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FIG. 4.

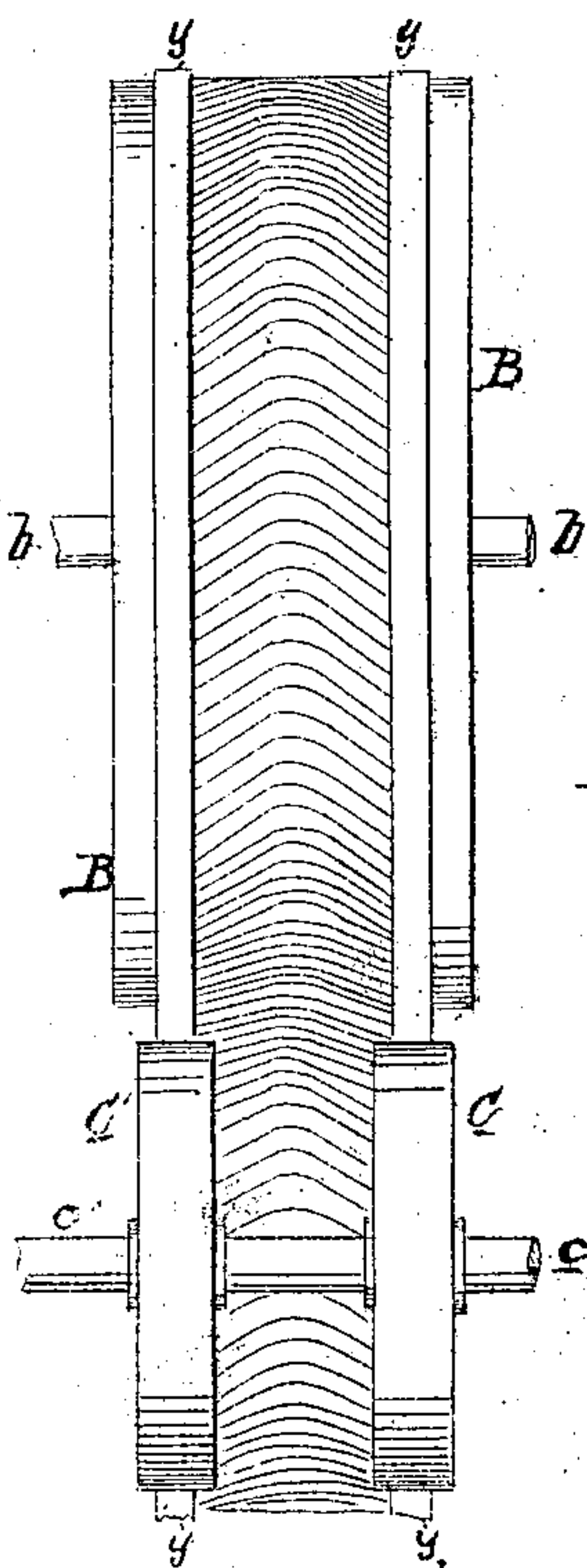
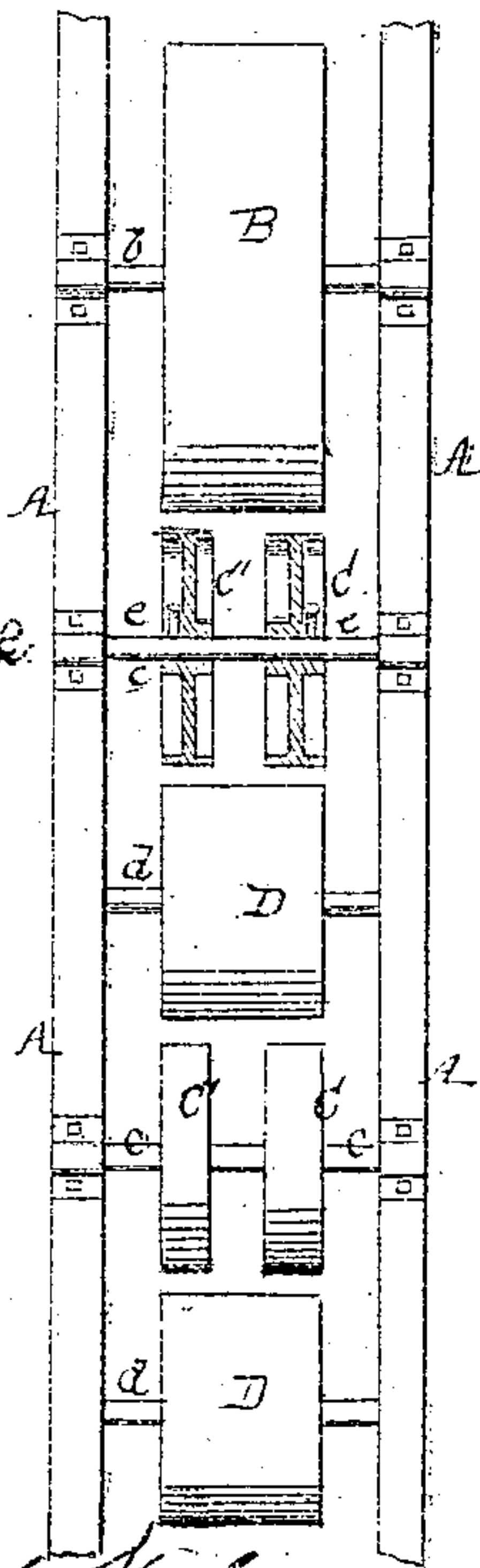
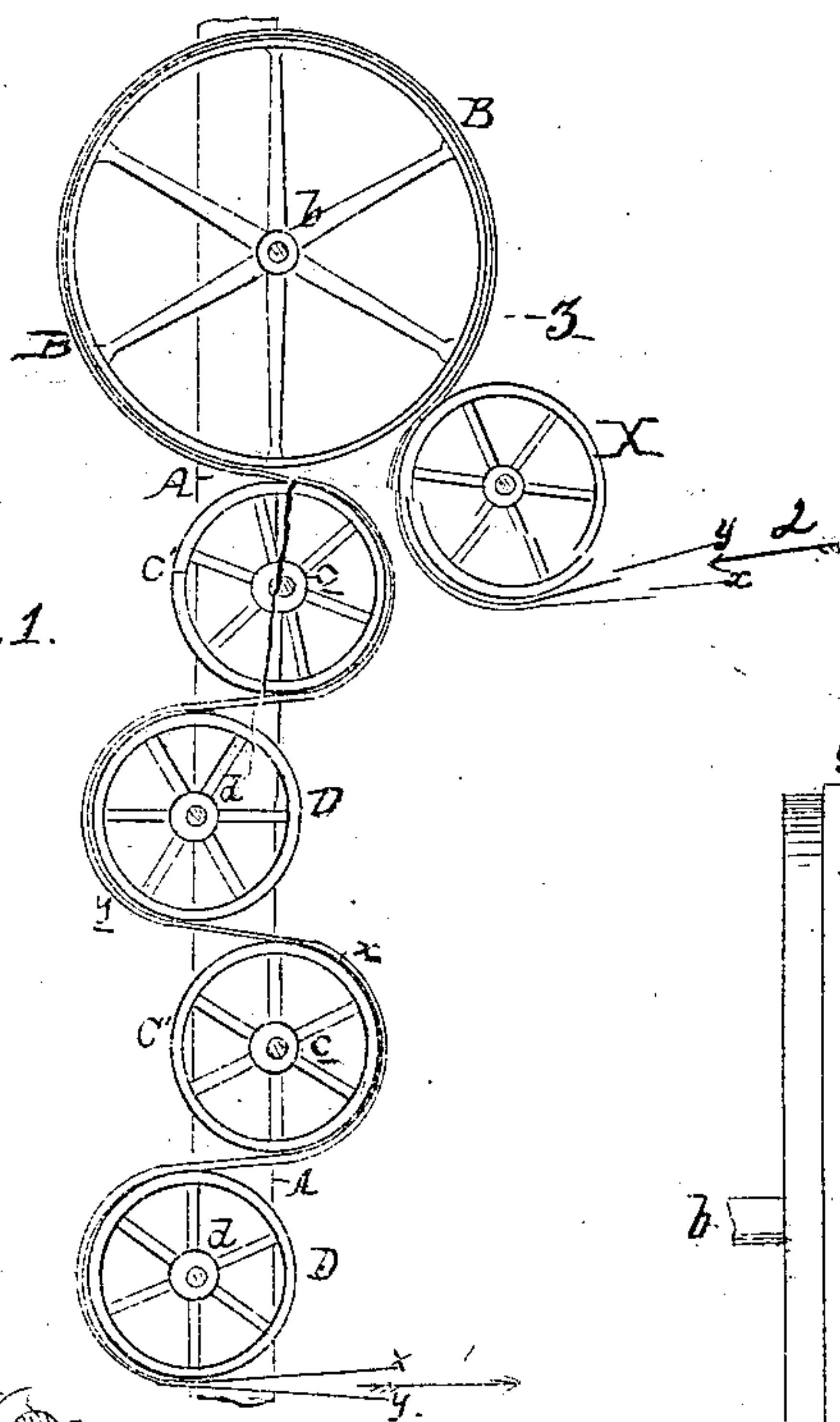
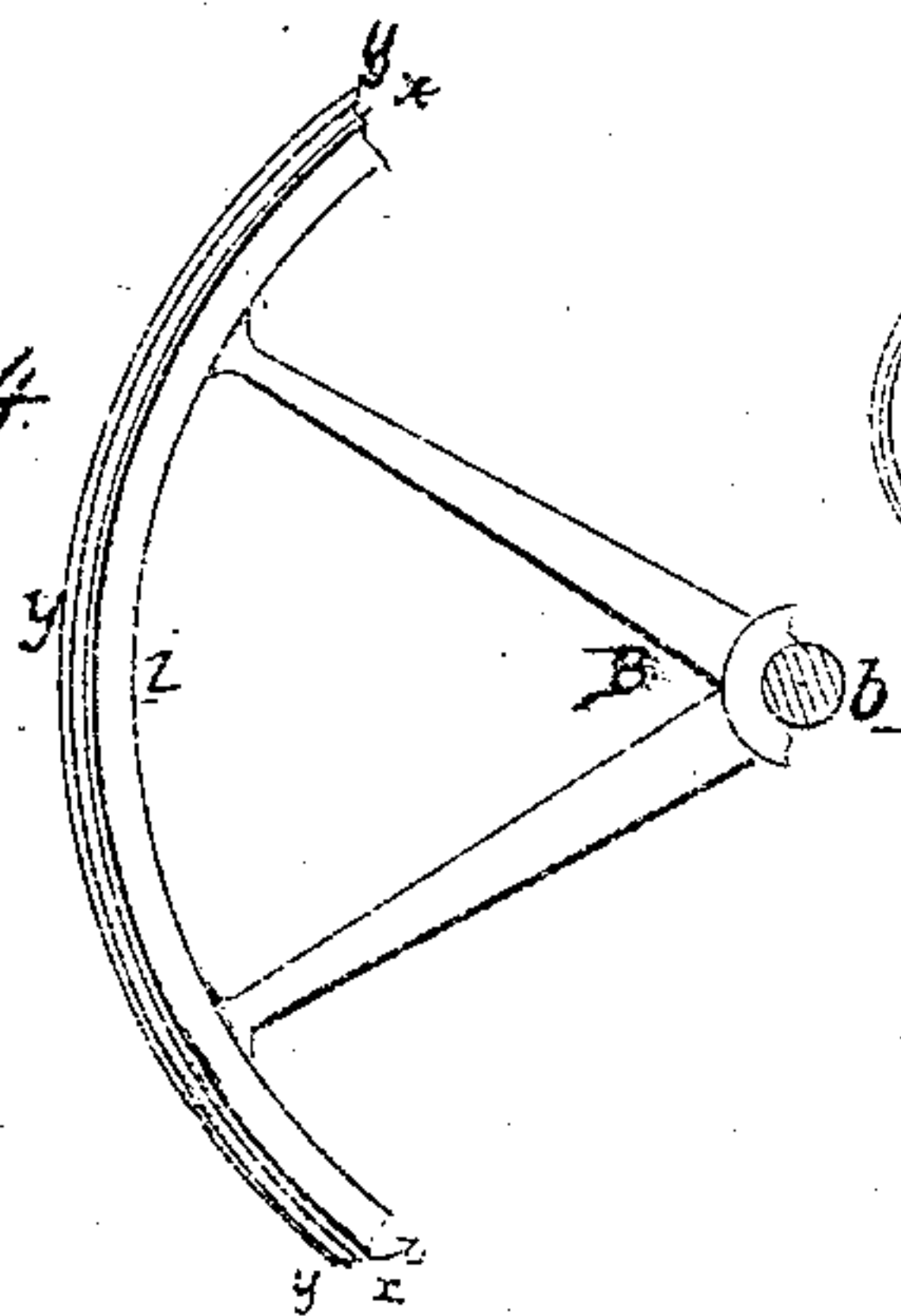


FIG. 3.

WITNESSES } Wm. Albert Steel.  
L. K. Francis Goddard

M. E. Lockwood  
By his Atty  
J. H. Howland

# United States Patent Office.

WILLIAM E. LOCKWOOD, OF PHILADELPHIA, PENNSYLVANIA

*Letters Patent No. 73,350, dated January 14, 1868.*

## IMPROVED APPARATUS FOR DRYING ENVELOPES.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, W. E. Lockwood, of Philadelphia, Pennsylvania, have invented an Improved Apparatus for Drying Envelopes; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists of two sets of endless tapes or bands, in combination with a train of pulleys arranged substantially as described hereafter, for the purpose of effectually drying the gummed flaps of envelopes.

In order to enable others to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a vertical sectional view of my improved mechanism for drying envelopes,

Figure 2 a face view of the same, and

Figures 3 and 4 detached views, drawn to an enlarged scale, illustrating my invention.

Similar letters refer to similar parts throughout the several views.

In suitable bearings secured to one side of the uprights A A, turns a spindle, *b*, carrying a large pulley, B, and beneath the latter, and turning in bearings upon the same side of the uprights A, are a number of spindles, *c c*, and on the opposite side of the uprights, and between each of the spindles *c c*, are a number of similar spindles, *d*. Upon each of the spindles *c* are two small, narrow pulleys, C and C', which are arranged to be adjusted laterally upon the spindles by means of set-screws *e e*, for a purpose described hereafter. (See fig. 2.) Each of the spindles *d* is provided with a single pulley, D, of the same diameter as the pulleys C, and having a width of face equal to that of the large pulley B. The spindle of a pulley, X, shown in red lines, fig. 1, turns on the frame of the envelope-machine, or any object adjacent thereto, and serves as a guide for the two pairs of endless tapes, each pair consisting of the tapes *x* and *y*, one in contact with the other, and shown in the drawing by red and blue lines. The tapes pass from the pulley X over the pulley B, and thence in a zigzag course round the train of pulleys, finally diverging at the arrow 1, from whence they are continued, passing over suitable guide-pulleys to the envelope-machine, and converging at the arrow 2, as they approach the pulley X. As the two sets of tapes (one set being at a distance from the other, as seen in fig. 3,) traverse slowly in the direction indicated, the envelopes pass from the machine, one after another, between the converging tapes at 2, and thence in the course traversed by the tapes until they are delivered with their flaps dried at the point (arrow 1) where the tapes diverge.

Heretofore envelopes have been dried by being carried with tapes round one large pulley, the objections to which plan are the following:

First, the overlapping flaps are gummed on first passing on to the wheel, and are only partially dried in passing around the same, unless the wheel be of inconveniently large diameter, or unless artificial heat or fans are to be used to complete the drying, which has the effect of cracking the gum.

Second, as motion is imparted to the large wheel by the tapes, it must necessarily be very light, and as it is of such large diameter, it has been found impossible to make it perfectly firm, consequently the tapes are apt to slip laterally in passing round its periphery, and the envelopes are sometimes disarranged or dropped.

Third, in passing round a wheel of large diameter, the gummed flaps of the envelopes are held so nearly flat that in drying they stick together.

In my improved apparatus the pulleys are covered with paper, shown at *i*, fig. 4, so that the envelopes shall be kept clean, and so as to give a firm hold to the tapes by which the pulleys are turned. The envelopes pass from the machine between the tapes on to the pulley B, and their overlapping flaps receive the gum at about the point *z*, fig. 1. The envelopes are carried slowly around the pulley B, and on to the pulleys C and C', which, as shown in fig. 3, are only wide enough to receive the tapes and the ends of the envelopes, the gummed flaps of the latter extending across the space between the two pulleys, thus being preserved from contact with any surface, and being exposed to the free action of the air. From the pulleys C and C' the envelopes pass on to the first single pulley, D, their gummed flaps being turned to the outside, as on the pulley B, thence they pass to the second set of pulleys, C and C', and so on until the envelopes are perfectly dry, when the tapes *x* and *y* are separated, and the envelopes discharged from between them into a suitable receptacle. When it is



desired to dry envelopes of another size, the set-screws *e* are loosened, the sets of tapes moved closer together or further from each other, and the pulleys C and C' adjusted to the proper position, the rims of the wheels B and D being of a width sufficient for the largest-sized envelopes.

The advantages gained by the employment of a train of wheels of small diameter are, first, economy of room, extended drying-surface, and the facility with which the envelopes, while being dried, can be transferred from one story of a building to another; second, the gummed flaps of the envelopes are dried slowly by exposure to the air, and hence the gum will not be liable to crack; third, the pulleys can be made entirely of metal, and are perfectly firm, so that the tapes have no tendency to slip laterally; and, fourthly, the envelopes held on curved surfaces are slightly bent, as they are carried round, and their gummed flaps consequently thrown out and separated one from the other, by which means they are prevented from sticking together.

I claim as my invention, and desire to secure by Letters Patent—

1. Two sets of endless tapes or bands, in combination with a train of pulleys, arranged substantially as described, for the purpose specified.

2. The combination of the narrow pulleys C C' with the broader pulleys D, and the two sets of bands, for the purpose specified.

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

WILLIAM E. LOCKWOOD.

Witnesses:

JOHN WHITE,

W. J. R. DELANY.