

No. 719,459.

PATENTED FEB. 3, 1903.

H. GOETZE & L. M. SANFORD.  
COIN COUNTING DEVICE.

APPLICATION FILED APR. 21, 1902.

NO MODEL.

Fig. 1.

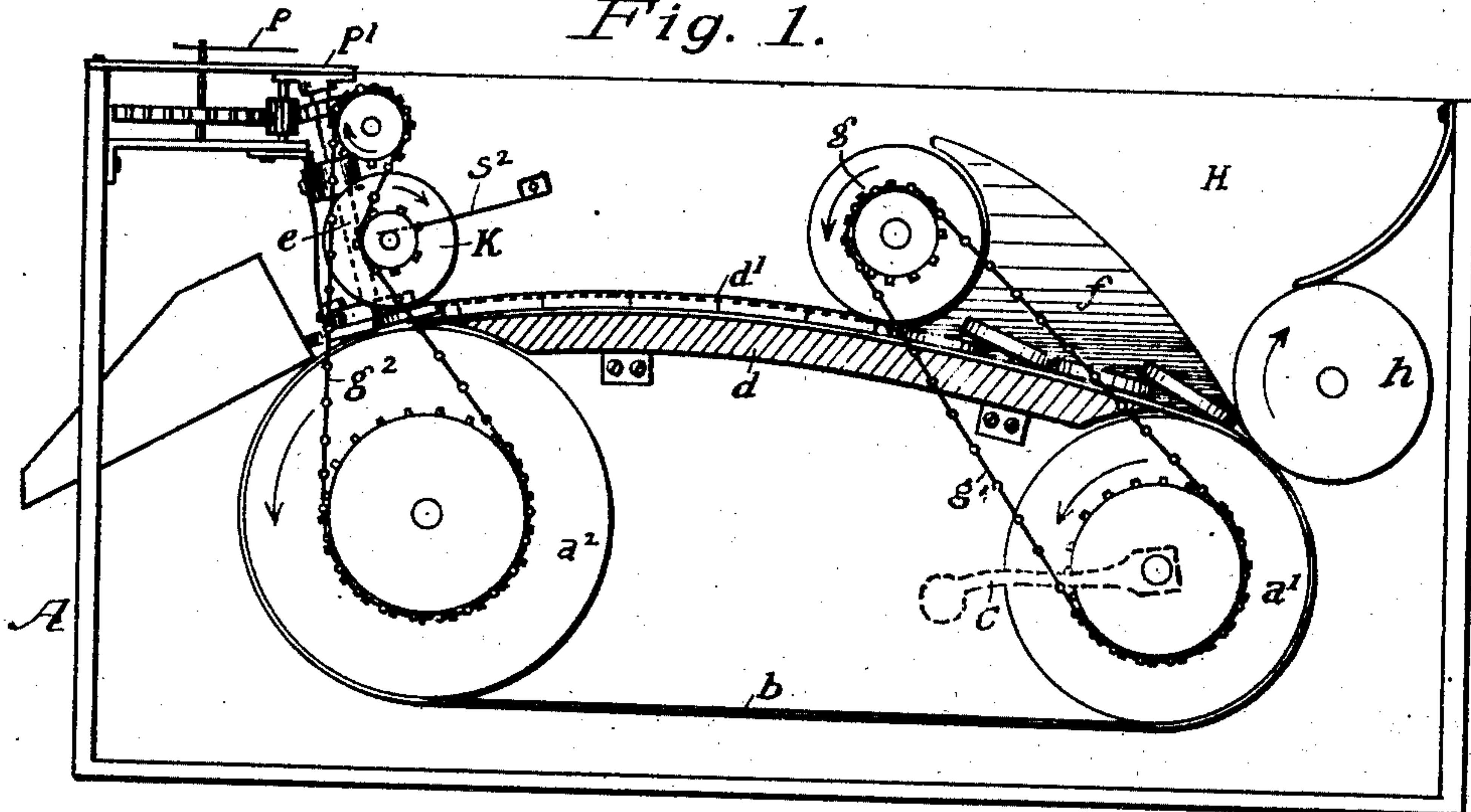


Fig. 2.

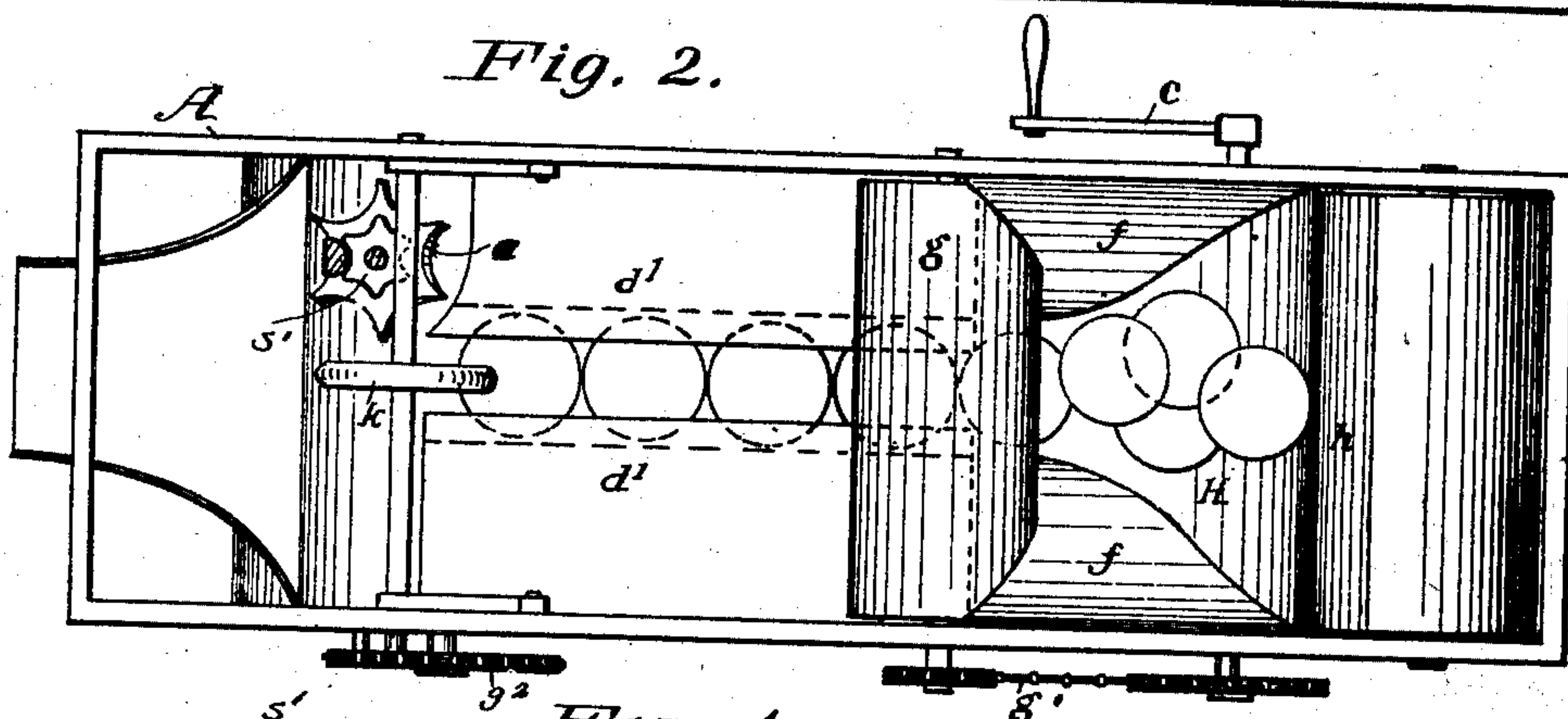


Fig. 4.

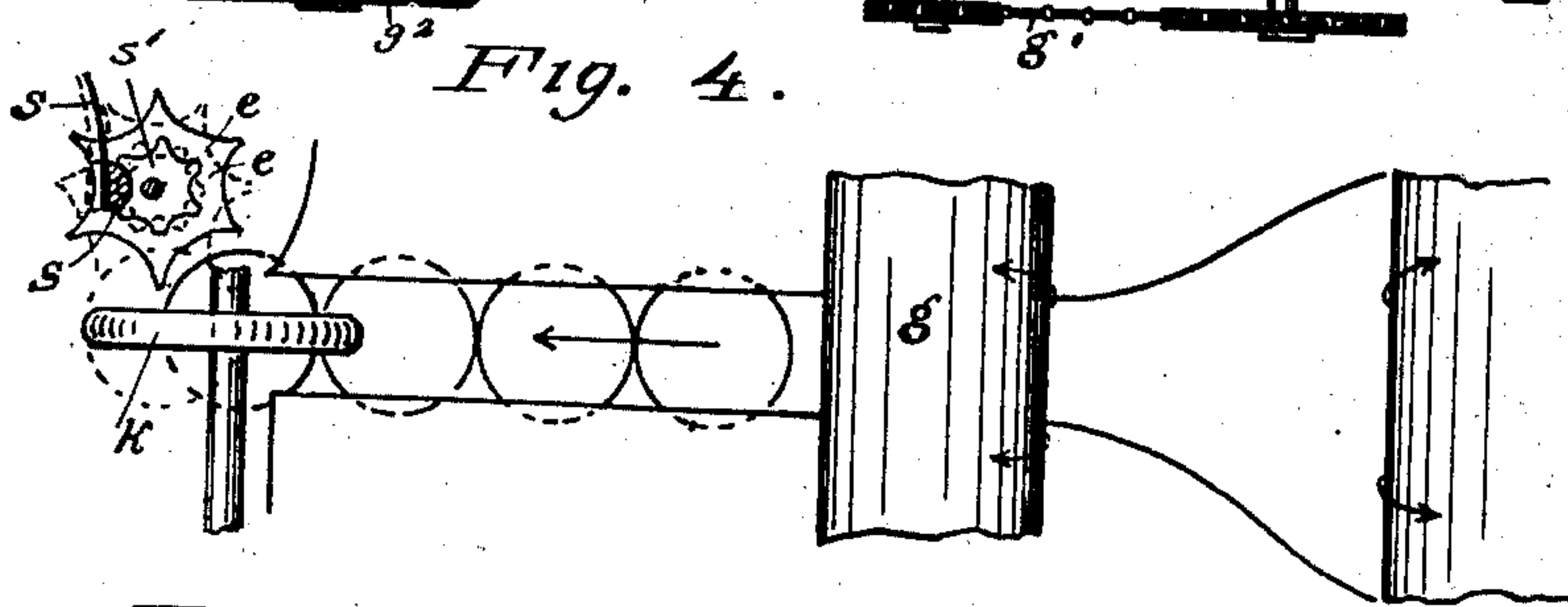
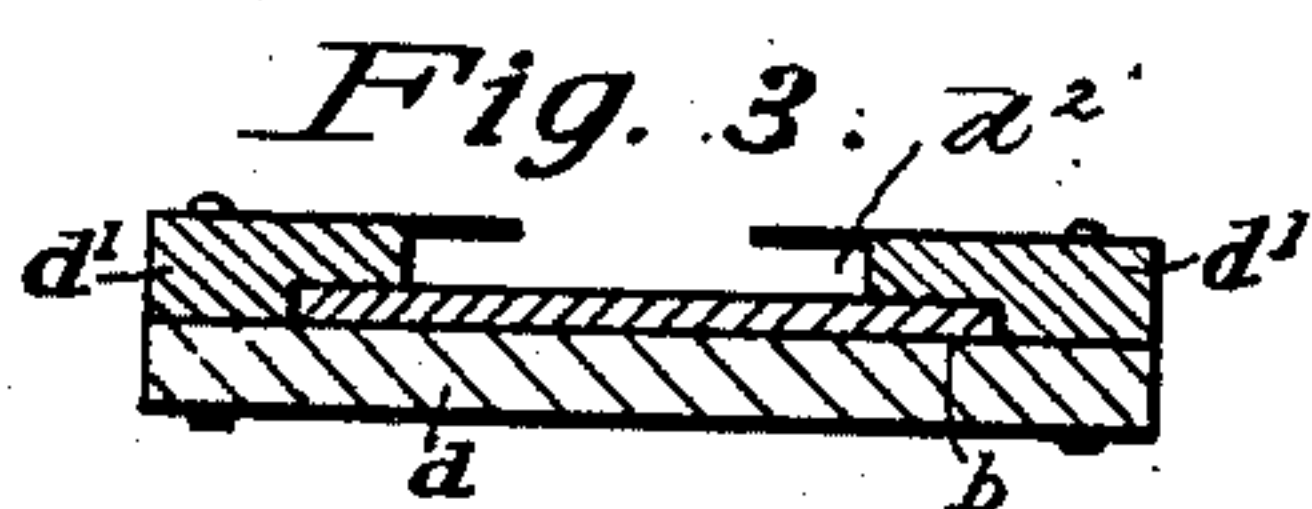


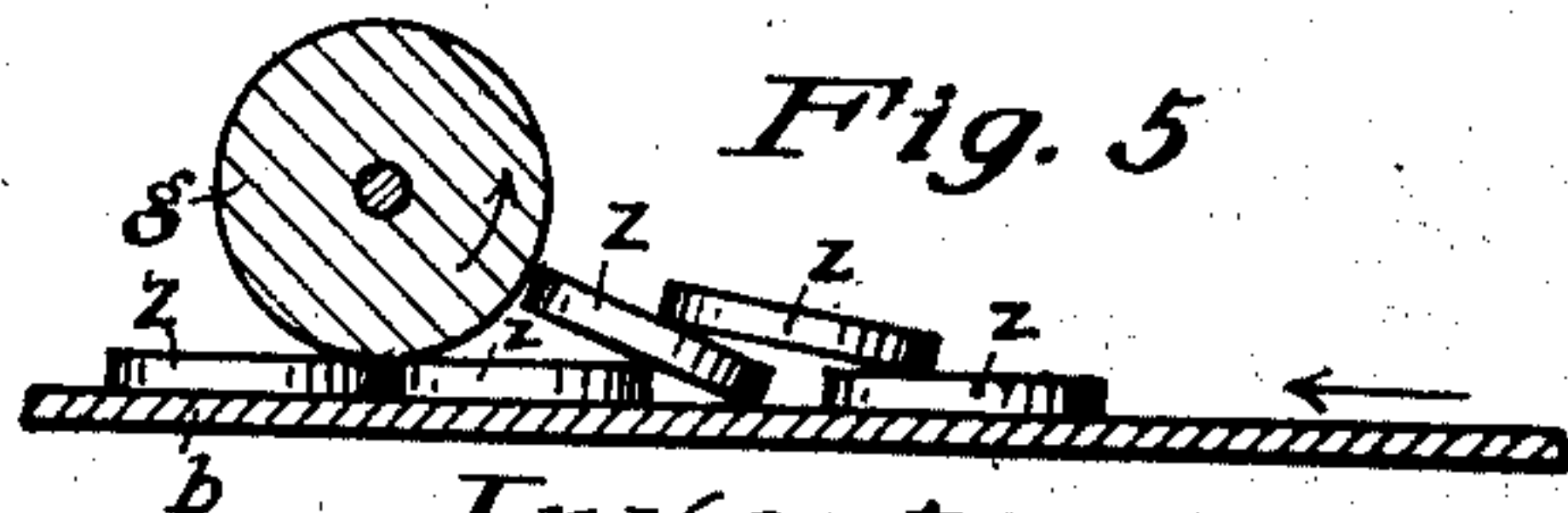
Fig. 3.



Witnesses.

Chapman H. Fowler  
Geo. M. Copenhaver.

Fig. 5.



Inventors:

Henry Goetze  
Leslie M. Sanford,  
By L. M. Hosen, atty



# UNITED STATES PATENT OFFICE.

HENRY GOETZE AND LESLIE M. SANFORD, OF LOCKLAND, OHIO.

## COIN-COUNTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 719,459, dated February 3, 1903.

Application filed April 21, 1902. Serial No. 103,882. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY GOETZE and LESLIE M. SANFORD, citizens of the United States, residing at Lockland, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Coin-Counting Devices, of which the following is a specification.

Our invention relates to mechanical devices and mechanism for counting coins and similar objects in quantities, its object being to separate and count the several coins in a mass with speed and accuracy by mechanical means.

To this end the invention consists in mechanism embodying means of realizing two essential functions—to wit, first, separating the coins one by one from a confused mass of coins, and, second, making each coin the specific means of operating the counting and recording register. The general mechanism embodying these principles or functions consists, primarily, first, of a traveling belt or surface constituting the bottom of the delivering-hopper; second, a separative guideway or channel, of which said traveling belt constitutes the bottom, and, third, a counting and registering device arranged in the path of the coins being carried through the guideway by the belt and operated by the coins themselves. These, together with certain co-operating devices, will be more fully described herein, aided by reference to the illustrative drawings attached to and forming part of this specification, and in which—

Figure 1 is a part longitudinal section and part elevation of a coin-counting device embodying our invention; Fig. 2, a top plan view of the device. Fig. 3 is a reduced cross-section of the traveling belt and guideway; Fig. 4, a detached plan view of the guideway, showing the train of coins therein as in their passage through and engaging the counter mechanism and illustrating the position of the counter-wheel and the relation of the coin thereto when about to engage; Fig. 5, a detail illustrating the action of the separating-roller in directing coins into the guideway.

Referring now to the drawings, A designates the casing supporting and inclosing the operative parts. The latter consists of a belt-

pulley  $a'$ , operated by a crank  $c$  or other means of communicating driving power, a second belt-pulley  $a^2$ , and over and upon these pulleys an endless belt  $b$ , operated by the same. The belt  $b$  is carried between the pulleys over a platform  $d$  in sliding contact, the platform being provided with side cleats  $d'$ , overlapping the belt, and with supplemental overlapping portions constituting a channel  $d^2$ , (see Fig. 3,) forming a guideway for the retention and passage of coins of a given size. The belt  $b$  constitutes the bottom of the coin-channel and is also the moving element or carrier for the coins en train, as indicated in Fig. 4. The coin-channel  $d^2$  extends from the hopper H at the receiving end of the casing to the "counter-wheel"  $e$  near the opposite end. The receiving end of the coin-channel is provided with curved guide wings or shields  $f f$ , expanding outward to assist in guiding the coins to the mouth of the channel beneath a separating-roll  $g$ , located above said mouth and driven in the same rotative direction as the belt-pulley  $a'$ , whereby the lower surface of the roll  $g$  moves in a direction opposite that of the belt  $b$ , moving beneath it at a distance just sufficient to allow a coin moving upon the belt to pass beneath the roller without contact with the latter. In case of overlapping coins approaching the mouth of the channel the action of the roller  $g$ , as indicated in Fig. 5, is to hold back and lift away the upper coins from that lying beneath flat upon the belt. Thus the action of the moving belt and the roller  $g$  in separating coins from the bottom of the mass may be likened to the separation of cards one by one by a side pull upon the bottom card of a pile. As illustrated in Fig. 5, the roller  $g$  (which is driven by a suitable chain  $g'$  or otherwise from the shaft of pulley  $a'$  relatively faster than the movement of the belt  $b$ ) tends to exert a lifting action upon the superincumbent coin by frictional contact at its edge, and thus free the bottom coin for its passage into the guideway  $d^2$ . To further aid in preventing any wedging of coins at the bottom by weight of a mass of coins above, we place a second roller  $h$  upon and in contact with the belt at the rear portion of the hopper. This bears upon the driving-pulley  $a'$  through the belt, and it is driven thereby



in opposite rotation. It also exerts a lifting action upon the mass and facilitates inter-movement of the coins, whereby they are more readily controlled, as above described, to pass one by one into the guideway.

At the discharge end of the coin-guideway  $d^2$  and in the path of the coins is arranged a counter-wheel  $e$ , whose shaft  $e$ , extended upward, is the moving element of the ordinary counting and registering mechanism indicated by the pointer  $p$ , operating upon a dial  $p'$ . The counter-wheel  $e$  is of "star" form, whose points are the termini of adjoining arcs of slightly larger radius than the periphery of the coin to be operated by the machine. In the present case the wheel  $e$  is shown with six said arcs or recesses. It is so placed as to project from one side into the path of the coin, as indicated in Fig. 4, and be rotated by contact of the coin with a projecting point of the star in each case a given distance against the resistance of a spring  $s$ , affixed to the frame and carrying a curved head or projection at its free end, seating successively in six corresponding recesses or corrugations of a smaller wheel  $s'$  on the back of the counter-wheel  $e$ . The peripheral recesses of the wheel  $e$  being conformed to the coin passing through the guideway, but one coin can engage with or operate the wheel  $e$  at a time, and the rotative motion of the wheel is by successive and equal increments, each motion bringing the next succeeding star point into the path and in advance of the following coin. It will be noted, therefore, that a coin must in passing operate the counter-wheel  $e$  properly or else it cannot go through, but blocks the way of all succeeding coins, so that the accuracy of the count depends in all cases upon the coin itself and not upon mechanism independent of the coin. To insure and impart to the passing coins force enough to operate the wheel  $e$  against the spring  $s$ , an auxiliary driving-wheel  $k$  is arranged above and in line with the center of the guide-channel to bear with a yielding pressure upon the coins as they pass and contact with the counter-wheel  $e$ . The wheel  $k$  is provided with a rubber periphery and is actuated downward by springs  $s^2$  and may be driven by chain-gear  $g^2$  or otherwise from the shaft or roller  $a^2$  in unison with the belt  $b$ . The coin is therefore at the period of action upon the counter-wheel  $e$  firmly held in compression by and between the belt  $b$  and the elastic periphery of the auxiliary driving-wheel  $k$ , both surfaces moving in unison in the same direction, and the action of counting is thus made sure.

We have not herein shown the details of the counter mechanism, since the construction is commonly understood and forms no part of our invention, excepting the construction and function of the star-wheel  $e$  and its intermediate adjuncts. Suitable provision may be made for detaching the pointer  $p$ , otherwise replacing it at zero when desired.

The parts of the machine, especially the guideway  $d^2$  and the counter-wheel  $e$ , are exactly proportioned to the coin to be counted, and in banks, treasuries, or places where coins of diverse sizes are to be counted a series of counting-machines may be arranged side by side.

We claim as our invention and desire to secure by Letters Patent of the United States—

1. A coin-counting device embodying in combination a coin-carrying belt, a coin-guideway arranged upon and in connection with said belt, devices operating to separate and pass the coins one by one into the receiving end of said guideway, and a "star-wheel" arranged in the outgoing path of the coins in said guideway and operated in limited increments of rotation by contact and passage of said coins, and counting mechanism connected with and operated by said "star-wheel," substantially as set forth.

2. In a coin-counting device of the general character indicated the combination of a fixed platform, a coin-carrying belt, traveling over and upon the same, and undercut sides projecting over the belt and constituting a channel or guideway in connection with the belt, for coins carried upon the latter, substantially as set forth.

3. In a coin-counting device of the general character indicated a receiving-hopper, a traveling belt constituting the bottom of the hopper, a coin-guideway arranged upon and in connection with the belt as a carrier and leading outward from the hopper, and a roller arranged within the hopper at the receiving-mouth of said guideway and coöperating therewith as and for the purpose set forth.

4. In a coin-counting device of the general character indicated a receiving-hopper, a traveling belt constituting the bottom of the hopper, a coin-guideway arranged upon and in connection with the belt as a carrier and leading outward from the hopper, and a roller arranged within the hopper at the receiving-mouth of said guideway and coöperating therewith, and a second roller at the opposite side and at the bottom of said hopper, operating as and for the purpose set forth.

5. In a coin-counting device of the character indicated, the combination of a receiving-hopper, a traveling belt constituting the bottom of the hopper, a coin-guideway arranged upon and in connection with the belt as a carrier and leading outward from said hopper, and a disk wheel at the discharge end of the belt and projected into the path of the coins said disk wheel having its periphery recessed correspondingly with the contour of the coins and adapted thereby to be actuated by said coins, as a motor for counting mechanism, substantially as set forth.

6. In a coin-counting device of the character indicated, the combination of a receiving-hopper, a coin-carrying member constituting the bottom of the hopper, a coin-guideway arranged upon and in connection with said



member and leading outward from said hop-  
per, a disk wheel at the discharge end of the  
guideway and projected into the path of the  
coins, said disk wheel having its periphery  
5 recessed to receive the edges of the coins, and  
an auxiliary motor-wheel operating in the line  
of outward coin-passage and compressing the  
coins from above downward against the coin-  
carrying member, substantially as set forth.

In testimony whereof we have hereunto set to  
our hands in presence of two subscribing wit-  
nesses.

HENRY GOETZE.  
LESLIE M. SANFORD.

Witnesses:

JNO. B. VARELMANN,  
JOS. R. GARSNER.