

No. 649,618.

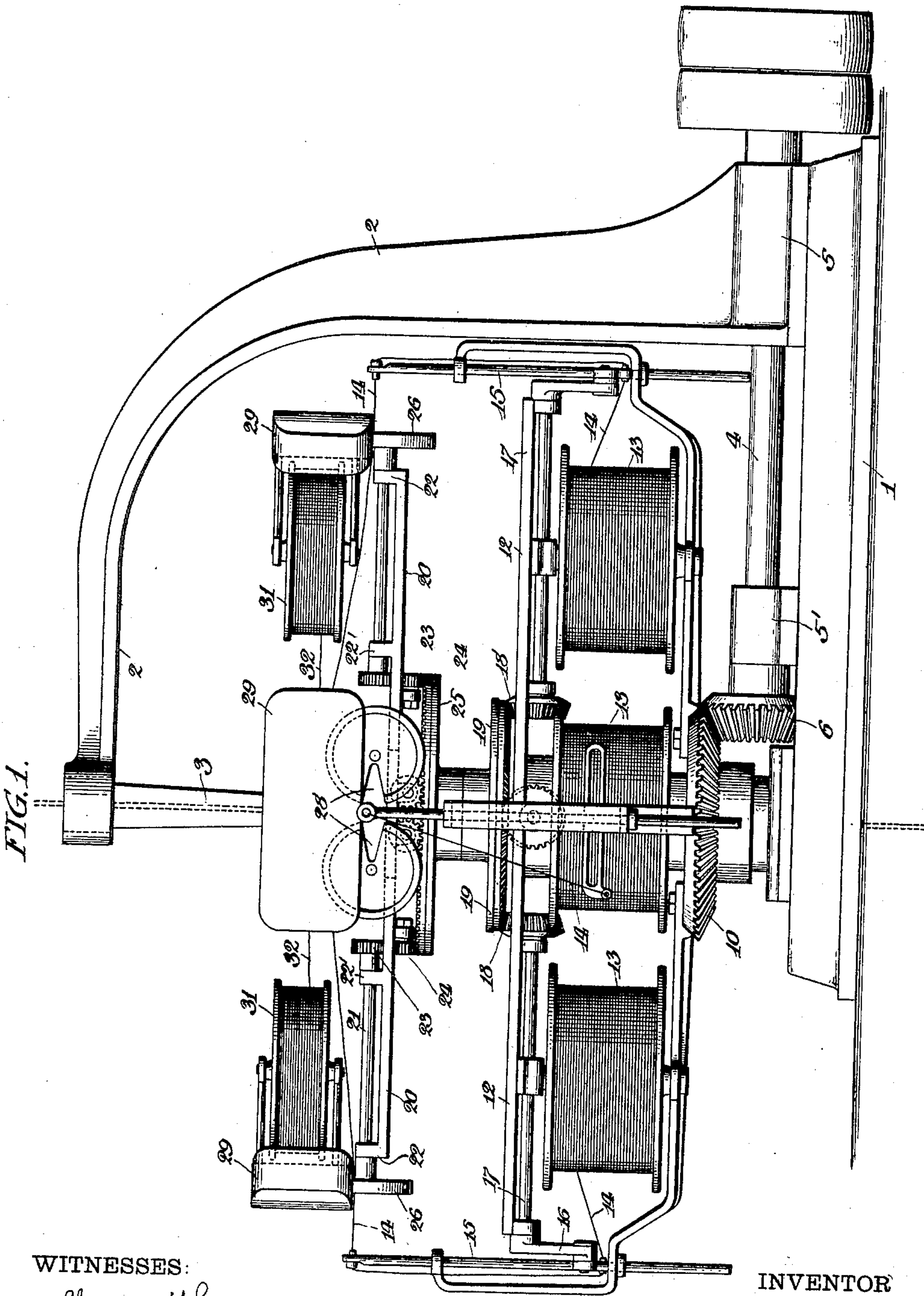
Patented May 15, 1900.

C. SCHÜTZ.  
BRAIDING MACHINE.

(Application filed June 17, 1899.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:

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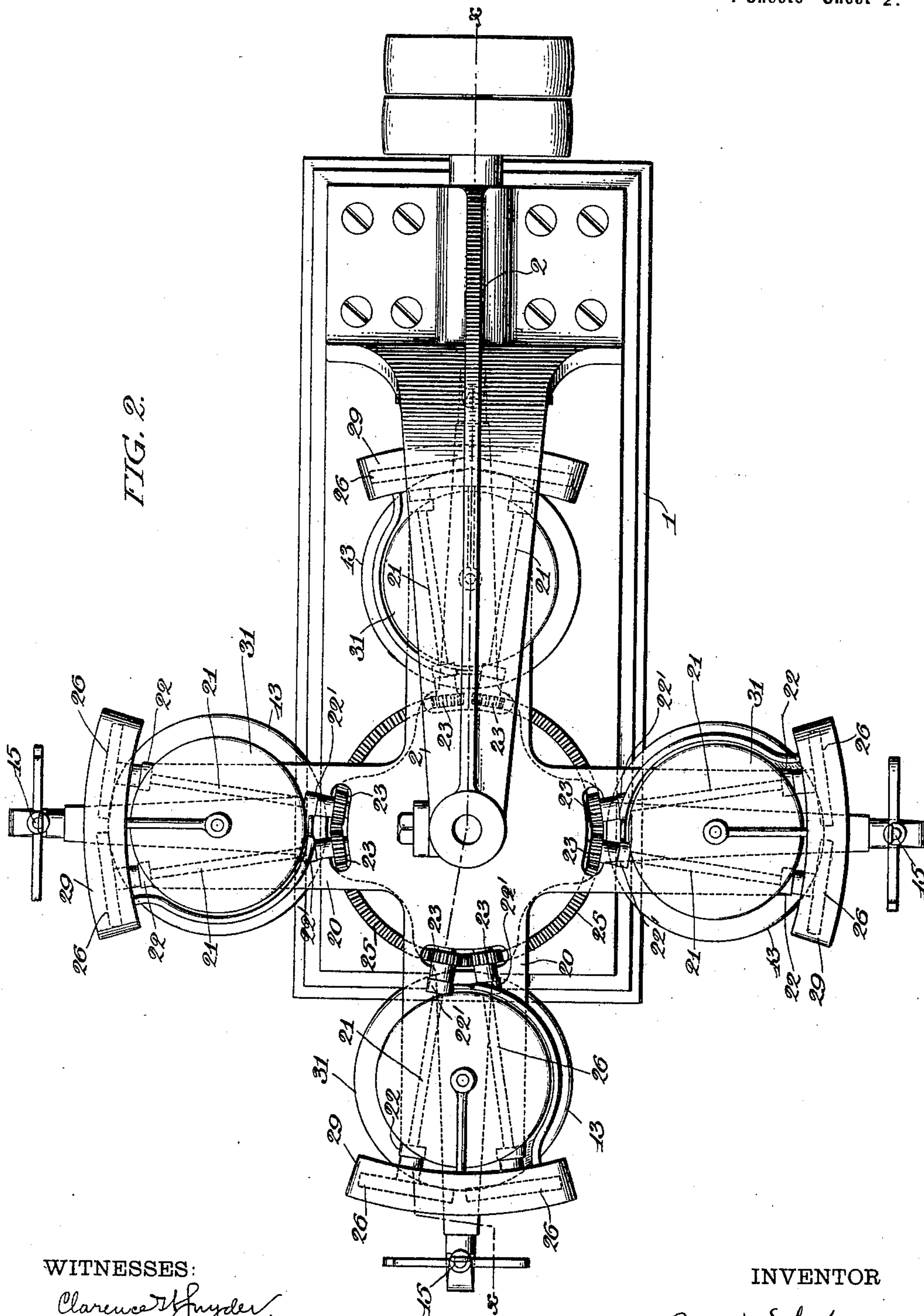
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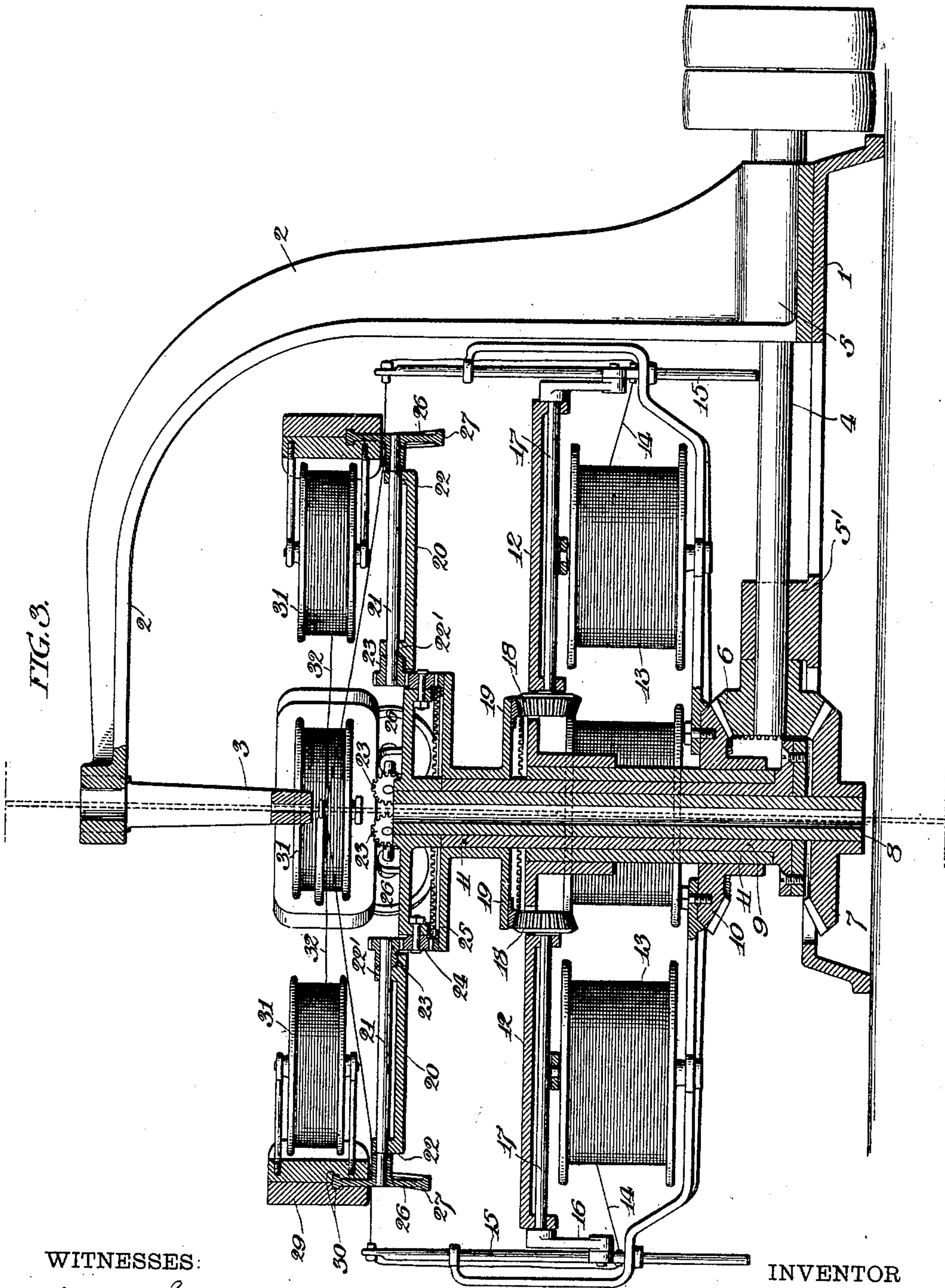
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FIG. 4.

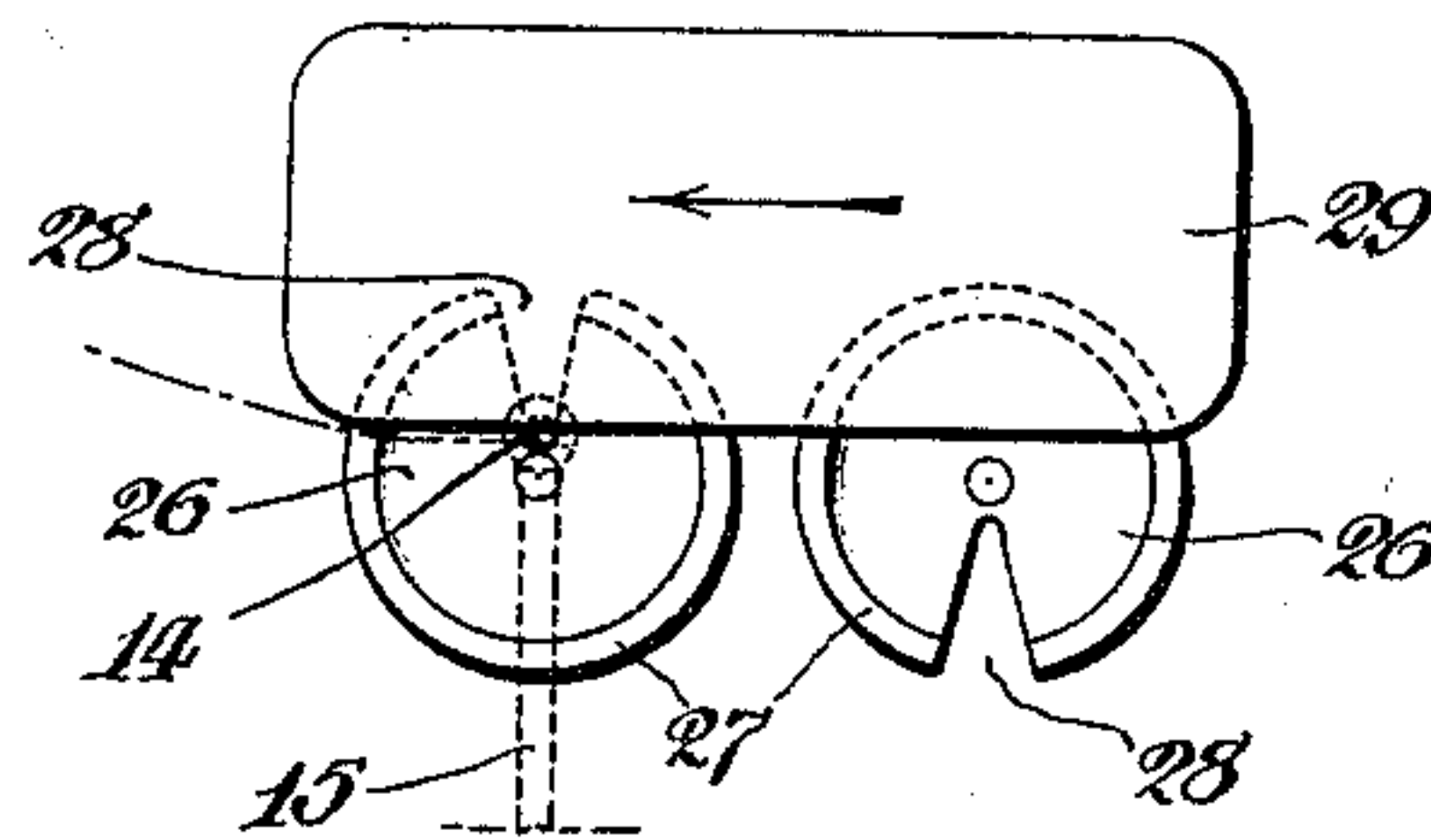


FIG. 5.

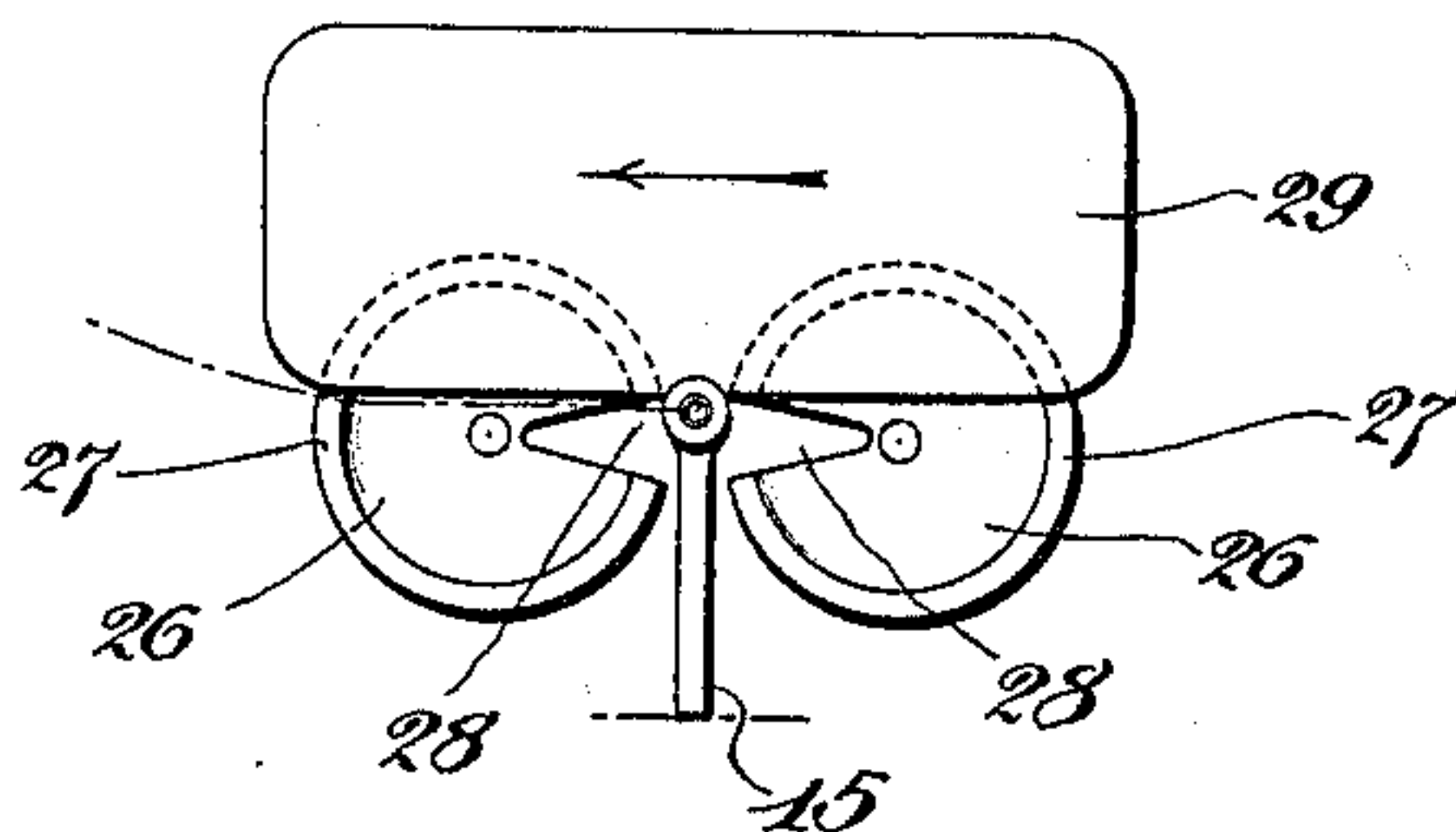
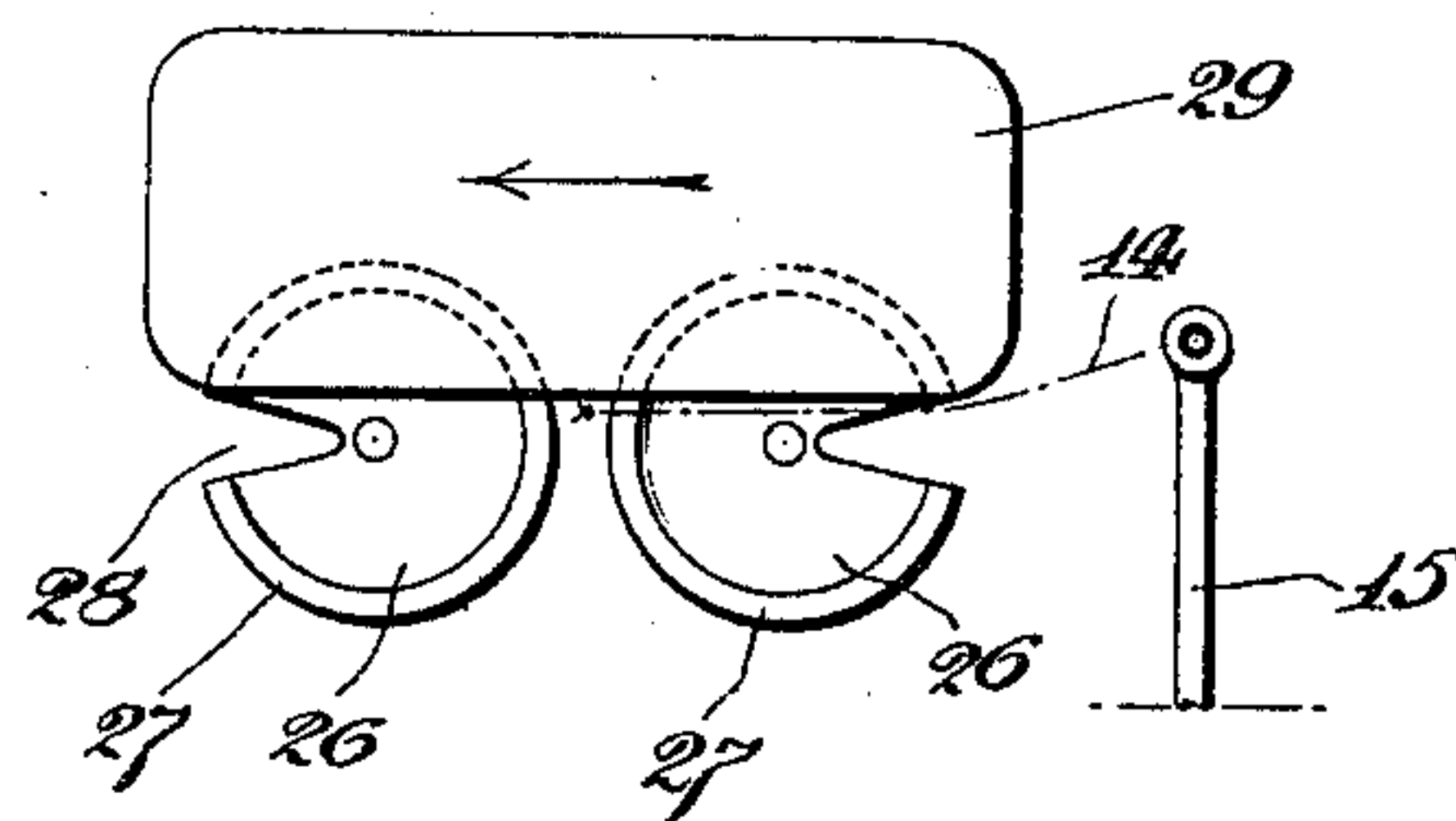


FIG. 6.



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# UNITED STATES PATENT OFFICE.

CONRAD SCHÜTZ, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF THREE-FOURTHS TO THOMAS K. OBER, ELLISON M. COOPER, AND HARRY D. BEASTON, OF SAME PLACE.

## BRAIDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 649,618, dated May 15, 1900.

Application filed June 17, 1899. Serial No. 720,921. (No model.)

*To all whom it may concern:*

Be it known that I, CONRAD SCHÜTZ, residing in the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Braiding-Machines, of which the following is a specification.

This invention relates to improved mechanism for carrying a set of bobbins in a circular path, from which threads are fed to a braiding-point, and passing threads fed from a second set of bobbins to the braiding-point alternately above and below the first-named bobbins.

The chief objects of the invention are to secure simplicity and compactness of construction, to obtain increased rapidity of operation, to reduce jarring and noise, and to avoid irregular action.

In the accompanying drawings, Figure 1 is a side elevation of a machine embodying my improvement. Fig. 2 is a top plan view of the same. Fig. 3 is a sectional elevation taken on the line *xx* of Fig. 2. Figs. 4, 5, and 6 are front elevations illustrating successive positions of the mechanism for driving the upper-bobbin carriers and passing the lower threads beneath the same.

In the drawings, the base 1 is provided with an arm 2, which supports the braiding-point 3. The driving-shaft 4 is journaled in suitable bearings 5 5' and has a bevel-gear 6 fixed on the end thereof which engages with a bevel-gear 7, fixed on the end of a hollow shaft 8, journaled within a stationary column 9, and with a bevel-gear 10, fixed on the end of a hollow shaft 11, journaled upon the stationary column 9. The revoluble shaft 11 has a spider 12 fixed thereon which carries the lower set of bobbins 13, from which the lower threads 14 are drawn and passed alternately above and below the upper set of bobbins by means of the reciprocating thread-guides 15. These thread-guides are reciprocated by the cranks 16 and shafts 17, having the gears 18 fixed thereon, which are revolved by the revolution of the spider 12 and by their engagements with the gear-track 19, fixed to the stationary column 9. The revoluble shaft 8 has a spider or frame 20 fixed thereon, the arms of which carry the shafts 21, journaled in bearings 22

22'. The inner end of each of these shafts has a gear-wheel 23 fixed thereon which is revolved through an idler-gear 24, carried by the spider 20 and engaging with the gear-track 25, fixed to the stationary column 11.

Upon the end of each rod 21 is fixed a disk 26, having a flanged periphery 27 and an open sector or notch 28. Each of the upper-bobbin carriers 29 is formed in two sections, as shown, each section being provided with two circular grooves 30 to receive the peripheral flanges 27 of its pair of disks 26, the two sections of each carrier being suitably clamped or bolted together upon a pair of the disks, so that their flanges may revolve within the grooves in the carriers. By this means motion of translation is given to the carriers, which are thus caused to carry their bobbins 31 in a circular path about the braiding-point 3. By means of the relative positions of the notches or sectors 28 in each pair of the disks 26 the lower threads 14 are successively delivered to the notch of the forward disk and carried thereby in the direction opposite to the movement of the carrier 29 and bobbin 31, as illustrated in Fig. 4, thence delivered to the notch of the rearward disk, as illustrated in Fig. 5, and carried thereby in the direction opposite to the movement of the carrier, thereby passing beneath the carrier and bobbin, as illustrated in Fig. 6.

It will appear from the foregoing description that the revolving shaft 4 and the gear-wheel 6, fixed thereon, drive the gear-wheels 7 and 10 in opposite directions, thus driving the spiders 20 and 12, through the connecting-shafts 8 and 11, in opposite directions. The opposite revolutions of the spiders 12 and 20 revolve the two sets of bobbins 13 and 31 in opposite directions. The stationary gear-track 19, engaging with the gear-wheels 18, which revolve the spider 12, reciprocates the thread-guides, so as to present the threads 14 alternately above and below the carriers 29, and the stationary gear-track 25, engaging through the idler-gears 24 with the gear-wheels 23, revolves the disks 26, so as to carry the threads 14, delivered from the thread-guides 15, beneath the upper-bobbin carriers 29. Hence the threads 14, drawn from the



lower bobbins, and the threads 32, drawn from the upper bobbins, are plaited at the braiding-point 3.

Having thus described my invention, I  
5 claim—

1. In a braiding-machine, a revoluble frame, a revoluble notched disk journaled on said frame, a carrier, and mechanism revoluble with said frame and coacting with said disk  
10 for supporting and actuating said carrier, substantially as specified.

2. In a braiding-machine, a revoluble frame, a pair of revoluble notched disks journaled on said frame, and a carrier constantly sup-  
15 ported on said disks and actuated thereby, substantially as specified.

3. In a braiding-machine, a carrier, a pair of revoluble notched disks wholly supporting said carrier, a frame upon which said disks  
20 are journaled, and mechanism for revolving said disks so that their respective notches revolve in synchronous relation, substantially as specified.

4. In a braiding-machine, a revoluble spi-  
25 der, a series of disks arranged in pairs revolvably mounted upon said spider, a series of carriers each supported by a pair of said disks, a fixed gear-track, gearing connected with said gear-track and mechanism for revolving  
30 said disks, and means for passing a thread between each carrier and its supporting-disks, for the purpose set forth.

5. In a braiding-machine, a spider, a series of notched disks arranged in pairs revolvably  
35 mounted upon said spider, a series of bobbin-carriers each supported by a pair of said disks, mechanism for revolving said disks so that the notches of each pair revolve in synchronous relation, in combination with a series of

reciprocating thread-guides, substantially as  
40 specified.

6. In a braiding-machine, a revoluble spider, a series of disks arranged in pairs journaled upon said spider, a gear-wheel fixed to each of said disks, a fixed circular gear-track,  
45 an intermediate gear operated by said gear-track for engagement with each of said first gears, and a bobbin-carrier supported and actuated by each pair of said disks, substantially as specified. 50

7. In a braiding-machine, a revoluble spider, a series of notched disks arranged in pairs journaled upon said spider, a gear-wheel fixed to each of said disks, a fixed circular gear-track, an intermediate gear operated by said  
55 gear-track for engagement with each of said first gears, a bobbin-carrier supported and actuated by each pair of said revoluble disks, the peripheries of said disks engaging and revolving within said carriers, in combination  
60 with a series of reciprocating thread-guides, substantially as shown and described.

8. In a braiding-machine, a carrier having a pair of circular grooves within the body thereof, in combination with a pair of notched  
65 disks having peripheral flanges which revolve within the respective grooves in said carrier, and means for revolving said disks in synchronous relation, substantially as specified.

In testimony whereof I have hereunto  
70 signed my name, in the presence of the subscribing witnesses, this 15th day of June, A. D. 1899.

CONRAD SCHÜTZ.

Witnesses:

THOMAS S. GATES,  
PERCIVAL H. GRANGER.