O'CONNOR, a subject of the King of Great Britain, residing at Auckland, in the Provincial District of Auckland, New Zealand, have invented certain new and useful Improvements in Attachments for Bits and Bridles, of which the following is a specification.

The invention relates to an attachment for bits and bridles particularly adapted for the detection of foul riding by jockeys and other riders when participating in running, trotting, or pacing races, and, furthermore, is adapted for detecting whether the horse has been pulled in ordinary riding.

Briefly described, the invention consists of combining with the bridle and bit the attachment hereinafter more specifically described, such attachment adapted to register and indicate whether the horse is being pulled at any part or stage in the race.

With the foregoing and other objects in view the invention consists of an attachment for the purpose set forth, which shall be simple in its construction, strong, durable, efficient in its use, comparatively inexpensive to manufacture, and readily attached to the bit and bridle.

To this end the invention consists of the novel construction, combination, and arrangement of parts hereinafter more specifically described, and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention; but it is to be understood that changes, variations, and modifications can be resorted to which come within the scope of the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, wherein like reference characters denote corresponding parts throughout the several views, and in which—

Figure 1 is a side elevation of the bit-ring, showing the operating means and registering mechanism of the attachment. Fig. 2 is a like view showing the indicating element of the attachment. Fig. 3 shows the adaptation of the attachment to the bit and bridle. Fig. 4 is a view similar to Fig. 1 of a modification. Fig. 5 is a detail showing the preferred construction of pawl for actuating the recording-disk, and Fig. 6 is a detail showing a modified arrangement of indicating element.

Referring to the drawings by reference characters, A indicates the bit, to which is at-

tached the bit-ring B in the ordinary way, while the cheek-strap *d* of the bridle C is preferably attached to the bit-ring B through a curved slot E, though it may be attached to the bit-ring in the ordinary way. The reins are indicated by the reference character F and are connected by a D-shaped link G, which is swivelly mounted upon the outer end of a spring-controlled operating-rod J. The link G may be of any suitable form; but preferably it is D-shaped in contour, and the operating-rod J may be of any suitable shape in cross-section, so that it will not be permitted to turn. The rod J at its outer end is headed, as at J', and against the said head is adapted to bear the ring G when the reins F are pulled. Secured to the bit-ring B is a collar K, acting as a bearing for the outer end of the rod J, and the latter extends through the bit-ring B and through said collar K.

The inner end of the rod J is screw-threaded, as at J<sup>2</sup>, and upon the screw-threaded end is mounted a pair of nuts L N, and between the said pair of nuts is clamped an L-shaped shifting arm M, the longitudinally-extending member P thereof being provided with an offset which carries a marking medium S, preferably in the form of a piece of graphite, although any other suitable medium can be employed. Mounted upon the rod J and interposed between the nut L and the collar K is a coiled extensible and contractible spring H, the function of said spring H being to act as a cushion when the rod J is pulled, so that the pull on the rod will be against the action of the spring, and said spring H is further adapted to return the rod J to normal position after the pull upon the rod J has been released. The L-shaped arm M is connected by the link O to a shifting lever *a*, the said link O being pivoted, as at Y, to the longitudinally-extending member P of the arm L and at Z to the lower end of the shifting lever *a*. The pivot of the shifting lever *a* is indicated by the reference character *a*<sup>2</sup>. The pivot is connected to the cover-plate *a*<sup>3</sup> for the bit-ring B, and the lever *a* is loosely mounted upon said pivot.

A removable recording-disk T is arranged within the bit-ring B. The said disk T revolves upon a central axis, (not shown,) owing to the fact that the graphite S covers the axis of the disk T. The periphery of the disk T is formed with circumferentially-extending teeth U of such shape that a push-



pawl V, yieldingly connected to an enlargement  $a^4$  upon the lever  $a$  will engage the teeth U and cause the rotating of the disk when the lever  $a$  is shifted. One surface of the disk T is provided with circles W, six of which are shown, though the number thereof can be increased or decreased. These circles increase in diameter outwardly, and each is adapted to represent a certain number of pounds pulled on the reins F by the rider, and other indications arranged in relation to the circles, as at W', are provided on the disk, so as to also represent the number of pounds weight each circle indicates when the graphite S is moved across the disk, owing to the pulling outwardly of the rod J, carrying the lever-arm M therewith, and causing the graphite to mark the disk in proportion to the pull on the reins F. To prevent the markings on the disk T running into each other, the said disk T is intermittently rotated through the action of the pawl V, engaging in the teeth U. When the pull is off the reins F or the reins are released by the driver, the graphite S is moved back to normal position—that is, to the center of the disk T—through the extending of the spring H, so that a fresh indication is always made by the graphite when the horse is pulled. To prevent back rotation of the disk T, pawl X is provided, which is adapted to engage in the teeth U of the disk T, and bearing against the pawl X is a spring X', which retains the pawl in contact with the teeth U of the disk T.

The upper end of the shifting lever  $a$  is pivotally connected, as at  $b$ , to a straight rod  $c$ , running up the cheek-strap  $d$ , said rod being formed of rigid or flexible material, as desired, and the said rod  $c$  is of such length as to extend to about the junction of the forehead-strap H. The continuation of the bridle C into the head-strap  $i$  behind the ears of the animal is made of more flexible material, to which the continuation, also more flexible, of the rod  $c$  is connected and extends thereon to between and just behind the ears of the horse to a cord or wire  $k$ , traveling over a pulley  $l$ , which is held firmly to the head-strap  $i$ , as at  $m$ . This cord or wire  $k$ , as shown in Fig. 2, is loosely connected, as at  $n$ , to a bar  $o$ , forming one side of a frame or fan  $r$ , which is fitted to a pin or spindle  $s$ , operating against the pull of the coiled spring  $s'$ , said spring being connected at one end to the pin or spindle  $s$  and at the other end to the bearing  $t$ , for the said pin or spindle. An extra piece of leather or other suitable material, as at  $u$ , is attached to the head-strap  $i$  to form a strong pad, to which is fastened a bearing  $t$  and upon which the fan  $r$  is supported. From the foregoing construction it is evident that when the upper end of the shifting lever  $a$  moves downwardly the rod  $c$  will be carried therewith, consequently causing the opening of the fan, and that when the lever  $a$  is

moved to normal position, owing to discontinuing the pull on the reins, the action of the spring  $s'$  will cause the closing of the fan. The fan  $r$  is adapted to form a visible indication during any part of the race as to whether the horse is being pulled, for the reason that an observer noticing that the fan is open, or partly open, will readily understand that the horse is being pulled. If the horse is pulled and the fan opens and the pull released, so that the fan will close, the disk T will indicate after the race that the horse has been pulled, even though the observer during the race will not see the visible indication of pulling by the opening of the fan.

The fan  $r$  is made collapsible and extensible, so that it can be opened completely or partly, say at an angle or closed down flat. The fan is provided with shaded or unshaded parts to represent different colors, which may be red, orange, blue, green, or any other color which may be preferred for the purpose to indicate the approximate strain on the reins F, during a race, caused by the pulling thereof by the rider.

In the modification shown in Fig. 4 the bit-ring is indicated by the reference character 1, the bit by the reference character 2, and the reins by the reference character 3. The reins are connected to the link 4, which is swivelly mounted upon the spring-controlled rod 5, the latter having a head, as at 6, and operating in a slot 7, formed in the bit-ring. Connected to the bit-ring 1 is a coupling member 8, having an opening, as at 9, provided with a beveled wall, and through the opening 9 extends a headed screw 10, having a portion of its shank tapering, as at 11, which is positioned in the opening 9, and clamped to the screw 10 by the nuts 12 13 is a slotted casing 14, which is mounted upon the rod 5. Clamped to the inner end of the rod 5 by the nuts 15 16 is a vertically-extending arm 17, which projects up through the slot in the casing 14 and has detachably connected, as at 18, to one end of a link 19, the latter being pivotally connected, as at 20, to the lower end of a shifting lever 21. The upper end of the lever 21 is pivotally connected, as at 22, to the lower end of the rod  $c$ , which extends up the cheek-strap  $d$ . The upper end of the lever 21 has the depending member 23 connected thereto, which carries the marking medium 24 in the form of graphite. The lever 21 is the equivalent of the lever  $a$  and is provided with an enlargement  $a^4$ , carrying the push-pawl V, which engages the teeth U of the recording-disk T. The pawl X is provided, against which bears the spring X', said pawl X being adapted to engage the teeth U, so as to prevent back rotation of the disk T. Mounted upon the rod 5 and bearing at one end against the nut 16 and at its other end against the end 14<sup>a</sup> of the casing 14 is an extensible and contracti-



ble spring 25, the function of which is the same as the function of the spring H. The circles upon the recording-disk T are indicated by the reference character W<sup>3</sup> and the indications by the reference character W<sup>4</sup>. The lever *a* is pivoted intermediate its ends, as at *a*<sup>2</sup>. The manner of mounting the lever *a* in Fig. 4 is the same as that shown in connection with the lever *a* in Fig. 1. It will be evident from the foregoing description that when the rod 5 is pulled outwardly the lever *a* will rock upon its pivot and cause the graphite 24 to mark the disk T and that the pawl V will cause the rotation of the disk T, so that the markings will be placed at different points upon the disk when the lever *a* is rocked in one direction to cause the lowering of the rod *c*, consequently operating the fan *r*.

In Fig. 5 of the drawings is shown the pawl V, which consists of a piece of elastic material secured to the enlargement *a*<sup>4</sup> by the screw *a*<sup>5</sup>, a keeper *a*<sup>6</sup> being provided to prevent the pawl V from springing too great a distance from the enlargement *a*<sup>4</sup>. The pawl V is shown as in engagement with one of the teeth U of the disk T.

In Fig. 6 a rosette 26 is shown mounted upon a spring-controlled spindle 27, carried by the cheek-strap *d*. One side of the rosette is attached to a flexible connection 28. This flexible connection is secured to the upper end of the lever *a*, so that when the lever *a* is lowered the rosette 26 will be opened. When the lever *a* is elevated, the action of the spring 29 will tend to close the rosette. The rosette is the equivalent of the fan and is used for the same purpose.

In the structure shown in Fig. 4 the link 19 can be detached from the element 16 and the lever *a* removed, and consequently no registering of a pull will be had; but as the spring 24 remains in position it will cause the prevention of jerks and sudden pulls upon the horse's mouth. This function is evident, owing to the interposition of the spring 24 in the manner as shown, which acts as a cushion.

The cheek-strap *d* is covered over and recessed beneath the cover to position the rod *c*. The slot E is only shown in Figs. 1 and 3 as about half-way down to the collar K, but can be carried down farther and nearly to the collar K, so as to allow the cheek-strap *d* and reins F to come close together, as is usually the case in fast riding or racing.

The bit-ring B is provided with a pair of covers, so as to prevent the mechanism mounted therein from being tampered with, and also to keep dust and dirt from the parts. When the disk T has been fully marked or it is desired for any purpose to use a fresh disk, the one already used can be removed and a fresh disk substituted, for example, when

another race is going to be run and it is required that the disk used be kept for future reference.

The rosette 26 is colored in the same manner as the fan, so that each color will indicate different pressures or pulls.

I claim—

1. In a device of the class described, a bit-ring, a rotatable disk within said ring and having at its periphery ratchet-teeth, a marker operative upon said disk, a tension device connected with the rein of the bridle and the marker adapted, when actuated in one direction, to move the marker and to rotate the disk when moved in the opposite direction for recording the pull on the bridle-rein.

2. In combination, a bridle, a bit-ring, a rotatable disk having ratchet-teeth at the periphery thereof, a marker mechanism engaging the ratchet teeth on the disk for operating the latter, and a tension-controlled device operative by the pull on the bridle-rein for actuating said mechanism for recording the number of pulls on the said bridle-rein.

3. In combination a bridle, a bit-ring, a rotatable disk having ratchet-teeth at the periphery thereof, a marker movable throughout the body of said disk, means for rotating the disk and coöperative with said marker, a yieldable device connected to the rein of the bridle and said means for operating the latter to record the number of pulls on the bridle-rein, and an indicating device connected to said means and operated upon by the yielding device.

4. In a device of the class described, the combination with a bit-ring, of a rotatable disk arranged within the ring, a marker operating upon said disk, and a tension device connected with the reins of the bridle and with the marker and adapted when actuated in one direction to move the marker and to rotate the disk.

5. In a device of the class described, the combination with a bit-ring, of a revoluble disk mounted within the said ring, a marker movable over one face of said disk, a shiftable element coöperating with the marker for causing the travel of the latter and rotating the disk, and a yieldable device connected to the reins of the bridle and to said means for operating the latter when the reins are pulled.

6. In a device of the class described, the combination with a bit-ring, of a revoluble disk mounted within said ring, a marker movable over one face of said disk, a shiftable element coöperating with the marker for causing the travel of the latter and rotating the disk, a yieldable device connected to the reins of the bridle and to said means for operating the latter when the reins are pulled, and an indicating device connected with and operated by said means.

7. In an attachment for bridles and bits,



the combination with a bit-ring, of a rotatable disk having ratchet-teeth at the periphery thereof, said disk mounted in said ring, a marker mechanism engaging the ratchet-teeth on the disk for operating the latter and traveling over one face of the disk for recording, a tension-controlled device operated by the pull on the bridle-reins for throwing said marker mechanism into operation, and an indicating device connected to said mechanism and operated thereby.

8. In an attachment for bridles and bits, a recording mechanism carried by the bit-ring and operated by a pull on the bridle-reins,

and an indicating device connected with and operated by said recording mechanism. 15

9. An attachment for bridles and bits for the purpose set forth, comprising a recording mechanism carried by the bit-ring, a tension-controlled device for operating said recording mechanism when the bridle-reins are pulled, and an indicating device connected with and operated by said recording mechanism. 20

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