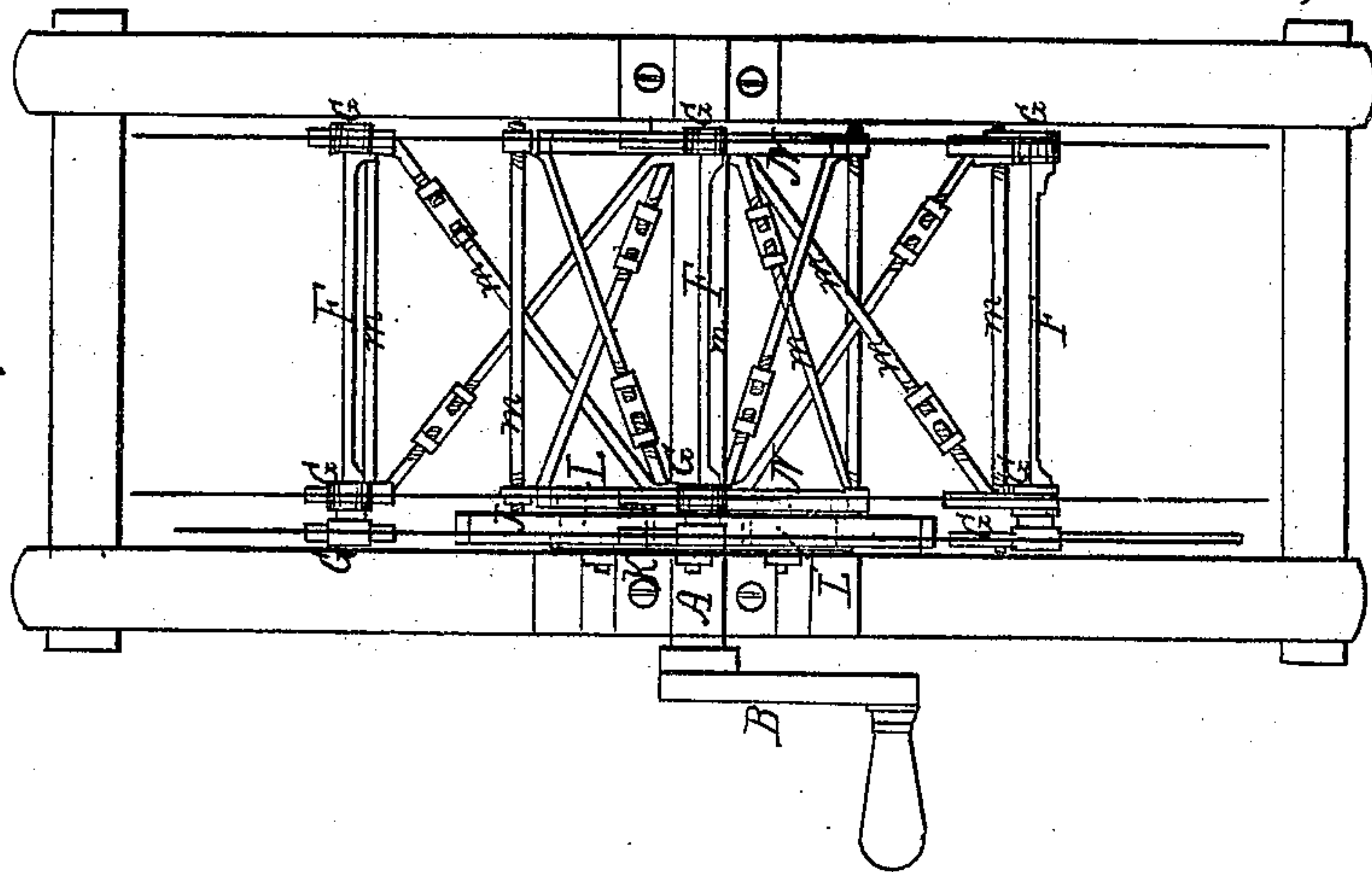


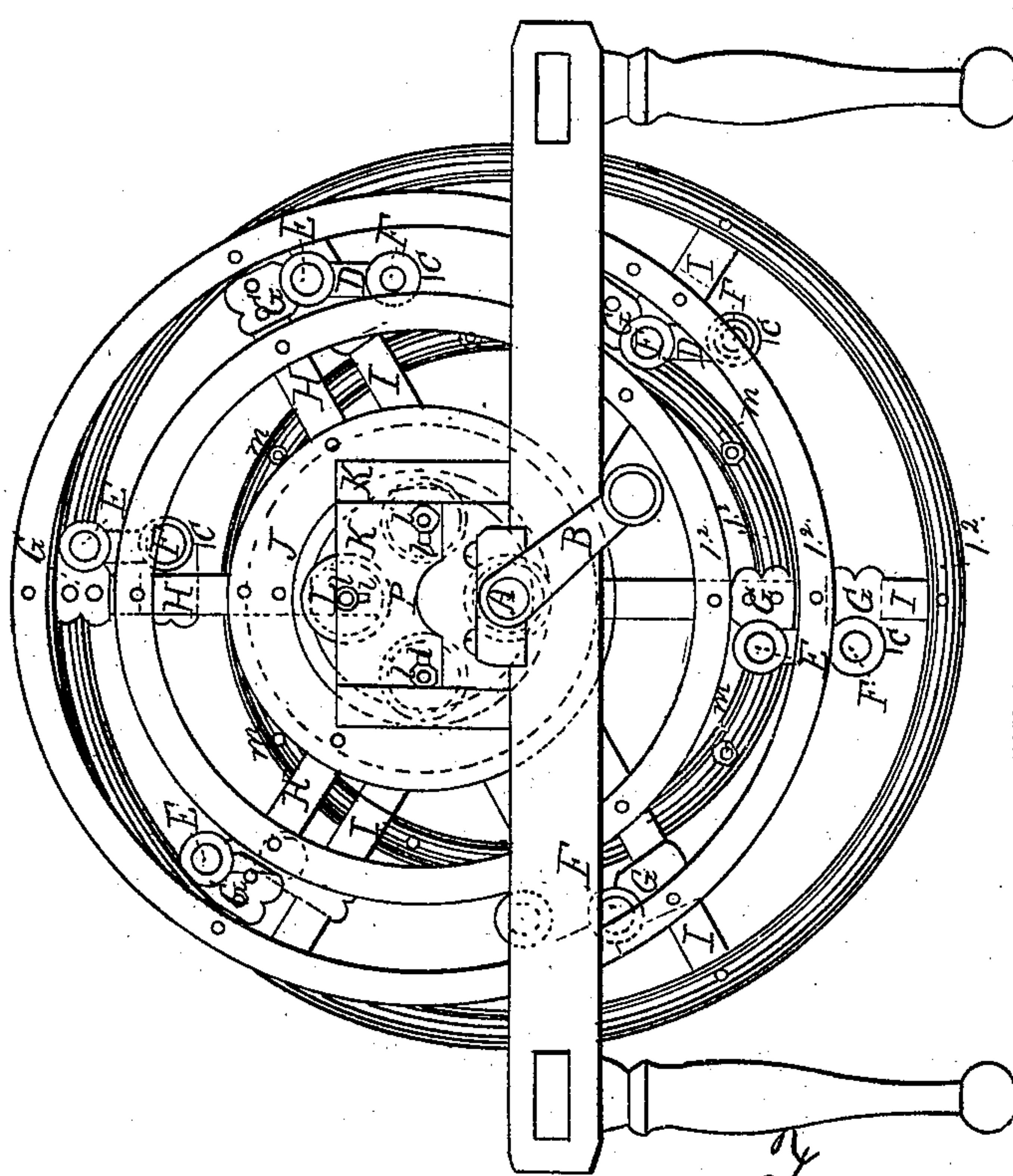
Sheet 1, 3 Sheets.

*T. Cooley.*  
*Paddle Wheel.*  
*Nº 2, 514.*  
*33, 518.*  
*Patented Oct. 22, 1861.*

*Fig. 2.*



*Fig. 1.*



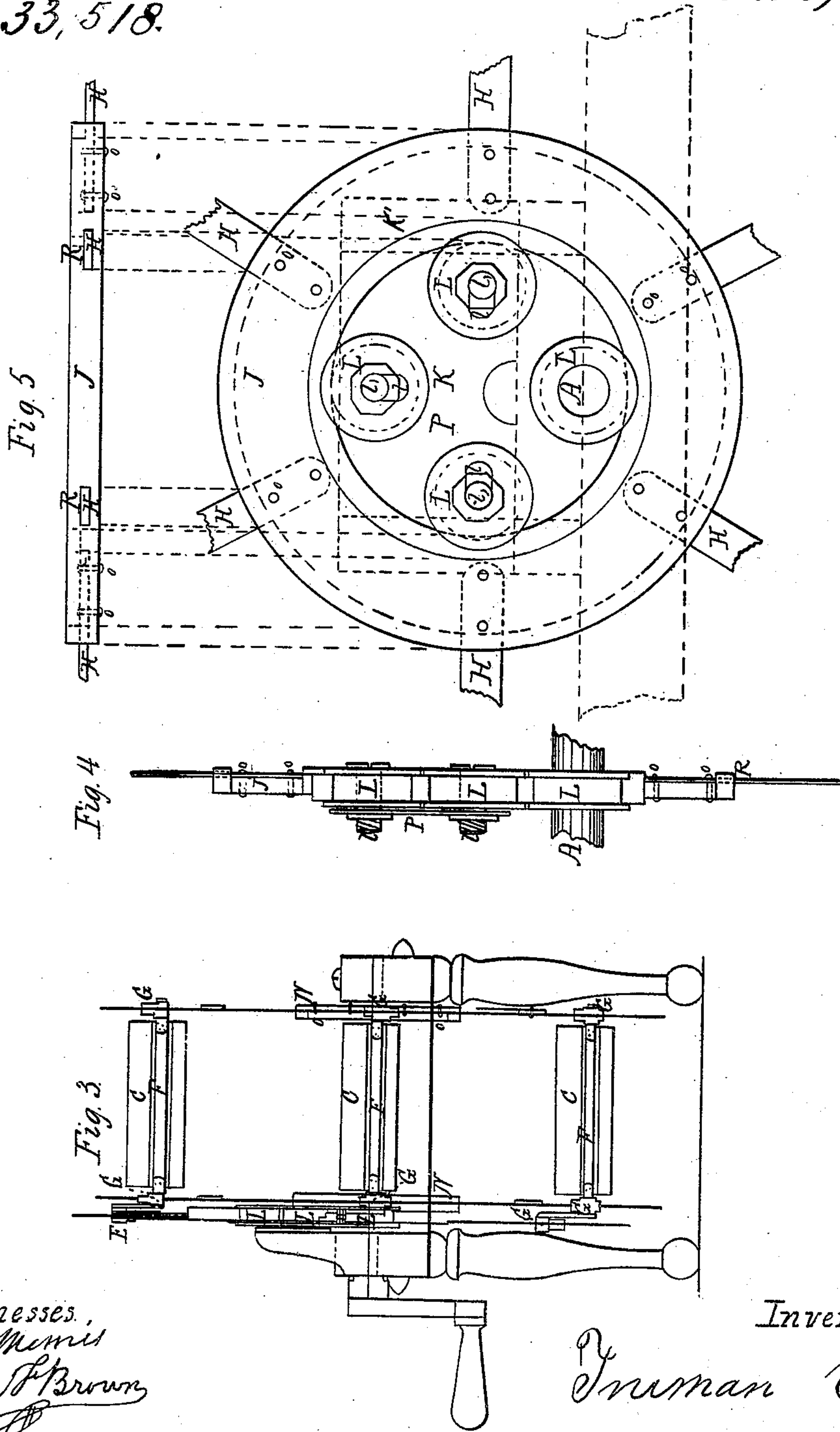
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N<sup>o</sup> 2,514.  
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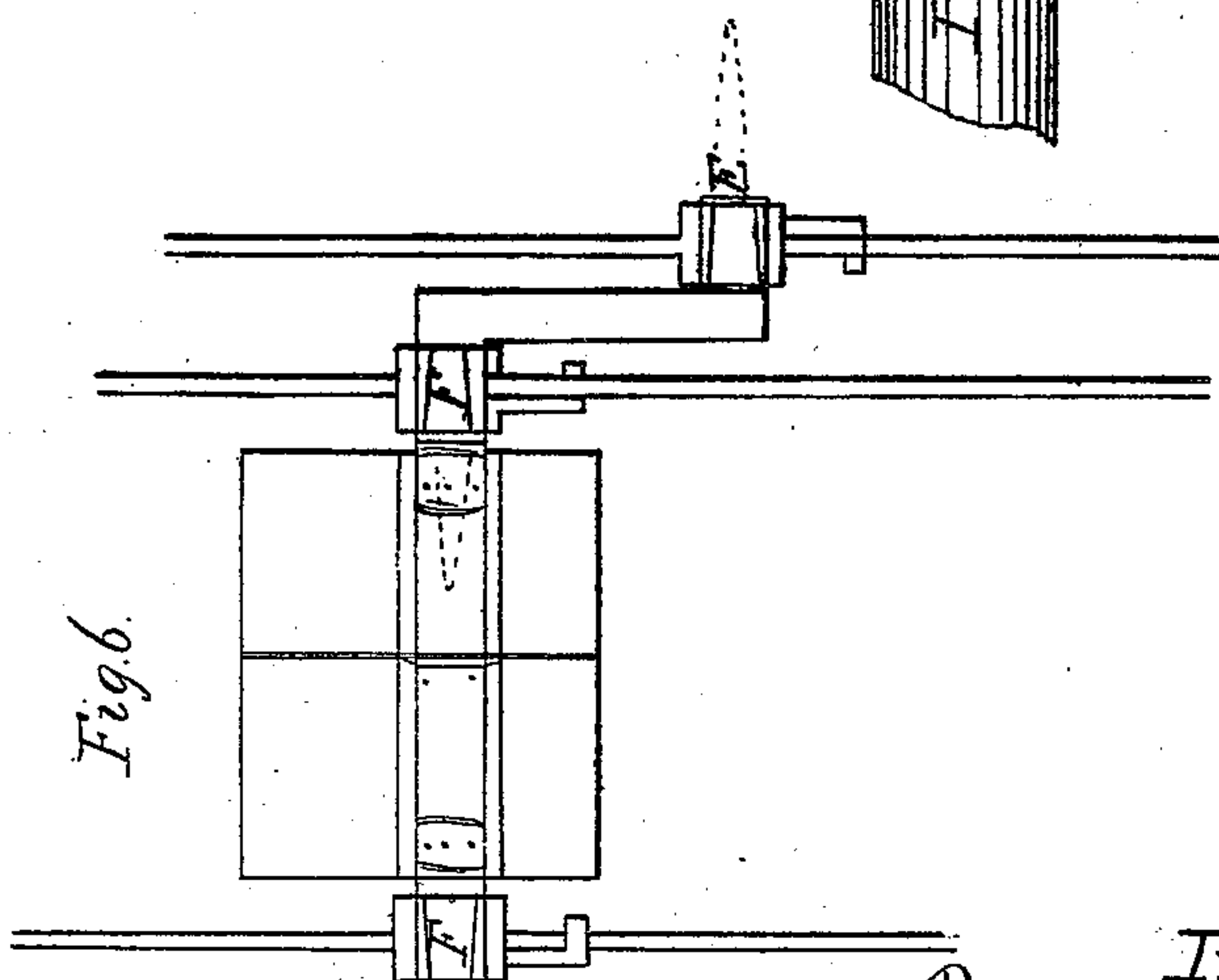
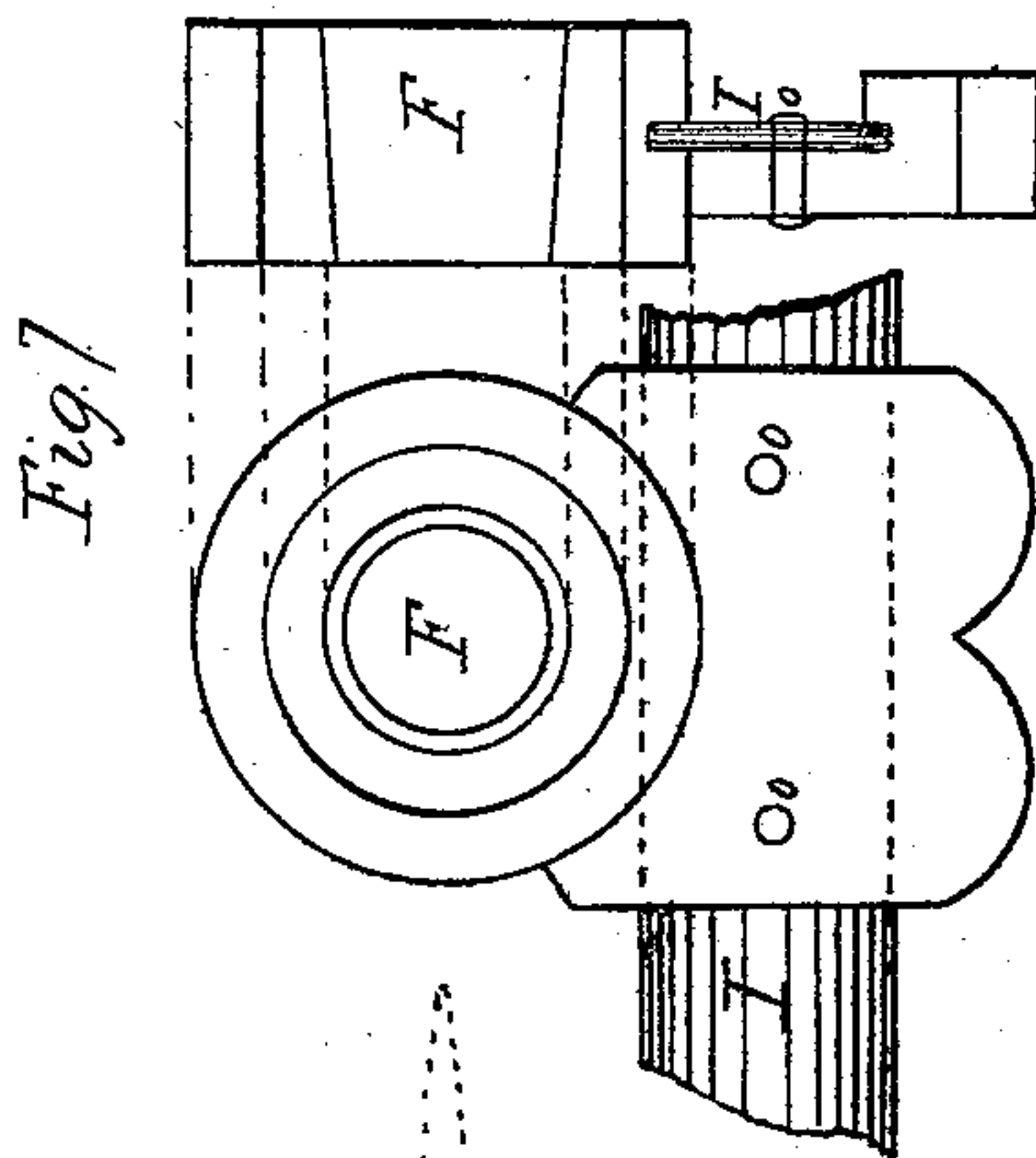
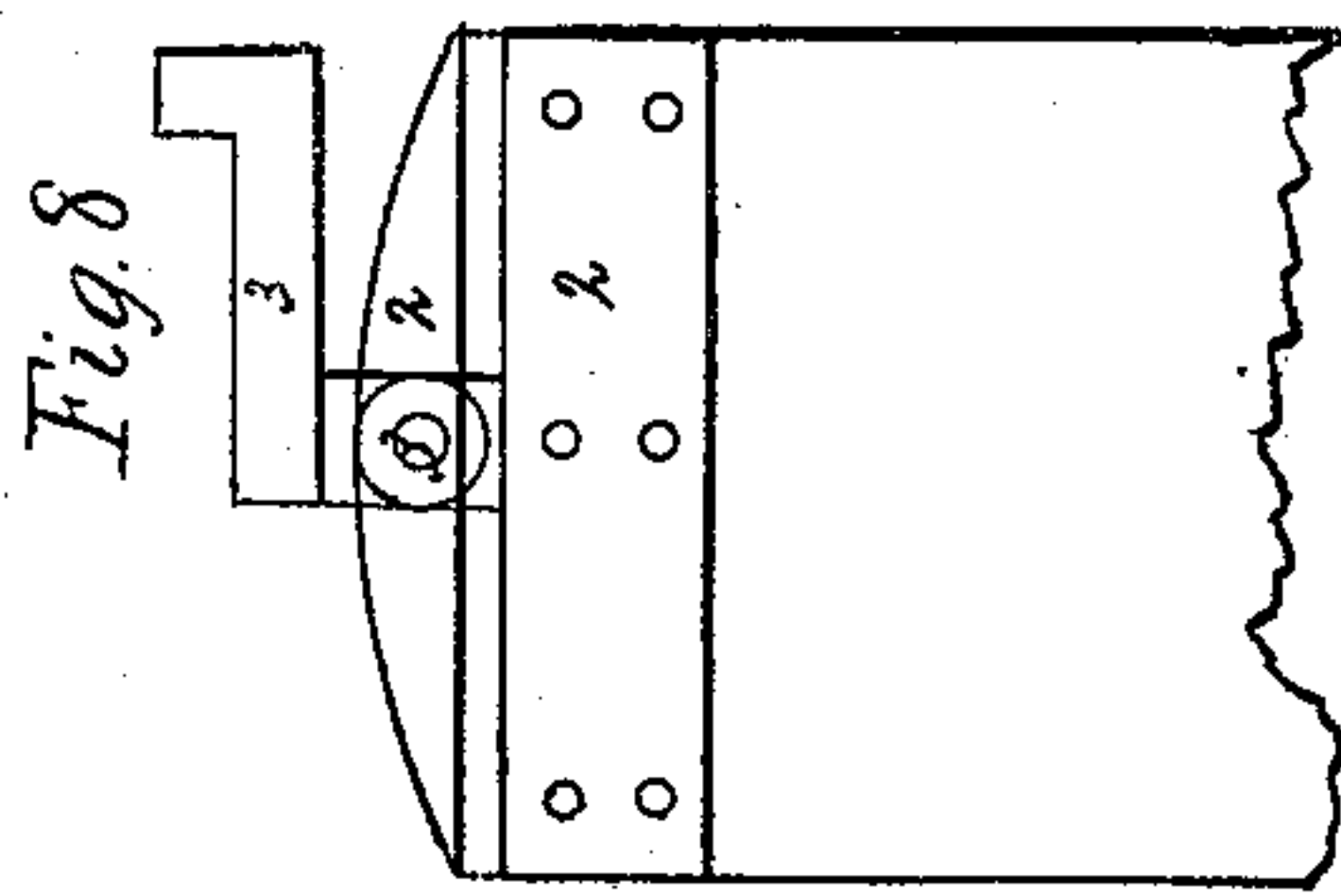
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Sheet 3. 3 Sheets.

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*N<sup>o</sup> 2,514.*  
*33,518.*

*Patented Oct. 22, 1861.*



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# UNITED STATES PATENT OFFICE.

TRUMAN COOLEY, OF BROCKPORT, NEW YORK.

## IMPROVED FEATHERING PADDLE-WHEEL.

Specification forming part of Letters Patent No. 33,518, dated October 22, 1861.

*To all whom it may concern:*

Be it known that I, TRUMAN COOLEY, of the village of Brockport, in the county of Monroe, and in the State of New York, have invented a new and Improved Mode of Constructing Feathering Paddle-Wheels; and I hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in an arrangement for the construction of feathering paddle-wheels for steamboats, as will be more fully set forth.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I form the body part of my wheel of iron, using therefor bars of suitable size for arms, and bars of smaller size which I use to form suitable circles for rims, which I bolt firmly to the arms, and which are set in flanges, attached to a shaft in the usual way; but the flange I form or make in a different way from that in use for wood arms by using a core to form the slant for the iron arm, as will more fully appear in the drawings. (See R, Fig. 5.)

A, Figs. 1, 2, 3, and 5, shows the main driving-shaft, to which I attach the flanges N, in which the arms H are set, and to these two sets of arms firmly secured to rims I attach the brackets marked G. These brackets are for holding the boxes or bearings for the journals E and F of the paddle-bar, E being the crank-pin and F the journals to the paddle-bar. The journals work in boxes made of lignum-vitæ prepared in hot tallow or oil. The flanges and arms being adjusted to the shaft, I proceed to put on the parallel and diagonal braces, as shown in Fig. 2, one end of which I secure to each of the flanges N and the other end to the parallel brace *m'*, putting nuts on both inside and out for the more perfectly adjusting and securing the whole work. Having completed this set of rims and having put on the brackets G and placed my bucket-bars F, I get two stanchions, as K, Fig. 1, and I secure them permanently to the boat. To those stanchions I attach a plate P, which is more fully shown in Fig. 5, and to this plate with the journals *l l l* I attach the friction-rollers L. I then place one of the friction-rollers on the main

driving-shaft A, then with dividers describe the circle of or the length I wish my crank B to be, and I set the four friction-rollers within this circle. I then arrange the flange Fig. 5. It will be seen that this flange works on the friction-rollers, and that by the slats cut in the plate P the rollers may be easily adjusted. I set the arms H in the flange and secure them by bolts or rivets, and then I set my brackets for the boxes of the crank-pin, those being made eccentric to the wheel first described. The crank-roller revolves on the shaft, and as all the wheels revolve the buckets will be kept in an upright or feathered position, as shown in Fig. 3.

Figs. 4 and 5 are enlarged sizes of the friction-rollers and the flange J, *l l l* are the slots cut in the plate, and *l'* are the journals to the friction-rollers.

Fig. 7 shows a cross-section of the journal-box, the shaded part of red indicating the lignum-vitæ boxes Y, and Fig. 6 shows a section of one of the paddles with the brackets, paddle, bar, and crank, and the form of the journals, which are made in a conical shape to relieve any friction in case the paddle-bar should spring. The paddles are set above the centers of the bars. o, Figs. 3 and 5, shows the rivets or bolts by which the arms are attached to the flanges.

Fig. 8 shows the form of a flange and crank by which a wood float or paddle may be used.

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

1. The plate P and manner of constructing the friction-rollers L, as connected with and adjusted to the flange J by the slots *l*. (Shown in Plate P.)

2. The manner of constructing and effecting the eccentric motion of the wheels I and H, operating the feathering of the paddle C by the crank Fig. 6, in combination with the lignum-vitæ box Y and the tapering journal, Fig. 7, also in combination with paddle C and paddle-bar F, with the diagonal and parallel braces *m'*, when constructed and arranged in the manner and for the purposes substantially set forth.

TRUMAN COOLEY.

Witnesses:

J. H. MERRILL,  
EDW. F. BROWN.