

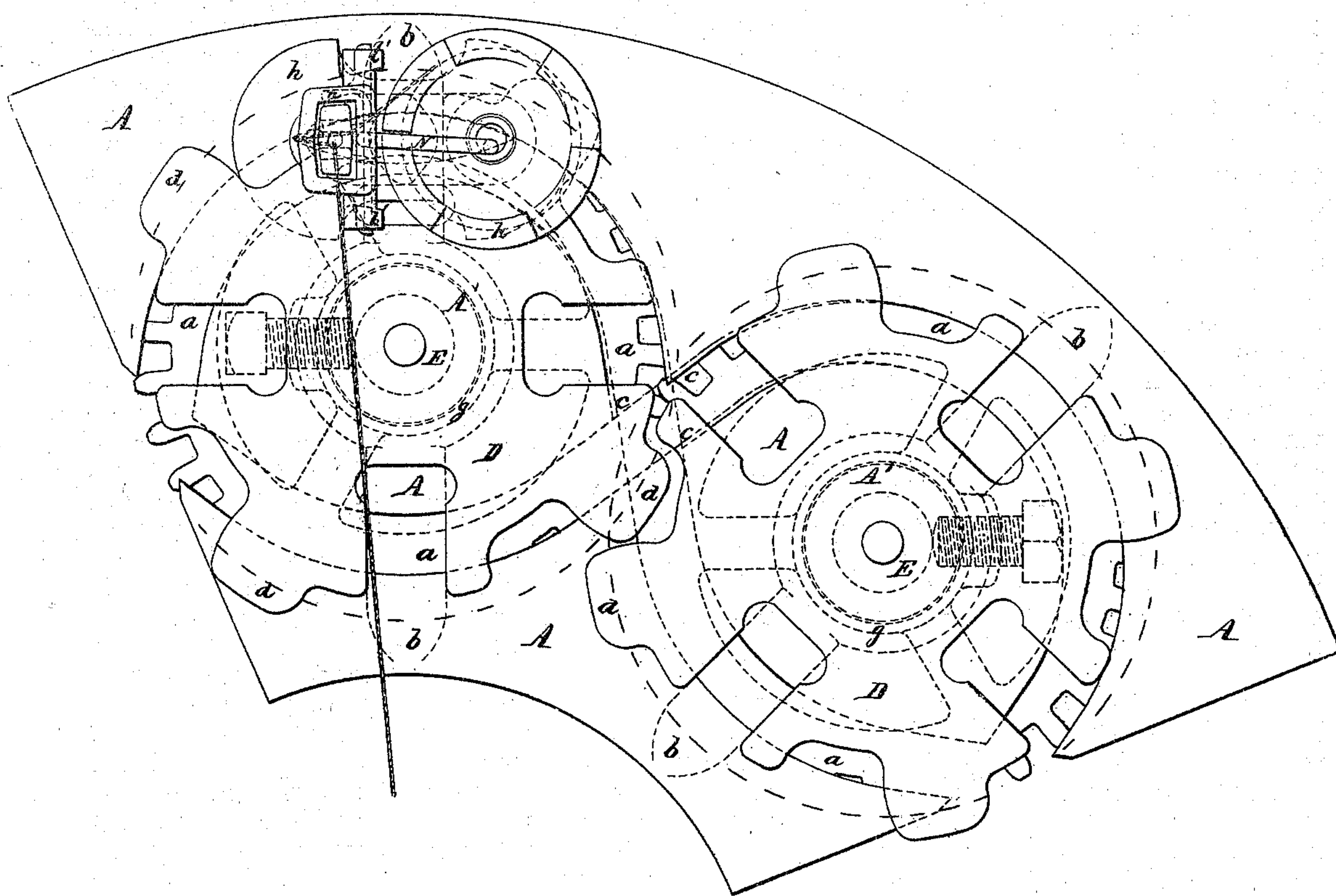
JAMES D. BUTLER.

Improvement in Braiding Machines.

No. 124,882.

Patented March 26, 1872.

Fig. 2.



WITNESSES.

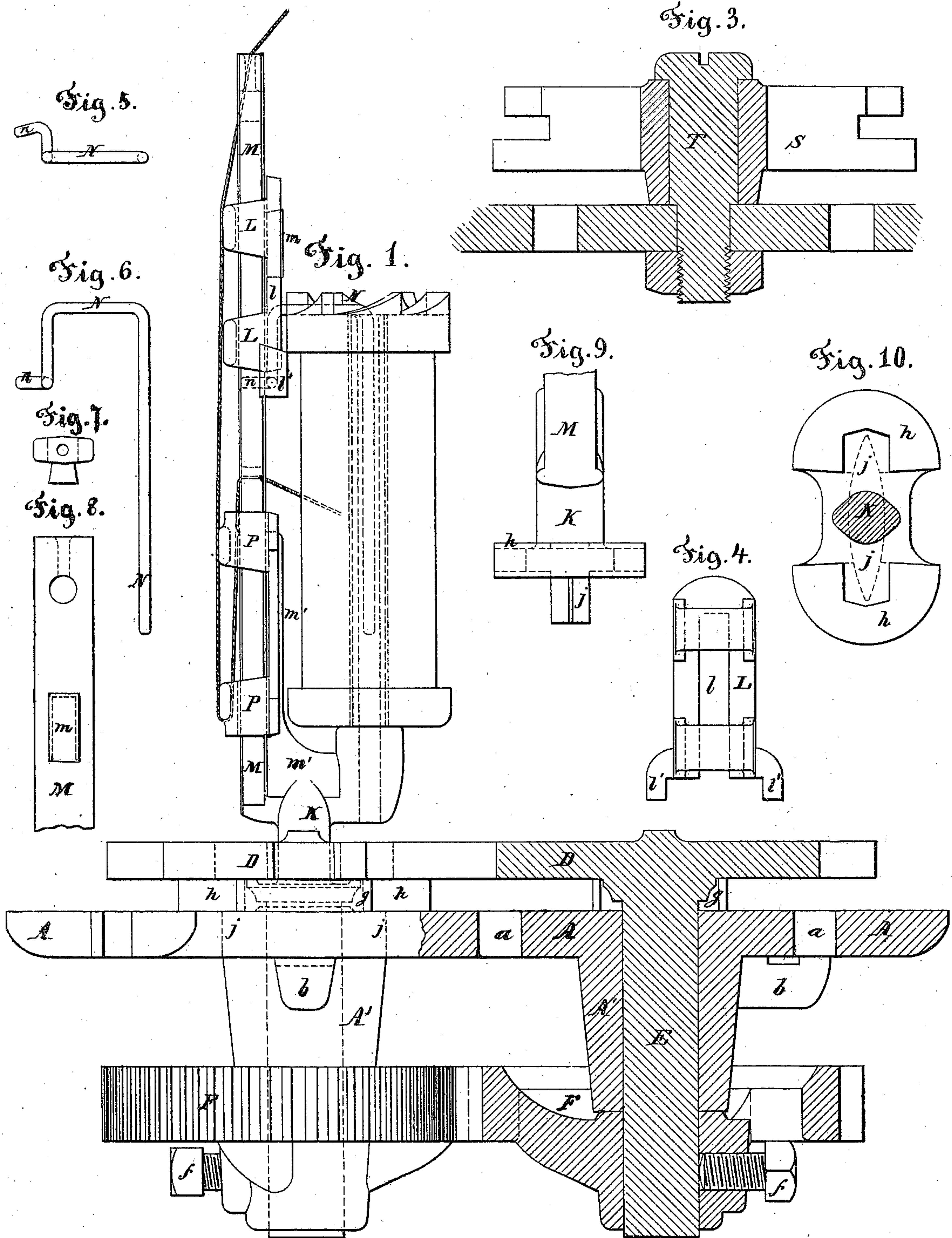
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# UNITED STATES PATENT OFFICE.

JAMES D. BUTLER, OF LANCASTER, MASSACHUSETTS, ASSIGNOR TO BUTLER BRAIDER COMPANY.

## IMPROVEMENT IN BRAIDING-MACHINES.

Specification forming part of Letters Patent No. 124,882, dated March 26, 1872; antedated March 8, 1872.

### SPECIFICATION.

I, JAMES D. BUTLER, of Lancaster, in the county of Worcester and State of Massachusetts, have invented certain Improvements in Braiding-Machines, of which the following is a specification:

My invention relates to an improved construction and arrangement of the guide-plate and the wheels for moving the travelers, of the travelers themselves, and of the yarn-delivery and tension apparatus.

Figure 1 is a side elevation, part in section, of a portion of a machine embodying my invention. Fig. 2 is a plan of the same. Fig. 3 is a vertical section of a modified form of the wheels and guide-plate. Fig. 4 is an elevation of the check-weight by itself. Fig. 5 is a plan of the spool-catch by itself. Fig. 6 is an elevation of the same. Fig. 7 is a plan of the upper part of the traveler part by itself, showing the rib for steadying the check-weight. Fig. 8 is an elevation of the same. Fig. 9 is an end elevation of the lower part of the traveler by itself; and Fig. 10 is a plan of the same.

A is the guide-plate, and A' are hubs upon it. *a* are tracks in it, in which the travelers run; and *b* are ribs for connecting the different parts of the plate. Where each track is cut by the other, as at *c*, there is a tendency, in the running of the machine, for the point of the travelers to strike after crossing upon the point of the guide-plate on the outside of the curve of the track in which the traveler is running. To correct this difficulty I offset each track a little at the crossing. At *c* the broken and dotted lines represent the imaginary continuation of the tracks as found on the other side of the crossing, while the full lines show the tracks as actually made. The difference between the broken and dotted and the full lines indicates the amount of the offset. D are slotted wheels, by which the travelers are driven. With each of these wheels a shaft, E, is cast, which shaft turns in a bearing in the hub A' of the guide-plate, and is driven by a gear, F, which is fastened to it by a set-screw, *f*. These different gears F run together in the same train. The lower part *j* of the traveler-foot runs in the tracks *a* of the guide-plate, and serves to guide the trav-

elers when driven by the wheels in the plane of the plate. The holes in the guide-plate, in which the shafts E run, being made perpendicular to the upper face of this plate, and the lower sides of the wheels D being faced off square with the shaft E, the upper face of the plate and the lower faces of the wheels will be parallel, unless the shaft shall rock in the hole in the plate. It is for the purpose of preventing such rocking that the hubs A' are made upon the guide-plate, giving a long bearing for the shaft. Between the wheel and plate, and inclosing the shaft, is the ring *g*. The rings for the different wheels are of equal length, and there is, therefore, a space of uniform width between the plate and the wheels all around the machine. The winged part *h* of the traveler-foot is just thick enough to fill this space between the plate and the wheels, and thus the traveler is kept in an upright position as it moves upon the plate. The wheels D are made with the projecting parts *d*, which reach well over upon the winged part *h* of the traveler-foot, and give a much better bearing to prevent the traveler from rocking than would be possible with the largest circle which would run in the space allowed for each wheel in the machine. This arrangement of the driver wheels and gears and the guide-plate, in connection with the traveler-foot has a very decided merit in the way of simplicity and durability.

The foot and neck *h j* K has some points of resemblance to what I have heretofore used. But between this and the spool part of the traveler it was necessary, in my former plan, to have another part similar to *j*. The bringing the upper part of the traveler down closely upon the neck K is, however, now allowed by the new arrangement of the whole machine, and gives an entirely different traveler from the other, and one which, in its comparative compactness and simplicity, is a great improvement upon that.

The modification of the driver-wheels, shown in Fig. 3, is readily understood from the drawing. S is a slotted gear of a form now well-known, and has its under side faced off. It turns upon the pin T, which is set rigidly in the guide-plate.

I have for some time used upon the traveler



what I have called a check-weight, in connection with the yarn-tension weight and spool-catch. I have now made some improvements in these parts, and have modified the traveler with reference to them. *L* is the check-weight, and *l* a slot in it. This slot is made to give room for the rib *m* on the slide-post *M* of the traveler. The shoulder at the top of the slot strikes upon the top of the rib, and thus the weight is supported and kept from sliding down too far upon the post. Having the sides of the slot so that they can bear upon the sides of the rib also keeps the weight from twisting upon the post so much as it would otherwise do with the loose fit which is necessary, and considerably relieve the main part of the post from side wear. The lower part of the check-weight is made wide, so as to give room between the legs *U* and the post for the end *n* of the spool-catch *N*. In the working of the machine these legs *U* are struck by the tension-weight before the catch is, and, therefore, the latter is protected from the said tension-weight as it jumps in the general way described in my previous patent. But the legs *U* are not essential, some substitute for them being easily provided, and other shapes may be given to the weight *L* beside the one shown; and the weight may be supported upon the spool-catch, if desired, instead of upon the rib *m*. But what I deem material is the slot *l*, which, in connection with the rib *m*, keeps the weight in place and gives additional bearing. I think it much better also to have the check-weight, which must of necessity be somewhat heavy, supported upon *m* rather than upon the spool-catch, which with reference to its own proper work, simply might be so slender as not to be adapted to support much extra weight.

As the rib *m* is of service, as above pointed out, in keeping the check-weight from twisting upon the post and giving additional bearing for it as it slides, so is the rib *m'* of equal

value in these respects with regard to the tension-weight *P*. This rib is attached to the lower part of the post, and serves to brace it at just the point where it needs extra strength without adding to the size of the post proper, which the tension-weight incloses. Both these ribs *m* and *m'* are believed to be new, and either may be used without the other.

The spool-catch *N* slides in the hollow spool-spindle, and bears against the slide post at *n*. The part running in the spindle can be made quite long without interfering with anything else, and can thus get a better bearing than any heretofore known. It is very light and can be cheaply made by bending a piece of common wire.

I claim as my invention—

1. The combination of the guide-plate and the slotted driver wheels with each other, and with the travelers, arranged to hold the feet of the travelers between the driver wheels and the guide-plate, substantially as described.
2. The driver wheels *D* with the projections *d*, substantially as and for the purposes described.
3. The driving and guiding part *K h j* of the traveler adapted to work in connection with the guide-plate and driver wheels, substantially as described.
4. The check-weight *L*, formed with a slot or groove, *l*, adapted to receive the guide or rib *m* on the post *M*, substantially as described.
5. The combination of the tension-weight with the rib *m'* upon the traveler-post, substantially as described.
6. The spool-catch, constructed and operating substantially as described.
7. The ribs *m* and *m'*, upon the post *M*, which carries the tension and check-weights, substantially as described.

JAMES D. BUTLER.

Witnesses:

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